Appendix A. Main Outcomes of Interest

Table A1: Outcomes of interest

Measure	Description
Metabolic/inflammatory control	Phosphorus level
Metabolic/inflammatory control	Phosphorus binders
Metabolic/inflammatory control	Potassium level
Metabolic/inflammatory control	Normalized protein catabolic rate
Metabolic/inflammatory control	Albumin level
Metabolic/inflammatory control	CRP level
Metabolic/inflammatory control	Hemoglobin level
Metabolic/inflammatory control	ESA use
Hypertension control pressure control	Clinic SBP (and report how it was measured)
Hypertension control pressure control	Clinic DBP (and report how it was measured)
Hypertension control pressure control	ABPM average SBP
Hypertension control pressure control	ABPM average DBP
Hypertension control pressure control	Number of BP meds
Hypertension control pressure control	LV mass
Morbidity	Hospitalization rate
Morbidity	CVD event rate
Morbidity	MI events
Morbidity	Stroke events
Morbidity	CHF events
Morbidity	PAD events
Morbidity	Infection event rate
Morbidity	Vascular Access interventions/thrombosis
Morbidity	Compliance and adherence
Morbidity	Time to recovery from hemodialysis
Quality of life	Sf-36 overall
Quality of life	Sf-36 each component
Quality of life	KDQOL overall
Quality of life	KDQOL each component
Quality of life	Other QOL instruments?
Quality of life	Patient compliance
Quality of life	Patient burden/Caregiver burden
Mortality	Overall mortality rate
Mortality	CVD mortality rate
Mortality	Infection mortality rate
Harms of more frequent dialysis	Hypotension
Harms of more frequent dialysis	Vascular access complications/thrombosis
Harms of more frequent dialysis	Loss of residual kidney function
Harms of more frequent dialysis	Patient and caregiver burden
Pregnancy	Surviving infants
Pregnancy	Neonatal deaths
Pregnancy	Spontaneous abortions
Pregnancy	Birth weight
Pregnancy	Preterm delivery
Pregnancy	Malformations
Pregnancy	Other neonatal complications

ABPM=Ambulatory blood pressure measure; BP=Blood pressure; CHF=Congestive heart failure; CRP=C-reactive protein; CVD=Cardiovascular disease; DBP=Diastolic blood pressure; ESA=Erythropoiesis stimulating agent; KDQOL=Kidney Disease Quality of Life Instrument; LV=Left ventricular; MI=Myocardial infarction; PAD=Peripheral artery disease; SBP=Systolic blood pressure

Appendix B. Detailed Search Strategy

Table B1. PubMed search string for Key Questions 1 thru 3, run on October 21, 2019

#	String
1	"Kidney Failure, Chronic"[Mesh]
2	"kidney failure"[tiab]
3	"end stage renal"[tiab]
4	“end stage kidney”[tiab]
5	“chronic renal failure”[tiab]
6	ESRD[tiab]
7	ESKF[tiab]
8	ESKD[tiab]
9	ESRF[tiab]
10	Combine 1 thru 9 with “OR”
11	"Renal Dialysis"[Mesh]
12	hemodialysis[tiab]
13	dialysis[tiab]
14	haemodialysis[tiab]
15	Combine 11 thru 14 with “OR”
16	Frequency[tiab]
17	frequent[tiab]
18	day[tiab]
19	daily[tiab]
20	week[tiab]
21	weekly[tiab]
22	quotidian[tiab]
23	Duration[tiab]
24	nocturnal[tiab]
25	night[tiab]
26	nightly[tiab]
27	overnight[tiab]
28	“Over night”[tiab]
29	intensive[tiab]
30	extended[tiab]
31	Combine 16 thru 30 with “OR”
32	10 AND 15 AND 31
	Limit to 2005 to present

Table B2. PubMed search string for Key Questions 4, run on October 21, 2019

#	String
1	"Kidney Failure, Chronic"[Mesh]
2	"kidney failure"[tiab]
3	"end stage renal"[tiab]
4	“end stage kidney”[tiab]
5	“chronic renal failure”[tiab]
6	ESRD[tiab]
7	ESKF[tiab]
8	ESKD[tiab]
9	ESRF[tiab]
10	Combine 1 thru 9 with “OR”
11	“Symptom Assessment"[Mesh]
12	“Patient Reported Outcome Measures"[Mesh]
13	"Quality of Life"[Mesh]
14	"quality of life"[tiab]
15	Combine 11 thru 14 with “OR”
16	symptom[tiab]
17	“patient reported outcome”[tiab]
18	PRO[tiab]
19	Combine 16 thru 18 with “OR”
20	measure[tiab]
21	measurement[tiab]
22	tool[tiab]
23	assessment[tiab]
24	Combine 20 thru 23 with “OR”
25	15 OR (19 AND 24)
26	10 AND 15

Table B3. Embase Search String, run on October 21, 2019

#	String
1	'chronic kidney failure'/exp OR 'chronic kidney failure':ab,ti
2	'kidney failure':ab,ti KQ1
3	'end stage renal':ab,ti
4	'end stage kidney':ab,ti
5	'chronic renal failure':ab,ti KQ1
6	'esrd':ab,ti
7	'eskf':ab,ti
8	'eskd':ab,
9	'esrf':ab,ti
10	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9
11	'symptom assessment'/exp OR 'symptom assessment':ab,
12	'quality of life'/exp OR 'quality of life':ab,ti
13	'patient reported outcome measure':ab,ti OR 'patient reported outcome measures':ab,ti
14	#11 OR #12 OR #13
15	'patient-reported outcome'/exp OR 'patient reported outcome':ab,ti
16	'symptom'/exp OR symptom:ab,ti
17	#15 OR #16
18	measure:ab,ti
19	measurement:ab,ti
20	tool:ab,ti
21	assessment:ab,ti
22	#18 OR #19 OR #20 OR #21
23	#17 AND #22
24	#14 OR #23
25	#10 AND #24
26	#25 AND (2005:py OR 2006:py OR 2007:py OR 2008:py OR 2009:py OR 2010:py OR 2011:py OR 2012:py OR 2013:py OR 2014:py OR 2015:py OR 2016:py OR 2017:py OR 2018:py OR 2019:py)
27	'test'/exp OR test
28	'chronic kidney failure'/exp OR 'chronic kidney failure':ab,
29	'kidney failure':ab,ti
30	'end stage renal':ab,ti
31	‘end stage kidney':ab,ti
32	'chronic renal failure':ab,ti
33	'esrd':ab,ti
34	'eskf':ab,ti
35	'eskd':ab,ti
36	'esrf':ab,ti
37	#27 OR #28 OR #29 OR #30 OR #31 OR #32 OR #33 OR #34 OR #35 OR #36
38	'hemodialysis'/exp OR hemodialysis:ab,ti
39	haemodialysis:ab,ti
40	dialysis:ab,ti
41	#38 OR #39 OR #40
42	frequncy:ab,ti
43	frequent:ab,ti
44	day:ab,ti
45	daily:ab,ti
46	week:ab,ti
47	weekly:ab,ti
48	quotidian:ab,ti
49	duration:ab,ti
50	nocturnal:ab,ti
51	night:ab,ti
52	nightly:ab,ti
53	overnight:ab,ti
54	'over night':ab,ti
55	intensive:ab,ti
56	extended:ab,ti

#	String
57	#42 OR #43 OR #44 OR #45 OR #46 OR #47 OR #48 OR #49 OR #50 OR #51 OR #52 OR #53 OR #54 OR #55 OR #56
58	#37 AND #41 AND #57
59	#58 AND (2005:py OR 2006:py OR 2007:py OR 2008:py OR 2009:py OR 2010:py OR 2011:py OR 2012:py OR 2013:py OR 2014:py OR 2015:py OR 2016:py OR 2017:py OR 2018:py OR 2019:py)
60	#58 AND (2005:py OR 2006:py OR 2007:py OR 2008:py OR 2009:py OR 2010:py OR 2011:py OR 2012:py OR 2013:py OR 2014:py OR 2015:py OR 2016:py OR 2017:py OR 2018:py OR 2019:py) AND [embase]/lim NOT ([embase]/lim AND [medline]/lim)

Table B4. Cochrane Search String, run on October 21, 2019

#	String
1	MeSH descriptor: [Kidney Failure, Chronic] explode all trees
2	("kidney failure"):ti,ab,kw OR ("end stage renal"):ti,ab,kw OR ("end stage kidney"):ti,ab,kw OR ("chronic renal failure"):ti,ab,kw (Word variations have been searched)
3	(ESRD):ti,ab,kw OR (ESKD):ti,ab,kw OR (ESRF):ti,ab,kw OR (ESKF):ti,ab,kw (Word variations have been searched)
4	#1 OR #2 OR #3
5	MeSH descriptor: [Renal Dialysis] explode all trees
6	(hemodialysis):ti,ab,kw OR (haemodialysis):ti,ab,kw OR (dialysis):ti,ab,kw (Word variations have been searched)
7	#5 OR #6
8	(frequency):ti,ab,kw OR (frequent):ti,ab,kw OR (day):ti,ab,kw AND (daily):ti,ab,kw AND (week):ti,ab,kw (Word variations have been searched)
9	(weekly):ti,ab,kw OR (quotidian):ti,ab,kw OR (duration):ti,ab,kw AND (nocturnal):ti,ab,kw AND (night):ti,ab,kw (Word variations have been searched)
10	(nightly):ti,ab,kw OR (overnight):ti,ab,kw OR ("over night"):ti,ab,kw AND (intensive):ti,ab,kw AND (extended):ti,ab,kw (Word variations have been searched)
11	#8 OR #9 OR #10
12	#4 AND #7 AND #11 with Publication Year from 2005 to 2019, with Cochrane Library publication date Between Jan 2005 and Dec 2019, in Trials
13	MeSH descriptor: [undefined] explode all trees
14	MeSH descriptor: [Patient Reported Outcome Measures] explode all trees
15	MeSH descriptor: [Quality of Life] explode all trees
16	("quality of life"):ti,ab,kw (Word variations have been searched)
17	#13 OR #14 OR #15 OR #16
20	(measure):ti,ab,kw OR (measurement):ti,ab,kw OR (tool):ti,ab,kw OR (assessment):ti,ab,kw (Word variations have been searched)
21	(symptom):ti,ab,kw OR ("patient reported outcome"):ti,ab,kw (Word variations have been searched)
22	#18 AND #19
23	#17 OR #20
24	#4 AND #21

Appendix C. Screening and Data Abstraction Forms

Figure C-1. Abstract screening form for Key Quesitons 1 through 3

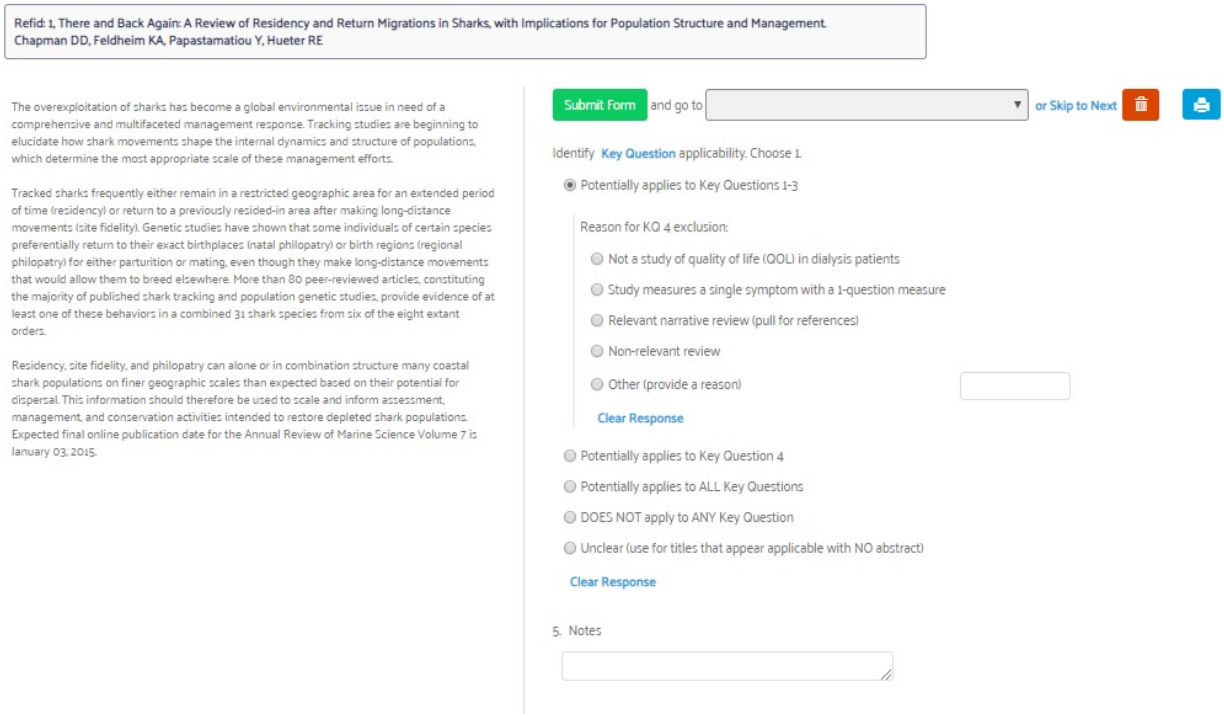


Figure C-2. Abstract screening form for Key Quesitons 4

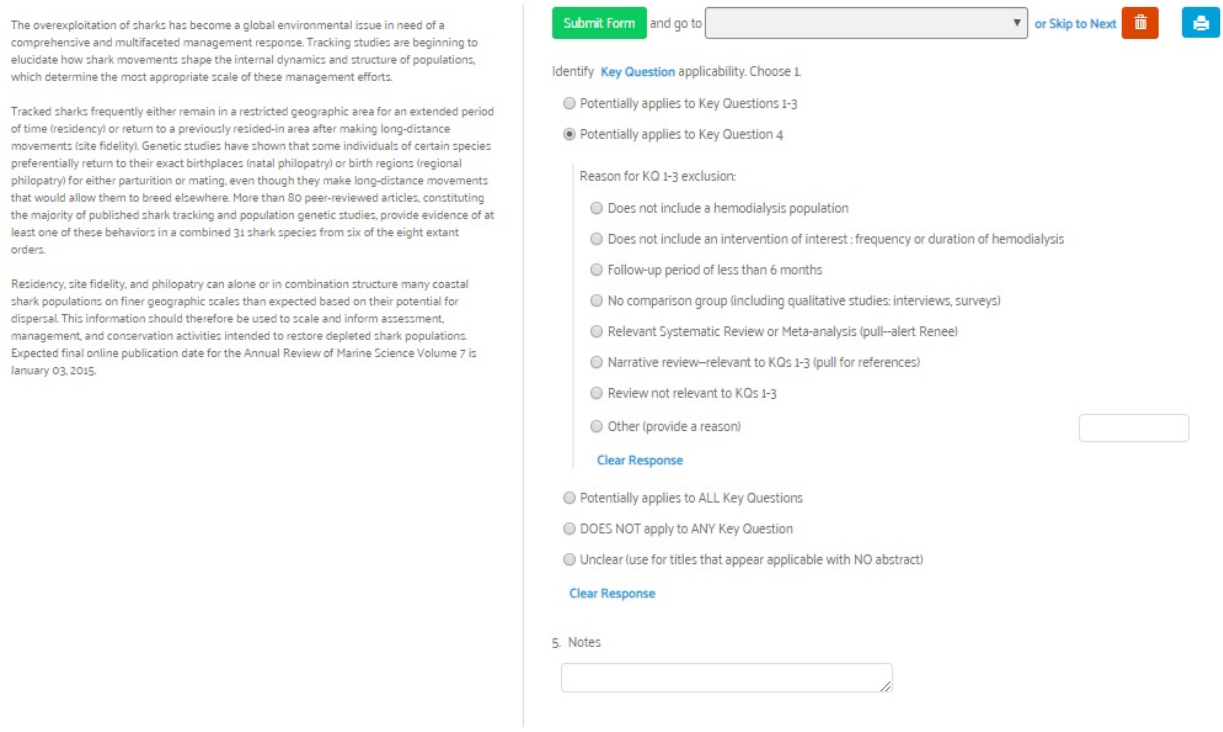


Figure C-3. Abstract screening form for no relevance to any Key Questions

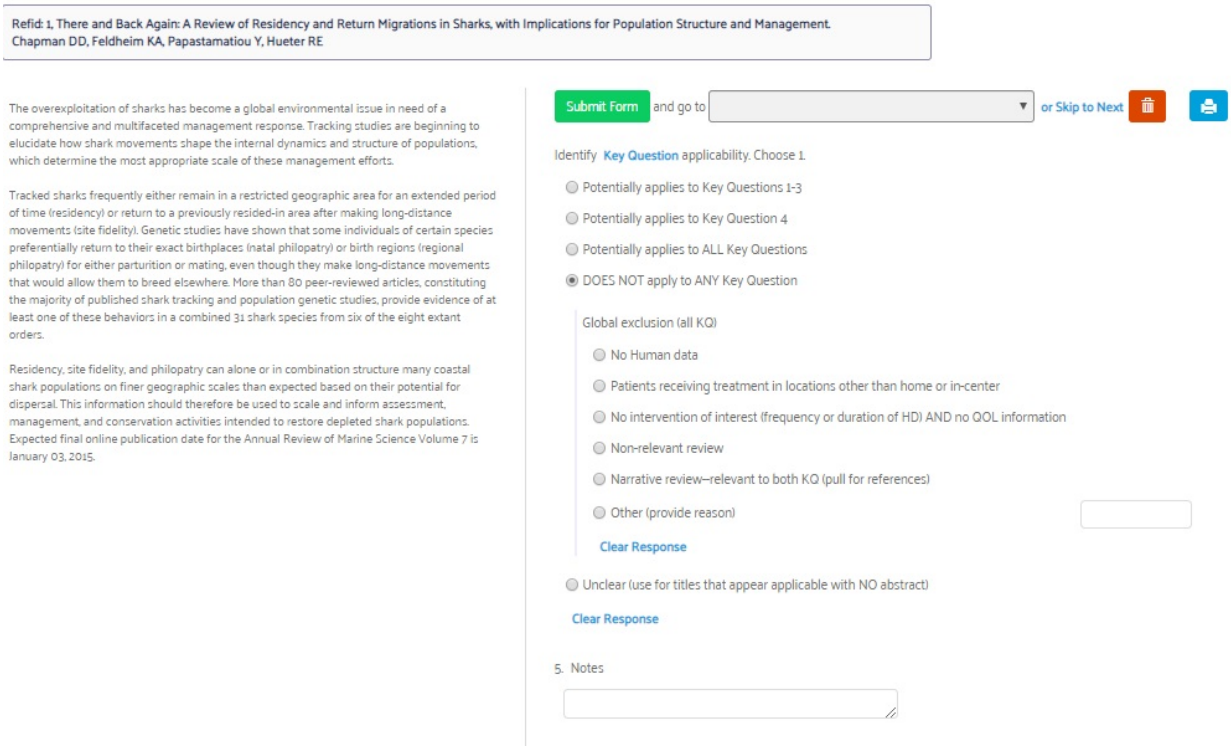


Figure C-4. Article screening form for Key Quesitons 1 through 3

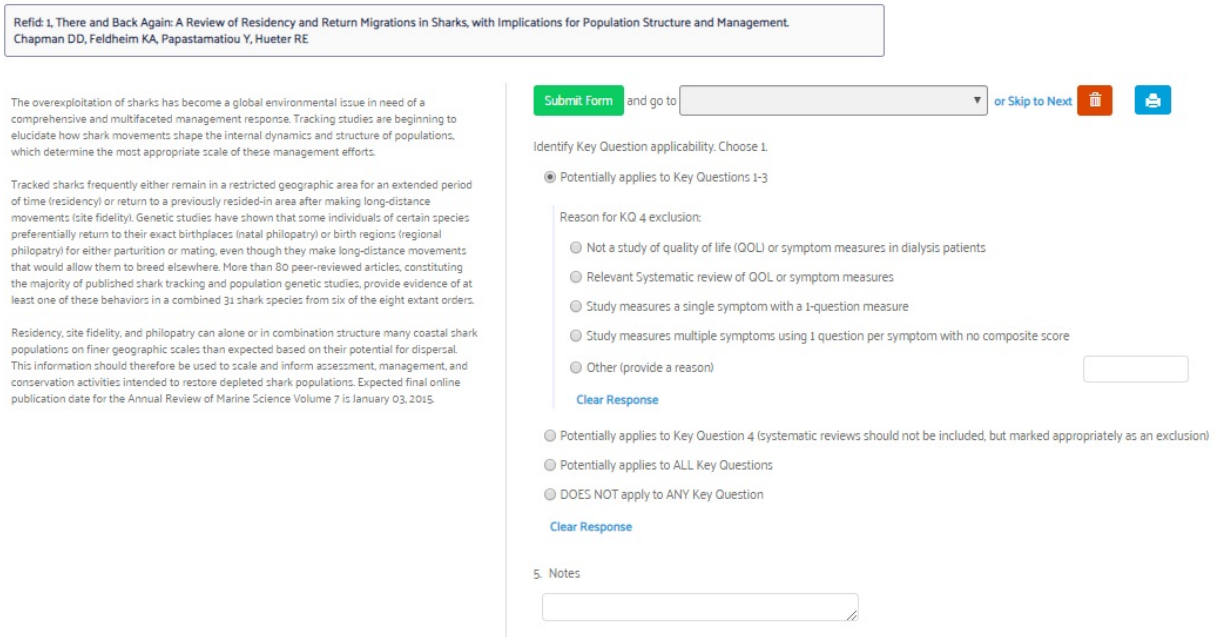


Figure C-5. Article screening form for Key Quesitons 4

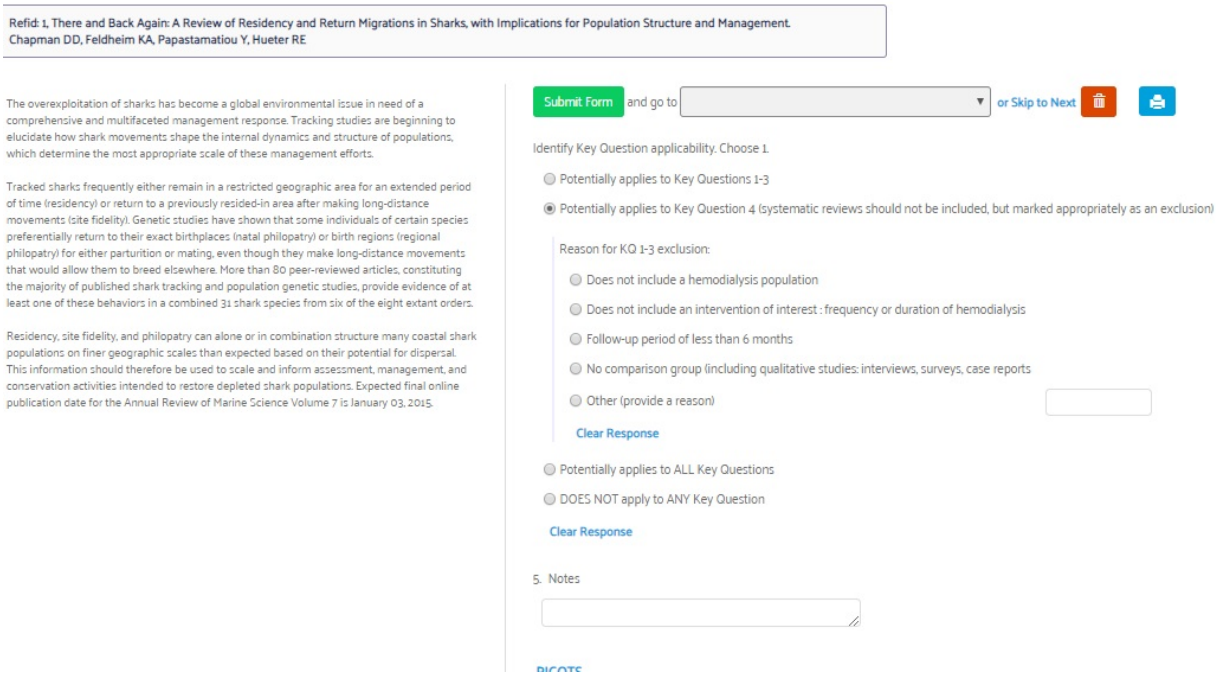


Figure C-6. Article screening form for no relevance to any Key Questions

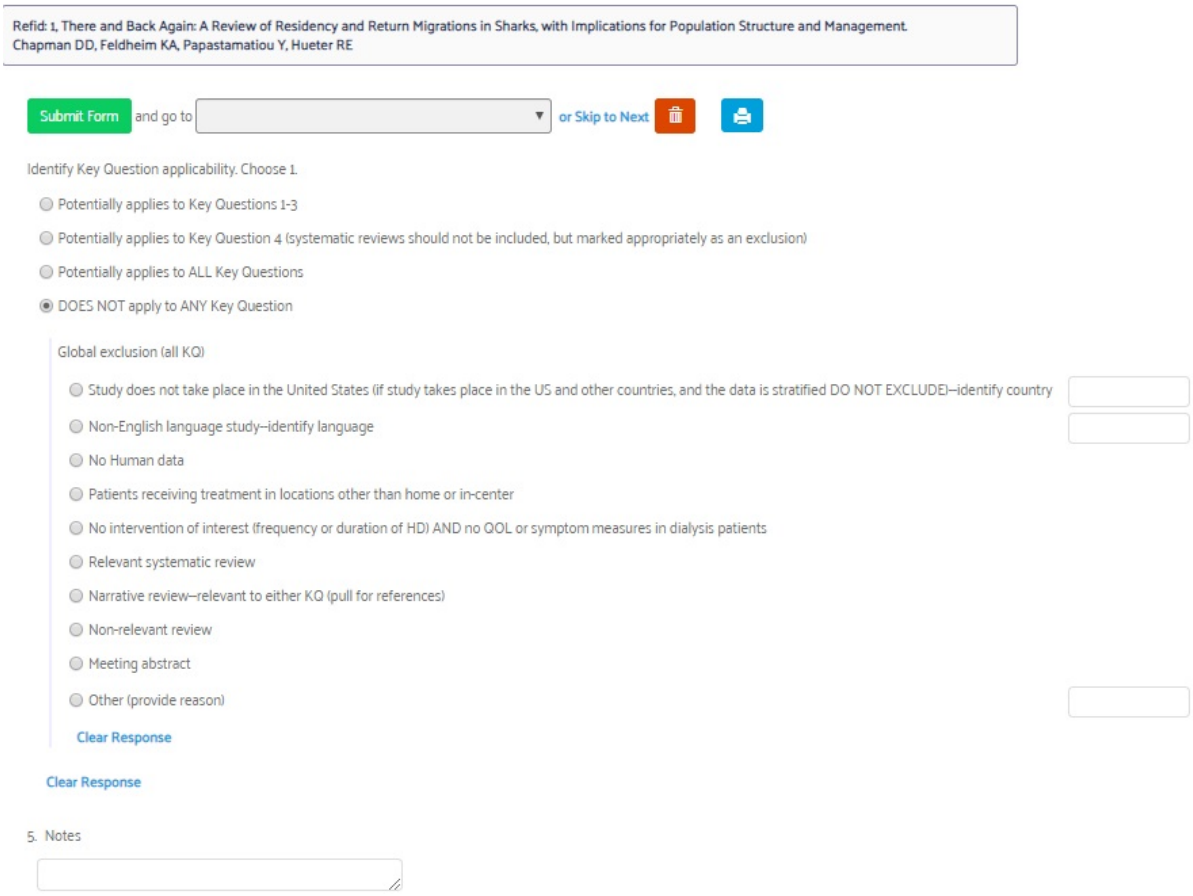
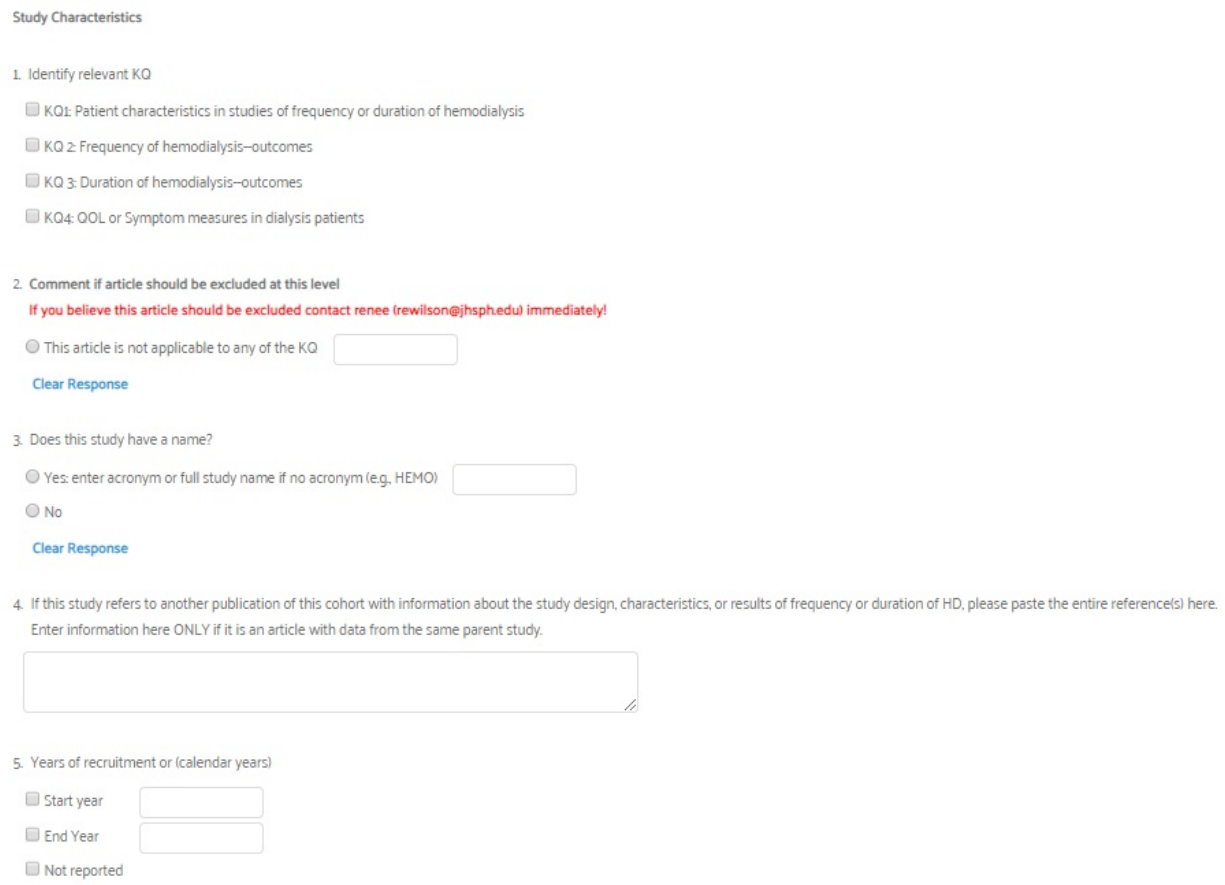


Figure C-7. Study Characteristics data abstraction form



Study Characteristics

1. Identify relevant KQ
   - ☐ KQ1: Patient characteristics in studies of frequency or duration of hemodialysis
   - ☐ KQ 2: Frequency of hemodialysis--outcomes
   - ☐ KQ 3: Duration of hemodialysis--outcomes
   - ☐ KQ4: QOL or Symptom measures in dialysis patients

2. **Comment if article should be excluded at this level**
   If you believe this article should be excluded contact renee (rewilson@jhsph.edu) immediately!
   - ○ This article is not applicable to any of the KQ
   Clear Response

3. Does this study have a name?
   - ○ Yes: enter acronym or full study name if no acronym (e.g., HEMO)
   - ○ No
   Clear Response

4. If this study refers to another publication of this cohort with information about the study design, characteristics, or results of frequency or duration of HD, please paste the entire reference(s) here. Enter information here ONLY if it is an article with data from the same parent study.

5. Years of recruitment or (calendar years)
   - ☐ Start year
   - ☐ End Year
   - ☐ Not reported

6. Location of the intervention (choose all that apply)

- [ ] Home
- [ ] Dialysis center
- [ ] other
- [ ] Not reported

7. Study Design

- ○ Randomized intervention (controlled trial)
- ○ Non-randomized intervention (controlled trial)
- ○ Observational study with a comparison group (e.g., frequency or duration of HD)

9. Single or multi-center

This question should only be answered if this is NOT a home setting

- [ ] Single-center (clinic)
- [ ] Multi-center
- [ ] Single-center network
- [ ] Multi-center network
- [ ] Not specified
- [ ] Other

11. Clinic characteristics

- [ ] For-profit
- [ ] Non-profit
- [ ] Other
- [ ] Not reported

12. Clinic location (general)

- Urban
- Rural
- Other
- Not reported

Inclusion criteria (convert all exclusion criteria to inclusion criteria)
If the inclusion criteria are different across groups make a note in the "other comments"

Criteria	Male	Female	Age	Language (spoken/understood)	Ethnicity	Incident v. Prevalent	Other
INCLUDE	13. Male only Not listed as an inclusion criterion	14. Female only Not listed as an inclusion criterion	15. use > for greater than OR greater than or equal to use < for less than OR less than or equal to >_____ <_____ Other_____ Not listed as an inclusion criterion	16. English Spanish Other (describe)_____ Not listed as an inclusion criterion	17. Choose all that apply White, non-Hispanic Black, non-Hispanic Latino/Hispanic Asian/Pacific Islander American Indian/Alaska Native Other_____ Other_____ Other_____ not listed as an inclusion criterion	18. Incident Prevalent Duration of prior dialysis_____ Not reported	19. If no additional inclusion criteria, write "none." _____

20. COMMENTS about Study Characteristics

21. R2 only: If you are reviewing R1 data entry, enter your initials when you have completed the audit

Figure C-8. Participant characteristics data abstraction form

Participant Characteristics at Baseline

1. Does the study report baseline characteristics for subgroups seperately?

- Yes
- No

Clear Response

	All Arms	Arm 1 (control/usual care)	Arm 2	Arm 3	Arm 4
Define	3. _	4. _	5. _	6. _	7. _
N at baseline	9. _	10. _	11. _	12. _	13. _
15. Follow-up (click measure and define days/weeks/months in text box) Mean_____ Median_____ Maximum/Minimum_____ Clear Response	16. _	17. _	18. _	19. _	20. _

22. Sex

◉ reported

Overall Group	Arm 1	Arm 2	Arm 3	Arm 4	Arm 5
23. ☐ women, n ☐ women, %	24. ☐ women, n ☐ women, %	25. ☐ women, n ☐ women, %	26. ☐ women, n ☐ women, %	27. ☐ women, n ☐ women, %	28. ☐ women, n ☐ women, %

○ not reported

29. Age

◉ reported

Overall Group	Arm 1	Arm 2	Arm 3	Arm 4	Arm 5
30. ☐ mean ☐ Median ☐ Range	31. ☐ mean ☐ Median ☐ Range	32. ☐ mean ☐ Median ☐ Range	33. ☐ mean ☐ Median ☐ Range	34. ☐ mean ☐ median ☐ range	35. ☐ mean ☐ median ☐ range

○ not reported

36. Race/ethnicity

◉ Reported

	Overall Group	Arm 1	Arm 2	Arm 3	Arm 4	Arm 5
White, non-Hispanic	37. ☐ n ☐ %	38. ☐ n ☐ %	39. ☐ n ☐ %	40. ☐ n ☐ %	41. ☐ n ☐ %	42. ☐ n ☐ %
Black, non-Hispanic	43. ☐ n ☐ %	44. ☐ n ☐ %	45. ☐ n ☐ %	46. ☐ n ☐ %	47. ☐ n ☐ %	48. ☐ n ☐ %
Latino/Hispanic	49. ☐ n ☐ %	50. ☐ n ☐ %	51. ☐ n ☐ %	52. ☐ n ☐ %	53. ☐ n ☐ %	54. ☐ n ☐ %
Asian/Pacific Islander	55. ☐ n ☐ %	56. ☐ n ☐ %	57. ☐ n ☐ %	58. ☐ n ☐ %	59. ☐ n ☐ %	60. ☐ n ☐ %
American Indian/Alaska Native	61. ☐ n ☐ %	62. ☐ n ☐ %	63. ☐ n ☐ %	64. ☐ n ☐ %	65. ☐ n ☐ %	66. ☐ n ☐ %
67. Other --	68. ☐ n ☐ %	69. ☐ n ☐ %	70. ☐ n ☐ %	71. ☐ n ☐ %	72. ☐ n ☐ %	73. ☐ n ☐ %

88. Education

◉ Reported

	Overall Group	Arm 1	Arm 2	Arm 3	Arm 4	Arm 5
< High School	89. ☐ n ☐ %	90. ☐ n ☐ %	91. ☐ n ☐ %	92. ☐ n ☐ %	93. ☐ n ☐ %	94. ☐ n ☐ %
Completed High School	95. ☐ n ☐ %	96. ☐ n ☐ %	97. ☐ n ☐ %	98. ☐ n ☐ %	99. ☐ n ☐ %	100. ☐ n ☐ %
College Degree	101. ☐ n ☐ %	102. ☐ n ☐ %	103. ☐ n ☐ %	104. ☐ n ☐ %	105. ☐ n ☐ %	106. ☐ n ☐ %
Post-graduate Degree	107. ☐ n ☐ %	108. ☐ n ☐ %	109. ☐ n ☐ %	110. ☐ n ☐ %	111. ☐ n ☐ %	112. ☐ n ☐ %
Years of education	113. ☐ mean ☐ median ☐ min ☐ max	114. ☐ mean ☐ median ☐ min ☐ max	115. ☐ mean ☐ median ☐ min ☐ max	116. ☐ mean ☐ median ☐ min ☐ max	117. ☐ mean ☐ median ☐ min ☐ max	118. ☐ mean ☐ median ☐ min ☐ max
119. Other --	120. ☐ n ☐ %	121. ☐ n ☐ %	122. ☐ n ☐ %	123. ☐ n ☐ %	124. ☐ n ☐ %	125. ☐ n ☐ %

140. Smoking

◉ reported

	Overall Group	Arm 1	Arm 2	Arm 3	Arm 4	Arm 5
Current	141. ☐ n ☐ %	142. ☐ n ☐ %	143. ☐ n ☐ %	144. ☐ n ☐ %	145. ☐ n ☐ %	146. ☐ n ☐ %
Former	147. ☐ n ☐ %	148. ☐ n ☐ %	149. ☐ n ☐ %	150. ☐ n ☐ %	151. ☐ n ☐ %	152. ☐ n ☐ %
Ever	153. ☐ n ☐ %	154. ☐ n ☐ %	155. ☐ n ☐ %	156. ☐ n ☐ %	157. ☐ n ☐ %	158. ☐ n ☐ %
Never	159. ☐ n ☐ %	160. ☐ n ☐ %	161. ☐ n ☐ %	162. ☐ n ☐ %	163. ☐ n ☐ %	164. ☐ n ☐ %

○ not reported

165. Is the entire study population a subgroup (all particiupants have a specific disease or condition)?

◉ Yes

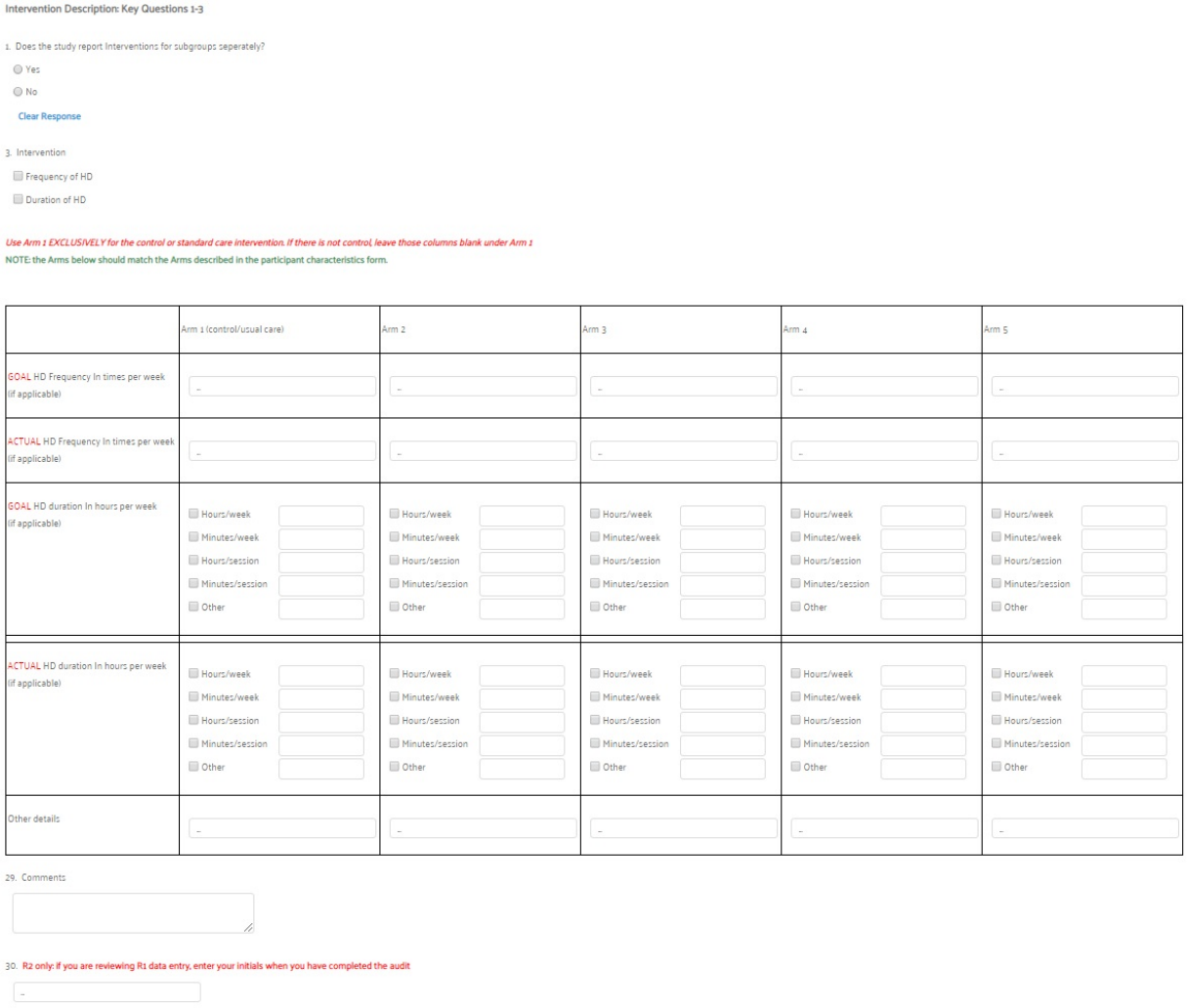
Condition	Define
Renal insufficiency (included CKD)	166.
Diabetes	167.
On Dialysis	168.
169. Other	170.
171. Other	172.
173. Other	174.

○ No

Clear Response

175. Other Comments

Figure C-9. Intervention data abstraction form



Intervention Description: Key Questions 1-3

1. Does the study report interventions for subgroups seperately?

- ○ Yes
- ○ No

Clear Response

3. Intervention

- ☐ Frequency of HD
- ☐ Duration of HD

Use Arm 1 EXCLUSIVELY for the control or standard care intervention. If there is not control, leave those columns blank under Arm 1

NOTE: the Arms below should match the Arms described in the participant characteristics form.

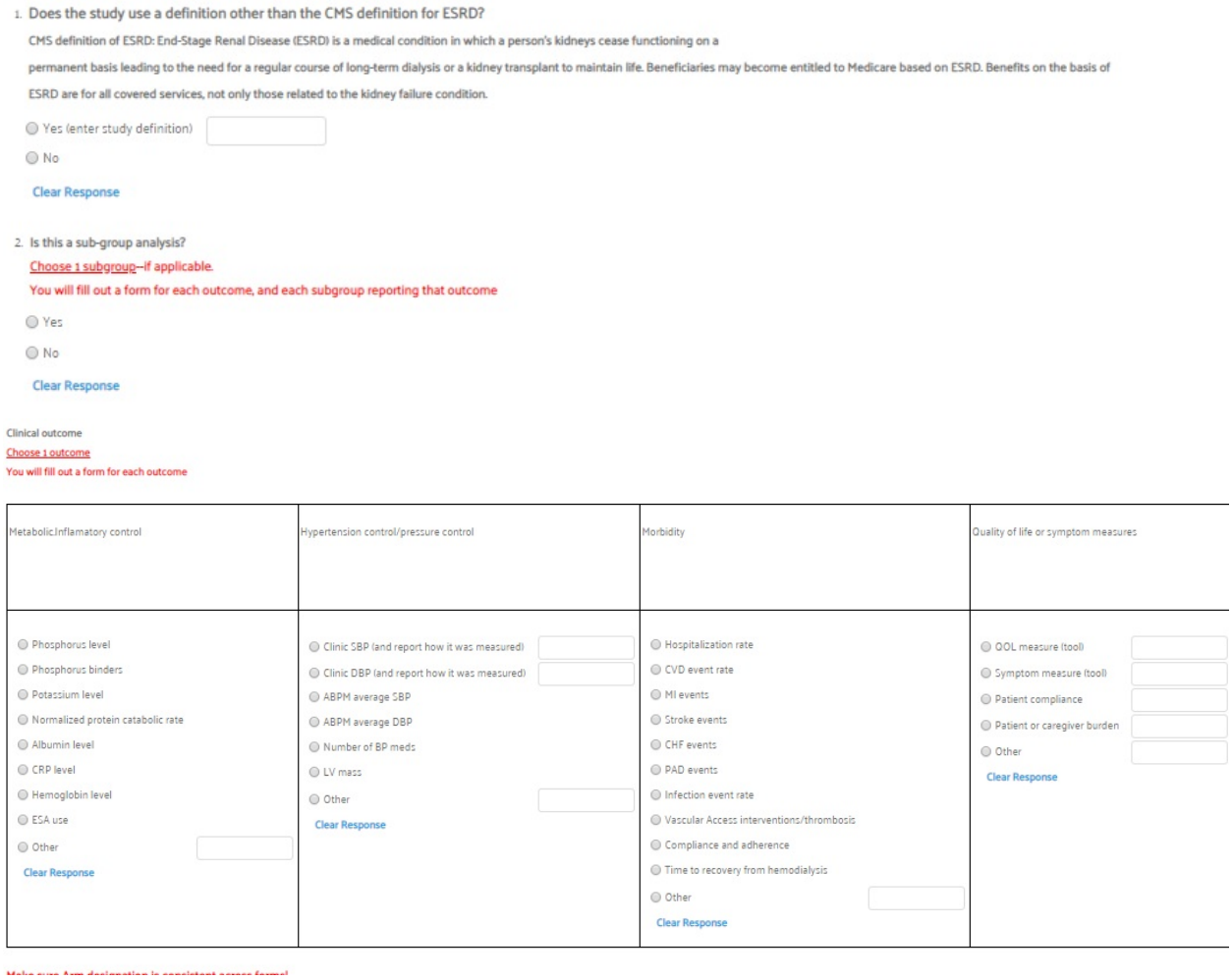
	Arm 1 (control/usual care)	Arm 2	Arm 3	Arm 4	Arm 5
GOAL HD Frequency In times per week (if applicable)	..	..	..	..	..
ACTUAL HD Frequency In times per week (if applicable)	..	..	..	..	..
GOAL HD duration In hours per week (if applicable)	☐ Hours/week ☐ Minutes/week ☐ Hours/session ☐ Minutes/session ☐ Other	☐ Hours/week ☐ Minutes/week ☐ Hours/session ☐ Minutes/session ☐ Other	☐ Hours/week ☐ Minutes/week ☐ Hours/session ☐ Minutes/session ☐ Other	☐ Hours/week ☐ Minutes/week ☐ Hours/session ☐ Minutes/session ☐ Other	☐ Hours/week ☐ Minutes/week ☐ Hours/session ☐ Minutes/session ☐ Other
ACTUAL HD duration In hours per week (if applicable)	☐ Hours/week ☐ Minutes/week ☐ Hours/session ☐ Minutes/session ☐ Other	☐ Hours/week ☐ Minutes/week ☐ Hours/session ☐ Minutes/session ☐ Other	☐ Hours/week ☐ Minutes/week ☐ Hours/session ☐ Minutes/session ☐ Other	☐ Hours/week ☐ Minutes/week ☐ Hours/session ☐ Minutes/session ☐ Other	☐ Hours/week ☐ Minutes/week ☐ Hours/session ☐ Minutes/session ☐ Other
Other details	..	..	..	..	..

29. Comments

30. R2 only: if you are reviewing R1 data entry, enter your initials when you have completed the audit

..

Figure C-10. General outcome data abstraction form for Key Questions 1 through 3



1. Does the study use a definition other than the CMS definition for ESRD?

CMS definition of ESRD: End-Stage Renal Disease (ESRD) is a medical condition in which a person's kidneys cease functioning on a permanent basis leading to the need for a regular course of long-term dialysis or a kidney transplant to maintain life. Beneficiaries may become entitled to Medicare based on ESRD. Benefits on the basis of ESRD are for all covered services, not only those related to the kidney failure condition.

- Yes (enter study definition)
- No

Clear Response

2. Is this a sub-group analysis?

Choose 1 subgroup--if applicable.

You will fill out a form for each outcome, and each subgroup reporting that outcome

- Yes
- No

Clear Response

Clinical outcome

Choose 1 outcome

You will fill out a form for each outcome

Metabolic/Inflamatory control	Hypertension control/pressure control	Morbidity	Quality of life or symptom measures
Phosphorus level	Clinic SBP (and report how it was measured)	Hospitalization rate	QOL measure (tool)
Phosphorus binders	Clinic DBP (and report how it was measured)	CVD event rate	Symptom measure (tool)
Potassium level	ABPM average SBP	MI events	Patient compliance
Normalized protein catabolic rate	ABPM average DBP	Stroke events	Patient or caregiver burden
Albumin level	Number of BP meds	CHF events	Other
CRP level	LV mass	PAD events	Clear Response
Hemoglobin level	Other	Infection event rate	
ESA use	Clear Response	Vascular Access interventions/thrombosis	
Other		Compliance and adherence	
Clear Response		Time to recovery from hemodialysis	
		Other	
		Clear Response	

Make sure Arm designation is consistent across forms!

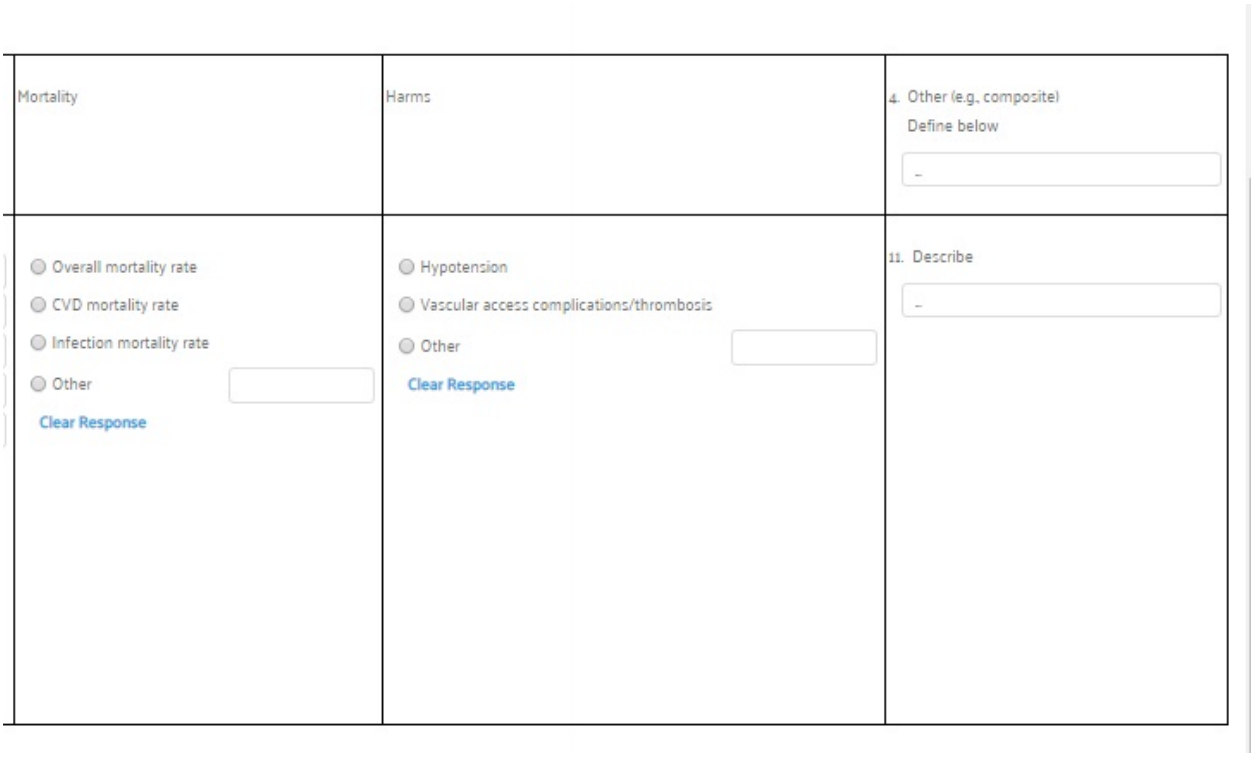


Figure C-11. Continous outcome data abstraction form for Key Questions 1 through 3

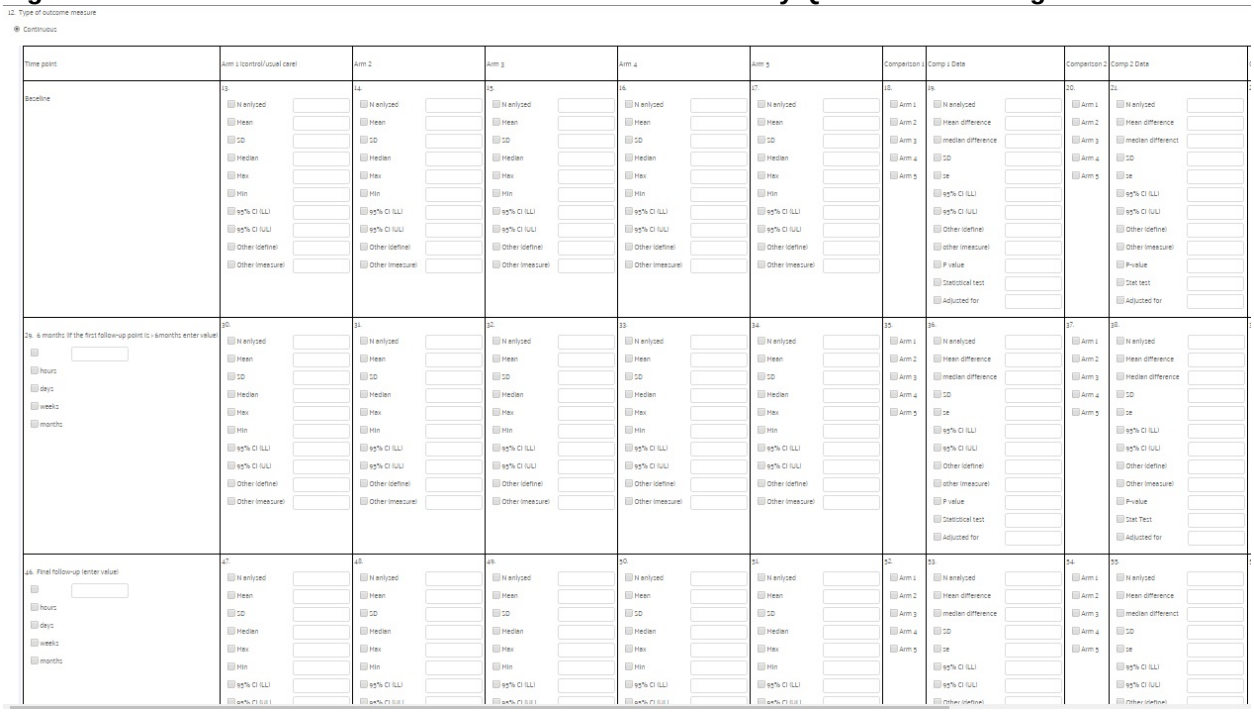


Figure C-12. Categorical outcome data abstraction form for Key Questions 1 through 3

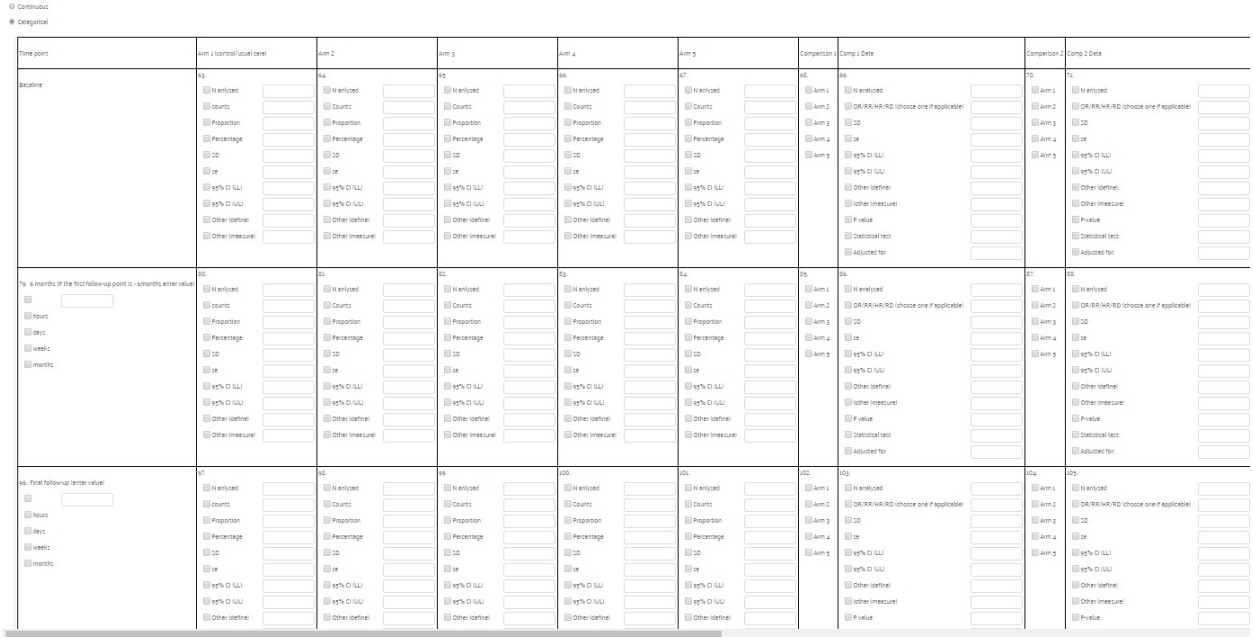
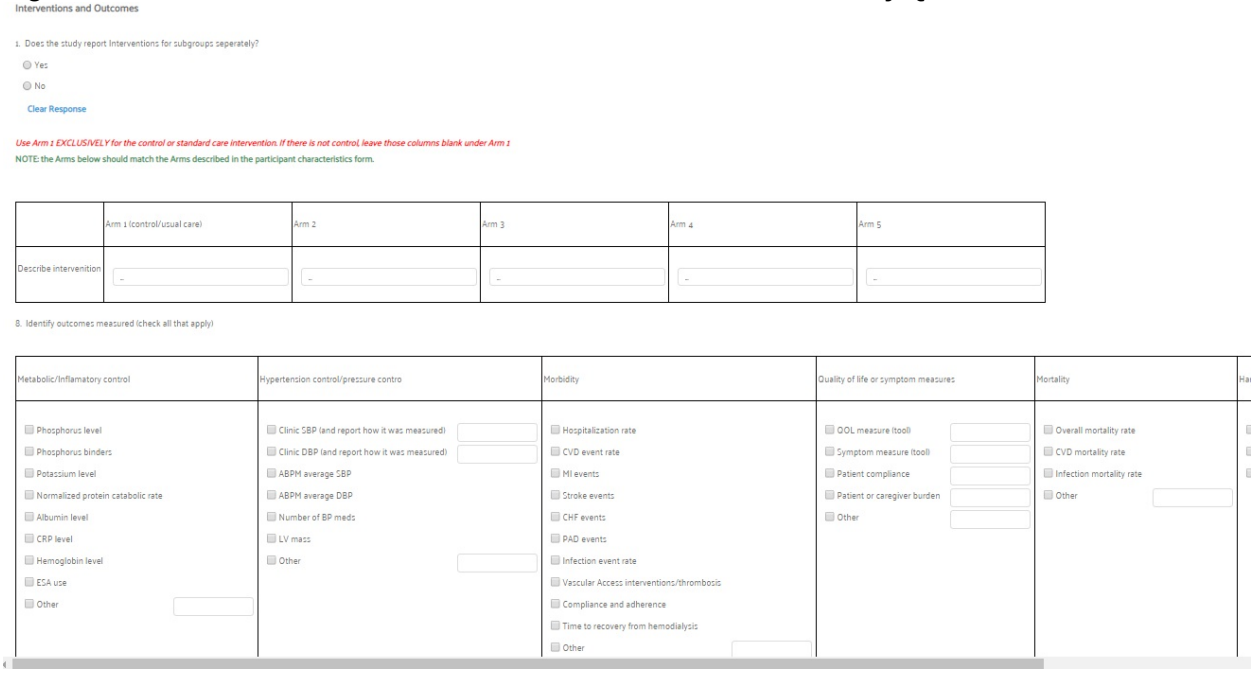
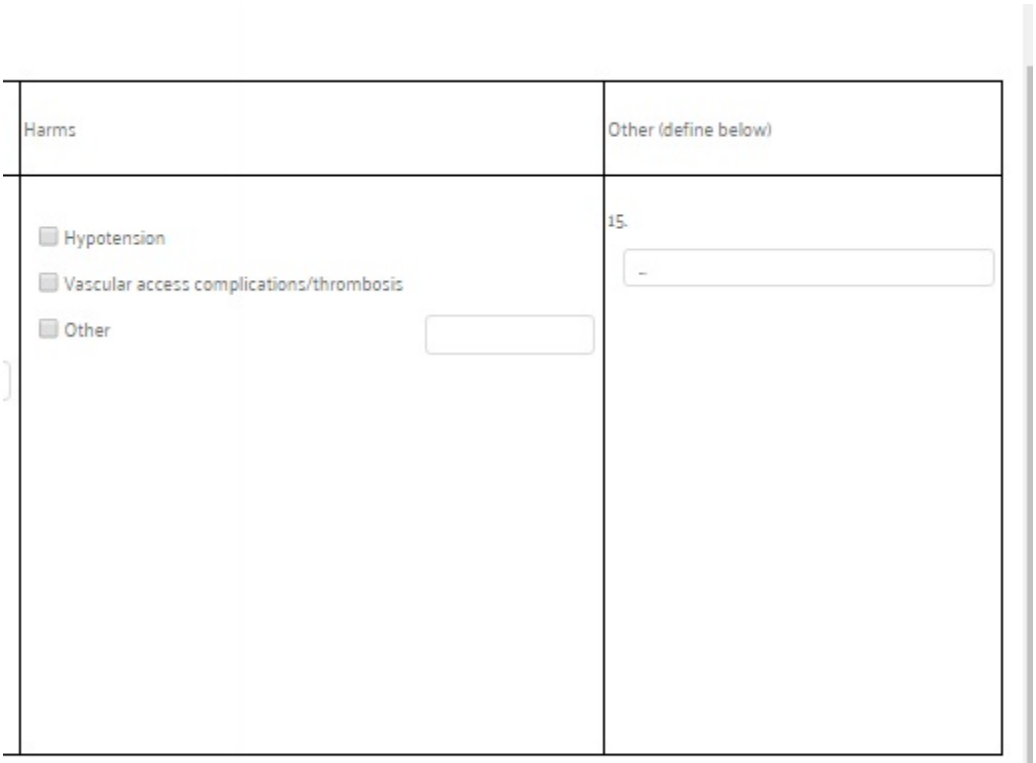


Figure C-13. Interventions and outcomes data abstraction form for Key Questions 4





Harms	Other (define below)
☐ Hypotension ☐ Vascular access complications/thrombosis ☐ Other	15.

Figure C-14. Tools and measures data abstraction form for Key Questions 4

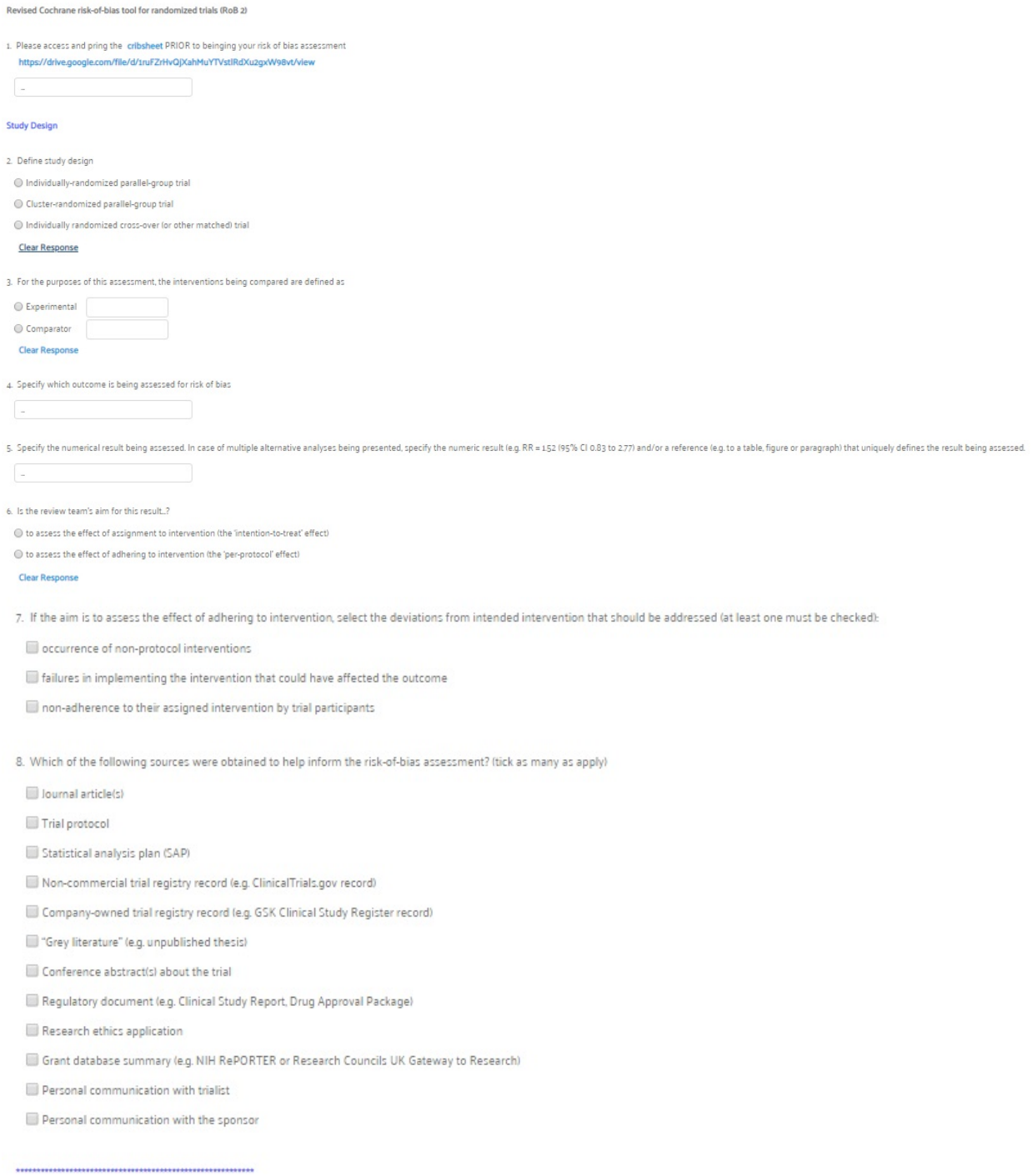
Key Question 4:

Tool and measure properties

Tool or measurement instrument	Reliability	Validity	Validation method (define)	Feasibility
KD-QOL overall ○ Reported ○ Not reported Clear Response	☐ Chronback's alpha coefficiant ☐ Test-retest reliability ☐ Study states the tool is reliable, no data provided ☐ Not reported	☐ Content ☐ Factor analysis ☐ Other construct ☐ Responsiveness ☐ Study states the tool is valid, no data provided ☐ Not reported	☐ Describe ☐ Not reported	☐ Patient burden ☐ Computer-adapted testing ☐ Interpretability ☐ not reported
KDQOL subscale (define below) ○ Reported, define subscale ○ Not reported Clear Response	☐ Chronback's alpha coefficiant ☐ Test-retest reliability ☐ Study states the tool is reliable, no data provided ☐ Not reported	☐ Content ☐ Factor analysis ☐ Other construct ☐ Responsiveness ☐ Study states the tool is valid, no data provided ☐ Not reported	☐ Describe ☐ Not reported	☐ Patient burden ☐ Computer-adapted testing ☐ Interpretability ☐ Not reported
KDQOL subscale (define below) ○ Reported, define subscale ○ Not reported Clear Response	☐ Chronback's alpha coefficiant ☐ Test-retest reliability ☐ Study states the tool is reliable, no data provided ☐ Not reported	☐ Content ☐ Factor analysis ☐ Other construct ☐ Responsiveness ☐ Study states the tool is valid, no data provided	☐ Describe ☐ Not reported	☐ Patient burden ☐ Computer-adapted testing ☐ Interpretability ☐ Not reported

Usability	Minimal Clincally Important Difference measured? (define)	Placebo Effect measured? (define)	Other measures
☐ Used in clinical practice ☐ Has Pro-PM ☐ Not reported	○ Yes (define) ○ No ○ Not reported Clear Response	○ Yes (define) ○ No ○ Not reported Clear Response	9. ○ Define ○ Not reported Clear Response
☐ Used in clinical practice ☐ Has Pro-PM ☐ Not reported	○ Yes (define) ○ No ○ Not reported Clear Response	○ Yes (define) ○ No ○ Not reported Clear Response	18. ○ Define ○ Not reported Clear Response
☐ Used in clinical practice ☐ Has Pro-PM ☐ Not reported	○ Yes (define) ○ No ○ Not reported Clear Response	○ Yes (define) ○ No ○ Not reported Clear Response	27. ○ Define ○ Not reported Clear Response

Figure C-15. Cochrane risk of bias form for randomized clinical trials



Revised Cochrane risk-of-bias tool for randomized trials (RoB 2)

1. Please access and pring the cribsheet PRIOR to beinging your risk of bias assessment
https://drive.google.com/file/d/1ruFZrHvQJXahMuYTVstlRdXu2gxW98vt/view

Study Design

2. Define study design
- Individually-randomized parallel-group trial
- Cluster-randomized parallel-group trial
- Individually randomized cross-over (or other matched) trial

Clear Response

3. For the purposes of this assessment, the interventions being compared are defined as
- Experimental
- Comparator

Clear Response

4. Specify which outcome is being assessed for risk of bias

5. Specify the numerical result being assessed. In case of multiple alternative analyses being presented, specify the numeric result (e.g. RR = 1.52 (95% CI 0.83 to 2.77) and/or a reference (e.g. to a table, figure or paragraph) that uniquely defines the result being assessed.

6. Is the review team's aim for this result..?
- to assess the effect of assignment to intervention (the 'intention-to-treat' effect)
- to assess the effect of adhering to intervention (the 'per-protocol' effect)

Clear Response

7. If the aim is to assess the effect of adhering to intervention, select the deviations from intended intervention that should be addressed (at least one must be checked):
- occurrence of non-protocol interventions
- failures in implementing the intervention that could have affected the outcome
- non-adherence to their assigned intervention by trial participants

8. Which of the following sources were obtained to help inform the risk-of-bias assessment? (tick as many as apply)
- Journal article(s)
- Trial protocol
- Statistical analysis plan (SAP)
- Non-commercial trial registry record (e.g. ClinicalTrials.gov record)
- Company-owned trial registry record (e.g. GSK Clinical Study Register record)
- "Grey literature" (e.g. unpublished thesis)
- Conference abstract(s) about the trial
- Regulatory document (e.g. Clinical Study Report, Drug Approval Package)
- Research ethics application
- Grant database summary (e.g. NIH RePORTER or Research Councils UK Gateway to Research)
- Personal communication with trialist
- Personal communication with the sponsor

****

Domain 1: Risk of bias arising from the randomization process

Signaling Question	Comment	Response
1.1 Was the allocation sequence random?	9.	10. Select an Answer
1.2 Was the allocation sequence concealed until participants were enrolled and assigned to interventions?	11.	12. Select an Answer
1.3 Did baseline differences between intervention groups suggest a problem with the randomization process?	13.	14. Select an Answer
Risk-of-bias judgement	See algorithm on cribsheet	15. Select an Answer
Optional: What is the predicted direction of bias arising from the randomization process?	16.	17. Select an Answer

****

Domain 2: Risk of bias due to deviations from the intended interventions (*effect of assignment to intervention*)

Signaling Question	Comment	Response
2.1 Were participants aware of their assigned intervention during the trial?	18.	19. Select an Answer
2.2 Were carers and people delivering the interventions aware of participants' assigned intervention during the trial?	20.	21. Select an Answer
2.3 If Y/PY/NI to 2.1 or 2.2: Were there deviations from the intended intervention that arose because of the experimental context?	22.	23. Select an Answer
2.4 If Y/PY to 2.3: Were these deviations likely to have effected the outcome?	24.	25. Select an Answer
2.5 If Y/PY/NI to 2.4: Were these deviations from intended intervention balanced between groups?	26.	27. Select an Answer
2.6 Was an appropriate analysis used to estimate the effect of assignment to intervention?	28.	29. Select an Answer
2.7 If N/PN/NI to 2.6: Was there potential for a substantial impact (on the result) of the failure to analyse participants in the group to which they were randomized?	30.	31. Select an Answer
Risk-of-bias judgement	See algorithm on cribsheet	32. Select an Answer
Optional: What is the predicted direction of bias arising from the randomization process?	33.	34. Select an Answer

Domain 2: Risk of bias due to deviations from the intended interventions (*effect of adhering to intervention*)

Signaling Question	Comment	Response
2.1 Were participants aware of their assigned intervention during the trial?	35.	36. Select an Answer
2.2 Were carers and people delivering the interventions aware of participants' assigned intervention during the trial?	37.	38. Select an Answer
2.3 [If applicable] If Y/PY/NI to 2.1 or 2.2: Were important non-protocol interventions balanced across intervention groups?	39.	40. Select an Answer
2.4 [If applicable] Were there failures in implementing the intervention that could have affected the outcome?	41.	42. Select an Answer
2.5 [If applicable] Was there non-adherence to the assigned intervention regimen that could have affected participants' outcomes?	43.	44. Select an Answer
2.6 If N/PN/NI to 2.3, or Y/PY/NI to 2.4 or 2.5: Was an appropriate analysis used to estimate the effect of adhering to the intervention?	45.	46. Select an Answer
Risk-of-bias judgement	See algorithm on cribsheet	47. Select an Answer
Optional: What is the predicted direction of bias arising from the randomization process?	48.	49. Select an Answer

Domain 3: Missing outcome data

Signaling Question	Comment	Response
3.1 Were data for this outcome available for all, or nearly all, participants randomized?	50.	51. Select an Answer
3.2 If N/PN/NI to 3.1: Is there evidence that the result was not biased by missing outcome data?	52.	53. Select an Answer
3.3 If N/PN to 3.2: Could missingness in the outcome depend on its true value?	54.	55. Select an Answer
3.4 If Y/PY/NI to 3.3: Is it likely that missingness in the outcome depended on its true value?	56.	57. Select an Answer
Risk-of-bias judgement	See algorithm on cribsheet	58. Select an Answer
Optional: What is the predicted direction of bias arising from the randomization process?	59.	60. Select an Answer

Domain 4: Risk of bias in measurement of the outcome

Signalling Question	Comment	Response
4.1 Was the method of measuring the outcome inappropriate?	61.	62. Select an Answer
4.2 Could measurement or ascertainment of the outcome have differed between intervention groups?	63.	64. Select an Answer
4.3 If N/PN/NI to 4.1 and 4.2: Were outcome assessors aware of the intervention received by study participants?	65.	66. Select an Answer
4.4 If Y/PY/NI to 4.3: Could assessment of the outcome have been influenced by knowledge of intervention received?	67.	68. Select an Answer
4.5 If Y/PY/NI to 4.4: Is it likely that assessment of the outcome was influenced by knowledge of intervention received?	69.	70. Select an Answer
Risk-of-bias judgement	See algorithm on cribsheet	71. Select an Answer
Optional: What is the predicted direction of bias arising from the randomization process?	72.	73. Select an Answer

Domain 5: Risk of bias in selection of the reported result

Signalling Question	Comment	Response
5.1 Were the data that produced this result analysed in accordance with a pre-specified analysis plan that was finalized before unblinded outcome data were available for analysis?	74.	75. Select an Answer
Is the numerical result being assessed likely to have been selected, on the basis of the results, from...	76.	
5.2 ... multiple eligible outcome measurements (e.g. scales, definitions, time points) within the outcome domain?	77.	78. Select an Answer
5.3 ... multiple eligible analyses of the data?	79.	80. Select an Answer
Risk-of-bias judgement		81. Select an Answer
Optional: What is the predicted direction of bias arising from the randomization process?	82.	83. Select an Answer

Overall risk of bias

Risk of bias judgement	84. Select an Answer ▼
Optional: What is the overall predicted direction of bias for this outcome?	85. Select an Answer ▼

****

Overall risk of bias judgement, guidance

Judgement	Criteria
Low risk of bias	The study is judged to be at low risk of bias for all domains for this result.
Some concerns	The study is judged to raise some concerns in at least one domain for this result, but not to be at high risk of bias for any domain.
High risk of bias	The study is judged to be at high risk of bias in at least one domain for this result. Or The study is judged to have some concerns for multiple domains in a way that substantially lowers confidence in the result.

Figure C-16. Cochrane ROBINS risk of bias form for observational studies

Risk of bias assessment

1. BIAS DUE TO CONFOUNDING

Signalling question	Description	Location in text or source (reference, pg #, ff/fig/table/other)
1.1 Is there potential for confounding of the effect of intervention in this study? If N/PN to 1.1 the study can be considered to be at low risk of bias due to confounding and no further signalling questions need be considered ○ Yes ○ Probably yes ○ Probably no ○ No Clear Response		
If **Y/PY** to 1.1: determine whether there is a need to assess time-varying confounding: 1.2. Was the analysis based on splitting participants' follow up time according to intervention received? If **N/PN**, answer questions relating to baseline confounding (1.4 to 1.6) If **Y/PY**, proceed to question 1.3. ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
1.3. Were intervention discontinuations or switches likely to be related to factors that are prognostic for the outcome? If N/PN, answer questions relating to baseline confounding (1.4 to 1.6) If Y/PY, answer questions relating to both baseline and time-varying confounding (1.7 and 1.8) ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
Questions relating to baseline confounding only		
1.4. Did the authors use an appropriate analysis method that controlled for all the important confounding domains? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
If Y/PY to 1.4 1.5. Were confounding domains that were controlled for measured validly and reliably by the variables available in this study? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		

1.6. Did the authors control for any post-intervention variables that could have been affected by the intervention? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
Questions relating to baseline and time-varying confounding		
1.7. Did the authors use an appropriate analysis method that adjusted for all the important confounding domains and for timevarying confounding? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
If Y/PY to 1.7 1.8. Were confounding domains that were adjusted for measured validly and reliably by the variables available in this study? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
DOMAIN 1: RISK OF BIAS JUDGEMENT ○ Low ○ Moderate ○ Serious ○ Critical ○ No Information Clear Response	Support for judgement	Optional: What is the predicted direction of bias due to confounding? ○ Favours experimental ○ Favours comparator ○ Unpredictable Clear Response Rationale

2. BIAS IN SELECTION OF PARTICIPANTS INTO THE STUDY

Signalling question	Description Plus location in text or source (reference, pg & ¶¶/fig/table/other)	Location in text or source (reference, pg & ¶¶/fig/table/other)
2.1. Was selection of participants into the study (or into the analysis) based on participant characteristics observed after the start of intervention? If N/PN to 2.1: go to 2.4 ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		

If Y/PY to 2.1 2.2. Were the postintervention variables that influenced selection likely to be associated with intervention? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
If Y/PY to 2.2 2.3 Were the postintervention variables that influenced selection likely to be influenced by the outcome or a cause of the outcome? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
2.4. Do start of follow-up and start of intervention coincide for most participants? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
If Y/PY to 2.2 and 2.3, or N/PN to 2.4: 2.5. Were adjustment techniques used that are likely to correct for the presence of selection biases? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
DOMAIN 2: RISK OF BIAS JUDGEMENT ○ Low ○ Moderate ○ Serious ○ Critical ○ No Information Clear Response	Support for judgement	Optional What is the predicted direction of bias due to selection of participants into the study? ○ Favours experimental ○ Favours comparator ○ Towards null ○ Away from null ○ Unpredictable Clear Response Rationale

3. BIAS IN CLASSIFICATION OF INTERVENTIONS

Signalling question	Description Plus location in text or source (reference, pg & ¶¶/fig/table/other)	Location in text or source (reference, pg & ¶¶/fig/table/other)
3.1 Were intervention groups clearly defined? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
3.2 Was the information used to define intervention groups recorded at the start of the intervention? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
3.3 Could classification of intervention status have been affected by knowledge of the outcome or risk of the outcome? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
DOMAIN 3: RISK OF BIAS JUDGEMENT ○ Low ○ Moderate ○ Serious ○ Critical ○ No Information Clear Response	Support for judgement	Optional What is the predicted direction of bias due to measurement of outcomes or interventions? ○ Favours experimental ○ Favours comparator ○ Towards null ○ Away from null ○ Unpredictable Clear Response Rationale

4. BIAS DUE TO DEVIATIONS FROM INTENDED INTERVENTIONS

Signalling question	Description	Location in text or source (reference, pg, ¶, ¶, fig, table, other)
4.1. Were there deviations from the intended intervention beyond what would be expected in usual practice? ○ Yes ○ Probably yes ○ Probably no ○ No Clear Response		
If Y/PY to 4.1 4.2 Were these deviations from intended intervention unbalanced between groups and likely to have affected the outcome? If your aim for this study is to assess the effect of starting and adhering to intervention, answer questions 4.3 to 4.6 ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
4.3. Were important co-interventions balanced across intervention groups? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
4.4. Was the intervention implemented successfully for most participants? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
4.5. Did study participants adhere to the assigned intervention regimen? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
If N/PN to 4.3, 4.4 or 4.5 4.6 Was an appropriate analysis used to estimate the effect of starting and adhering to the intervention? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		

DOMAIN 4: RISK OF BIAS JUDGEMENT	Support for judgement	
○ Low ○ Moderate ○ Serious ○ Critical ○ No Information Clear Response		Optional What is the predicted direction of bias due to deviations from the intended interventions? ○ Favours experimental ○ Favours comparator ○ Towards null ○ Away from null ○ Unpredictable Clear Response Rationale

5. BIAS DUE TO MISSING DATA

Signalling question	Description	Location in text or source (reference, pg #¶/fig/table/other)
5.1 Were outcome data available for all, or nearly all, participants? ○ Yes ○ Probably yes ○ Probably no ○ No Clear Response		
5.2 Were participants excluded due to missing data on intervention status? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
5.3 Were participants excluded due to missing data on other variables needed for the analysis? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
If PN/N to 5.1, or Y/PY to 5.2 or 5.3 5.4 Are the proportion of participants and reasons for missing data similar across interventions? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
If PN/N to 5.1, or Y/PY to 5.2 or 5.3 5.5 Is there evidence that results were robust to the presence of missing data? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		

DOMAIN 5: RISK OF BIAS JUDGEMENT	Support for judgement	Optional What is the predicted direction of bias due to missing data? Favours experimental Favours comparator Towards null Away from null Unpredictable Clear Response Rationale
Low Moderate Serious Critical No Information Clear Response		

6. BIAS IN MEASUREMENT OF OUTCOMES

Signalling question	Description	Location in text or source (reference, pg #, ¶, fig/table/other)
6.1 Could the outcome measure have been influenced by knowledge of the intervention received? Yes Probably yes Probably no No Clear Response		
6.2 Were outcome assessors aware of the intervention received by study participants? Yes Probably yes Probably no No No Information Clear Response		
6.3 Were the methods of outcome assessment comparable across intervention groups? Yes Probably yes Probably no No No Information Clear Response		
6.4 Were any systematic errors in measurement of the outcome related to intervention received? Yes Probably yes Probably no No No Information Clear Response		

DOMAIN 6: RISK OF BIAS JUDGEMENT	Support for judgement	
○ Low ○ Moderate ○ Serious ○ Critical ○ No information Clear Response		Optional What is the predicted direction of bias due to measurement of outcomes? ○ Favours experimental ○ Favours comparator ○ Towards null ○ Away from null ○ Unpredictable Clear Response Rationale

7. BIAS IN SELECTION OF REPORTED RESULT

Signalling question	Description Plus location in text or source (reference, pg & ¶/fig/table/other)	Location in text or source (reference, pg & ¶/fig/table/other)
Is the reported effect estimate likely to be selected, on the basis of the results, from... 7.1. .. multiple outcome measurements within the outcome domain? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
7.2 .. multiple analyses of the intervention-outcome relationship? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
7.3 .. different *subgroups*? ○ Yes ○ Probably yes ○ Probably no ○ No ○ No Information Clear Response		
DOMAIN 7: RISK OF BIAS JUDGEMENT	Support for judgement	

DOMAIN 7: RISK OF BIAS JUDGEMENT

- Low
- Moderate
- Serious
- Critical
- No information

Clear Response

Support for judgement

Optional:

What is the predicted direction of bias due to measurement of outcomes or interventions?

- Favours experimental
- Favours comparator
- Towards null
- Away from null
- Unpredictable

Clear Response

Rationale

OVERALL BIAS

RISK OF BIAS JUDGEMENT

- Low
- Moderate
- Serious
- Critical
- No information

Clear Response

Support for judgement

Optional:

What is the predicted direction of bias due to measurement of outcomes or interventions?

- Favours experimental
- Favours comparator
- Towards null
- Away from null
- Unpredictable

Clear Response

Appendix D. Included and Excluded Articles

Included Articles

Key Question 1-3

1. Achinger SG, Ikizler TA, Bian A, et al. Long-term effects of daily hemodialysis on vascular access outcomes: a prospective controlled study. Hemodial Int. 2013 Apr;17(2):208-15. doi: 10.1111/j.1542-4758.2012.00756.x. PMID: 23016876.

2. Ayus JC, Mizani MR, Achinger SG, et al. Effects of short daily versus conventional hemodialysis on left ventricular hypertrophy and inflammatory markers: a prospective, controlled study. J Am Soc Nephrol. 2005 Sep;16(9):2778-88. doi: 10.1681/asn.2005040392. PMID: 16033855.

3. Brunelli SM, Chertow GM, Ankers ED, et al. Shorter dialysis times are associated with higher mortality among incident hemodialysis patients. Kidney Int. 2010 Apr;77(7):630-6. doi: 10.1038/ki.2009.523. PMID: 20090666.

4. Brunelli SM, Wilson SM, Ficociello LH, et al. A Comparison of Clinical Parameters and Outcomes over 1 Year in Home Hemodialysis Patients Using 2008K@home or NxStage System One. Asaio j. 2016 Mar-Apr;62(2):182-9. doi: 10.1097/mat.0000000000000315. PMID: 26692402.

5. Chan CT, Chertow GM, Daugirdas JT, et al. Effects of daily hemodialysis on heart rate variability: results from the Frequent Hemodialysis Network (FHN) Daily Trial. Nephrol Dial Transplant. 2014 Jan;29(1):168-78. doi: 10.1093/ndt/gft212. PMID: 24078335.

6. Chan CT, Greene T, Chertow GM, et al. Determinants of left ventricular mass in patients on hemodialysis: Frequent Hemodialysis Network (FHN) Trials. Circ Cardiovasc Imaging. 2012 Mar;5(2):251-61. doi: 10.1161/circimaging.111.969923. PMID: 22360996.

7. Chan CT, Greene T, Chertow GM, et al. Effects of frequent hemodialysis on ventricular volumes and left ventricular remodeling. Clin J Am Soc Nephrol. 2013 Dec;8(12):2106-16. doi: 10.2215/cjn.03280313. PMID: 23970131.

8. Chertow GM, Levin NW, Beck GJ, et al. Long-Term Effects of Frequent In-Center Hemodialysis. J Am Soc Nephrol. 2016 Jun;27(6):1830-6. doi: 10.1681/asn.2015040426. PMID: 26467779.

9. Chertow GM, Levin NW, Beck GJ, et al. In-center hemodialysis six times per week versus three times per week. N Engl J Med. 2010 Dec 9;363(24):2287-300. doi: 10.1056/NEJMoa1001593. PMID: 21091062.

10. Daugirdas JT, Chertow GM, Larive B, et al. Effects of frequent hemodialysis on measures of CKD mineral and bone disorder. J Am Soc Nephrol. 2012 Apr;23(4):727-38. doi: 10.1681/asn.2011070688. PMID: 22362907.

11. Daugirdas JT, Greene T, Rocco MV, et al. Effect of frequent hemodialysis on residual kidney function. Kidney

international. 2013;83(5):949-58. doi: 10.1038/ki.2012.457. PMID: CN-00877614.

12. Daugirdas JT, Greene T, Rocco MV, et al. Effect of frequent hemodialysis on residual kidney function. Kidney Int. 2013 May;83(5):949-58. doi: 10.1038/ki.2012.457. PMID: 23344474.

13. Dember LM, Lacson E, Jr., Brunelli SM, et al. The TiME Trial: A Fully Embedded, Cluster-Randomized, Pragmatic Trial of Hemodialysis Session Duration. J Am Soc Nephrol. 2019 May;30(5):890-903. doi: 10.1681/asn.2018090945. PMID: 31000566.

14. Dixon BS, Vanburen JM, Rodrigue JR, et al. Cognitive changes associated with switching to frequent nocturnal hemodialysis or renal transplantation Dialysis and Transplantation. BMC Nephrology. 2016;17(1)doi: 10.1186/s12882-016-0223-9.

15. Garg AX, Suri RS, Eggers P, et al. Patients receiving frequent hemodialysis have better health-related quality of life compared to patients receiving conventional hemodialysis. Kidney Int. 2017 Mar;91(3):746-54. doi: 10.1016/j.kint.2016.10.033. PMID: 28094031.

16. Hall YN, Larive B, Painter P, et al. Effects of six versus three times per week hemodialysis on physical performance, health, and functioning: Frequent Hemodialysis Network (FHN) randomized trials. Clin J Am Soc Nephrol. 2012 May;7(5):782-94. doi: 10.2215/cjn.10601011. PMID: 22422538.

17. Hladunewich MA, Hou S, Odutayo A, et al. Intensive hemodialysis associates with improved pregnancy outcomes: a Canadian and United States cohort comparison. J Am Soc Nephrol. 2014 May;25(5):1103-9. doi: 10.1681/asn.2013080825. PMID: 24525032.

18. Johansen KL, Zhang R, Huang Y, et al. Survival and hospitalization among patients using nocturnal and short daily compared to conventional hemodialysis: a USRDS study. Kidney Int. 2009 Nov;76(9):984-90. doi: 10.1038/ki.2009.291. PMID: 19692997.

19. Kaysen GA, Greene T, Larive B, et al. The effect of frequent hemodialysis on nutrition and body composition: frequent Hemodialysis Network Trial. Kidney Int. 2012 Jul;82(1):90-9. doi: 10.1038/ki.2012.75. PMID: 22456602.

20. Kotanko P, Garg AX, Depner T, et al. Effects of frequent hemodialysis on blood pressure: Results from the randomized frequent hemodialysis network trials. Hemodial Int. 2015 Jul;19(3):386-401. doi: 10.1111/hdi.12255. PMID: 25560227.

21. Kurella Tamura M, Unruh ML, Nissenson AR, et al. Effect of more frequent hemodialysis on cognitive function in the frequent hemodialysis network trials. Am J Kidney Dis. 2013 Feb;61(2):228-37. doi: 10.1053/j.ajkd.2012.09.009. PMID: 23149295.

22. Lacson E, Jr., Xu J, Suri RS, et al. Survival with three-times weekly in-center nocturnal versus conventional hemodialysis. J Am Soc Nephrol. 2012 Apr;23(4):687-95. doi: 10.1681/asn.2011070674. PMID: 22362905.

23. Lo JC, Beck GJ, Kaysen GA, et al. Hyperprolactinemia in end-stage renal disease and effects of frequent hemodialysis.

Hemodial Int. 2017 Apr;21(2):190-6. doi: 10.1111/hdi.12489. PMID: 27774730.

24. Lo JC, Beck GJ, Kaysen GA, et al. Thyroid function in end stage renal disease and effects of frequent hemodialysis. Hemodial Int. 2017 Oct;21(4):534-41. doi: 10.1111/hdi.12527. PMID: 28301073.

25. Lockridge RS, Kjellstrand CM. Nightly home hemodialysis: outcome and factors associated with survival. Hemodial Int. 2011 Apr;15(2):211-8. doi: 10.1111/j.1542-4758.2011.00542.x. PMID: 21435157.

26. Mathew A, Obi Y, Rhee CM, et al. Treatment frequency and mortality among incident hemodialysis patients in the United States comparing incremental with standard and more frequent dialysis. Kidney Int. 2016 Nov;90(5):1071-9. doi: 10.1016/j.kint.2016.05.028. PMID: 27528548.

27. Miller JE, Kovesdy CP, Nissenson AR, et al. Association of hemodialysis treatment time and dose with mortality and the role of race and sex. Am J Kidney Dis. 2010 Jan;55(1):100-12. doi: 10.1053/j.ajkd.2009.08.007. PMID: 19853336.

28. Molfino A, Beck GJ, Li M, et al. Association between change in serum bicarbonate and change in thyroid hormone levels in patients receiving conventional or more frequent maintenance haemodialysis. Nephrology (Carlton). 2019 Jan;24(1):81-7. doi: 10.1111/nep.13187. PMID: 29064128.

29. Nesrallah GE, Lindsay RM, Cuerden MS, et al. Intensive hemodialysis associates with improved survival compared with conventional hemodialysis. J Am Soc Nephrol. 2012 Apr;23(4):696-705. doi: 10.1681/asn.2011070676. PMID: 22362910.

30. Ornt DB, Larive B, Rastogi A, et al. Impact of frequent hemodialysis on anemia management: results from the Frequent Hemodialysis Network (FHN) Trials. Nephrol Dial Transplant. 2013 Jul;28(7):1888-98. doi: 10.1093/ndt/gfs593. PMID: 23358899.

31. Raimann JG, Chan CT, Daugirdas JT, et al. The Effect of Increased Frequency of Hemodialysis on Volume-Related Outcomes: A Secondary Analysis of the Frequent Hemodialysis Network Trials. Blood Purif. 2016;41(4):277-86. doi: 10.1159/000441966. PMID: 26795100.

32. Rivara MB, Adams SV, Kuttykrishnan S, et al. Extended-hours hemodialysis is associated with lower mortality risk in patients with end-stage renal disease. Kidney international. (no pagination), 2016. 2016;Date of Publication: March 19doi: 10.1016/j.kint.2016.06.028. PMID: CN-01244838.

33. Rocco MV, Daugirdas JT, Greene T, et al. Long-term Effects of Frequent Nocturnal Hemodialysis on Mortality: the Frequent Hemodialysis Network (FHN) Nocturnal Trial. American journal of kidney diseases. 2015;66(3):459-68. doi: 10.1053/j.ajkd.2015.02.331. PMID: CN-01107239.

34. Rocco MV, Lockridge RS, Beck GJ, et al. The effects of frequent nocturnal home hemodialysis: the Frequent Hemodialysis Network Nocturnal Trial. Kidney international. 2011;80(10):1080-91. doi: 10.1038/ki.2011.213. PMID: CN-00831189.

35. Troidle L, Hotchkiss M, Finkelstein F. A thrice weekly in-center nocturnal

hemodialysis program. Adv Chronic Kidney Dis. 2007 Jul;14(3):244-8. doi: 10.1053/j.ackd.2007.03.002. PMID: 17603977.

36. Unruh ML, Larive B, Chertow GM, et al. Effects of 6-times-weekly versus 3-times-weekly hemodialysis on depressive symptoms and self-reported mental health: Frequent Hemodialysis Network (FHN) Trials. Am J Kidney Dis. 2013 May;61(5):748-58. doi: 10.1053/j.ajkd.2012.11.047. PMID: 23332990.

37. Unruh ML, Larive B, Eggers PW, et al. The effect of frequent hemodialysis on self-reported sleep quality: Frequent Hemodialysis Network Trials. Nephrol Dial Transplant. 2016 Jun;31(6):984-91. doi: 10.1093/ndt/gfw062. PMID: 27190356.

38. Weinhandl ED, Liu J, Gilbertson DT, et al. Survival in daily home hemodialysis and matched thrice-weekly in-center hemodialysis patients. J Am Soc Nephrol. 2012 May;23(5):895-904. doi: 10.1681/asn.2011080761. PMID: 22362906.

39. Weinhandl ED, Nieman KM, Gilbertson DT, et al. Hospitalization in daily home hemodialysis and matched thrice-weekly in-center hemodialysis patients. Am J Kidney Dis. 2015 Jan;65(1):98-108. doi: 10.1053/j.ajkd.2014.06.015. PMID: 25085647.

Key Question 4

1. Abdel-Kader K, Myaskovsky L, Karpov I, et al. Individual quality of life in chronic kidney disease: influence of age and dialysis modality. Clin J Am Soc Nephrol. 2009 Apr;4(4):711-8. doi: 10.2215/cjn.05191008. PMID: 19339411.
2. Abdel-Kader K, Unruh ML, Weisbord SD. Symptom burden, depression, and quality of life in chronic and end-stage kidney disease. Clin J Am Soc Nephrol. 2009 Jun;4(6):1057-64. doi: 10.2215/cjn.00430109. PMID: 19423570.
3. Abreo AP, Dalrymple LS, Chertow GM, et al. Predialysis volume overload and patient-reported sleep duration and quality in patients receiving hemodialysis. Hemodial Int. 2017 Jan;21(1):133-41. doi: 10.1111/hdi.12446. PMID: 27346666.
4. Agarwal R, Light RP. Sleep and activity in chronic kidney disease: a longitudinal study. Clin J Am Soc Nephrol. 2011 Jun;6(6):1258-65. doi: 10.2215/cjn.10581110. PMID: 21415310.
5. Agganis BT, Weiner DE, Giang LM, et al. Depression and cognitive function in maintenance hemodialysis patients. Am J Kidney Dis. 2010 Oct;56(4):704-12. doi: 10.1053/j.ajkd.2010.04.018. PMID: 20673602.
6. Allen KL, Miskulin D, Yan G, et al. Association of nutritional markers with physical and mental health status in prevalent hemodialysis patients from the HEMO study. J Ren Nutr. 2002 Jul;12(3):160-9. doi: 10.1053/jren.2002.33512. PMID: 12105813.
7. Anand S, Kaysen GA, Chertow GM, et al. Vitamin D deficiency, self-reported physical activity and health-

related quality of life: the Comprehensive Dialysis Study. Nephrol Dial Transplant. 2011 Nov;26(11):3683-8. doi: 10.1093/ndt/gfr098. PMID: 21430182.

8. Aramwit P, Keongamaroon O, Siritientong T, et al. Sericin cream reduces pruritus in hemodialysis patients: a randomized, double-blind, placebo-controlled experimental study. BMC Nephrol. 2012 Sep 24;13:119. doi: 10.1186/1471-2369-13-119. PMID: 23006933.
9. Atcherson E. The quality of life: a study of hemodialysis patients. Health Soc Work. 1978 Nov;3(4):54-69. PMID: 738674.
10. Barakzoy AS, Moss AH. Efficacy of the world health organization analgesic ladder to treat pain in end-stage renal disease. J Am Soc Nephrol. 2006 Nov;17(11):3198-203. doi: 10.1681/asn.2006050477. PMID: 16988057.
11. Barrett BJ, Vavasour HM, Major A, et al. Clinical and psychological correlates of somatic symptoms in patients on dialysis. Nephron. 1990;55(1):10-5. doi: 10.1159/000185911. PMID: 2352574.
12. Begum R, Belury MA, Burgess JR, et al. Supplementation with n-3 and n-6 polyunsaturated fatty acids: effects on lipoxygenase activity and clinical symptoms of pruritus in hemodialysis patients. Journal of renal nutrition. 2004;14(4):233-41. PMID: CN-00551341.
13. Belayev LY, Mor MK, Sevick MA, et al. Longitudinal associations of depressive symptoms and pain with quality of life in patients receiving chronic hemodialysis. Hemodial Int. 2015 Apr;19(2):216-24. doi: 10.1111/hdi.12247. PMID: 25403142.
14. Berman N, Reid MC, Teresi J, et al. More with Less: A Trial of Reduced-Intensity Treatment in Transplant-Ineligible Hemodialysis Patients. J Palliat Med. 2016 May;19(5):503-8. doi: 10.1089/jpm.2015.0338. PMID: 27139523.
15. Birdee GS, Rothman RL, Sohl SJ, et al. Feasibility and Safety of Intradialysis Yoga and Education in Maintenance Hemodialysis Patients. J Ren Nutr. 2015 Sep;25(5):445-53. doi: 10.1053/j.jrn.2015.02.004. PMID: 25869658.
16. Bleyer AJ, Kidd K, Johnson E, et al. Quality of life in patients with autosomal dominant tubulointerstitial kidney disease. Clin Nephrol. 2019 Oct 7doi: 10.5414/cn109842. PMID: 31587753.
17. Brass EP, Adler S, Sietsema KE, et al. Intravenous L-carnitine increases plasma carnitine, reduces fatigue, and may preserve exercise capacity in hemodialysis patients. Am J Kidney Dis. 2001 May;37(5):1018-28. PMID: 11325685.
18. Bremer BA, McCauley CR, Wrona RM, et al. Quality of life in end-stage renal disease: a reexamination. Am J Kidney Dis. 1989 Mar;13(3):200-9. PMID: 2493190.
19. Bremer BA, Wert KM, Durica AL, et al. Neuropsychological, physical, and psychosocial functioning of individuals with end-stage renal disease. Ann Behav Med. 1997 Fall;19(4):348-52. doi: 10.1007/bf02895153. PMID: 9706361.

20. Broers NJ, Usvyat LA, Kooman JP, et al. Quality of Life in Dialysis Patients: A Retrospective Cohort Study. Nephron. 2015;130(2):105-12. doi: 10.1159/000430814. PMID: 26044799.

21. Bullen A, Awdishu L, Lester W, et al. Effect of Acupuncture or Massage on Health-Related Quality of Life of Hemodialysis Patients. J Altern Complement Med. 2018 Nov;24(11):1069-75. doi: 10.1089/acm.2018.0030. PMID: 29851511.

22. Burrowes JD, Larive B, Chertow GM, et al. Self-reported appetite, hospitalization and death in haemodialysis patients: findings from the Hemodialysis (HEMO) Study. Nephrol Dial Transplant. 2005 Dec;20(12):2765-74. doi: 10.1093/ndt/gfi132. PMID: 16204298.

23. Burrowes JD, Russell GB, Unruh M, et al. Is nutritional status associated with self-reported sleep quality in the HEMO study cohort? J Ren Nutr. 2012 Sep;22(5):461-71. doi: 10.1053/j.jrn.2011.08.004. PMID: 22056151.

24. Cardone KE, Manley HJ, Grabe DW, et al. Quantifying home medication regimen changes and quality of life in patients receiving nocturnal home hemodialysis. Hemodial Int. 2011 Apr;15(2):234-42. doi: 10.1111/j.1542-4758.2011.00539.x. PMID: 21395973.

25. Chan KN, Chen Y, Lit Y, et al. A randomized controlled trial of exercise to prevent muscle mass and functional loss in elderly hemodialysis patients: Rationale, study design, and baseline sample. Contemp Clin Trials Commun. 2019;15((Chan K.N., knchan@stanford.edu; Myers J.N., drj993@aol.com) Cardiology Division, Veterans Affairs Palo Alto Health Care System, United States)doi: 10.1016/j.conctc.2019.100365.

26. Chertow GM, Levin NW, Beck GJ, et al. In-center hemodialysis six times per week versus three times per week. N Engl J Med. 2010 Dec 9;363(24):2287-300. doi: 10.1056/NEJMoa1001593. PMID: 21091062.

27. Chertow GM, Levin NW, Beck GJ, et al. Long-Term Effects of Frequent In-Center Hemodialysis. J Am Soc Nephrol. 2016 Jun;27(6):1830-6. doi: 10.1681/asn.2015040426. PMID: 26467779.

28. Chiu YW, Teitelbaum I, Misra M, et al. Pill burden, adherence, hyperphosphatemia, and quality of life in maintenance dialysis patients. Clin J Am Soc Nephrol. 2009 Jun;4(6):1089-96. doi: 10.2215/cjn.00290109. PMID: 19423571.

29. Christensen AJ, Holman Jr JM, Turner CW, et al. A prospective study of quality of life in end-stage renal disease: Effects of cadaveric renal transplantation. Clinical Transplantation. 1991;5(1):40-7.

30. Christensen AJ, Holman Jr JM, Turner CW, et al. Quality of life in end-stage renal disease: Influence of renal transplantation. Clinical Transplantation. 1989;3(1):46-53.

31. Cohen DE, Lee A, Sibbel S, et al. Use of the KDQOL-36 for assessment of health-related quality of life among dialysis patients in the United States. BMC Nephrol. 2019 Apr 1;20(1):112. doi: 10.1186/s12882-019-1295-0. PMID: 30935377.

32. Crews DC, Delaney AM, Walker Taylor JL, et al. Pilot Intervention Addressing Social Support and Functioning of Low Socioeconomic Status Older Adults With ESRD: The Seniors Optimizing Community Integration to Advance Better Living with ESRD (SOCIABLE)Study. Kidney Medicine. 2019;1(1):13-20. doi: 10.1016/j.xkme.2018.12.001.

33. Cukor D, Coplan J, Brown C, et al. Anxiety disorders in adults treated by hemodialysis: a single-center study. Am J Kidney Dis. 2008 Jul;52(1):128-36. doi: 10.1053/j.ajkd.2008.02.300. PMID: 18440682.

34. Cukor D, Coplan J, Brown C, et al. Course of depression and anxiety diagnosis in patients treated with hemodialysis: a 16-month follow-up. Clin J Am Soc Nephrol. 2008 Nov;3(6):1752-8. doi: 10.2215/cjn.01120308. PMID: 18684897.

35. Cukor D, Coplan J, Brown C, et al. Depression and anxiety in urban hemodialysis patients. Clin J Am Soc Nephrol. 2007 May;2(3):484-90. doi: 10.2215/cjn.00040107. PMID: 17699455.

36. Cukor D, Ver Halen N, Asher DR, et al. Psychosocial intervention improves depression, quality of life, and fluid adherence in hemodialysis. J Am Soc Nephrol. 2014 Jan;25(1):196-206. doi: 10.1681/asn.2012111134. PMID: 24115478.

37. Curtin RB, Bultman DC, Thomas-Hawkins C, et al. Hemodialysis patients' symptom experiences: effects on physical and mental functioning. Nephrol Nurs J. 2002 Dec;29(6):562, 7-74; discussion 75, 98. PMID: 12596605.

38. Debnath S, O'Connor J, Hura C, et al. Quality of Life and Depression Among Mexican Americans on Hemodialysis: A Preliminary Report. Ther Apher Dial. 2018 Apr;22(2):166-70. doi: 10.1111/1744-9987.12642. PMID: 29193825.

39. Dember LM, Lacson E, Jr., Brunelli SM, et al. The TiME Trial: A Fully Embedded, Cluster-Randomized, Pragmatic Trial of Hemodialysis Session Duration. J Am Soc Nephrol. 2019 May;30(5):890-903. doi: 10.1681/asn.2018090945. PMID: 31000566.

40. Deniston OL, Carpentier-Alting P, Kneisley J, et al. Assessment of quality of life in end-stage renal disease. Health Serv Res. 1989 Oct;24(4):555-78. PMID: 2807935.

41. Deniston OL, Luscombe FA, Buesching DP, et al. Effect of long-term epoetin beta therapy on the quality of life of hemodialysis patients. ASAIO Trans. 1990 Jul-Sep;36(3):M157-60. PMID: 2123632.

42. Domenick Sridharan N, Fish L, Yu L, et al. The associations of hemodialysis access type and access satisfaction with health-related quality of life. J Vasc Surg. 2018 Jan;67(1):229-35. doi: 10.1016/j.jvs.2017.05.131. PMID: 28822665.

43. Drayer RA, Piraino B, Reynolds CF, 3rd, et al. Characteristics of depression in hemodialysis patients: symptoms, quality of life and mortality risk. Gen Hosp Psychiatry. 2006 Jul-Aug;28(4):306-12. doi: 10.1016/j.genhosppsych.2006.03.008. PMID: 16814629.

44. Duggal V, Hussein WF, Reiterman M, et al. The effect of blood flow rate on dialysis recovery time in patients undergoing maintenance hemodialysis: A prospective, parallel-group, randomized controlled trial. Hemodial Int. 2019 Mar 4doi: 10.1111/hdi.12741. PMID: 30834652.

45. Duque MI, Thevarajah S, Chan YH, et al. Uremic pruritus is associated with higher kt/V and serum calcium concentration. Clin Nephrol. 2006 Sep;66(3):184-91. PMID: 16995341.

46. Dwyer JT, Larive B, Leung J, et al. Nutritional status affects quality of life in Hemodialysis (HEMO) Study patients at baseline. J Ren Nutr. 2002 Oct;12(4):213-23. PMID: 12382213.

47. Evans RW, Rader B, Manninen DL. The quality of life of hemodialysis recipients treated with recombinant human erythropoietin. Cooperative Multicenter EPO Clinical Trial Group. Jama. 1990 Feb 9;263(6):825-30. PMID: 2404150.

48. Evans RW. Recombinant human erythropoietin and the quality of life of end-stage renal disease patients: a comparative analysis. Am J Kidney Dis. 1991 Oct;18(4 Suppl 1):62-70. PMID: 1928082.

49. Feroze U, Martin D, Kalantar-Zadeh K, et al. Anxiety and depression in maintenance dialysis patients: preliminary data of a cross-sectional study and brief literature review. J Ren Nutr. 2012 Jan;22(1):207-10. doi: 10.1053/j.jrn.2011.10.009. PMID: 22200444.

50. Feroze U, Noori N, Kovesdy CP, et al. Quality-of-life and mortality in hemodialysis patients: roles of race and nutritional status. Clin J Am Soc Nephrol. 2011 May;6(5):1100-11. doi: 10.2215/cjn.07690910. PMID: 21527646.

51. Finkelstein FO, Schiller B, Daoui R, et al. At-home short daily hemodialysis improves the long-term health-related quality of life. Kidney Int. 2012 Sep;82(5):561-9. doi: 10.1038/ki.2012.168. PMID: 22622497.

52. Finkelstein FO, Story K, Firanek C, et al. Health-related quality of life and hemoglobin levels in chronic kidney disease patients. Clin J Am Soc Nephrol. 2009 Jan;4(1):33-8. doi: 10.2215/cjn.00630208. PMID: 18987300.

53. Fowler C, Baas LS. Illness representations in patients with chronic kidney disease on maintenance hemodialysis. Nephrol Nurs J. 2006 Mar-Apr;33(2):173-4, 9-86. PMID: 16613412.

54. Fukuhara S, Lopes AA, Bragg-Gresham JL, et al. Health-related quality of life among dialysis patients on three continents: the Dialysis Outcomes and Practice Patterns Study. Kidney Int. 2003 Nov;64(5):1903-10. doi: 10.1046/j.1523-1755.2003.00289.x. PMID: 14531826.

55. Gabbay E, Meyer KB, Griffith JL, et al. Temporal trends in health-related quality of life among hemodialysis patients in the United States. Clin J Am Soc Nephrol. 2010 Feb;5(2):261-7. doi: 10.2215/cjn.03890609. PMID: 20019114.

56. Garg AX, Suri RS, Eggers P, et al. Patients receiving frequent

hemodialysis have better health-related quality of life compared to patients receiving conventional hemodialysis. Kidney Int. 2017 Mar;91(3):746-54. doi: 10.1016/j.kint.2016.10.033. PMID: 28094031.

57. Gerson A, Hwang W, Fiorenza J, et al. Anemia and health-related quality of life in adolescents with chronic kidney disease. Am J Kidney Dis. 2004 Dec;44(6):1017-23. PMID: 15558522.

58. Goldstein SL, Graham N, Burwinkle T, et al. Health-related quality of life in pediatric patients with ESRD. Pediatr Nephrol. 2006 Jun;21(6):846-50. doi: 10.1007/s00467-006-0081-y. PMID: 16703376.

59. Goldstein SL, Graham N, Warady BA, et al. Measuring health-related quality of life in children with ESRD: performance of the generic and ESRD-specific instrument of the Pediatric Quality of Life Inventory (PedsQL). Am J Kidney Dis. 2008 Feb;51(2):285-97. doi: 10.1053/j.ajkd.2007.09.021. PMID: 18215706.

60. Goldstein SL, Rosburg NM, Warady BA, et al. Pediatric end stage renal disease health-related quality of life differs by modality: a PedsQL ESRD analysis. Pediatr Nephrol. 2009 Aug;24(8):1553-60. doi: 10.1007/s00467-009-1174-1. PMID: 19421787.

61. Gorodetskaya I, Zenios S, McCulloch CE, et al. Health-related quality of life and estimates of utility in chronic kidney disease. Kidney Int. 2005 Dec;68(6):2801-8. doi: 10.1111/j.1523-1755.2005.00752.x. PMID: 16316356.

62. Hall YN, Larive B, Painter P, et al. Effects of six versus three times per week hemodialysis on physical performance, health, and functioning: Frequent Hemodialysis Network (FHN) randomized trials. Clin J Am Soc Nephrol. 2012 May;7(5):782-94. doi: 10.2215/cjn.10601011. PMID: 22422538.

63. Harris TJ, Nazir R, Khetpal P, et al. Pain, sleep disturbance and survival in hemodialysis patients. Nephrol Dial Transplant. 2012 Feb;27(2):758-65. doi: 10.1093/ndt/gfr355. PMID: 21771748.

64. Hedayati SS, Bosworth HB, Kuchibhatla M, et al. The predictive value of self-report scales compared with physician diagnosis of depression in hemodialysis patients. Kidney Int. 2006 May;69(9):1662-8. doi: 10.1038/sj.ki.5000308. PMID: 16598203.

65. Hernandez R, Burrows B, Wilund K, et al. Feasibility of an Internet-based positive psychological intervention for hemodialysis patients with symptoms of depression. Soc Work Health Care. 2018 Nov-Dec;57(10):864-79. doi: 10.1080/00981389.2018.1523268. PMID: 30277449.

66. Hicks LS, Cleary PD, Epstein AM, et al. Differences in health-related quality of life and treatment preferences among black and white patients with end-stage renal disease. Qual Life Res. 2004 Aug;13(6):1129-37. doi:

10.1023/B:QURE.0000031350.56924.cc. PMID: 15287279.

67. Hornberger JC, Redelmeier DA, Petersen J. Variability among methods to assess patients' well-being and consequent effect on a cost-effectiveness analysis. J Clin Epidemiol. 1992 May;45(5):505-12. PMID: 1588356.

68. Hynes DM, Fischer M, Fitzgibbon M, et al. Integrating a Medical Home in an Outpatient Dialysis Setting: Effects on Health-Related Quality of Life. J Gen Intern Med. 2019 Jul 24doi: 10.1007/s11606-019-05154-9. PMID: 31342329.

69. Jaber BL, Lee Y, Collins AJ, et al. Effect of daily hemodialysis on depressive symptoms and postdialysis recovery time: interim report from the FREEDOM (Following Rehabilitation, Economics and Everyday-Dialysis Outcome Measurements) Study. Am J Kidney Dis. 2010 Sep;56(3):531-9. doi: 10.1053/j.ajkd.2010.04.019. PMID: 20673601.

70. Jhamb M, Argyropoulos C, Steel JL, et al. Correlates and outcomes of fatigue among incident dialysis patients. Clin J Am Soc Nephrol. 2009 Nov;4(11):1779-86. doi: 10.2215/cjn.00190109. PMID: 19808226.

71. Jhamb M, Pike F, Ramer S, et al. Impact of fatigue on outcomes in the hemodialysis (HEMO) study. Am J Nephrol. 2011;33(6):515-23. doi: 10.1159/000328004. PMID: 21555875.

72. Johansen KL, Chertow GM. Chronic kidney disease mineral bone disorder and health-related quality of life among incident end-stage renal-disease patients. J Ren Nutr. 2007 Sep;17(5):305-13. doi: 10.1053/j.jrn.2007.06.005. PMID: 17720099.

73. Johnson JP, McCauley CR, Copley JB. The quality of life of hemodialysis and transplant patients. Kidney Int. 1982 Sep;22(3):286-91. PMID: 6757524.

74. Julius M, Hawthorne VM, Carpentier-Alting P, et al. Independence in activities of daily living for end-stage renal disease patients: biomedical and demographic correlates. Am J Kidney Dis. 1989 Jan;13(1):61-9. PMID: 2643311.

75. Kaysen GA, Larive B, Painter P, et al. Baseline physical performance, health, and functioning of participants in the Frequent Hemodialysis Network (FHN) trial. Am J Kidney Dis. 2011 Jan;57(1):101-12. doi: 10.1053/j.ajkd.2010.08.021. PMID: 21184919.

76. Kimmel PL, Emont SL, Newmann JM, et al. ESRD patient quality of life: symptoms, spiritual beliefs, psychosocial factors, and ethnicity. Am J Kidney Dis. 2003 Oct;42(4):713-21. PMID: 14520621.

77. Kimmel PL, Peterson RA, Weihs KL, et al. Aspects of quality of life in hemodialysis patients. J Am Soc Nephrol. 1995 Nov;6(5):1418-26. PMID: 8589317.

78. Kimmel PL, Peterson RA, Weihs KL, et al. Psychosocial factors, behavioral compliance and survival in urban hemodialysis patients. Kidney Int. 1998 Jul;54(1):245-54. doi: 10.1046/j.1523-1755.1998.00989.x. PMID: 9648085.

79. Ko B, Khurana A, Spencer J, et al. Religious beliefs and quality of life in an American inner-city haemodialysis population. Nephrol Dial Transplant. 2007 Oct;22(10):2985-90. doi: 10.1093/ndt/gfm341. PMID: 17597086.

80. Kring DL, Crane PB. Factors affecting quality of life in persons on hemodialysis. Nephrol Nurs J. 2009 Jan-Feb;36(1):15-24, 55. PMID: 19271620.

81. Kurella M, Luan J, Lash JP, et al. Self-assessed sleep quality in chronic kidney disease. Int Urol Nephrol. 2005;37(1):159-65. doi: 10.1007/s11255-004-4654-z. PMID: 16132780.

82. Kurella M, Luan J, Yaffe K, et al. Validation of the Kidney Disease Quality of Life (KDQOL) cognitive function subscale. Kidney Int. 2004 Dec;66(6):2361-7. doi: 10.1111/j.1523-1755.2004.66024.x. PMID: 15569327.

83. Kutner NG, Devins GM. A comparison of the quality of life reported by elderly whites and elderly blacks on dialysis. Geriatr Nephrol Urol. 1998;8(2):77-83. PMID: 9893215.

84. Kutner NG, Zhang R, Brogan D. Race, gender, and incident dialysis patients' reported health status and quality of life. J Am Soc Nephrol. 2005 May;16(5):1440-8. doi: 10.1681/asn.2004080639. PMID: 15800127.

85. Kutner NG, Zhang R, Huang Y, et al. Association of sleep difficulty with Kidney Disease Quality of Life cognitive function score reported by patients who recently started dialysis. Clin J Am Soc Nephrol. 2007 Mar;2(2):284-9. doi: 10.2215/cjn.03000906. PMID: 17699426.

86. Kutner NG, Zhang R, Huang Y, et al. Depressed mood, usual activity level, and continued employment after starting dialysis. Clin J Am Soc Nephrol. 2010 Nov;5(11):2040-5. doi: 10.2215/cjn.03980510. PMID: 20884777.

87. Kutner NG, Zhang R, McClellan WM. Patient-reported quality of life early in dialysis treatment: effects associated with usual exercise activity. Nephrol Nurs J. 2000 Aug;27(4):357-67; discussion 68, 424. PMID: 11276627.

88. Lacson E, Jr., Bruce L, Li NC, et al. Depressive affect and hospitalization risk in incident hemodialysis patients. Clin J Am Soc Nephrol. 2014 Oct 7;9(10):1713-9. doi: 10.2215/cjn.01340214. PMID: 25278546.

89. Lacson E, Jr., Xu J, Lin SF, et al. Association between achievement of hemodialysis quality-of-care indicators and quality-of-life scores. Am J Kidney Dis. 2009 Dec;54(6):1098-107. doi: 10.1053/j.ajkd.2009.07.017. PMID: 19782455.

90. Laskin BL, Huang G, King E, et al. Short, frequent, 5-days-per-week, in-center hemodialysis versus 3-days-per week treatment: a randomized crossover pilot trial through the Midwest Pediatric Nephrology Consortium. Pediatr Nephrol. 2017 Aug;32(8):1423-32. doi: 10.1007/s00467-017-3656-x. PMID: 28389745.

91. Levy AR, Xing S, Brunelli SM, et al. Symptoms of Secondary Hyperparathyroidism in Patients Receiving Maintenance Hemodialysis: A Prospective Cohort Study. Am J Kidney Dis. 2019 Oct 16doi: 10.1053/j.ajkd.2019.07.013. PMID: 31629575.

92. Li YN, Shapiro B, Kim JC, et al. Association between quality of life and anxiety, depression, physical activity and physical performance in maintenance hemodialysis patients. Chronic Dis Transl Med. 2016 Jun;2(2):110-9. doi: 10.1016/j.cdtm.2016.09.004. PMID: 29063031.

93. Liang KV, Pike F, Argyropoulos C, et al. Heart failure severity scoring system and medical- and health-related quality-of-life outcomes: the HEMO study. Am J Kidney Dis. 2011 Jul;58(1):84-92. doi: 10.1053/j.ajkd.2011.01.029. PMID: 21549465.

94. Liebman S, Li NC, Lacson E. Change in quality of life and one-year mortality risk in maintenance dialysis patients. Qual Life Res. 2016 Sep;25(9):2295-306. doi: 10.1007/s11136-016-1257-y. PMID: 26941217.

95. Liu T, Liang KV, Rosenbaum A, et al. Peripheral vascular disease severity impacts health outcomes and health-related quality of life in maintenance hemodialysis patients in the HEMO Study. Nephrol Dial Transplant. 2012 Jul;27(7):2929-36. doi: 10.1093/ndt/gfr760. PMID: 22273665.

96. Lo JC, Beck GJ, Kaysen GA, et al. Hyperprolactinemia in end-stage renal disease and effects of frequent hemodialysis. Hemodial Int. 2017 Apr;21(2):190-6. doi: 10.1111/hdi.12489. PMID: 27774730.

97. Lo JC, Beck GJ, Kaysen GA, et al. Thyroid function in end stage renal disease and effects of frequent hemodialysis. Hemodial Int. 2017 Oct;21(4):534-41. doi: 10.1111/hdi.12527. PMID: 28301073.

98. Mapes DL, Bragg-Gresham JL, Bommer J, et al. Health-related quality of life in the Dialysis Outcomes and Practice Patterns Study (DOPPS). Am J Kidney Dis. 2004 Nov;44(5 Suppl 2):54-60. PMID: 15486875.

99. Maung S, Sara AE, Cohen D, et al. Sleep disturbance and depressive affect in patients treated with haemodialysis. J Ren Care. 2017 Mar;43(1):60-6. doi: 10.1111/jorc.12188. PMID: 28000424.

100. McAdams-DeMarco MA, Ying H, Olorundare I, et al. Frailty and Health-Related Quality of Life in End Stage Renal Disease Patients of All Ages. J Frailty Aging. 2016;5(3):174-9. PMID: 29240319.

101. McClellan WM, Anson C, Birkeli K, et al. Functional status and quality of life: predictors of early mortality among patients entering treatment for end stage renal disease. J Clin Epidemiol. 1991;44(1):83-9. PMID: 1986062.

102. McDade-Montez EA, Christensen AJ, Cvengros JA, et al. The role of depression symptoms in dialysis withdrawal. Health Psychol. 2006 Mar;25(2):198-204. doi: 10.1037/0278-6133.25.2.198. PMID: 16569111.

103. Mehdi S, Prete PE, Hashimzadeh M, et al. A study of musculoskeletal disease in two chronic hemodialysis populations and its impact on quality of life. J Clin Rheumatol. 2009 Dec;15(8):405-7. doi: 10.1097/RHU.0b013e3181c4c57f. PMID: 19956000.

104. Mehrotra R, Cukor D, Unruh M, et al. Comparative efficacy of therapies for treatment of depression for patients undergoing maintenance hemodialysis. Annals of Internal Medicine. 2019;170(6):369-79. doi: 10.1093/ndt/gfr778.

105. Mittal SK, Ahern L, Flaster E, et al. Self-assessed physical and mental function of haemodialysis patients. Nephrol Dial Transplant. 2001 Jul;16(7):1387-94. PMID: 11427630.

106. Mittal SK, Ahern L, Flaster E, et al. Self-assessed quality of life in peritoneal dialysis patients. Am J Nephrol. 2001 May-Jun;21(3):215-20. doi: 10.1159/000046250. PMID: 11423691.

107. Natarajan R, Pechenyak B, Vyas U, et al. Randomized controlled trial of strain-specific probiotic formulation (Renadyl) in dialysis patients. Biomed Res Int. 2014;2014:568571. doi: 10.1155/2014/568571. PMID: 25147806.

108. Neri L, Rocca Rey LA, Gallieni M, et al. Occupational stress is associated with impaired work ability and reduced quality of life in patients with chronic kidney failure. Int J Artif Organs. 2009 May;32(5):291-8. PMID: 19569038.

109. Neul SK, Minard CG, Currier H, et al. Health-related quality of life functioning over a 2-year period in children with end-stage renal disease. Pediatr Nephrol. 2013 Feb;28(2):285-93. doi: 10.1007/s00467-012-2313-7. PMID: 23052652.

110. Neul SK. Quality of Life Intervention Planning: Pilot Study in Youth with Kidney Failure Who Are on Dialysis. Nephrol Nurs J. 2015 Sep-Oct;42(5):487-96; quiz 97. PMID: 26591273.

111. Novak MJ, Sheth H, Bender FH, et al. Improvement in Pittsburgh Symptom Score index after initiation of peritoneal dialysis. Adv Perit Dial. 2008;24:46-50. PMID: 18986000.

112. Pai AB, Boyd A, Chavez A, et al. Health-related quality of life is maintained in hemodialysis patients receiving pharmaceutical care: a 2-year randomized, controlled study. Hemodial Int. 2009 Jan;13(1):72-9. doi: 10.1111/j.1542-4758.2009.00328.x. PMID: 19210281.

113. Painter P, Krasnoff JB, Kuskowski M, et al. Effects of modality change on health-related quality of life. Hemodial Int. 2012 Jul;16(3):377-86. doi: 10.1111/j.1542-4758.2012.00676.x. PMID: 22413899.

114. Painter PL, Agarwal A, Drummond M. Physical Function and Physical Activity in Peritoneal Dialysis Patients. Perit Dial Int. 2017 Nov-Dec;37(6):598-604. doi: 10.3747/pdi.2016.00256. PMID: 28970364.

115. Parker KP, Kutner NG, Bliwise DL, et al. Nocturnal sleep,

daytime sleepiness, and quality of life in stable patients on hemodialysis. Health Qual Life Outcomes. 2003 Nov 21;1:68. doi: 10.1186/1477-7525-1-68. PMID: 14633280.

116. Parkerson GR, Jr., Gutman RA. Health-related quality of life predictors of survival and hospital utilization. Health Care Financ Rev. 2000 Spring;21(3):171-84. PMID: 11481754.

117. Patel SS, Shah VS, Peterson RA, et al. Psychosocial variables, quality of life, and religious beliefs in ESRD patients treated with hemodialysis. Am J Kidney Dis. 2002 Nov;40(5):1013-22. doi: 10.1053/ajkd.2002.36336. PMID: 12407647.

118. Pifer TB, Bragg-Gresham JL, Dykstra DM, et al. Quality of life and patient satisfaction: ESRD managed care demonstration. Health Care Financ Rev. 2003 Summer;24(4):45-58. PMID: 14628399.

119. Pisoni RL, Wikstrom B, Elder SJ, et al. Pruritus in haemodialysis patients: International results from the Dialysis Outcomes and Practice Patterns Study (DOPPS). Nephrol Dial Transplant. 2006 Dec;21(12):3495-505. doi: 10.1093/ndt/gfl461. PMID: 16968725.

120. Plantinga LC, Fink NE, Jaar BG, et al. Relation between level or change of hemoglobin and generic and disease-specific quality of life measures in hemodialysis. Qual Life Res. 2007 Jun;16(5):755-65. doi: 10.1007/s11136-007-9176-6. PMID: 17286191.

121. Pruchno R, Wilson-Genderson M, Cartwright FP. Depressive symptoms and marital satisfaction in the context of chronic disease: a longitudinal dyadic analysis. J Fam Psychol. 2009 Aug;23(4):573-84. doi: 10.1037/a0015878. PMID: 19685992.

122. Ramakrishnan K, Bond TC, Claxton A, et al. Clinical characteristics and outcomes of end-stage renal disease patients with self-reported pruritus symptoms. Int J Nephrol Renovasc Dis. 2013;7:1-12. doi: 10.2147/ijnrd.s52985. PMID: 24379689.

123. Rao S, Carter WB, Mapes DL, et al. Development of subscales from the symptoms/problems and effects of kidney disease scales of the kidney disease quality of life instrument. Clin Ther. 2000 Sep;22(9):1099-111. doi: 10.1016/s0149-2918(00)80087-9. PMID: 11048907.

124. Raspovic KM, Ahn J, La Fontaine J, et al. End-Stage Renal Disease Negatively Affects Physical Quality of Life in Patients With Diabetic Foot Complications. Int J Low Extrem Wounds. 2017 Jun;16(2):135-42. doi: 10.1177/1534734617707081. PMID: 28682731.

125. Rocco MV, Daugirdas JT, Greene T, et al. Long-term Effects of Frequent Nocturnal Hemodialysis on Mortality: the Frequent Hemodialysis Network (FHN) Nocturnal Trial. American journal of kidney diseases. 2015;66(3):459-68. doi: 10.1053/j.ajkd.2015.02.331. PMID: CN-01107239.

126. Rocco MV, Larive B, Eggers PW, et al. Baseline characteristics of participants in the Frequent Hemodialysis Network (FHN) daily and nocturnal trials. Am J Kidney Dis. 2011 Jan;57(1):90-100. doi: 10.1053/j.ajkd.2010.08.024. PMID: 21122961.

127. Rocco MV, Lockridge RS, Beck GJ, et al. The effects of frequent nocturnal home hemodialysis: the Frequent Hemodialysis Network Nocturnal Trial. Kidney international. 2011;80(10):1080-91. doi: 10.1038/ki.2011.213. PMID: CN-00831189.

128. Rodrigue JR, Mandelbrot DA, Pavlakis M. A psychological intervention to improve quality of life and reduce psychological distress in adults awaiting kidney transplantation. Nephrol Dial Transplant. 2011 Feb;26(2):709-15. doi: 10.1093/ndt/gfq382. PMID: 20603243.

129. Rosas SE, Joffe M, Franklin E, et al. Prevalence and determinants of erectile dysfunction in hemodialysis patients. Kidney Int. 2001 Jun;59(6):2259-66. doi: 10.1046/j.1523-1755.2001.00742.x. PMID: 11380829.

130. Roumelioti ME, Buysse DJ, Sanders MH, et al. Sleep-disordered breathing and excessive daytime sleepiness in chronic kidney disease and hemodialysis. Clin J Am Soc Nephrol. 2011 May;6(5):986-94. doi: 10.2215/cjn.05720710. PMID: 21441128.

131. Saad MM, El Douaihy Y, Boumitri C, et al. Predictors of quality of life in patients with end-stage renal disease on hemodialysis. Int J Nephrol Renovasc Dis. 2015;8:119-23. doi: 10.2147/ijnrd.s84929. PMID: 26366104.

132. Saban KL, Bryant FB, Reda DJ, et al. Measurement invariance of the kidney disease and quality of life instrument (KDQOL-SF) across veterans and non-veterans. Health Qual Life Outcomes. 2010 Oct 25;8:120. doi: 10.1186/1477-7525-8-120. PMID: 20973987.

133. Saban KL, Stroupe KT, Bryant FB, et al. Comparison of health-related quality of life measures for chronic renal failure: quality of well-being scale, short-form-6D, and the kidney disease quality of life instrument. Qual Life Res. 2008 Oct;17(8):1103-15. doi: 10.1007/s11136-008-9387-5. PMID: 18791810.

134. Schneider RA. Chronic renal failure: assessing the Fatigue Severity Scale for use among caregivers. J Clin Nurs. 2004 Feb;13(2):219-25. PMID: 14723674.

135. Schneider RA. Fatigue among caregivers of chronic renal failure patients: a principal components analysis. Nephrol Nurs J. 2003 Dec;30(6):629-33, 64. PMID: 14730783.

136. Seethala S, Hess R, Bossola M, et al. Sexual function in women receiving maintenance dialysis. Hemodial Int. 2010 Jan;14(1):55-60. doi: 10.1111/j.1542-4758.2009.00404.x. PMID: 19758295.

137. Shafi T, Jaar BG, Plantinga LC, et al. Association of residual

urine output with mortality, quality of life, and inflammation in incident hemodialysis patients: the Choices for Healthy Outcomes in Caring for End-Stage Renal Disease (CHOICE) Study. Am J Kidney Dis. 2010 Aug;56(2):348-58. doi: 10.1053/j.ajkd.2010.03.020. PMID: 20605303.

138. Simmons RG, Anderson C, Kamstra L. Comparison of quality of life of patients on continuous ambulatory peritoneal dialysis, hemodialysis, and after transplantation. Am J Kidney Dis. 1984 Nov;4(3):253-5. PMID: 6388319.

139. Simmons RG, Anderson CR, Abress LK. Quality of life and rehabilitation differences among four end-stage renal disease therapy groups. Scand J Urol Nephrol Suppl. 1990;131:7-22. PMID: 2075473.

140. Siskind MS, Lien YH. Effect of intradialytic parenteral nutrition on quality of life in hemodialysis patients. Int J Artif Organs. 1993 Aug;16(8):599-603. PMID: 8225651.

141. Sloan RS, Kastan B, Rice SI, et al. Quality of life during and between hemodialysis treatments: role of L-carnitine supplementation. Am J Kidney Dis. 1998 Aug;32(2):265-72. PMID: 9708611.

142. Sloand JA, Shelly MA, Feigin A, et al. A double-blind, placebo-controlled trial of intravenous iron dextran therapy in patients with ESRD and restless legs syndrome. American journal of kidney diseases. 2004;43(4):663-70. PMID: CN-00461755.

143. Song MK, Gilet CA, Lin FC, et al. Characterizing daily life experience of patients on maintenance dialysis. Nephrol Dial Transplant. 2011 Nov;26(11):3671-7. doi: 10.1093/ndt/gfr071. PMID: 21382996.

144. Song MK, Hanson LC. Relationships between psychosocial-spiritual well-being and end-of-life preferences and values in African American dialysis patients. J Pain Symptom Manage. 2009 Sep;38(3):372-80. doi: 10.1016/j.jpainsymman.2008.11.007. PMID: 19356896.

145. Song MK, Paul S, Ward SE, et al. One-Year Linear Trajectories of Symptoms, Physical Functioning, Cognitive Functioning, Emotional Well-being, and Spiritual Well-being Among Patients Receiving Dialysis. Am J Kidney Dis. 2018 Aug;72(2):198-204. doi: 10.1053/j.ajkd.2017.11.016. PMID: 29395483.

146. Song MK, Ward SE, Fine JP, et al. Advance care planning and end-of-life decision making in dialysis: a randomized controlled trial targeting patients and their surrogates. American journal of kidney diseases. 2015;66(5):813-22. doi: 10.1053/j.ajkd.2015.05.018. PMID: CN-01133114.

147. Sorensen EP, Sarnak MJ, Tighiouart H, et al. The kidney disease quality of life cognitive function subscale and cognitive performance in maintenance hemodialysis patients. Am J Kidney Dis. 2012 Sep;60(3):417-26. doi: 10.1053/j.ajkd.2011.12.029. PMID: 22425261.

148. Spinowitz BS. EPO--one year later: a look at rehabilitation. The impact of long-term epoetin beta therapy on ESRD patient quality of life. Nephrol News Issues. 1990 Jun;4(6):35-7. PMID: 2205809.

149. Steele TE, Baltimore D, Finkelstein SH, et al. Quality of life in peritoneal dialysis patients. J Nerv Ment Dis. 1996 Jun;184(6):368-74. PMID: 8642387.

150. Steele TE, Wuerth D, Finkelstein S, et al. Sexual experience of the chronic peritoneal dialysis patient. J Am Soc Nephrol. 1996 Aug;7(8):1165-8. PMID: 8866408.

151. Steiber AL, Davis AT, Spry L, et al. Carnitine treatment improved quality-of-life measure in a sample of Midwestern hemodialysis patients. JPEN J Parenter Enteral Nutr. 2006 Jan-Feb;30(1):10-5. doi: 10.1177/014860710603000110. PMID: 16387893.

152. Suri RS, Larive B, Garg AX, et al. Burden on caregivers as perceived by hemodialysis patients in the Frequent Hemodialysis Network (FHN) trials. Nephrol Dial Transplant. 2011 Jul;26(7):2316-22. doi: 10.1093/ndt/gfr007. PMID: 21421590.

153. Tawney KW, Tawney PJ, Hladik G, et al. The life readiness program: a physical rehabilitation program for patients on hemodialysis. Am J Kidney Dis. 2000 Sep;36(3):581-91. doi: 10.1053/ajkd.2000.16197. PMID: 10977791.

154. Tell GS, Mittelmark MB, Hylander B, et al. Social support and health-related quality of life in black and white dialysis patients. Anna j. 1995 Jun;22(3):301-8; discussion 9-10. PMID: 7786078.

155. Thomas CJ, Washington TA. Religiosity and social support: implications for the health-related quality of life of African American hemodialysis patients. J Relig Health. 2012 Dec;51(4):1375-85. doi: 10.1007/s10943-011-9483-7. PMID: 21590493.

156. Thomas CJ. The confluence of human genomics, environment, and determinants of health-related quality of life among African American hemodialysis patients. Soc Work Public Health. 2011;26(4):417-30. doi: 10.1080/19371918.2011.579505. PMID: 21707350.

157. Thomas-Hawkins C. Symptom distress and day-to-day changes in functional status in chronic hemodialysis patients. Nephrol Nurs J. 2000 Aug;27(4):369-79; discussion 80, 428. PMID: 11276628.

158. Ting GO, Kjellstrand C, Freitas T, et al. Long-term study of high-comorbidity ESRD patients converted from conventional to short daily hemodialysis. Am J Kidney Dis. 2003 Nov;42(5):1020-35. PMID: 14582046.

159. Troidle L, Hotchkiss M, Finkelstein F. A thrice weekly in-center nocturnal hemodialysis program. Adv Chronic Kidney Dis. 2007 Jul;14(3):244-8. doi: 10.1053/j.ackd.2007.03.002. PMID: 17603977.

160. Troidle L, Wuerth D, Finkelstein S, et al. The BDI and the SF36: which tool to use to screen for

depression? Adv Perit Dial. 2003;19:159-62. PMID: 14763054.

161. Tsuji-Hayashi Y, Sizer Fitts S, Takai I, et al. Health-related quality of life among dialysis patients in Seattle and Aichi. Am J Kidney Dis. 2001 May;37(5):987-96. PMID: 11325681.

162. Unruh M, Benz R, Greene T, et al. Effects of hemodialysis dose and membrane flux on health-related quality of life in the HEMO Study. Kidney international. 2004;66(1):355-66. doi: 10.1111/j.1523-1755.2004.00738.x. PMID: CN-00489824.

163. Unruh M, Kurella Tamura M, Larive B, et al. Impact of sleep quality on cardiovascular outcomes in hemodialysis patients: results from the frequent hemodialysis network study. Am J Nephrol. 2011;33(5):398-406. doi: 10.1159/000326343. PMID: 21474924.

164. Unruh M, Miskulin D, Yan G, et al. Racial differences in health-related quality of life among hemodialysis patients. Kidney Int. 2004 Apr;65(4):1482-91. doi: 10.1111/j.1523-1755.2004.00529.x. PMID: 15086492.

165. Unruh M, Yan G, Radeva M, et al. Bias in assessment of health-related quality of life in a hemodialysis population: a comparison of self-administered and interviewer-administered surveys in the HEMO study. J Am Soc Nephrol. 2003 Aug;14(8):2132-41. PMID: 12874468.

166. Unruh ML, Buysse DJ, Dew MA, et al. Sleep quality and its correlates in the first year of dialysis. Clin J Am Soc Nephrol. 2006 Jul;1(4):802-10. doi: 10.2215/cjn.00710206. PMID: 17699290.

167. Unruh ML, Larive B, Chertow GM, et al. Effects of 6-times-weekly versus 3-times-weekly hemodialysis on depressive symptoms and self-reported mental health: Frequent Hemodialysis Network (FHN) Trials. Am J Kidney Dis. 2013 May;61(5):748-58. doi: 10.1053/j.ajkd.2012.11.047. PMID: 23332990.

168. Unruh ML, Larive B, Eggers PW, et al. The effect of frequent hemodialysis on self-reported sleep quality: Frequent Hemodialysis Network Trials. Nephrol Dial Transplant. 2016 Jun;31(6):984-91. doi: 10.1093/ndt/gfw062. PMID: 27190356.

169. Unruh ML, Levey AS, D'Ambrosio C, et al. Restless legs symptoms among incident dialysis patients: association with lower quality of life and shorter survival. Am J Kidney Dis. 2004 May;43(5):900-9. PMID: 15112181.

170. Unruh ML, Newman AB, Larive B, et al. The influence of age on changes in health-related quality of life over three years in a cohort undergoing hemodialysis. J Am Geriatr Soc. 2008 Sep;56(9):1608-17. doi: 10.1111/j.1532-5415.2008.01849.x. PMID: 18721224.

171. Unruh ML, Sanders MH, Redline S, et al. Subjective and objective sleep quality in patients on conventional thrice-weekly hemodialysis: comparison with matched controls from the sleep

heart health study. Am J Kidney Dis. 2008 Aug;52(2):305-13. doi: 10.1053/j.ajkd.2008.04.019. PMID: 18617308.

172. Vu TV, Escalante A. A comparison of the quality of life of patients with systemic lupus erythematosus with and without endstage renal disease. J Rheumatol. 1999 Dec;26(12):2595-601. PMID: 10606368.

173. Walters BA, Hays RD, Spritzer KL, et al. Health-related quality of life, depressive symptoms, anemia, and malnutrition at hemodialysis initiation. Am J Kidney Dis. 2002 Dec;40(6):1185-94. doi: 10.1053/ajkd.2002.36879. PMID: 12460037.

174. Ware JE, Richardson MM, Meyer KB, et al. Improving CKD-Specific Patient-Reported Measures of Health-Related Quality of Life. Journal of the American Society of Nephrology : JASN. 2019;30(4):664-77. doi: 10.1681/ASN.2018080814.

175. Wasse H, Kutner N, Zhang R, et al. Association of initial hemodialysis vascular access with patient-reported health status and quality of life. Clin J Am Soc Nephrol. 2007 Jul;2(4):708-14. doi: 10.2215/cjn.00170107. PMID: 17699486.

176. Weisbord SD, Carmody SS, Bruns FJ, et al. Symptom burden, quality of life, advance care planning and the potential value of palliative care in severely ill haemodialysis patients. Nephrol Dial Transplant. 2003 Jul;18(7):1345-52. PMID: 12808172.

177. Weisbord SD, Fried LF, Arnold RM, et al. Development of a symptom assessment instrument for chronic hemodialysis patients: the Dialysis Symptom Index. J Pain Symptom Manage. 2004 Mar;27(3):226-40. doi: 10.1016/j.jpainsymman.2003.07.004. PMID: 15010101.

178. Weisbord SD, Fried LF, Arnold RM, et al. Prevalence, severity, and importance of physical and emotional symptoms in chronic hemodialysis patients. J Am Soc Nephrol. 2005 Aug;16(8):2487-94. doi: 10.1681/asn.2005020157. PMID: 15975996.

179. Weisbord SD, Fried LF, Unruh ML, et al. Associations of race with depression and symptoms in patients on maintenance haemodialysis. Nephrol Dial Transplant. 2007 Jan;22(1):203-8. doi: 10.1093/ndt/gfl521. PMID: 16998218.

180. Welch JL, Austin JK. Quality of life in black hemodialysis patients. Adv Ren Replace Ther. 1999 Oct;6(4):351-7. PMID: 10543716.

181. Williams AW, Chebrolu SB, Ing TS, et al. Early clinical, quality-of-life, and biochemical changes of "daily hemodialysis" (6 dialyses per week). Am J Kidney Dis. 2004 Jan;43(1):90-102. PMID: 14712432.

182. Wolcott DL, Marsh JT, La Rue A, et al. Recombinant human erythropoietin treatment may improve quality of life and cognitive function in chronic hemodialysis patients. Am J Kidney Dis. 1989 Dec;14(6):478-85. PMID: 2596475.

183. Wolcott DL, Nissenson AR, Landsverk J. Quality of life in chronic dialysis patients. Factors unrelated to dialysis modality. Gen

Hosp Psychiatry. 1988 Jul;10(4):267-77. PMID: 3417127.

184. Wuerth DB, Finkelstein SH, Juergensen DM, et al. Quality of life assessment in chronic peritoneal dialysis patients. Adv Perit Dial. 1997;13:125-7. PMID: 9360665.

185. Young BA, Von Korff M, Heckbert SR, et al. Association of major depression and mortality in Stage 5 diabetic chronic kidney disease. Gen Hosp Psychiatry. 2010 Mar-Apr;32(2):119-24. doi: 10.1016/j.genhosppsych.2009.11.018 . PMID: 20302984.

Excluded Articles

1. . [Self-care promotes well-being in dialysis patients]. Krankenpfl Soins Infirm. 2002;95(1):84. PMID: 11845508. - **Non-United States study**
2. . Association between recombinant human erythropoietin and quality of life and exercise capacity of patients receiving haemodialysis. Canadian Erythropoietin Study Group. Bmj. 1990 Mar 3;300(6724):573-8. PMID: 2108751. - **Non-United States study**
3. . Depression and dialysis. Nephrol News Issues. 2007 Jun;21(7):S1, s8. PMID: 17623989. - **Non-relevant review**
4. . Implementation of health care quality improvement in Medicare's end- stage renal disease program. Dialysis and Transplantation. 1996;25(9):591-8. - **Non-relevant review**
5. . Project Hope study looks at quality of life issues and economic implications of daily dialysis. Nephrol News Issues. 1999 Nov;13(11):20, 4. PMID: 10865621. **- No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**
6. . Quality of life in renal failure. Br Med J. 1980 Jul 12;281(6233):97-8. PMID: 7000251. - **Other: LTE**
7. . Quality-of-life monitoring in patients with end-stage renal disease: Quality of life Report - French Renal Epidemiology and Information Network (REIN). Component Registry 2007. Nephrologie et Therapeutique. 2011;7(SUPPL. 3):S215-S30. doi: 10.1016/S1769-7255(11)70021-9. - **Non-English**
8. . Section III. Treatment of renal anaemia. Nephrology Dialysis Transplantation. 2004;19(SUPPL. 2):ii16-ii31. doi: 10.1093/ndt/gfh1026. - **Non-relevant review**
9. Aawar N, Moore R, Riley S, et al. Interpretation of Renal Quality of Life Profile scores in routine clinical practice: an aid to treatment decision-making. Qual Life Res. 2016 Jul;25(7):1697-702. doi: 10.1007/s11136-015-1191-4. PMID: 26614009. - **Non-United States study**

10. Abanmy N, Gard P, MacAdam A, et al. Short form 36 and hospital anxiety and depression scale and its predictors in saudi dialysis patients and healthy controls. European Journal of Hospital Pharmacy: Science and Practice. 2012;19(2):229. doi: 10.1136/ejhpharm-2012-000074.377. **- Non-United States study**

11. Abassi MR, Safavi A, Haghverdi M, et al. Sleep Disorders in ESRD Patients Undergoing Hemodialysis. Acta Med Iran. 2016 Mar;54(3):176-84. PMID: 27107522. **- Non-United States study**

12. Abdalla S, Montez-Rath ME, Parfrey PS, et al. The win ratio approach to analyzing composite outcomes: An application to the EVOLVE trial. Contemp Clin Trials. 2016 May;48:119-24. doi: 10.1016/j.cct.2016.04.001. PMID: 27080930. **- No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

13. Abdel-Kader K, Unruh ML. Benefits of short daily home hemodialysis in the FREEDOM Study: is it about person, place, time, or treatment? Kidney Int. 2012 Sep;82(5):511-3. doi: 10.1038/ki.2012.161. PMID: 22892857. **- Narrative review**

14. Abdi A, Dalvand S, Vahedian-Azimi A, et al. Prevalence of depression among Iranian patients under hemodialysis: A systematic review and meta-analysis. Journal of Nephropathology. 2018;7(4):224-32. doi: 10.15171/jnp.2018.47. **- Non-United States study**

15. Abe M, Maruyama N, Oikawa O, et al. Association of rstless legs syndrome with oxidative stress and inflammation in patients undergoing hemodialysis. Nephrology Dialysis Transplantation. 2015;30:iii333. doi: 10.1093/ndt/gfv184.2. **- Meeting abstract**

16. Abouellail H, Ezzat H, Sayed H, et al. Effect of hemodialysis on visual acuity and intraocular pressure in patients with end stage renal disease. Hemodialysis International. 2019;23(1):A10. doi: 10.1111/hdi.12726. **- Meeting abstract**

17. Abraham S, Ramachandran A. Estimation of quality of life in haemodialysis patients. Indian J Pharm Sci. 2012 Nov;74(6):583-7. doi: 10.4103/0250-474x.110624. PMID: 23798788. **- Non-United States study**

18. Abraham S, Venu A, Ramachandran A, et al. Assessment of quality of life in patients on hemodialysis and the impact of counseling. Saudi J Kidney Dis Transpl. 2012 Sep;23(5):953-7. doi: 10.4103/1319-2442.100875. PMID: 22982906. **- Non-United States study**

19. Abreu IS, Kourrouski MF, dos Santos DM, et al. [Children and adolescents on hemodialysis: attributes associated with quality of life]. Rev Esc Enferm USP. 2014 Aug;48(4):601-9. PMID: 25338239. **- Non-United States study**

20. Abu-Alfa AK, Sloan L, Charytan C, et al. The association of darbepoetin alfa with hemoglobin and health-related quality of life in patients with chronic kidney disease not receiving dialysis. Curr Med Res Opin. 2008 Apr;24(4):1091-100. doi: 10.1185/030079908x280653. PMID: 18328118. **- No intervention of**

interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients

21. Acaray A, Pinar R. Quality of life perceived by chronic haemodialysis patients and family members. Edtna erca j. 2005 Jan-Mar;31(1):35-8. PMID: 16083026. - **Non-United States study**

22. Achinger SG, Mizani MR, Ayus JC. Use of 3-hour daily hemodialysis and paricalcitol in patients with severe secondary hyperparathyroidism: A case series. Hemodial Int. 2010 Apr;14(2):193-9. doi: 10.1111/j.1542-4758.2009.00424.x. PMID: 20337743. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

23. Adamczuk D, Roszkowska-Blaim M, Leszczynska B, et al. Life activity, disease acceptance and quality of life in patients treated with renal replacement therapy since childhood. Adv Clin Exp Med. 2019 Apr 5doi: 10.17219/acem/94070. PMID: 30968610. - **Non-United States study**

24. Adamczuk D, Roszkowska-Blaim M, Leszczyńska B, et al. Life activity, disease acceptance and quality of life in patients treated with renal replacement therapy since childhood. Advances in clinical and experimental medicine : official organ Wroclaw Medical University. 2019doi: 10.17219/acem/94070. - **Non-United States study**

25. Afezolli D, Seo J, Upadhyay A, et al. “Sweatin' to the oldies!” attitudes of older hemodialysis patients regarding physical activity authors: Debora Afezolli, MD Janet Seo, BA, Ashish Upadhyay MD, Jasvinder Bhatia, MD, Christine Liu, MD Boston university school of medicine, division of nephrology Boston university school of medicine, division of geriatrics. Journal of General Internal Medicine. 2016;31(2):S87. - **Meeting abstract**

26. Afezolli D, Zheng S, Seo J, et al. Let's take awalk: Examining the attitudes of older African-American hemodialysis patients regarding EXERCISE. Journal of General Internal Medicine. 2017;32(2):S240. - **Meeting abstract**

27. Afrasiabifar A, Mehri Z, Hosseini N. Efficacy of topical application of sweet almond oil on reducing uremic pruritus in hemodialysis patients: A randomized clinical trial study. Iranian Red Crescent Medical Journal. 2017;19(2)doi: 10.5812/ircmj.34695. - **Non-United States study**

28. Afsar B, Elsurer R, Sezer S, et al. Does metabolic syndrome have an impact on the quality of life and mood of hemodialysis patients? J Ren Nutr. 2009 Sep;19(5):365-71. doi: 10.1053/j.jrn.2009.01.016. PMID: 19464928. - **Non-United States study**

29. Afsar B, Elsurer R, Sezer S, et al. Quality of life in hemodialysis patients: hepatitis C virus infection makes sense. Int Urol Nephrol. 2009 Dec;41(4):1011-9. doi: 10.1007/s11255-009-9576-3. PMID: 19430922. - **Non-United States study**

30. Afsar B, Elsurer R. Association between serum bicarbonate and pH with depression, cognition and sleep

quality in hemodialysis patients. Ren Fail. 2015 Jul;37(6):957-60. doi: 10.3109/0886022x.2015.1038476. PMID: 25894326. - **Non-United States study**

31. Afsar B, Elsurer R. Factors related with cognitive function in hemodialysis patients. NDT Plus. 2010;3:iii391. - **Meeting abstract**
32. Afsar B, Kirkpantur A. Are there any seasonal changes of cognitive impairment, depression, sleep disorders and quality of life in hemodialysis patients? Gen Hosp Psychiatry. 2013 Jan-Feb;35(1):28-32. doi: 10.1016/j.genhosppsych.2012.08.007. PMID: 23044242. - **Non-United States study**
33. Afzal B, Chughtai S, Bagul A, et al. Sleep quality improvement in renal transplant patients. Transplant International. 2017;30:555-6. doi: 10.1111/tri.13053. - **Meeting abstract**
34. Agar BU, Troidle L, Finkelstein FO, et al. Patient-specific phosphorus mobilization clearance during nocturnal and short daily hemodialysis. Hemodial Int. 2012 Oct;16(4):491-6. doi: 10.1111/j.1542-4758.2012.00706.x. PMID: 22574966. - **Other: no comp**
35. Ageborg M, Allenius BL, Cederfjall C. Quality of life, self-care ability, and sense of coherence in hemodialysis patients: a comparative study. Hemodial Int. 2005 Oct;9 Suppl 1:S8-14. doi: 10.1111/j.1542-4758.2005.01164.x. PMID: 16223441. - **Non-United States study**
36. Aghakhani N, Samadzadeh S, Mafi TM, et al. The impact of education on nutrition on the quality of life in patients on hemodialysis: a comparative study from teaching hospitals. Saudi J Kidney Dis Transpl. 2012 Jan;23(1):26-30. PMID: 22237214. - **Non-United States study**
37. Aghakhani N, Sharif Nia H, Samad Zadeh S, et al. Quality of life during hemodialysis and study dialysis treatment in patients referred to teaching hospitals in Urmia-Iran in 2007. Caspian J Intern Med. 2011 Winter;2(1):183-8. PMID: 24024012. - **Non-United States study**
38. Ahlmen J, Stahl A. Improved hemodialysis: A necessity. Hemodialysis International. 2011;15(1):140. doi: 10.1111/j.1542-4758.2010.00516.x. - **Meeting abstract**
39. Ahmadvand A, Saei R, Sepehrmanesh Z, et al. Effect of group therapy on anxiety and depression in dialysis patients. European Psychiatry. 2010;25doi: 10.1016/S0924-9338(10)71027-0. - **Meeting abstract**
40. Ahmadzade A, Ahmadi S, Sadeghi K, et al. Effect of narrative writing on quality of life in chronic renal failure patients underwent hemodialysis. Annals of Tropical Medicine and Public Health. 2017;10(5):1165-8. doi: 10.4103/ATMPH.ATMPH_105_17. - **Non-United States study**
41. Ahmadzadeh GH, Mehdi M. The prevalence of depression, anxiety and psychosis among hemodialysis patients in nour and ali asghar hospitals in Isfahan. Journal of Isfahan Medical School.

2012;29(162):1918-26. - **Non-English**

42. Ahmadzadeh S, Matlabi H, Allahverdipour H, et al. The effectiveness of self-management program on quality of life among haemodialysis patients. Progress in Palliative Care. 2017;25(4):177-84. doi: 10.1080/09699260.2017.1345407. - **Non-United States study**
43. Ahmed AF, Shaban M, Daoud A, et al. Erectile function and gonadal hormones levels in men with end-stage renal disease: It's relevance to duration of haemodialysis. Andrologia. 2018 Oct;50(8):e13073. doi: 10.1111/and.13073. PMID: 29917254. - **Non-United States study**
44. Ahn KS, Kang GW, Lee IH, et al. Clinical and psychosocial factors predicting quality of life in hemodialysis patients. Nephrology Dialysis Transplantation. 2014;29:iii284. doi: 10.1093/ndt/gfu158. - **Meeting abstract**
45. Ahn KS, Kim BK, Lee IH, et al. The role of social support in hemodialysis patients. Nephrology Dialysis Transplantation. 2015;30:iii332. doi: 10.1093/ndt/gfv183.80. - **Meeting abstract**
46. Ahn KS, Kim HI, Lee IH, et al. The influence of social support in hemodialysis patients. Nephrology Dialysis Transplantation. 2016;31:i541-i2. doi: 10.1093/ndt/gfw198.19. - **Meeting abstract**
47. Aimade I, Chedadi K, Berra F, et al. Quality of life in hemodialysis vs. diabetic patients. Hemodialysis International. 2009;13(3):410. doi: 10.1111/j.1542-4758.2009.00402.x. - **Meeting abstract**
48. Aiyasanon N, Premasathian N, Nimmannit A, et al. Validity and reliability of CHOICE Health Experience Questionnaire: Thai version. J Med Assoc Thai. 2009 Sep;92(9):1159-66. PMID: 19772174. - **Non-United States study**
49. Aiyegbusi OL, Kyte D, Cockwell P, et al. Development and usability testing of an electronic patient-reported outcome measure (ePROM) system for patients with advanced chronic kidney disease. Computers in Biology and Medicine. 2018;101:120-7. doi: 10.1016/j.compbiomed.2018.08.012. - **Non-United States study**
50. Aiyegbusi OL, Kyte D, Cockwell P, et al. Measurement properties of patient-reported outcome measures (PROMs) used in adult patients with chronic kidney disease: A systematic review. PLoS One. 2017;12(6):e0179733. doi: 10.1371/journal.pone.0179733. PMID: 28636678. - **Relevant systematic review**
51. Akiba T, Ogawa H, Mizuguchi J, et al. Future of home hemodialysis for the improvement of quality of life of patients with end-stage renal disease. Japanese Journal of Artificial Organs. 1998;27(5):821-6. - **Non-English**
52. Akiba T. [Problems of aged dialysis patients]. Nihon Naika Gakkai Zasshi. 2000 Jul 10;89(7):1379-84. PMID: 11032506. - **Non-English**
53. Akman B, Uyar M, Afsar B, et al. Adherence, depression and quality of

life in patients on a renal transplantation waiting list. Transpl Int. 2007 Aug;20(8):682-7. doi: 10.1111/j.1432-2277.2007.00495.x. PMID: 17535307. - **Non-United States study**

54. Akrami R, Hashempur MH, Tavakoli A, et al. Effects of Fumaria parviflora L on uremic pruritus in hemodialysis patients: a randomized, double-blind, placebo-controlled trial. Jundishapur journal of natural pharmaceutical products. 2017;12(3)doi: 10.5812/jjnpp.39744. PMID: CN-01605026. - **Non-United States study**
55. Aksu M, Ismailogullari S, Korkmaz B, et al. Restless legs syndrome in chronic renal failure patients under continuous ambulatory peritoneal dialysis. Parkinsonism and Related Disorders. 2009;15:S199. doi: 10.1016/S1353-8020(09)70764-3. - **Meeting abstract**
56. Akyuz F, Besisik F, Pinarbasi B, et al. The quality of life in hemodialysis patients with chronic hepatitis C virus infection. Turk J Gastroenterol. 2009 Dec;20(4):243-6. PMID: 20084566. - **Non-English**
57. Akyuz Ozdemir A, Sayin CB, Erdal R, et al. Quality of Life Through Gender Role Perspective in Candidate Renal Transplant Recipients: A Report From Baskent University Using the Short Form 36 Health Survey. Exp Clin Transplant. 2018 Mar;16 Suppl 1(Suppl 1):28-34. doi: 10.6002/ect.TOND-TDTD2017.O4. PMID: 29527987. - **Non-United States study**
58. Al Mosawi AJ. Hemodialysis complications in the developing world: Iraq experience. Blood Purification. 2009;27(3):272-3. doi: 10.1159/000202073. - **Meeting abstract**
59. Al Wakeel J, Al Harbi A, Bayoumi M, et al. Quality of life in hemodialysis and peritoneal dialysis patients in Saudi Arabia. Ann Saudi Med. 2012 Nov-Dec;32(6):570-4. doi: 10.5144/0256-4947.2012.570. PMID: 23396018. - **Non-United States study**
60. Al Zaben F, Khalifa DA, Sehlo MG, et al. Religious involvement and health in dialysis patients in Saudi Arabia. J Relig Health. 2015 Apr;54(2):713-30. doi: 10.1007/s10943-014-9962-8. PMID: 25316206. - **Non-United States study**
61. Alavi NM, Aliakbarzadeh Z, Sharifi K. Depression, anxiety, activities of daily living, and quality of life scores in patients undergoing renal replacement therapies. Transplant Proc. 2009 Nov;41(9):3693-6. doi: 10.1016/j.transproceed.2009.06.217. PMID: 19917369. - **Non-United States study**
62. Alhajim SA. Assessment of the quality of life in patients on haemodialysis in Iraq. East Mediterr Health J. 2018 Mar 5;23(12):815-20. doi: 10.26719/2017.23.12.815. PMID: 29528091. - **Non-United States study**
63. Alivanis P, Tsampikaki E, Aperis G, et al. Effect of peritoneal dialysis on life quality in patients with refractory end stage congestive heart failure. European Heart Journal: Acute Cardiovascular Care. 2012;1:137. doi: 10.1177/2048872612461726. - **Meeting abstract**

64. Al-Jabi SW, Sous A, Jorf F, et al. Depression in patients treated with haemodialysis: a cross-sectional study. Lancet. 2018 Feb 21;391 Suppl 2:S41. doi: 10.1016/s0140-6736(18)30407-0. PMID: 29553441. **- Meeting abstract**

65. Al-Jahdali H. Prevalence of sleep apnea and excessive day time sleepiness in patients with end-stage renal disease on dialysis. Saudi J Kidney Dis Transpl. 2012 Mar;23(2):251-61. PMID: 22382215. **- Non-United States study**

66. Al-Jahdali HH, Al-Qadhi WA, Khogeer HA, et al. Restless legs syndrome in patients on dialysis. Saudi J Kidney Dis Transpl. 2009 May;20(3):378-85. PMID: 19414938. **- Non-United States study**

67. Al-Khayyat H, Agar J, Night R, et al. EGFR-based comparison of dialysis adequacy between nocturnal home-based and conventional facility-based haemodialysis. Nephrology. 2013;18:41. doi: 10.1111/nep.12121. **- Meeting abstract**

68. Allen N, Schwartz D, Komenda P, et al. International practice patterns and factors associated with non-conventional hemodialysis utilization. BMC Nephrol. 2011 Dec 5;12:66. doi: 10.1186/1471-2369-12-66. PMID: 22142369. **- No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

69. Al-Rohani M. Factors Affecting Successful use of Erythropoietin in the Treatment of Anemia in Patients on Hemodialysis: Experience in Hajjah Region, Yemen. Saudi J Kidney Dis Transpl. 2001 Apr-Jun;12(2):220-3. PMID: 18209375. **- Non-United States study**

70. Alshraifeen A, McCreaddie M, Evans JM. Quality of life and well-being of people receiving haemodialysis treatment in Scotland: a cross-sectional survey. Int J Nurs Pract. 2014 Oct;20(5):518-23. doi: 10.1111/ijn.12194. PMID: 24219655. **- Non-United States study**

71. Alston H, Vickerstaff V, Low J, et al. Haemodialysis patients experience higher levels of psychosocial distress than equivalent CKD patients. Nephrology Dialysis Transplantation. 2015;30:iii614-iii5. doi: 10.1093/ndt/gfv200.33. **- Meeting abstract**

72. Altieri P, Sorba G, Bolasco P, et al. Predilution haemofiltration--the Second Sardinian Multicentre Study: comparisons between haemofiltration and haemodialysis during identical Kt/V and session times in a long-term cross-over study. Nephrology, dialysis, transplantation. 2001;16(6):1207-13. PMID: CN-00348478. **- Non-United States study**

73. Altinok Ersoy N, Akyar I. Multidimensional pruritus assessment in hemodialysis patients. BMC Nephrol. 2019 Feb 6;20(1):42. doi: 10.1186/s12882-019-1234-0. PMID: 30727999. **- No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

74. Alvarado X. Prevalence of restless legs syndrome secondary to hemodialysis unit clinicas hospital.

Sleep Medicine. 2013;14:e59. doi: 10.1016/j.sleep.2013.11.107. - **Meeting abstract**

75. Alvares J, Almeida AM, Szuster DA, et al. [Factors associated with quality of life in patients in renal replacement therapy in Brazil]. Cien Saude Colet. 2013 Jul;18(7):1903-10. PMID: 23827894. - **Non-United States study**

76. Alvares J, Cesar CC, Acurcio Fde A, et al. Quality of life of patients in renal replacement therapy in Brazil: comparison of treatment modalities. Qual Life Res. 2012 Aug;21(6):983-91. doi: 10.1007/s11136-011-0013-6. PMID: 21938644. - **Non-United States study**

77. Alvarez-Ude F, Fernandez-Reyes MJ, Vazquez A, et al. [Physical symptoms and emotional disorders in patient on a periodic hemodialysis program]. Nefrologia. 2001 Mar-Apr;21(2):191-9. PMID: 11464653. - **Non-United States study**

78. Alvarez-Ude F, Vicente E, Badia X. Health-related quality of life in hemodialysis and CAPD patients. Nefrologia. 1995;15(6):572-80. - **Non-English**

79. Alves DG, Guimarães C, Guimarães L, et al. Evaluation of sleep parameters in chronic renal failure patients on hemodialysis. Sleep. 2010;33:A298. - **Meeting abstract**

80. Amaral-Figueroa MI. Physical activity in end-stage renal disease patients: a pilot project in Puerto Rico. P R Health Sci J. 2014 Jun;33(2):74-9. PMID: 24964642. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

81. Ambriz Murillo Y, Menor Almagro R, Campos-Gonzalez ID, et al. Health related quality of life in rheumatoid arthritis, osteoarthritis, diabetes mellitus, end stage renal disease and geriatric subjects. Experience from a General Hospital in Mexico. Reumatol Clin. 2015 Mar-Apr;11(2):68-72. doi: 10.1016/j.reuma.2014.03.006. PMID: 24816341. - **Non-United States study**

82. Amini M, Nazemian F, Saki A. Correlation of excessive daytime sleepiness and obstructive sleep apnea risk and efficacy of hemodialysis in end stage renal disease. Journal of Sleep Research. 2016;25:321. doi: 10.1111/jsr.12446. - **Meeting abstract**

83. Amirtha Santhi S, Samson R, Srikanth, et al. Effectiveness of physical activity on depression, anxiety, stress and quality of life of patients on hemodialysis. Biomedical Research (India). 2018;29(9):1885-90. - **Non-United States study**

84. Amr M, El-Gilany AH, Bakr A, et al. Assessment of cognition, behaviour and quality of life of children with chronic renal failure. Paediatrics ME. 2007;12(3):60-6. - **Non-United States study**

85. Amro A, Waldum B, Dammen T, et al. Symptom clusters in patients on dialysis and their association with quality-of-life outcomes. J Ren Care. 2014 Mar;40(1):23-33. doi: 10.1111/jorc.12051. PMID: 24438743. - **Non-United States study**

86. Amro A, Waldum B, von der Lippe N, et al. Symptom clusters predict mortality among dialysis patients in

Norway: a prospective observational cohort study. J Pain Symptom Manage. 2015 Jan;49(1):27-35. doi: 10.1016/j.jpainsymman.2014.04.005. PMID: 24858738. - **Non-United States study**

87. Anand S, Chertow GM, Johansen KL, et al. Association of self-reported physical activity with laboratory markers of nutrition and inflammation: the Comprehensive Dialysis Study. J Ren Nutr. 2011 Nov;21(6):429-37. doi: 10.1053/j.jrn.2010.09.007. PMID: 21239185. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

88. Andayani TM, Puspitasari CE. The association hemoglobin levels with health-related quality of life of patients with chronic kidney disease. Value in Health. 2017;20(9):A492. doi: 10.1016/j.jval.2017.08.3026. - **Meeting abstract**

89. Anderson JB, Czosek RJ, Knilans TK, et al. The effect of paediatric syncope on health-related quality of life. Cardiol Young. 2012 Oct;22(5):583-8. doi: 10.1017/s1047951112000133. PMID: 22348920. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

90. Anderson NE, Calvert MJ, Cockwell P, et al. Using Patient Reported Outcome measures (PROs) to promote quality of care and safety in the management of patients with end stage renal disease (ESRD) requiring treatment with haemodialysis. Quality of Life Research. 2017;26(1):128. doi: 10.1007/s11136-017-1658-6. - **Meeting abstract**

91. Anding K, Bär T, Trojniak-Hennig J, et al. Long-term follow-up of chronic kidney disease patients performing a structured physical exercise program (SPEP) during hemodialysis. Nephrology Dialysis Transplantation. 2015;30:iii15. doi: 10.1093/ndt/gfv141.2. - **Meeting abstract**

92. Andrade A, Amorim A, Queiroz S, et al. Comparison of Oral Health Status and the Quality of Life in Haemodialysis Patients with Less and More than Four Years of Treatment. Oral Health Prev Dent. 2017;15(1):57-64. doi: 10.3290/j.ohpd.a37714. PMID: 28232975. - **Non-United States study**

93. Andrikos E, Buoncristiani E, D'Intini V, et al. Effect of daily hemodialysis on monocytes apoptosis. Blood Purif. 2005;23(1):79-82. doi: 10.1159/000082015. PMID: 15627741. - **Non-United States study**

94. Anees M, Hameed F, Mumtaz A, et al. Dialysis-related factors affecting quality of life in patients on hemodialysis. Iran J Kidney Dis. 2011 Jan;5(1):9-14. PMID: 21189427. - **Non-United States study**

95. Anees M, Ibrahim M, Imtiaz M, et al. Translation, Validation and Reliability of the Kidney Diseases Quality of Life-Short Form (KDQOL-SF Form) Tool in Urdu. J Coll Physicians Surg Pak. 2016 Aug;26(8):651-4. doi: 2397. PMID: 27539756. - **Non-United States study**

96. Anees M, Malik MR, Abbasi T, et al. Demographic factors affecting quality of life of hemodialysis patients - Lahore, Pakistan. Pak J Med Sci. 2014 Sep;30(5):1123-7. doi: 10.12669/pjms.305.5239. PMID: 25225539. - **Non-United States study**

97. Anees M, Mumtaz A, Barki MH, et al. Sex hormones and erectile dysfunction in hemodialysis patients. Pakistan Journal of Medical Sciences. 2009;25(6):922-7. - **Non-United States study**

98. Annemans L. Intensifying dialysis: how far should we go and at what cost? Nephrol Dial Transplant. 2009 Apr;24(4):1077-8. doi: 10.1093/ndt/gfn680. PMID: 19059931. - **Other: LTE**

99. Antonaki E, Xidakis D. Determinants of burden and quality of life in caregivers of dialysis patients in a descriptive cross sectional study. Nephrology Dialysis Transplantation. 2016;31:i546. doi: 10.1093/ndt/gfw198.32. - **Meeting abstract**

100. Anwar W, Ezzat H, Mohab A. Comparative study of impact of hemodialysis and renal transplantation on cognitive functions in ESRD patients. Nefrologia. 2015 Nov-Dec;35(6):567-71. doi: 10.1016/j.nefro.2015.07.004. PMID: 26441130. - **Non-United States study**

101. Apolone G, Mosconi P. Review of the concept of quality of life assessment and discussion of the present trend in clinical research. Nephrol Dial Transplant. 1998;13 Suppl 1:65-9. PMID: 9507501. - **Non-United States study**

102. Apostolou T, Gokal R. Neuropathy and quality of life in diabetic continuous ambulatory peritoneal dialysis patients. Perit Dial Int. 1999;19 Suppl 2:S242-7. PMID: 10406527. - **Non-relevant review**

103. Apostolou T, Hutchison AJ, Boulton AJ, et al. Quality of life in CAPD, transplant, and chronic renal failure patients with diabetes. Ren Fail. 2007;29(2):189-97. doi: 10.1080/08860220601098862. PMID: 17365935. - **Non-United States study**

104. Apostolou T. Quality of life in the elderly patients on dialysis. Int Urol Nephrol. 2007;39(2):679-83. doi: 10.1007/s11255-007-9225-7. PMID: 17522961. - **Non-relevant review**

105. Arasiewicz H, Brzezińska-Wcisło L, Miziołek B, et al. Zastosowanie ustekinumabu u pacjentów z łuszczycą zwykłą oraz współistniejącymi zaburzeniami czynnoßci nerek lub wątroby - Opis dwóch przypadków. Przeglad Dermatologiczny. 2014;101(5):405-8. doi: 10.5114/dr.2014.46072. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

106. Araujo SM, Bruin VM, Daher EF, et al. Quality of sleep and day-time sleepiness in chronic hemodialysis: a study of 400 patients. Scand J Urol Nephrol. 2011 Nov;45(5):359-64. doi: 10.3109/00365599.2011.584694.

PMID: 21702725. - **Non-United States study**

107. Araujo SM, de Bruin VM, Nepomuceno LA, et al. Restless legs syndrome in end-stage renal disease: Clinical characteristics and associated comorbidities. Sleep Med. 2010 Sep;11(8):785-90. doi: 10.1016/j.sleep.2010.02.011. PMID: 20667773. - **Non-United States study**

108. Armaly Z, Farah J, Jabbour A, et al. Major depressive disorders in chronic hemodialysis patients in Nazareth: identification and assessment. Neuropsychiatr Dis Treat. 2012;8:329-38. doi: 10.2147/ndt.s31903. PMID: 22888253. - **Non-United States study**

109. Arogundade FA, Abd-Essamie MA, Barsoum RS. Health-related quality of life in emotionally related kidney transplantation: deductions from a comparative study. Saudi J Kidney Dis Transpl. 2005 July-September;16(3):311-20. PMID: 17642798. - **Non-United States study**

110. Arogundade FA, Zayed B, Daba M, et al. Correlation between Karnofsky Performance Status Scale and Short-Form Health Survey in patients on maintenance hemodialysis. J Natl Med Assoc. 2004 Dec;96(12):1661-7. PMID: 15622699. - **Non-United States study**

111. Assal HS, Emam HM, El-Ghaffar NA. Health related quality of life among Egyptian patients on hemodialysis. Journal of Medical Sciences. 2006;6(3):314-20. - **Non-United States study**

112. Assmann S, Balck F. [Dialysis and the risk of poverty]. Gesundheitswesen. 2010 Dec;72(12):e65-70. doi: 10.1055/s-0029-1243208. PMID: 20549601. - **Non-English**

113. Aucella F, Girotti G, Gesuete A, et al. Usefulness of the multidimensional prognostic index (MPI) in older patients on hemodialysis : A multicenter study. Nephrology Dialysis Transplantation. 2014;29:iii522-iii3. doi: 10.1093/ndt/gfu178. - **Meeting abstract**

114. Auer J, Oliver DO, Winearls CG. The quality of life of dialysis patients treated with recombinant human erythropoietin. Scand J Urol Nephrol Suppl. 1990;131:61-5. PMID: 2075472. - **Non-United States study**

115. Auguste BL, Yuen D, Chan CT. Conventional hemodialysis is associated with greater bone loss than nocturnal hemodialysis: a retrospective observational study of a convenience cohort. Can J Kidney Health Dis. 2016;3:27. doi: 10.1186/s40697-016-0118-5. PMID: 27252880. - **Non-United States study**

116. Augustine KWC, Li YZ, Juan NH, et al. QOL and emotional adjustment in peritoneal dialysis vs. hemodialysis: The paradox of higher care satisfaction in peritoneal dialysis patients despite higher depression and poorer physical health. Peritoneal Dialysis International. 2010;30:S159. - **Meeting abstract**

117. Auzenbergs E, Bonadio T. Patients dialyzing at home with the 2008 series machine report

improvements in energy, activity, and overall well-being. Hemodialysis International. 2013;17(1):166. doi: 10.1111/hdi.12006. - **Meeting abstract**

118. Avramovic M, Stefanovic V. Health-related quality of life in different stages of renal failure. Artif Organs. 2012 Jul;36(7):581-9. doi: 10.1111/j.1525-1594.2011.01429.x. PMID: 22428704. - **Narrative review**

119. Awadalla HI, El-Ateek AM, Elhammady MM, et al. [Programme for improving emotional and cognitive changes in patients under renal dialysis in Egypt]. East Mediterr Health J. 2008 May-Jun;14(3):662-74. PMID: 18720631. - **Non-United States study**

120. Awuah KT, Afolalu BA, Hussein UT, et al. Time to recovery after a hemodialysis session: impact of selected variables. Clin Kidney J. 2013 Dec;6(6):595-8. doi: 10.1093/ckj/sft120. PMID: 26069828. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

121. Axelsson L, Klang B, Lundh Hagelin C, et al. Meanings of being a close relative of a family member treated with haemodialysis approaching end of life. J Clin Nurs. 2015 Feb;24(3-4):447-56. doi: 10.1111/jocn.12622. PMID: 24811430. - **Non-United States study**

122. Axelsson L, Randers I, Lundh Hagelin C, et al. Thoughts on death and dying when living with haemodialysis approaching end of life. J Clin Nurs. 2012 Aug;21(15-16):2149-59. doi: 10.1111/j.1365-2702.2012.04156.x. PMID: 22788556. - **Non-United States study**

123. Ayav C, Legrand K, Speyer E, et al. Patients reported outcomes according to the stage of chronic kidney disease. Nephrology Dialysis Transplantation. 2017;32:iii219-iii20. doi: 10.1093/ndt/gfx146. - **Meeting abstract**

124. Ayoub A, Nelson K, Wood P. Cultural relevance of the quality-of-life tools for people with kidney failure. J Ren Care. 2013 Dec;39(4):236-45. doi: 10.1111/j.1755-6686.2013.12034.x. PMID: 24034233. - **Non-United States study**

125. Azak A, Altundağ Dündar S. Acute fatigue syndrome and affecting factors in patients on hemodialysis due to chronic renal failure. Turkiye Klinikleri Journal of Medical Sciences. 2012;32(6):1623-9. doi: 10.5336/medsci.2011-27205. - **Non-English**

126. Azevedo P, Santos R, Duraes J, et al. Sexual dysfunction in men and women on peritoneal dialysis: Differential link with metabolic factors and quality of life perception. Nefrologia. 2014 Nov 17;34(6):703-9. doi: 10.3265/Nefrologia.pre2014.Jul.12548. PMID: 25335087. - **Non-English**

127. Azevedo P, Travassos F, Frade I, et al. Understanding a new era for depression and anxiety in hemodialysis patients. Nephrology Dialysis Transplantation. 2012;27:ii277-ii8. doi: 10.1093/ndt/gfs227. - **Meeting abstract**

128. Babaee N, Sales M, Qazi-Mirsaeed AM, et al. Xerostomia in patients with chronic renal failure undergoing hemodialysis. Journal of Babol University of Medical Sciences. 2014;16(10):15-22. - **Non-English**

129. Babamohamadi H, Sotodehasl N, Koenig HG, et al. The Effect of Holy Qur'an Recitation on Depressive Symptoms in Hemodialysis Patients: a Randomized Clinical Trial. Journal of religion and health. 2017;56(1):345-54. doi: 10.1007/s10943-016-0281-0. PMID: CN-01401942. - **Non-United States study**

130. Babamohammadi H. Effect of a confined program of home-care on the health status of patients recieving hemodialysis. Acta medica Iranica. 2006;44(1):28-32. PMID: CN-01658036. - **Non-United States study**

131. Badia X, Alonso J, Brosa M, et al. Reliability of the Spanish version of the Nottingham Health Profile in patients with stable end-stage renal disease. Soc Sci Med. 1994 Jan;38(1):153-8. PMID: 8146706. - **Non-United States study**

132. Badiee Aval S, Ravanshad Y, Azarfar A, et al. A Systematic Review and Meta-analysis of Using Acupuncture and Acupressure for Uremic Pruritus. Iran J Kidney Dis. 2018 Mar;12(2):78-83. PMID: 29507269. - **Non-United States study**

133. Badve SV, Hawley CM, Johnson DW. Frequent versus standard hemodialysis. The New England journal of medicine. 2011;364(10):975; author reply 6. - **No human data**

134. Baek HS, Park KS, Ha IS, et al. The impact of end-stage renal disease in children on their parents. Nephrology (Carlton). 2017 Jun 14doi: 10.1111/nep.13083. PMID: 28612957. - **Non-United States study**

135. Baggetta R, D'Arrigo G, Torino C, et al. Effect of a home based, low intensity, physical exercise program in older adults dialysis patients: a secondary analysis of the EXCITE trial. BMC Geriatr. 2018 Oct 20;18(1):248. doi: 10.1186/s12877-018-0938-5. PMID: 30342464. - **Non-United States study**

136. Bah AO, Nankeu N, Balde MC, et al. Quality of life of patients with end-stage renal disease in Guinea. Saudi J Kidney Dis Transpl. 2014 Nov;25(6):1346-51. PMID: 25394464. - **Non-United States study**

137. Bahmani B, Motamed Najjar M, Sayyah M, et al. The Effectiveness of Cognitive-Existential Group Therapy on Increasing Hope and Decreasing Depression in Women-Treated With Haemodialysis. Glob J Health Sci. 2015 Nov 17;8(6):219-25. doi: 10.5539/gjhs.v8n6p219. PMID: 26755466. - **Non-United States study**

138. Bai YL, Lai LY, Lee BO, et al. The impact of depression on fatigue in patients with haemodialysis: a correlational study. J Clin Nurs. 2015 Jul;24(13-14):2014-22. doi: 10.1111/jocn.12804. PMID:

25827047. - **Non-United States study**

139. Baiardi F, Degli Esposti E, Cocchi R, et al. Effects of clinical and individual variables on quality of life in chronic renal failure patients. J Nephrol. 2002 Jan-Feb;15(1):61-7. PMID: 11936428. - **Non-United States study**

140. Bakewell AB, Higgins RM, Edmunds ME. Does ethnicity influence perceived quality of life of patients on dialysis and following renal transplant? Nephrol Dial Transplant. 2001 Jul;16(7):1395-401. PMID: 11427631. - **Non-United States study**

141. Bakewell AB, Higgins RM, Edmunds ME. Quality of life in peritoneal dialysis patients: decline over time and association with clinical outcomes. Kidney Int. 2002 Jan;61(1):239-48. doi: 10.1046/j.1523-1755.2002.00096.x. PMID: 11786106. - **Non-United States study**

142. Balaban OD, Aydin E, Keyvan A, et al. Psychiatric Comorbidity, Sexual Dysfunction, and Quality of Life in Patients Undergoing Hemodialysis: A Case-Control Study. Noro Psikiyatr Ars. 2017 Jun;54(2):137-42. doi: 10.5152/npa.2016.12677. PMID: 28680311. - **Non-United States study**

143. Balaska K, Balaska A, Pistolas D, et al. The effect of successful renal transplantation on quality of life of transplanted patients. Acta Diabetologica. 2015;52(1):213-4. doi: 10.1007/s00592-014-0704-x. - **Meeting abstract**

144. Balasubramanian G, McKitty K, Fan SL. Comparing automated peritoneal dialysis with continuous ambulatory peritoneal dialysis: survival and quality of life differences? Nephrol Dial Transplant. 2011 May;26(5):1702-8. doi: 10.1093/ndt/gfq607. PMID: 20921296. - **Non-United States study**

145. Balogun SA, Balogun R, Philbrick J, et al. Quality of Life, Perceptions, and Health Satisfaction of Older Adults with End-Stage Renal Disease: A Systematic Review. J Am Geriatr Soc. 2017 Apr;65(4):777-85. doi: 10.1111/jgs.14659. PMID: 27991648. - **Relevant systematic review**

146. Balogun SA, Balogun RA, Philbrick JT, et al. Quality of life, perceptions and health satisfaction in older adults with end stage renal disease: A systematic review. Journal of General Internal Medicine. 2016;31(2):S380. - **Relevant systematic review**

147. Balouchi A, Masinaeinezhad N, Abdallahimohammad A, et al. Comparison of effects of orange and lavender extract on fatigue in hemodialysis patients. Der Pharmacia Lettre. 2016;8(8):50-4. - **Non-United States study**

148. Bancu I, Graterol F, Bonal J, et al. Frail Patient in Hemodialysis: A New Challenge in Nephrology - Incidence in Our Area, Barcelonès Nord and Maresme. Journal of Aging Research. 2017;2017doi: 10.1155/2017/7624139. - **Non-United States study**

149. Bansal AD, Leonberg-Yoo A, Schell JO, et al. Ten Tips Nephrologists Wish the Palliative Care Team Knew About Caring for Patients with Kidney Disease. J Palliat Med. 2018 Apr;21(4):546-51. doi: 10.1089/jpm.2018.0087. PMID: 29596042. - **No human data**

150. Banshodani M, Kawanishi H, Moriishi M, et al. Increased Frequency of In-Center Hemodialysis as Rescue Therapy: Impact on Hospitalization for Acute Cardiovascular Events. Blood Purif. 2018 Nov 22:1-8. doi: 10.1159/000495023. PMID: 30466077. - **Non-United States study**

151. Bao J, Yu Q, Yu H, et al. Erectile dysfunction in male hemodialysis patients in China--one center experience. Clin Nephrol. 2011 Feb;75(2):135-40. PMID: 21255543. - **Non-United States study**

152. Bapat U, Nayak SG, Kedleya PG. Demographics and social factors associated with acceptance of treatment in patients with chronic kidney disease. Saudi J Kidney Dis Transpl. 2008 Jan;19(1):132-6. PMID: 18087143. - **Non-United States study**

153. Baqer HM, Jabur F, Kadhum S. Impact of end stage renal disease upon physical activity for adult patients undergoing hemodialysis at AL-Najaf governorate hospitals. Journal of Pharmaceutical Sciences and Research. 2018;10(5):1170-4. - **Non-United States study**

154. Barany P, Pettersson E, Bergstrom J. Erythropoietin treatment improves quality of life in hemodialysis patients. Scand J Urol Nephrol Suppl. 1990;131:55-60. PMID: 2075471. - **Non-United States study**

155. Barany P, Pettersson E, Konarski-Svensson JK. Long-term effects on quality of life in haemodialysis patients of correction of anaemia with erythropoietin. Nephrol Dial Transplant. 1993;8(5):426-32. PMID: 8393547. - **Non-United States study**

156. Barbati ME, Khazanehdari SH, Zamani M. Sexual function: A comparison between female renal transplant recipients and hemodialysis patients. European Journal of Medical Research. 2010;15:126. - **Meeting abstract**

157. Barberis N, Cernaro V, Costa S, et al. The relationship between coping, emotion regulation, and quality of life of patients on dialysis. Int J Psychiatry Med. 2017 Mar;52(2):111-23. doi: 10.1177/0091217417720893. PMID: 28792286. - **Non-United States study**

158. Barcellos FC, Santos IS, Umpierre D, et al. Effects of exercise in the whole spectrum of chronic kidney disease: A systematic review. Clinical Kidney Journal. 2015;8(6):753-65. doi: 10.1093/ckj/sfv099. - **Non-relevant review**

159. Bardak S, Demir S, Aslan E, et al. The other side of the coin in renal replacement therapies: the burden on caregivers. Int Urol Nephrol. 2019 Feb;51(2):343-9. doi: 10.1007/s11255-018-2029-0. PMID: 30515731. - **Other: LTE**

160. Bargiel-Matusiewicz K, Trzcieniecka-Green A, Kozlowska A. The influence of psychological intervention on cognitive appraisal and level of anxiety in dialysis patients: a pilot study. Open nutraceuticals journal. 2011;4:61-4. doi: 10.2174/1876396001104010061. PMID: CN-01709742. - **Non-United States study**

161. Bargiel-Matusiewicz K, Trzcieniecka-Green A, Kozłowska A. The influence of psychological intervention on cognitive appraisal and level of anxiety in dialysis patients: A pilot study. Open Nutraceuticals Journal. 2011;4:61-4. doi: 10.2174/1876396001104010061. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

162. Barmar B, Dang Q, Isquith D, et al. Comparison of sleep/wake behavior in CKD stages 4 to 5 and hemodialysis populations using wrist actigraphy. Am J Kidney Dis. 2009 Apr;53(4):665-72. doi: 10.1053/j.ajkd.2008.10.045. PMID: 19131149. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

163. Barros A, Costa BE, Mottin CC, et al. Depression, quality of life, and body composition in patients with end-stage renal disease: a cohort study. Braz J Psychiatry. 2016 Oct-Dec;38(4):301-6. doi: 10.1590/1516-4446-2015-1681. PMID: 26870913. - **Non-United States study**

164. Barros A, da Costa BE, Poli-de-Figueiredo CE, et al. Nutritional status evaluated by multi-frequency bioimpedance is not associated with quality of life or depressive symptoms in hemodialysis patients. Ther Apher Dial. 2011 Feb;15(1):58-65. doi: 10.1111/j.1744-9987.2010.00874.x. PMID: 21272254. - **Non-United States study**

165. Barth C. Quality assurance in dialysis in Germany. Dialysis and Transplantation. 2010;39(9):404-5. doi: 10.1002/dat.20479. - **Non-United States study**

166. Barzegar H, Jafari H, Charati JY, et al. Relationship between duration of dialysis and quality of life in hemodialysis patients. Iranian Journal of Psychiatry and Behavioral Sciences. 2017;11(4)doi: 10.5812/ijpbs.6409. - **Non-United States study**

167. Basile C, Lomonte C. Nephrologists should strive for optimal haemodialysis: the case of 8-hour thrice-weekly in-centre haemodialysis. Nephrol Dial Transplant. 2011 Jul;26(7):2419-20. doi: 10.1093/ndt/gfr243. PMID: 21558428. - **Meeting abstract**

168. Basinski J, Zarif H. Mental health treatment in patients with chronic kidney disease: A collaborative care model. Hemodialysis International. 2010;14(1):118. doi: 10.1111/j.1542-4758.2009.00434.x. - **Meeting abstract**

169. Basok EK, Atsu N, Rifaioglu MM, et al. Assessment of female sexual function and quality of life in predialysis, peritoneal dialysis, hemodialysis, and renal transplant

patients. Int Urol Nephrol. 2009;41(3):473-81. doi: 10.1007/s11255-008-9475-z. PMID: 18853272. - **Non-United States study**

170. Bass A, Ahmed SB, Klarenbach S, et al. The impact of nocturnal hemodialysis on sexual function. BMC Nephrol. 2012 Jul 26;13:67. doi: 10.1186/1471-2369-13-67. PMID: 22834992. - **Non-United States study**

171. Bassi A, John O, Joshi R, et al. Socio demographics, clinical characteristics, quality of life and geographical access to care of hemodialysis patients in India. Nephrology Dialysis Transplantation. 2018;33:i558. doi: 10.1093/ndt/gfy104.SP626. - **Meeting abstract**

172. Bastos JP, Sousa RB, Nepomuceno LA, et al. Sleep disturbances in patients on maintenance hemodialysis: role of dialysis shift. Rev Assoc Med Bras (1992). 2007 Nov-Dec;53(6):492-6. PMID: 18157361. - **Non-United States study**

173. Batt J, Linton K, Bennett P. A successful home dialysis program for morbidly obese people requiring dialysis. Hemodialysis International. 2012;16(1):160. doi: 10.1111/j.1542-4758.2011.00651.x. - **Meeting abstract**

174. Bautovich A, Katz I, Smith M, et al. Depression and chronic kidney disease: A review for clinicians. Aust N Z J Psychiatry. 2014 Jun;48(6):530-41. doi: 10.1177/0004867414528589. PMID: 24658294. - **No human data**

175. Bautovich A, Katz I, Smith M, et al. Depression and chronic kidney disease. Australian and New Zealand Journal of Psychiatry. 2014;48:84-5. - **Non-United States study**

176. Bawazier LA, Suhardjono S. Comparison of Quality of Life between Patients Undergoing Chronic Hemodialysis with Reusable Dialyzer and Single-Use Dialyzer: A Retrospective Cohort Study. Acta Med Indones. 2018 Jul;50(3):222-9. PMID: 30333272. - **Non-United States study**

177. Bayat A, Kazemi R, Toghiani A, et al. Psychological evaluation in hemodialysis patients. J Pak Med Assoc. 2012 Mar;62(3 Suppl 2):S1-5. PMID: 22768447. - **Non-United States study**

178. Baykan H, Yargic I. Depression, anxiety disorders, quality of life and stress coping strategies in hemodialysis and continuous ambulatory peritoneal dialysis patients. Klinik Psikofarmakoloji Bulteni. 2012;22(2):167-76. doi: 10.5455/bcp.20120412022430. - **Non-United States study**

179. Bayliss G, Danziger J. Nocturnal versus conventional haemodialysis: some current issues. Nephrol Dial Transplant. 2009 Dec;24(12):3612-7. doi: 10.1093/ndt/gfp491. PMID: 19767631. - **Narrative review**

180. Bayoumi M, Al Harbi A, Al Suwaida A, et al. Predictors of quality of life in hemodialysis patients. Saudi J Kidney Dis Transpl. 2013 Mar;24(2):254-9. PMID:

23538347. - **Non-United States study**

181. Bayoumi M, Wakeel JA, Suwaida AA, et al. Different evaluations of the quality of life in Saudi dialysis patients. NDT Plus. 2010;3:iii174. - **Meeting abstract**

182. Baysal O, Taskapan H. The effects of muscle strenght and physical function on balance in peritoneal dialysis patients. Nephrology Dialysis Transplantation. 2017;32:iii305. doi: 10.1093/ndt/gfx151. - **Meeting abstract**

183. Beauger D, Gentile S, Jacquelinet C, et al. [Comparison of two national quality of life surveys for patients with end stage renal disease between 2005-2007 and 2011: indicators slightly decreased]. Nephrol Ther. 2015 Apr;11(2):88-96. doi: 10.1016/j.nephro.2014.10.003. PMID: 25540878. - **Non-United States study**

184. Bebb C, Day C, Breen C, et al. Implementation of a compact haemodialysis system in a real-world environment: Assessment of user uptake, safety, performance and usability. Nephrology Dialysis Transplantation. 2018;33:i507. doi: 10.1093/ndt/gfy104.SP474. - **Meeting abstract**

185. Beberashvili I, Azar A, Sinuani I, et al. Bioimpedance phase angle predicts muscle function, quality of life and clinical outcome in maintenance hemodialysis patients. Eur J Clin Nutr. 2014 Jun;68(6):683-9. doi: 10.1038/ejcn.2014.67. PMID: 24736681. - **Non-United States study**

186. Beby AT, Voskamp PW, Zamanipoor Najafabadi AH, et al. Health valuation of dialysis with the EQ-5D: Determinants of discrepancy between patients and society. Value in Health. 2017;20(9):A491. doi: 10.1016/j.jval.2017.08.525. - **Meeting abstract**

187. Becker C, Katz I, Van Den Heever E. An investigation into the quality of life of chronic haemodialysis patients managed with outcome-driven protocols in South Africa. Cardiovascular Journal of Africa. 2010;21(3):S9. - **Meeting abstract**

188. Becker CL, Katz I, Du Toit D. An investigation into the quality of life of chronic hemodialysis patients managed with outcome-driven protocols in South Africa. Hemodialysis International. 2009;13(3):382. doi: 10.1111/j.1542-4758.2009.00402.x. - **Meeting abstract**

189. Beecroft JM, Duffin J, Pierratos A, et al. Decreased chemosensitivity and improvement of sleep apnea by nocturnal hemodialysis. Sleep Med. 2009 Jan;10(1):47-54. doi: 10.1016/j.sleep.2007.11.017. PMID: 18226958. - **Non-United States study**

190. Beeharry D, Khan IM, Vindla S, et al. Quality of life (QoL) of patients with diabetic kidney disease on dialysis remains profoundly impaired due to complexity around diabetes management. Diabetic Medicine. 2018;35:163. doi: 10.1111/dme.46_13571. - **Meeting abstract**

191. Beladi Mousavi SS, Zeraati A, Moradi S, et al. The effect of

gabapentin on muscle cramps during hemodialysis: A double-blind clinical trial. Saudi J Kidney Dis Transpl. 2015 Nov;26(6):1142-8. doi: 10.4103/1319-2442.168588. PMID: 26586051. - **Non-United States study**

192. Belasco A, Barbosa D, Bettencourt AR, et al. Quality of life of family caregivers of elderly patients on hemodialysis and peritoneal dialysis. Am J Kidney Dis. 2006 Dec;48(6):955-63. doi: 10.1053/j.ajkd.2006.08.017. PMID: 17162150. - **Non-United States study**

193. Bele S, Bodhare TN, Mudgalkar N, et al. Health-related Quality of Life and Existential Concerns Among Patients with End-stage Renal Disease. Indian J Palliat Care. 2012 May;18(2):103-8. doi: 10.4103/0973-1075.100824. PMID: 23093825. - **Non-United States study**

194. Bell LE, Ferris ME, Fenton N, et al. Health care transition for adolescents with CKD-the journey from pediatric to adult care. Adv Chronic Kidney Dis. 2011 Sep;18(5):384-90. doi: 10.1053/j.ackd.2011.04.003. PMID: 21896381. - **Non-relevant review**

195. Bellinghieri G, Santoro D, Mallamace A, et al. Sexual dysfunction in chronic renal failure. J Nephrol. 2008 Mar-Apr;21 Suppl 13:S113-7. PMID: 18446743. - **Non-United States study**

196. Ben Salah Frih Z, Boudokhane S, Migaou H, et al. Impact of physical exercise in dialysis patients. Annals of Physical and Rehabilitation Medicine. 2014;57:e278-e9. doi: 10.1016/j.rehab.2014.03.1014. - **Meeting abstract**

197. Benabed A, Henri P, Lobbedez T, et al. [Low flux dialysate daily home hemodialysis: A result for the 62 first French and Belgian patients]. Nephrol Ther. 2017 Feb;13(1):18-25. doi: 10.1016/j.nephro.2016.06.007. PMID: 27876356. - **Non-United States study**

198. Benain JP, Galland R, Kessler M, et al. Cost-effectiveness of high dose haemodialysis in France. Nephrology Dialysis Transplantation. 2015;30:iii309. doi: 10.1093/ndt/gfv183.16. - **Other: no ESRD population**

199. Benaroia M, Mendelssohn DC. The home dialysis first paradigm: suitability and transitioning. Int Urol Nephrol. 2010 Sep;42(3):715-7. doi: 10.1007/s11255-010-9792-x. PMID: 20585854. - **Narrative review**

200. Bennett PN, Breugelmans L, Agius M, et al. A haemodialysis exercise programme using novel exercise equipment: a pilot study. J Ren Care. 2007 Oct-Dec;33(4):153-8. PMID: 18298032. - **Non-United States study**

201. Bennett PN, Fraser S, Barnard R, et al. Effects of an intradialytic resistance training programme on physical function: a prospective stepped-wedge randomized controlled trial. Nephrol Dial Transplant. 2016 Aug;31(8):1302-9. doi: 10.1093/ndt/gfv416. PMID: 26715763. - **Non-United States study**

202. Bennett PN, Miller MD, Woodman RJ, et al. Nutrition screening by nurses in dialysis. J Clin Nurs. 2013 Mar;22(5-6):723-32. doi: 10.1111/j.1365-2702.2012.04286.x. PMID: 23039313. - **Non-United States study**

203. Bennett PN, Weinberg MK, Bridgman T, et al. THE HAPPINESS AND SUBJECTIVE WELL-BEING OF PEOPLE ON HAEMODIALYSIS. J Ren Care. 2015 Sep;41(3):156-61. doi: 10.1111/jorc.12116. PMID: 25819036. - **Non-United States study**

204. Benz RL, Pressman MR, Hovick ET, et al. A preliminary study of the effects of correction of anemia with recombinant human erythropoietin therapy on sleep, sleep disorders, and daytime sleepiness in hemodialysis patients (The SLEEPO study). Am J Kidney Dis. 1999 Dec;34(6):1089-95. doi: 10.1016/s0272-6386(99)70015-6. PMID: 10585319. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

205. Bergamaschi Souza Costa D, Magalhães Munhoz B, Fernandes Pereira Da Silva GB, et al. Comparative study of depression symptoms in patients who have had hemodialysis and chemotherapy in the town of Barbacena, Minas Gerais-Brasil. European Psychiatry. 2015;30:1321. - **Non-United States study**

206. Berisa F, McGonigle RJ, Beaman M, et al. Chronic ambulatory peritoneal dialysis in patients aged over seventy. Age Ageing. 1989 Mar;18(2):134-5. PMID: 2729009. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

207. Berlim MT, Mattevi BS, Duarte AP, et al. Quality of life and depressive symptoms in patients with major depression and end-stage renal disease: a matched-pair study. J Psychosom Res. 2006 Nov;61(5):731-4. doi: 10.1016/j.jpsychores.2006.04.011. PMID: 17084154. - **Non-United States study**

208. Berman N. End-of-life matters in chronic renal failure. Curr Opin Support Palliat Care. 2014 Dec;8(4):371-7. doi: 10.1097/spc.0000000000000097. PMID: 25343175. - **Non-relevant review**

209. Berman SJ, Wada C, Minatodani D, et al. Home-based preventative care in high-risk dialysis patients: a pilot study. Telemed J E Health. 2011 May;17(4):283-7. doi: 10.1089/tmj.2010.0169. PMID: 21480788. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

210. Bernasconi A, Waisman R, Beresan M, et al. Pregnancy: Intensified hemodialysis yes or no? Nephrology Dialysis Transplantation. 2012;27:ii281. doi: 10.1093/ndt/gfs227. - **Meeting abstract**

211. Beusterien KM, Nissenson AR, Port FK, et al. The effects of recombinant human erythropoietin on functional health and well-being

in chronic dialysis patients. J Am Soc Nephrol. 1996 May;7(5):763-73. PMID: 8738812. - **Other: abstract only**

212. Bickford K, Javalkar K, Whitley J, et al. The role of objective and subjective social support in predicting depressive symptoms and health-related quality of life. Blood Purification. 2013;35(1-3):146-7. doi: 10.1159/000345306. - **Meeting abstract**

213. Bieber B, Qian J, Anand S, et al. Two-times weekly hemodialysis in China: frequency, associated patient and treatment characteristics and Quality of Life in the China Dialysis Outcomes and Practice Patterns study. Nephrol Dial Transplant. 2014 Sep;29(9):1770-7. doi: 10.1093/ndt/gft472. PMID: 24322579. - **Non-United States study**

214. Bilal M, Khan RA, Danial K. Hijama improves overall quality of life in chronic renal failure patients: A pilot study. Pak J Pharm Sci. 2015 Sep;28(5):1731-5. PMID: 26408893. - **Non-United States study**

215. Bilgic A, Akgul A, Sezer S, et al. Nutritional status and depression, sleep disorder, and quality of life in hemodialysis patients. J Ren Nutr. 2007 Nov;17(6):381-8. doi: 10.1053/j.jrn.2007.08.008. PMID: 17971310. - **Non-United States study**

216. Bilgic A, Akman B, Sezer S, et al. Daytime sleepiness and quality of life in peritoneal dialysis patients. Ther Apher Dial. 2011 Dec;15(6):565-71. doi: 10.1111/j.1744-9987.2011.00987.x. PMID: 22107693. - **Non-United States study**

217. Biniaz V, Tayybi A, Nemati E, et al. Different aspects of fatigue experienced by patients receiving maintenance dialysis in hemodialysis units. Nephrourol Mon. 2013 Sep;5(4):897-900. doi: 10.5812/numonthly.11667. PMID: 24350089. - **Non-United States study**

218. Binik YM, Devins GM. Transplant failure does not compromise quality of life in end-stage renal disease. Int J Psychiatry Med. 1986;16(3):281-92. PMID: 3542871. - **Non-United States study**

219. Birmele B, Le Gall A, Sautenet B, et al. Clinical, sociodemographic, and psychological correlates of health-related quality of life in chronic hemodialysis patients. Psychosomatics. 2012 Jan-Feb;53(1):30-7. doi: 10.1016/j.psym.2011.07.002. PMID: 22221719. - **Non-United States study**

220. Bittencourt ZZ, Alves Filho G, Mazzali M, et al. [Quality of life in renal transplant patients: impact of a functioning graft]. Rev Saude Publica. 2004 Oct;38(5):732-4. doi: /S0034-89102004000500018. PMID: 15499447. - **Non-United States study**

221. Blagg CR, Kjellstrand CM, Ting GO, et al. Comparison of survival between short-daily hemodialysis and conventional hemodialysis using the standardized mortality ratio. Hemodial Int. 2006 Oct;10(4):371-4. doi:

10.1111/j.1542-4758.2006.00132.x. PMID: 17014514. - **Other: editorial--no data**

222. Blagg CR. Evolution of the frequency of hemodialysis for acute and chronic renal failure. Nephrol News Issues. 2001 Apr;15(5):55-6. PMID: 12108964. - **Non-relevant review**

223. Blagg CR. First use of nocturnal hemodialysis. Kidney Int. 2009 Oct;76(8):917. doi: 10.1038/ki.2009.329. PMID: 19789554. - **Other: no comparison group**

224. Blagg CR. Frequent versus standard hemodialysis. N Engl J Med. 2011 Mar 10;364(10):974; author reply 6. doi: 10.1056/NEJMc1100105. PMID: 21388321. - **No human data**

225. Blagg CR. Home haemodialysis: 'home, home, sweet, sweet home!'. Nephrology (Carlton). 2005 Jun;10(3):206-14. doi: 10.1111/j.1440-1797.2005.00383.x. PMID: 15958031. - **Non-relevant review**

226. Blagg CR. The renaissance of home hemodialysis: where we are, why we got here, what is happening in the United States and elsewhere. Hemodial Int. 2008 Jul;12 Suppl 1:S2-5. doi: 10.1111/j.1542-4758.2008.00287.x. PMID: 18638236. - **Other: Max f/u was exactly 6 months, not stratified**

227. Blake C, Codd MB, Cassidy A, et al. Physical function, employment and quality of life in end-stage renal disease. J Nephrol. 2000 Mar-Apr;13(2):142-9. PMID: 10858978. - **Non-United States study**

228. Block GA, Persky MS, Shamblin BM, et al. Effect of salivary phosphate-binding chewing gum on serum phosphate in chronic kidney disease. Nephron Clin Pract. 2013;123(1-2):93-101. doi: 10.1159/000351850. PMID: 23797006. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

229. Bloembergen WE, Laupacis A. The potential of biotechnology to improve the quality of life of patients with renal failure. Drug Saf. 1991 Jan-Feb;6(1):1-7. doi: 10.2165/00002018-199106010-00001. PMID: 1903039. - **No human data**

230. Boateng EA, East L. The impact of dialysis modality on quality of life: a systematic review. J Ren Care. 2011 Dec;37(4):190-200. doi: 10.1111/j.1755-6686.2011.00244.x. PMID: 22035363. - **Relevant systematic review**

231. Bohlke M, Nunes DL, Marini SS, et al. Predictors of quality of life among patients on dialysis in southern Brazil. Sao Paulo Med J. 2008 Sep;126(5):252-6. PMID: 19099157. - **Non-United States study**

232. Boini S, Bloch J, Briancon S. [Monitoring the quality of life of end-stage renal disease patients. Quality of life report - REIN - Dialysis 2005]. Nephrol Ther. 2009 Jun;5 Suppl 3:S177-237. doi: 10.1016/s1769-7255(09)74545-6. PMID: 19576560. - **Non-English**

233. Boini S, Frimat L, Kessler M, et al. Predialysis therapeutic care and

health-related quality of life at dialysis onset (The pharmacoepidemiologic AVENIR study). Health Qual Life Outcomes. 2011 Jan 24;9:7. doi: 10.1186/1477-7525-9-7. PMID: 21261936. - **Non-United States study**

234. Boini S, Leplege A, Loos Ayav C, et al. [Measuring quality of life in end-stage renal disease. Transcultural adaptation and validation of the specific Kidney Disease Quality of Life questionnaire]. Nephrol Ther. 2007 Oct;3(6):372-83. doi: 10.1016/j.nephro.2007.05.005. PMID: 17919640. - **Non-United States study**

235. Bond TC, Mutell R, Wilfehrt HM, et al. Association of pruritus and quality of life (QOL) among patients at a large dialysis provider. Hemodialysis International. 2013;17(1):157. doi: 10.1111/hdi.12006. - **Meeting abstract**

236. Bonner A, Caltabiano M, Berlund L. Quality of life, fatigue, and activity in Australians with chronic kidney disease: a longitudinal study. Nurs Health Sci. 2013 Sep;15(3):360-7. doi: 10.1111/nhs.12038. PMID: 23480135. - **Non-United States study**

237. Bonner A, Wellard S, Caltabiano M. Levels of fatigue in people with ESRD living in far North Queensland. J Clin Nurs. 2008 Jan;17(1):90-8. doi: 10.1111/j.1365-2702.2007.02042.x. PMID: 18088261. - **Non-United States study**

238. Bonner A, Wellard S, Caltabiano M. The impact of fatigue on daily activity in people with chronic kidney disease. J Clin Nurs. 2010 Nov;19(21-22):3006-15. doi: 10.1111/j.1365-2702.2010.03381.x. PMID: 21040007. - **Non-United States study**

239. Bordelon TD. Supportive relationships among hemodialysis recipients at a remodeled kidney center. Soc Work Health Care. 2001;33(2):53-65. doi: 10.1300/J010v33n02_04. PMID: 11760115. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

240. Borowiak E, Braksator E, Nowicki M, et al. Quality of life of chronic hemodialysis and peritoneal dialysis patients. Clinical and Experimental Medical Letters. 2009;50(1):37-42. - **Non-United States study**

241. Borrelli S, Minutolo R, De Nicola L, et al. Quality of life of hemodialysis patients in Central and Southern Italy: cross-sectional comparison between Hemodiafiltration with endogenous reinfusion (HFR) and Bicarbonate Hemodialysis. G Ital Nefrol. 2016 May-Jun;33(3) PMID: 27374393. - **Non-United States study**

242. Borzou SR, Gholyaf M, Zandiha M, et al. The effect of increasing blood flow rate on dialysis adequacy in hemodialysis patients. Saudi J Kidney Dis Transpl. 2009 Jul;20(4):639-42. PMID: 19587507. - **Non-United States study**

243. Bosan IB, Jallo AM. Extended haemodialysis hours may improve the clinical outcome of patients on maintenance haemodialysis without increasing the cost. NDT Plus. 2009;2(1):94-5. doi: 10.1093/ndtplus/sfn185. - **Non-United States study**

244. Bossola M, Antocicco M, Onder G, et al. Reduction of MMSE score over time is more severe in chronic hemodialysis patients than in elderly patients. NDT Plus. 2010;3:iii19. - **Meeting abstract**

245. Bossola M, Di Stasio E, Antocicco M, et al. 1-year course of fatigue in patients on chronic hemodialysis. Int Urol Nephrol. 2017 Apr;49(4):727-34. doi: 10.1007/s11255-016-1496-4. PMID: 28054167. - **Non-United States study**

246. Bossola M, Di Stasio E, Antocicco M, et al. Fatigue Is Associated with Increased Risk of Mortality in Patients on Chronic Hemodialysis. Nephron. 2015;130(2):113-8. doi: 10.1159/000430827. PMID: 26021737. - **Non-United States study**

247. Bossola M, Di Stasio E, Antocicco M, et al. Qualities of fatigue in patients on chronic hemodialysis. Hemodial Int. 2013 Jan;17(1):32-40. doi: 10.1111/j.1542-4758.2012.00713.x. PMID: 22742493. - **Non-United States study**

248. Bossola M, Di Stasio E, Giungi S, et al. Fatigue is associated with serum interleukin-6 levels and symptoms of depression in patients on chronic hemodialysis. J Pain Symptom Manage. 2015 Mar;49(3):578-85. doi: 10.1016/j.jpainsymman.2014.07.009. PMID: 25135658. - **Non-United States study**

249. Bossola M, Di Stasio E, Marzetti E, et al. Fatigue is associated with high prevalence and severity of physical and emotional symptoms in patients on chronic hemodialysis. Int Urol Nephrol. 2018 Jul;50(7):1341-6. doi: 10.1007/s11255-018-1875-0. PMID: 29728992. - **Non-United States study**

250. Bossola M, Giungi S, Di Stasio E, et al. Fatigue over time in hemodialysis patients. Nephrology Dialysis Transplantation. 2014;29:iii511-iii2. doi: 10.1093/ndt/gfu177. - **Meeting abstract**

251. Bossola M, Luciani G, Giungi S, et al. Anorexia, fatigue, and plasma interleukin-6 levels in chronic hemodialysis patients. Ren Fail. 2010;32(9):1049-54. doi: 10.3109/0886022x.2010.504910. PMID: 20863208. - **Non-United States study**

252. Bossola M, Luciani G, Rosa F, et al. Appetite and gastrointestinal symptoms in chronic hemodialysis patients. J Ren Nutr. 2011 Nov;21(6):448-54. doi: 10.1053/j.jrn.2010.09.003. PMID: 21239186. - **Non-United States study**

253. Bots CP, Brand HS, Poorterman JH, et al. Oral and salivary changes in patients with end stage renal disease (ESRD): a two year follow-up study. Br Dent J. 2007 Jan 27;202(2):E3. doi:

10.1038/bdj.2007.47. PMID: 17235362. - **Non-United States study**

254. Bots CP, Brand HS, Veerman EC, et al. Chewing gum and a saliva substitute alleviate thirst and xerostomia in patients on haemodialysis. Nephrol Dial Transplant. 2005 Mar;20(3):578-84. doi: 10.1093/ndt/gfh675. PMID: 15665029. - **Non-United States study**

255. Boudreau JE, Dube A. Quality of life in end stage renal disease: a concept analysis. Cannt j. 2014 Jan-Mar;24(1):12-20. PMID: 24783768. - **No human data**

256. Boulware LE, Liu Y, Fink NE, et al. Temporal relation among depression symptoms, cardiovascular disease events, and mortality in end-stage renal disease: contribution of reverse causality. Clin J Am Soc Nephrol. 2006 May;1(3):496-504. doi: 10.2215/cjn.00030505. PMID: 17699251. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

257. Bradley C. Design of a renal-dependent individualized quality of life questionnaire. Adv Perit Dial. 1997;13:116-20. PMID: 9360663. - **Other: narrative review**

258. Braga SF, Peixoto SV, Gomes IC, et al. Factors associated with health-related quality of life in elderly patients on hemodialysis. Rev Saude Publica. 2011 Dec;45(6):1127-36. PMID: 22124742. - **Non-United States study**

259. Bragg-Gresham J, Schatell D, Witten B, et al. Pre-ESRD care, self-dialysis, and maintenance of employment among incident dialysis patients, 2006-2015. Hemodialysis International. 2018;22(1):A21. doi: 10.1111/hdi.12627. - **Meeting abstract**

260. Braj B, Picone G, Children HF, et al. The lived experience of adolescents who transfer from a pediatric to an adult hemodialysis centre. Cannt j. 1999 Fall;9(4):41-6. PMID: 15714787. - **Non-United States study**

261. Bramham K, Wiles K, Knight M, et al. Pregnancy inwomen requiring dialysis: A UK national prospective cohort study. Nephrology Dialysis Transplantation. 2015;30:iii326-iii7. doi: 10.1093/ndt/gfv183.66. - **Other: protocol**

262. Brandenburg VM, Sinha S, Torregrosa JV, et al. Improvement in wound healing, pain, and quality of life after 12 weeks of SNF472 treatment: a phase 2 open-label study of patients with calciphylaxis. J Nephrol. 2019 Oct;32(5):811-21. doi: 10.1007/s40620-019-00631-0. PMID: 31401795. **– No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

263. Brass D. Psycho-dialysis? The holding potential of the renal dialysis unit. Australian and New Zealand Journal of Psychiatry. 2018;52(1):90. doi: 10.1177/0004867418764980. - **Meeting abstract**

264. Bremer BA, Haffly D, Foxx RM, et al. Patients' perceived control over their health care: an outcome assessment of their psychological adjustment to renal failure. Am J Med Qual. 1995 Fall;10(3):149-54. doi: 10.1177/0885713x9501000307.

PMID: 7549597. - **Other: abstract only**

265. Bremer BA, McCauley CR. Quality-of-life measures: hospital interview versus home questionnaire. Health Psychol. 1986;5(2):171-7. PMID: 3525145. - **Other: Tx not stratified**

266. Brenner I, Brohart K. Weekly energy expenditure and quality of life in hemodialysis patients. Cannt j. 2008 Oct-Dec;18(4):36-40. PMID: 19175191. - **Non-United States study**

267. Brkovic T, Burilovic E, Puljak L. Prevalence and severity of pain in adult end-stage renal disease patients on chronic intermittent hemodialysis: a systematic review. Patient Prefer Adherence. 2016;10:1131-50. doi: 10.2147/ppa.s103927. PMID: 27382261. - **Relevant systematic review**

268. Brodin E, Ljungman S, Hedberg M, et al. Physical activity, muscle performance and quality of life in patients treated with chronic peritoneal dialysis. Scand J Urol Nephrol. 2001 Feb;35(1):71-8. PMID: 11291692. - **Non-United States study**

269. Broers NJH, Martens RJH, Canaud B, et al. Health-related quality of life in end-stage renal disease patients: the effects of starting dialysis in the first year after the transition period. Int Urol Nephrol. 2018 Jun;50(6):1131-42. doi: 10.1007/s11255-018-1845-6. PMID: 29582338. - **Non-United States study**

270. Brown E. Peritoneal dialysis: older patients report better quality of life than younger. Evid Based Nurs. 2015 Jul;18(3):93. doi: 10.1136/eb-2014-101989. PMID: 25605820. - **Non-United States study**

271. Brown EA. Can quality of life be improved for the increasing numbers of older patients with end-stage kidney disease? Expert Rev Pharmacoecon Outcomes Res. 2010 Dec;10(6):661-6. doi: 10.1586/erp.10.78. PMID: 21155699. - **Narrative review**

272. Brown EA. What can we do to improve quality of life for the elderly chronic kidney disease patient? Aging Health. 2012;8(5):519-24. doi: 10.2217/ahe.12.49. - **Non-relevant review**

273. Brown L, Gardner G, Bonner A. A comparison of treatment options for management of end stage kidney disease in elderly patients: A systematic review. JBI Database of Systematic Reviews and Implementation Reports. 2014;12(7):374-404. doi: 10.11124/jbisrir-2014-1152. - **Non-United States study**

274. Brunelli G, Nogueira PC, Pestana JO, et al. Quality of life in children on dialysis. Int Urol Nephrol. 2012 Oct;44(5):1515-9. doi: 10.1007/s11255-011-0047-2. PMID: 21870089. - **Non-United States study**

275. Bruno E, Sansoni J. [Nursing and quality of life in peritoneal dialysis patients]. Prof Inferm. 1999 Jul-Sep;52(3):134-7. PMID: 11235469. - **Non-United States study**

276. Bruzzese A, Aloisi C, Costantino G, et al. The “empathic

relationship": A useful tool for improving the quality of live in hemodialysis patients? Our experience. Nephrology Dialysis Transplantation. 2015;30:iii527. doi: 10.1093/ndt/gfv194.12. - **Meeting abstract**

277. Bucar Pajek M, Pajek J. Characterization of deficits across the spectrum of motor abilities in dialysis patients and the impact of sarcopenic overweight and obesity. Clin Nutr. 2018 Jun;37(3):870-7. doi: 10.1016/j.clnu.2017.03.008. PMID: 28343799. - **Non-United States study**

278. Buckner S, Dwyer J. Do we need a nutrition-specific quality of life questionnaire for dialysis patients? J Ren Nutr. 2003 Oct;13(4):295-302. PMID: 14566767. - **No human data**

279. Bujang MA, Musa R, Liu WJ, et al. Depression, anxiety and stress among patients with dialysis and the association with quality of life. Asian J Psychiatr. 2015 Dec;18:49-52. doi: 10.1016/j.ajp.2015.10.004. PMID: 26549864. - **Non-United States study**

280. Bulckaen M, Capitanini A, Cupisti A, et al. Six months programs of adapted exercise training in hemodialysis patients: Effects on physical performance. NDT Plus. 2010;3:iii497-iii8. - **Meeting abstract**

281. Bulckaen M, Capitanini A, Lange S, et al. Implementation of exercise training programs in a hemodialysis unit: effects on physical performance. J Nephrol. 2011 Nov-Dec;24(6):790-7. doi: 10.5301/jn.2011.6386. PMID: 21360473. - **Non-United States study**

282. Bullani R, El-Housseini Y, Giordano F, et al. Effect of intradialytic resistance band exercise on physical function in patients on maintenance hemodialysis: a pilot study. J Ren Nutr. 2011 Jan;21(1):61-5. doi: 10.1053/j.jrn.2010.10.011. PMID: 21195922. - **Non-United States study**

283. Bunani AD, Bunani ED. The association between social support and psychosocial factors upon mortality and quality of life. Nephrology Dialysis Transplantation. 2013;28:i266. doi: 10.1093/ndt/gft121. - **Meeting abstract**

284. Burlacu A, Artene B, Nistor I, et al. Religiosity, spirituality and quality of life of dialysis patients: a systematic review. Int Urol Nephrol. 2019 Mar 27doi: 10.1007/s11255-019-02129-x. PMID: 30919258. - **Relevant systematic review**

285. Buyan N, Atilla TM, Bilge I, et al. Quality of life in children children with chronic kidney disease: Comparison of the effects of dialysis therapy and transplantation - (the RESULTS of a multicenter study from Turkish pediatric kidney transplantation study group). Pediatric Transplantation. 2009;13:149. - **Meeting abstract**

286. Buyan N, Turkmen MA, Bilge I, et al. Quality of life in children with chronic kidney disease (with child and parent assessments). Pediatr Nephrol. 2010 Aug;25(8):1487-96. doi:

10.1007/s00467-010-1486-1. PMID: 20383649. - **Non-United States study**

287. Cabrera-Pivaral CE, Bustamante-Rivera AP, Ramírez-Obeso RI, et al. Effect of an educational intervention to promote intradialysis aerobic excercises on the functional state of hemodialysis patients from Mexico. Revista de Nefrologia, Dialisis y Trasplante. 2017;37(4):207-14. - **Non-English**

288. Cagney KA, Wu AW, Fink NE, et al. Formal literature review of quality-of-life instruments used in end-stage renal disease. Am J Kidney Dis. 2000 Aug;36(2):327-36. doi: 10.1053/ajkd.2000.8982. PMID: 10922311. - **Relevant systematic review**

289. Cai M, Baweja S, Clements A, et al. Psychological and exercise intervention in dialysis study. Nephrology Dialysis Transplantation. 2012;27:ii284. doi: 10.1093/ndt/gfs227. - **Meeting abstract**

290. Caliskan Y, Yelken B, Gorgulu N, et al. Comparison of markers of appetite and inflammation between hemodialysis patients with and without failed renal transplants. J Ren Nutr. 2012 Mar;22(2):258-67. doi: 10.1053/j.jrn.2011.07.005. PMID: 22056149. - **Non-United States study**

291. Calvey D, Mee L. The lived experience of the person dependent on haemodialysis. J Ren Care. 2011 Dec;37(4):201-7. doi: 10.1111/j.1755-6686.2011.00235.x. PMID: 22035364. - **Non-United States study**

292. Campbell KH, Huang ES, Dale H, et al. Health related quality of life among older adults with diabetes and chronic kidney disease. Journal of the American Geriatrics Society. 2012;60:S238. doi: 10.1111/j.1532-5415.2012.04000.x. - **Meeting abstract**

293. Campbell Z, Kirkendall S, Stevenson J, et al. Interventions for improving health literacy in people with chronic kidney disease. Nephrology. 2016;21:199. doi: 10.1111/nep.12888. - **Meeting abstract**

294. Can AG, Çelik C, Özer M, et al. Upper extremity problems and functioning in patients with end stage renal failure receiving haemodialysis. Turk Osteoporoz Dergisi. 2017;23(3):86-92. doi: 10.4274/tod.44153. - **Non-United States study**

295. Canaud B, Tong L, Tentori F, et al. Clinical practices and outcomes in elderly hemodialysis patients: results from the Dialysis Outcomes and Practice Patterns Study (DOPPS). Clin J Am Soc Nephrol. 2011 Jul;6(7):1651-62. doi: 10.2215/cjn.03530410. PMID: 21734085. - **Non-United States study**

296. Canché-Arenas AP, Reza-Orozco M, Rodríguez-Weber FL. Quality of life of renal transplant patients of Hospital Angeles del Pedregal (Mexico). Medicina Interna de Mexico. 2011;27(5):446-54. - **Non-English**

297. Cao X, Tian L, Lin C. Symptom clusters in patients receiving haemodialysis: a systematic review of observational studies. J Clin Nurs. 2017

Sep;26(17-18):2545-57. doi: 10.1111/jocn.13644. PMID: 27862490. - **Relevant systematic review**

298. Capitanini A, Cupisti A, Mochi N, et al. Effects of exercise training on exercise aerobic capacity and quality of life in hemodialysis patients. J Nephrol. 2008 Sep-Oct;21(5):738-43. PMID: 18949729. - **Non-United States study**

299. Caplin B, Kumar S, Davenport A. Patients' perspective of haemodialysis-associated symptoms. Nephrol Dial Transplant. 2011 Aug;26(8):2656-63. doi: 10.1093/ndt/gfq763. PMID: 21212166. - **Non-United States study**

300. Carmichael P, Popoola J, John I, et al. Assessment of quality of life in a single centre dialysis population using the KDQOL-SF questionnaire. Qual Life Res. 2000 Mar;9(2):195-205. PMID: 10983483. - **Non-United States study**

301. Carvalho AF, Ramirez SP, Macedo DS, et al. The psychological defensive profile of hemodialysis patients and its relationship to health-related quality of life. Journal of nervous and mental disease. 2013;201(7):621-8. doi: 10.1097/NMD.0b013e318298294d. PMID: CN-00904558. - **Non-United States study**

302. Casey JR, Hanson CS, Winkelmayer WC, et al. The meaning and implications of haemodialysis vascular access from the patients' perspective: Thematic synthesis of qualitative studies. Nephrology Dialysis Transplantation. 2014;29:iii261. doi: 10.1093/ndt/gfu156. - **Meeting abstract**

303. Caskey FJ, Wordsworth S, Ben T, et al. Early referral and planned initiation of dialysis: what impact on quality of life? Nephrol Dial Transplant. 2003 Jul;18(7):1330-8. PMID: 12808170. - **Non-United States study**

304. Cass A, Jardine MJ, Gallagher MP, et al. Rationale and design of the ACTIVE dialysis trial: A multicenter, unblinded, randomized controlled trial of extended vs. standard duration of dialysis in patients with end-stage kidney disease. Hemodialysis International. 2009;13(3):389. doi: 10.1111/j.1542-4758.2009.00402.x. - **Meeting abstract**

305. Castillo M, Lazaro R, Dinglasan J, et al. Case report: Effects of structured intradialytic exercise on fatigue and quality of life for an acute care patient on hemodialysis. Physiotherapy (United Kingdom). 2015;101:eS842-eS3. doi: 10.1016/j.physio.2015.03.1661. - **Other: Dialysis and Tx pts not stratified**

306. Castillo-Torres SA, Ibarra-Sifuentes HR, Sanchez-Teran H, et al. Restless legs syndrome in end-stage renal disease patients undergoing hemodialysis. Arq Neuropsiquiatr. 2018 Dec;76(12):827-30. doi: 10.1590/0004-282x20180133. PMID: 30698206. - **Non-United States study**

307. Castro JR, Silva Junior GB, Carvalho AF, et al. Cancer patients

under maintenance hemodialysis: relationship between quality of life, depression, sleep quality and malnutrition-inflammation score. Blood Purif. 2014;38(1):46-54. doi: 10.1159/000362669. PMID: 25277248. - **Non-United States study**

308. Cavalcante MC, Lamy ZC, Lamy Filho F, et al. Factors associated with the quality of life of adults subjected to hemodialysis in a city in northeast Brazil. J Bras Nefrol. 2013 Apr-Jun;35(2):79-86. doi: 10.5935/0101-2800.20130014. PMID: 23812563. - **Non-United States study**

309. Cavalli A, Del Vecchio L, Manzoni C, et al. Hemodialysis: yesterday, today and tomorrow. Minerva Urol Nefrol. 2010 Mar;62(1):1-11. PMID: 20424566. - **Non-relevant review**

310. Celik G, Annagur BB, Yilmaz M, et al. Are sleep and life quality of family caregivers affected as much as those of hemodialysis patients? Gen Hosp Psychiatry. 2012 Sep-Oct;34(5):518-24. doi: 10.1016/j.genhosppsych.2012.01.013. PMID: 22401704. - **Non-United States study**

311. Celik G, Annagur BB, Yilmaz M, et al. Findings of multidimensional instruments for determining psychopathology in diabetic and non-diabetic hemodialysis patients. Int J Clin Exp Med. 2012;5(4):346-54. PMID: 22993656. - **Non-United States study**

312. Cengic B, Resic H, Kucukalic A, et al. [The correlation between psychic disorders and demographic features in hemodialysis patients]. Med Pregl. 2007;60 Suppl 2:104-8. PMID: 18928172. - **Non-United States study**

313. Cengic B, Resic H, Spasovski G, et al. Quality of sleep in patients undergoing hemodialysis. Int Urol Nephrol. 2012 Apr;44(2):557-67. doi: 10.1007/s11255-010-9881-x. PMID: 21152979. - **Non-United States study**

314. Cengiz MI, Sumer P, Cengiz S, et al. The effect of the duration of the dialysis in hemodialysis patients on dental and periodontal findings. Oral Dis. 2009 Jul;15(5):336-41. doi: 10.1111/j.1601-0825.2009.01530.x. PMID: 19320839. - **Non-United States study**

315. Cerecedo-Rosendo M, Escamilla-Illescas D, Reyes-Rivera J, et al. Six and twelve-month impact on quality of life and functional assessment of elder patients with end-stage renal disease undergoing hemodialysis. Blood Purification. 2018;45(1-3):308-9. doi: 10.1159/000485523. - **Meeting abstract**

316. Cerqueira J, Moraes M, Glina S. Erectile dysfunction: prevalence and associated variables in patients with chronic renal failure. Int J Impot Res. 2002 Apr;14(2):65-71. doi: 10.1038/sj.ijir.3900811. PMID: 11979319. - **Non-United States study**

317. Ceyhun HA, Kirpinar I, Aras N. Sexual life of renal transplant recipient. Journal of Psychosomatic Research. 2010;68(6):614-5. - **Meeting abstract**

318. Ceyhun HA, Kirpinar I, Yazici E, et al. A comparative study on subjective sleep quality and predictive factors in renal transplant and dialysis patients. Journal of Psychosomatic Research. 2010;68(6):614. - **Meeting abstract**

319. Chakkera H, Wu Q, Pitta T, et al. Improved quality of life post kidney transplantation. American Journal of Transplantation. 2011;11:266-7. doi: 10.1111/j.1600-6143.2011.03534.x. - **Meeting abstract**

320. Chan CT, Arab S, Carasso S, et al. Impact of frequent nocturnal hemodialysis on myocardial mechanics and cardiomyocyte gene expression. Circ Cardiovasc Imaging. 2012 Jul;5(4):474-80. doi: 10.1161/circimaging.111.971606. PMID: 22647434. - **Non-United States study**

321. Chan CT, Jain V, Picton P, et al. Nocturnal hemodialysis increases arterial baroreflex sensitivity and compliance and normalizes blood pressure of hypertensive patients with end-stage renal disease. Kidney Int. 2005 Jul;68(1):338-44. doi: 10.1111/j.1523-1755.2005.00411.x. PMID: 15954925. - **Non-United States study**

322. Chan CT, Kaysen GA, Beck GJ, et al. Changes in Biomarker Profile and Left Ventricular Hypertrophy Regression: results from the Frequent Hemodialysis Network Trials. American journal of nephrology. 2018;47(3):208-17. doi: 10.1159/000488003. PMID: CN-01608140. - **Other: case report**

323. Chan CT, Li GH, Valaperti A, et al. Intensive Hemodialysis Preserved Cardiac injury. Asaio j. 2015 Sep-Oct;61(5):613-9. doi: 10.1097/mat.0000000000000255. PMID: 26164598. - **Non-United States study**

324. Chan CT, Li SH, Verma S. Nocturnal hemodialysis is associated with restoration of impaired endothelial progenitor cell biology in end-stage renal disease. Am J Physiol Renal Physiol. 2005 Oct;289(4):F679-84. doi: 10.1152/ajprenal.00127.2005. PMID: 15928211. - **Non-United States study**

325. Chan CT, Mok MM. In Search of the True Effect of Home Intensive Hemodialysis. Am J Kidney Dis. 2016 Apr;67(4):539-41. doi: 10.1053/j.ajkd.2015.12.021. PMID: 27012945. - **Narrative review**

326. Chan CT, Notarius CF, Merlocco AC, et al. Improvement in exercise duration and capacity after conversion to nocturnal home haemodialysis. Nephrol Dial Transplant. 2007 Nov;22(11):3285-91. doi: 10.1093/ndt/gfm368. PMID: 17595181. - **Non-United States study**

327. Chan CT, Shen XS, Picton P, et al. Nocturnal home hemodialysis improves baroreflex effectiveness index of end-stage renal disease patients. J Hypertens. 2008 Sep;26(9):1795-800. doi: 10.1097/HJH.0b013e328308b7c8. PMID: 18698214. - **Non-United States study**

328. Chan D, Cheema BS. Progressive Resistance Training in End-Stage Renal Disease: Systematic Review. Am J Nephrol. 2016;44(1):32-45. doi:

10.1159/000446847. PMID: 27355619. - **Relevant systematic review**

329. Chan D, Green S, Fiatarone Singh M, et al. Development, feasibility, and efficacy of a customized exercise device to deliver intradialytic resistance training in patients with end stage renal disease: Non-randomized controlled crossover trial. Hemodial Int. 2016 Oct;20(4):650-60. doi: 10.1111/hdi.12432. PMID: 27283780. - **Non-United States study**

330. Chan L, Tummalapalli S, Ferrandino R, et al. The effect of depression in chronic hemodialysis patients on inpatient hospitalization outcomes. Blood Purification. 2017;43(1-3):270. doi: 10.1159/000454962. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

331. Chan MF, Wong FK, Chow SK. Investigating the health profile of patients with end-stage renal failure receiving peritoneal dialysis: a cluster analysis. J Clin Nurs. 2010 Mar;19(5-6):649-57. doi: 10.1111/j.1365-2702.2009.03103.x. PMID: 20500306. - **Non-United States study**

332. Chan R, Brooks R, Erlich J, et al. How do clinical and psychological variables relate to quality of life in end-stage renal disease? Validating a proximal-distal model. Qual Life Res. 2014 Mar;23(2):677-86. doi: 10.1007/s11136-013-0499-1. PMID: 23943261. - **Non-United States study**

333. Chan R, Brooks R, Erlich J, et al. Integrating clinical variables, health outcomes and quality of life in end-stage renal disease: The proximal-distal model of health-related outcomes. Nephrology. 2010;15:75. doi: 10.1111/j.1440-1797.2010.01377.x. - **Meeting abstract**

334. Chan R, Brooks R, Erlich J, et al. The effects of kidney-disease-related loss on long-term dialysis patients' depression and quality of life: positive affect as a mediator. Clin J Am Soc Nephrol. 2009 Jan;4(1):160-7. doi: 10.2215/cjn.01520308. PMID: 18987298. - **Non-United States study**

335. Chan R, Brooks R, Steel Z, et al. The psychosocial correlates of quality of life in the dialysis population: a systematic review and meta-regression analysis. Qual Life Res. 2012 May;21(4):563-80. doi: 10.1007/s11136-011-9973-9. PMID: 21805367. - **Relevant systematic review**

336. Chanard J. [From need-meeting to quality of life]. Nephrologie. 1998;19(3):103-4. PMID: 9633050. - **Non-United States study**

337. Chand DH, Swartz S, Tuchman S, et al. Dialysis in Children and Adolescents: The Pediatric Nephrology Perspective. Am J Kidney Dis. 2017 Feb;69(2):278-86. doi: 10.1053/j.ajkd.2016.09.023. PMID: 27940060. - **Non-relevant review**

338. Chang ST, Chen CL, Chen CC, et al. Clinical events occurrence and the changes of quality of life in

chronic haemodialysis patients with dry weight determined by echocardiographic method. Int J Clin Pract. 2004 Dec;58(12):1101-7. PMID: 15646404. - **Non-United States study**

339. Chang ST, Chen CL, Chen CC, et al. Enhancement of quality of life with adjustment of dry weight by echocardiographic measurement of inferior vena cava diameter in patients undergoing chronic hemodialysis. Nephron Clin Pract. 2004;97(3):c90-7. doi: 10.1159/000078636. PMID: 15292685. - **Non-United States study**

340. Chantrel F, Calvez SL, Dimitrov Y, et al. Frailty in dialysis patients. Nephrology Dialysis Transplantation. 2018;33:i261. doi: 10.1093/ndt/gfy104.FP645. - **Meeting abstract**

341. Chao CT, Huang JW, Chiang CK. Functional assessment of chronic illness therapy-the fatigue scale exhibits stronger associations with clinical parameters in chronic dialysis patients compared to other fatigue-assessing instruments. PeerJ. 2016;4:e1818. doi: 10.7717/peerj.1818. PMID: 26998414. - **Non-United States study**

342. Chao CT, Huang JW. Frailty severity is significantly associated with electrocardiographic QRS duration in chronic dialysis patients. PeerJ. 2015;3:e1354. doi: 10.7717/peerj.1354. PMID: 26528415. - **Non-United States study**

343. Chao S, Yen M, Lin TC, et al. Psychometric Properties of the Kidney Disease Quality of Life-36 Questionnaire (KDQOL-36). West J Nurs Res. 2016 Aug;38(8):1067-82. doi: 10.1177/0193945916640765. PMID: 27026384. - **Non-United States study**

344. Chauhan R, Mendonca S. Adequacy of twice weekly hemodialysis in end stage renal disease patients at a tertiary care dialysis centre. Indian J Nephrol. 2015 Nov-Dec;25(6):329-33. doi: 10.4103/0971-4065.151762. PMID: 26664206. - **Non-United States study**

345. Chavoshi F, Einollahi B, Sadeghniat Haghighi K, et al. Prevalence and sleep related disorders of restless leg syndrome in hemodialysis patients. Nephrourol Mon. 2015 Mar;7(2):e24611. doi: 10.5812/numonthly.24611. PMID: 25883911. - **Non-United States study**

346. Chavoshi F, Sadeghniiat-Haghighi K, Saraei M, et al. A cross sectional study of restless leg syndrome in Iranian hemodialysis patients. Journal of Sleep Research. 2014;23:222. doi: 10.1111/jsr.12213. - **Non-United States study**

347. Chazot C, Vo VC, Blanc C, et al. Stability of nutritional parameters during a 5-year follow-up in patients treated with sequential long-hour hemodialysis. Hemodial Int. 2006 Oct;10(4):389-93. doi: 10.1111/j.1542-4758.2006.00135.x. PMID: 17014517. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

348. Cheema BS, Singh MA. Exercise training in patients

receiving maintenance hemodialysis: a systematic review of clinical trials. Am J Nephrol. 2005 Jul-Aug;25(4):352-64. doi: 10.1159/000087184. PMID: 16088076. - **Relevant systematic review**

349. Chen HY, Chiang CK, Wang HH, et al. Cognitive-behavioral therapy for sleep disturbance in patients undergoing peritoneal dialysis: a pilot randomized controlled trial. Am J Kidney Dis. 2008 Aug;52(2):314-23. doi: 10.1053/j.ajkd.2008.03.012. PMID: 18511165. - **Non-United States study**

350. Chen JB, Cheng BC, Chen TC, et al. Relationship between KT/V urea values, nutritional status, comorbidity index and components of quality of life in incident peritoneal dialysis patients. Nephrology Dialysis Transplantation. 2012;27:ii462. doi: 10.1093/ndt/gfs243. - **Meeting abstract**

351. Chen JY, Wan EY, Chan KH, et al. Evaluation of the quality of care of a haemodialysis public-private partnership programme for patients with end-stage renal disease. BMC Nephrol. 2016 Jul 11;17(1):79. doi: 10.1186/s12882-016-0284-9. PMID: 27401348. - **Non-United States study**

352. Chen JY, Wan EY, Choi EP, et al. Clinical and patient-reported outcomes of Chinese patients undergoing haemodialysis in hospital or in the community: A 1-year longitudinal study. Nephrology (Carlton). 2016 Jul;21(7):617-23. doi: 10.1111/nep.12686. PMID: 26616825. - **Non-United States study**

353. Chen JY, Wan EYF, Choi EPH, et al. The Health-Related Quality of Life of Chinese Patients on Hemodialysis and Peritoneal Dialysis. Patient. 2017 Dec;10(6):799-808. doi: 10.1007/s40271-017-0256-6. PMID: 28589314. - **Non-United States study**

354. Chen SS, Al Mawed S, Unruh M. Health-Related Quality of Life in End-Stage Renal Disease Patients: How Often Should We Ask and What Do We Do with the Answer? Blood Purif. 2016;41(1-3):218-24. doi: 10.1159/000441462. PMID: 26766028. - **Narrative review**

355. Chen SS, Unruh M, Williams M. In Quality We Trust; but Quality of Life or Quality of Care? Semin Dial. 2016 Mar-Apr;29(2):103-10. doi: 10.1111/sdi.12470. PMID: 26860436. - **Relevant systematic review**

356. Chen WC, Chen CH, Lee PC, et al. Quality of life, symptom distress, and social support among renal transplant recipients in Southern Taiwan: a correlational study. J Nurs Res. 2007 Dec;15(4):319-29. PMID: 18080976. - **Non-United States study**

357. Chen YC, Chiu WT, Wu MS. Therapeutic effect of topical gamma-linolenic acid on refractory uremic pruritus. American journal of kidney diseases. 2006;48(1):69-76. doi: 10.1053/j.ajkd.2006.03.082. PMID: CN-00557107. - **Non-United States study**

358. Cheng HM, Tang HL, Poon CKY, et al. The effect of nocturnal home hemodialysis on left ventricular hypertrophy in end stage renal disease patients-a six years study. Nephrology Dialysis Transplantation. 2018;33:i217. doi: 10.1093/ndt/gfy104.FP529. - **Meeting abstract**

359. Cheng HW, Chan KY, Lau HT, et al. Use of Erythropoietin-Stimulating Agents (ESA) in Patients With End-Stage Renal Failure Decided to Forego Dialysis: Palliative Perspective. Am J Hosp Palliat Care. 2017 May;34(4):380-4. doi: 10.1177/1049909115624653. PMID: 26718957. - **No human data**

360. Cheng Y, Tu W, Xiao Q, et al. Risk of cardiovascular disease in patients on thrice-weekly versus twice-weekly hemodialysis. Int J Cardiol. 2014 Jul 1;174(3):780-3. doi: 10.1016/j.ijcard.2014.04.052. PMID: 24768378. - **Non-United States study**

361. Chernin G, Chang IJ, Bhatt U, et al. Gastrointestinal safety and tolerability of ferric citrate in patients with esrd on dialysis: A pooled analysis. Nephrology Dialysis Transplantation. 2015;30:iii595. doi: 10.1093/ndt/gfv199.23. - **Meeting abstract**

362. Cheung YB, Seow YY, Qu LM, et al. Measurement properties of the Chinese Version of the Kidney Disease Quality of Life-Short Form (KDQOL-SF) in end-stage renal disease patients with poor prognosis in Singapore. J Pain Symptom Manage. 2012 Dec;44(6):923-32. doi: 10.1016/j.jpainsymman.2011.12.282. PMID: 22795902. - **Non-United States study**

363. Chiang CK, Peng YS, Chiang SS, et al. Health-related quality of life of hemodialysis patients in Taiwan: a multicenter study. Blood Purif. 2004;22(6):490-8. doi: 10.1159/000081730. PMID: 15523175. - **Non-United States study**

364. Chigira Y, Oda T, Izumi M, et al. Effects of exercise therapy during dialysis for elderly patients undergoing maintenance dialysis. J Phys Ther Sci. 2017 Jan;29(1):20-3. doi: 10.1589/jpts.29.20. PMID: 28210031. - **Non-United States study**

365. Chilcot J, Davenport A, Wellsted D, et al. An association between depressive symptoms and survival in incident dialysis patients. Nephrol Dial Transplant. 2011 May;26(5):1628-34. doi: 10.1093/ndt/gfq611. PMID: 20921294. - **Non-United States study**

366. Chilcot J, Norton S, Wellsted D, et al. Distinct depression symptom trajectories over the first year of dialysis: associations with illness perceptions. Ann Behav Med. 2013 Feb;45(1):78-88. doi: 10.1007/s12160-012-9410-5. PMID: 22941311. - **Non-United States study**

367. Chilcot J, Wellsted D, Farrington K. Illness perceptions predict survival in haemodialysis patients. Am J Nephrol. 2011;33(4):358-63. doi: 10.1159/000326752. PMID: 21430374. - **Non-United States study**

368. Chilcot J, Wellsted D, Vilar E, et al. An association between residual renal function and depression symptoms in haemodialysis patients. Nephron Clin Pract. 2009;113(2):c117-24. doi: 10.1159/000229019. PMID: 19622899. - **Non-United States study**

369. Chino-Hernandez BE, Acuna-Arellano A, Hernandez-Colin FC, et al. [Quality of life in elderly with chronic kidney disease stage V]. Rev Esp Geriatr Gerontol. 2016 Sep-Oct;51(5):298-9. doi: 10.1016/j.regg.2015.12.011. PMID: 26908072. - **Non-English**

370. Chiu MC, Ng CF, Lee LP, et al. Automated peritoneal dialysis in children and adolescents--benefits: a survey of patients and parents on health-related quality of life. Perit Dial Int. 2007 Jun;27 Suppl 2:S138-42. PMID: 17556292. - **Non-United States study**

371. Chkhotua A, Pantsulaia T, Managadze L. The quality of life analysis in renal transplant recipients and dialysis patients. Georgian Med News. 2011 Nov;11(200):10-7. PMID: 22201073. - **Non-United States study**

372. Ch'ng AS, Chen LL, Lim SK, et al. Haemodialysis versus non-dialysis therapy among older adults with stage 5 chronic kidney disease: A comparison of health-related quality of life. Value in Health. 2015;18(7):A745. - **Meeting abstract**

373. Cho H, Sohng KY. The effect of a virtual reality exercise program on physical fitness, body composition, and fatigue in hemodialysis patients. J Phys Ther Sci. 2014 Oct;26(10):1661-5. doi: 10.1589/jpts.26.1661. PMID: 25364137. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

374. Cho MH, Ha IS, Kang HG, et al. Quality of life in children with chronic kidney disease-based on the pediatric CKD cohort. Pediatric Nephrology. 2013;28(8):1510. doi: 10.1007/s00467-013-2518-4. - **Non-United States study**

375. Cho MK, Kim SY, Shim HY. Validity and Reliability of the Korean Version of the Dialysis Symptom Index for Hemodialysis Patients. J Nurs Res. 2018 Dec;26(6):399-410. doi: 10.1097/jnr.0000000000000267. PMID: 29994803. - **Non-United States study**

376. Cho YC, Tsay SL. The effect of acupressure with massage on fatigue and depression in patients with end-stage renal disease. Journal of nursing research. 2004;12(1):51-9. PMID: CN-00469365. - **Non-United States study**

377. Choi CH, Park SJ, Sul HR, et al. Gastrointestinal symptoms and quality of life in patients with end-stage renal disease undergoing treatment by hemodialysis. Gastroenterology. 2009;136(5):A379. doi: 10.1016/S0016-5085(09)61739-X. - **Meeting abstract**

378. Choi SJ, Lee MS, Kang SH, et al. Intradialytic exercise for hemodialysis patients. Journal of Cachexia, Sarcopenia and Muscle. 2018;9(6):1131. doi:

10.1002/jcsm.12365. - **Meeting abstract**

379. Chong HWG, Lee HXJ, Mastura BM. Fatigue level among end-stage renal disease patients on dialysis and factors associated with it. Proceedings of Singapore Healthcare. 2011;20:196. doi: 10.1177/20101058110200S101. - **Meeting abstract**

380. Chong VH, Tan J. Prevalence of gastrointestinal and psychosomatic symptoms among Asian patients undergoing regular hemodialysis. Nephrology (Carlton). 2013 Feb;18(2):97-103. doi: 10.1111/nep.12000. PMID: 23078158. - **Non-United States study**

381. Chong VH. Impact of duration of hemodialysis on gastrointestinal symptoms in patients with end stage renal failure. J Gastrointestin Liver Dis. 2010 Dec;19(4):462-3. PMID: 21188344. - **Non-relevant review**

382. Choudhari SK, Potdar N, Hiremath P, et al. A study to assess effectiveness of foot reflexology on anxiety of patients undergoing hemodialysis in tertiary care hospital, Karad. Asian Journal of Pharmaceutical and Clinical Research. 2017;10(7):345-8. doi: 10.22159/ajpcr.2017.v10i7.18602. - **Non-United States study**

383. Chow KM, Szeto CC, Kum LC, et al. Improved health-related quality of life and left ventricular hypertrophy among dialysis patients treated with parathyroidectomy. J Nephrol. 2003 Nov-Dec;16(6):878-85. PMID: 14736016. - **Non-United States study**

384. Chow SK, Tam BM. Is the kidney disease quality of life-36 (KDQOL-36) a valid instrument for Chinese dialysis patients? BMC Nephrol. 2014 Dec 15;15:199. doi: 10.1186/1471-2369-15-199. PMID: 25511462. - **Non-United States study**

385. Chow SK, Wong FK. Health-related quality of life in patients undergoing peritoneal dialysis: effects of a nurse-led case management programme. J Adv Nurs. 2010 Aug;66(8):1780-92. doi: 10.1111/j.1365-2648.2010.05324.x. PMID: 20557392. - **Non-United States study**

386. Christianer K, Shengelia R, Eiss BM, et al. Symptom burden in frail hemodialysis patients. Journal of the American Geriatrics Society. 2012;60:S201. doi: 10.1111/j.1532-5415.2012.04000.x. - **Meeting abstract**

387. Chu NF, Ferng SH, Shieh SD. Quality of life assessment in end-stage renal disease patients with maintenance hemodialysis therapy. Zhonghua Yi Xue Za Zhi (Taipei). 1992 Aug;50(2):103-7. PMID: 1327466. - **Non-United States study**

388. Chubon RA. Quality of life and persons with end-stage renal disease. Dialysis and Transplantation. 1986;15(8):450-2. - **Other: biomarkers not associated with for duration**

389. Chughtai SA, Afzal BBA, Scott JJS, et al. Comparison of sleep quality in hemodialysis vs kidney transplant recipients using Pittsburgh sleep quality index (PSQI). Transplantation. 2018;102(7):S539. - **Meeting abstract**

390. Chuku CL, Valdez JR, Ajonuma LC. Is Nottingham Health Profile a reliable tool to measure quality of life of Filipinos with chronic kidney diseases undergoing hemodialysis. East Afr J Public Health. 2010 Dec;7(4):286-8. PMID: 22066322. - **Non-United States study**

391. Chung YC, Yeh ML, Liu YM. Effects of intradialytic exercise on the physical function, depression and quality of life for haemodialysis patients: a systematic review and meta-analysis of randomised controlled trials. J Clin Nurs. 2017 Jul;26(13-14):1801-13. doi: 10.1111/jocn.13514. PMID: 27532211. - **Relevant systematic review**

392. Churchill DN, Morgan J, Torrance GW. Quality of life in end-stage renal disease. Peritoneal Dialysis Bulletin. 1984;4(1):20-3. - **Non-United States study**

393. Churchill DN, Torrance GW, Taylor DW, et al. Measurement of quality of life in end-stage renal disease: the time trade-off approach. Clin Invest Med. 1987 Jan;10(1):14-20. PMID: 3545580. - **Non-United States study**

394. Churchill DN, Wallace JE, Ludwin D, et al. A comparison of evaluative indices of quality of life and cognitive function in hemodialysis patients. Control Clin Trials. 1991 Aug;12(4 Suppl):159s-67s. PMID: 1663852. - **Non-United States study**

395. Churchward DR, Graham-Brown MP, Preston R, et al. Investigating the effects of 6 months extended duration, in-centre nocturnal versus conventional haemodialysis treatment: a non-randomised, controlled feasibility study. BMJ Open. 2016 Sep 8;6(9):e012583. doi: 10.1136/bmjopen-2016-012583. PMID: 27609856. - **Other: no comp group**

396. Cigerli O, Yakupoglu U, Ozdemir N. Coping strategies and anxiety-depression levels in hemodialysis patients. Hemodialysis International. 2010;14(1):133-4. doi: 10.1111/j.1542-4758.2009.00434.x. - **Meeting abstract**

397. Cinar A, Kazancioglu R, Turan Isik A, et al. Cognitive functions among elderly hemodialysis patients. Nephrology Dialysis Transplantation. 2013;28:i256. doi: 10.1093/ndt/gft120. - **Meeting abstract**

398. Cirignotta F, Mondini S, Baiardi S, et al. Restless legs syndrome in dialysis patients and survival. Journal of Sleep Research. 2012;21:359. doi: 10.1111/j.1365-2869.2012.01044.x. - **Meeting abstract**

399. Clajus C, Kielstein JT, Haller H, et al. Prospective longitudinal evaluation of in-center conversion from conventional to intensified nocturnal hemodialysis. Nephrology Dialysis Transplantation. 2012;27:ii220. doi: 10.1093/ndt/gfs224. - **Meeting abstract**

400. Clark DA, Khan U, Kiberd BA, et al. Frailty in end-stage renal disease: comparing patient, caregiver, and clinician perspectives. BMC Nephrol. 2017 May 2;18(1):148. doi: 10.1186/s12882-

017-0558-x. PMID: 28464924. - **Non-United States study**

401. Cleary J, Drennan J. Quality of life of patients on haemodialysis for end-stage renal disease. J Adv Nurs. 2005 Sep;51(6):577-86. doi: 10.1111/j.1365-2648.2005.03547.x. PMID: 16129008. - **Non-United States study**

402. Clement FM, Klarenbach S, Tonelli M, et al. The impact of selecting a high hemoglobin target level on health-related quality of life for patients with chronic kidney disease: a systematic review and meta-analysis. Arch Intern Med. 2009 Jun 22;169(12):1104-12. doi: 10.1001/archinternmed.2009.112. PMID: 19546410. - **Relevant systematic review**

403. Coelho-Marques FZ, Wagner MB, Poli de Figueiredo CE, et al. Quality of life and sexuality in chronic dialysis female patients. Int J Impot Res. 2006 Nov-Dec;18(6):539-43. doi: 10.1038/sj.ijir.3901470. PMID: 16554852. - **Non-United States study**

404. Cohen LM, Germain MJ. Measuring quality of dying in end-stage renal disease. Semin Dial. 2004 Sep-Oct;17(5):376-9. doi: 10.1111/j.0894-0959.2004.17348.x. PMID: 15461747. - **Other: protocol paper**

405. Cohen SD, Cukor D, Kimmel PL. Anxiety in Patients Treated with Hemodialysis. Clin J Am Soc Nephrol. 2016 Dec 7;11(12):2250-5. doi: 10.2215/cjn.02590316. PMID: 27660303. - **Narrative review**

406. Cohen SD, Kimmel PL. Quality of life and mental health related to timing, frequency and dose of hemodialysis. Semin Dial. 2013 Nov-Dec;26(6):697-701. doi: 10.1111/sdi.12124. PMID: 24067246. - **Narrative review**

407. Cohen SD. Social support interventions will improve the quality of life of ESRD patients. Semin Dial. 2013 May-Jun;26(3):262-5. doi: 10.1111/sdi.12064. PMID: 23432395. - **Non-relevant review**

408. Collins A, Rubin R. More frequent dialysis and the role of medical justification in a MAC world. Nephrol News Issues. 2016 Oct;30(11):14-7. PMID: 30513183. - **Other: Quality of dying**

409. Collins AJ, Chan CT. Intensive Hemodialysis: Time to Give the Therapy Greater Consideration. Am J Kidney Dis. 2016 Nov;68(5 Suppl 1):S1-s4. doi: 10.1053/j.ajkd.2016.05.027. PMID: 27772638. - **Narrative review**

410. Copland M, Komenda P, Weinhandl ED, et al. Intensive Hemodialysis, Mineral and Bone Disorder, and Phosphate Binder Use. Am J Kidney Dis. 2016 Nov;68(5s1):S24-s32. doi: 10.1053/j.ajkd.2016.05.024. PMID: 27772640. - **Non-relevant review**

411. Coritsidis G, Patel K, Bellot V, et al. Prevalence of depression and sleep problems in a multicultural urban dialysis center. Hemodialysis International. 2010;14(1):118-9. doi: 10.1111/j.1542-4758.2009.00434.x. - **Meeting abstract**

412. Cormier J. The impact of renal bone disease on the quality of life of ESRD patients. Nephrol News

Issues. 2001 Jun;15(7):12-4. PMID: 12098987. - **No human data**

413. Cornelis T, Kooistra MP, Kooman J, et al. Education of ESRD patients on dialysis modality selection: 'intensive haemodialysis first'. Nephrol Dial Transplant. 2010 Sep;25(9):3129-30; author reply 30-1. doi: 10.1093/ndt/gfq365. PMID: 20736267. - **No human data**

414. Cornelis T, Kooman JP, van der Sande FM. Intensive home hemodialysis: the best treatment in the best system. Nephrol Dial Transplant. 2011 Sep;26(9):3067-8; author reply 8. doi: 10.1093/ndt/gfr348. PMID: 21677303. - **Other: Viewpoint**

415. Cornelis T, Tennankore K, Goffin E, et al. Outcomes of home hemodialysis in elderly ESRD patients: An international feasibility analysis. Nephrology Dialysis Transplantation. 2014;29:iii277. doi: 10.1093/ndt/gfu158. - **Meeting abstract**

416. Cornelis T, Tennankore KK, Goffin E, et al. An international feasibility study of home haemodialysis in older patients. Nephrol Dial Transplant. 2014 Dec;29(12):2327-33. doi: 10.1093/ndt/gfu260. PMID: 25085237. - **Non-United States study**

417. Cornette F, Ogna A, Forni V, et al. Prevalence and predictors of sleep disordered breathing in patients undergoing chronic ambulatory intermittent hemodialysis. Sleep Medicine. 2013;14:e101-e2. doi: 10.1016/j.sleep.2013.11.219. - **Meeting abstract**

418. Coronado Daza J, Marti-Carvajal AJ, Ariza Garcia A, et al. Early versus delayed erythropoietin for the anaemia of end-stage kidney disease. Cochrane Database Syst Rev. 2015 Dec 16(12):Cd011122. doi: 10.1002/14651858.CD011122.pub2. PMID: 26671531. - **Relevant systematic review**

419. Coulibaly G, Goumbri P, Ouedraogo N, et al. [Factors associated with depressive symptoms in chronic hemodialysis patients of centre hospitalier universitaire Yalgado Ouedraogo (Burkina Faso)]. Nephrol Ther. 2016 Jul;12(4):210-4. doi: 10.1016/j.nephro.2015.12.004. PMID: 26915893. - **Non-United States study**

420. Courivaud C. [Incremental haemodialysis]. Nephrol Ther. 2018 Apr;14 Suppl 1:S89-s92. doi: 10.1016/j.nephro.2018.02.016. PMID: 29606268. - **Non-English**

421. Couto CI, Natour J, Carvalho AB. Fibromyalgia: Its prevalence and impact on the quality of life on a hemodialyzed population. Hemodialysis International. 2008;12(3):66-72. - **Non-United States study**

422. Coutts L. The lessons of EPO rehabilitation. Nephrol News Issues. 1990 May;4(5):5, 28. PMID: 2348878. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

423. Covic A, Seica A, Gusbeth-Tatomir P, et al. Illness representations and quality of life scores in haemodialysis patients. Nephrol Dial Transplant. 2004

Aug;19(8):2078-83. doi: 10.1093/ndt/gfh254. PMID: 15213317. - **Non-United States study**

424. Cox KJ, Parshall MB, Hernandez SHA, et al. Symptoms among patients receiving in-center hemodialysis: A qualitative study. Hemodial Int. 2017 Oct;21(4):524-33. doi: 10.1111/hdi.12521. PMID: 27990732. - **Other: looks like an editorial/op-ed piece**

425. Cozzolino M. Which outcome in chronic kidney disease-mineral and bone disorder patients? Nephro-Urology Monthly. 2014;6(3)doi: 10.5812/numonthly.18662. - **Non-relevant review**

426. Craig KL, Podymow T, Pauly RP. Intensifying renal replacement therapy during pregnancy: the role for nocturnal home hemodialysis. Int Urol Nephrol. 2010 Mar;42(1):137-9. doi: 10.1007/s11255-009-9680-4. PMID: 19937115. - **Narrative review**

427. Cravedi P, Ruggenenti P, Mingardi G, et al. Thrice-weekly in-center nocturnal hemodialysis: an effective strategy to optimize chronic dialysis therapy. Int J Artif Organs. 2009 Jan;32(1):12-9. PMID: 19241359. - **Non-United States study**

428. Cristovao F. Stress, coping and quality of life among chronic haemodialysis patients. Edtna erca j. 1999 Oct-Dec;25(4):35-8, 44. PMID: 10827598. - **Non-United States study**

429. Cruz LN, Fleck MP, Polanczyk CA. Depression as a determinant of quality of life in patients with chronic disease: data from Brazil. Soc Psychiatry Psychiatr Epidemiol. 2010 Oct;45(10):953-61. doi: 10.1007/s00127-009-0141-2. PMID: 19771379. - **Non-United States study**

430. Cukor D, Cohen SD, Peterson RA, et al. Psychosocial aspects of chronic disease: ESRD as a paradigmatic illness. J Am Soc Nephrol. 2007 Dec;18(12):3042-55. doi: 10.1681/asn.2007030345. PMID: 18003775. - **Narrative review**

431. Cukor D, Kimmel PL. Treatment of depression in CKD patients with an SSRI: Why things don't always turn out as you expect. Clinical Journal of the American Society of Nephrology. 2018;13(6):943-5. doi: 10.2215/CJN.14421217. - **Non-relevant review**

432. Cukor D, Ver Halen N, Fruchter Y. Anxiety and quality of life in ESRD. Semin Dial. 2013 May-Jun;26(3):265-8. doi: 10.1111/sdi.12065. PMID: 23432416. - **Narrative review**

433. Culleton BF, Walsh M, Klarenbach SW, et al. Effect of frequent nocturnal hemodialysis vs conventional hemodialysis on left ventricular mass and quality of life: a randomized controlled trial. JAMA. 2007;298(11):1291-9. doi: 10.1001/jama.298.11.1291. PMID: CN-00612136. - **Non-United States study**

434. Culleton BF, Walsh M, Klarenbach SW, et al. Effect of frequent nocturnal hemodialysis vs conventional hemodialysis on left

ventricular mass and quality of life: a randomized controlled trial. Jama. 2007 Sep 19;298(11):1291-9. doi: 10.1001/jama.298.11.1291. PMID: 17878421. - **Non-United States study**

435. Curcani M, Tan M. The effect of aromatherapy on haemodialysis patients' pruritus. J Clin Nurs. 2014 Dec;23(23-24):3356-65. doi: 10.1111/jocn.12579. PMID: 24646128. - **Non-United States study**

436. Curran SP, Chan CT. Intensive hemodialysis: normalizing the "unphysiology" of conventional hemodialysis? Semin Dial. 2011 Nov-Dec;24(6):607-13. doi: 10.1111/j.1525-139X.2011.01010.x. PMID: 22122548. - **Narrative review**

437. Currie H, Baharani J. Cognitive changes in a haemodialysis session in stable haemodialysis patients over the age of 60 years-a prospective pilot study. Nephrology Dialysis Transplantation. 2014;29:iii283. doi: 10.1093/ndt/gfu158. - **Meeting abstract**

438. Currier H, Taylor C. Use of creative writing to illustrate pediatric patient dialysis lived experiences. Hemodialysis International. 2018;22(1):A31-A2. doi: 10.1111/hdi.12627. - **Meeting abstract**

439. Curtin RB, Klag MJ, Bultman DC, et al. Renal rehabilitation and improved patient outcomes in Texas dialysis facilities. Am J Kidney Dis. 2002 Aug;40(2):331-8. doi: 10.1053/ajkd.2002.34517. PMID: 12148106. - **Other: interviews**

440. Cwiek A, Czok M, Kurczab B, et al. Association between depression and hemodialysis in patients with chronic kidney disease. Psychiatr Danub. 2017 Sep;29(Suppl 3):499-503. PMID: 28953816. - **Non-United States study**

441. Czyzewski L, Sanko-Resmer J, Wyzgal J, et al. Assessment of health-related quality of life of patients after kidney transplantation in comparison with hemodialysis and peritoneal dialysis. Ann Transplant. 2014 Nov 9;19:576-85. doi: 10.12659/aot.891265. PMID: 25382249. - **Non-United States study**

442. Czyzewski L, Wyzgal J, Sierdzinski J, et al. Comparison of 3 Times a Week 4- and 5-Hour In-Center Hemodialysis Sessions with Use of Continuous Non-Invasive Hemodynamic Monitoring. Ann Transplant. 2017 Jun 6;22:346-53. PMID: 28584226. - **Non-United States study**

443. Da Silva Filho AB, Dos Santos Xavier C, Dos Santos CG, et al. Daily and social activities influence the quality of life of renal chronic patients in hemodialysis. Medicina (Brazil). 2018;51(2):131-7. doi: 10.11606/issn.2176-7262.v51i2p131-137. - **Non-United States study**

444. Da Silva HGV, Maya MC, Madeira F, et al. Parathyroidectomy improve life quality and nutritional status in chronic kidney disease. Endocrine Reviews. 2013;34(3). - **Meeting abstract**

445. Da Silva-Gane M, Wellsted D, Greenshields H, et al. Quality of life and survival in patients with advanced kidney failure managed conservatively or by dialysis. Clin J Am Soc Nephrol. 2012 Dec;7(12):2002-9. doi: 10.2215/cjn.01130112. PMID: 22956262. - **Non-United States study**

446. Dabrowska-Bender M, Dykowska G, Zuk W, et al. The impact on quality of life of dialysis patients with renal insufficiency. Patient Prefer Adherence. 2018;12:577-83. doi: 10.2147/ppa.s156356. PMID: 29720873. - **Non-United States study**

447. Dahbour SS, Wahbeh AM, Hamdan MZ. Mini mental status examination (MMSE) in stable chronic renal failure patients on hemodialysis: The effects of hemodialysis on the MMSE score. A prospective study. Hemodial Int. 2009 Jan;13(1):80-5. doi: 10.1111/j.1542-4758.2009.00343.x. PMID: 19210282. - **Non-United States study**

448. Dahlerus C, Quinn M, Messersmith E, et al. Patient Perspectives on the Choice of Dialysis Modality: Results From the Empowering Patients on Choices for Renal Replacement Therapy (EPOCH-RRT) Study. Am J Kidney Dis. 2016 Dec;68(6):901-10. doi: 10.1053/j.ajkd.2016.05.010. PMID: 27337991. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

449. Dai WD, Zhang DL, Cui WY, et al. Effect of long intermittent hemodialysis on improving dialysis adequacy of maintenance hemodialysis patients. Chin Med J (Engl). 2013;126(24):4655-9. PMID: 24342306. - **Non-United States study**

450. D'Alessandro M, Carollo A, Corrado C, et al. Health-related quality of life in children on peritoneal dialysis. Peritoneal Dialysis International. 2012;32:S55. - **Meeting abstract**

451. Dam A, Khanna P, Kumar N, et al. Measure of hope & spirituality in end stage renal disease. Psycho-Oncology. 2013;22:176. doi: 10.1111/j.1099-1611.2013.3394. - **Meeting abstract**

452. Dam M, Neelemaat F, Douma CE, et al. Reliability of assessments of physical performance and protein-energy wasting in hemodialysis patients. Clinical Nutrition. 2016;35:S86. - **Meeting abstract**

453. Dam M, Neelemaat F, Struijk-Wielinga T, et al. Physical performance and protein-energy wasting in patients treated with nocturnal haemodialysis compared to conventional haemodialysis: protocol of the DiapriFIT study. BMC Nephrol. 2017 May 1;18(1):144. doi: 10.1186/s12882-017-0562-1. PMID: 28460640. - **Non-United States study**

454. Dande R, Gadbail AR, Sarode S, et al. Oral Manifestations in Diabetic and Nondiabetic Chronic Renal Failure Patients receiving Hemodialysis. J Contemp Dent Pract. 2018 Apr 1;19(4):398-403. PMID: 29728543. - **Non-United States study**

455. Daniela R, Checherita IA, Ciocalteu A, et al. Comparisson between hemodialysis and peritoneal dialysis in elderly patients. Nephrology Dialysis Transplantation. 2012;27:ii223. doi: 10.1093/ndt/gfs224. - **Meeting abstract**

456. Danquah FV, Wasserman J, Meininger J, et al. Quality of life measures for patients on hemodialysis: a review of psychometric properties. Nephrol Nurs J. 2010 May-Jun;37(3):255-69; quiz 70. PMID: 20629464. - **Relevant systematic review**

457. Darawad MW, Khalil AA. Jordanian dialysis patients' perceived exercise benefits and barriers: a correlation study. Rehabil Nurs. 2013 Nov-Dec;38(6):315-22. doi: 10.1002/rnj.98. PMID: 23703743. - **Non-United States study**

458. Darvishi A, Otaghi M, Mami S. The Effectiveness of Spiritual Therapy on Spiritual Well-Being, Self-Esteem and Self-Efficacy in Patients on Hemodialysis. J Relig Health. 2019 Jan 23doi: 10.1007/s10943-018-00750-1. PMID: 30673996. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

459. Dashti-Khavidaki S, Chamani N, Khalili H, et al. Comparing effects of clonazepam and zolpidem on sleep quality of patients on maintenance hemodialysis. Iran J Kidney Dis. 2011 Nov;5(6):404-9. PMID: 22057073. - **Non-United States study**

460. Daugirdas JT, Leypoldt JK, Akonur A, et al. Improved equation for estimating single-pool Kt/V at higher dialysis frequencies. Nephrol Dial Transplant. 2013 Aug;28(8):2156-60. doi: 10.1093/ndt/gfs115. PMID: 22561585. - **Other: not patient-level data**

461. Davenport A. How best to improve survival in hemodialysis patients: solute clearance or volume control? Kidney Int. 2011 Nov;80(10):1018-20. doi: 10.1038/ki.2011.267. PMID: 22042030. - **Non-relevant review**

462. Davey CH, Webel AR, Sehgal AR, et al. Fatigue in Individuals with End Stage Renal Disease. Nephrol Nurs J. 2019 Sep-Oct;46(5):497-508. PMID: 31566345. – **Narrative review--relevant to either KQ**

463. David S, Kumpers P, Eisenbach GM, et al. Prospective evaluation of an in-centre conversion from conventional haemodialysis to an intensified nocturnal strategy. Nephrol Dial Transplant. 2009 Jul;24(7):2232-40. doi: 10.1093/ndt/gfp029. PMID: 19208770. - **Non-United States study**

464. Davison SN, Jassal SV. Supportive Care: Integration of Patient-Centered Kidney Care to Manage Symptoms and Geriatric Syndromes. Clin J Am Soc Nephrol. 2016 Oct 7;11(10):1882-91. doi: 10.2215/cjn.01050116. PMID: 27510454. - **Narrative review**

465. Davison SN, Jhangri GS, Feeny DH. Comparing the Health Utilities Index Mark 3 (HUI3) with the Short Form-36 preference-based SF-6D in chronic kidney disease. Value Health. 2009 Mar-

Apr;12(2):340-5. doi: 10.1111/j.1524-4733.2008.00433.x. PMID: 18657096. - **Non-United States study**

466. Davison SN, Jhangri GS, Feeny DH. Evidence on the construct validity of the Health Utilities Index Mark 2 and Mark 3 in patients with chronic kidney disease. Qual Life Res. 2008 Aug;17(6):933-42. doi: 10.1007/s11136-008-9354-1. PMID: 18543076. - **Non-United States study**

467. Davison SN, Jhangri GS, Johnson JA. Cross-sectional validity of a modified Edmonton symptom assessment system in dialysis patients: a simple assessment of symptom burden. Kidney Int. 2006 May;69(9):1621-5. doi: 10.1038/sj.ki.5000184. PMID: 16672923. - **Non-United States study**

468. Davison SN, Jhangri GS, Johnson JA. Longitudinal validation of a modified Edmonton symptom assessment system (ESAS) in haemodialysis patients. Nephrol Dial Transplant. 2006 Nov;21(11):3189-95. doi: 10.1093/ndt/gfl380. PMID: 16957010. - **Non-United States study**

469. Davison SN, Jhangri GS. Existential and religious dimensions of spirituality and their relationship with health-related quality of life in chronic kidney disease. Clin J Am Soc Nephrol. 2010 Nov;5(11):1969-76. doi: 10.2215/cjn.01890310. PMID: 20651152. - **Non-United States study**

470. Davison SN, Jhangri GS. Impact of pain and symptom burden on the health-related quality of life of hemodialysis patients. J Pain Symptom Manage. 2010 Mar;39(3):477-85. doi: 10.1016/j.jpainsymman.2009.08.008. PMID: 20303025. - **Non-United States study**

471. Davison SN, Mayo PR. Pain management in chronic kidney disease: the pharmacokinetics and pharmacodynamics of hydromorphone and hydromorphone-3-glucuronide in hemodialysis patients. J Opioid Manag. 2008 Nov-Dec;4(6):335-6, 9-44. PMID: 19192761. - **Non-United States study**

472. Davison SN. Pain in hemodialysis patients: prevalence, cause, severity, and management. Am J Kidney Dis. 2003 Dec;42(6):1239-47. PMID: 14655196. - **Non-United States study**

473. de Brito DCS, Machado EL, Reis IA, et al. Modality transition on renal replacement therapy and quality of life of patients: a 10-year follow-up cohort study. Qual Life Res. 2019 Jan 21doi: 10.1007/s11136-019-02113-z. PMID: 30666548. - **Non-United States study**

474. De Bruyne E, Van Herzeele C, Snauwaert E, et al. Stress, anxiety and depression in parents of children with chronic kidney disease. Pediatric Nephrology. 2017;32(9):1791-2. doi: 10.1007/s00467-017-3753-x. - **Meeting abstract**

475. de Castro M, Caiuby AV, Draibe SA, et al. [Quality of life in chronic renal disease patients submitted to hemodialysis evaluated

with SF-36 instrument]. Rev Assoc Med Bras (1992). 2003 Jul-Sep;49(3):245-9. PMID: 14666346. **- Non-United States study**

476. de Fijter CWH, van Diepen ATN, Amiri F, et al. Patient-reported outcomes (PROs) argue against the limited use of peritoneal dialysis in end-stage renal disease. Clin Nephrol. 2018 Aug;90(2):94-101. doi: 10.5414/cn109369. PMID: 29578403. **- Non-United States study**

477. De Icaza E, Arredondo A, Calderon C, et al. Changes in the quality of life of patients with end-stage renal disease treated with high-efficiency bicarbonate hemodialysis in Mexico. Ren Fail. 1997 Jan;19(1):99-110. PMID: 9044456. **- Non-United States study**

478. de Jonge P, Ruinemans GM, Huyse FJ, et al. A simple risk score predicts poor quality of life and non-survival at 1 year follow-up in dialysis patients. Nephrol Dial Transplant. 2003 Dec;18(12):2622-8. PMID: 14605287. **- Non-United States study**

479. de la Rosa Garcia E, Mondragon Padilla A, Aranda Romo S, et al. Oral mucosa symptoms, signs and lesions, in end stage renal disease and non-end stage renal disease diabetic patients. Med Oral Patol Oral Cir Bucal. 2006 Nov 1;11(6):E467-73. PMID: 17072248. **- Non-United States study**

480. De Lima FF, De Miranda RCV, Rossi ESRC, et al. Functional evaluation pre and post physical exercise program for patients in hemodialysis. Medicina (Brazil). 2013;46(1):24-35. **- Non-English**

481. De Pasquale C, Conti D, Pistorio ML, et al. Comparison of the CBA-H and SF-36 for the screening of the psychological and behavioural variables in chronic dialysis patients. PLoS One. 2017;12(6):e0180077. doi: 10.1371/journal.pone.0180077. PMID: 28666025. **- No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

482. De Pasquale C, Pistorio ML, Lauretta I, et al. Somatopsychic correlates and quality of life of the dialyzed patient: a cross-sectional study. Transplant Proc. 2014 Sep;46(7):2199-202. doi: 10.1016/j.transproceed.2014.07.026. PMID: 25242750. **- Non-United States study**

483. de Roij van Zuijdewijn CL, Grooteman MP, Bots ML, et al. Comparing Tests Assessing Protein-Energy Wasting: relation With Quality of Life. Journal of renal nutrition. 2016;26(2):111-7. doi: 10.1053/j.jrn.2015.09.003. PMID: CN-01259424. **- Other: OC is Kt/v equation**

484. De Santo NG, De Santo RM, Perna AF, et al. Survival is not enough--quality of life in CKD. J Nephrol. 2008 Mar-Apr;21 Suppl 13:S1-2. PMID: 18446723. **- No human data**

485. De Santo RM, Lucidi F, Violani C, et al. Sleep disorders in hemodialyzed patients--the role of comorbidities. Int J Artif Organs. 2005 Jun;28(6):557-65. PMID: 16015565. **- Non-United States study**

486. De Santo RM, Perna A, Di Iorio BR, et al. Sleep disorders in

kidney disease. Minerva Urol Nefrol. 2010 Mar;62(1):111-28. PMID: 20424573. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

487. de Souza FF, Cintra FA, Gallani MC. [Quality of life and measure of disease in elderly people with end-stage renal disease]. Rev Bras Enferm. 2005 Sep-Oct;58(5):540-4. PMID: 16613386. - **Non-United States study**

488. De Welter EQ, Moreira LL, Bonfá R, et al. Relationship between pruritus and quality of life in patients on hemodialysis. Anais Brasileiros de Dermatologia. 2008;83(2):137-40. doi: 10.1590/S0365-05962008000200006. - **Non-English**

489. Death C. Exercising to fitness on dialysis. Edtna erca j. 1999 Apr-Jun;25(2):13-5. PMID: 10531874. - **Non-United States study**

490. DeCuir JR. Praying for the power of patience (POP)--life is great, even with kidney failure! Adv Ren Replace Ther. 1998 Jul;5(3):252-3. PMID: 9686636. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

491. Dedic G, Milojkovic N, Cukic Z, et al. Quality of life of hemodialysis patients waiting for kidney transplantation. European Psychiatry. 2015;30:1246. - **Other: No dialysis**

492. Dedić G, Milojković N, Čukić Z, et al. Quality of life of hemodialysis patients waiting for kidney transplant. Vojnosanitetski Pregled. 2017;74(8):749-56. doi: 10.2298/VSP150918259D. - **Non-United States study**

493. Dehesa-Lopez E, Correa-Rotter R, Olvera-Castillo D, et al. Clinical, Dialytic, and Laboratory Factors Associated With Poor Health-Related Quality of Life in Mexican Patients on Hemodialysis. Rev Invest Clin. 2016 Jul-Aug;68(4):192-200. PMID: 27623038. - **Non-United States study**

494. Dehesh T, Zare N, Jafari P, et al. Psychometric assessment of the Persian version of the Ferrans and Powers 3.0 index in hemodialysis patients. Int Urol Nephrol. 2014 Jun;46(6):1183-9. doi: 10.1007/s11255-013-0537-5. PMID: 23979815. - **Non-United States study**

495. Dehghanmehr S, Shirani N, Siyasari A, et al. Examining the relationship between thirst and dry mouth with the number of dials per week and the history of dialysis in hemodialysis patients. Journal of Pharmaceutical Sciences and Research. 2017;9(10):1785-7. - **Non-United States study**

496. Deligiannis A. Report from the Second International Congress on Quality of Life in End-stage Renal Disease, Thessaloniki, Greece, March 8-9, 2002. Nephrol Dial Transplant. 2002 Nov;17(11):1888-9. PMID: 12401842. - **No human data**

497. Deloumeaux J, Samut G, Rochemont D, et al. [Initiation of first dialysis and three months quality of life of patients with end stage renal disease in the French territories of Guadeloupe and

Guyane]. Nephrol Ther. 2018 Nov;14(6):467-73. doi: 10.1016/j.nephro.2017.12.002. PMID: 29477278. - **Non-United States study**

498. Demir R, Bostanci Y, Atac F, et al. Evaluation of sexual functions in males receiving renal replacement therapies. European Urology, Supplements. 2013;12(1):e381. - **Non-United States study**

499. Demirci BG, Sayin CB, Tutal E, et al. Quality of sleep, quality of life and fatigue: Are they related with serumvitamin D level? Nephrology Dialysis Transplantation. 2015;30:iii529. doi: 10.1093/ndt/gfv194.19. - **Meeting abstract**

500. Demirci C, Ozkahya M, Demirci MS, et al. Effects of three times weekly eight-hour nocturnal hemodialysis on volume and nutritional status. Am J Nephrol. 2013;37(6):559-67. doi: 10.1159/000351182. PMID: 23735837. - **Non-United States study**

501. Demirci MS, Celik G, Ozkahya M, et al. Effects of thrice weekly nocturnal hemodialysis on arterial stiffness. Atherosclerosis. 2012 Feb;220(2):477-85. doi: 10.1016/j.atherosclerosis.2011.11.015. PMID: 22172590. - **Non-United States study**

502. den Hoedt CH, Mazairac AH, van den Dorpel MA, et al. Effect of hemodiafiltration on mortality, inflammation and quality of life. Contrib Nephrol. 2011;168:39-52. doi: 10.1159/000321743. PMID: 20938124. - **Non-relevant review**

503. Derrett S, Samaranayaka A, Schollum JBW, et al. Predictors of Health Deterioration Among Older Adults After 12 Months of Dialysis Therapy: A Longitudinal Cohort Study From New Zealand. Am J Kidney Dis. 2017 Dec;70(6):798-806. doi: 10.1053/j.ajkd.2017.06.023. PMID: 28823582. - **Non-United States study**

504. Desai M, Davenport A. A feasibility study investigating the impact of implementing anaerobic exercise programme ona haemodialysis unit. Nephrology Dialysis Transplantation. 2018;33:i273. doi: 10.1093/ndt/gfy104.FP677. - **Meeting abstract**

505. Devaraj U, Sebastian S, Ramachandran P, et al. Restless leg syndrome in patients with chronic kidney disease on hemodialysis-does peripheral iron status matter? Sleep Medicine. 2017;40:e299-e300. - **Meeting abstract**

506. Devine EB, Smith KL, Stehman-Breen C, et al. Health-related quality of life assessment in chronic kidney disease. Expert Rev Pharmacoecon Outcomes Res. 2003 Feb;3(1):89-100. doi: 10.1586/14737167.3.1.89. PMID: 19807499. - **Narrative review**

507. Devins GM, Armstrong SJ, Mandin H, et al. Recurrent pain, illness intrusiveness, and quality of life in end-stage renal disease. Pain. 1990 Sep;42(3):279-85. PMID: 2250919. - **Non-United States study**

508. Devins GM, Edworthy SM, Seland TP, et al. Differences in illness intrusiveness across rheumatoid arthritis, end-stage renal

disease, and multiple sclerosis. J Nerv Ment Dis. 1993 Jun;181(6):377-81. PMID: 8501459. **- Non-United States study**

509. Devins GM, Mandin H, Hons RB, et al. Illness intrusiveness and quality of life in end-stage renal disease: comparison and stability across treatment modalities. Health Psychol. 1990;9(2):117-42. PMID: 2331973. **- Non-United States study**

510. Dey V, Jones A, Spalding EM. Telehealth: Acceptability, clinical interventions and quality of life in peritoneal dialysis. SAGE Open Med. 2016;4:2050312116670188. doi: 10.1177/2050312116670188. PMID: 27757228. **- Non-United States study**

511. Di Corrado D, Di Nuovo S, Iannetti E, et al. [Quality of life in hemodialyis patients: the effect of educational status]. Clin Ter. 2000 Jul-Aug;151(4):235-9. PMID: 11107671. **- Non-United States study**

512. Di Micco L, Torraca S, Pota A, et al. Setting dialysis start at 6.0 ml/min/1.73 m2 eGFR--a study on safety, quality of life and economic impact. Nephrol Dial Transplant. 2009 Nov;24(11):3434-40. doi: 10.1093/ndt/gfp281. PMID: 19531671. **- Non-United States study**

513. Di Micco L, Torraca S, Sirico ML, et al. Daily dialysis reduces pulse wave velocity in chronic hemodialysis patients. Hypertens Res. 2012 May;35(5):518-22. doi: 10.1038/hr.2011.230. PMID: 22278627. **- Non-United States study**

514. Diamant MJ, Harwood L, Movva S, et al. A comparison of quality of life and travel-related factors between in-center and satellite-based hemodialysis patients. Clin J Am Soc Nephrol. 2010 Feb;5(2):268-74. doi: 10.2215/cjn.05190709. PMID: 20019123. **- Non-United States study**

515. Diamant MJ, Young A, Gallo K, et al. Hemodialysis in a satellite unit: clinical performance target attainment and health-related quality of life. Clin J Am Soc Nephrol. 2011 Jul;6(7):1692-9. doi: 10.2215/cjn.07650810. PMID: 21566106. **- Non-United States study**

516. Diaz-Gonzalez De Ferris ME, Alvarez-Elias AC, Ferris MT, et al. Female Adolescents with Chronic or End-Stage Kidney Disease and Strategies for their Care. Semin Nephrol. 2017 Jul;37(4):320-6. doi: 10.1016/j.semnephrol.2017.05.003. PMID: 28711070. **- Narrative review**

517. Dikici S, Yilmaz Aydin L, Bahadir A, et al. Can poor sleep quality suggest depression in elderly patients undergoing hemodialysis? Turk Geriatri Dergisi. 2013;16(4):383-8. **- Non-English**

518. Dimkovic N. Sucrosomial® iron as maintenance therapy in anaemic ckd patients. Blood Transfusion. 2019;17((Dimkovic N.) Clinical Department for Renal Diseases, Zvezdara University Medical Centre, Belgrade, Serbia):s16. doi: 10.2450/2019.s1. **– Meeting abstract**

519. Divyashree CR, Nalini GK. Assessment of depression among patients undergoing haemodialysis: A cross-sectional study. Indian

Journal of Physiology and Pharmacology. 2017;61(5):221. - **Non-United States study**

520. Dixit A, Usulumarty D, Bichu S, et al. Study of cognitive impairment in patients on maintenance hemodialysis. Indian Journal of Nephrology. 2017;27:S43. **- Meeting abstract**

521. Djukanovic L, Dimkovic N, Marinkovic J, et al. Compliance with guidelines and predictors of mortality in hemodialysis. Learning from Serbia patients. Nefrologia. 2015;35(3):287-95. doi: 10.1016/j.nefro.2015.02.003. PMID: 26299172. **- Non-United States study**

522. Djuric PS, Jankovic A, Popovic J, et al. Survival Benefit of Hemodiafiltration Compared With Prolonged High-flux Hemodialysis. Iran J Kidney Dis. 2016 Nov;10(6):388-95. PMID: 27903998. **- Non-United States study**

523. Dobsak P, Homolka P, Svojanovsky J, et al. Intra-dialytic electrostimulation of leg extensors may improve exercise tolerance and quality of life in hemodialyzed patients. Artif Organs. 2012 Jan;36(1):71-8. doi: 10.1111/j.1525-1594.2011.01302.x. PMID: 21848929. **- Non-United States study**

524. Dobsak P, Nedbalkova M, Palanova P, et al. Rehabilitation using neuro-muscular electrical stimulation (NMES) of leg muscles in patients on chronic peritoneal dialysis. Fundamental and Clinical Pharmacology. 2013;27:58. doi: 10.1111/fcp.12026. **- Meeting abstract**

525. Dodson JL, Cohn SE, Cox C, et al. Prevalence of urinary incontinence in the CKiD cohort and its effect on health related quality of life as measured by the PedsQL. Journal of Urology. 2009;181(4):91. **- Meeting abstract**

526. Dogan E, Erkoc R, Eryonucu B, et al. Relation between depression, some laboratory parameters, and quality of life in hemodialysis patients. Ren Fail. 2005;27(6):695-9. PMID: 16350820. **- Non-United States study**

527. Domoto DT. Rehabilitation of the end-stage renal disease patient: are the right questions being asked? Am J Kidney Dis. 1994 Mar;23(3):467-8. PMID: 8128952. **- No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

528. Donciu MD, Tasmoc A, Dumea R, et al. A cross-sectional study regarding the impact of end-stage renal disease on quality of life. Rev Med Chir Soc Med Nat Iasi. 2013 Oct-Dec;117(4):908-15. PMID: 24502068. **- Non-United States study**

529. D'Onofrio G, Simeoni M, Rizza P, et al. Quality of life, clinical outcome, personality and coping in chronic hemodialysis patients. Ren Fail. 2017 Nov;39(1):45-53. doi: 10.1080/0886022x.2016.1244077. PMID: 27778533. **- Non-United States study**

530. dos Reis Santos I, Danaga AR, de Carvalho Aguiar I, et al.

Cardiovascular risk and mortality in end-stage renal disease patients undergoing dialysis: sleep study, pulmonary function, respiratory mechanics, upper airway collapsibility, autonomic nervous activity, depression, anxiety, stress and quality of life: a prospective, double blind, randomized controlled clinical trial. BMC nephrology. 2013;14:215. doi: 10.1186/1471-2369-14-215. PMID: CN-01121107. **- Non-United States study**

531. Dos Santos FR, Filgueiras MST, Chaoubah A, et al. Quality of life and improvement of laboratory parameters as an outcome of an interdisciplinary approach to the care of patients with chronic kidney disease. Revista de Psiquiatria Clinica. 2008;35(3):87-95. doi: 10.1590/S0101-60832008000300001. **- Non-English**

532. Doss S, Schiller B. Nocturnal in-center hemodialysis: A pilot program becomes an alternative therapy option - Logistic issues and improved clinical outcomes. Hemodialysis International. 2011;15(1):163. doi: 10.1111/j.1542-4758.2010.00516.x. **- Meeting abstract**

533. Dotis J, Pavlaki A, Printza N, et al. Quality of life in children with chronic kidney disease. Pediatr Nephrol. 2016 Dec;31(12):2309-16. doi: 10.1007/s00467-016-3457-7. PMID: 27677977. **- Non-United States study**

534. Dotis J, Printza N, Stabouli S, et al. Quality of life in children with chronic kidney disease, end-stage renal disease on peritoneal dialysis and kidney transplantation. Pediatric Nephrology. 2014;29(9):1793. doi: 10.1007/s00467-014-2904-6. **- Other: abstract only**

535. Dou Y, Wang P, Yuan F, et al. The geriatric nutritional risk index may predict healthcare costs and health transitions during hemodialysis in China. Asia Pac J Clin Nutr. 2017 Jan;26(1):6-10. doi: 10.6133/apjcn.122015.03. PMID: 28049255. **- Non-United States study**

536. Douglass A, Allen C, Presson A, et al. Patient-reported outcomes in patients with end-stage renal disease: Is quality of life affected when catheters are used for hemodialysis versus arteriovenous fistulas? Journal of Vascular Surgery. 2018;67(6):e200. **- Meeting abstract**

537. Duarte PS, Miyazaki MC, Blay SL, et al. Cognitive-behavioral group therapy is an effective treatment for major depression in hemodialysis patients. Kidney Int. 2009 Aug;76(4):414-21. doi: 10.1038/ki.2009.156. PMID: 19455196. **- Non-United States study**

538. Duarte PS, Miyazaki MC, Ciconelli RM, et al. [Translation and cultural adaptation of the quality of life assessment instrument for chronic renal patients (KDQOL-SF)]. Rev Assoc Med Bras (1992). 2003 Oct-Dec;49(4):375-81. PMID: 14963588. **- Non-United States study**

539. Ducharlet K, Burchell JL, Lecamwasam A, et al. Symptom burden, quality of life and functional status in patients with chronic kidney disease. Nephrology. 2015;20:54.

doi: 10.1111/nep.12543. - **Meeting abstract**

540. Dumaine CS, Ravani P, Santana M, et al. How do transitions in end-stage renal disease care pathways impact health-related quality of life? Blood Purification. 2018;45(1-3):285-6. doi: 10.1159/000485523. - **Meeting abstract**

541. Dumitrescu AL, Garneata L, Guzun O. Anxiety, stress, depression, oral health status and behaviours in Romanian hemodialysis patients. Rom J Intern Med. 2009;47(2):161-8. PMID: 20067166. - **Non-United States study**

542. Dupuy P, Szepietowski J, Balaskas E, et al. Quality of life in patients with uremic xerosis. Journal of Investigative Dermatology. 2011;131:S84. doi: 10.1038/jid.2011.75. - **Meeting abstract**

543. Duseja A, Tiwari P, Ramachandran R. Impact of direct antiviral agents on health-related quality of life in patients of chronic hepatitis C with chronic kidney disease. Hepatology International. 2018;12(2):S485. doi: 10.1007/s12072-018-9852-3. - **Meeting abstract**

544. Dyachenko P, Shustak A, Rozenman D. Hemodialysis-related pruritus and associated cutaneous manifestations. Int J Dermatol. 2006 Jun;45(6):664-7. doi: 10.1111/j.1365-4632.2005.02592.x. PMID: 16796623. - **Non-United States study**

545. Dziubek W, Kowalska J, Kusztal M, et al. The Level of Anxiety and Depression in Dialysis Patients Undertaking Regular Physical Exercise Training--a Preliminary Study. Kidney Blood Press Res. 2016;41(1):86-98. doi: 10.1159/000368548. PMID: 26872253. - **Non-United States study**

546. Dziubek W, Kowalska J, Kusztal M, et al. The Level of Anxiety and Depression in Dialysis Patients Undertaking Regular Physical Exercise Training--a Preliminary Study. Kidney & blood pressure research. 2016;41(1):86-98. doi: 10.1159/000368548. PMID: CN-01260077. - **Non-United States study**

547. Eckert K, Motemaden L, Alves M. Effect of Hemodialysis Compared With Conservative Management on Quality of Life in Older Adults With End-Stage Renal Disease: Systematic Review. J Hosp Palliat Nurs. 2018 Jun;20(3):279-85. doi: 10.1097/njh.0000000000000444. PMID: 30063679. - **Relevant systematic review**

548. Economou M, Teli A, Gompakis N, et al. Safety, efficacy and effect on quality of life of parenteral iron sucrose infusion in pediatric patients. Haematologica. 2009;94:516-7. - **Meeting abstract**

549. Edalat-Nejad M, Haqhverdi F, Hossein-Tabar T, et al. Melatonin improves sleep quality in hemodialysis patients. Indian J Nephrol. 2013 Jul;23(4):264-9. doi: 10.4103/0971-4065.114488. PMID: 23960341. - **Non-United States study**

550. Edgell ET, Coons SJ, Carter WB, et al. A review of health-related

quality-of-life measures used in end-stage renal disease. Clin Ther. 1996 Sep-Oct;18(5):887-938. PMID: 8930432. - **No human data**

551. Eijsermans RM, Creemers DG, Helders PJ, et al. Motor performance, exercise tolerance, and health-related quality of life in children on dialysis. Pediatr Nephrol. 2004 Nov;19(11):1262-6. doi: 10.1007/s00467-004-1583-0. PMID: 15368119. - **Non-United States study**

552. Eilers D, Berkowitz R. Renal rehabilitation: A “normal life” numerical rating scale. Hemodialysis International. 2013;17(1):178-9. doi: 10.1111/hdi.12006. - **Meeting abstract**

553. Eilers D. Kidney dialysis at home. Nursing. 2009 Mar;39(3):8. doi: 10.1097/01.nurse.0000347046.68374.79. PMID: 19247096. - **No human data**

554. Einollahi B, Motalebi M, Rostami Z, et al. Sleep quality among Iranian hemodialysis patients: a multicenter study. Nephrourol Mon. 2015 Jan;7(1):e23849. doi: 10.5812/numonthly.23849. PMID: 25738125. - **Non-United States study**

555. Einollahi B, Motalebi M. Remarks about the study of predictors of quality of life in hemodialysis patients. Saudi J Kidney Dis Transpl. 2014 Jul;25(4):881-2. PMID: 24969207. - **No human data**

556. El Ati Z, El Ati N, Ati N, et al. Sexual dysfunction in hemodialysis patients. Nephrology Dialysis Transplantation. 2016;31:i550. doi: 10.1093/ndt/gfw198.46. - **Other: Conference program**

557. El Helou J, Sarkis E, Khneisser E, et al. Clinico-biological characteristics in restless legs syndrome in a population of haemodialysis patients-Role of vitamin C deficiency. European Journal of Neurology. 2016;23:744. doi: 10.1111/ene.13094. - **Meeting abstract**

558. El Shafei AM, Soliman Hegazy I, Fadel FI, et al. Assessment of Quality of Life among Children with End-Stage Renal Disease: A Cross-Sectional Study. J Environ Public Health. 2018;2018:8565498. doi: 10.1155/2018/8565498. PMID: 30305825. - **Non-United States study**

559. El-Gaafary M, Abou El-Fetouh A, Zaki M, et al. Some epidemiological aspects of patients with end stage renal diseases. J Egypt Public Health Assoc. 2000;75(1-2):107-29. PMID: 17219852. - **Non-United States study**

560. El-Gamasy MA. Study of some pulmonary function tests in Egyptian children with end-stage renal disease under regular hemodialysis in correlation with dialysis duration. Saudi J Kidney Dis Transpl. 2019 Jan-Feb;30(1):119-28. PMID: 30804273. - **Non-United States study**

561. Elgueta L, Manalich J, Saffie A. [Chronic hemodialysis: program for evaluating the quality of life of patients over 60 years old]. Rev Med Chil. 1994 Jun;122(6):679-85.

PMID: 7732213. - **Non-United States study**

562. Elias RM, Castro MC, de Queiroz EL, et al. Obstructive sleep apnea in patients on conventional and short daily hemodialysis. Am J Nephrol. 2009;29(6):493-500. doi: 10.1159/000178941. PMID: 19039211. - **Non-United States study**

563. Elias RM, Chan CT, Bradley TD. Altered sleep structure in patients with end-stage renal disease. Sleep Med. 2016 Apr;20:67-71. doi: 10.1016/j.sleep.2015.10.022. PMID: 27318228. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

564. Elkinton JR. Medicine and the quality of life. Ann Intern Med. 1966 Mar;64(3):711-4. PMID: 5324639. - **Other: abstract only**

565. Elliott BA, Gessert CE, Larson PM, et al. Shifting responses in quality of life: people living with dialysis. Qual Life Res. 2014 Jun;23(5):1497-504. doi: 10.1007/s11136-013-0600-9. PMID: 24343662. - **Other: editorial**

566. El-Majzoub S, Mucsi I, Li M, et al. Psychosocial Distress and Health Service Utilization in Patients Undergoing Hemodialysis: A Prospective Study. Psychosomatics. 2018 Oct 10doi: 10.1016/j.psym.2018.10.001. PMID: 30396686. - **Non-United States study**

567. El-Refaey AM, Elsayed RM, Sarhan A, et al. Sleep quality assessment using polysomnography in children on regular hemodialysis. Saudi J Kidney Dis Transpl. 2013 Jul;24(4):714-8. PMID: 23816719. - **Non-United States study**

568. Elshami MRS, Alaloul EF, Böttcher B, et al. Impact of hemodialysis on the physical and psychological well-being among end-stage renal disease patients in the Gaza-Strip. Quality of Life Research. 2017;26(1):57-8. doi: 10.1007/s11136-017-1658-6. - **Meeting abstract**

569. El-Sheikh M, El-Ghazaly G. Assessment of hemodialysis adequacy in patients with chronic kidney disease in the hemodialysis unit at Tanta University Hospital in Egypt. Indian Journal of Nephrology. 2016;26(6):398-404. doi: 10.4103/0971-4065.168141. - **Non-United States study**

570. Elsurer R, Afsar B, Mercanoglu E. Bone pain assessment and relationship with parathyroid hormone and health-related quality of life in hemodialysis. Ren Fail. 2013;35(5):667-72. doi: 10.3109/0886022x.2013.780617. PMID: 23560898. - **Non-United States study**

571. Elsurer R, Afsar B, Mercanoglu E. Bone pain intensity in end stage renal disease: Assessment with pain scales and relationship with health-related quality of life. NDT Plus. 2010;3:iii228-iii9. - **Meeting abstract**

572. Eltayeb M, Khalil A, Sany D, et al. Prevalence of depression among hemodialysis patients. Hemodialysis International. 2010;14(1):114. doi: 10.1111/j.1542-4758.2009.00434.x. - **Meeting abstract**

573. Emami Naini A, Moradi M, Mortazavi M, et al. Effects of Oral L-Carnitine Supplementation on Lipid Profile, Anemia, and Quality of Life in Chronic Renal Disease Patients under Hemodialysis: A Randomized, Double-Blinded, Placebo-Controlled Trial. J Nutr Metab. 2012;2012:510483. doi: 10.1155/2012/510483. PMID: 22720143. - **Non-United States study**

574. Eneanya ND, Hailpern SM, O'Hare AM, et al. Trends in Receipt of Intensive Procedures at the End of Life Among Patients Treated With Maintenance Dialysis. Am J Kidney Dis. 2017 Jan;69(1):60-8. doi: 10.1053/j.ajkd.2016.07.028. PMID: 27693262. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

575. Eng C, Yap YC, Yiaw KM, et al. Limitation of functional motor skills among children with end stage renal disease on dialysis in Malaysia. Pediatric Nephrology. 2015;30(9):1637-8. doi: 10.1007/s00467-015-3158-7. - **Meeting abstract**

576. Enia G, Torino C, Panuccio V, et al. Asymptomatic pulmonary congestion and physical functioning in hemodialysis patients. Clin J Am Soc Nephrol. 2013 Aug;8(8):1343-8. doi: 10.2215/cjn.11111012. PMID: 23580785. - **Non-United States study**

577. Enia G, Tripepi R, Panuccio V, et al. Pulmonary congestion and physical functioning in peritoneal dialysis patients. Perit Dial Int. 2012 Sep-Oct;32(5):531-6. doi: 10.3747/pdi.2010.00250. PMID: 22942271. - **Non-United States study**

578. Enjalbert L, Hardouin JB, Giral M, et al. Comparison of quality of life in pre-emptive and dialyzed patients on waiting list for kidney transplantation. Exploring differential item functioning using Rasch Measurement Theory Models. Quality of Life Research. 2017;26(1):128-9. doi: 10.1007/s11136-017-1658-6. - **Meeting abstract**

579. Enomoto M, Inoue Y, Namba K, et al. Clinical characteristics of restless legs syndrome in end-stage renal failure and idiopathic RLS patients. Mov Disord. 2008 Apr 30;23(6):811-6; quiz 926. doi: 10.1002/mds.21882. PMID: 18074382. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

580. Ermer T, Kopp C, Asplin JR, et al. Impact of Regular or Extended Hemodialysis and Hemodialfiltration on Plasma Oxalate Concentrations in Patients With End-Stage Renal Disease. Kidney Int Rep. 2017 Nov;2(6):1050-8. doi: 10.1016/j.ekir.2017.06.002. PMID: 29270514. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

581. Erten Y, Kokturk O, Yuksel A, et al. Relationship between sleep complaints and proinflammatory cytokines in haemodialysis patients. Nephrology (Carlton). 2005 Aug;10(4):330-5. doi: 10.1111/j.1440-1797.2005.00418.x. PMID: 16109076. - **Non-United States study**

582. Eryavuz N, Yuksel S, Acarturk G, et al. Comparison of sleep quality between hemodialysis and peritoneal dialysis patients. Int Urol Nephrol. 2008;40(3):785-91. doi: 10.1007/s11255-008-9359-2. PMID: 18427944. - **Non-United States study**

583. Escamilla-Illescas D, Rivera-Reyes J, Estefan-Garfias J. Functional assessment and quality of life correlation in elder patients with end-stage renal disease on hemodialysis. Blood Purification. 2017;43(1-3):246-7. doi: 10.1159/000454962. - **Meeting abstract**

584. Eschbach JW, Abdulhadi MH, Browne JK, et al. Recombinant human erythropoietin in anemic patients with end-stage renal disease. Results of a phase III multicenter clinical trial. Ann Intern Med. 1989 Dec 15;111(12):992-1000. PMID: 2688507. - **Other: Qualitative, no comparison group**

585. Eschbach JW, Haley NR, Adamson JW. The anemia of chronic renal failure: pathophysiology and effects of recombinant erythropoietin. Contrib Nephrol. 1990;78:24-36; discussion 7. PMID: 2225841. - **Non-relevant review**

586. Esmaeilpour S, Dormanes B, Farahani B, et al. Fatigue in patients undergoing hemodialysis. American Journal of Kidney Diseases. 2013;61(4):A39. doi: 10.1053/j.ajkd.2013.02.099. - **Meeting abstract**

587. Esmatjes E, Ricart MJ, Fernandez-Cruz L, et al. Quality of life after successful pancreas-kidney transplantation. Clin Transplant. 1994 Apr;8(2 Pt 1):75-8. PMID: 8019025. - **Non-United States study**

588. Espahbodi F, Hosseini H, Mirzade MM, et al. Effect of Psycho Education on Depression and Anxiety Symptoms in Patients on Hemodialysis. Iran J Psychiatry Behav Sci. 2015 Mar;9(1):e227. doi: 10.17795/ijpbs227. PMID: 26251661. - **Non-United States study**

589. Espinoza F, Romeo R, Ursu M, et al. [Pregnancy during dialysis: experience in six patients]. Rev Med Chil. 2013 Aug;141(8):1003-9. doi: 10.4067/s0034-98872013000800006. PMID: 24448856. - **Non-United States study**

590. Esquivel Molina CG, Prieto Fierro JG, López Robledo J, et al. Quality of life and depression in patients with end-stage renal disease in hemodialysis. Medicina Interna de Mexico. 2009;25(6):443-9. - **Non-English**

591. Euctr PL. A clinical trial of inhaled PA101B in treating uremic pruritus in hemodialysis patients with chronic kidney failure. Http://www.who.int/trialsearch/trial2.aspx? Trialid=euctr2015-004794-33-pl. 2016 PMID: CN-01816096. - **Other: clinical trial protocol**

592. Ezzat H, Mohab A. Prevelance of sleep disorders among ESRD patients. Nephrology Dialysis Transplantation. 2015;30:iii621. doi: 10.1093/ndt/gfv200.57. - **Other: abstract only**

593. Fabbrini M, Bonanni E, Maestri M, et al. Restless legs syndrome and other sleep disorders in dialysis and pre-dialysis patients. Journal of Sleep Research.

2010;19:247. doi: 10.1111/j.1365-2869.2010.00868.x. - **Meeting abstract**

594. Fabrizi F, Messa P, Martin P. Health-related quality of life in dialysis patients with HCV infection. Int J Artif Organs. 2009 Aug;32(8):473-81. PMID: 19844890. - **Narrative review**

595. Fagugli RM, Pasini P, Pasticci F, et al. Effects of short daily hemodialysis and extended standard hemodialysis on blood pressure and cardiac hypertrophy: a comparative study. J Nephrol. 2006 Jan-Feb;19(1):77-83. PMID: 16523430. - **Non-United States study**

596. Fair CD, Rupp S. Transition: The role of social support in self-management within education and employment settings for adolescents and young adults with end stage renal disease. Journal of Adolescent Health. 2016;58(2):S67. - **Meeting abstract**

597. Fan PL, Shu CH, Shiang JC, et al. Hypertension--a possible vulnerability marker for depression in patients with end-stage renal disease. Nephron Clin Pract. 2006;102(1):c43-50. doi: 10.1159/000088314. PMID: 16174990. - **Non-United States study**

598. Fan Q, Yan Y, Gu L, et al. Prognostic Value of the Delivery Dialysis Dose on Twice-Weekly Hemodialysis Patients. Am J Nephrol. 2017;45(3):273-82. doi: 10.1159/000453043. PMID: 28171855. - **Non-United States study**

599. Fan SL, Sathick I, McKitty K, et al. Quality of life of caregivers and patients on peritoneal dialysis. Nephrol Dial Transplant. 2008 May;23(5):1713-9. doi: 10.1093/ndt/gfm830. PMID: 18182410. - **Non-United States study**

600. Fan X, Yao L. Analysis of factors affecting quality of life in maintenance hemodialysis patients. Hong Kong Journal of Nephrology. 2015;17(2):S128. doi: 10.1016/j.hkjn.2015.09.209. - **Meeting abstract**

601. Fardinmehr O, Farajzadegan Z, Naini AE, et al. The validity and reliability of the persian version of kidney disease quality of life questionnaire-short form (KDQOL-SF) in Iranian patients. Journal of Isfahan Medical School. 2012;29(165). - **Non-United States study**

602. Farragher JF, Polatajko HJ, Jassal SV. The Relationship Between Fatigue and Depression in Adults With End-Stage Renal Disease on Chronic In-Hospital Hemodialysis: A Scoping Review. J Pain Symptom Manage. 2017 Apr;53(4):783-803.e1. doi: 10.1016/j.jpainsymman.2016.10.365. PMID: 28042060. - **Relevant systematic review**

603. Feldt-Rasmussen B, Lange M, Sulowicz W, et al. Growth hormone treatment during hemodialysis in a randomized trial improves nutrition, quality of life, and cardiovascular risk. Journal of the american society of nephrology : JASN. 2007;18(7):2161-71. doi: 10.1681/ASN.2006111207. PMID:

CN-00697524. - **Non-United States study**

604. Ferguson T, Xu Y, Gunasekara R, et al. The cost effectiveness of erythropoietin-stimulating agents for treating anemia in patients on dialysis: a systematic review. Am J Nephrol. 2015;41(2):89-97. doi: 10.1159/000375541. PMID: 25721696. - **Relevant systematic review**

605. Fernandes C, Silva E, Duarte J, et al. Renal disease children - Quality of life. Atencion Primaria. 2016;48:36. - **Other: Exclude: Exhausted all resources for pdfs**

606. Fernandes GV, dos Santos RR, Soares W, et al. The impact of erectile dysfunction on the quality of life of men undergoing hemodialysis and its association with depression. J Sex Med. 2010 Dec;7(12):4003-10. doi: 10.1111/j.1743-6109.2010.01993.x. PMID: 20807331. - **Non-United States study**

607. Fernández Sánchez M, Orozco Topete R, Correa Rotter R, et al. Dermatosis in patients with end-stage chronic renal failure on peritoneal dialysis. Medicina Cutanea Ibero-Latino-Americana. 2011;39(3):106-11. - **Non-English**

608. Ferrans CE, Powers MJ. The employment potential of hemodialysis patients. Nurs Res. 1985 Sep-Oct;34(5):273-7. PMID: 3850487. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

609. Ferreira RC, da Silva Filho CR. Quality of life of chronic renal patients on hemodialysis in Marilia, SP, Brazil. J Bras Nefrol. 2011 Apr-Jun;33(2):129-35. PMID: 21789425. - **Non-United States study**

610. Ferris ME, Miles JA, Seamon ML. Adolescents and Young Adults with Chronic or End-Stage Kidney Disease. Blood Purif. 2016;41(1-3):205-10. doi: 10.1159/000441317. PMID: 26765837. - **Narrative review**

611. Fidan C, Tutal E, Bal Z, et al. Musclewasting is associated with depression and altered mental stage in dialysis patients. Nephrology Dialysis Transplantation. 2016;31:i538. doi: 10.1093/ndt/gfw198.7. - **Other: abstract only**

612. Fidan F, Alkan BM, Tosun A, et al. Quality of life and correlation with musculoskeletal problems, hand disability and depression in patients with hemodialysis. Int J Rheum Dis. 2016 Feb;19(2):159-66. doi: 10.1111/1756-185x.12171. PMID: 24176031. - **Non-United States study**

613. Figueiredo PHS, Lima MMO, Costa HS, et al. Effects of the inspiratory muscle training and aerobic training on respiratory and functional parameters, inflammatory biomarkers, redox status and quality of life in hemodialysis patients: a randomized clinical trial. Plos one. 2018;13(7):e0200727. doi: 10.1371/journal.pone.0200727. PMID: CN-01703331. - **Non-United States study**

614. Figueiredo PHS, Lima MMO, Costa HS, et al. Effects of the inspiratory muscle training and

aerobic training on respiratory and functional parameters, inflammatory biomarkers, redox status and quality of life in hemodialysis patients: A randomized clinical trial. PLoS One. 2018;13(7):e0200727. doi: 10.1371/journal.pone.0200727. PMID: 30048473. - **Non-United States study**

615. Figueiredo WM, Oliveira-Souza R, Figueiredo RB, et al. [Cognitive and psychomotor slowing in chronic hemodialysis patients]. Arq Neuropsiquiatr. 2007 Sep;65(3b):875-9. PMID: 17952301. - **Non-English**

616. Findlay MD, McGlynn D, Dawson J, et al. Cognitive function tested by multi-domain assessment is reduced during haemodialysis. Nephrology Dialysis Transplantation. 2016;31:i290-i1. doi: 10.1093/ndt/gfw175.31. - **Meeting abstract**

617. Finkelstein AF, Wuerth D, Finkelstein SH. Quality of life assessments in hemodialysis and peritoneal dialysis patients: an important dimension of patient choice why is the evidence favoring hemodialysis over peritoneal dialysis misleading? Semin Dial. 2007 May-Jun;20(3):211-3. doi: 10.1111/j.1525-139X.2007.00278.x. PMID: 17555485. - **Narrative review**

618. Finkelstein F, Burkart J, Daoui R, et al. Daily hemodialysis improves restless legs syndrome: Interim results from the FREEDOM study. Hemodialysis International. 2010;14(1):125-6. doi: 10.1111/j.1542-4758.2009.00434.x. - **Meeting abstract**

619. Finkelstein F, Van Nooten F, Wiklund I, et al. Psychometric evaluation of the short form 36 (SF-36) and the functional assessment of cancer therapy-anemia (FACT-AN) in dialysis and non-dialysis patients with anaemia associated with chronic kidney disease (CKD). Nephrology Dialysis Transplantation. 2016;31:i196. doi: 10.1093/ndt/gfw166.10. - **Meeting abstract**

620. Finkelstein FO, Finkelstein SH. Assessing Fatigue in the ESRD Patient: A Step Forward. American Journal of Kidney Diseases. 2018;71(3):315-26. doi: 10.1053/j.ajkd.2017.10.021. - **Narrative review**

621. Finkelstein FO, Finkelstein SH. Time to Rethink Our Approach to Patient-Reported Outcome Measures for ESRD. Clin J Am Soc Nephrol. 2017 Nov 7;12(11):1885-8. doi: 10.2215/cjn.04850517. PMID: 28847907. - **Narrative review**

622. Finkelstein FO, West W, Gobin J, et al. Spirituality, quality of life and the dialysis patient. Nephrol Dial Transplant. 2007 Sep;22(9):2432-4. doi: 10.1093/ndt/gfm215. PMID: 17724057. - **Narrative review**

623. Finnegan-John J, Thomas VJ. The psychosocial experience of patients with end-stage renal disease and its impact on quality of life: findings from a needs assessment to shape a service. ISRN Nephrol. 2013;2013:308986. doi: 10.5402/2013/308986. PMID: 24959536. - **Non-United States study**

624. Fisher R, Gould D, Wainwright S, et al. Quality of life after renal transplantation. J Clin Nurs. 1998 Nov;7(6):553-63. PMID:

10222951. - **Non-United States study**

625. Fissell WH, Roy S, Davenport A. Achieving more frequent and longer dialysis for the majority: wearable dialysis and implantable artificial kidney devices. Kidney Int. 2013 Aug;84(2):256-64. doi: 10.1038/ki.2012.466. PMID: 23407434. - **No human data**

626. Floramo S. Use of the NxStage system one for daily home hemodialysis. Nephrol News Issues. 2006 Oct;20(11):48-50, 2-3. PMID: 17039967. - **No human data**

627. Flythe JE, Curhan GC, Brunelli SM. Shorter length dialysis sessions are associated with increased mortality, independent of body weight. Kidney Int. 2013 Jan;83(1):104-13. doi: 10.1038/ki.2012.346. PMID: 23014457. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

628. Flythe JE, Powell JD, Poulton CJ, et al. Patient-Reported Outcome Instruments for Physical Symptoms Among Patients Receiving Maintenance Dialysis: A Systematic Review. Am J Kidney Dis. 2015 Dec;66(6):1033-46. doi: 10.1053/j.ajkd.2015.05.020. PMID: 26210069. - **Relevant systematic review**

629. Foley RN, Curtis BM, Parfrey PS. Erythropoietin therapy, hemoglobin targets, and quality of life in healthy hemodialysis patients: a randomized trial. Clin J Am Soc Nephrol. 2009 Apr;4(4):726-33. doi: 10.2215/cjn.04950908. PMID: 19339412. - **Non-United States study**

630. Fonseca N, Santos I, Fernandes V, et al. Excessive daytime sleepiness in patients with chronic kidney disease undergone hemodialysis. Somnologie. 2015;19(1):10. doi: 10.1007/s11818-015-0714-0. - **Meeting abstract**

631. Fonseca NT, Urbano JJ, Nacif SR, et al. A systematic review of sleep disorders in patients with chronic kidney disease undergoing hemodialysis. J Phys Ther Sci. 2016 Jul;28(7):2164-70. doi: 10.1589/jpts.28.2164. PMID: 27512289. - **Relevant systematic review**

632. Foote C, Kotwal S, Gallagher M, et al. Survival outcomes of supportive care versus dialysis therapies for elderly patients with end-stage kidney disease: A systematic review and meta-analysis. Nephrology (Carlton). 2016 Mar;21(3):241-53. doi: 10.1111/nep.12586. PMID: 26265214. - **Non-relevant review**

633. Forni Ogna V, Ogna A, Bassi I, et al. Prevalence and predictors of sleep disordered breathing in patients undergoing chronic intermittent dialysis. American Journal of Respiratory and Critical Care Medicine. 2014;189. - **Meeting abstract**

634. Fox E, McDowall J, Neale TJ, et al. Cognitive function and quality of life in end-stage renal failure. Ren Fail. 1993;15(2):211-4. PMID: 8469789. - **Non-United States study**

635. Fox E, Peace K, Neale TJ, et al. "Quality of life" for patients with

end-stage renal failure. Ren Fail. 1991;13(1):31-5. PMID: 1924914. - **Non-United States study**

636. Fracini A, Abensur H, Hasue R, et al. Correlation between vitamin D, parathormone, creatinine and functional capacity of patients with end stage renal disease. European Respiratory Journal. 2013;42. - **Meeting abstract**

637. Fradelos EC, Tsaras K, Tzavella F, et al. Clinical, Social and Demographics Factors Associated with Spiritual Wellbeing in End Stage Renal Disease. Adv Exp Med Biol. 2017;987:77-88. doi: 10.1007/978-3-319-57379-3_8. PMID: 28971449. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

638. Fragedaki E, Nebel M, Schupp N, et al. Genomic damage and circulating AGE levels in patients undergoing daily versus standard haemodialysis. Nephrology, dialysis, transplantation. 2005;20(9):1936-43. doi: 10.1093/ndt/gfh898. PMID: CN-00528327. - **Non-United States study**

639. Fragedaki E, Nebel M, Schupp N, et al. Genomic damage and circulating AGE levels in patients undergoing daily versus standard haemodialysis. Nephrol Dial Transplant. 2005 Sep;20(9):1936-43. doi: 10.1093/ndt/gfh898. PMID: 15919695. - **Non-United States study**

640. Francis A, Didsbury M, Van Zwieten A, et al. The impact of chronic kidney disease (CKD) on the quality of life of children and adolescents. Nephrology. 2017;22:12. doi: 10.1111/nep.13103. - **Meeting abstract**

641. Frank A, Auslander GK, Weissgarten J. Quality of life of patients with end-stage renal disease at various stages of the illness. Soc Work Health Care. 2003;38(2):1-27. PMID: 15022732. - **Non-United States study**

642. Franke GH, Reimer J, Philipp T, et al. Aspects of quality of life through end-stage renal disease. Qual Life Res. 2003 Mar;12(2):103-15. PMID: 12639058. - **Non-United States study**

643. Freire de Medeiros CM, Arantes EP, Tajra RD, et al. Resilience, religiosity and treatment adherence in hemodialysis patients: a prospective study. Psychol Health Med. 2017 Jun;22(5):570-7. doi: 10.1080/13548506.2016.1191658. PMID: 27249545. - **Non-United States study**

644. Friedli K, Almond M, Day C, et al. A study of sertraline in dialysis (ASSertID): a protocol for a pilot randomised controlled trial of drug treatment for depression in patients undergoing haemodialysis. BMC nephrology. 2015;16:172. doi: 10.1186/s12882-015-0170-x. PMID: CN-01160941. - **Non-United States study**

645. Frih B, Mkacher W, Bouzguenda A, et al. Effects of listening to Holy Qur'an recitation and physical training on dialysis efficacy, functional capacity, and psychosocial outcomes in elderly patients undergoing haemodialysis. Libyan journal of medicine.

2017;12(1):1372032. doi: 10.1080/19932820.2017.1372032. PMID: CN-01599758. - **Non-United States study**

646. Frih B, Mkacher W, Bouzguenda A, et al. Effects of listening to Holy Qur'an recitation and physical training on dialysis efficacy, functional capacity, and psychosocial outcomes in elderly patients undergoing haemodialysis. Libyan J Med. 2017 Dec;12(1):1372032. doi: 10.1080/19932820.2017.1372032. PMID: 28891419. - **Non-United States study**

647. Fritschka E, Mahlmeister J, Liebscher-Steinecke R, et al. Rehabilitation in patients with chronic renal insufficiency, in dialysis patients, and after renal transplantation. Pravention und Rehabilitation. 2001;13(2):67-77. - **Non-United States study**

648. Fryckstedt J, Hylander B. Sexual function in patients with end-stage renal disease. Scand J Urol Nephrol. 2008;42(5):466-71. doi: 10.1080/00365590802085877. PMID: 18609284. - **Non-United States study**

649. Fujii H, Koyama H, Fukuda S, et al. Autonomic function is associated with health-related quality of life in patients with end-stage renal disease: a case-control study. J Ren Nutr. 2013 Sep;23(5):340-7. doi: 10.1053/j.jrn.2012.12.008. PMID: 23453392. - **Non-United States study**

650. Fujisawa M, Ichikawa Y, Yoshiya K, et al. Assessment of health-related quality of life in renal transplant and hemodialysis patients using the SF-36 health survey. Urology. 2000 Aug 1;56(2):201-6. PMID: 10925078. - **Non-United States study**

651. Fujita N, Momota M, Tobisawa Y, et al. The impact of aortic calcification on severe erectile dysfunction in patients with end stage renal disease. European Urology, Supplements. 2019;18(1):e1432-e3. doi: 10.1016/S1569-9056(19)31034-6. - **Other: abstract only**

652. Fukuda S, Koyama H, Kondo K, et al. Effects of nutritional supplementation on fatigue, and autonomic and immune dysfunction in patients with end-stage renal disease: a randomized, double-blind, placebo-controlled, multicenter trial. PLoS One. 2015;10(3):e0119578. doi: 10.1371/journal.pone.0119578. PMID: 25746727. - **Non-United States study**

653. Fukuhara S, Akizawa T, Morita S, et al. Quality of life improvements in dialysis patients receiving darbepoetin alfa. Ther Apher Dial. 2008 Feb;12(1):72-7. doi: 10.1111/j.1744-9987.2007.00544.x. PMID: 18257816. - **Non-United States study**

654. Fukuhara S, Yamazaki S, Hayashino Y, et al. Measuring health-related quality of life in patients with end-stage renal disease: why and how. Nat Clin Pract Nephrol. 2007 Jul;3(7):352-3. doi: 10.1038/ncpneph0510. PMID: 17519922. - **Other: Perspective--no data**

655. Fukunishi I. Psychosomatic aspects of patients on hemodialysis.

4. The relationship between quality of life and alexithymia. Psychother Psychosom. 1990;54(4):221-8. doi: 10.1159/000288399. PMID: 2100015. - **Non-United States study**

656. Fung KS, Tang HL, Wong JHS, et al. The response of anemia to improved Kt/V in nocturnal home hemodialysis with alternate night schedule: Local experience in Hong Kong. Hemodialysis International. 2009;13(3):414. doi: 10.1111/j.1542-4758.2009.00402.x. - **Meeting abstract**

657. Furth SL, Gerson AC, Neu AM, et al. The impact of dialysis and transplantation on children. Adv Ren Replace Ther. 2001 Jul;8(3):206-13. PMID: 11533921. - **Non-relevant review**

658. Furuland H, Linde T, Ahlmen J, et al. A randomized controlled trial of haemoglobin normalization with epoetin alfa in pre-dialysis and dialysis patients. Nephrol Dial Transplant. 2003 Feb;18(2):353-61. PMID: 12543892. - **Non-United States study**

659. Fusaro M, Gallieni M, Jamal SA. Fractures in chronic kidney disease: neglected, common, and associated with sickness and death. Kidney Int. 2014 Jan;85(1):20-2. doi: 10.1038/ki.2013.302. PMID: 24380905. - **Other: comment**

660. Gaitan S, Hernandez L, Santos A, et al. Effectiveness of specialized nutritional supplement in hemodialisys patients with protein energy wasting. Nephrology Dialysis Transplantation. 2017;32:iii88. doi: 10.1093/ndt/gfx131. - **Other: abstract only**

661. Gallagher M, Cass A, Gattas D, et al. Long-Term Survival and Dialysis Dependency Following Acute Kidney Injury in Intensive Care: extended Follow-up of a Randomized Controlled Trial. Plos medicine. 2014;11(2)doi: 10.1371/journal.pmed.1001601. PMID: CN-00981243. - **Non-United States study**

662. Galland R, Traeger J, Arkouche W, et al. Short daily hemodialysis and nutritional status. Am J Kidney Dis. 2001 Jan;37(1 Suppl 2):S95-8. PMID: 11158870. - **Non-United States study**

663. Gallo AM, Schultz VA, Breitmayer BJ. Description of the illness experience by adolescents with chronic renal disease. Anna j. 1992 Apr;19(2):190-3, 214; discussion 194. PMID: 1586232. - **Other: not quantitative study**

664. Gamondi C, Galli N, Schonholzer C, et al. Frequency and severity of pain and symptom distress among patients with chronic kidney disease receiving dialysis. Swiss Med Wkly. 2013;143:w13750. doi: 10.4414/smw.2013.13750. PMID: 23443906. - **Non-United States study**

665. Ganu VJ, Boima V, Adjei DN, et al. Depression and quality of life in patients on long term hemodialysis at a nationalhospital in Ghana: a cross-sectional study. Ghana Med J. 2018 Mar;52(1):22-8. doi: 10.4314/gmj.v52i1.5. PMID: 30013257. - **Non-United States study**

666. Garcia RSA, Lucinda LMF, Ramos FA, et al. Factors Associated With Functional Capacity in

Hemodialysis Patients. Artif Organs. 2017 Dec;41(12):1121-6. doi: 10.1111/aor.12938. PMID: 28568475. - **Non-United States study**

667. Garcia TW, Veiga JP, Motta LD, et al. Depressed mood and poor quality of life in male patients with chronic renal failure undergoing hemodialysis. Braz J Psychiatry. 2010 Dec;32(4):369-74. PMID: 21308257. - **Non-United States study**

668. Garcia-Llana H, Remor E, Selgas R. Adherence to treatment, emotional state and quality of life in patients with end-stage renal disease undergoing dialysis. Psicothema. 2013 Feb;25(1):79-86. doi: 10.7334/psicothema2012.96. PMID: 23336548. - **Non-United States study**

669. Gataa R, Ajmi TN, Haouala F, et al. [Quality of life patterns of dialysed patients in the region of Kairouan]. Tunis Med. 2008 Jan;86(1):68-74. PMID: 19472704. - **Non-United States study**

670. Gayle F, Soyibo AK, Gilbert DT, et al. Quality of life in end stage renal disease: a multicentre comparative study. West Indian Med J. 2009 Jun;58(3):235-42. PMID: 20043531. - **Non-United States study**

671. Gencdal IY. Subjective Sleep Quality and Excessive Daytime Sleepiness in Hemodialysis Patients Waitlisted for Renal Transplant. Cognitive and Behavioral Neurology. 2019;32(1):25-30. doi: 10.1097/WNN.0000000000000182. - **Non-United States study**

672. Gencer F, Yildiran H, Erten Y. Association of Malnutrition Inflammation Score With Anthropometric Parameters, Depression, and Quality of Life in Hemodialysis Patients. J Am Coll Nutr. 2018 Dec 27:1-6. doi: 10.1080/07315724.2018.1550371. PMID: 30589395. - **Non-United States study**

673. Gentile S, Delaroziere J, Fernandez C, et al. [Review of quality of life instruments used in end-stage renal disease]. Nephrologie. 2003;24(6):293-301. PMID: 14584296. - **Non-United States study**

674. Georgianos PI, Sarafidis PA. Pro: Should we move to more frequent haemodialysis schedules? Nephrol Dial Transplant. 2015 Jan;30(1):18-22. doi: 10.1093/ndt/gfu381. PMID: 25538158. - **Non-United States study**

675. Gera M, Gaurav K, Jeevan R. Simplified questionnaire versus SF-36 form for improving quality of life (QOL) in octogenarians and nonagenarians on hemodialysis. American Journal of Kidney Diseases. 2012;59(4):A37. - **Meeting abstract**

676. Geraghty L, Sen S. Assessment of symptom burden and analysis of associated factors in haemodialysis patients. Nephrology. 2016;21:174-5. doi: 10.1111/nep.12888. - **Meeting abstract**

677. Gernone G, Montemurro M, Capurso D, et al. Mid-term evaluation of the new medium cut-off filter (THERANOVA) on removal efficiency and quality of

life. Nephrology Dialysis Transplantation. 2018;33:i513-i4. doi: 10.1093/ndt/gfy104.SP489. - **Meeting abstract**

678. Gerogianni G, Polikandrioti M, Babatsikou F, et al. Anxiety-Depression of Dialysis Patients and Their Caregivers. Medicina (Kaunas). 2019 May 20;55(5)doi: 10.3390/medicina55050168. PMID: 31137563. **– No human**

679. Ghadam MS, Poorgholami F, Badiyepeymaie Jahromi Z, et al. Effect of Self-Care Education by Face-to-Face Method on the Quality of Life in Hemodialysis Patients (Relying on Ferrans and Powers Questionnaire). Glob J Health Sci. 2015 Oct 20;8(6):121-7. doi: 10.5539/gjhs.v8n6p121. PMID: 26755485. - **Non-United States study**

680. Ghafari A, Farshid B, Afshari AT, et al. Sildenafil citrate can improve erectile dysfunction among chronic hemodialysis patients. Indian J Nephrol. 2010 Jul;20(3):142-5. doi: 10.4103/0971-4065.70845. PMID: 21072154. - **Non-United States study**

681. Ghanei E, Zeinali J, Borghei M, et al. Efficacy of omega-3 fatty acids supplementation in treatment of uremic pruritus in hemodialysis patients: a double-blind randomized controlled trial. Iran Red Crescent Med J. 2012 Sep;14(9):515-22. PMID: 23115713. - **Non-United States study**

682. Ghannadi S, Amouzegar A, Amiri P, et al. Evaluating the Effect of Knowledge, Attitude, and Practice on Self-Management in Type 2 Diabetic Patients on Dialysis. J Diabetes Res. 2016;2016:3730875. doi: 10.1155/2016/3730875. PMID: 27478845. - **Non-United States study**

683. Gharekhani A, Khatami MR, Dashti-Khavidaki S, et al. The effect of omega-3 fatty acids on depressive symptoms and inflammatory markers in maintenance hemodialysis patients: a randomized, placebo-controlled clinical trial. Eur J Clin Pharmacol. 2014 Jun;70(6):655-65. doi: 10.1007/s00228-014-1666-1. PMID: 24643636. - **Non-United States study**

684. Ghavami H, Abdollahpur B, Shams SA, et al. Effects of hot stone massage therapy on quality of sleep in hemodialysis patients. Journal of sleep research. 2016;25:320-. doi: 10.1111/jsr.12446. PMID: CN-01213381. - **Meeting abstract**

685. Gheissari A, Farajzadegan Z, Salehi F, et al. Validation of persian version of the pediatric quality of life end-Stage renal disease module version 3 (PEDSQLTM) in iranian children with ESRD. Iranian Journal of Kidney Diseases. 2011;5:39. - **Meeting abstract**

686. Gheissari A. Validation of persian version of the pediatric quality of life end stage renal disease module version 3(PedsQLTM) in iranian children with esrd. Pediatric Nephrology. 2013;28(8):1508. doi: 10.1007/s00467-013-2518-4. - **Meeting abstract**

687. Ghimire S, Peterson GM, Castelino RL, et al. Medication Regimen Complexity and Adherence in Haemodialysis Patients: An Exploratory Study. Am J Nephrol. 2016;43(5):318-24. doi: 10.1159/000446450. PMID: 27166159. - **No intervention of interest (frequency or duration of**

HD) AND no QOL or symptom measures in dialysis patients

688. Gholamrezaei A, Masoumi M, Mortazavi M, et al. Restless legs syndrome and its association with poor sleep quality, mood disorders, and one year cardiovascular mortality in patients on chronic dialysis. Sleep Medicine. 2013;14:e135-e6. doi: 10.1016/j.sleep.2013.11.305. - **Meeting abstract**

689. Ghonemy TA, Allam HM, Elokely AM, et al. Chronic pain in hemodialysis patients: Role of bone mineral metabolism. Alexandria Journal of Medicine. 2016;52(4):337-42. doi: 10.1016/j.ajme.2015.12.002. - **Non-United States study**

690. Giachino G, Chiappero F, Salomone M, et al. [Social rehabilitation, state of the disease and quality of life. What are the parameters to evaluate rehabilitation of the patient under dialysis in the '90s?]. Minerva Urol Nefrol. 1998 Jun;50(2):169-72. PMID: 9707974. - **Non-United States study**

691. Gibbons A, Bradley C. The effects of kidney alone or simultaneous pancreas and kidney transplant on quality of life and health status: Findings from attom programme cohorts with baseline data. Nephrology Dialysis Transplantation. 2016;31:i450. doi: 10.1093/ndt/gfw189.33. - **Meeting abstract**

692. Gibbons A. Quality of life and treatment satisfaction in patients on renal replacement therapy for chronic kidney disease: Findings from the attom programme. Nephrology Dialysis Transplantation. 2015;30:iii495-iii6. doi: 10.1093/ndt/gfv192.18. - **Meeting abstract**

693. Gigli GL, Adorati M, Dolso P, et al. Restless legs syndrome in end-stage renal disease. Sleep Med. 2004 May;5(3):309-15. doi: 10.1016/j.sleep.2004.01.014. PMID: 15165541. - **Non-United States study**

694. Gil Cunqueiro JM, Garcia Cortes MJ, Foronda J, et al. [Health-related quality of life in elderly patients in haemodialysis]. Nefrologia. 2003 Nov-Dec;23(6):528-37. PMID: 15002788. - **Non-United States study**

695. Gilbert K, Bezzant A. Motivated patients overcome the barriers to home hemodialysis: Rethinking our approach to care. Hemodialysis International. 2012;16(1):157. doi: 10.1111/j.1542-4758.2011.00651.x. - **Meeting abstract**

696. Gilbertson EL, Krishnasamy R, Foote C, et al. Burden of Care and Quality of Life Among Caregivers for Adults Receiving Maintenance Dialysis: A Systematic Review. Am J Kidney Dis. 2019 Mar;73(3):332-43. doi: 10.1053/j.ajkd.2018.09.006. PMID: 30454885. - **Relevant systematic review**

697. Gillanders S, Wild M, Deighan C, et al. Emotion regulation, affect, psychosocial functioning, and well-being in hemodialysis patients. Am J Kidney Dis. 2008 Apr;51(4):651-62. doi: 10.1053/j.ajkd.2007.12.023. PMID: 18371541. - **Non-United States study**

698. Ginieri-Coccossis M, Theofilou P, Synodinou C, et al. Quality of life, mental health and health beliefs in haemodialysis and peritoneal dialysis patients: investigating differences in early and later years of current treatment. BMC Nephrol. 2008 Nov 14;9:14. doi: 10.1186/1471-2369-9-14. PMID: 19014597. - **Non-United States study**

699. Gjyzari A, Koroshi A, Gjyzari I. Evaluation of nutritional status and clinical outcome of chronic hemodialysis patients according to NRS 2002. Nephrology Dialysis Transplantation. 2016;31:i562-i3. doi: 10.1093/ndt/gfw199.18. - **Meeting abstract**

700. Gkizlis V, Giannaki CD, Karatzaferi C, et al. Uremic versus idiopathic restless legs syndrome: impact on aspects related to quality of life. Asaio j. 2012 Nov-Dec;58(6):607-11. doi: 10.1097/MAT.0b013e31826d6090. PMID: 23069899. - **Non-United States study**

701. Glover C, Banks P, Carson A, et al. Understanding and assessing the impact of end-stage renal disease on quality of life: a systematic review of the content validity of self-administered instruments used to assess health-related quality of life in end-stage renal disease. Patient. 2011;4(1):19-30. doi: 10.2165/11584650-000000000-00000. PMID: 21766891. - **Relevant systematic review**

702. Goh BL, Ng EK, Rozi M, et al. Erectile dysfunction among patients with end stage renal disease: A comparison study between haemodialysis, continuous ambulatory peritoneal dialysis and renal transplant patients. Transplant International. 2011;24:287-8. doi: 10.1111/j.1432-2277.2011.01351.x. - **Meeting abstract**

703. Gokal R, Figueras M, Olle A, et al. Outcomes in peritoneal dialysis and haemodialysis--a comparative assessment of survival and quality of life. Nephrol Dial Transplant. 1999;14 Suppl 6:24-30. PMID: 10528709. - **Relevant systematic review**

704. Gokal R. Quality of life in patients undergoing renal replacement therapy. Kidney Int Suppl. 1993 Feb;40:S23-7. PMID: 8445835. - **Non-United States study**

705. Goksel BK, Torun D, Karaca S, et al. Is low blood magnesium level associated with hemodialysis headache? Headache. 2006 Jan;46(1):40-5. doi: 10.1111/j.1526-4610.2006.00295.x. PMID: 16412150. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

706. Goldfarb-Rumyantzev AS, Leypoldt JK, Nelson N, et al. A crossover study of short daily haemodialysis. Nephrol Dial Transplant. 2006 Jan;21(1):166-75. doi: 10.1093/ndt/gfi116. PMID: 16169869. - **Other: follow up less than 6 months**

707. Goldsmith D, Eriksson D, Teitsson S, et al. Real-world, cross-sectional, descriptive study of the quality of life of patients with anemia and chronic kidney disease across europe. Value in Health.

2016;19(3):A132. - **Non-United States study**

708. Goldstein SL, Gerson AC, Furth S. Health-related quality of life for children with chronic kidney disease. Adv Chronic Kidney Dis. 2007 Oct;14(4):364-9. doi: 10.1053/j.ackd.2007.07.006. PMID: 17904504. - **Narrative review**

709. Goldstein SL, Gerson AC, Goldman CW, et al. Quality of life for children with chronic kidney disease. Semin Nephrol. 2006 Mar;26(2):114-7. doi: 10.1016/j.semnephrol.2005.09.004. PMID: 16530604. - **Relevant systematic review**

710. Goldstein SL, Montgomery LR. A pilot study of twice-weekly exercise during hemodialysis in children. Pediatr Nephrol. 2009 Apr;24(4):833-9. doi: 10.1007/s00467-008-1079-4. PMID: 19093138. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

711. Gołębiewska JE, Lichodziejewska-Niemierko M, Aleksandrowicz-Wrona E, et al. Influence of megestrol acetate on nutrition, inflammation and quality of life in dialysis patients. International urology and nephrology. 2012;44(4):1211-22. doi: 10.1007/s11255-011-0025-8. PMID: CN-00848768. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

712. Gomes Neto M, de Lacerda FFR, Lopes AA, et al. Intradialytic exercise training modalities on physical functioning and health-related quality of life in patients undergoing maintenance hemodialysis: systematic review and meta-analysis. Clin Rehabil. 2018 Sep;32(9):1189-202. doi: 10.1177/0269215518760380. PMID: 29480025. - **Relevant systematic review**

713. Goncalves FA, Dalosso IF, Borba JM, et al. Quality of life in chronic renal patients on hemodialysis or peritoneal dialysis: a comparative study in a referral service of Curitiba - PR. J Bras Nefrol. 2015 Oct-Dec;37(4):467-74. doi: 10.5935/0101-2800.20150074. PMID: 26648496. - **Non-United States study**

714. Gong L, Liu J, Yan J, et al. [Effect of puncture-related pain on the quality of life in patients undergoing maintenance hemodialysis through internal arteriovenous fistula]. Zhong Nan Da Xue Xue Bao Yi Xue Ban. 2014 Dec;39(12):1292-8. doi: 10.11817/j.issn.1672-7347.2014.12.012. PMID: 25544164. - **Non-English**

715. Gonzalez A, Debnath S, Maldonado-Colon B, et al. Cognitive impairment among mexican americans with esrd secondary to type 2 diabetes who receive in-center thrice weekly hemodialysis. American Journal of Kidney Diseases. 2012;59(4):A38. - **Meeting abstract**

716. Goodkin DA, Bieber B, Jadoul M, et al. Mortality, Hospitalization, and Quality of Life among Patients with Hepatitis C Infection on Hemodialysis. Clin J Am Soc Nephrol. 2017 Feb

7;12(2):287-97. doi: 10.2215/cjn.07940716. PMID: 27908905. - **Non-United States study**

717. Goodkin DA, Mapes DL, Held PJ. The dialysis outcomes and practice patterns study (DOPPS): how can we improve the care of hemodialysis patients? Semin Dial. 2001 May-Jun;14(3):157-9. PMID: 11422917. - **Non-United States study**

718. Gopinathan JC, Aboobacker IN, Narayanan S, et al. Successful completion of pregnancy on maintenance haemodialysis: Experience from a resource-short model. Journal of Clinical and Diagnostic Research. 2017;11(11):OR05-OR7. doi: 10.7860/JCDR/2017/31129.10903. - **Non-United States study**

719. Gordon CE. Preface. Hemodialysis International. 2018;22:S3-S4. doi: 10.1111/hdi.12669. - **Non-relevant review**

720. Gorsane I, Amri N, Younsi F, et al. Erectile dysfunction in hemodialysis patients. Saudi J Kidney Dis Transpl. 2016 Jan;27(1):23-8. doi: 10.4103/1319-2442.174057. PMID: 26787562. - **Non-United States study**

721. Goto NA, van Loon IN, Morpey MI, et al. Geriatric Assessment in Elderly Patients with End-Stage Kidney Disease. Nephron. 2019;141(1):41-8. doi: 10.1159/000494222. PMID: 30384369. - **Non-United States study**

722. Graham C, Bond TC, Lübeck D. Missed dialysis sessions and impact of pruritus among medicare patients receiving hemodialysis at a large dialysis organization. American Journal of Kidney Diseases. 2013;61(4):A43. doi: 10.1053/j.ajkd.2013.02.117. - **Meeting abstract**

723. Granados NM, Ortiz RV, Reyes HM. Chronic kidney disease associated pruritus impact on dermatological quality of life of patients with chronic renal replacement therapy in hemodialysis from the General Hospital of Mexico. Journal of the American Academy of Dermatology. 2016;74(5):AB168. - **Non-United States study**

724. Grant D, Almond MK, Newnham A, et al. The Beck Depression Inventory requires modification in scoring before use in a haemodialysis population in the UK. Nephron Clin Pract. 2008;110(1):c33-8. doi: 10.1159/000151230. PMID: 18689985. - **Non-United States study**

725. Grant SJ, Richards CA, Burwick N, et al. Quality of end-of-life care for veterans with metastatic cancer and advanced chronic kidney disease. Journal of Clinical Oncology. 2019;37doi: 10.1200/JCO.2019.37.15_suppl.e18281. – **Meeting abstract**

726. Grapsa E, Samouilidou E, Pandelias K, et al. Correlation of depressive symptoms and olfactory dysfunction in patients on hemodialysis. Hippokratia. 2010 Jul;14(3):189-92. PMID: 20981168. - **Non-United States study**

727. Griffin KW, Wadhwa NK, Friend R, et al. Comparison of quality of life in hemodialysis and

peritoneal dialysis patients. Adv Perit Dial. 1994;10:104-8. PMID: 7999804. - **Meeting abstract**

728. Grincenkov FR, Fernandes N, Chaoubah A, et al. Factors associated with the quality of life of incident patients on PD in Brazil (BRAZPD). J Bras Nefrol. 2011 Mar;33(1):38-44. PMID: 21541461. - **Non-United States study**

729. Grincenkov FR, Fernandes N, Pereira Bdos S, et al. Impact of baseline health-related quality of life scores on survival of incident patients on peritoneal dialysis: a cohort study. Nephron. 2015;129(2):97-103. doi: 10.1159/000369139. PMID: 25633060. - **Non-United States study**

730. Griva K, Jayasena D, Davenport A, et al. Illness and treatment cognitions and health related quality of life in end stage renal disease. Br J Health Psychol. 2009 Feb;14(Pt 1):17-34. doi: 10.1348/135910708x292355. PMID: 18435864. - **Non-United States study**

731. Griva K, Kang AW, Yu ZL, et al. Quality of life and emotional distress between patients on peritoneal dialysis versus community-based hemodialysis. Qual Life Res. 2014 Feb;23(1):57-66. doi: 10.1007/s11136-013-0431-8. PMID: 23689932. - **Non-United States study**

732. Griva K, Lam KFY, Nandakumar M, et al. The effect of brief self-management intervention for hemodialysis patients (HED-SMART) on trajectories of depressive and anxious symptoms. Journal of Psychosomatic Research. 2018;113:37-44. doi: 10.1016/j.jpsychores.2018.07.012. - **Non-United States study**

733. Griva K, Yu Z, Chan S, et al. Age is not a contraindication to home-based dialysis - Quality-of-Life outcomes favour older patients on peritoneal dialysis regimes relative to younger patients. J Adv Nurs. 2014 Aug;70(8):1902-14. doi: 10.1111/jan.12355. PMID: 24495288. - **Non-United States study**

734. Grootenhuis MA, Stam H, Last BF, et al. The impact of delayed development on the quality of life of adults with end-stage renal disease since childhood. Pediatr Nephrol. 2006 Apr;21(4):538-44. doi: 10.1007/s00467-006-0030-9. PMID: 16511685. - **Non-United States study**

735. Groothoff JW, Grootenhuis MA, Offringa M, et al. Quality of life in adults with end-stage renal disease since childhood is only partially impaired. Nephrol Dial Transplant. 2003 Feb;18(2):310-7. PMID: 12543886. - **Non-United States study**

736. Grove BE, Hjollund NH, Schougaard LMV, et al. Patient-reported outcomes as predictors of mortality, initiation of dialysis and transplantation in patients with chronic kidney disease: A prospective cohort study. Quality of Life Research. 2017;26(1):25-6. doi: 10.1007/s11136-017-1658-6. - **Meeting abstract**

737. Grubbs V. ESRD and Hospice Care in the United States: Are Dialysis Patients Welcome?

American Journal of Kidney Diseases. 2018;72(3):429-32. doi: 10.1053/j.ajkd.2018.04.008. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

738. Grzegorzewska AE, Izdebska A, Niepolski L, et al. Self-reported physical activity, quality of life, and psychological status in relation to plasma 25-hydroxyvitamin d concentration in prevalent hemodialysis patients. Nephrology Dialysis Transplantation. 2016;31:i545. doi: 10.1093/ndt/gfw198.29. - **Non-United States study**

739. Guan X, Zhang DW, Du X, et al. Psychological status and relative factors in patients with diabetic nephropathy after peritoneal dialysis. Chinese Journal of Clinical Rehabilitation. 2005;9(12):68-70. - **Non-English**

740. Gubensek J, Arnol M, Ponikvar R, et al. Survival and dialysis prescription in very old patients on dialysis: Data from slovenian renal replacement therapy registry. Nephrology Dialysis Transplantation. 2013;28:i478. doi: 10.1093/ndt/gft151. - **Meeting abstract**

741. Gudex CM. Health-related quality of life in endstage renal failure. Qual Life Res. 1995 Aug;4(4):359-66. PMID: 7550185. - **Non-United States study**

742. Guerini Rocco D, Mercieri A, Yavuzer G. Multidimensional health-status assessment of chronic hemodialysis patients: the impact on quality of life. Eura Medicophys. 2006 Jun;42(2):113-9. PMID: 16767062. - **Non-United States study**

743. Guerra-Guerrero V, Sanhueza-Alvarado O, Caceres-Espina M. Quality of life in people with chronic hemodialysis: association with sociodemographic, medical-clinical and laboratory variables. Rev Lat Am Enfermagem. 2012 Sep-Oct;20(5):838-46. PMID: 23174827. - **Non-United States study**

744. Guglielmi KE. Women and ESRD: modalities, survival, unique considerations. Adv Chronic Kidney Dis. 2013 Sep;20(5):411-8. doi: 10.1053/j.ackd.2013.05.003. PMID: 23978546. - **Narrative review**

745. Guio BM, Gomes CP, Costa FBD, et al. Beneficial effects of intradialytic cardiopulmonary rehabilitation. J Bras Nefrol. 2017 Jul-Sep;39(3):275-82. doi: 10.5935/0101-2800.20170051. PMID: 29044337. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

746. Güler Ö, Yüksel Ş, Acartürk G, et al. Psychosocial assessment in patients with end-stage renal disease treated with hemodialysis. Anadolu Psikiyatri Dergisi. 2007;8(3):173-8. - **Non-English**

747. Gumprecht J, Zelobowska K, Gosek K, et al. Quality of life among diabetic and non-diabetic patients on maintenance haemodialysis. Exp Clin Endocrinol Diabetes. 2010 Mar;118(3):205-8. doi: 10.1055/s-0029-1192023. PMID: 19226477. - **Non-United States study**

748. Gunalay S, Ozturk YK, Akar H, et al. The relationship between malnutrition and quality of life in haemodialysis and peritoneal dialysis patients. Rev Assoc Med Bras (1992). 2018 Sep;64(9):845-52. doi: 10.1590/1806-9282.64.09.845. PMID: 30673007. - **Non-United States study**

749. Guney I, Biyik M, Yeksan M, et al. Sleep quality and depression in peritoneal dialysis patients. Ren Fail. 2008;30(10):1017-22. doi: 10.1080/08860220802406419. PMID: 19016155. - **Non-United States study**

750. Guney I, Solak Y, Atalay H, et al. Comparison of effects of automated peritoneal dialysis and continuous ambulatory peritoneal dialysis on health-related quality of life, sleep quality, and depression. Hemodial Int. 2010 Oct;14(4):515-22. doi: 10.1111/j.1542-4758.2010.00465.x. PMID: 20955286. - **Non-United States study**

751. Gupta P, Gupta R. Severity of chronic kidney disease associated pruritus clinically related to symptomatic pheripheral neuropathy in patients of end stage renal disease on maintenance hemodialysis: Our experience. JK Science. 2016;18(3):150-4. - **Non-United States study**

752. Gupta PG, Gharote MA, Goel A, et al. Study of spectrum of ESRD patient on hemodialysis from tribal area of central India. Hemodialysis International. 2009;13(3):376-7. doi: 10.1111/j.1542-4758.2009.00402.x. - **Meeting abstract**

753. Gupta S, Patil NM, Karishetti M, et al. Prevalence and clinical correlates of depression in chronic kidney disease patients in a tertiary care hospital. Indian Journal of Psychiatry. 2018;60(4):485-8. doi: 10.4103/psychiatry.IndianJPsychiatry_272_18. - **Non-United States study**

754. Gupta V, Jasani R, Kumar R, et al. Pill burden and PILL adherence in dialysis patients. Indian Journal of Nephrology. 2017;27:S93. - **Meeting abstract**

755. Gutierrez-Sanchez D, Leiva-Santos JP, Sanchez-Hernandez R, et al. Spanish modified version of the palliative care outcome scale-symptoms renal: cross-cultural adaptation and validation. BMC Nephrol. 2016 Nov 18;17(1):180. doi: 10.1186/s12882-016-0402-8. PMID: 27863475. - **Non-United States study**

756. Gutman RA. High-cost life prolongation: the National Kidney Dialysis and Kidney Transplantation Study. Ann Intern Med. 1988 Jun;108(6):898-9. PMID: 3285750. - **Non-relevant review**

757. Guzeldemir E, Toygar HU, Tasdelen B, et al. Oral health-related quality of life and periodontal health status in patients undergoing hemodialysis. J Am Dent Assoc. 2009 Oct;140(10):1283-93. PMID: 19797559. - **Non-United States study**

758. Ha J, Hoffman A, Brown MA. Physical and psychological symptom burden of renal transplant and dialysis patients. Nephrology. 2018;23:53. doi: 10.1111/nep.13441. - **Meeting abstract**

759. Haider I, Anees M, Shahid SA. Restless legs syndrome in end stage renal disease patients on haemodialysis. Pak J Med Sci. 2014 Nov-Dec;30(6):1209-12. doi: 10.12669/pjms.306.5691. PMID: 25674109. - **Non-United States study**

760. Hajheydari Z, Makhlough A. Cutaneous and mucosal manifestations in patients on maintenance hemodialysis: a study of 101 patients in Sari, Iran. Iran J Kidney Dis. 2008 Apr;2(2):86-90. PMID: 19377214. - **Non-United States study**

761. Halford B, Barnoya J, Melendez R, et al. Dialysis impact on quality of life of patients with chronic kidney disease in Guatemala. A pilot study. Annals of Global Health. 2016;82(3):420. - **Meeting abstract**

762. Hall R, Rutledge J, Cary M, et al. Quality of life priorities in older dialysis patients. Journal of the American Geriatrics Society. 2018;66:S158-S9. doi: 10.1111/jgs.15376. - **Meeting abstract**

763. Hall R, Rutledge J, Luciano A, et al. Measuring resilience in older dialysis patients: A pilot study. Journal of the American Geriatrics Society. 2019;67((Hall R.; Rutledge J.; Luciano A.; Hall K.; Pieper C.; Colon-Emeric C.) Duke University, Durham, NC, United States):S242. doi: 10.1111/jgs.15898. **– Meeting abstract**

764. Hallinen T, Soini EJ, Martikainen JA, et al. Costs and quality of life effects of the first year of renal replacement therapy in one Finnish treatment centre. J Med Econ. 2009 Jun;12(2):136-40. doi: 10.3111/13696990903119530. PMID: 19566482. - **Non-United States study**

765. Halpern SD, Berns JS, Israni AK. Willingness of patients to switch from conventional to daily hemodialysis: looking before we leap. Am J Med. 2004 May 1;116(9):606-12. doi: 10.1016/j.amjmed.2003.12.025. PMID: 15093757. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

766. Ham EM, Lim JH, Lee SH. The effect of cool dialysis on pruritus and fatigue in hemodialysis patients. Research Journal of Pharmacy and Technology. 2018;11(5):1851-4. doi: 10.5958/0974-360X.2018.00344.X. - **Non-United States study**

767. Hamilton AJ, Caskey FJ, Casula A, et al. Psychosocial Health and Lifestyle Behaviors in Young Adults Receiving Renal Replacement Therapy Compared to the General Population: Findings From the SPEAK Study. Am J Kidney Dis. 2019 Feb;73(2):194-205. doi: 10.1053/j.ajkd.2018.08.006. PMID: 30293669. - **Non-United States study**

768. Hamilton AJ, Clissold RL, Inward CD, et al. Sociodemographic, Psychologic Health, and Lifestyle Outcomes in Young Adults on Renal Replacement Therapy. Clin J Am Soc Nephrol. 2017 Dec 7;12(12):1951-61. doi: 10.2215/cjn.04760517. PMID: 29051144. - **Non-United States study**

769. Hamilton G, Locking-Cusolito H. Hemodialysis adequacy and quality of life: how do they relate? Cannt j. 2003 Oct-Dec;13(4):24-9. PMID: 14753099. - **No human data**

770. Hamilton G, Locking-Cusolito H. Original research: the relationship between dialysis adequacy and quality of life: a report of a pilot study. J cannt. 1998 Summer;8(3):25-9. PMID: 9807323. - **Non-United States study**

771. Hamilton R, Hawley S. Quality of life outcomes related to anemia management of patients with chronic renal failure. Clin Nurse Spec. 2006 May-Jun;20(3):139-43; quiz 44-5. PMID: 16705285. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

772. Hamiwka LA, Cantell M, Crawford S, et al. Physical activity and health related quality of life in children following kidney transplantation. Pediatr Transplant. 2009 Nov;13(7):861-7. doi: 10.1111/j.1399-3046.2009.01195.x. PMID: 19497018. - **Non-United States study**

773. Hammer J, Oesterreicher C, Hammer K, et al. Chronic gastrointestinal symptoms in hemodialysis patients. Wien Klin Wochenschr. 1998 Apr 24;110(8):287-91. PMID: 9615960. - **Non-United States study**

774. Hamody AR, Kareem AK, Al-Yasri AR, et al. Depression in Iraqi hemodialysis patients. Arab J Nephrol Transplant. 2013 Sep;6(3):169-72. PMID: 24053743. - **Non-United States study**

775. Hamzi MA, Hassani K, Asseraji M, et al. Insomnia in hemodialysis patients: A multicenter study from morocco. Saudi J Kidney Dis Transpl. 2017 Sep-Oct;28(5):1112-8. doi: 10.4103/1319-2442.215152. PMID: 28937071. - **Non-United States study**

776. Han SS, Kim KW, Na KY, et al. Quality of life and mortality from a nephrologist's view: a prospective observational study. BMC Nephrol. 2009 Nov 24;10:39. doi: 10.1186/1471-2369-10-39. PMID: 19930696. - **Non-United States study**

777. Hanly P. Sleep disorders and end-stage renal disease. Curr Opin Pulm Med. 2008 Nov;14(6):543-50. doi: 10.1097/MCP.0b013e3283130f96. PMID: 18812831. - **No human data**

778. Hanly P. Sleep disorders and home dialysis. Adv Chronic Kidney Dis. 2009 May;16(3):179-88. doi: 10.1053/j.ackd.2009.02.004. PMID: 19393968. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

779. Hara S, Katori H, Ubara Y. [Dialysis therapy and problem for renal failure of diabetic nephropathy]. Nihon Rinsho. 2002 Oct;60 Suppl 10:306-15. PMID: 12430246. - **Non-United States study**

780. Harasemiw O, Day C, Milad JE, et al. Human factors testing of the Quanta SC+ hemodialysis system: An innovative system for

home and clinic use. Hemodial Int. 2019 Apr 9doi: 10.1111/hdi.12757. PMID: 30968548. - **Non-United States study**

781. Hare J, Clark-Carter D, Forshaw M. A randomized controlled trial to evaluate the effectiveness of a cognitive behavioural group approach to improve patient adherence to peritoneal dialysis fluid restrictions: a pilot study. Nephrology, dialysis, transplantation. 2014;29(3):555-64. doi: 10.1093/ndt/gft477. PMID: CN-00981339. - **Non-United States study**

782. Harmer M, Gilbert R, Wootton S, et al. Health-related quality of life in children with chronic kidney disease. Pediatric Nephrology. 2017;32(9):1794. doi: 10.1007/s00467-017-3753-x. - **Meeting abstract**

783. Harmer M, Wootton S, Gilbert R, et al. Association of nutritional status and health-related quality of life in children with chronic kidney disease. Quality of Life Research. 2019doi: 10.1007/s11136-019-02104-0. - **Non-United States study**

784. Harmer M, Wootton S, Gilbert R, et al. Health-related quality of life in children with chronic kidney disease-introduction into routine care. Nephrology Dialysis Transplantation. 2017;32:iii745. doi: 10.1093/ndt/gfx183. - **Meeting abstract**

785. Harris DC, Chapman JR, Stewart JH, et al. Low dose erythropoietin in maintenance haemodialysis: improvement in quality of life and reduction in true cost of haemodialysis. Aust N Z J Med. 1991 Oct;21(5):693-700. PMID: 1759917. - **Non-United States study**

786. Harris DC. Low-dosage epoetin in maintenance haemodialysis: costs and quality-of-life improvement. Pharmacoeconomics. 1994 Jan;5(1):18-28. doi: 10.2165/00019053-199405010-00004. PMID: 10146863. - **Non-relevant review**

787. Harris SA, Lamping DL, Brown EA, et al. Clinical outcomes and quality of life in elderly patients on peritoneal dialysis versus hemodialysis. Perit Dial Int. 2002 Jul-Aug;22(4):463-70. PMID: 12322817. - **Non-United States study**

788. Hartwell L. Two trees in the forest: a patient's perception of quality of life. Nephrol News Issues. 2006 Jul;20(8):72-3. PMID: 16859236. - **Non-relevant review**

789. Hasegawa T, Suzukamo Y, Akizawa T, et al. [Validation of the Japanese SF-36 v2 acute form in patients with chronic kidney disease]. Nihon Jinzo Gakkai Shi. 2008;50(1):42-50. PMID: 18318243. - **Non-United States study**

790. Hashemi SH, Hajbagheri A, Aghajani M. The Effect of Massage With Lavender Oil on Restless Leg Syndrome in Hemodialysis Patients: A Randomized Controlled Trial. Nurs Midwifery Stud. 2015 Dec;4(4):e29617. doi: 10.17795/nmsjournal29617. PMID:

26835466. - **Non-United States study**

791. Hashimoto Y, Matsubara T. Combined peritoneal dialysis and hemodialysis therapy improves quality of life in end-stage renal disease patients. Adv Perit Dial. 2000;16:108-12. PMID: 11045273. - **Non-United States study**

792. Hassan K, Elimeleh Y, Shehadeh M, et al. Associations of Peritoneal Glucose Load With Male Sexual Dysfunction and Depression in Peritoneal Dialysis Patients. Therapeutic Apheresis and Dialysis. 2018;22(4):380-8. doi: 10.1111/1744-9987.12663. - **Non-United States study**

793. Hassan M, Salem Y. Assessment of female sexual dysfunction and its possible risk factors among patients undergoing haemodialysis. Journal of Sexual Medicine. 2017;14(1):S105. - **Meeting abstract**

794. Hawi A, Alcorn H, Jr., Berg J, et al. Pharmacokinetics of nalbuphine hydrochloride extended release tablets in hemodialysis patients with exploratory effect on pruritus. BMC Nephrol. 2015 Apr 8;16:47. doi: 10.1186/s12882-015-0043-3. PMID: 25885112. - **Other: VAS**

795. Hayashino Y, Fukuhara S, Akiba T, et al. Low health-related quality of life is associated with all-cause mortality in patients with diabetes on haemodialysis: the Japan Dialysis Outcomes and Practice Pattern Study. Diabet Med. 2009 Sep;26(9):921-7. doi: 10.1111/j.1464-5491.2009.02800.x. PMID: 19719714. - **Non-United States study**

796. He Q, Chen J, Xu Y, et al. High-risk end-stage renal disease patients converted from conventional to short daily haemodialysis. J Int Med Res. 2006 Nov-Dec;34(6):682-8. doi: 10.1177/147323000603400615. PMID: 17295002. - **Non-United States study**

797. Heath J, Mackinlay D, Watson AR, et al. Self-reported quality of life in children and young people with chronic kidney disease. Pediatr Nephrol. 2011 May;26(5):767-73. doi: 10.1007/s00467-011-1784-2. PMID: 21327779. - **Non-United States study**

798. Hedayati SS, Yalamanchili V, Finkelstein FO. A practical approach to the treatment of depression in patients with chronic kidney disease and end-stage renal disease. Kidney Int. 2012 Feb;81(3):247-55. doi: 10.1038/ki.2011.358. PMID: 22012131. - **Narrative review**

799. Heidari Gorji MA, Davanloo A, Heidarigorji AM. The efficacy of relaxation training on stress, anxiety, and pain perception in hemodialysis patients. Indian journal of nephrology. 2014;24(6):356-61. doi: 10.4103/0971-4065.132998. PMID: CN-01036738. - **Non-United States study**

800. Heidarzadeh M, Atashpeikar S, Jalilazar T. Relationship between quality of life and self-care ability in patients receiving hemodialysis. Iran J Nurs Midwifery Res. 2010 Spring;15(2):71-6. PMID:

21589783. - **Non-United States study**

801. Heidenheim AP, Kooistra MP, Lindsay RM. Quality of life. Contrib Nephrol. 2004;145:99-105. doi: 10.1159/000081673. PMID: 15496796. - **Narrative review**

802. Heidenheim AP, Muirhead N, Moist L, et al. Patient quality of life on quotidian hemodialysis. Am J Kidney Dis. 2003 Jul;42(1 Suppl):36-41. PMID: 12830442. - **Non-United States study**

803. Hekmat R, Maghsudloo F, Mohebi M, et al. A study of the main determinants of sexual dysfunction in women aged 15-45 years on chronic hemodialysis. Saudi J Kidney Dis Transpl. 2016 Sep-Oct;27(5):916-20. doi: 10.4103/1319-2442.190816. PMID: 27751998. - **Non-United States study**

804. Hekmat R, Mohebi M, Ahmadzadehhashemi S. Time duration from the begining of hemodialysis is the main determinant of sexual dysfunction in chronic hemodialyzedwomen aged 15 to 45 years. Nephrology Dialysis Transplantation. 2014;29:iii524. doi: 10.1093/ndt/gfu178. - **Meeting abstract**

805. Hemmati Maslakpak M, Shams S. A Comparison of Face to Face and Video-Based Self Care Education on Quality of Life of Hemodialysis Patients. Int J Community Based Nurs Midwifery. 2015 Jul;3(3):234-43. PMID: 26171412. - **Non-United States study**

806. Henrich WL. Dialysis considerations in the elderly patient. Am J Kidney Dis. 1990 Oct;16(4):339-41. PMID: 2145757. - **Non-relevant review**

807. Henry SL, Jamner LD, Choi SE, et al. The effect of the interdialytic interval on cognitive function in patients on haemodialysis. J Ren Care. 2018 Mar;44(1):44-51. doi: 10.1111/jorc.12231. PMID: 29271080. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

808. Herfindal ET, Bernstein LR, Kudzia K, et al. Survey of home nutritional support patients. JPEN J Parenter Enteral Nutr. 1989 May-Jun;13(3):255-61. doi: 10.1177/0148607189013003255. PMID: 2503635. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

809. Hernandez CA, Buisan Pelay R, Miranda Camarero MV. [Nursing care process and the quality of life of the kidney patient on hemodialysis]. Rev Enferm. 1987 Dec;10(112):30-3. PMID: 3438674. - **Non-United States study**

810. Hernandez SM, Carrero M, Hernandez LM. Prevalence of depression in patients with end stage renal disease on hemodialysis and peritoneal in the west area of Puerto Rico. Hemodialysis International. 2017;21(1):A50. doi: 10.1111/hdi.12520. - **Meeting abstract**

811. Herrera-Añazco P, León-Rabanal C, Florez-Gálvez EM. Successful pregnancies in chronic hemodialysis patients: Experience in

peruvian public hospitals. Revista de Nefrologia, Dialisis y Trasplante. 2018;38(4):273-9. - **Non-English**

812. Hino M, Tanaka Y, Onda N, et al. Clinical analysis of sleep-disordered breathing in end-stage renal disease with haemodialysis. Respirology. 2014;19:231. doi: 10.1111/resp.12417. - **Meeting abstract**

813. Hmwe NT, Subramanian P, Tan LP, et al. The effects of acupressure on depression, anxiety and stress in patients with hemodialysis: a randomized controlled trial. Int J Nurs Stud. 2015 Feb;52(2):509-18. doi: 10.1016/j.ijnurstu.2014.11.002. PMID: 25468282. - **Non-United States study**

814. Ho SE, Ho CC, Norshazwani N, et al. Perception of quality of life amongst end stage renal failure patients undergoing haemodialysis. Clin Ter. 2013;164(6):499-505. doi: 10.7417/ct.2013.1627. PMID: 24424213. - **Non-United States study**

815. Ho YF, Li IC. The influence of different dialysis modalities on the quality of life of patients with end-stage renal disease: A systematic literature review. Psychol Health. 2016 Dec;31(12):1435-65. doi: 10.1080/08870446.2016.1226307. PMID: 27604248. - **Relevant systematic review**

816. Hoe KK, Soyibo AK, James K, et al. The Prevalence of Sexual Dysfunction among the Patients with End Stage Renal Disease in Jamaica. West Indian Med J. 2013 Dec;62(9):825-30. doi: 10.7727/wimj.2013.234. PMID: 25117388. - **Non-United States study**

817. Hoffmann TR, Flusser V, Santoro LF, et al. The performance of "link musicians" in a hemodialysis centre: A humanizing experience that improves quality of life and symptoms of depression. Nephrology Dialysis Transplantation. 2014;29:iii522. doi: 10.1093/ndt/gfu178. - **Meeting abstract**

818. Hoffmann U, Sieber C. [Options for renal replacement therapy in geriatric patients]. Dtsch Med Wochenschr. 2014 Aug;139(31-32):1568-71. doi: 10.1055/s-0034-1370192. PMID: 25076307. - **Non-United States study**

819. Hofner AF, Schulz MVM, Morck H, et al. Drug profile: Improved quality of life for dialysis patients with darbepoetin alfa. Pharmazeutische Zeitung. 2004;149(10):39-42. - **Non-English**

820. Holtzman S, Abbey SE, Bargman JM, et al. A genetic predisposition to produce low levels of IL-10 impacts depressive symptoms: A pilot study of patients with end stage renal disease. Psychosomatic Medicine. 2011;73(3):A123-A4. - **Meeting abstract**

821. Homaie Rad E, Mostafavi H, Delavari S, et al. Health-related Quality of Life in Patients on Hemodialysis and Peritoneal Dialysis: a Meta-Analysis of Iranian Studies. Iran J Kidney Dis. 2015 Sep;9(5):386-93. PMID: 26338163. - **Non-United States study**

822. Hoppe A, Puttkamer C, Zimmering M, et al. A hospital-

based nocturnal hemodialysis program for children and adolescents: Prospective 4-year data. Pediatric Nephrology. 2010;25(9):1937. doi: 10.1007/s00467-010-1577-z. - **Meeting abstract**

823. Hoppner W. Erectile dysfunction before and after renal transplantation. Transplantationsmedizin: Organ der Deutschen Transplantationsgesellschaft. 1996;8(3):S. 119-S. 22. - **Non-United States study**

824. Horina JH, Holzer H, Reisinger EC, et al. Elderly patients and chronic haemodialysis. Lancet. 1992 Jan 18;339(8786):183. PMID: 1346036. - **Non-relevant review**

825. Hothi DK, Stronach L, Harvey E. Home haemodialysis. Pediatr Nephrol. 2013 May;28(5):721-30. doi: 10.1007/s00467-012-2322-6. PMID: 23124511. - **Narrative review**

826. Hristea D, Deschamps T. Implementing an exercise program into the routine care of outpatient dialysis patients. Nephrology Dialysis Transplantation. 2016;31:i478. doi: 10.1093/ndt/gfw191.19. - **Meeting abstract**

827. Hrnjak AR, Vuksanović M, Dimković N, et al. Effects of extremely low frequency pulsed electromagnetic field added to kinesitherapy procedure on quality of life in patients with end stage renal disease on dialysis. Vojnosanitetski Pregled. 2018;75(9):891-904. doi: 10.2298/VSP160620007R. - **Non-United States study**

828. Hsieh RL, Huang HY, Chen SC, et al. Changes in physical functional performance and quality of life in hemodialysis patients in Taiwan: a preliminary study. J Nephrol. 2010 Jan-Feb;23(1):41-8. PMID: 20091485. - **Non-United States study**

829. Hsieh RL, Lee WC, Huang HY, et al. Quality of life and its correlates in ambulatory hemodialysis patients. J Nephrol. 2007 Nov-Dec;20(6):731-8. PMID: 18046676. - **Non-United States study**

830. Hsu HJ, Chen CK, Hsiao CC, et al. Lack of association between plasma dehydroepiandrosterone sulfate (DHEA-S) levels and depression in hemodialysis patients: a cross-sectional study. Exp Gerontol. 2009 Nov;44(11):733-9. doi: 10.1016/j.exger.2009.08.009. PMID: 19732820. - **Non-United States study**

831. Huang CW, Lee MJ, Wang LJ, et al. Comparative efficacy and acceptability of treatments for restless legs syndrome in end-stage renal disease: a systematic review and network meta-analysis. Nephrol Dial Transplant. 2019 Jun 3doi: 10.1093/ndt/gfz097. PMID: 31157898. – **Systematic review**

832. Huang HC, Walters G, Talaulikar G, et al. Sleep apnea prevalence in chronic kidney disease - association with total body water and symptoms. BMC Nephrol. 2017 Apr 4;18(1):125. doi: 10.1186/s12882-017-0544-3. PMID: 28376734. - **Non-United States study**

833. Huang HCC, Walters G, Talaulikar G, et al. Severe sleep apnoea is common in chronic kidney

disease and not predicted by symptom questionnaires, apnealink or bioimpedance measurements. Sleep and Biological Rhythms. 2015;13:45. doi: 10.1111/sbr.12132. **- Meeting abstract**

834. Hussain JA, Flemming K, Murtagh FE, et al. Patient and health care professional decision-making to commence and withdraw from renal dialysis: a systematic review of qualitative research. Clin J Am Soc Nephrol. 2015 Jul 7;10(7):1201-15. doi: 10.2215/cjn.11091114. PMID: 25943310. **- Non-United States study**

835. Hussein A, El-Hadidy A, Gomaa N, et al. A study of sleep disorders in patients with chronic kidney disease (CKD). International Journal of Pharmaceutical and Clinical Research. 2017;9(5):343-52. **- Non-United States study**

836. Hynes DM, Fischer MJ, Schiffer LA, et al. Evaluating a novel health system intervention for chronic kidney disease care using the RE-AIM framework: Insights after two years. Contemp Clin Trials. 2017 Jan;52:20-6. doi: 10.1016/j.cct.2016.10.003. PMID: 27769897. **- No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

837. Hyodo T, Ishida H, Masui N, et al. Kidney disease quality of life of Japanese dialysis patients who desire administration of sildenafil and the treatment of erectile dysfunction using sildenafil. Ther Apher Dial. 2004 Aug;8(4):340-6. doi: 10.1111/j.1526-0968.2004.00163.x. PMID: 15274687. **- Non-United States study**

838. Hyodo T, Yamamoto S, Inoguchi Y, et al. Individual application of the kidney disease quality of life (KDQOL) instrument to monitor the health status of dialysis patients. Nephron. 2000 Nov;86(3):391-2. doi: 10.1159/000045817. PMID: 11096319. **- Non-United States study**

839. Hyun YY, Lee KB, Chung W, et al. Body Mass Index, waist circumference, and health-related quality of life in adults with chronic kidney disease. Quality of Life Research. 2019;28(4):1075-83. doi: 10.1007/s11136-018-2084-0. **- Non-United States study**

840. Iacovides A, Fountoulakis KN, Balaskas E, et al. Relationship of age and psychosocial factors with biological ratings in patients with end-stage renal disease undergoing dialysis. Aging Clin Exp Res. 2002 Oct;14(5):354-60. PMID: 12602569. **- Non-United States study**

841. Iborra Molto C, Pico Vicent L, Montiel Castillo A, et al. Quality of life and exercise in renal disease. Edtna erca j. 2000 Jan-Mar;26(1):38-40. PMID: 11011637. **- Non-United States study**

842. Ibrahim MK, Elshahid AR, El Baz TZ, et al. Impact of Uraemic Pruritus on Quality of Life among End Stage Renal Disease Patients on Dialysis. J Clin Diagn Res. 2016 Mar;10(3):Wc01-5. doi: 10.7860/jcdr/2016/16273.7488. PMID: 27134981. **- Non-United States study**

843. Ibrahim N, Chiew-Thong NK, Desa A, et al. Depression and coping in adults undergoing dialysis for end-stage renal disease. Asia Pac Psychiatry. 2013 Apr;5 Suppl 1:35-40. doi: 10.1111/appy.12042. PMID: 23857835. - **Non-United States study**

844. Ibrahim N, Chiew-Tong NK, Desa A. Symptoms and health-related quality of life in patients with heamodialysis and continuous ambulatory peritoneal dialysis. Research Journal of Medical Sciences. 2011;5(5):252-6. doi: 10.3923/rjmsci.2011.252.256. - **Non-United States study**

845. Ibrahim S, El Salamony O. Depression, quality of life and malnutrition-inflammation scores in hemodialysis patients. Am J Nephrol. 2008;28(5):784-91. doi: 10.1159/000131101. PMID: 18463431. - **Non-United States study**

846. Ikizler TA. Intensive hemodialysis: back to the beginning? J Am Soc Nephrol. 2012 Apr;23(4):573-5. doi: 10.1681/asn.2012020216. PMID: 22423013. - **Other: letter--no data**

847. Ikonomou M, Skapinakis P, Balafa O, et al. THE IMPACT OF SOCIOECONOMIC FACTORS ON QUALITY OF LIFE OF PATIENTS WITH CHRONIC KIDNEY DISEASE IN GREECE. J Ren Care. 2015 Dec;41(4):239-46. doi: 10.1111/jorc.12132. PMID: 26119629. - **Non-United States study**

848. Iliescu EA, Coo H, McMurray MH, et al. Quality of sleep and health-related quality of life in haemodialysis patients. Nephrol Dial Transplant. 2003 Jan;18(1):126-32. PMID: 12480970. - **Non-United States study**

849. Imani M, Mahdizade SM, Mazloom SR, et al. The effects of aurantium scent on sleep quality in patients undergoing hemodialysis in select hospitals affiliated to Mashhad university of medical sciences in 2014. Avicenna Journal of Phytomedicine. 2015;5:62. - **Non-United States study**

850. Ipema KJ, van der Schans CP, Vonk N, et al. A difference between day and night: protein intake improves after the transition from conventional to frequent nocturnal home hemodialysis. J Ren Nutr. 2012 May;22(3):365-72. doi: 10.1053/j.jrn.2011.08.010. PMID: 22054873. - **Non-United States study**

851. Iqbal MZ, Iqbal MS, Iqbal MW, et al. Health-related quality of life among ESRF patients in Pakistan: A cross-sectional approach using WHOQOL-BREF. Value in Health. 2015;18(3):A29. - **Meeting abstract**

852. Irct201107095069N. A comparative study of cromolyn sodium gel 4% and pimecrolimus cream 1% anti pruritis effects on end stage renal failure patients undergoing dialysis in Ahwaz Imam Khomeini hospital in 2011. Http://www.who.int/trialsearch/trial2.aspx? Trialid=irct201107095069n3. 2011 PMID: CN-01868255. - **Non-United States study**

853. Irct201212212046N. Effect of receiving intravenous vitamin c on fatigue in patients undergoing

hemodialysis in baqiatallah hospital Tehran 1391. Http://www.who.int/trialsearch/trial2.aspx? Trialid=irct201212212046n2. 2013 PMID: CN-01803772. - **Non-United States study**

854. Irct201311152417N. Effect of Omega-3 on pruritus scale in hemodialysis patients. Http://www.who.int/trialsearch/trial2.aspx? Trialid=irct201311152417n14. 2016 PMID: CN-01834063. - **Other: clinical trial protocol**

855. Irct2014031617021N. The effect of hope therapy on stress, anxiety and depression in patients treated with hemodialysis. Http://www.who.int/trialsearch/trial2.aspx? Trialid=irct2014031617021n1. 2014 PMID: CN-01859700. - **Other: clinical trial protocol**

856. Irct2015043022027N. Effect of acupressure on constipation of hemodialysis patients. Http://www.who.int/trialsearch/trial2.aspx? Trialid=irct2015043022027n1. 2015 PMID: CN-01821619. - **Other: clinical trial protocol**

857. Irct201508045665N. Comparison the effect of training with short massage services, face to face and booklet on knowledge and quality of life of patients under hemodialysis. Http://www.who.int/trialsearch/trial2.aspx? Trialid=irct201508045665n6. 2016 PMID: CN-01857789. - **Other: clinical trial protocol**

858. Irct2015121025457N. The effect of blended education on dialysis adequacy and nutritional status. Http://www.who.int/trialsearch/trial2.aspx? Trialid=irct2015121025457n1. 2016 PMID: CN-01862962. - **Other: clinical trial protocol**

859. Irct2016060222772N. Effect aromatherapy on fatigue and quality of Sleep in hemodialysis patients. Http://www.who.int/trialsearch/trial2.aspx? Trialid=irct2016060222772n1. 2016 PMID: CN-01896264. - **Other: clinical trial protocol**

860. Irct2016092323446N. The effect of music on comfort and vital signs of hemodialysis patients. Http://www.who.int/trialsearch/trial2.aspx? Trialid=irct2016092323446n8. 2016 PMID: CN-01882443. - **Other: clinical trial protocol**

861. Irct20170619034641N. The Effect of Music on Depression and Anxiety in Patients Recieving Dialysis. Http://www.who.int/trialsearch/trial2.aspx? Trialid=irct20170619034641n3. 2018 PMID: CN-01906666. - **Other: clinical trial protocol**

862. Irct2017091334382N. The Effect of Massage and Topical Rubbing of Violet oil on the severity of Pruritus in Hemodialysis Patients. Http://www.who.int/trialsearch/trial2.aspx? Trialid=irct2017091334382n1. 2017 PMID: CN-01892149. - **Other: clinical trial protocol**

863. Irct20171013036747N. The effect of dietary education on the quality of life of hemodialysis patients.

Http://www.who.int/trialsearch/trial2.aspx?Trialid=irct20171013036747n2. 2018 PMID: CN-01901764. - **Other: clinical trial protocol**

864. Iseki K, Tsuruya K, Kanda E, et al. Effects of sleepiness on survival in Japanese hemodialysis patients: J-DOPPS study. Nephron Clin Pract. 2014;128(3-4):333-40. doi: 10.1159/000366479. PMID: 25572670. - **Non-United States study**

865. Ismail N. Renal replacement therapy in the elderly: an old problem with young solutions. Nephrol Dial Transplant. 1997 May;12(5):873-6. PMID: 9175036. - **No human data**

866. Iyasere O, Brown EA, Gordon F, et al. LONGITUDINAL TRENDS IN QUALITY OF LIFE AND PHYSICAL FUNCTION IN FRAIL OLDER DIALYSIS PATIENTS: A COMPARISON OF ASSISTED PERITONEAL DIALYSIS AND IN-CENTER HEMODIALYSIS. Perit Dial Int. 2019 Jan 18doi: 10.3747/pdi.2018.00086. PMID: 30661007. - **Non-United States study**

867. Iyasere O, Brown EA, Johansson L, et al. Quality of life with conservative care compared with assisted peritoneal dialysis and haemodialysis. Clin Kidney J. 2019 Apr;12(2):262-8. doi: 10.1093/ckj/sfy059. PMID: 30976407. - **Non-United States study**

868. Izbirak G, Akan H, Mistik S, et al. Comparison of health-related quality of life of patients on hemodialysis and continuous ambulatory peritoneal dialysis. Turkiye Klinikleri Journal of Medical Sciences. 2010;30(5):1595-602. doi: 10.5336/medsci.2009-13009. - **Non-United States study**

869. Jaar BG, Chang A, Plantinga L. Can we improve quality of life of patients on dialysis? Clin J Am Soc Nephrol. 2013 Jan;8(1):1-4. doi: 10.2215/cjn.11861112. PMID: 23296376. - **Narrative review**

870. Jaber BL, Schiller B, Burkart JM, et al. Impact of short daily hemodialysis on restless legs symptoms and sleep disturbances. Clin J Am Soc Nephrol. 2011 May;6(5):1049-56. doi: 10.2215/cjn.10451110. PMID: 21415315. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

871. Jaber BL, Zimmerman DL. Rationale and experience with short daily hemofiltration. Semin Dial. 2004 Mar-Apr;17(2):146-50. doi: 10.1111/j.0894-0959.2004.17213.x. PMID: 15043618. - **Narrative review**

872. Jablonski KL, Chonchol M. Frequent hemodialysis: a way to improve physical function? Clin J Am Soc Nephrol. 2012 May;7(5):707-10. doi: 10.2215/cjn.02880312. PMID: 22516284. - **Narrative review**

873. Jackle MJ. Life satisfaction and kidney dialysis. Nurs Forum. 1974;13(4):360-70. PMID: 4499569. - **Other: no tool**

874. Jacobson J, Ju A, Baumgart A, et al. Patient Perspectives on the Meaning and Impact of Fatigue in

Hemodialysis: A Systematic Review and Thematic Analysis of Qualitative Studies. Am J Kidney Dis. 2019 Apr 5doi: 10.1053/j.ajkd.2019.01.034. PMID: 30955947. - **Relevant systematic review**

875. Jacques JA, Abraira CL. Quality-of-life issues in hemodialysis: Case studies on the use of sildenafil for Erectile Dysfunction. Dialysis and Transplantation. 1999;28(9):518-24. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

876. Jadhav ST, Lee P, D'Souza C V. Effectiveness of prehemodialysis preparatory program on improving coping among chronic kidney disease patients. Saudi J Kidney Dis Transpl. 2018 Nov-Dec;29(6):1342-9. doi: 10.4103/1319-2442.248295. PMID: 30588965. - **Non-United States study**

877. Jadoulle V, Hoyois P, Jadoul M. Anxiety and depression in chronic hemodialysis: some somatopsychic determinants. Clin Nephrol. 2005 Feb;63(2):113-8. PMID: 15730053. - **Non-United States study**

878. Jafarzadeh A, Sahathevan, Kaur H, et al. Relationships between physical function tests and nutritional status of peritoneal dialysis patients from two hospitals in Kuala Lumpur, Malaysia. Peritoneal Dialysis International. 2010;30:S148. - **Meeting abstract**

879. Jahromi MK, Poorgholami F, Rahmanian F, et al. Effects of self-care education with telephone follow-up on self-efficacy level in hemodialysis patients. Biosciences Biotechnology Research Asia. 2016;13(1):375-81. doi: 10.13005/bbra/2043. - **Non-United States study**

880. Jain AK, Lindsay RM. Intra and extra cellular fluid shifts during the inter dialytic period in conventional and daily hemodialysis patients. Asaio j. 2008 Jan-Feb;54(1):100-3. doi: 10.1097/MAT.0b013e318162c404. PMID: 18204323. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

881. Jain S, Singla A, Basavaraj P, et al. Underlying kidney disease and duration of hemodialysis: An assessment of its effect on oral health. Journal of Clinical and Diagnostic Research. 2014;8(5):65-9. doi: 10.7860/JCDR/2014/7853.4402. - **Non-United States study**

882. Jamaldeen J, Basheer A, Sarma AC, et al. Prevalence and patterns of hearing loss among chronic kidney disease patients undergoing haemodialysis. Australasian Medical Journal. 2015;8(2):41-6. doi: 10.4066/AMJ.2015.2258. - **Non-United States study**

883. Jang EJ, Kim HS. [Effects of exercise intervention on physical fitness and health-relalted quality of life in hemodialysis patients]. J Korean Acad Nurs. 2009 Aug;39(4):584-93. doi: 10.4040/jkan.2009.39.4.584. PMID: 19726914. - **Non-United States study**

884. Janiszewska J, Lichodziejewska-Niemierko M, Golebiewska J, et al. Determinants of anxiety in patients with advanced somatic disease: differences and similarities between patients undergoing renal replacement therapies and patients suffering from cancer. Int Urol Nephrol. 2013 Oct;45(5):1379-87. doi: 10.1007/s11255-012-0326-6. PMID: 23161377. - **Non-United States study**

885. Jansen DL, Heijmans MJ, Rijken M, et al. Illness perceptions and treatment perceptions of patients with chronic kidney disease: different phases, different perceptions? Br J Health Psychol. 2013 May;18(2):244-62. doi: 10.1111/bjhp.12002. PMID: 23126527. - **Non-United States study**

886. Janssen IM, Gerhardus A, von Gersdorff GD, et al. Preferences of patients undergoing hemodialysis – Results from a questionnaire-based study with 4,518 patients. Patient Preference and Adherence. 2015;9:847-55. doi: 10.2147/PPA.S79559. - **Non-United States study**

887. Janssen van Doorn K, Heylen M, Mets T, et al. Evaluation of functional and mental state and quality of life in chronic haemodialysis patients. Int Urol Nephrol. 2004;36(2):263-7. PMID: 15368708. - **Non-United States study**

888. Jansz TT, Ozyilmaz A, Grooteman MPC, et al. Long-term clinical parameters after switching to nocturnal haemodialysis: a Dutch propensity-score-matched cohort study comparing patients on nocturnal haemodialysis with patients on three-times-a-week haemodialysis/haemodiafiltration. BMJ Open. 2018 Mar 8;8(3):e019900. doi: 10.1136/bmjopen-2017-019900. PMID: 29523566. - **Non-United States study**

889. Japar KV, Vatvani AD, Wibisono P, et al. Association between pulse pressure changes and quality of life in patients undergoing hemodialysis in Indonesia. Nephrology Dialysis Transplantation. 2018;33:i558. doi: 10.1093/ndt/gfy104.SP627. - **Meeting abstract**

890. Japar KV, Wibisono P, Waren K, et al. Quality of life of hypertensive and non-hypertensive end stage renal disease patients undergoing hemodialysis. Journal of Hypertension. 2017;35:e2-e3. - **Meeting abstract**

891. Jardine M. Rationale and feasibility of the active dialysis trial: A multicentre, unblinded, randomised controlled trial of extended vs standard duration of dialysis in patients with end stage kidney disease. Nephrology. 2010;15:86. doi: 10.1111/j.1440-1797.2010.01377.x. - **Meeting abstract**

892. Jardine MJ, Zuo L, Gray NA, et al. A Trial of Extending Hemodialysis Hours and Quality of Life. J Am Soc Nephrol. 2017 Jun;28(6):1898-911. doi: 10.1681/asn.2015111225. PMID: 28151412. - **Non-United States study**

893. Jardine MJ, Zuo L, Gray NA, et al. A Trial of Extending

Hemodialysis Hours and Quality of Life. Journal of the american society of nephrology : JASN. 2017;28(6):1898-911. doi: 10.1681/ASN.2015111225. PMID: CN-01381805. - **Non-United States study**

894. Jardine MJ, Zuo LI, Gray NA, et al. Design and participant baseline characteristics of 'A Clinical Trial of IntensiVE Dialysis': the ACTIVE Dialysis Study. Nephrology (Carlton). 2015 Apr;20(4):257-65. doi: 10.1111/nep.12385. PMID: 25529309. - **Non-United States study**

895. Jedras M, Zakrzewska-Pniewska B, Wardyn K, et al. Uremic neuropathy--II. Is pruritus in dialyzed patients related to neuropathy? Polskie archiwum medycyny wewnetrznej. 1998;99(6):462-9. PMID: CN-00160950. - **Non-United States study**

896. Jhamb M, Tamura MK, Gassman J, et al. Design and rationale of health-related quality of life and patient-reported outcomes assessment in the Frequent Hemodialysis Network trials. Blood purification. 2011;31(1-3):151-8. PMID: CN-00792558. - **Other: FHN methods but no results**

897. Jiang J, Ni L, Ren W, et al. Nutritional status in short daily hemodialysis versus conventional hemodialysis patients in China. Int Urol Nephrol. 2018 Apr;50(4):755-62. doi: 10.1007/s11255-018-1804-2. PMID: 29404929. - **Non-United States study**

898. Jiang JL, Ren W, Li Y, et al. The role of short daily hemodialysis in the control of hyperphosphatemia, secondary hyperparathyroidism and anemia. Int Urol Nephrol. 2013 Dec;45(6):1725-31. doi: 10.1007/s11255-013-0441-z. PMID: 23591723. - **Non-United States study**

899. Jiang JL, Ren W, Song J, et al. The impact of short daily hemodialysis on anemia and the quality of life in Chinese patients. Braz J Med Biol Res. 2013 Jul;46(7):629-33. doi: 10.1590/1414-431x20132832. PMID: 23970065. - **Non-United States study**

900. Jiang MM, Li L. [Assessment of health-related quality of life in hemodialysis patients with SF-36]. Zhejiang Da Xue Xue Bao Yi Xue Ban. 2004 Nov;33(6):546-9, 60. PMID: 15586416. - **Non-United States study**

901. Jiang MM. [Health-related quality of life in patients with end-stage renal disease]. Zhejiang Da Xue Xue Bao Yi Xue Ban. 2003 Jun;32(3):267-9. PMID: 12881880. - **Non-United States study**

902. Jiang X, Ji F, Chen ZW, et al. Comparison of high-flux hemodialysis with hemodialysis filtration in treatment of uraemic pruritus: a randomized controlled trial. Int Urol Nephrol. 2016 Sep;48(9):1533-41. doi: 10.1007/s11255-016-1364-2. PMID: 27379625. - **Non-United States study**

903. Jiménez Ocampo VF, Giraldo BP, Del Pilar Botello Reyes A. Spiritual perspective and health-related quality of life of dialyzed

patients. Revista de Nefrologia, Dialisis y Trasplante. 2016;36(2):91-8. - **Non-English**

904. Jin HM. Hemoperfusion improves sleep disturbance and survival in maintain hemodialysis patients. Nephrology Dialysis Transplantation. 2018;33:i191-i2. doi: 10.1093/ndt/gfy104.FP462. - **Meeting abstract**

905. Jin X, Rong S, Mei C, et al. Effects of thrice-weekly in-center nocturnal vs. conventional hemodialysis on integrated backscatter of myocardial tissue. Hemodial Int. 2011 Apr;15(2):200-10. doi: 10.1111/j.1542-4758.2011.00537.x. PMID: 21395972. - **Non-United States study**

906. Jing L, Wu-Jun X, Feng T. Palliative care for patients with malignancy and end-stage renal failure on peritoneal dialysis. Indian J Palliat Care. 2014 May;20(2):137-41. doi: 10.4103/0973-1075.132636. PMID: 25125871. - **Non-United States study**

907. Jofre R, López-Gómez JM, Valderrábano F. Quality of life for patient groups. Kidney International, Supplement. 2000;57(74):S121-S30. - **Non-United States study**

908. Johansen K, Finkelstein F, Revicki D, et al. The effect of erythropoiesis stimulating agents on measures of physical functioning and exercise tolerance in chronic renal failure patients on dialysis: A systematic review. American Journal of Kidney Diseases. 2009;53(4):A45. doi: 10.1053/j.ajkd.2009.01.111. - **Meeting abstract**

909. Johansen KL. From People to Lab Rats to People-Study of Exercise in CKD. J Am Soc Nephrol. 2019 Oct;30(10):1777-8. doi: 10.1681/asn.2019080822. PMID: 31501356. **– Meeting abstract**

910. John MM, Gupta A, Sharma RK, et al. Impact of residual renal function on clinical outcome and quality of life in patients on peritoneal dialysis. Indian Journal of Nephrology. 2016;26(8):S49. - **Other: Exclude: Exhausted all resources for pdfs**

911. Johnstone S, Hays R, King C. Evaluating the impact of a physical rehabilitation program for dialysis patients. Nephrol News Issues. 2002 Aug;16(9):39-42. PMID: 12229097. **- No human data**

912. Johnstone S. Integrating the HRQOL survey into the patient plan of care: an interdisciplinary team in action. Nephrol News Issues. 2012 Nov;26(12):40-1. PMID: 23472555. **- No human data**

913. Joseph SJ, Bhandari SS, Dutta S, et al. A Cross-sectional study of depression and quality of life in chronic kidney disease patients undergoing haemodialysis. Indian Journal of Psychiatry. 2019;61(9):S538. - **Meeting abstract**

914. Joshi U, Subedi R, Poudel P, et al. Assessment of quality of life in patients undergoing hemodialysis using WHOQOL-BREF questionnaire: a multicenter study. Int J Nephrol Renovasc Dis. 2017;10:195-203. doi: 10.2147/ijnrd.s136522. PMID: 28790861. - **Non-United States study**

915. Joshi VD, Mooppil N, Lim JF. Validation of the kidney disease quality of life-short form: a cross-sectional study of a dialysis-targeted health measure in Singapore. BMC Nephrol. 2010 Dec 20;11:36. doi: 10.1186/1471-2369-11-36. PMID: 21172008. - **Non-United States study**

916. Joshi VD. Quality of life in end stage renal disease patients. World J Nephrol. 2014 Nov 6;3(4):308-16. doi: 10.5527/wjn.v3.i4.308. PMID: 25374827. - **Relevant systematic review**

917. Joshwa B, Khakha DC, Mahajan S. Fatigue and depression and sleep problems among hemodialysis patients in a tertiary care center. Saudi J Kidney Dis Transpl. 2012 Jul;23(4):729-35. doi: 10.4103/1319-2442.98149. PMID: 22805385. - **Non-United States study**

918. Josland E. Quality of Life. What information is already available and what evidence is this based on? Nephrology (Carlton). 2013 Apr 16doi: 10.1111/nep.12072. PMID: 23586817. - **Other: Guidelines**

919. Ju A, Unruh M, Davison S, et al. Establishing a Core Outcome Measure for Fatigue in Patients on Hemodialysis: A Standardized Outcomes in Nephrology-Hemodialysis (SONG-HD) Consensus Workshop Report. Am J Kidney Dis. 2018 Jul;72(1):104-12. doi: 10.1053/j.ajkd.2017.12.018. PMID: 29551585. - **Other: Workshop consensus**

920. Ju A, Unruh M, Davison S, et al. Establishing a Core Outcome Measure for Fatigue in Patients on Hemodialysis: A Standardized Outcomes in Nephrology–Hemodialysis (SONG-HD) Consensus Workshop Report. American Journal of Kidney Diseases. 2018;72(1):104-12. doi: 10.1053/j.ajkd.2017.12.018. - **Other: Workshop and qualitative comments**

921. Ju A, Unruh M, O'Donoghue D, et al. Outcome measures for fatigue in patients on haemodialysis. Journal of Evidence-Based Medicine. 2017;10:16-7. doi: 10.1111/jebm.12262. - **Meeting abstract**

922. Ju A, Unruh ML, Davison SN, et al. Patient-Reported Outcome Measures for Fatigue in Patients on Hemodialysis: A Systematic Review. American Journal of Kidney Diseases. 2018;71(3):327-43. doi: 10.1053/j.ajkd.2017.08.019. - **Relevant systematic review**

923. Juergensen PH, Zemchenkov A, Watnick S, et al. Comparison of quality-of-life assessment in Russia and the United States in chronic peritoneal dialysis patients. Adv Perit Dial. 2002;18:55-7. PMID: 12402587. - **Non-United States study**

924. Juhász E, Rikker C, Gáspár R, et al. Elderly hemodialysis patients. are there any special issues? Nephrology Dialysis Transplantation. 2017;32:iii361. doi: 10.1093/ndt/gfx154. - **Meeting abstract**

925. Jung HH, Han H, Lee JH. Sleep apnea, coronary artery disease,

and antioxidant status in hemodialysis patients. Am J Kidney Dis. 2005 May;45(5):875-82. PMID: 15861353. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

926. Jung HH, Lee JH, Baek HJ, et al. Nocturnal hypoxemia and periodic limb movement predict mortality in patients on maintenance hemodialysis. Clin J Am Soc Nephrol. 2010 Sep;5(9):1607-13. doi: 10.2215/cjn.08881209. PMID: 20507958. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

927. Jung HY, Jang HM, Kim YW, et al. Depressive Symptoms, Patient Satisfaction, and Quality of Life Over Time in Automated and Continuous Ambulatory Peritoneal Dialysis Patients: A Prospective Multicenter Propensity-Matched Study. Medicine (Baltimore). 2016 May;95(21):e3795. doi: 10.1097/md.0000000000003795. PMID: 27227956. - **Non-United States study**

928. Jung HY, Jeong KH, Lim JH, et al. A better choice for quality of life: Hemodialysis versus peritoneal dialysis. Nephrology Dialysis Transplantation. 2018;33:i195. doi: 10.1093/ndt/gfy104.FP471. - **Meeting abstract**

929. Junqué A, Vicent ES, Moreno L, et al. Benefits of an endurance training program in patients on hemodialysis: A case-control study. Nephrology Dialysis Transplantation. 2012;27:ii242. doi: 10.1093/ndt/gfs225. - **Meeting abstract**

930. Kahvecioğlu S, Gül CB, Esen SA. Evaluation of anxiety, depression in peritoneal dialysis patients. Nephrology Dialysis Transplantation. 2017;32:iii632. doi: 10.1093/ndt/gfx176. - **Meeting abstract**

931. Kakorina EP, Marchenko VV, Efimov DM. [Social-hygienic characteristics of patients on hemodialysis]. Probl Sotsialnoi Gig Zdravookhranenniiai Istor Med. 2003 Jul-Aug(4):8-11. PMID: 14513491. - **Non-English**

932. Kalender B, Ozdemir AC, Dervisoglu E, et al. Quality of life in chronic kidney disease: effects of treatment modality, depression, malnutrition and inflammation. Int J Clin Pract. 2007 Apr;61(4):569-76. doi: 10.1111/j.1742-1241.2006.01251.x. PMID: 17263698. - **Non-United States study**

933. Kalender B, Ozdemir AC, Koroglu G. Association of depression with markers of nutrition and inflammation in chronic kidney disease and end-stage renal disease. Nephron Clin Pract. 2006;102(3-4):c115-21. doi: 10.1159/000089669. PMID: 16282695. - **Non-United States study**

934. Kalender B, Ozdemir AC, Yalug I, et al. Antidepressant treatment increases quality of life in patients with chronic renal failure. Ren Fail. 2007;29(7):817-22. doi: 10.1080/08860220701573517. PMID: 17994449. - **Non-United States study**

935. Kalender N, Tosun N. Determination of the relationship between adequacy of dialysis and

quality of life and self-care agency. J Clin Nurs. 2014 Mar;23(5-6):820-8. doi: 10.1111/jocn.12208. PMID: 23834623. - **Non-United States study**

936. Kallich JD, Hays RD, Mapes DL, et al. The RAND Kidney Disease and Quality of Life instrument. Nephrol News Issues. 1995 Sep;9(9):29, 36. PMID: 7501032. - **Narrative review**

937. Kaltsouda A, Skapinakis P, Damigos D, et al. Defensive coping and health-related quality of life in chronic kidney disease: a cross-sectional study. BMC Nephrol. 2011 Jun 20;12:28. doi: 10.1186/1471-2369-12-28. PMID: 21689443. - **Non-United States study**

938. Kamath N, V H, Iyengar A. Progression, cardiovascular morbidity and quality of life in Indian children with chronic kidney disease. Pediatric Nephrology. 2016;31(10):1911-2. doi: 10.1007/s00467-016-3467-5. - **Meeting abstract**

939. Kamau E, Kayima J, Otieno C, et al. HEALTH RELATED QUALITY OF LIFE OF PATIENTS ON MAINTENANCE HAEMODIALYSIS AT KENYATTA NATIONAL HOSPITAL. East Afr Med J. 2012 Mar;89(3):75-81. PMID: 26859912. - **Non-United States study**

940. Kamau E, Kayima J, Otieno CF. THE DETERMINANTS OF HEALTH RELATED QUALITY OF LIFE OF PATIENTS ON MAINTENANCE HAEMODIALYSIS AT KENYATTA NATIONAL HOSPITAL, KENYA. East Afr Med J. 2014 Oct;91(10):368-74. PMID: 26862616. - **Non-United States study**

941. Kanamori H, Nagai K, Matsubara T, et al. Comparison of the psychosocial quality of life in hemodialysis patients between the elderly and non-elderly using a visual analogue scale: the importance of appetite and depressive mood. Geriatr Gerontol Int. 2012 Jan;12(1):65-71. doi: 10.1111/j.1447-0594.2011.00731.x. PMID: 21843200. - **Non-United States study**

942. Kang GW, Kim SG, Woo J, et al. Canonical correlation between medical psychosocial factors and quality of life in hemodialysis patients. Nephrology Dialysis Transplantation. 2018;33:i562. doi: 10.1093/ndt/gfy104.SP643. - **Meeting abstract**

943. Kang GW, Lee IH, Ahn KS, et al. Clinical and psychosocial factors predicting health-related quality of life in hemodialysis patients. Hemodial Int. 2015 Jul;19(3):439-46. doi: 10.1111/hdi.12271. PMID: 25643587. - **Non-United States study**

944. Kannampuzha J, Donnelly SM, McFarlane PA, et al. Glutathione and riboflavin status in supplemented patients undergoing home nocturnal hemodialysis versus standard hemodialysis. J Ren Nutr. 2010 May;20(3):199-208. doi: 10.1053/j.jrn.2009.09.002. PMID: 19913440. - **Non-United States study**

945. Kantartzi K, Panagoutsos S, Mourvati E, et al. Can dialysis

modality influence quality of life in chronic hemodialysis patients? Low-flux hemodialysis versus high-flux hemodiafiltration: a cross-over study. Ren Fail. 2013;35(2):216-21. doi: 10.3109/0886022x.2012.743858. PMID: 23176401. - **Non-United States study**

946. Kao TW, Chen PC, Hsieh CJ, et al. Correlations between spiritual beliefs and health-related quality of life of chronic hemodialysis patients in Taiwan. Artif Organs. 2009 Jul;33(7):576-9. doi: 10.1111/j.1525-1594.2009.00739.x. PMID: 19566738. - **Non-United States study**

947. Kao TW, Lai MS, Tsai TJ, et al. Economic, social, and psychological factors associated with health-related quality of life of chronic hemodialysis patients in northern Taiwan: a multicenter study. Artif Organs. 2009 Jan;33(1):61-8. doi: 10.1111/j.1525-1594.2008.00675.x. PMID: 19178442. - **Non-United States study**

948. Kao TW, Tsai DM, Wu KD, et al. Impact of religious activity on depression and quality of life of chronic peritoneal dialysis patients in Taiwan. J Formos Med Assoc. 2003 Feb;102(2):127-30. PMID: 12709745. - **Non-United States study**

949. Kara B. Health beliefs related to salt-restricted diet and associated factors in patients on hemodialysis. Nephrology Dialysis Transplantation. 2017;32:iii660-iii1. doi: 10.1093/ndt/gfx177. - **Meeting abstract**

950. Karadag E, Kilic SP, Metin O. Relationship between fatigue and social support in hemodialysis patients. Nurs Health Sci. 2013 Jun;15(2):164-71. doi: 10.1111/nhs.12008. PMID: 23552015. - **Non-United States study**

951. Karakan S, Sezer S, Ozdemir FN. Factors related to fatigue and subgroups of fatigue in patients with end-stage renal disease. Clin Nephrol. 2011 Nov;76(5):358-64. PMID: 22000555. - **Non-United States study**

952. Karakizlis H, Bohl K, Kortus-Goetze B, et al. Cognitive impairment in haemodialysis patients-1 year followup. Nephrology Dialysis Transplantation. 2013;28:i255. doi: 10.1093/ndt/gft120. - **Meeting abstract**

953. Karimi I, Benabdellah N, Bentata Y, et al. [Evaluation of patient physical activity levels in a Moroccan hemodialysis service]. Pan Afr Med J. 2013;15:79. doi: 10.11604/pamj.2013.15.79.1830. PMID: 24198881. - **Non-United States study**

954. Karkar A, Abdelrahman M. Online haemodiafiltration: Dialysis quality improvement. Nephrology Dialysis Transplantation. 2013;28:i205. doi: 10.1093/ndt/gft116. - **Meeting abstract**

955. Kaspar CD, Bholah R, Bunchman TE. A Review of Pediatric Chronic Kidney Disease. Blood Purif. 2016;41(1-3):211-7. doi: 10.1159/000441737. PMID: 26766175. - **Narrative review**

956. Kastrouni M, Sarantopoulou E, Aperis G, et al. Quality of life of Greek patients with end stage renal disease undergoing haemodialysis. J Ren Care. 2010 Sep;36(3):126-32. doi: 10.1111/j.1755-6686.2010.00187.x. PMID: 20690964. - **Non-United States study**

957. Katopodis KP, Dounousi E, Challa A, et al. Switch from conventional to every other day hemodialysis: a comparison pilot study. Asaio j. 2009 Jan-Feb;55(1):41-6. doi: 10.1097/MAT.0b013e318191f153. PMID: 19092650. - **Non-United States study**

958. Kaushik A, Reddy SS, Umesh L, et al. Oral and salivary changes among renal patients undergoing hemodialysis: A cross-sectional study. Indian J Nephrol. 2013 Mar;23(2):125-9. doi: 10.4103/0971-4065.109421. PMID: 23716919. - **Non-United States study**

959. Kawauchi A, Inoue Y, Hashimoto T, et al. Restless legs syndrome in hemodialysis patients: health-related quality of life and laboratory data analysis. Clin Nephrol. 2006 Dec;66(6):440-6. PMID: 17176916. - **Non-United States study**

960. Kazemi R, Rezaei Ghalechi E. Evaluation of the rate of depression in heart diseases's patients and dialysis candidates against the healthy people. European Psychiatry. 2010;25doi: 10.1016/S0924-9338(10)70306-0. - **Meeting abstract**

961. Keefer P, Saul D. Review of themes and recommendations encountered in palliative care consults with pediatric dialysis patients. Journal of Pain and Symptom Management. 2015;49(2):434. - **Meeting abstract**

962. Kelley K, Aricak OT, Light RP, et al. Proteinuria is a determinant of quality of life in diabetic nephropathy: modeling lagged effects with path analysis. Am J Nephrol. 2007;27(5):488-94. doi: 10.1159/000106672. PMID: 17664865. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

963. Kelly M, Higgins V, Leith A, et al. Characterising the relative impact of established cardiovascular disease and chronic kidney disease on quality of life in diabetes patients. Value in Health. 2017;20(9):A484. doi: 10.1016/j.jval.2017.08.485. - **Meeting abstract**

964. Kenley R. Considering the alpha and beta risks of quotidian hemodialysis. Semin Dial. 2005 Sep-Oct;18(5):444-5. doi: 10.1111/j.1525-139X.2005.00085.x. PMID: 16191188. - **Other: LTE**

965. Kennedy C, Connaughton DM, Murray S, et al. Home haemodialysis in Ireland. Qjm. 2018 Apr 1;111(4):225-9. doi: 10.1093/qjmed/hcx249. PMID: 29272506. - **Non-United States study**

966. Kennedy C, Ryan SA, Kane T, et al. The impact of change of renal replacement therapy modality on sleep quality in patients with end-stage renal disease: a systematic review and meta-analysis. J Nephrol. 2018 Feb;31(1):61-70. doi:

10.1007/s40620-017-0409-7. PMID: 28573387. - **Relevant systematic review**

967. Keown PA. Quality of life in end-stage renal disease patients during recombinant human erythropoietin therapy. The Canadian Erythropoietin Study Group. Contrib Nephrol. 1991;88:81-6; discussion 7-9. PMID: 2040199. - **Non-United States study**

968. Kettas E, Cayan F, Akbay E, et al. Sexual dysfunction and associated risk factors in women with end-stage renal disease. J Sex Med. 2008 Apr;5(4):872-7. doi: 10.1111/j.1743-6109.2007.00664.x. PMID: 18005103. - **Non-United States study**

969. Khaira A, Mahajan S, Khatri P, et al. Depression and marital dissatisfaction among Indian hemodialysis patients and their spouses: a cross-sectional Study. Ren Fail. 2012;34(3):316-22. doi: 10.3109/0886022x.2011.647291. PMID: 22263897. - **Non-United States study**

970. Khalil AA, Abed MA. Perceived social support is a partial mediator of the relationship between depressive symptoms and quality of life in patients receiving hemodialysis. Arch Psychiatr Nurs. 2014 Apr;28(2):114-8. doi: 10.1016/j.apnu.2013.11.007. PMID: 24673785. - **Non-United States study**

971. Khalil ES, Mohamed EI, Khalil GI, et al. Effects of sleep disordered breathing on functional capacity and quality of life in chronic kidney disease Egyptian patients. Sleep Breath. 2013 May;17(2):621-8. doi: 10.1007/s11325-012-0732-0. PMID: 22684856. - **Non-United States study**

972. Khan IH. Comorbidity: the major challenge for survival and quality of life in end-stage renal disease. Nephrol Dial Transplant. 1998;13 Suppl 1:76-9. PMID: 9507503. - **Non-United States study**

973. Khan SLA, Tareen IK. Clinical characteristics of uremic pruritus in patient undergoing hemodialysis. Pakistan Journal of Medical and Health Sciences. 2010;4(2):116-8. - **Non-United States study**

974. Kharbach Y, Bourouhou H, Tenkorang S, et al. Correlations between sexual dysfunction and end stage renal disease patient's clinical and biological profiles. African Journal of Urology. 2016;22(4):310-4. doi: 10.1016/j.afju.2016.03.003. - **Non-English**

975. Kharshid A, Syed Sulaiman SA, Aly A. The equivalence between the malay and U.S. english versions of rand 36-item health survey 1.0. Value in Health. 2017;20(9):A896. doi: 10.1016/j.jval.2017.08.2734. - **Meeting abstract**

976. Khurshid K, Khan OU, Niazi MFK. Frequency of complications during hemodialysis in patients of chronic renal failure. Medical Forum Monthly. 2009;20(3):9-12. - **Other: Exclude: Exhausted all resources for pdfs**

977. Kiani F, Zadeh MAH, Shahrakipour M. The effect of Benson’s relaxation method on hemodialysis patients’ anxiety. Biomedical Research (India).

2017;28(3):1075-80. - **Non-United States study**

978. Kielstein R. Goals and results of physical exercise training in ESRF patients. Nephrol News Issues. 1995 Jun;9(6):S7-s8, 26-7. PMID: 7666927. - **No human data**

979. Kılıç Akça N, Taşcı S. Acupressure and Transcutaneous Electrical Acupoint Stimulation for Improving Uremic Pruritus: a Randomized, Controlled Trial. Alternative therapies in health and medicine. 2016;22(3):18-24. PMID: CN-01414186. - **Non-United States study**

980. Kilicoglu AG, Bahali K, Canpolat N, et al. Impact of end-stage renal disease on psychological status and quality of life. Pediatr Int. 2016 Dec;58(12):1316-21. doi: 10.1111/ped.13026. PMID: 27121657. - **Non-United States study**

981. Kilis-Pstrusinska K, Medynska A, Balasz-Chmielewska I, et al. Perception of health-related quality of life in children with chronic kidney disease by the patients and their caregivers. Multicentre national study results. Pediatric Nephrology. 2013;28(8):1509. doi: 10.1007/s00467-013-2518-4. - **Meeting abstract**

982. Kilis-Pstrusinska K, Medynska A, Zwolinska D, et al. Anxiety in children and adolescents with chronic kidney disease.Multicenter national study results. Pediatric Nephrology. 2013;28(8):1509. doi: 10.1007/s00467-013-2518-4. - **Meeting abstract**

983. Kilis-Pstrusinska K, Prus-Wojtowicz E, Szepietowski JC. Uremic pruritus in children. Nephrology Dialysis Transplantation. 2014;29:iii159. doi: 10.1093/ndt/gfu148. - **Meeting abstract**

984. Killingworth A, van den Akker O. The quality of life of renal dialysis patients: trying to find the missing measurement. Int J Nurs Stud. 1996 Feb;33(1):107-20. PMID: 8655260. - **Non-United States study**

985. Kim H, An JN, Kim DK, et al. Elderly Peritoneal Dialysis Compared with Elderly Hemodialysis Patients and Younger Peritoneal Dialysis Patients: Competing Risk Analysis of a Korean Prospective Cohort Study. PLoS One. 2015;10(6):e0131393. doi: 10.1371/journal.pone.0131393. PMID: 26121574. - **Non-United States study**

986. Kim HW, Kim SH, Kim YO, et al. The impact of high-flux dialysis on mortality rates in incident and prevalent hemodialysis patients. Korean J Intern Med. 2014 Nov;29(6):774-84. doi: 10.3904/kjim.2014.29.6.774. PMID: 25378976. - **Non-United States study**

987. Kim JA, Lee YK, Huh WS, et al. Analysis of depression in continuous ambulatory peritoneal dialysis patients. J Korean Med Sci. 2002 Dec;17(6):790-4. doi: 10.3346/jkms.2002.17.6.790. PMID: 12483003. - **Non-United States study**

988. Kim JC, Hwang E, Park K. Frailty and its correlates in a healthy

subset of the prevalent maintenance dialysis patients. Nephrology Dialysis Transplantation. 2013;28:i255. doi: 10.1093/ndt/gft120. - **Meeting abstract**

989. Kim JC, Lee S, Park K, et al. Predictors to affect physical performance in relatively healthy hemodialysis patients. Nephrology Dialysis Transplantation. 2016;31:i304. doi: 10.1093/ndt/gfw176.19. - **Meeting abstract**

990. Kim JC, Park K. 25-hydroxyvitamin d level, physical performance function and grip strength in maintenance hemodialysis patients. Nephrology Dialysis Transplantation. 2014;29:iii510-iii1. doi: 10.1093/ndt/gfu177. - **Meeting abstract**

991. Kim JC, Park K. Frailty is significantly related to physical performance function in maintenance hemodialysis patients. Nephrology Dialysis Transplantation. 2014;29:iii515. doi: 10.1093/ndt/gfu177. - **Meeting abstract**

992. Kim JC, Shapiro BB, Zhang M, et al. Daily physical activity and physical function in adult maintenance hemodialysis patients. 2014;5(3):209-20. doi: 10.1007/s13539-014-0131-4. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

993. Kim K, Kang GW, Woo J. The Quality of Life of Hemodialysis Patients Is Affected Not Only by Medical but also Psychosocial Factors: a Canonical Correlation Study. J Korean Med Sci. 2018 Apr 2;33(14):e111. doi: 10.3346/jkms.2018.33.e111. PMID: 29607636. - **Non-United States study**

994. Kim KH, Kim TH, Jung SY, et al. Perceived experiences of acupuncture treatment for hot flashes in women receiving postmenopausal hemodialysis: A qualitative analysis of two cases. Medical Acupuncture. 2012;24(4):281-6. doi: 10.1089/acu.2012.0893. - **Non-United States study**

995. Kimata N, Fuller DS, Saito A, et al. Pruritus in hemodialysis patients: Results from the Japanese Dialysis Outcomes and Practice Patterns Study (JDOPPS). Hemodial Int. 2014 Jul;18(3):657-67. doi: 10.1111/hdi.12158. PMID: 24766224. - **Non-United States study**

996. Kimel M, Leidy NK, Mannix S, et al. Does epoetin alfa improve health-related quality of life in chronically ill patients with anemia? Summary of trials of cancer, HIV/AIDS, and chronic kidney disease. Value Health. 2008 Jan-Feb;11(1):57-75. doi: 10.1111/j.1524-4733.2007.00215.x. PMID: 18237361. - **Relevant systematic review**

997. Kimmel PL, Cohen SD, Weisbord SD. Quality of life in patients with end-stage renal disease treated with hemodialysis: survival is not enough! J Nephrol. 2008 Mar-Apr;21 Suppl 13:S54-8. PMID: 18446733. - **Narrative review**

998. Kimmel PL. Depression in patients with chronic renal disease: what we know and what we need to know. J Psychosom Res. 2002

Oct;53(4):951-6. PMID: 12377308. - **Narrative review**

999. Kimmel PL. The weather and quality of life in ESRD patients: everybody talks about it, but does anybody do anything about it? Semin Dial. 2013 May-Jun;26(3):260-2. doi: 10.1111/sdi.12063. PMID: 23406381. - **Non-relevant review**

1000. King RS, Glickman JD. Electrolyte management in frequent home hemodialysis. Semin Dial. 2010 Nov-Dec;23(6):571-4. doi: 10.1111/j.1525-139X.2010.00792.x. PMID: 21166878. - **Non-relevant review**

1001. Kirchgessner J, Perera-Chang M, Klinkner G, et al. Satisfaction with care in peritoneal dialysis patients. Kidney Int. 2006 Oct;70(7):1325-31. doi: 10.1038/sj.ki.5001755. PMID: 16900092. - **Non-United States study**

1002. Kistler BM, Fitschen PJ, Ikizler TA, et al. Rethinking the restriction on nutrition during hemodialysis treatment. J Ren Nutr. 2015 Mar;25(2):81-7. doi: 10.1053/j.jrn.2014.08.008. PMID: 25443693. - **Non-relevant review**

1003. Kitaguchi N, Hasegawa M, Ito S, et al. A prospective study on blood Abeta levels and the cognitive function of patients with hemodialysis: a potential therapeutic strategy for Alzheimer's disease. J Neural Transm (Vienna). 2015 Nov;122(11):1593-607. doi: 10.1007/s00702-015-1431-3. PMID: 26228626. - **Non-United States study**

1004. Kittiskulnam P, Sheshadri A, Johansen KL. Consequences of CKD on Functioning. Semin Nephrol. 2016 Jul;36(4):305-18. doi: 10.1016/j.semnephrol.2016.05.007. PMID: 27475661. - **Narrative review**

1005. Kivanc T, Kal O, Ciftci O, et al. Relation Between Pulmonary Hypertension and Health-Related Quality of Life in Patients Undergoing Hemodialysis. Exp Clin Transplant. 2016 Nov;14(Suppl 3):59-63. PMID: 27805514. - **Non-United States study**

1006. Kiziltan G, Türker P. Appetite assessment in hemodialysis patients. Annals of Nutrition and Metabolism. 2013;63:288-9. doi: 10.1159/000354245. - **Meeting abstract**

1007. Kjellstrand C, Buoncristiani U, Ting G, et al. Survival with short-daily hemodialysis: association of time, site, and dose of dialysis. Hemodial Int. 2010 Oct;14(4):464-70. doi: 10.1111/j.1542-4758.2010.00475.x. PMID: 20854330. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1008. Kjellstrand CM, Buoncristiani U, Ting G, et al. Short daily haemodialysis: survival in 415 patients treated for 1006 patient-years. Nephrol Dial Transplant. 2008 Oct;23(10):3283-9. doi: 10.1093/ndt/gfn210. PMID: 18458034. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1009. Klang B, Bjorvell H, Berglund J, et al. Predialysis patient education: effects on functioning and

well-being in uraemic patients. J Adv Nurs. 1998 Jul;28(1):36-44. doi: 10.1046/j.1365-2648.1998.00639.x. PMID: 9687128. - **Non-United States study**

1010. Klang B, Clyne N. Well-being and functional ability in uraemic patients before and after having started dialysis treatment. Scand J Caring Sci. 1997;11(3):159-66. PMID: 9349057. - **Non-United States study**

1011. Klarić D, Žepina M, Klarić V. Malnutrition in patients on dialysis treatment. Acta Medica Croatica. 2016;70((Klarić D., dragan.klaric@zd.t-com.hr; Žepina M.) Zadar General Hospital, Department of Dialysis, Zadar, Croatia):55-8. **– No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1012. Klassen A, Iorio BD, Guastaferro P, et al. Short-and long-term results of high-tone external muscle stimulation in symptomatic diabetic and uremic peripheral polyneuropathy in end-stage renal disease. European Journal of Pain Supplements. 2010;4(1):83. doi: 10.1016/S1754-3207(10)70293-5. - **Meeting abstract**

1013. Klassen A, Racasan S, Gherman-Caprioara M, et al. High-tone external muscle stimulation in end-stage renal disease: Effects on quality of life in patients with peripheral neuropathy. Clinical Nephrology. 2013;79(SUPPL. 13):S28-S33. doi: 10.5414/CNX77S107. - **Non-United States study**

1014. Klersy C, Callegari A, Giorgi I, et al. Italian translation, cultural adaptation and validation of KDQOL-SF, version 1.3, in patients with severe renal failure. J Nephrol. 2007 Jan-Feb;20(1):43-51. PMID: 17347972. - **Non-United States study**

1015. Kliger AS, Chertow GM, Levin NW, et al. Long-term effects of frequent in-center hemodialysis: FHN daily trial. Nephrology Dialysis Transplantation. 2014;29:iii37-iii8. doi: 10.1093/ndt/gfu125. - **Meeting abstract**

1016. Kliger AS. Frequent nocturnal hemodialysis--a step forward? Jama. 2007 Sep 19;298(11):1331-3. doi: 10.1001/jama.298.11.1331. PMID: 17878427. - **Narrative review**

1017. Kliger AS. High-frequency hemodialysis: rationale for randomized clinical trials. Clin J Am Soc Nephrol. 2007 Mar;2(2):390-2. doi: 10.2215/cjn.03110906. PMID: 17699439. - **Narrative review**

1018. Knezevic MZ, Djordjevic VV, Bivolarevic IC, et al. Insomnia severity in chronic kidney disease patients with various therapies. Central European Journal of Medicine. 2012;7(1):112-7. doi: 10.2478/s11536-011-0115-0. - **Non-United States study**

1019. Knezevic MZ, Djordjevic VV, Radovanovic-Velickovic RM, et al. Influence of dialysis modality and membrane flux on quality of life in hemodialysis patients. Ren Fail. 2012;34(7):849-55. doi: 10.3109/0886022x.2012.684555. PMID: 22607060. - **Non-United States study**

1020. Knowles S, Swan L, Salzberg M, et al. Individual illness perceptions and coping style as mediating factors between illness

activity and quality of life and psychological well-being in chronic kidney disease. Nephrology. 2011;16:39. doi: 10.1111/j.1440-1797.2011.01490.x. - **Meeting abstract**

1021. Ko GJ, Obi Y, Soohoo M, et al. No Survival Benefit in Octogenarians and Nonagenarians with Extended Hemodialysis Treatment Time. Am J Nephrol. 2018;48(5):389-98. doi: 10.1159/000494336. PMID: 30423584. - **Other: insufficient f/u**

1022. Kobayashi A, Itoh Y, Honda M, et al. Quality of life assessed with SF-36 health survey in pediatric ESRD patients. Medical Journal of Kobe University. 2003;63(3-4):39-45. - **Non-English**

1023. Kocaoɨlu S, Okumuş M, Ceceli E, et al. Neuropathy frequencyand its effects on daily living activities in chronic renal failure patients on dialysis. Turkiye Fiziksel Tip ve Rehabilitasyon Dergisi. 2013;59:307. doi: 10.4274/tftr.24.59.1. - **Meeting abstract**

1024. Koch BC, Hagen EC, Nagtegaal JE, et al. Effects of nocturnal hemodialysis on melatonin rhythm and sleep-wake behavior: an uncontrolled trial. Am J Kidney Dis. 2009 Apr;53(4):658-64. doi: 10.1053/j.ajkd.2008.08.006. PMID: 18950916. - **Non-United States study**

1025. Koch BC, Nagtegaal JE, Hagen EC, et al. Different melatonin rhythms and sleep-wake rhythms in patients on peritoneal dialysis, daytime hemodialysis and nocturnal hemodialysis. Sleep Med. 2010 Mar;11(3):242-6. doi: 10.1016/j.sleep.2009.04.006. PMID: 19596605. - **Non-United States study**

1026. Koch BC, Nagtegaal JE, Hagen EC, et al. The effects of melatonin on sleep-wake rhythm of daytime haemodialysis patients: a randomized, placebo-controlled, cross-over study (EMSCAP study). Br J Clin Pharmacol. 2009 Jan;67(1):68-75. doi: 10.1111/j.1365-2125.2008.03320.x. PMID: 19076157. - **Non-United States study**

1027. Koch BC, Nagtegaal JE, Kerkhof GA, et al. Circadian sleep-wake rhythm disturbances in end-stage renal disease. Nat Rev Nephrol. 2009 Jul;5(7):407-16. doi: 10.1038/nrneph.2009.88. PMID: 19468289. - **Narrative review**

1028. Koch U, Muthny FA. Quality of life in patients with end-stage renal disease in relation to the method of treatment. Psychother Psychosom. 1990;54(2-3):161-71. doi: 10.1159/000288390. PMID: 2098778. - **Non-United States study**

1029. Koh KP, Fassett RG, Sharman JE, et al. Intradialytic versus home-based exercise training in hemodialysis patients: a randomised controlled trial. BMC Nephrol. 2009 Jan 29;10:2. doi: 10.1186/1471-2369-10-2. PMID: 19178747. - **Non-United States study**

1030. Kono K, Nishida Y, Yabe H, et al. Development and validation of a Fall Risk Assessment Index for dialysis patients. Clin Exp Nephrol. 2018 Feb;22(1):167-72. doi: 10.1007/s10157-017-1431-8. PMID:

28634773. - **Non-United States study**

1031. Konstantinova D, Nenova-Nogalcheva A, Pancheva R, et al. Taste disorders in patients with end-stage chronic kidney disease. G Ital Nefrol. 2017 Jun;34(3):54-60. PMID: 28700183. - **Non-United States study**

1032. Kontodimopoulos N, Niakas D. An estimate of lifelong costs and QALYs in renal replacement therapy based on patients' life expectancy. Health Policy. 2008 Apr;86(1):85-96. doi: 10.1016/j.healthpol.2007.10.002. PMID: 17996975. - **Non-United States study**

1033. Kontodimopoulos N, Niakas D. Determining the basic psychometric properties of the Greek KDQOL-SF. Qual Life Res. 2005 Oct;14(8):1967-75. doi: 10.1007/s11136-005-3868-6. PMID: 16155785. - **Non-United States study**

1034. Kontodimopoulos N, Niakas D. Measuring health-related quality of life of Greek dialysis patients with the KDQOL-SF™. Archives of Hellenic Medicine. 2007;24(6):590-9. - **Non-English**

1035. Kontodimopoulos N, Pappa E, Niakas D. Gender- and age-related benefit of renal replacement therapy on health-related quality of life. Scand J Caring Sci. 2009 Dec;23(4):721-9. doi: 10.1111/j.1471-6712.2008.00670.x. PMID: 19490522. - **Non-United States study**

1036. Koo JR, Yoon JY, Joo MH, et al. Treatment of depression and effect of antidepression treatment on nutritional status in chronic hemodialysis patients. American journal of the medical sciences. 2005;329(1):1-5. PMID: CN-00505530. - **Non-United States study**

1037. Kopple JD, Cheung AK, Christiansen JS, et al. OPPORTUNITY: a randomized clinical trial of growth hormone on outcome in hemodialysis patients. Clin J Am Soc Nephrol. 2008 Nov;3(6):1741-51. doi: 10.2215/cjn.02760608. PMID: 18945992. - **Other: protocol, no results**

1038. Korevaar J, Feith G, Dekker F, et al. Effects of starting with hemodialysis compared with peritoneal dialysis in patients new on dialysis treatment: a randomized controlled trial. Nephrology dialysis transplantation. 2003;18 (Suppl 4)(Suppl 4):199. PMID: CN-01657132. - **Non-United States study**

1039. Korevaar JC, Jansen MA, Dekker FW, et al. Evaluation of DOQI guidelines: early start of dialysis treatment is not associated with better health-related quality of life. Am J Kidney Dis. 2002 Jan;39(1):108-15. doi: 10.1053/ajkd.2002.29896. PMID: 11774109. - **Non-United States study**

1040. Korevaar JC, Jansen MA, Merkus MP, et al. Quality of life in predialysis end-stage renal disease patients at the initiation of dialysis therapy. The NECOSAD Study Group. Perit Dial Int. 2000 Jan-Feb;20(1):69-75. PMID: 10716587. - **Non-United States study**

1041. Korevaar JC, Merkus MP, Jansen MA, et al. Validation of the KDQOL-SF: a dialysis-targeted health measure. Qual Life Res. 2002 Aug;11(5):437-47. PMID: 12113391. - **Non-United States study**

1042. Korolewa V, Hengst N, Wolff M, et al. Burden of chronic kidney disease in German diabetes patients, a systematic literature review and data gap analysis. Value in Health. 2012;15(7):A459. doi: 10.1016/j.jval.2012.08.1461. - **Meeting abstract**

1043. Koufaki P, Greenwood SA, Macdougall IC, et al. Exercise therapy in individuals with chronic kidney disease: a systematic review and synthesis of the research evidence. Annu Rev Nurs Res. 2013;31:235-75. doi: 10.1891/0739-6686.31.235. PMID: 24894142. - **Relevant systematic review**

1044. Kouidi E, Grekas D, Deligiannis A, et al. Outcomes of long-term exercise training in dialysis patients: comparison of two training programs. Clin Nephrol. 2004 May;61 Suppl 1:S31-8. PMID: 15233245. - **Non-United States study**

1045. Kouidi E. Health-related quality of life in end-stage renal disease patients: the effects of renal rehabilitation. Clin Nephrol. 2004 May;61 Suppl 1:S60-71. PMID: 15233250. - **Non-United States study**

1046. Kouotou EA, Folefack FK, Tatsa JT, et al. [Epidemiological and clinical profile of skin damages in black African patients on chronic hemodialysis]. Pan Afr Med J. 2016;25:142. doi: 10.11604/pamj.2016.25.142.7193. PMID: 28292104. - **Non-United States study**

1047. Koutroubas G, Malindretos P, Anagnostou N, et al. Abdominal aorta calcifications and health related quality of life in hemodialysis patients. NDT Plus. 2010;3:iii511. - **Meeting abstract**

1048. Kovacs AZ, Molnar MZ, Szeifert L, et al. Sleep disorders, depressive symptoms and health-related quality of life--a cross-sectional comparison between kidney transplant recipients and waitlisted patients on maintenance dialysis. Nephrol Dial Transplant. 2011 Mar;26(3):1058-65. doi: 10.1093/ndt/gfq476. PMID: 20685829. - **Non-United States study**

1049. Kraus M, Burkart J, Hegeman R, et al. A comparison of center-based vs. home-based daily hemodialysis for patients with end-stage renal disease. Hemodial Int. 2007 Oct;11(4):468-77. doi: 10.1111/j.1542-4758.2007.00229.x. PMID: 17922746. - **Other: < 6 months visit**

1050. Kraus MA, Fluck RJ, Weinhandl ED, et al. Intensive Hemodialysis and Health-Related Quality of Life. Am J Kidney Dis. 2016 Nov;68(5s1):S33-s42. doi: 10.1053/j.ajkd.2016.05.023. PMID: 27772641. - **Narrative review**

1051. Krespi MR, Bone M, Ahmad R, et al. [The development of the life evaluation questionnaire for hemodialysis patients]. Turk Psikiyatri Derg. 2009

Spring;20(1):56-67. PMID: 19306127. - **Non-English**

1052. Krespi MR, Oakley D, Bone M, et al. [The effects of visual imagery on adjustment and quality in life of hemodialysis patients]. Turk Psikiyatri Derg. 2009 Fall;20(3):255-68. PMID: 19757225. - **Non-English**

1053. Krylova M, Shutov E, Ermolenko V. Effect of nutritional status and comorbidity index on quality of life in hemodialysis and peritoneal dialysis patients. NDT Plus. 2010;3:iii407-iii8. - **Meeting abstract**

1054. Ku do Y, Park YS, Chang HJ, et al. Depression and life quality in chronic renal failure patients with polyneuropathy on hemodialysis. Ann Rehabil Med. 2012 Oct;36(5):702-7. doi: 10.5535/arm.2012.36.5.702. PMID: 23185736. - **Non-United States study**

1055. Kubista H. [Psychological care of patients with kidney disorders--experiences. Life with dialysis]. Krankenpfl Soins Infirm. 1993 Oct;86(10):20-4. PMID: 8246431. - **Non-United States study**

1056. Küçükünal A, Altunay IK, Salman KE, et al. The relationship between uraemic pruritus and quality of life scores in hemodialysis patients. Turkderm Deri Hastaliklari ve Frengi Arsivi. 2015;49:23-7. doi: 10.4274/turkderm.43403. - **Non-English**

1057. Kularatna S, Senanayake S, Gunawardena N, et al. Comparison of the EQ-5D 3L and the SF-6D (SF-36) contemporaneous utility scores in patients with chronic kidney disease in Sri Lanka: A Cross-sectional survey. BMJ Open. 2019;9(2)doi: 10.1136/bmjopen-2018-024854. - **Non-United States study**

1058. Kumar B, Tilea A, Gillespie BW, et al. Significance of self-reported sleep quality (SQ) in chronic kidney disease (CKD): the Renal Research Institute (RRI)-CKD study. Clin Nephrol. 2010 Feb;73(2):104-14. PMID: 20129017. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1059. Kumar VA, Ledezma ML, Rasgon SA. Daily home hemodialysis at a health maintenance organization: three-year experience. Hemodial Int. 2007 Apr;11(2):225-30. doi: 10.1111/j.1542-4758.2007.00173.x. PMID: 17403175. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1060. Kumarasinghe APW, Inderjeeth C, Maher S, et al. Clinician attitudes regarding the utility of frailty tools in managing older adults with end stage kidney disease: Literature review and survey study. Age and Ageing. 2019;48:i32. doi: 10.1093/ageing/afy204.15. - **Meeting abstract**

1061. Kuo C, Hsieh W, Tang C. Quality of life for patients using hemodialysis (HD) vs. Peritoneal dialysis (PD) modalities in Taiwan. Value in Health. 2016;19(7):A848. - **Meeting abstract**

1062. Kuo CP, Tseng WC, Tarng DC. Physical activity and reduced risks for end-stage renal disease and

mortality in chronic kidney disease patients. Nephrology Dialysis Transplantation. 2018;33:i28. doi: 10.1093/ndt/gfy104.FO024. - **Non-United States study**

1063. Kurdoglu Z, Usul Soyoral Y, Tasdemir M, et al. Evaluation of the relationship between endogenous gonadotropins and female sexual function and psychological status in predialysis and hemodialysis patients. Gynecol Endocrinol. 2012 Apr;28(4):336-9. doi: 10.3109/09513590.2011.593672. PMID: 21824048. - **Non-United States study**

1064. Kurella Tamura M, Covinsky KE, Chertow GM, et al. Functional status of elderly adults before and after initiation of dialysis. N Engl J Med. 2009 Oct 15;361(16):1539-47. doi: 10.1056/NEJMoa0904655. PMID: 19828531. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1065. Kurella Tamura M, Meyer JB, Saxena AB, et al. Prevalence and significance of stroke symptoms among patients receiving maintenance dialysis. Neurology. 2012 Sep 4;79(10):981-7. doi: 10.1212/WNL.0b013e31826845e9. PMID: 22875090. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1066. Kurella Tamura M, O'Hare AM, Lin E, et al. Palliative Care Disincentives in CKD: Changing Policy to Improve CKD Care. Am J Kidney Dis. 2018 Jun;71(6):866-73. doi: 10.1053/j.ajkd.2017.12.017. PMID: 29510920. - **Non-relevant review**

1067. Kursat S, Colak HB, Toraman A, et al. The relationship between depression-malnutrition and echocardiographic-blood pressure parameters in chronic hemodialysis patients. Int Urol Nephrol. 2008;40(3):793-9. doi: 10.1007/s11255-008-9342-y. PMID: 18409016. - **Non-United States study**

1068. Kurtin PS, Landgraf JM, Abetz L. Patient-based health status measurements in pediatric dialysis: expanding the assessment of outcome. Am J Kidney Dis. 1994 Aug;24(2):376-82. PMID: 8048447. - **Other: no comparison group**

1069. Kusek JW, Greene P, Wang SR, et al. Cross-sectional study of health-related quality of life in African Americans with chronic renal insufficiency: the African American Study of Kidney Disease and Hypertension Trial. Am J Kidney Dis. 2002 Mar;39(3):513-24. PMID: 11877570. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1070. Kusztal M, Nowak K, Magott-Procelewska M, et al. [Evaluation of health-related quality of life in dialysis patients. Personal experience using questionnaire SF-36]. Pol Merkur Lekarski. 2003 Feb;14(80):113-7. PMID: 12728668. - **Non-United States study**

1071. Kusztal M, Trafidlo E, Madziarska K, et al. Depressive symptoms but not chronic pain have an impact on the survival of patients undergoing maintenance hemodialysis. Arch Med Sci. 2018 Mar;14(2):265-75. doi:

10.5114/aoms.2016.59765. PMID: 29593798. - **Non-United States study**

1072. Kutlay S, Nergizoglu G, Kutlay S, et al. General or disease specific questionnaire? A comparative study in hemodialysis patients. Ren Fail. 2003 Jan;25(1):95-103. PMID: 12617337. **- Non-United States study**

1073. Kutlu R, Selcuk NY, Sayin S, et al. Restless legs syndrome and quality of life in chronic hemodialysis patients. Niger J Clin Pract. 2018 May;21(5):573-7. doi: 10.4103/njcp.njcp_84_17. PMID: 29735856. - **Non-United States study**

1074. Kutner NG, Brogan D, Kutner MH. End-stage renal disease treatment modality and patients' quality of life. Longitudinal assessment. Am J Nephrol. 1986;6(5):396-402. doi: 10.1159/000167200. PMID: 3548354. - **Other: no tool**

1075. Kutner NG, Johansen KL, Kaysen GA, et al. The comprehensive dialysis study (CDS): a USRDS special study. Clin J Am Soc Nephrol. 2009 Mar;4(3):645-50. doi: 10.2215/cjn.05721108. PMID: 19261814. - **Other: Study design paper**

1076. Kutner NG, Lin LS, Fielding B, et al. Continued survival of older hemodialysis patients: investigation of psychosocial predictors. Am J Kidney Dis. 1994 Jul;24(1):42-9. PMID: 8023823. - **Other: clinical assessment**

1077. Kutner NG. Quality of life and daily hemodialysis. Semin Dial. 2004 Mar-Apr;17(2):92-8. doi: 10.1111/j.0894-0959.2004.17203.x. PMID: 15043608. - **Narrative review**

1078. Kutner NG. Quality of life of patients with end-stage renal disease. N Engl J Med. 1985 Jun 13;312(24):1579-80. doi: 10.1056/nejm198506133122421. PMID: 4000194. - **Meeting abstract**

1079. Kutsuna T, Matsunaga A, Takagi Y, et al. Development of a novel questionnaire evaluating disability in activities of daily living in the upper extremities of patients undergoing maintenance hemodialysis. Ther Apher Dial. 2011 Apr;15(2):185-94. doi: 10.1111/j.1744-9987.2010.00905.x. PMID: 21426512. - **Non-United States study**

1080. Kuypers DR, Claes K, Evenepoel P, et al. A prospective proof of concept study of the efficacy of tacrolimus ointment on uraemic pruritus (UP) in patients on chronic dialysis therapy. Nephrol Dial Transplant. 2004 Jul;19(7):1895-901. doi: 10.1093/ndt/gfh202. PMID: 15150348. - **Non-United States study**

1081. Kweon Y, Kim YR, Lee KU, et al. Depression and resilience in hemodialysis patients with chronic renal failure. Asian Journal of Psychiatry. 2011;4:S67. doi: 10.1016/S1876-2018(11)60255-4. - **Meeting abstract**

1082. Kwon A, Feldman F, Leung PM, et al. The effects of a pre-dialytic exercise program on the health of hemodialysis patients. Hemodialysis International. 2018;22(1):A13. doi:

10.1111/hdi.12627. - **Meeting abstract**

1083. Kyte D, Bishop J, Brettell E, et al. Use of an electronic patient-reported outcome measure in the management of patients with advanced chronic kidney disease: the RePROM pilot trial protocol. BMJ open. 2018;8(10):e026080. doi: 10.1136/bmjopen-2018-026080. PMID: CN-01668974. - **Other: protocol**

1084. Kyte DG, Cockwell P, Dutton M, et al. The use of electronic patient-reported outcomes (ePROs) in the management of patients with advanced chronic kidney disease-a pilot/feasibility study for a randomised controlled trial. Quality of Life Research. 2017;26(1):127-8. doi: 10.1007/s11136-017-1658-6. - **Meeting abstract**

1085. La Manna G, Pizza F, Persici E, et al. Restless legs syndrome enhances cardiovascular risk and mortality in patients with end-stage kidney disease undergoing long-term haemodialysis treatment. Nephrol Dial Transplant. 2011 Jun;26(6):1976-83. doi: 10.1093/ndt/gfq681. PMID: 21056943. - **Non-United States study**

1086. Labriola L, Morelle J, Jadoul M. Con: Frequent haemodialysis for all chronic haemodialysis patients. Nephrol Dial Transplant. 2015 Jan;30(1):23-7. doi: 10.1093/ndt/gfu382. PMID: 25538159. - **No human data**

1087. Lacson E, Jr., Diaz-Buxo JA. Daily and nocturnal hemodialysis: how do they stack up? Am J Kidney Dis. 2001 Aug;38(2):225-39. doi: 10.1053/ajkd.2001.26079. PMID: 11479147. - **Relevant systematic review**

1088. Laegreid IK, Aasarod K, Bye A, et al. The impact of nutritional status, physical function, comorbidity and early versus late start in dialysis on quality of life in older dialysis patients. Ren Fail. 2014 Feb;36(1):9-16. doi: 10.3109/0886022x.2013.830206. PMID: 24028283. - **Non-United States study**

1089. Lahiji AP, Mortazavi M, Tirani SA, et al. Omega-3 Supplementation Improves Pruritus in Continuous Ambulatory Peritoneal Dialysis Patients: A Crossover Randomized Pilot Clinical Trial. J Res Pharm Pract. 2018 Oct-Dec;7(4):195-9. doi: 10.4103/jrpp.JRPP_18_64. PMID: 30622987. - **Non-United States study**

1090. Lai CF, Hsu YS, Chen YH, et al. Home visits help to identify palliative care needs for geriatric rural in-center hemodialysis patients. Nephrology Dialysis Transplantation. 2015;30:iii621. doi: 10.1093/ndt/gfv200.55. - **Meeting abstract**

1091. Lai CJ, Ng HY, Lin YH, et al. Serum C-reactive protein, aluminum and glucose concentration are associated with depression in chronic hemodialysis patients. Nephrology. 2010;15:110. doi: 10.1111/j.1440-1797.2010.01337.x. - **Meeting abstract**

1092. Lai JW, Chen HC, Chou CY, et al. Transformation of 5-D itch scale and numerical rating scale in chronic hemodialysis patients. BMC

Nephrol. 2017 Feb 8;18(1):56. doi: 10.1186/s12882-017-0475-z. PMID: 28178931. - **Non-United States study**

1093. Lai WM. Quality of life in children with end-stage renal disease: does treatment modality matter? Perit Dial Int. 2009 Feb;29 Suppl 2:S190-1. PMID: 19270215. - **Narrative review**

1094. Lai X, Chen W, Guo Z. High score in epworth sleepiness scale predict all cause mortality and cardiovascular events in peritoneal dialysis patients. Nephrology Dialysis Transplantation. 2012;27:ii477. doi: 10.1093/ndt/gfs243. - **Meeting abstract**

1095. Lai YC, Wang CY, Moi SH, et al. Factors Associated with Functional Performance among Patients on Hemodialysis in Taiwan. Blood Purif. 2018;46(1):12-8. doi: 10.1159/000486233. PMID: 29649798. - **Non-United States study**

1096. Lamping DL, Constantinovici N, Roderick P, et al. Clinical outcomes, quality of life, and costs in the North Thames Dialysis Study of elderly people on dialysis: a prospective cohort study. Lancet. 2000 Nov 4;356(9241):1543-50. doi: 10.1016/s0140-6736(00)03123-8. PMID: 11075766. - **Non-United States study**

1097. Landreneau K, Lee K, Landreneau MD. Quality of life in patients undergoing hemodialysis and renal transplantation--a meta-analytic review. Nephrol Nurs J. 2010 Jan-Feb;37(1):37-44. PMID: 20333902. - **Relevant systematic review**

1098. Landry GJ, Krahn ZR, Vimegnon Y, et al. Effects of hemodialysis duration and access location on hand function. Journal of Vascular Surgery. 2011;53(6):23S. doi: 10.1016/j.jvs.2011.03.051. - **Meeting abstract**

1099. Laplante S, Liu FX, Culleton B, et al. The Cost Effectiveness of High-Dose versus Conventional Haemodialysis: a Systematic Review. Appl Health Econ Health Policy. 2016 Apr;14(2):185-93. doi: 10.1007/s40258-015-0212-3. PMID: 26691659. - **Non-relevant review**

1100. Larkin J, Chaudhuri S, Dombro L, et al. Impact of impairment of instrumental activities of daily living on the nutritional status of dialysis patients. Hemodialysis International. 2017;21(1):A37-A8. doi: 10.1111/hdi.12520. - **Meeting abstract**

1101. Lasaponara F, Sedigh O, Pasquale G, et al. Phosphodiesterase type 5 inhibitor treatment for erectile dysfunction in patients with end-stage renal disease receiving dialysis or after renal transplantation. J Sex Med. 2013 Nov;10(11):2798-814. doi: 10.1111/jsm.12038. PMID: 23346948. - **Non-United States study**

1102. Laudanski K, Nowak Z, Niemczyk S. Age-related differences in the quality of life in end-stage renal disease in patients enrolled in hemodialysis or continuous peritoneal dialysis. Med Sci Monit. 2013 May 20;19:378-85. doi: 10.12659/msm.883916. PMID: 23685340. - **Non-United States study**

1103. Laudanski K, Nowak Z. [Quality of life in dialysed patients--methodological issues]. Pol Merkur Lekarski. 2002 Nov;13(77):421-3. PMID: 12621765. - **Non-United States study**

1104. Laupacis A. Changes in quality of life and functional capacity in hemodialysis patients treated with recombinant human erythropoietin. The Canadian Erythropoietin Study Group. Semin Nephrol. 1990 Mar;10(2 Suppl 1):11-9. PMID: 2192412. - **Non-United States study**

1105. Lausevic M, Nesic V, Stojanovic M, et al. Health-related quality of life in patients on peritoneal dialysis in Serbia: comparison with hemodialysis. Artif Organs. 2007 Dec;31(12):901-10. doi: 10.1111/j.1525-1594.2007.00483.x. PMID: 17924989. - **Non-United States study**

1106. Law MC, Fung JSF, Chow KM, et al. Hong Kong continuous ambulatory peritoneal dialysis patients reported health-related quality of life comparable to hemodialysis patients in developed countries. Hemodialysis International. 2009;13(3):380. doi: 10.1111/j.1542-4758.2009.00402.x. - **Meeting abstract**

1107. Law TK, Wald R, Goldstein M, et al. Left Atrial Remodeling Assessed by Cardiac MRI after Conversion from Conventional Hemodialysis to In-Centre Nocturnal Hemodialysis. J Nephrol. 2018 Aug 24doi: 10.1007/s40620-018-0522-2. PMID: 30168083. - **Non-United States study**

1108. Law TK, Wald R, Goldstein M, et al. Left Atrial Remodeling Assessed by Cardiac MRI after Conversion from Conventional Hemodialysis to In-Centre Nocturnal Hemodialysis. J Nephrol. 2019 Apr;32(2):273-81. doi: 10.1007/s40620-018-0522-2. PMID: 30168083. - **Non-United States study**

1109. Laws RA, Tapsell LC, Kelly J. Nutritional status and its relationship to quality of life in a sample of chronic hemodialysis patients. J Ren Nutr. 2000 Jul;10(3):139-47. PMID: 10921535. - **Non-United States study**

1110. Layegh P, Mojahedi MJ, Malekshah PE, et al. Effect of oral granisetron in uremic pruritus. Indian J Dermatol Venereol Leprol. 2007 Jul-Aug;73(4):231-4. PMID: 17675729. - **Non-United States study**

1111. Lazarus ER. Effectiveness of education and exercise on quality of life among patients undergoing hemodialysis. Clinical Epidemiology and Global Health. 2018doi: 10.1016/j.cegh.2018.07.003. - **Non-United States study**

1112. Leake R, Friend R, Wadhwa N. Improving adjustment to chronic illness through strategic self-presentation: an experimental study on a renal dialysis unit. Health psychology. 1999;18(1):54-62. PMID: CN-00159242. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1113. Leanza H, Giacoletto S, Najun C, et al. [Hemoglobin levels

and probability of better quality of life in chronic hemodialysis patients]. Nefrologia. 2000 Sep-Oct;20(5):440-4. PMID: 11100665. **- Non-English**

1114. Leduc V, Ficheux M, Bechade C, et al. Pregnancy on short-daily home hemodialysis using low dialysate flow rate: A new hope for the end-stage renal disease patients. Hemodial Int. 2018 Apr;22(2):161-7. doi: 10.1111/hdi.12590. PMID: 28762611. **- Other: case series, no comparison**

1115. Lee AJ, Morgan CL, Conway P, et al. Characterisation and comparison of health-related quality of life for patients with renal failure. Curr Med Res Opin. 2005 Nov;21(11):1777-83. doi: 10.1185/030079905x65277. PMID: 16307698. **- Non-United States study**

1116. Lee BO, Lin CC, Chaboyer W, et al. The fatigue experience of haemodialysis patients in Taiwan. J Clin Nurs. 2007 Feb;16(2):407-13. doi: 10.1111/j.1365-2702.2005.01409.x. PMID: 17239077. **- Non-United States study**

1117. Lee H, Schepp KG, Jung Y. Testing a theoretical model predicting uncertainty and depression in patients undergoing renal replacement therapy in Korea. Asian Nurs Res (Korean Soc Nurs Sci). 2008 Jun;2(2):92-101. doi: 10.1016/s1976-1317(08)60033-x. PMID: 25031242. **- Non-United States study**

1118. Lee J, Nicholl DD, Ahmed SB, et al. The prevalence of restless legs syndrome across the full spectrum of kidney disease. J Clin Sleep Med. 2013 May 15;9(5):455-9. doi: 10.5664/jcsm.2664. PMID: 23674936. **- Non-United States study**

1119. Lee JE, Kim K, Kim JS. Factors Influencing Quality of Life in Adult End-Stage Renal Disease Patients Undergoing Hemodialysis. J Nurs Res. 2015 Sep;23(3):181-8. doi: 10.1097/jnr.0000000000000087. PMID: 25985009. **- Non-United States study**

1120. Lee SJ, Son H. Comparison of health-related quality of life between patients with stage 3 and 4 chronic kidney disease and patients undergoing continuous ambulatory peritoneal dialysis. Jpn J Nurs Sci. 2016 Jan;13(1):166-73. doi: 10.1111/jjns.12101. PMID: 26542889. **- Non-United States study**

1121. Lee SW. Potential Role of Psychosocial Factors on Health-Related Quality of Life in Hemodialysis Patients. Journal of Korean medical science. 2018;33(14):e121. doi: 10.3346/jkms.2018.33.e121. **- Non-United States study**

1122. Lee SY, Lee HJ, Kim YK, et al. Neurocognitive function and quality of life in relation to hematocrit levels in chronic hemodialysis patients. J Psychosom Res. 2004 Jul;57(1):5-10. doi: 10.1016/s0022-3999(03)00528-2. PMID: 15256289. **- Non-United States study**

1123. Lee SY, Yang DH, Hwang E, et al. The Prevalence, Association, and Clinical Outcomes of Frailty in

Maintenance Dialysis Patients. J Ren Nutr. 2017 Mar;27(2):106-12. doi: 10.1053/j.jrn.2016.11.003. PMID: 28065454. - **Non-United States study**

1124. Leinau L, Murphy TE, Bradley E, et al. Relationship between conditions addressed by hemodialysis guidelines and non-ESRD-specific conditions affecting quality of life. Clin J Am Soc Nephrol. 2009 Mar;4(3):572-8. doi: 10.2215/cjn.03370708. PMID: 19261828. - **Other: Clinical assessment**

1125. Lenert LA, Hornberger JC. Computer-assisted quality of life assessment for clinical trials. Proc AMIA Annu Fall Symp. 1996:992-6. PMID: 8947779. - **Other: discussion of tools, no use information**

1126. Lerda S, Lasaponara F, Zullo G, et al. Female sexual function and quality of life in dialysis and renal transplant patients. Journal of Psychosomatic Research. 2010;68(6):643. - **Meeting abstract**

1127. Lerma A, Perez-Grovas H, Bermudez L, et al. Brief cognitive behavioural intervention for depression and anxiety symptoms improves quality of life in chronic haemodialysis patients. Psychol Psychother. 2017 Mar;90(1):105-23. doi: 10.1111/papt.12098. PMID: 27435635. - **Non-United States study**

1128. Lerma A, Perez-Grovas H, Bermudez L, et al. Brief cognitive behavioural intervention for depression and anxiety symptoms improves quality of life in chronic haemodialysis patients. Psychology and psychotherapy. 2017;90(1):105-23. doi: 10.1111/papt.12098. PMID: CN-01411261. - **Non-United States study**

1129. Lerma C, Lerma A, Pérez-Grovas H, et al. Depression symptoms and cognitive distortions of chronic renal failure patients treated with hemodialysis or peritoneal dialysis. Peritoneal Dialysis International. 2012;32:S53. - **Meeting abstract**

1130. Lertdumrongluk P, Streja E, Rhee CM, et al. Dose of hemodialysis and survival: a marginal structural model analysis. Am J Nephrol. 2014;39(5):383-91. doi: 10.1159/000362285. PMID: 24776927. - **Relevant systematic review**

1131. Leung M, Jung B, Huynh F, et al. Longitudinal evaluation of pain management in hemodialysis patients. American Journal of Kidney Diseases. 2012;59(4):A51. - **Meeting abstract**

1132. Levendoglu F, Altintepe L, Okudan N, et al. A twelve week exercise program improves the psychological status, quality of life and work capacity in hemodialysis patients. J Nephrol. 2004 Nov-Dec;17(6):826-32. PMID: 15593058. - **Non-United States study**

1133. Levin NW, Zasuwa G. Relationship between dialyser type and signs and symptoms. Nephrology, dialysis, transplantation. 1993;8 Suppl 2:30-9. PMID: CN-00097953. - **No intervention of interest (frequency or duration of HD) AND no QOL**

or symptom measures in dialysis patients

1134. Levy J. Home dialysis can improve quality of life. Practitioner. 2007 Feb;251(1691):8, 10-2, 4-5 passim. PMID: 17455780. - **Non-United States study**

1135. Lew-Starowicz M, Gellert R. The sexuality and quality of life of hemodialyzed patients--ASED multicenter study. J Sex Med. 2009 Apr;6(4):1062-71. doi: 10.1111/j.1743-6109.2008.01040.x. PMID: 19175866. - **Non-United States study**

1136. Lezovic M, Babjakova J, Mihinova D. Quality of life of hemodialysis patients. European Urology, Supplements. 2010;9(6):652. - **Meeting abstract**

1137. Li H, Jiang YF, Lin CC. Factors associated with self-management by people undergoing hemodialysis: a descriptive study. Int J Nurs Stud. 2014 Feb;51(2):208-16. doi: 10.1016/j.ijnurstu.2013.05.012. PMID: 23768411. - **Non-United States study**

1138. Li H, Wang SX. Analysis of death causes and its related factors in young patients on maintenance hemodialysis. Blood Purification. 2012;33(4):247-8. doi: 10.1159/000336963. - **Meeting abstract**

1139. Li J, Guo Q, Lin J, et al. Prevalence and Associated Factors of Uraemic Pruritus in Continuous Ambulatory Peritoneal Dialysis Patients. Intern Med. 2015;54(22):2827-33. doi: 10.2169/internalmedicine.54.4516. PMID: 26567994. - **Non-United States study**

1140. Li J, Wang H, Xie H, et al. Effects of post-discharge nurse-led telephone supportive care for patients with chronic kidney disease undergoing peritoneal dialysis in China: a randomized controlled trial. Perit Dial Int. 2014 May;34(3):278-88. doi: 10.3747/pdi.2012.00268. PMID: 24385331. - **Non-United States study**

1141. Li JSC, Cheung ASC, Yip RNL, et al. The realities of conversion to nocturnal home hemodialysis from the perspective of dialysis patients in Hong Kong. Hemodialysis International. 2009;13(3):414. doi: 10.1111/j.1542-4758.2009.00402.x. - **Non-United States study**

1142. Li L, Tang X, Kim S, et al. Effect of nocturnal hemodialysis on sleep parameters in patients with end-stage renal disease: a systematic review and meta-analysis. PLoS One. 2018;13(9):e0203710. doi: 10.1371/journal.pone.0203710. PMID: 30204790. - **Relevant systematic review**

1143. Li L, Young D, Xiao S, et al. Psychometric properties of the WHO Quality of Life questionnaire (WHOQOL-100) in patients with chronic diseases and their caregivers in China. Bull World Health Organ. 2004 Jul;82(7):493-502. PMID: 15508194. - **Non-United States study**

1144. Li M, Li L, Fan X. Patients having haemodialysis: physical activity and associated factors. J Adv Nurs. 2010 Jun;66(6):1338-45. doi: 10.1111/j.1365-2648.2010.05283.x. PMID: 20384636. - **Non-United States study**

1145. Li Y, Dong J, Zuo L. Is subjective global assessment a good index of nutrition in peritoneal dialysis patients with gastrointestinal symptoms? Perit Dial Int. 2009 Feb;29 Suppl 2:S78-82. PMID: 19270237. - **Non-United States study**

1146. Liao HJ, Chen XM, Li WG. [Effect of Epimedium sagittatum on quality of life and cellular immunity in patients of hemodialysis maintenance]. Zhongguo Zhong Xi Yi Jie He Za Zhi. 1995 Apr;15(4):202-4. PMID: 7647539. - **Non-United States study**

1147. Lichodziejewska-Niemierko M, Bobel-Olchowik B, Majkowicz M, et al. [Quality of life and therapy in the elderly patients on chronic peritoneal dialysis]. Pol Merkur Lekarski. 2003 Oct;15(88):330-1; discussion 1-3. PMID: 14974360. - **Non-United States study**

1148. Lieh Yeh T, Liang Huang C, Kuang Yang Y, et al. The adjustment to illness in patients with generalized anxiety disorder is poorer than that in patients with end-stage renal disease. Journal of psychosomatic research. 2004;57(2):165-70. doi: 10.1016/S0022-3999(03)00606-8. PMID: CN-00505921. - **Non-United States study**

1149. Lii YC, Tsay SL, Wang TJ. Group intervention to improve quality of life in haemodialysis patients. J Clin Nurs. 2007 Nov;16(11c):268-75. doi: 10.1111/j.1365-2702.2007.01963.x. PMID: 17931320. - **Non-United States study**

1150. Lim HA, Yu Z, Kang AW, et al. The Course of Quality of Life in Patients on Peritoneal Dialysis: A 12-month Prospective Observational Cohort Study. Int J Behav Med. 2016 Aug;23(4):507-14. doi: 10.1007/s12529-015-9521-z. PMID: 26538341. - **Non-United States study**

1151. Limbers CA, Neighbors K, Martz K, et al. Health-related quality of life in pediatric liver transplant recipients compared with other chronic disease groups. Pediatr Transplant. 2011 May;15(3):245-53. doi: 10.1111/j.1399-3046.2010.01453.x. PMID: 21199214. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1152. Lin AW, Qian JQ, Yao QA, et al. Quality of life in elderly continuous ambulatory peritoneal dialysis patients. Perit Dial Int. 2003 Dec;23 Suppl 2:S95-8. PMID: 17986568. - **Non-United States study**

1153. Lin CH, Wu VC, Li WY, et al. Restless legs syndrome in end-stage renal disease: a multicenter study in Taiwan. Eur J Neurol. 2013 Jul;20(7):1025-31. doi: 10.1111/ene.12095. PMID: 23369046. - **Non-United States study**

1154. Lin J, Guo Q, Ye X, et al. The effect of social support and coping style on depression in patients with continuous ambulatory peritoneal dialysis in southern China. Int Urol Nephrol. 2013 Apr;45(2):527-35. doi: 10.1007/s11255-012-0309-7. PMID: 23054324. - **Non-United States study**

1155. Lin MY, Liu MF, Hsu LF, et al. Effects of self-management on chronic kidney disease: A meta-analysis. Int J Nurs Stud. 2017 Sep;74:128-37. doi: 10.1016/j.ijnurstu.2017.06.008. PMID: 28689160. - **Relevant systematic review**

1156. Lin P, Ware JE, Meyer K, et al. Methods for psychometric and clinical evaluations of cat-based measures of disease impact in chronic kidney disease (CKD). Value in Health. 2010;13(7):A244. - **Meeting abstract**

1157. Lin RD, Yao KPG, Yu CT, et al. Reliability and validity of utility approach to measuring health related quality of life: An example of patients on hemodialysis. Chinese Journal of Public Health. 1997;16(5):404-16. - **Non-United States study**

1158. Lin XW, Zhang JF, Qiu MY, et al. Restless legs syndrome in end stage renal disease patients undergoing hemodialysis. BMC Neurol. 2019 Mar 29;19(1):47. doi: 10.1186/s12883-019-1265-y. PMID: 30925907. - **Non-United States study**

1159. Lin YJ, Lu KC, Chen CM, et al. The effects of music as therapy on the overall well-being of elderly patients on maintenance hemodialysis. Biol Res Nurs. 2012 Jul;14(3):277-85. doi: 10.1177/1099800411413259. PMID: 21708894. - **Non-United States study**

1160. Lindqvist R, Carlsson M, Sjoden PO. Coping strategies and health-related quality of life among spouses of continuous ambulatory peritoneal dialysis, haemodialysis, and transplant patients. J Adv Nurs. 2000 Jun;31(6):1398-408. PMID: 10849152. - **Non-United States study**

1161. Lindqvist R, Carlsson M, Sjoden PO. Coping strategies and quality of life among patients on hemodialysis and continuous ambulatory peritoneal dialysis. Scand J Caring Sci. 1998;12(4):223-30. PMID: 10067648. - **Non-United States study**

1162. Lindsay RM, Heidenheim AP, Leitch R, et al. Short daily versus long nocturnal hemodialysis. Daily/Nocturnal Dialysis Study Group. Asaio j. 2001 Sep-Oct;47(5):449-55. PMID: 11575812. - **Non-United States study**

1163. Lindsay RM, Heidenheim PA, Nesrallah G, et al. Minutes to recovery after a hemodialysis session: a simple health-related quality of life question that is reliable, valid, and sensitive to change. Clin J Am Soc Nephrol. 2006 Sep;1(5):952-9. doi: 10.2215/cjn.00040106. PMID: 17699312. - **Non-United States study**

1164. Lindsay RM, Nesrallah G, Suri R, et al. Is more frequent hemodialysis beneficial and what is the evidence? Curr Opin Nephrol Hypertens. 2004 Nov;13(6):631-5. PMID: 15483453. - **No human data**

1165. Lindsay RM. Daily hemodialysis: the time has come?--Pro. Am J Kidney Dis. 2005 May;45(5):793-7. PMID: 15861343. - **Non-relevant review**

1166. Lindsay RM. Patient testimonials--'back in the land of the living'. As told by quotidian hemodialysis patients. Contrib Nephrol. 2004;145:117-21. doi: 10.1159/000081675. PMID: 15496798. - **No human data**

1167. Lindsay RM. The London, Ontario, Daily/Nocturnal Hemodialysis Study. Semin Dial. 2004 Mar-Apr;17(2):85-91. doi: 10.1111/j.0894-0959.2004.17202.x. PMID: 15043607. - **Non-United States study**

1168. Ling KW, Wong FS, Chan WK, et al. Effect of a home exercise program based on tai chi in patients with end-stage renal disease. Perit Dial Int. 2003 Dec;23 Suppl 2:S99-s103. PMID: 17986569. - **Non-United States study**

1169. Lingren C. New survey provides insight into CKD, exhaustion, anemia. Nephrol News Issues. 2003 Jan;17(2):29-31. PMID: 12629826. - **No human data**

1170. Liu B, Li JG, Yang SQ, et al. Prevalence and risk factors of depression and sleep disturbance in continuous ambulatory peritoneal dialysis patients. Hong Kong Journal of Nephrology. 2015;17(2):S118-S9. doi: 10.1016/j.hkjn.2015.09.177. - **Meeting abstract**

1171. Liu F, Sun Y, Xu T, et al. Effect of Nocturnal Hemodialysis versus Conventional Hemodialysis on End-Stage Renal Disease: A Meta-Analysis and Systematic Review. PLoS One. 2017;12(1):e0169203. doi: 10.1371/journal.pone.0169203. PMID: 28107451. - **Relevant systematic review**

1172. Liu MH, Chan MJ, Hsu CW, et al. Association of uremic pruritus in hemodialysis patients with the number of days of high mean 24-hour particulate matter with a diameter of <2.5 µm. Therapeutics and Clinical Risk Management. 2017;13:255-62. doi: 10.2147/TCRM.S129133. - **Non-United States study**

1173. Liu W, Wang JQ, Wang WG, et al. Influences of different induction hemodialysis patterns on dialysis disequilibrium syndrome in end-stage renal disease. Hong Kong Journal of Nephrology. 2015;17(2):S129. doi: 10.1016/j.hkjn.2015.09.211. - **Meeting abstract**

1174. Liu WJ, Chew TF, Chiu AS, et al. Quality of life of dialysis patients in Malaysia. Med J Malaysia. 2006 Dec;61(5):540-6. PMID: 17623953. - **Non-United States study**

1175. Liu WJ, Lu XG, Yan LJ, et al. [Analysis of the influencing factors of life quality in patients undergoing maintaining hemodialysis]. Zhongguo Wei Zhong Bing Ji Jiu Yi Xue. 2010 Dec;22(12):713-8. PMID: 21190595. - **Non-United States study**

1176. Liu Y, Zou W, Wu J, et al. Comparison between incremental and thrice-Weekly hemodialysis: a systematic review and meta-analysis. Nephrology (Carlton). 2018 Mar 13doi: 10.1111/nep.13252. PMID: 29532551. - **Relevant systematic review**

1177. Liu YM, Chang HJ, Wang RH, et al. Role of resilience and

social support in alleviating depression in patients receiving maintenance hemodialysis. Therapeutics and Clinical Risk Management. 2018;14:441-51. doi: 10.2147/TCRM.S152273. - **Non-United States study**

1178. Lock P. Review of literature about the quality of life and application to the evaluation of the different treatments for chronic renal failure in Catalonia. (Preliminary results in a pilot study). Revista de la Sociedad Espanola de Dialisis y Trasplante. 1988;10(3):71-7. - **Non-English**

1179. Lockridge R, Hara F, Pipkin M. Nightly home hemodialysis (NHHD): Can it be done with nxstage system i? Hemodialysis International. 2013;17(1):167. doi: 10.1111/hdi.12006. - **Meeting abstract**

1180. Lockridge RS, Albert J, Anderson H, et al. Nightly Home Hemodialysis: Fifteen Months of Experience in Lynchburg, Virginia. Home Hemodial Int. 1999 Jan;3(1):23-8. doi: 10.1111/hdi.1999.3.1.23. PMID: 28455856. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1181. Lockridge RS, Jr., Pipkin M. Short and long nightly hemodialysis in the United States. Hemodial Int. 2008 Jul;12 Suppl 1:S48-50. doi: 10.1111/j.1542-4758.2008.00296.x. PMID: 18638241. - **No human data**

1182. Lockwood MB, Chung S, Puzantian H, et al. Symptom Cluster Science in Chronic Kidney Disease: A Literature Review. West J Nurs Res. 2018 Oct 31:193945918808766. doi: 10.1177/0193945918808766. PMID: 30378466. - **Relevant systematic review**

1183. Lønning K, Bernklev T, Midtvedt K, et al. Health related quality of life (HRQOL) in older patients waiting for kidney transplantation in Norway. European Geriatric Medicine. 2015;6:S27. - **Non-United States study**

1184. Lonning K, Midtvedt K, Bernklev T, et al. Changes in health-related quality of life in older candidates waiting for kidney transplantation. Nephrology (Carlton). 2018 Oct;23(10):948-56. doi: 10.1111/nep.13117. PMID: 28734131. - **Non-United States study**

1185. Lønning K, Midtvedt K, Heldal K, et al. Older patients going through kidney transplantation - results: from a large, prospective multi methods: study. Quality of Life Research. 2018;27:S37. doi: 10.1007/s11136-018-1946-9. - **Meeting abstract**

1186. Loos C, Briancon S, Frimat L, et al. Effect of end-stage renal disease on the quality of life of older patients. J Am Geriatr Soc. 2003 Feb;51(2):229-33. PMID: 12558720. - **Non-United States study**

1187. Loosman WL, Hoekstra T, van Dijk S, et al. Short-Form 12 or Short-Form 36 to measure quality-of-life changes in dialysis patients? Nephrol Dial Transplant. 2015 Jul;30(7):1170-6. doi: 10.1093/ndt/gfv066. PMID: 25829325. - **Non-United States study**

1188. Lopes AA, Bragg J, Young E, et al. Depression as a predictor of mortality and hospitalization among hemodialysis patients in the United States and Europe. Kidney Int. 2002 Jul;62(1):199-207. doi: 10.1046/j.1523-1755.2002.00411.x. PMID: 12081579. - **Non-United States study**

1189. Lopes AA, Bragg-Gresham JL, Goodkin DA, et al. Factors associated with health-related quality of life among hemodialysis patients in the DOPPS. Qual Life Res. 2007 May;16(4):545-57. doi: 10.1007/s11136-006-9143-7. PMID: 17286199. - **Non-United States study**

1190. Lopes GB, Lopes AA. Residual kidney function and quality of life in incident hemodialysis patients. Am J Kidney Dis. 2011 Jan;57(1):179; author reply -80. doi: 10.1053/j.ajkd.2010.09.020. PMID: 21184925. - **Other: Letter with no original data**

1191. Lopes GB, Martins MT, Matos CM, et al. [Comparisons of quality of life measures between women and men on hemodialysis]. Rev Assoc Med Bras (1992). 2007 Nov-Dec;53(6):506-9. PMID: 18157364. - **Non-United States study**

1192. Lopes GB, Matos CM, Leite EB, et al. Depression as a potential explanation for gender differences in health-related quality of life among patients on maintenance hemodialysis. Nephron Clin Pract. 2010;115(1):c35-40. doi: 10.1159/000286348. PMID: 20173348. - **Non-United States study**

1193. Lopes LCC, Mota JF, Prestes J, et al. Resistance training improves lean mass and function in hemodialysis patients. Journal of cachexia, sarcopenia and muscle. 2017;8(6):1078-. doi: 10.1002/jcsm.12255. PMID: CN-01439747. - **Meeting abstract**

1194. Lopes MT, Ferraro AA, Koch VH. Reliability of the Brazilian version of the PedsQL - ESDR questionnaire to evaluate quality of life of children and adolescents. J Bras Nefrol. 2015 Apr-Jun;37(2):158-65. doi: 10.5935/0101-2800.20150026. PMID: 26154634. - **Non-United States study**

1195. Lopez YLLR, Baca-Cordova A, Guzman-Ramirez PM, et al. Quality of life in hemodialysis and peritoneal dialysis after four years of treatment. Medicina interna de mexico. 2017;33(2):177-84. PMID: CN-01405516. - **Non-English**

1196. Lorenzen JM, Thum T, Eisenbach GM, et al. Conversion from conventional in-centre thrice-weekly haemodialysis to short daily home haemodialysis ameliorates uremia-associated clinical parameters. Int Urol Nephrol. 2012 Jun;44(3):883-90. doi: 10.1007/s11255-011-9918-9. PMID: 21359832. - **Non-United States study**

1197. Losso RL, Minhoto GR, Riella MC. Sleep disorders in patients with end-stage renal disease undergoing dialysis: comparison between hemodialysis, continuous ambulatory peritoneal dialysis and automated peritoneal dialysis. Int Urol Nephrol. 2015 Feb;47(2):369-75. doi: 10.1007/s11255-014-0860-5.

PMID: 25358390. - **Non-United States study**

1198. Lovell N, Bristowe K, Shepherd K, et al. Can symptom scores in end-stage kidney disease help with timing of anticipatory care planning? Palliative Medicine. 2014;28(6):790. doi: 10.1177/0269216314532748. - **Meeting abstract**

1199. Lowney A, Lowney E, Grant R, et al. Cross sectional observational study of symptom burden and health-related quality of life in prevalent haemodialysis patients in Ireland. Nephrology Dialysis Transplantation. 2012;27:ii292. doi: 10.1093/ndt/gfs227. - **Meeting abstract**

1200. Lowney AC, Lowney EL, Murphy M, et al. Health-related quality of life in prevalent haemodialysis patients in south-west ireland. Palliative Medicine. 2012;26(4):576-7. doi: 10.1177/0269216312446391. - **Meeting abstract**

1201. Lowney AC, Lowney EL, Murphy M, et al. Self-reported symptom burden in prevalent haemodialysis patients in south-west ireland. Palliative Medicine. 2012;26(4):576. doi: 10.1177/0269216312446391. - **Non-United States study**

1202. Lowney AC, Myles HT, Bristowe K, et al. Understanding What Influences the Health-Related Quality of Life of Hemodialysis Patients: A Collaborative Study in England and Ireland. J Pain Symptom Manage. 2015 Dec;50(6):778-85. doi: 10.1016/j.jpainsymman.2015.07.010. PMID: 26300026. - **Non-United States study**

1203. Lozano Diaz A, Benavides B, Quiros P, et al. [Benefits of every other day dialysis (EODD) without rest for 72 hours in patients with symptomatic cardiovascular disease]. Nefrologia. 2005;25(1):51-6. PMID: 15789537. - **Non-United States study**

1204. Lu Y, Stamm C, Nobre D, et al. Changing trends in end-stage renal disease patients with diabetes. Swiss Med Wkly. 2017;147:w14458. doi: 10.4414/smw.2017.14458. PMID: 28695556. - **Non-United States study**

1205. Lubis WH, Hanum H, Lubis ARL, et al. Proportion and affecting factors of depression in end state renal disease patients undergoing regular hemodialysis. Psychotherapy and Psychosomatics. 2013;82:59-60. doi: 10.1159/000354142. - **Other: abstract of case**

1206. Lunney M, Lee R, Tang K, et al. Impact of Telehealth Interventions on Processes and Quality of Care for Patients With ESRD. Am J Kidney Dis. 2018 Oct;72(4):592-600. doi: 10.1053/j.ajkd.2018.02.353. PMID: 29699884. - **Relevant systematic review**

1207. Luo J, Lee A, Cohen DE, et al. Vocational activity and health insurance type among patients with end-stage renal disease: association with outcomes. J Nephrol. 2018 Aug;31(4):577-84. doi: 10.1007/s40620-018-0478-2. PMID: 29417389. - **No intervention of interest (frequency or duration of**

HD) AND no QOL or symptom measures in dialysis patients

1208. Lynch K, Lynch R, Curhan G. Association between altered taste perceoption and nutritional outcomes among hemodialysis patients. Kidney Research and Clinical Practice. 2012;31(2):A52. doi: 10.1016/j.krcp.2012.04.468. - **Meeting abstract**

1209. Lyons OD, Chan CT, Yadollahi A, et al. Effect of ultrafiltration on sleep apnea and sleep structure in patients with end-stage renal disease. Am J Respir Crit Care Med. 2015 Jun 1;191(11):1287-94. doi: 10.1164/rccm.201412-2288OC. PMID: 25822211. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1210. M M. Assessment of qol in hemodialysis patients and its correlation with qol of caretakers-single centre study from rural South India. Nephrology. 2016;21:174. doi: 10.1111/nep.12888. - **Meeting abstract**

1211. Ma T, Gaudet D. Assessing the quality of life of our end-stage renal disease client population. J cannt. 1997 Spring;7(2):13-6. PMID: 9281951. - **Non-United States study**

1212. Ma Y. The effects of exercise rehabilitation on physiological function and quality of life in maintain hemodialysis patients-a multicenter randomized controlled study. Nephrology Dialysis Transplantation. 2018;33:i482. doi: 10.1093/ndt/gfy104.SP401. - **Meeting abstract**

1213. Machado LR, Car MR. [Dialectic of the daily life of patients with chronic kidney failure: the unavoidable and the casual]. Rev Esc Enferm USP. 2003 Sep;37(3):27-35. PMID: 14686045. - **Non-United States study**

1214. Maddux DW, West C. The benefits of exercise for CKD patients. Nephrol News Issues. 2012 Nov;26(12):44, 6, 8. PMID: 23472556. - **Narrative review**

1215. Madero M, Gul A, Sarnak MJ. Cognitive function in chronic kidney disease. Semin Dial. 2008 Jan-Feb;21(1):29-37. doi: 10.1111/j.1525-139X.2007.00384.x. PMID: 18251955. - **No human data**

1216. Madhan K. The CARI guidelines. Quality of life. Nephrology (Carlton). 2010 Apr;15 Suppl 1:S32-4. doi: 10.1111/j.1440-1797.2010.01229.x. PMID: 20591039. - **Narrative review**

1217. Maduell F, Ojeda R, Arias-Guillen M, et al. Eight-Year Experience with Nocturnal, Every-Other-Day, Online Haemodiafiltration. Nephron. 2016;133(2):98-110. doi: 10.1159/000446970. PMID: 27265268. - **Non-United States study**

1218. Maghsodlo SG, Panahi Y, Einollahi B, et al. Evaluation for efficacy of Epolyrec on health-related quality of life in dialysis chronic renal disease patients with anemia. European Journal of Medical Research. 2011;16:128. - **Meeting abstract**

1219. Mah JY, Damasiewicz M, Kerr P, et al. Use of a patient reported outcome tool to evaluate

symptom burden and inform resource allocation in patients with end stage kidney disease. Nephrology. 2018;23:84. doi: 10.1111/nep.13442. - **Meeting abstract**

1220. Mahajan S, Gupta K, Sinha S, et al. Effect of kidney transplantation on sleep-disordered breathing in patients with End Stage Renal Disease: a polysomnographic study. Sleep Med. 2018 May;45:140-5. doi: 10.1016/j.sleep.2017.11.1151. PMID: 29680422. - **Non-United States study**

1221. Mahaldar AR. Restless leg syndrome in chronic kidney disease. Clinical Queries: Nephrology. 2014;3(1):5-8. doi: 10.1016/j.cqn.2014.03.002. - **Non-United States study**

1222. Maheshwari P, Usha K, Sarumathy S, et al. The prospective study on quality of life with assessment of Heamoglobin levels in chronic kidney disease patients. Research Journal of Pharmaceutical, Biological and Chemical Sciences. 2015;6(5):480-7. - **Non-United States study**

1223. Mahmoud O, Mohab A, Ezzat H. Sleep disorders in hemodialysis patients: Does RKF matter? Hemodialysis International. 2017;21(1):A17. doi: 10.1111/hdi.12520. - **Meeting abstract**

1224. Mahmudpour M, Roozbeh J, Raiss Jalali GA, et al. Therapeutic Effect of Montelukast for Treatment of Uremic Pruritus in Hemodialysis Patients. Iran J Kidney Dis. 2017 Jan;11(1):50-5. PMID: 28174353. - **Non-United States study**

1225. Mahrova A, Bunc V, Fischerova H. [Motor skills testing in patients with chronic renal failure]. Cas Lek Cesk. 2006;145(10):782-7. PMID: 17121070. - **Non-English**

1226. Mahrová A, Svoboda L, Křížová E, et al. The self-sufficiency rate in patients on peritoneal dialysis treatment - impact on quality of life. Aktuality v Nefrologii. 2016;22(1):12-20. - **Non-United States study**

1227. Maia RCF, Monteiro WMS, Silva MGC, et al. Quality of life in patients undergoing hemodialysis: A vision of the influence of time. Value in Health. 2014;17(7):A574. doi: 10.1016/j.jval.2014.08.1929. - **Meeting abstract**

1228. Maione J, Salter M, McAdams Demarco M, et al. Components of frailty and mortality among dialysis patients of all ages. Journal of the American Geriatrics Society. 2014;62:S249. doi: 10.1111/jgs.12870. - **Meeting abstract**

1229. Majkowicz M, Afeltowicz Z, Lichodziejewska-Niemierko M, et al. Comparison of the quality of life in hemodialysed (HD) and peritoneally dialysed (CAPD) patients using the EORTC QLQ-C30 questionnaire. Int J Artif Organs. 2000 Jul;23(7):423-8. PMID: 10941634. - **Non-United States study**

1230. Makara-Studzinska M, Ksiazek P, Koslak A, et al. [Prevalence of depressive disorders in patients with end-stage renal failure]. Psychiatr Pol. 2011 Mar-Apr;45(2):187-95. PMID: 21714208. - **Non-United States study**

1231. Makarem AR, Karami MY, Zekavat OR. Erectile dysfunction among hemodialysis patients. Int Urol Nephrol. 2011 Mar;43(1):117-23. doi: 10.1007/s11255-010-9780-1. PMID: 20535636. - **Non-United States study**

1232. Makhlough A, Ala S, Haj-Heydari Z, et al. Topical capsaicin therapy for uremic pruritus in patients on hemodialysis. Iran J Kidney Dis. 2010 Apr;4(2):137-40. PMID: 20404425. - **Non-United States study**

1233. Makkar V, Kumar M, Mahajan R, et al. Comparison of Outcomes and Quality of Life between Hemodialysis and Peritoneal Dialysis Patients in Indian ESRD Population. J Clin Diagn Res. 2015 Mar;9(3):Oc28-31. doi: 10.7860/jcdr/2015/11472.5709. PMID: 25954652. - **Non-United States study**

1234. Maldonado-Colon B, Debnath S, Gonzalez A, et al. Health-related quality of life among hispanics with ESRD secondary to type 2 diabetes. American Journal of Kidney Diseases. 2012;59(4):A53. - **Meeting abstract**

1235. Malekmakan L, Tadayon T, Pakfetrat M, et al. Treatments of uremic pruritus: A systematic review. Dermatol Ther. 2018 Sep;31(5):e12683. doi: 10.1111/dth.12683. PMID: 30141218. - **Non-United States study**

1236. Malindretos P, Koutroumbas G, Anagnostou N, et al. Health related quality of life and adherence to phosphate-binding medication in hemodialysis patients. NDT Plus. 2010;3:iii402-iii3. - **Meeting abstract**

1237. Malindretos P, Makri P, Zagkotsis G, et al. Subjective global assessment, nutritional status and health related quality of life in hemodialysis patient. Nephrology Dialysis Transplantation. 2012;27:ii271-ii2. doi: 10.1093/ndt/gfs227. - **Meeting abstract**

1238. Malindretos P, Sarafidis P, Spaia S, et al. Adaptation and validation of the Kidney Disease Quality of Life-Short Form questionnaire in the Greek language. Am J Nephrol. 2010;31(1):9-14. doi: 10.1159/000252926. PMID: 19864884. - **Non-United States study**

1239. Mallick NP, Hutchinson A, Patel M, et al. Factors influencing dialysis outcome: the dialysis dose in perspective. Nephrol Dial Transplant. 1998;13 Suppl 6:152-7. PMID: 9719223. - **Narrative review**

1240. Malmstrom RK, Roine RP, Heikkila A, et al. Cost analysis and health-related quality of life of home and self-care satellite haemodialysis. Nephrol Dial Transplant. 2008 Jun;23(6):1990-6. doi: 10.1093/ndt/gfm910. PMID: 18223263. - **Non-United States study**

1241. Mammen C, Goldstein SL, Milner R, et al. Standard Kt/V thresholds to accurately predict single-pool Kt/V targets for children receiving thrice-weekly maintenance haemodialysis. Nephrol Dial Transplant. 2010 Sep;25(9):3044-50. doi: 10.1093/ndt/gfq165. PMID: 20348543. - **No intervention of interest (frequency or duration of**

HD) AND no QOL or symptom measures in dialysis patients

1242. Manavalan M, Majumdar A, Harichandra Kumar KT, et al. Assessment of health-related quality of life and its determinants in patients with chronic kidney disease. Indian Journal of Nephrology. 2017;27(1):37-43. doi: 10.4103/0971-4065.179205. - **Non-United States study**

1243. Mancini A. Hypotension and Frequent Hemodialysis: Clarification Requested Regarding the KDOQI Hemodialysis Adequacy Guideline 2015 Update. Am J Kidney Dis. 2016 Mar;67(3):532. doi: 10.1053/j.ajkd.2015.12.012. PMID: 26916375. - **Other: LTE**

1244. Manera KE, Tong A, Craig JC, et al. An international Delphi survey helped develop consensus-based core outcome domains for trials in peritoneal dialysis. Kidney Int. 2019 Sep;96(3):699-710. doi: 10.1016/j.kint.2019.03.015. PMID: 31200941. **– No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1245. Manfredini F, Bolignano D, Rastelli S, et al. Low intensity, home-based exercise improves physical capacity in dialysis patients: The excite study (excercise introduction to enhance performance in dialysis). Nephrology Dialysis Transplantation. 2012;27:ii125. doi: 10.1093/ndt/gfs216. - **Meeting abstract**

1246. Manfredini F, Rigolin GM, Malagoni AM, et al. Exercise capacity and circulating endothelial progenitor cells in hemodialysis patients. Int J Sports Med. 2007 May;28(5):368-73. doi: 10.1055/s-2006-924363. PMID: 17024634. - **Non-United States study**

1247. Mann M, Exner DV, Hemmelgarn BR, et al. Cardiac autonomic tone as an indicator of exercise capacity and aerobic fitness in hemodialysis patients: Correlation with the duke activity status index questionnaire. Nephrology Dialysis Transplantation. 2014;29:iii527. doi: 10.1093/ndt/gfu178. - **Meeting abstract**

1248. Manns B, Johnson JA, Taub K, et al. Quality of life in patients treated with hemodialysis or peritoneal dialysis: what are the important determinants? Clin Nephrol. 2003 Nov;60(5):341-51. PMID: 14640240. - **Non-United States study**

1249. Manns BJ, Johnson JA, Taub K, et al. Dialysis adequacy and health related quality of life in hemodialysis patients. Asaio j. 2002 Sep-Oct;48(5):565-9. PMID: 12296580. - **Non-United States study**

1250. Mansur HN, Bastos MG. Frailty in chronic kidney disease: Prevalence and associated risk factors. American Journal of Kidney Diseases. 2012;59(4):A54. - **Meeting abstract**

1251. Maor Y, King M, Olmer L, et al. A comparison of three measures: the time trade-off technique, global health-related quality of life and the SF-36 in dialysis patients. J Clin Epidemiol. 2001 Jun;54(6):565-70. PMID: 11377116. - **Non-United States study**

1252. Marciano RC, Simoes Silva AC, Melo CD, et al. The prevalence of mental disorders and the quality of

life in a pediatric population with chronic kidney disease. Pediatric Nephrology. 2010;25(9):1844. doi: 10.1007/s00467-010-1577-z. - **Meeting abstract**

1253. Mariotti MC, Rocha de JG. Improving quality of life in hemodialysis: impact of an occupational therapy program. Scand J Occup Ther. 2011 Sep;18(3):172-9. doi: 10.3109/11038128.2010.488271. PMID: 20560804. - **Non-United States study**

1254. Markaki A, Charonitaki A, Pylarinou A, et al. Quality of life in relation to nutritional status markers of haemodialysis and peritoneal dialysis patients. Nephrology Dialysis Transplantation. 2017;32:iii716. doi: 10.1093/ndt/gfx181. - **Meeting abstract**

1255. Marks S. [Nutrition references for dialysis dependent patients: between diet and quality of life]. Pflege Z. 2006 Dec;59(12):754-7. PMID: 17260553. - **Non-United States study**

1256. Marshall MR, Polkinghorne KR, Kerr PG, et al. Intensive Hemodialysis and Mortality Risk in Australian and New Zealand Populations. Am J Kidney Dis. 2016 Apr;67(4):617-28. doi: 10.1053/j.ajkd.2015.09.025. PMID: 26561355. - **Non-United States study**

1257. Marshall MR, Walker RC, Polkinghorne KR, et al. Survival on home dialysis in New Zealand. PLoS One. 2014;9(5):e96847. doi: 10.1371/journal.pone.0096847. PMID: 24806458. - **Non-United States study**

1258. Martchev D. Improving quality of life for patients with kidney failure. Rn. 2008 Apr;71(4):31-6; quiz 7. PMID: 18524353. - **Non-relevant review**

1259. Martin CR, Thompson DR. Prediction of quality of life in patients with end-stage renal disease. British Journal of Health Psychology. 2000;5(1):41-55. doi: 10.1348/135910700168757. - **Non-United States study**

1260. Martin-Diaz F, Reig-Ferrer A, Ferrer-Cascales R. [Sexual function and quality of life in hemodialysis male patients]. Nefrologia. 2006;26(4):452-60. PMID: 17058857. - **Non-United States study**

1261. Martin-Diaz F, Reig-Ferrer A, Ferrer-Cascales R. Assessment of health-related quality of life in chronic dialysis patients with the COOP/WONCA charts. Nephron Clin Pract. 2006;104(1):c7-14. doi: 10.1159/000093253. PMID: 16685143. - **Non-United States study**

1262. Martinez-Castelao A, Gorriz JL, Garcia-Lopez F, et al. Perceived health-related quality of life and comorbidity in diabetic patients starting dialysis (CALVIDIA study). J Nephrol. 2004 Jul-Aug;17(4):544-51. PMID: 15372417. - **Non-United States study**

1263. Martinkova J, Chrastina M, Zilinska Z, et al. Impact of kidney transplantation on restless legs syndrome. Journal of Neurology. 2013;260:S190. doi:

10.1007/s00415-013-6924-0. - **Meeting abstract**

1264. Martins Castro MC, Luders C, Elias RM, et al. High-efficiency short daily haemodialysis--morbidity and mortality rate in a long-term study. Nephrol Dial Transplant. 2006 Aug;21(8):2232-8. doi: 10.1093/ndt/gfl171. PMID: 16632557. - **Non-United States study**

1265. Martins do Valle F, Valle Pinheiro B, Almeida Barros AA, et al. Effects of intradialytic resistance training on physical activity in daily life, muscle strength, physical capacity and quality of life in hemodialysis patients: a randomized clinical trial. Disabil Rehabil. 2019 Apr 29:1-7. doi: 10.1080/09638288.2019.1606857. PMID: 31034264. - **Non-United States study**

1266. Martins MR, Cesarino CB. [Quality of life in chronic kidney failure patients receiving hemodialysis treatment]. Rev Lat Am Enfermagem. 2005 Sep-Oct;13(5):670-6. doi: /S0104-11692005000500010. PMID: 16308623. - **Non-English**

1267. Martiny C, e Silva AC, Neto JP, et al. Psychiatric disorders in patients with end-stage renal disease. J Ren Care. 2012 Sep;38(3):131-7. doi: 10.1111/j.1755-6686.2012.00261.x. PMID: 22429289. - **Non-United States study**

1268. Marusza W, Matuszkiewicz-Rowinska J, Tomik Z, et al. [Evaluation of treating anemia in patients undergoing chronic dialysis with small doses of human recombinant erythropoietin]. Pol Tyg Lek. 1995 Oct;50(40-44):15-8, 31. PMID: 8650050. - **Non-United States study**

1269. Masina T, Chimera B, Kamponda M, et al. Health related quality of life in patients with end stage kidney disease treated with haemodialysis in Malawi: a cross sectional study. BMC Nephrol. 2016 Jul 7;17(1):61. doi: 10.1186/s12882-016-0292-9. PMID: 27389582. - **Non-United States study**

1270. Masmoudi A, Hajjaji Darouiche M, Ben Salah H, et al. Cutaneous abnormalities in patients with end stage renal failure on chronic hemodialysis. A study of 458 patients. J Dermatol Case Rep. 2014 Dec 31;8(4):86-94. doi: 10.3315/jdcr.2014.1182. PMID: 25621088. - **Non-United States study**

1271. Masood A, Kamran F, Rashid S, et al. Life-orientation, subjective well-being and social support as predictors of quality of life in patients with end stage renal disease. Bangladesh Journal of Medical Science. 2017;16(3):346-53. doi: 10.3329/bjms.v16i3.32845. - **Non-United States study**

1272. Masoumi M, Naini AE, Aghaghazvini R, et al. Sleep quality in patients on maintenance hemodialysis and peritoneal dialysis. Int J Prev Med. 2013 Feb;4(2):165-72. PMID: 23543042. - **Non-United States study**

1273. Masoumi M. Restless legs syndrome and its association with poor sleep quality, mood disorders, and 1 year cardiovascular mortality in patients on chronic dialysis. Sleep

Medicine. 2015;16:S72. doi: 10.1016/j.sleep.2015.02.182. - **Meeting abstract**

1274. Masterson R. The advantages and disadvantages of home hemodialysis. Hemodial Int. 2008 Jul;12 Suppl 1:S16-20. doi: 10.1111/j.1542-4758.2008.00290.x. PMID: 18638235. - **Narrative review**

1275. Mathew RO, Bettinger JJ, Wegrzyn EL, et al. Pharmacotherapeutic considerations for chronic pain in chronic kidney and end-stage renal disease. Journal of Pain Research. 2016;9:1191-5. doi: 10.2147/JPR.S125270. - **Narrative review**

1276. Matlabi H, Ahmadzadeh S. Evaluation of individual quality of life among hemodialysis patients: nominated themes using SEIQoL-adapted. Patient Prefer Adherence. 2017;11:1-9. doi: 10.2147/ppa.s117860. PMID: 28031703. - **Non-United States study**

1277. Matsuzawa R, Kamitani T, Roshanravan B, et al. Decline in the Functional Status and Mortality in Patients on Hemodialysis: Results from the Japan Dialysis Outcome and Practice Patterns Study. J Ren Nutr. 2018 Dec 24doi: 10.1053/j.jrn.2018.10.012. PMID: 30591357. - **Non-United States study**

1278. Matsuzawa R, Yoshida K, Ishii D, et al. Physical performance, physical activity and quality of life before and after kidney transplantation. Nephrology Dialysis Transplantation. 2018;33:i581. doi: 10.1093/ndt/gfy104.SP697. - **Meeting abstract**

1279. Matuszkiewicz-Rowinska J, Marusza W, Andrzejewski A, et al. [Effect of low-dose recombinant humane erythropoietin therapy on the quality of life in patients with anemia in the course of end-stage renal failure treated with dialysis]. Pol Arch Med Wewn. 1996 Aug;96(2):143-52. PMID: 9122002. - **Non-United States study**

1280. Mau LW, Chiu HC, Chang PY, et al. Health-related quality of life in Taiwanese dialysis patients: effects of dialysis modality. Kaohsiung J Med Sci. 2008 Sep;24(9):453-60. PMID: 19073377. - **Non-United States study**

1281. Mauri M, Calderone A, Calabrò PF, et al. Quality of life and psychopathology of Patients awaiting kidney/pancreas transplants. Journal of Psychopathology. 2016;22(2):118-26. - **Meeting abstract**

1282. Maxwell H, MacKinlay D, Watson AR. Quality of life or health status in children with chronic kidney disease. Pediatr Nephrol. 2010 Jun;25(6):1191-2. doi: 10.1007/s00467-009-1332-5. PMID: 19902271. - **Non-United States study**

1283. Maxwell P, Fitzpatrick R. End stage renal failure and assessment of health related quality of life. Qual Health Care. 1998 Dec;7(4):182. PMID: 10339019. - **Non-relevant review**

1284. Mazairac AH, Bots ML, de Wit GA, et al. Improvement of health-related quality of life (QoL) in hemodialysis (HD) patients over the past decade in the Netherlands.

Journal of the american society of nephrology : JASN. 2008;19(Abstracts ue):293A. PMID: CN-01657208. - **Meeting abstract**

1285. Mazairac AH, de Wit GA, Grooteman MP, et al. Effect of hemodiafiltration on quality of life over time. Clin J Am Soc Nephrol. 2013 Jan;8(1):82-9. doi: 10.2215/cjn.00010112. PMID: 23124783. - **Non-United States study**

1286. Mazairac AH, de Wit GA, Grooteman MP, et al. Effect of hemodiafiltration on quality of life over time. Clinical journal of the American Society of Nephrology. 2013;8(1):82-9. doi: 10.2215/CJN.00010112. PMID: CN-00912807. - **Non-United States study**

1287. Mazairac AH, de Wit GA, Penne EL, et al. Changes in quality of life over time--Dutch haemodialysis patients and general population compared. Nephrol Dial Transplant. 2011 Jun;26(6):1984-9. doi: 10.1093/ndt/gfq680. PMID: 21051503. - **Non-United States study**

1288. Mazairac AH, de Wit GA, Penne EL, et al. Protein-energy nutritional status and kidney disease-specific quality of life in hemodialysis patients. J Ren Nutr. 2011 Sep;21(5):376-86.e1. doi: 10.1053/j.jrn.2010.08.004. PMID: 21194971. - **Non-United States study**

1289. Mazairac AH, Grooteman MP, Blankestijn PJ, et al. Differences in quality of life of hemodialysis patients between dialysis centers. Qual Life Res. 2012 Mar;21(2):299-307. doi: 10.1007/s11136-011-9942-3. PMID: 21633878. - **Non-United States study**

1290. McAdams-Demarco MA, Law A, Garonzik-Wang JM, et al. Activity of daily living disability and dialysis mortality: better prediction using metrics of aging. J Am Geriatr Soc. 2012 Oct;60(10):1981-2. doi: 10.1111/j.1532-5415.2012.04161.x. PMID: 23057455. - **Other: LTE**

1291. McAdams-DeMarco MA, Olorundare IO, Ying H, et al. Frailty and Postkidney Transplant Health-Related Quality of Life. Transplantation. 2018 Feb;102(2):291-9. doi: 10.1097/tp.0000000000001943. PMID: 28885489. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1292. McCann K, Boore JR. Fatigue in persons with renal failure who require maintenance haemodialysis. J Adv Nurs. 2000 Nov;32(5):1132-42. PMID: 11114998. - **Non-United States study**

1293. McDonald M, McPhee PD, Walker RJ. Successful self-care home dialysis in the elderly: a single center's experience. Perit Dial Int. 1995;15(1):33-6. PMID: 7734558. - **Non-United States study**

1294. McFarlane PA, Bayoumi AM, Pierratos A, et al. The impact of home nocturnal hemodialysis on end-stage renal disease therapies: a decision analysis. Kidney Int. 2006 Mar;69(5):798-805. doi: 10.1038/sj.ki.5000059. PMID:

16407887. - **Non-United States study**

1295. McFarlane PA. Nocturnal hemodialysis: effects on solute clearance, quality of life, and patient survival. Curr Opin Nephrol Hypertens. 2011 Mar;20(2):182-8. doi: 10.1097/MNH.0b013e3283437046. PMID: 21252663. - **Relevant systematic review**

1296. McKenna AM, Keating LE, Vigneux A, et al. Quality of life in children with chronic kidney disease-patient and caregiver assessments. Nephrol Dial Transplant. 2006 Jul;21(7):1899-905. doi: 10.1093/ndt/gfl091. PMID: 16611686. - **Non-United States study**

1297. McKenzie JK, Moss AH, Feest TG, et al. Dialysis decision making in Canada, the United Kingdom, and the United States. Am J Kidney Dis. 1998 Jan;31(1):12-8. PMID: 9428446. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1298. McKercher C, Venn A, Blizzard CL, et al. Psychosocial factors in chronic kidney disease: 2-year follow-up of pilot participants. Nephrology. 2014;19:53. doi: 10.1111/nep.12301. - **Meeting abstract**

1299. McMahon LP, Dawborn JK. Subjective quality of life assessment in hemodialysis patients at different levels of hemoglobin following use of recombinant human erythropoietin. Am J Nephrol. 1992;12(3):162-9. doi: 10.1159/000168439. PMID: 1415377. - **Non-United States study**

1300. McMullen E, Sinha S, Gould L, et al. A phase II trial showing improvements in calcific uraemic arteriolopathy wound healing, pain and quality of life during SNF472 treatment. British Journal of Dermatology. 2019;181((McMullen E.; Sinha S.) Salford Royal NHS Foundation Trust, Salford, United Kingdom):39-40. doi: 10.1111/bjd.17752. **– Meeting abstract**

1301. McNoe B, Schollum JBW, Derrett S, et al. Recruitment and participant baseline characteristics in the dialysis outcomes in those aged 65 years or older study. BMC Nephrol. 2019 Apr 23;20(1):137. doi: 10.1186/s12882-019-1328-8. PMID: 31014261. - **Non-United States study**

1302. McPhatter LL, Lockridge RS, Jr., Albert J, et al. Nightly home hemodialysis: improvement in nutrition and quality of life. Adv Ren Replace Ther. 1999 Oct;6(4):358-65. PMID: 10543717. - **Narrative review**

1303. Md Yusop NB, Yoke Mun C, Shariff ZM, et al. Factors associated with quality of life among hemodialysis patients in Malaysia. PLoS One. 2013;8(12):e84152. doi: 10.1371/journal.pone.0084152. PMID: 24358336. - **Non-United States study**

1304. Medeiros AIC, Brandao DC, Souza RJP, et al. Effects of daily inspiratory muscle training on respiratory muscle strength and chest wall regional volumes in haemodialysis patients: a randomised clinical trial. Disabil Rehabil. 2018 Jul 27:1-8. doi: 10.1080/09638288.2018.1485181. PMID: 30052475. - **Non-United States study**

1305. Medina O, Rojas G, Santos E, et al. Efficacy and tolerability of Zolpidem in a group of Venezuelan patients with insomnia undergoing hemodialysis. Sleep Medicine. 2013;14:e204. doi: 10.1016/j.sleep.2013.11.486. - **Meeting abstract**

1306. Meena RS, Aseri Y, Singh BK, et al. Hearing loss in patients of chronic renal failure: a study of 100 cases. Indian J Otolaryngol Head Neck Surg. 2012 Dec;64(4):356-9. doi: 10.1007/s12070-011-0405-5. PMID: 24294578. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1307. Meers C, Hopman W, Singer MA, et al. A comparison of patient, nurse, and physician assessment of health- related quality of life in end-stage renal disease. Dialysis and Transplantation. 1995;24(3):120+3-4. - **Non-United States study**

1308. Mehrabi S, Sarikhani S, Roozbeh J. Sleep quality in patients undergoing long-term hemodialysis using the pittsburgh sleep quality index. Nephro-urology monthly. 2017;9(2) (no pagination)doi: 10.5812/numonthly.44278. PMID: CN-01336167. - **Non-United States study**

1309. Mehta V, Dubey V, Bhatia R, et al. Assessment of depression in patients on haemodialysis. Australasian Medical Journal. 2012;5(1):39. - **Meeting abstract**

1310. Meinero S, Tesio E, Bainotti S, et al. [Quality of life assessment in dialyzed patients in the Cuneo area]. G Ital Nefrol. 2011 Jan-Feb;28(1):72-9. PMID: 21341248. - **Non-English**

1311. Mendoza JA, Khan H, Sanchez-Reilly S, et al. Even america's heroes need help: Understanding palliative care needs of veterans on hemodialysis. Journal of the American Geriatrics Society. 2018;66:S33. doi: 10.1111/jgs.15376. - **Meeting abstract**

1312. Menon VB, Alla P, Madhuri S, et al. Sleep quality in end-stage renal disease patients on maintenance hemodialysis: A six month prospective survey. International Journal of Pharmaceutical Sciences and Research. 2015;6(2):660-8. doi: 10.13040/IJPSR.0975-8232.6(2).660-68. - **Non-United States study**

1313. Menzaghi F, Vernon MK, Mattera M, et al. Measurement of pruritus associated with chronic kidney disease: A qualitative study of two patient-reported outcome instruments. Journal of Investigative Dermatology. 2018;138(5):S99. - **Meeting abstract**

1314. Mercieca AM, Azzopardi LM, Serracino-Inglott A. Quality of life in hypertensive dialysis patients. International Journal of Pharmacy Practice. 2012;20:82. doi: 10.1111/j.2042-7174.2012.00235.x. - **Meeting abstract**

1315. Merkus MP, Jager KJ, Dekker FW, et al. Predictors of poor outcome in chronic dialysis patients: The Netherlands Cooperative Study on the Adequacy of Dialysis. The NECOSAD Study Group. Am J Kidney Dis. 2000 Jan;35(1):69-79.

PMID: 10620547. - **Non-United States study**

1316. Merkus MP, Jager KJ, Dekker FW, et al. Quality of life in patients on chronic dialysis: self-assessment 3 months after the start of treatment. The Necosad Study Group. Am J Kidney Dis. 1997 Apr;29(4):584-92. PMID: 9100049. **- Non-United States study**

1317. Merkus MP, Jager KJ, Dekker FW, et al. Quality of life over time in dialysis: the Netherlands Cooperative Study on the Adequacy of Dialysis. NECOSAD Study Group. Kidney Int. 1999 Aug;56(2):720-8. doi: 10.1046/j.1523-1755.1999.00563.x. PMID: 10432414. - **Non-United States study**

1318. Merlino G, Lorenzut S, Romano G, et al. Restless legs syndrome in dialysis patients: a comparison between hemodialysis and continuous ambulatory peritoneal dialysis. Neurol Sci. 2012 Dec;33(6):1311-8. doi: 10.1007/s10072-012-0953-9. PMID: 22271263. **- Non-United States study**

1319. Messmer PR. Quality of life in college students' end stage renal disease (ESRD). Fla Nurse. 1991 Feb;39(2):13. PMID: 1997339. - **Other: Study design**

1320. Mettang T, Kremer AE. Uremic pruritus. Kidney Int. 2015 Apr;87(4):685-91. doi: 10.1038/ki.2013.454. PMID: 24402092. - **Non-relevant review**

1321. Meza-García CF, Reynaga-Ornelas L, Baldwin CM, et al. Description of the perceived quality of life in patients with chronic renal failure in three modes of renal replacement therapy in Guanajuato state. Revista Mexicana de Enfermeria Cardiologica. 2013;21(3):103-10. - **Non-English**

1322. Michels WM, van Dijk S, Verduijn M, et al. Quality of life in automated and continuous ambulatory peritoneal dialysis. Perit Dial Int. 2011 Mar-Apr;31(2):138-47. doi: 10.3747/pdi.2010.00063. PMID: 21357936. - **Non-United States study**

1323. Micozkadioglu H, Micozkadioglu I, Zumrutdal A, et al. Relationship between depressive affect and malnutrition-inflammation complex syndrome in haemodialysis patients. Nephrology (Carlton). 2006 Dec;11(6):502-5. doi: 10.1111/j.1440-1797.2006.00664.x. PMID: 17199787. - **Non-United States study**

1324. Micozkadioglu H, Ozdemir FN, Kut A, et al. Gabapentin versus levodopa for the treatment of Restless Legs Syndrome in hemodialysis patients: an open-label study. Ren Fail. 2004 Jul;26(4):393-7. PMID: 15462107. - **Non-United States study**

1325. Milani MJ, Amiri P, Vejdani M, et al. The effect of peer support group on self-transcendence in patients undergoing haemodialysis. Biomedical research and therapy. 2017;4(3):1198-209. doi: 10.15419/bmrat.v4i03.157. PMID: CN-01404001. - **Non-United States study**

1326. Milinkovic M, Zidverc-Trajkovic J, Sternic N, et al. Hemodialysis headache. Clin Nephrol. 2009 Feb;71(2):158-63.

PMID: 19203508. - **Non-United States study**

1327. Miller B. What we learn from studies on more frequent dialysis. Nephrol News Issues. 2011 Nov;25(12):14, 6. PMID: 22204162. **- Other: editorial/perspective**

1328. Mimura T, Suzuki H, Nakamoto H. Oral administration of syakuyaku-kanzo-to/TJ-68 (Japanese herb medicine) ameliorates muscle cramp in patients on CAPD and hemodialysis. Peritoneal Dialysis International. 2011;31:S12. - **Meeting abstract**

1329. Min JW, Kim SH, Kim YO, et al. Comparison of uremic pruritus between patients undergoing hemodialysis and peritoneal dialysis. Kidney Res Clin Pract. 2016 Jun;35(2):107-13. doi: 10.1016/j.krcp.2016.02.002. PMID: 27366666. - **Non-United States study**

1330. Mina RJL, Lerma MA, Litan PLB, et al. Fluid distribution timetable on adherence to fluid restriction of patients with end-stage renal disease undergoing haemodialysis: single-blind, Randomized-Controlled Pilot Study. Journal of advanced nursing. 2019doi: 10.1111/jan.13964. PMID: CN-01917134. - **Non-United States study**

1331. Minana Escriva G, Nunez J, Gonzalez M, et al. Usefulness of peritoneal dialysis in patients with congestive heart failure and renal dysfunction. Effect on quality of life and biochemical prognostic markers. European Journal of Heart Failure, Supplement. 2011;10:S114. doi: 10.1093/eurjhf/hsr006. - **Meeting abstract**

1332. Mingardi G, Cornalba L, Cortinovis E, et al. Health-related quality of life in dialysis patients. A report from an Italian study using the SF-36 Health Survey. DIA-QOL Group. Nephrol Dial Transplant. 1999 Jun;14(6):1503-10. PMID: 10383015. - **Non-United States study**

1333. Mingardi G. From the development to the clinical application of a questionnaire on the quality of life in dialysis. The experience of the Italian Collaborative DIA-QOL (Dialysis-Quality of Life) Group. Nephrol Dial Transplant. 1998;13 Suppl 1:70-5. PMID: 9507502. - **Non-United States study**

1334. Mingardi G. Quality of life and end stage renal disease therapeutic programs. DIA-QOL Group. Dialysis quality of life. Int J Artif Organs. 1998 Nov;21(11):741-7. PMID: 9894753. - **Non-United States study**

1335. Mirza R, Wahid Z, Talat H. Dermatological Manifestations in chronic renal failure patients on haemodialysis. Journal of the Liaquat University of Medical and Health Sciences. 2012;11(1):24-8. - **Non-United States study**

1336. Mishra RK, Dubin RF. The effects of frequent hemodialysis on left ventricular mass, volumes, and geometry. Clin J Am Soc Nephrol. 2013 Dec;8(12):2025-7. doi: 10.2215/cjn.10611013. PMID: 24235288. - **Other: commentary**

1337. Misra M, Twardowski ZJ. Benefits of frequent nocturnal home

hemodialysis. Kidney Int. 2012 Jul;82(1):114-5; author reply 5. doi: 10.1038/ki.2012.90. PMID: 22699382. - **Other: LTE**

1338. Mitema D, Jaar BG. How Can We Improve the Quality of Life of Dialysis Patients? Semin Dial. 2016 Mar-Apr;29(2):93-102. doi: 10.1111/sdi.12467. PMID: 26757059. - **Narrative review**

1339. Mitra S, Kharbanda K. Effects of Expanded Hemodialysis Therapy on Clinical Outcomes. Contrib Nephrol. 2017;191:188-99. doi: 10.1159/000479267. PMID: 28910802. - **Non-relevant review**

1340. Mitrou GI, Grigoriou SS, Konstantopoulou E, et al. Exercise training and depression in ESRD: a review. Semin Dial. 2013 Sep-Oct;26(5):604-13. doi: 10.1111/sdi.12112. PMID: 23834201. - **No human data**

1341. Mitsiou M, Kouidi E, Liakopoulos V, et al. Effects of music and exercise training during hemodialysis on the cardiac autonomic nervous system activity. Nephrology Dialysis Transplantation. 2015;30:iii15. doi: 10.1093/ndt/gfv141.1. - **Meeting abstract**

1342. Moeinzadeh F, Shahidi S, Mortazavi M, et al. Effects of Omega-3 Fatty Acid Supplementation on Serum Biomarkers, Inflammatory Agents, and Quality of Life of Patients on Hemodialysis. Iran J Kidney Dis. 2016 Nov;10(6):381-7. PMID: 27903997. - **Non-United States study**

1343. Mohamed WAAA, Zaki FMK, Bekhit WHM, et al. Sodium thiosulfate (STS): A new option for hemodialysis patients with uremic pruritus. Nephrology Dialysis Transplantation. 2012;27:ii511-ii2. doi: 10.1093/ndt/gfs246. - **Meeting abstract**

1344. Mohr PE, Neumann PJ, Franco SJ, et al. The case for daily dialysis: its impact on costs and quality of life. Am J Kidney Dis. 2001 Apr;37(4):777-89. PMID: 11273878. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1345. Moist LM, Bragg-Gresham JL, Pisoni RL, et al. Travel time to dialysis as a predictor of health-related quality of life, adherence, and mortality: the Dialysis Outcomes and Practice Patterns Study (DOPPS). Am J Kidney Dis. 2008 Apr;51(4):641-50. doi: 10.1053/j.ajkd.2007.12.021. PMID: 18371540. - **Other: non-stratified DOPPS**

1346. Mojgan M, Masoud M, Shahrzad S, et al. Pruritus-reducing effects of omega-3 fatty acids in hemodialysis patients. Iranian Journal of Kidney Diseases. 2017;11:7-8. - **Meeting abstract**

1347. Mokiou S, Hakimi Z, Wang-Silvanto J, et al. USE OF HEALTH-RELATED QUALITY OF LIFE (HRQOL) INSTRUMENTS IN CLINICAL TRIALS OF ANAEMIA OF CHRONIC KIDNEY DISEASE (CKD). Value in Health. 2018;21:S481. doi: 10.1016/j.jval.2018.09.2835. - **Meeting abstract**

1348. Mokoli VM, Bukabau JB, Izeidi PP, et al. [Predictors of physical incapacity degree to chronic

hemodialysis patients in Kinshasa : Key role of the residual diuresis]. Nephrol Ther. 2016 Dec;12(7):530-5. doi: 10.1016/j.nephro.2016.06.004. PMID: 27789324. - **Non-United States study**

1349. Moledina DG, Perry Wilson F. Pharmacologic Treatment of Common Symptoms in Dialysis Patients: A Narrative Review. Semin Dial. 2015 Jul-Aug;28(4):377-83. doi: 10.1111/sdi.12378. PMID: 25913502. - **No human data**

1350. Molfino A, Ida Amabile M, Ammann T, et al. Changes overtime in physical activity level among hemodialysis patients and the association with body composition and the myokine BAIBA. Journal of Cachexia, Sarcopenia and Muscle. 2018;9(6):1130. doi: 10.1002/jcsm.12365. - **Meeting abstract**

1351. Molina Ordas A, Rodriguez Gomez MA, Sanchez Hernandez R, et al. [Haemodialysis 4 days a week: an effective alternative for controlling blood pressure and reaching target weight after dialysis]. Nefrologia. 2010;30(3):369-70. doi: 10.3265/Nefrologia.pre2010.Mar.10265. PMID: 20514107. - **Non-English**

1352. Molina-Robles E, Colomer-Codinachs M, Roquet-Bohils M, et al. Effectiveness of an educational intervention and physical exercise on the functional capacity of patients on haemodialysis. Enferm Clin. 2018 May - Jun;28(3):162-70. doi: 10.1016/j.enfcli.2017.12.003. PMID: 29503041. - **Non-United States study**

1353. Mollaoğlu M. Disability, Activities of Daily Living and Self-Efficacy in Dialysis Patients. TAF Preventive Medicine Bulletin. 2011;10(2):181-6. doi: 10.5455/pmb.20110123102619. - **Non-English**

1354. Mollaoglu M. Fatigue in people undergoing hemodialysis. Dialysis and Transplantation. 2009;38(6):216-20. doi: 10.1002/dat.20330. - **Non-United States study**

1355. Molnar MZ, Novak M, Mucsi I. Management of restless legs syndrome in patients on dialysis. Drugs. 2006;66(5):607-24. doi: 10.2165/00003495-200666050-00003. PMID: 16620140. - **Non-United States study**

1356. Molsted S, Aadahl M, Schou L, et al. Self-rated health and employment status in chronic haemodialysis patients. Scand J Urol Nephrol. 2004;38(2):174-8. doi: 10.1080/00365590310020015. PMID: 15204389. - **Non-United States study**

1357. Molsted S, Bjørkman ASD, Lundstrøm LH. Effects of strength training to patients undergoing dialysis: a systematic review. Danish medical journal. 2019;66(1). - **Non-United States study**

1358. Molsted S, Eidemak I, Sorensen HT, et al. Five months of physical exercise in hemodialysis patients: effects on aerobic capacity, physical function and self-rated health. Nephron Clin Pract. 2004;96(3):c76-81. doi: 10.1159/000076744. PMID: 15056989. - **Non-United States study**

1359. Molsted S, Prescott L, Heaf J, et al. Assessment and clinical aspects of health-related quality of life in dialysis patients and patients with chronic kidney disease. Nephron Clin Pract. 2007;106(1):c24-33. doi: 10.1159/000101481. PMID: 17409766. - **Non-United States study**

1360. Molzahn AE, Northcott HC, Dossetor JB. Quality of life of individuals with end stage renal disease: perceptions of patients, nurses, and physicians. Anna j. 1997 Jun;24(3):325-33; discussion 34-5. PMID: 9238904. - **Non-United States study**

1361. Molzahn AE, Northcott HC, Hayduk L. Quality of life of patients with end stage renal disease: a structural equation model. Qual Life Res. 1996 Aug;5(4):426-32. PMID: 8840822. - **Non-United States study**

1362. Momennasab M, Ranjbar M, Najafi SS. Comparing the effect of listening to music during hemodialysis and at bedtime on sleep quality of hemodialysis patients: A randomized clinical trial. European Journal of Integrative Medicine. 2018;17:86-91. doi: 10.1016/j.eujim.2017.12.001. - **Non-United States study**

1363. Monroy M, Ruiz MA, Rejas J, et al. Mapping of renal symptom severity scores into utility scores. Quality of Life Research. 2018;27:S190. doi: 10.1007/s11136-018-1946-9. - **Other: editorial**

1364. Monroy-Gálvez A, Jiménez-López LA, Ricardez-Espinosa AA, et al. Erectile dysfunction in patients on hemodialysis. Revista Mexicana de Urologia. 2017;77(5):361-71. doi: 10.24245/revmexurol.v77i5.1164. – **Non-English language study**

1365. Montalto G, Lupica R, Fazio MR, et al. Quality of life in elderly patients in ESRD and dialysis: A new biochemical approach neuropsychology. Nephrology Dialysis Transplantation. 2013;28:i269-i70. doi: 10.1093/ndt/gft121. - **Meeting abstract**

1366. Montinaro V, Iaffaldano GP, Granata S, et al. Emotional symptoms, quality of life and cytokine profile in hemodialysis patients. Clin Nephrol. 2010 Jan;73(1):36-43. PMID: 20040350. - **Non-United States study**

1367. Moossavi S, Freedman BI. Treating anemia with erythropoiesis-stimulating agents: effects on quality of life. Arch Intern Med. 2009 Jun 22;169(12):1100-1. doi: 10.1001/archinternmed.2009.159. PMID: 19546408. - **Other: letter--no data**

1368. Mora R, Gudiño A, Riestra A, et al. Depressive symptoms in patients with end-stage renal disease undergoing hemodialysis. Salus. 2009;13(2):30-2. - **Non-English**

1369. Moraes TP, Ribeiro SC. Dialysis modality and quality of life. J Bras Nefrol. 2015 Jul-Sep;37(3):289-90. doi: 10.5935/0101-2800.20150047. PMID: 26398637. - **No human data**

1370. Morales Garcia AI, Arenas Jimenez MD, Reig-Ferrer A, et al. [Dispositional optimism in patients on chronic haemodialysis and its possible influence on their clinical course]. Nefrologia. 2011;31(2):199-205. doi:

10.3265/Nefrologia.pre2011.Feb.10534. PMID: 21461014. - **Non-United States study**

1371. Morales-Jaimes R, Salazar-Martinez E, Flores-Villegas FJ, et al. [The role of depression in the quality of life among patients undergoing renal substitutive therapy]. Gac Med Mex. 2008 Mar-Apr;144(2):91-8. PMID: 18590028. - **Non-United States study**

1372. Moreira CA, Garletti Junior W, Lima LF, et al. [Assesment or the basic psychometric properties for the Portuguese version of the KDQOL-SF]. Rev Assoc Med Bras (1992). 2009 Jan-Feb;55(1):22-8. PMID: 19360273. - **Non-United States study**

1373. Moreira JM, Vieira É LM, Teixeira AL, et al. Neurotrophic and inflammatory markers in children and adolescents with chronic kidney diseases: Association with symptoms of anxiety and depression, quality of life and resilience. Pediatric Nephrology. 2016;31(10):1922. doi: 10.1007/s00467-016-3467-5. - **Meeting abstract**

1374. Moreira PR, de Rosso Krug R, Keller KD, et al. FUNCTIONAL PHYSICAL REHABILITATION PROGRAM FOR PATIENTS ON HEMODIALYSIS. American Journal of Kidney Diseases. 2019;73(5):661. doi: 10.1053/j.ajkd.2019.03.075. **– Meeting abstract**

1375. Morelon E, Berthoux F, Brun-Strang C, et al. Partners' concerns, needs and expectations in ESRD: results of the CODIT Study. Nephrol Dial Transplant. 2005 Aug;20(8):1670-5. doi: 10.1093/ndt/gfh717. PMID: 15956074. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1376. Morena M, Jaussent A, Chalabi L, et al. Treatment tolerance and patient-reported outcomes favor online hemodiafiltration compared to high-flux hemodialysis in the elderly. Kidney international. (no pagination), 2017. 2017;Date of Publication: May 25doi: 10.1016/j.kint.2017.01.013. PMID: CN-01339086. - **Non-United States study**

1377. Moreno Barrio F, Aracil FJ, Perez Garcia R, et al. Improvement of quality of life in elderly hemodialysis patients after correcting ESRD-related anemia with erythropoietin. Nefrologia. 1995;15(5):476-85. - **Non-English**

1378. Moreno F, Aracil FJ, Perez R, et al. Controlled study on the improvement of quality of life in elderly hemodialysis patients after correcting end-stage renal disease-related anemia with erythropoietin. Am J Kidney Dis. 1996 Apr;27(4):548-56. PMID: 8678066. - **Non-United States study**

1379. Moreno F, Aracil FJ, Pérez R, et al. Controlled study on the improvement of quality of life in elderly hemodialysis patients after correcting end-stage renal disease-related anemia with erythropoietin. American journal of kidney diseases. 1996;27(4):548-56. PMID: CN-00126429. - **Non-United States study**

1380. Moreno F, Lopez Gomez JM, Sanz-Guajardo D, et al. Quality of life in dialysis patients. A spanish multicentre study. Spanish

Cooperative Renal Patients Quality of Life Study Group. Nephrol Dial Transplant. 1996;11 Suppl 2:125-9. PMID: 8804012. - **Non-United States study**

1381. Moric A. Frequency of restless legs syndrome in patients with chronic renal failure. European Journal of Medical Research. 2010;15:139. - **Meeting abstract**

1382. Morris PL, Jones B. Life satisfaction across treatment methods for patients with end-stage renal failure. Med J Aust. 1989 Apr 17;150(8):428-32. PMID: 2654590. - **Other: no tool**

1383. Morris PL, Jones B. Transplantation versus dialysis: a study of quality of life. Transplant Proc. 1988 Feb;20(1):23-6. PMID: 3278459. - **Non-United States study**

1384. Morsch CM, Goncalves LF, Barros E. Health-related quality of life among haemodialysis patients--relationship with clinical indicators, morbidity and mortality. J Clin Nurs. 2006 Apr;15(4):498-504. doi: 10.1111/j.1365-2702.2006.01349.x. PMID: 16553764. - **Non-United States study**

1385. Morton AR, Meers C, Singer MA, et al. Quantity of dialysis: quality of life--what is the relationship? Asaio j. 1996 Sep-Oct;42(5):M713-7. PMID: 8944973. - **Non-United States study**

1386. Morton RL, Hoffman A, Josland E, et al. Symptom burden and euroqol eq-5d-5l utility-based quality of life for australian patients with end-stage kidney disease receiving renal supportive care: Preliminary results from a prospective statewide cohort analysis. Nephrology. 2018;23:31-2. doi: 10.1111/nep.13441. - **Non-United States study**

1387. Motamed Najjar M, Ossareh S, Bahmani B, et al. Effectiveness of cognitive-existential group therapy on increasing hope in women under maintenance emodialysis. Iranian Journal of Kidney Diseases. 2011;5:32-3. - **Meeting abstract**

1388. Motedayen Z, Nehrir B, Tayebi A, et al. The effect of the physical and mental exercises during hemodialysis on fatigue: a controlled clinical trial. Nephro-urology monthly. 2014;6(4)doi: 10.5812/numonthly.14686. PMID: CN-00998438. - **Non-United States study**

1389. Motonishi S, Tanaka K, Ozawa T. Iron deficiency associates with deterioration in several symptoms independently from hemoglobin level among chronic hemodialysis patients. PLoS One. 2018;13(8):e0201662. doi: 10.1371/journal.pone.0201662. PMID: 30071093. - **Non-United States study**

1390. Moura A, Madureira J, Alija P, et al. Effect of aging in the perception of health related quality of life, dialysis adequacy, iron status, inflammation and nutritional markers in end stage renal disease patients under online hemodiafiltration. Nephrology Dialysis Transplantation. 2014;29:iii296-iii7. doi: 10.1093/ndt/gfu159. - **Meeting abstract**

1391. Moura A, Madureira J, Alija P, et al. Effect of Aging in the Perception of Health-Related Quality of Life in End-Stage Renal Disease

Patients under Online-Hemodiafiltration. Aging Dis. 2015 Feb;6(1):17-26. doi: 10.14336/ad.2014.0514. PMID: 25657849. - **Non-United States study**

1392. Moura A, Madureira J, Alija P, et al. Predictors of health related quality of life perceived by end stage renal disease patients under online hemodiafiltration. Nephrology Dialysis Transplantation. 2014;29:iii509. doi: 10.1093/ndt/gfu177. - **Meeting abstract**

1393. Moura A, Madureira J, Alija P, et al. Predictors of health-related quality of life perceived by end-stage renal disease patients under online hemodiafiltration. Qual Life Res. 2015 Jun;24(6):1327-35. doi: 10.1007/s11136-014-0854-x. PMID: 25381124. - **Non-United States study**

1394. Moura A, Madureira J, Alija P, et al. Type of vascular access and location in online hemodiafiltration and its association with patient's perception of health-related quality of life. J Vasc Access. 2014 May-Jun;15(3):175-82. doi: 10.5301/jva.5000182. PMID: 24170586. - **Non-United States study**

1395. Mowatt G, Vale L, MacLeod A. Systematic review of the effectiveness of home versus hospital or satellite unit hemodialysis for people with end-stage renal failure. Int J Technol Assess Health Care. 2004 Summer;20(3):258-68. PMID: 15446754. - **Patients receiving treatment in locations other than home or in-center**

1396. Mozes B, Shabtai E, Zucker D. Differences in quality of life among patients receiving dialysis replacement therapy at seven medical centers. J Clin Epidemiol. 1997 Sep;50(9):1035-43. PMID: 9363038. - **Non-United States study**

1397. Mrduljas-Dujic N. [QUALITY OF LIFE OF DIALYSIS PATIENTS]. Acta Med Croatica. 2016 Dec;70(4-5):225-32. PMID: 29087101. - **Non-United States study**

1398. Mucenica EC, Boisteanu D, Wirth JA, et al. Sleep-disordered breathing in patients with end-stage renal disease and long-term dialysis. Somnologie. 2007;11(3):211-5. doi: 10.1007/s11818-007-0309-5. - **Non-United States study**

1399. Mucke M, Cuhls H, Peuckmann-Post V, et al. Pharmacological treatments for fatigue associated with palliative care. Cochrane Database Syst Rev. 2015 May 30(5):Cd006788. doi: 10.1002/14651858.CD006788.pub3. PMID: 26026155. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1400. Mucsi I, Molnar MZ, Ambrus C, et al. Restless legs syndrome, insomnia and quality of life in patients on maintenance dialysis. Nephrol Dial Transplant. 2005 Mar;20(3):571-7. doi: 10.1093/ndt/gfh654. PMID: 15671074. - **Non-United States study**

1401. Muehrer RJ, Becker BN. Life after transplantation: new transitions in quality of life and psychological distress. Semin Dial. 2005 Mar-

Apr;18(2):124-31. doi: 10.1111/j.1525-139X.2005.18214.x. PMID: 15771656. - **Narrative review**

1402. Mueller J. Has the CMS rule of "4 visits per month" influenced patient outcomes? Increased frequency of visits has promoted improved patient/provider relationships. Nephrol Nurs J. 2007 May-Jun;34(3):343-4. PMID: 17644878. - **Non-relevant review**

1403. Mulder A, Sikken-Kersten L. Spirituality During Hemodialysis: A Pilot Study. Nephrol Nurs J. 2016 Jul-Aug;43(4):323-9. PMID: 30550059. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1404. Mumtaz A, Anees M, Barki MH, et al. Erectile dysfunction in haemodialysis patients. J Ayub Med Coll Abbottabad. 2009 Apr-Jun;21(2):4-7. PMID: 20524457. - **Non-United States study**

1405. Munera C, Vernon MK, Stauffer JW, et al. Psychometric validation and meaningful change threshold of the worst itching intensity numerical rating scale for use in hemodialysis patients with pruritus. Journal of Investigative Dermatology. 2018;138(5):S99. - **Meeting abstract**

1406. Murali R, Sathyanarayana D, Muthusethupathy M. Assessment of quality of life in chronic kidney disease patients using the kidney disease quality of life-short formtm questionnaire in indian population: A community based study. Asian Journal of Pharmaceutical and Clinical Research. 2015;8(1):271-4. - **Non-United States study**

1407. Murphy MF. Dialysis procedures and health-related quality of life: The challenge of creating evidence-based healthcare in end-stage renal disease. American Health and Drug Benefits. 2018;11(3):125-7. - **Other: perspective**

1408. Murtagh FE, Addington-Hall JM, Edmonds PM, et al. Symptoms in advanced renal disease: a cross-sectional survey of symptom prevalence in stage 5 chronic kidney disease managed without dialysis. J Palliat Med. 2007 Dec;10(6):1266-76. doi: 10.1089/jpm.2007.0017. PMID: 18095805. - **Other: Non dialysis pts**

1409. Murtagh FE, Addington-Hall JM, Higginson IJ. The value of cognitive interviewing techniques in palliative care research. Palliat Med. 2007 Mar;21(2):87-93. doi: 10.1177/0269216306075367. PMID: 17344256. - **Non-United States study**

1410. Muscaritoli M, Molfino A, Chiappini MG, et al. Anorexia in hemodialysis patients: the possible role of des-acyl ghrelin. Am J Nephrol. 2007;27(4):360-5. doi: 10.1159/000103798. PMID: 17556836. - **Non-United States study**

1411. Mustata S, Cooper L, Langrick N, et al. The effect of a Tai Chi exercise program on quality of life in patients on peritoneal dialysis: a pilot study. Perit Dial Int. 2005 May-Jun;25(3):291-4. PMID: 15981780. - **Non-United States study**

1412. Muthny FA, Koch U. Quality of life of patients with end-stage renal failure. A comparison of hemodialysis, CAPD, and transplantation. Contrib Nephrol. 1991;89:265-73. PMID: 1893735. - **Narrative review**

1413. Myint TM, Cooper BA, Pollock CA, et al. Starting dialysis early: no survival, quality of life, or cost advantages. Semin Dial. 2012 Sep-Oct;25(5):522-3. doi: 10.1111/j.1525-139X.2012.01117.x. PMID: 22823228. - **Narrative review**

1414. Myint TM, Jois S, Gordon K, et al. A cross sectional descriptive study of palliative care outcome scale-symptoms in end stage renal disease (POS-S-Renal) reported by haemodialysis patients and staff. Nephrology. 2013;18:29. doi: 10.1111/nep.12121. - **Meeting abstract**

1415. Nabolsi MM, Wardam L, Al-Halabi JO. Quality of life, depression, adherence to treatment and illness perception of patients on haemodialysis. Int J Nurs Pract. 2015 Feb;21(1):1-10. doi: 10.1111/ijn.12205. PMID: 24124912. - **Non-United States study**

1416. Nadeau-Fredette AC, Badve SV, Johnson DW. Daily home hemodialysis: balancing cardiovascular benefits with infectious harms. Am J Kidney Dis. 2015 Jan;65(1):6-8. doi: 10.1053/j.ajkd.2014.08.012. PMID: 25523799. - **Non-relevant review**

1417. Nagaraju SP, Kosuru S, Parthasarathy R, et al. Effects of citrate acid concentrate on hemodialysis adequacy, reuse, and quality of life: a prospective randomized crossover trial. Indian journal of nephrology. 2018;28(4):287-90. doi: 10.4103/ijn.IJN_154_17. PMID: CN-01629822. - **Non-United States study**

1418. Nagaraju SP, Kosuru S, Parthasarathy R, et al. Effects of Citrate Acid Concentrate on Hemodialysis Adequacy, Reuse, and Quality of Life: A Prospective Randomized Crossover Trial. Indian J Nephrol. 2018 Jul-Aug;28(4):287-90. doi: 10.4103/ijn.IJN_154_17. PMID: 30158747. - **Non-United States study**

1419. Nagasawa H, Tachi T, Sugita I, et al. The effect of quality of life on medication compliance among dialysis patients. Frontiers in Pharmacology. 2018;9(JUN)doi: 10.3389/fphar.2018.00488. - **Non-United States study**

1420. Nagler EV, Webster AC, Vanholder R, et al. Antidepressants for depression in stage 3-5 chronic kidney disease: a systematic review of pharmacokinetics, efficacy and safety with recommendations by European Renal Best Practice (ERBP). Nephrol Dial Transplant. 2012 Oct;27(10):3736-45. doi: 10.1093/ndt/gfs295. PMID: 22859791. - **Relevant systematic review**

1421. Naglie G, Nonoyama M, Ponikvar A, et al. Exercise program to enhance physical performance and quality of life of older hemodialysis patients: A feasibility study. Journal of the American Geriatrics Society. 2010;58:S186-S7. doi: 10.1111/j.1532-5415.2010.02850.x. - **Meeting abstract**

1422. Nair D, Wilson FP. Patient-Reported Outcome Measures for Adults With Kidney Disease: Current Measures, Ongoing Initiatives, and Future Opportunities for Incorporation Into Patient-Centered Kidney Care. Am J Kidney Dis. 2019 Sep 3doi: 10.1053/j.ajkd.2019.05.025. PMID: 31492487. **– Narrative review--relevant to either KQ**

1423. Naish PF, Koufaki P, Mercer T. Nutritional status is associated with physical functioning and quality of life in end stage renal disease patients. Journal of the american society of nephrology : JASN. 2001;12(Program & Abstracts):341A. PMID: CN-00446891. - **Meeting abstract**

1424. Najafipour S, Raoofi R, Emamghorieshi F. Prevalence of depression in hemodialysis patients of hospita in Jahrom Iran. European Psychiatry. 2012;27doi: 10.1016/S0924-9338(12)74677-1. - **Meeting abstract**

1425. Nakamoto H, Kobayashi T, Noguchi T, et al. Prevalence and Severity of Itching in Patients with End-Stage Renal Disease: Treatment with Nalfurafine Hydrochloride. Blood Purif. 2019;47 Suppl 2:45-9. doi: 10.1159/000496637. PMID: 30943482. - **Non-United States study**

1426. Nalýcan E, Demirhindi H, Akbaba M. Life quality and affecting factors in chronic renal failure patients undergoing hemodialysis. TAF Preventive Medicine Bulletin. 2012;11(4):383-8. doi: 10.5455/pmb.1322733079. - **Non-English**

1427. Nandadeva D, Liyanaarachchi LRL, Samankantha HS, et al. Prevalence of respiratory symptoms and their pathological significance in patients with end stage renal failure; a descriptive study. Respirology. 2014;19:96. doi: 10.1111/resp.12417. - **Meeting abstract**

1428. Narita I, Iguchi S, Omori K, et al. Uremic pruritus in chronic hemodialysis patients. J Nephrol. 2008 Mar-Apr;21(2):161-5. PMID: 18446709. - **Non-United States study**

1429. Nasiri E, Raei M, Vatani J, et al. The effect of acupressure on quality of sleep in hemodialysis patients. Journal of Medical Sciences. 2011;11(5):236-40. doi: 10.3923/jms.2011.236.240. - **Non-United States study**

1430. Nasr M, Hadj Ammar M, Khammouma S, et al. [Haemodialysis and its impact on the quality of life]. Nephrol Ther. 2008 Feb;4(1):21-7. doi: 10.1016/j.nephro.2007.07.008. PMID: 18162450. - **Non-United States study**

1431. Nasrollahi AR, Miladipour A, Ghanei E, et al. Montelukast for treatment of refractory pruritus in patients on hemodialysis. Iran J Kidney Dis. 2007 Oct;1(2):73-7. PMID: 19363280. - **Non-United States study**

1432. Nasser Mel T, Shawki S, El Shahawy Y, et al. Assessment of cognitive dysfunction in kidney disease. Saudi J Kidney Dis Transpl. 2012 Nov;23(6):1208-14. doi: 10.4103/1319-2442.103561. PMID: 23168850. - **Non-United States study**

1433. Nassir A. Sexual function in male patients undergoing treatment for renal failure: a prospective view.

J Sex Med. 2009 Dec;6(12):3407-14. doi: 10.1111/j.1743-6109.2009.01411.x. PMID: 19678883. - **Non-United States study**

1434. Natale P, Palmer S, Ruospo M, et al. Interventions to improve sleep quality in people with chronic kidney disease:acochrane systematic review. Nephrology Dialysis Transplantation. 2018;33:i28. doi: 10.1093/ndt/gfy104.FO025. - **Meeting abstract**

1435. Navarro D, Gonc¸alves C, Ferreira AC, et al. Switching to long nocturnal dialysis: A center's experience. Nephrology Dialysis Transplantation. 2014;29:iii462. doi: 10.1093/ndt/gfu173. - **Meeting abstract**

1436. Nayak Rao S, Bhatta S, Bapat U. Bio-psychosocial factors influencing survival in longterm hemodialysis patients. Nephrology. 2016;21:173. doi: 10.1111/nep.12888. - **Meeting abstract**

1437. Nayana SA, Balasubramanian T, Nathaliya PM, et al. A cross sectional study on assessment of health related quality of life among end stage renal disease patients undergoing hemodialysis. Clinical Epidemiology and Global Health. 2017;5(3):148-53. doi: 10.1016/j.cegh.2016.08.005. - **Non-United States study**

1438. Nena E, Kroustallaki E, Steiropoulos P, et al. Sleep quality quality of life, and sleep disorders in patients with end-stage renal disease undergoing long-term haemodialysis. Journal of Thoracic Disease. 2012;4doi: 10.3978/j.issn.2072-1439.2012.s109. - **Meeting abstract**

1439. Neri L, Brancaccio D, Rocca Rey LA, et al. Social support from health care providers is associated with reduced illness intrusiveness in hemodialysis patients. Clin Nephrol. 2011 Feb;75(2):125-34. PMID: 21255542. - **Non-United States study**

1440. Nesrallah GE. Increased frequency of hemodialysis reduced adverse clinical outcomes. Annals of internal medicine. 2011;154(8):JC4-6. PMID: CN-00895039. - **Non-relevant review**

1441. Neto JF, Ferraz MB, Cendoroglo M, et al. Quality of life at the initiation of maintenance dialysis treatment--a comparison between the SF-36 and the KDQ questionnaires. Qual Life Res. 2000 Feb;9(1):101-7. PMID: 10981210. - **Non-United States study**

1442. Neul S, Currier H, Goldstein S. Change in health-related quality of life (HRQOL) functioning over a 2-year period in the pediatric patient (pt) with end-stage renal disease. Hemodialysis International. 2012;16(1):166-7. doi: 10.1111/j.1542-4758.2011.00651.x. - **Meeting abstract**

1443. Neumann CL, Wagner F, Menne J, et al. Body weight telemetry is useful to reduce interdialytic weight gain in patients with end-stage renal failure on hemodialysis. Telemedicine journal and e-health. 2013;19(6):480-6. PMID: CN-01912215. - **Non-United States study**

1444. Neumann D, Mau W, Wienke A, et al. Neurocognition in patients with ESRD: The course of cognitive function in the early phase of

peritoneal and hemodialysis. Nephrology Dialysis Transplantation. 2017;32:iii344. doi: 10.1093/ndt/gfx154. - **Meeting abstract**

1445. Neumann D, Mau W, Wienke A, et al. Peritoneal dialysis is associated with better cognitive function than hemodialysis over a one-year course. Kidney Int. 2018 Feb;93(2):430-8. doi: 10.1016/j.kint.2017.07.022. PMID: 29042081. - **Non-United States study**

1446. Neumann M. Getting a good night's sleep. Nephrol News Issues. 2003 Jun;17(7):18. PMID: 12847957. - **No human data**

1447. New J. Improving the quality of care for people with chronic kidney disease and diabetes. Practical Diabetes International. 2006;23(1):8. doi: 10.1002/pdi.881. - **Non-relevant review**

1448. Ngai CH. Quality of life and disease burden in diabetic patients with end stage kidney disease on haemodialysis compared to diabetic patients with chronic kidney disease. Nephrology Dialysis Transplantation. 2016;31:i543-i4. doi: 10.1093/ndt/gfw198.25. - **Meeting abstract**

1449. Nguyen NT, Douglas C, Bonner A. Effectiveness of self-management programme in people with chronic kidney disease: a pragmatic randomized controlled trial. Journal of advanced nursing. 2019;75(3):652-64. doi: 10.1111/jan.13924. PMID: CN-01793454. - **Non-United States study**

1450. Nguyen TV, Goldfarb DS. Implications of a reduction in the hemoglobin target in erythropoiesis-stimulating agent-treated hemodialysis patients. Nephron Extra. 2011 Jan;1(1):212-6. doi: 10.1159/000334228. PMID: 22470394. - **Other: Discusses QOL, but there is no tool involved**

1451. Nicholas DB, Picone G, Selkirk EK. The lived experiences of children and adolescents with end-stage renal disease. Qual Health Res. 2011 Feb;21(2):162-73. doi: 10.1177/1049732310382789. PMID: 20833832. - **Non-United States study**

1452. Nicoud P, Hanf W, Kintega R, et al. New tools for ashort daily homedialysis program development:a french nephrologist group experience. Nephrology Dialysis Transplantation. 2018;33:i190-i1. doi: 10.1093/ndt/gfy104.FP460. - **Meeting abstract**

1453. Nicoud P, Pouliquen E, Huet M, et al. A convective daily home dialysis program development: Preliminary outcomes. Nephrology Dialysis Transplantation. 2018;33:i503. doi: 10.1093/ndt/gfy104.SP463. - **Meeting abstract**

1454. Niechzial M, Hampel E, Grobe T, et al. [Determinants of the quality of life in chronic renal failure]. Soz Praventivmed. 1997;42(3):162-74. PMID: 9334088. - **Non-English**

1455. Nikic PM, Andric BR, Stojanovic-Stanojevic M, et al. [Restless legs syndrome prevalence in patients on chronic hemodialysis in central Serbia]. Vojnosanit Pregl.

2007 Feb;64(2):129-34. PMID: 17348465. - **Non-United States study**

1456. Nikolaou S, Tsagaridou M, Lavranos G, et al. The prevalence of depression in patients with chronic renal failure and its correlation with clinical risk factors. Archives of Hellenic Medicine. 2017;34(4):476-82. - **Non-United States study**

1457. Nissenson AR, Goodnough LT, Dubois RW. Anemia: not just an innocent bystander? Arch Intern Med. 2003 Jun 23;163(12):1400-4. doi: 10.1001/archinte.163.12.1400. PMID: 12824088. - **Non-relevant review**

1458. Nissenson AR. Assessing the effects of peritoneal dialysis on the health-related quality of life of the adult patient. Perit Dial Int. 1997;17 Suppl 3:S32-4. PMID: 9304655. - **Non-relevant review**

1459. Nissenson AR. Quality of life elderly and diabetic patients on peritoneal dialysis. Perit Dial Int. 1996;16 Suppl 1:S406-9. PMID: 8728233. - **Non-relevant review**

1460. Nistor I, Palmer SC, Craig JC, et al. Convective versus diffusive dialysis therapies for chronic kidney failure: an updated systematic review of randomized controlled trials. Am J Kidney Dis. 2014 Jun;63(6):954-67. doi: 10.1053/j.ajkd.2013.12.004. PMID: 24434188. - **Narrative review**

1461. Nistor I, Palmer SC, Craig JC, et al. Haemodiafiltration, haemofiltration and haemodialysis for end-stage kidney disease. Cochrane Database of Systematic Reviews. 2015(5)doi: 10.1002/14651858.CD006258.pub2. PMID: CD006258. - **Relevant systematic review**

1462. Niu SF, Li IC. Quality of life of patients having renal replacement therapy. J Adv Nurs. 2005 Jul;51(1):15-21. doi: 10.1111/j.1365-2648.2005.03455.x. PMID: 15941456. - **Non-United States study**

1463. Nobakht E, Cohen SD. Editorial comment: health-related quality of life in hemodialysis patients: an Iranian multi-center study. Nephrourol Mon. 2014 Mar;6(2):e16986. doi: 10.5812/numonthly.16986. PMID: 25032131. - **Non-United States study**

1464. Nochaiwong S, Ruengorn C, Awiphan R, et al. Development of a multidimensional assessment tool for uraemic pruritus: Uraemic Pruritus in Dialysis Patients (UP-Dial). Br J Dermatol. 2017 Jun;176(6):1516-24. doi: 10.1111/bjd.15268. PMID: 28012182. - **Non-United States study**

1465. Noguchi M, Yamaguchi S, Koshino Y, et al. Associations among physical activity, physical function, and arteriosclerosis index in dialysis patients. Physiotherapy (United Kingdom). 2015;101:eS1101-eS2. doi: 10.1016/j.physio.2015.03.1997. - **Meeting abstract**

1466. Noohi S, Azar M, Behzadi AH, et al. Comparison of sexual function in females receiving haemodialysis and after renal transplantation. J Ren Care. 2010 Dec;36(4):212-7. doi: 10.1111/j.1755-6686.2010.00198.x.

PMID: 20969740. - **Non-United States study**

1467. Noori N, Sharma Parpia A, Lakhani R, et al. Frailty and the Quality of Life in Hemodialysis Patients: The Importance of Waist Circumference. J Ren Nutr. 2018 Mar;28(2):101-9. doi: 10.1053/j.jrn.2017.07.007. PMID: 29158063. - **Non-United States study**

1468. Nor NM, Lee YY, Adnan AS, et al. The impact of functional nausea on health-related quality of life in patients with chronic kidney disease. Journal of Gastroenterology and Hepatology. 2018;33:347. doi: 10.1111/jgh.14486. - **Non-United States study**

1469. Nor NM, Lee YY, Adnan AS, et al. The impact of gastroesophageal reflux disease, irritable bowel syndrome, and functional constipation on health-related quality of life in patients with chronic kidney disease. Journal of Gastroenterology and Hepatology. 2018;33:490. doi: 10.1111/jgh.14488. - **Meeting abstract**

1470. Nor NM, Yeh Lee Y, Adnan AS, et al. The impact of gastroesophageal reflux disease, irritable bowel syndrome, and functional constipation on healthrelated quality of life in patients with chronic kidney disease. Journal of Gastroenterology and Hepatology. 2018;33:490. doi: 10.1111/jgh.14488. - **Meeting abstract**

1471. Nordyke R, Hedgeman E, Nicholson G, et al. Vascular access-specific HRQoL impacts among hemodialysis patients: The hemodialysis access-related QoL (HARQ) project focus group results. Value in Health. 2018;21:S268. - **Meeting abstract**

1472. Normand G, Xu X, Panaye M, et al. Pregnancy Outcomes in French Hemodialysis Patients. American Journal of Nephrology. 2018;47(4):219-27. doi: 10.1159/000488286. - **Non-United States study**

1473. Normohamadi B, Jaafarpour M, Khani A. The prevalence of sleep disorder and associated factors in haemodialysis patients: An Iranian study. Journal of Clinical and Diagnostic Research. 2012;6(6):1007-10. - **Non-United States study**

1474. Noshad H, Sadreddini S, Nezami N, et al. Comparison of outcome and quality of life: haemodialysis versus peritoneal dialysis patients. Singapore Med J. 2009 Feb;50(2):185-92. PMID: 19296035. - **Non-United States study**

1475. Novakovic M, Babic D, Dedic G, et al. Euthanasia of patients with the chronic renal failure. Coll Antropol. 2009 Mar;33(1):179-85. PMID: 19408623. - **Non-United States study**

1476. Novakovic M, Babic D, Milovanovic A, et al. Anthropological aspect of death in dialyzed patients. Coll Antropol. 2008 Jun;32(2):587-94. PMID: 18756915. - **Non-United States study**

1477. Novo A, Domingues Â, Preto L, et al. Effects of a strength exercise program during hemodialysis. Nephrology Dialysis

Transplantation. 2013;28:i455. doi: 10.1093/ndt/gft147. - **Meeting abstract**

1478. Nthite T, Swanepoel C, Arendse C, et al. Peritoneal dialysis as a dialysis option for emerging countries: Perspectives from a quality-of-life (QOL) study in Cape Town. Cardiovascular Journal of Africa. 2010;21(3):S12. - **Meeting abstract**

1479. Nunez-Murillo G, Marquez-Herrera R, Silva-Ocegueda A, et al. Taste perception and nutritional status in patients with dialysis nutritional status in patients with dialysis. Nephrology Dialysis Transplantation. 2017;32:iii262. doi: 10.1093/ndt/gfx148. - **Meeting abstract**

1480. Oberley ET, Schatell DR. Home hemodialysis and patient outcomes. Dialysis and Transplantation. 1995;24(10):551-2+4-6. - **Narrative review**

1481. Öborn H, Forinder U, Herthelius M. Health-related quality of life in children and adolescents with chronic kidney disease with and without bladder dysfunction. Nephrology Dialysis Transplantation. 2014;29:iii573. doi: 10.1093/ndt/gfu181. - **Meeting abstract**

1482. Öborn H, Forinder U, Herthelius M. Health-related quality of life in children with chronic kidney disease, comparisons between parent and child reports. Pediatric Nephrology. 2017;32(9):1794. doi: 10.1007/s00467-017-3753-x. - **Meeting abstract**

1483. O'Brien FJ, Fong KD, Sirich TL, et al. More Dialysis Has Not Proven Much Better. Semin Dial. 2016 Nov;29(6):481-90. doi: 10.1111/sdi.12533. PMID: 27556575. - **Narrative review**

1484. Obrien O, Beavis J, Foo C, et al. Using the patient outcome scale to address symptom burden in patients with end-stage renal disease. Nephrology. 2015;20:80. doi: 10.1111/nep.12544. - **Meeting abstract**

1485. Ochi A, Ishimura E, Tsujimoto Y, et al. Elemental concentrations in scalp hair, nutritional status and health-related quality of life in hemodialysis patients. Ther Apher Dial. 2012 Apr;16(2):127-33. doi: 10.1111/j.1744-9987.2011.01043.x. PMID: 22458390. - **Non-United States study**

1486. Ogna A, Forni Ogna V, Mihalache A, et al. Effects of fluid removal by hemodialysis on sleep apnea in end-stage renal disease patients. Sleep Medicine. 2015;16:S185. doi: 10.1016/j.sleep.2015.02.483. - **Meeting abstract**

1487. Ogna A, Ogna VF, Mihalache A, et al. Reducing overhydration with hemodialysis decreases overnight rostral fluid shift and improves obstructive sleep apnea in patients with end stage renal disease. American journal of respiratory and critical care medicine. 2014;189(Abstract ue):A3908. PMID: CN-01658083. - **Meeting abstract**

1488. Ogna VF, Ogna A, Bassi I, et al. Prevalence and predictors of sleep apnea in patients undergoing chronic intermittent hemodialysis. Swiss Medical Weekly. 2013;143:6S. - **Non-United States study**

1489. Oh H, Mo J, Seo W. Correlates of cognitive impairment in patients with chronic kidney failure on haemodialysis: Systematic review and meta-analysis. J Adv Nurs. 2019 May;75(5):962-78. doi: 10.1111/jan.13907. PMID: 30407656. - **Relevant systematic review**

1490. Oh HJ, Kim SJ, Kang DH, et al. The discrepancy in the predictability of subjective global assessment for mortality according to dialysis vintage in hemodialysis patients. Nephrology Dialysis Transplantation. 2018;33:i569. doi: 10.1093/ndt/gfy104.SP662. - **Meeting abstract**

1491. Oishi D, Koitabashi K, Hiraki K, et al. Physical activity is associated with serum albumin in peritoneal dialysis patients. Adv Perit Dial. 2012;28:148-52. PMID: 23311233. - **Non-United States study**

1492. Ok E, Duman S, Asci G, et al. Comparison of 4- and 8-h dialysis sessions in thrice-weekly in-centre haemodialysis: a prospective, case-controlled study. Nephrol Dial Transplant. 2011 Apr;26(4):1287-96. doi: 10.1093/ndt/gfq724. PMID: 21148270. - **Non-United States study**

1493. Okada K, Abe M, Hagi C, et al. Prolonged protective effect of short daily hemodialysis against dialysis-induced hypotension. Kidney Blood Press Res. 2005;28(2):68-76. doi: 10.1159/000083586. PMID: 15677874. - **Non-United States study**

1494. Okpechi IG, Nthite T, Swanepoel CR. Health-related quality of life in patients on hemodialysis and peritoneal dialysis. Saudi J Kidney Dis Transpl. 2013 May;24(3):519-26. PMID: 23640624. - **Non-United States study**

1495. Okubo R, Kai H, Kondo M, et al. Health-related quality of life and prognosis in patients with chronic kidney disease: a 3-year follow-up study. Clin Exp Nephrol. 2014 Oct;18(5):697-703. doi: 10.1007/s10157-013-0901-x. PMID: 24198050. - **Non-United States study**

1496. Okumus M, Parpucu H, Kocaoglu S, et al. The frequency of fibromyalgia syndrome and the quality of life in patients with periton dialysis. Arthritis and Rheumatism. 2011;63(10). - **Meeting abstract**

1497. Olagunju AT, Campbell EA, Adeyemi JD. Interplay of anxiety and depression with quality of life in endstage renal disease. Psychosomatics. 2015 Jan-Feb;56(1):67-77. doi: 10.1016/j.psym.2014.03.006. PMID: 25619675. - **Non-United States study**

1498. Oldenburg B, Macdonald GJ, Perkins RJ. Prediction of quality of life in a cohort of end-stage renal disease patients. J Clin Epidemiol. 1988;41(6):555-64. PMID: 3260273. - **Non-United States study**

1499. Oliveira TR, Bastos KA, Ferreira LC, et al. Restless legs syndrome in hemodialysis patients: Do biochemical findings distinguish them? Movement Disorders. 2011;26:S364. doi:

10.1002/mds.23764. - **Meeting abstract**

1500. Oliveros RM, Avendano M, Bunout D, et al. [A pilot study on physical training of patients in hemodialysis]. Rev Med Chil. 2011 Aug;139(8):1046-53. doi: /S0034-98872011000800010. PMID: 22215335. - **Non-United States study**

1501. O'Lone E, Connors M, Masson P, et al. Cognition in People With End-Stage Kidney Disease Treated With Hemodialysis: A Systematic Review and Meta-analysis. Am J Kidney Dis. 2016 Jun;67(6):925-35. doi: 10.1053/j.ajkd.2015.12.028. PMID: 26919914. - **Relevant systematic review**

1502. Ongan D, Yuksel A. Association between sleep quality and nutritional status and intake of the haemodialysis patients. Revista Espanola de Nutricion Humana y Dietetica. 2016;20:435. - **Meeting abstract**

1503. Onishi Y, Uchida HA, Hidemi T, et al. Impaired mental health status in patients with CKD is associated with eGFR decline. Nephrology (Carlton). 2018 Oct 17doi: 10.1111/nep.13515. PMID: 30334305. - **Non-United States study**

1504. Onuigbo MA. Long inter-dialytic interval and mortality among patients receiving maintenance haemodialysis for end-stage renal disease - a call for more studies on the right amount or frequency of maintenance haemodialysis for end-stage renal disease. Int J Clin Pract. 2012 Mar;66(3):327. doi: 10.1111/j.1742-1241.2011.02874.x. PMID: 22340453. - **Non-relevant review**

1505. Orabona N, Bove A, Smeraglia F, et al. The impact of hemodialysis on mortality and personal independence following hip fracture. A prospective matched cohort study. J Orthop Trauma. 2019 May 31doi: 10.1097/bot.0000000000001556. PMID: 31188256. **– No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1506. Orasan OH, Saplontai AP, Cozma A, et al. Insomnia, muscular cramps and pruritus have low intensity in hemodialysis patients with good dialysis efficiency, low inflammation and arteriovenous fistula. Int Urol Nephrol. 2017 Sep;49(9):1673-9. doi: 10.1007/s11255-017-1624-9. PMID: 28534129. - **Non-United States study**

1507. Orasan RA, Racasan S, Orasan OH, et al. Insomnia, muscular cramps and pruritus are absent in hemodialysis patients with good dialysis efficiency, low inflammation and arteriovenous fistula. Nephrology Dialysis Transplantation. 2016;31:i542. doi: 10.1093/ndt/gfw198.21. - **Meeting abstract**

1508. Orcy RB, Dias PS, Seus TL, et al. Combined resistance and aerobic exercise is better than resistance training alone to improve functional performance of haemodialysis patients--results of a randomized controlled trial. Physiotherapy research international. 2012;17(4):235-43. doi: 10.1002/pri.1526. PMID: CN-

00906871. - **Non-United States study**

1509. Ortiz F, Aronen P, Koskinen PK, et al. Health-related quality of life after kidney transplantation: who benefits the most? Transpl Int. 2014 Nov;27(11):1143-51. doi: 10.1111/tri.12394. PMID: 24977951. - **Non-United States study**

1510. Oskay D, Inal S, Güzel NA, et al. Determining quality of life and physical activity level in end stage kidney disease treated with hemodialysis and peritoneal dialysis. Fizyoterapi Rehabilitasyon. 2010;21(3):246. - **Meeting abstract**

1511. Ossareh S, Najjar MM, Bahmani B, et al. Effectiveness of cognitive-existential group therapy on increasing hope in women under maintenance hemodialysis. Nephrology Dialysis Transplantation. 2012;27:ii283. doi: 10.1093/ndt/gfs227. - **Meeting abstract**

1512. Ossareh S, Roozbeh J, Krishnan M, et al. Fatigue in chronic peritoneal dialysis patients. Int Urol Nephrol. 2003;35(4):535-41. PMID: 15198163. - **Non-United States study**

1513. Osthus TB, Preljevic V, Sandvik L, et al. Renal transplant acceptance status, health-related quality of life and depression in dialysis patients. J Ren Care. 2012 Jun;38(2):98-106. doi: 10.1111/j.1755-6686.2011.00254.x. PMID: 21917125. - **Non-United States study**

1514. Otsubo S, Tsuchiya K, Akiba T, et al. Relationship between restless legs syndrome and mortality in hemodialysis patients. Nephrology Dialysis Transplantation. 2014;29:iii285. doi: 10.1093/ndt/gfu158. - **Meeting abstract**

1515. Otsuki T, Higuchi T, Yamazaki T, et al. Efficacy and Safety of Pregabalin for the Treatment of Neuropathic Pain in Patients Undergoing Hemodialysis. Clinical Drug Investigation. 2017;37(1):95-102. doi: 10.1007/s40261-016-0464-1. - **Non-United States study**

1516. Otte K, Gonzalez MT, Bajo MA, et al. Clinical experience with a new bicarbonate (25 mmol/L)/lactate (10 mmol/L) peritoneal dialysis solution. Perit Dial Int. 2003 Mar-Apr;23(2):138-45. PMID: 12713080. - **Non-United States study**

1517. Ouwendyk M, Pierratos A. Reflecting on 14 years of nocturnal home hemodialysis in Canada. Cannt j. 2008 Jul-Sep;18(3):55-7. PMID: 19010027. - **Non-United States study**

1518. Ouyang CM, Lin YR, Fu HM, et al. Nutritional status and quality of life for patients with or without diabetes on hemodialysis. Diabetes. 2015;64:A210. doi: 10.2337/db15742931. - **Meeting abstract**

1519. Ouzouni S, Kouidi E, Sioulis A, et al. Effects of intradialytic exercise training on health-related quality of life indices in haemodialysis patients. Clin Rehabil. 2009 Jan;23(1):53-63. doi: 10.1177/0269215508096760. PMID: 19114437. - **Non-United States study**

1520. Ovando DF, Torres J, Díaz OD, et al. Use of proms to evaluate quality of life related to health in patients with renal replacement therapy. A single center analysis in mexico. Blood Purification. 2019;47(1-3):289-90. doi: 10.1159/000495480. - **Meeting abstract**

1521. Overend T, Anderson C, Sawant A, et al. Relative and absolute reliability of physical function measures in people with end-stage renal disease. Physiother Can. 2010 Spring;62(2):122-8. doi: 10.3138/physio.62.2.122. PMID: 21359043. - **Non-United States study**

1522. Overgaard CB, Chan W, Chowdhary S, et al. Nocturnal hemodialysis restores impaired coronary endothelial function in end-stage renal patients receiving conventional hemodialysis. Circulation. 2013;128(22). - **Meeting abstract**

1523. Owen WF, Jr. Racial differences in incidence, outcome, and quality of life for African-Americans on hemodialysis. Blood Purif. 1996;14(4):278-85. doi: 10.1159/000170274. PMID: 8873953. - **Meeting abstract**

1524. Owolabi L, Abdu A, Ibrahim A, et al. Related factors and predictors of cognitive dysfunction in chronic kidney disease patients on maintenance haemodialysis in Nigeria. Neurology. 2017;88(16). - **Meeting abstract**

1525. Oyekcin DG, Gulpek D, Sahin EM, et al. Depression, anxiety, body image, sexual functioning, and dyadic adjustment associated with dialysis type in chronic renal failure. Int J Psychiatry Med. 2012;43(3):227-41. doi: 10.2190/PM.43.3.c. PMID: 22978081. - **Non-United States study**

1526. Özçetin A, Bicik Bahçebasi Z, Bahçebaşi T, et al. Quality of life and psychiatric symptom distribution in chronic dialysis patients. Anadolu Psikiyatri Dergisi. 2009;10(2):142-50. - **Non-English**

1527. Pacilio M, Minutolo R, Garofalo C, et al. Stage 5-CKD under nephrology care: to dialyze or not to dialyze, that is the question. J Nephrol. 2016 Apr;29(2):153-61. doi: 10.1007/s40620-015-0243-8. PMID: 26584810. - **Relevant systematic review**

1528. Padmashali A, Girishbabu N, Matkar A. Prevalence of sleep disorders in patients with chronic kidney disease on hemodialysis in a general hospital setup. Indian Journal of Psychiatry. 2018;60(5):S56. - **Meeting abstract**

1529. Padmavati, Manmohan B, Sivalingam M. Prevlaence of depression and its relationship to quality of life in hemodialysis patients. Indian Journal of Nephrology. 2016;26(8):S114. - **Meeting abstract**

1530. Pagels A, Soderquist BK, Heiwe S. Evaluating the Illness Perception Questionnaire on patients with chronic kidney disease in Sweden. Scand J Caring Sci. 2012 Sep;26(3):474-84. doi: 10.1111/j.1471-6712.2011.00952.x. PMID: 22117559. - **Non-United States study**

1531. Pai MF, Hsu SP, Yang SY, et al. Sleep disturbance in chronic

hemodialysis patients: the impact of depression and anemia. Ren Fail. 2007;29(6):673-7. doi: 10.1080/08860220701459642. PMID: 17763161. - **Non-United States study**

1532. Painter P, Johansen K. Physical functioning in end-stage renal disease. Introduction: a call to activity. Adv Ren Replace Ther. 1999 Apr;6(2):107-9. PMID: 10230877. - **Non-relevant review**

1533. Painter P, Krasnoff JB, Kuskowski M, et al. Effects of modality change and transplant on peak oxygen uptake in patients with kidney failure. Am J Kidney Dis. 2011 Jan;57(1):113-22. doi: 10.1053/j.ajkd.2010.06.026. PMID: 20870330. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1534. Painter P, Stewart AL, Carey S. Physical functioning: definitions, measurement, and expectations. Adv Ren Replace Ther. 1999 Apr;6(2):110-23. PMID: 10230878. - **No human data**

1535. Pakfetrat M, Basiri F, Malekmakan L, et al. Effects of turmeric on uremic pruritus in end stage renal disease patients: a double-blind randomized clinical trial. J Nephrol. 2014 Apr;27(2):203-7. doi: 10.1007/s40620-014-0039-2. PMID: 24482090. - **Non-United States study**

1536. Pakfetrat M, Malekmakan L, Hashemi N, et al. Sertraline can reduce uremic pruritus in hemodialysis patient: A double blind randomized clinical trial from Southern Iran. Hemodial Int. 2018 Jan;22(1):103-9. doi: 10.1111/hdi.12540. PMID: 28263039. - **Non-United States study**

1537. Pakpour AH, Nourozi S, Molsted S, et al. Validity and reliability of short form-12 questionnaire in Iranian hemodialysis patients. Iran J Kidney Dis. 2011 Jul;5(3):175-81. PMID: 21525577. - **Non-United States study**

1538. Pakpour AH, Saffari M, Yekaninejad MS, et al. Health-related quality of life in a sample of Iranian patients on hemodialysis. Iran J Kidney Dis. 2010 Jan;4(1):50-9. PMID: 20081305. - **Non-United States study**

1539. Pakpour AH, Yekaninejad M, Molsted S, et al. Translation, cultural adaptation assessment, and both validity and reliability testing of the Kidney Disease Quality of Life--Short Form version 1.3 for use with Iranian patients. Nephrology (Carlton). 2011 Jan;16(1):106-12. doi: 10.1111/j.1440-1797.2010.01389.x. PMID: 21175986. - **Non-United States study**

1540. Pakravan A, Hussan H, Vuong G, et al. GI symptoms and quality of life of End Stage Renal Disease (ESRD) patients as opposed to after kidney transplantation. American Journal of Gastroenterology. 2010;105:S389-S90. doi: 10.1038/ajg.2010.320-8. - **Meeting abstract**

1541. Palamidas A, Gennimata SA, Karakontaki F, et al. Impact of hemodialysis on dyspnoea in chronic renal failure patients. European

Respiratory Journal. 2011;38. - **Meeting abstract**

1542. Palamidas AF, Gennimata SA, Karakontaki F, et al. Impact of hemodialysis on dyspnea and lung function in end stage kidney disease patients. Biomed Res Int. 2014;2014:212751. doi: 10.1155/2014/212751. PMID: 24895552. - **Non-United States study**

1543. Palmer S, Natale P, Ruospo M, et al. Pharmacological interventions for depression in adults with end-stage kidney disease. Nephrology Dialysis Transplantation. 2015;30:iii312. doi: 10.1093/ndt/gfv183.24. - **Other: abstract only**

1544. Palmer S, Saglimbene V, Ruospo M, et al. Depression in patients requiring hemodialysis: Prevalence, correlates and association with mortality in a large multi-national cohort study. Nephrology Dialysis Transplantation. 2013;28:i475. doi: 10.1093/ndt/gft151. - **Meeting abstract**

1545. Palmer SC, Natale P, Ruospo M, et al. Antidepressants for treating depression in adults with end-stage kidney disease treated with dialysis. Cochrane Database Syst Rev. 2016 May 23(5):Cd004541. doi: 10.1002/14651858.CD004541.pub3. PMID: 27210414. - **Relevant systematic review**

1546. Palmer SC, Natale P, Ruospo M, et al. Antidepressants for treating depression in adults with end-stage kidney disease treated with dialysis. Cochrane Database of Systematic Reviews. 2016(5)doi: 10.1002/14651858.CD004541.pub3. PMID: CD004541. - **Relevant systematic review**

1547. Palmer SC, Palmer AR, Craig JC, et al. Home versus in-centre haemodialysis for end-stage kidney disease. Cochrane Database Syst Rev. 2014 Nov 20(11):Cd009535. doi: 10.1002/14651858.CD009535.pub2. PMID: 25412074. - **Relevant systematic review**

1548. Palmer SC, Rabindranath KS, Craig JC, et al. High-flux versus low-flux membranes for end-stage kidney disease. Cochrane Database Syst Rev. 2012 Sep 12(9):Cd005016. doi: 10.1002/14651858.CD005016.pub2. PMID: 22972082. - **Relevant systematic review**

1549. Paluchamy T, Vaidyanathan R. Effectiveness of intradialytic exercise on dialysis adequacy, physiological parameters, biochemical markers and quality of life - A pilot study. Saudi J Kidney Dis Transpl. 2018 Jul-Aug;29(4):902-10. doi: 10.4103/1319-2442.239661. PMID: 30152428. - **Non-United States study**

1550. Pan CW, Wu Y, Zhou HJ, et al. Health-Related Quality of Life and Its Factors of Hemodialysis Patients in Suzhou, China. Blood Purif. 2018;45(4):327-33. doi: 10.1159/000485962. PMID: 29421800. - **Non-United States study**

1551. Pan JY, Zhang JH, Ma P, et al. Effect of restless legs syndrome on the sleep quality of hemodialysis patients. Chinese Journal of Clinical

Rehabilitation. 2006;10(10):19-21. - **Non-English**

1552. Pan KC, Hung SY, Chen CI, et al. Social support as a mediator between sleep disturbances, depressive symptoms, and health-related quality of life in patients undergoing hemodialysis. PLoS One. 2019;14(4):e0216045. doi: 10.1371/journal.pone.0216045. PMID: 31034497. - **Non-United States study**

1553. Panagopoulou A, Hardalias A, Berati S, et al. Psychosocial issues and quality of life in patients on renal replacement therapy. Saudi J Kidney Dis Transpl. 2009 Mar;20(2):212-8. PMID: 19237806. - **Non-United States study**

1554. Panaye M, Jolivot A, Lemoine S, et al. Outcome and prognosis factors of pregnancies in hemodialysis patients. Nephrology Dialysis Transplantation. 2014;29:iii520. doi: 10.1093/ndt/gfu178. - **Meeting abstract**

1555. Paniagua R, Amato D, Vonesh E, et al. Health-related quality of life predicts outcomes but is not affected by peritoneal clearance: the ADEMEX trial. Kidney international. 2005;67(3):1093-104. doi: 10.1111/j.1523-1755.2005.00175.x. PMID: CN-00514769. - **Non-United States study**

1556. Panuccio V, Tripepi R, Parlongo G, et al. The evolution of quality of life (QoL) over time in chronic kidney disease patients (CKD): Perception of general health but no other QoL-dimension declines over the course of CKD. Nephrology Dialysis Transplantation. 2016;31:i440. doi: 10.1093/ndt/gfw189.5. - **Meeting abstract**

1557. Paoli C, Alfieri T, Anum E, et al. Health-related quality of life (HRQOL) in patients with chronic kidney disease (CKD) receiving hemodialysis (HD) before and after regulatory and payment changes in 2011. Hemodialysis International. 2013;17(1):181-2. doi: 10.1111/hdi.12006. - **Meeting abstract**

1558. Paparrigopoulos T, Theleritis C, Tzavara C, et al. Sleep disturbance in haemodialysis patients is closely related to depression. Gen Hosp Psychiatry. 2009 Mar-Apr;31(2):175-7. doi: 10.1016/j.genhosppsych.2008.09.016. PMID: 19269539. - **Non-United States study**

1559. Parfrey PS, Vavasour H, Bullock M, et al. Development of a health questionnaire specific for end-stage renal disease. Nephron. 1989;52(1):20-8. doi: 10.1159/000185577. PMID: 2651947. - **Non-United States study**

1560. Parfrey PS, Vavasour HM, Gault MH. A prospective study of health status in dialysis and transplant patients. Transplant Proc. 1988 Dec;20(6):1231-2. PMID: 3059609. - **Non-United States study**

1561. Parfrey PS, Vavasour HM, Henry S, et al. Clinical features and severity of nonspecific symptoms in dialysis patients. Nephron. 1988;50(2):121-8. doi: 10.1159/000185141. PMID: 3065660. - **Non-United States study**

1562. Park H, Bang WR, Kim SJ, et al. Quality of life of ESRD patients: development of a tool and comparison between transplant and dialysis patients. Transplant Proc. 1992 Aug;24(4):1435-7. PMID: 1496608. - **Non-United States study**

1563. Park HC, Yoon HB, Son MJ, et al. Depression and health-related quality of life in maintenance hemodialysis patients. Clin Nephrol. 2010 May;73(5):374-80. PMID: 20420798. - **Non-United States study**

1564. Park HJ, Kim S, Yong JS, et al. Reliability and validity of the Korean version of Kidney Disease Quality of Life instrument (KDQOL-SF). Tohoku J Exp Med. 2007 Apr;211(4):321-9. PMID: 17409671. - **Non-United States study**

1565. Park IH, Yoo HJ, Han DJ, et al. Changes in the quality of life before and after renal transplantation and comparison of the quality of life between kidney transplant recipients, dialysis patients, and normal controls. Transplant Proc. 1996 Jun;28(3):1937-8. PMID: 8658954. - **Non-United States study**

1566. Park JI, Kim M, Kim H, et al. Not early referral but planned dialysis improves quality of life and depression in newly diagnosed end stage renal disease patients: a prospective cohort study in Korea. PLoS One. 2015;10(2):e0117582. doi: 10.1371/journal.pone.0117582. PMID: 25706954. - **Non-United States study**

1567. Park JI, Park JT, Kim YL, et al. Comparison of outcomes between the incremental and thrice-weekly initiation of hemodialysis: a propensity-matched study of a prospective cohort in Korea. Nephrol Dial Transplant. 2017 Feb 1;32(2):355-63. doi: 10.1093/ndt/gfw332. PMID: 28186541. - **Non-United States study**

1568. Park JY, Yoo KD, Kim YC, et al. Early dialysis initiation does not improve clinical outcomes in elderly end-stage renal disease patients: a multicenter prospective cohort study. Plos one. 2017;12(4) (no pagination)doi: 10.1371/journal.pone.0175830. PMID: CN-01371141. - **Non-United States study**

1569. Park KS, Chang JH, Kang EW. Effects of 12 months of continuous positive airway pressure therapy on cognitive function, sleep, mood, and health-related quality of life in a peritoneal dialysis patient with obstructive sleep apnea. Kidney Res Clin Pract. 2018 Mar;37(1):89-93. doi: 10.23876/j.krcp.2018.37.1.89. PMID: 29629282. - **Non-United States study**

1570. Park KS, Cho MH, Ha IS, et al. Validity and reliability of the Korean version of the pediatric quality of life ESRD module. Health Qual Life Outcomes. 2012 Jun 6;10:59. doi: 10.1186/1477-7525-10-59. PMID: 22672783. - **Non-United States study**

1571. Park KS, Hwang YJ, Cho MH, et al. Quality of life in children with end-stage renal disease based on a PedsQL ESRD module. Pediatr Nephrol. 2012 Dec;27(12):2293-300. doi: 10.1007/s00467-012-2262-1.

PMID: 22832667. - **Non-United States study**

1572. Park S, Jung Y, Min E, et al. Changes of depressive symptoms after antidepressant treatment in the patients with chronic hemodialysis and depression. European Neuropsychopharmacology. 2008;18(S4):S375. - **Meeting abstract**

1573. Parker K, Aasebø W, Stavem K. Potentially Inappropriate Medications in Elderly Haemodialysis Patients Using the STOPP Criteria. Drugs - Real World Outcomes. 2016;3(3):359-63. doi: 10.1007/s40801-016-0088-z. - **Non-United States study**

1574. Parker KP, Bailey JL, Rye DB, et al. Lowering dialysate temperature improves sleep and alters nocturnal skin temperature in patients on chronic hemodialysis. J Sleep Res. 2007 Mar;16(1):42-50. doi: 10.1111/j.1365-2869.2007.00568.x. PMID: 17309762. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1575. Parsons TL, Toffelmire EB, King-VanVlack CE. The effect of an exercise program during hemodialysis on dialysis efficacy, blood pressure and quality of life in end-stage renal disease (ESRD) patients. Clin Nephrol. 2004 Apr;61(4):261-74. PMID: 15125032. - **Non-United States study**

1576. Partridge KA, Robertson N. Body-image disturbance in adult dialysis patients. Disabil Rehabil. 2011;33(6):504-10. doi: 10.3109/09638288.2010.498556. PMID: 20597809. - **Non-United States study**

1577. Parvan K, Lakdizaji S, Roshangar F, et al. Quality of sleep and its relationship to quality of life in hemodialysis patients. J Caring Sci. 2013 Dec;2(4):295-304. doi: 10.5681/jcs.2013.035. PMID: 25276738. - **Non-United States study**

1578. Pasalar M, Akrami R. Excessive Attention to Major Complications in Frequent Dialysis: A Misleading Point for Patients' Quality of Life? Ther Apher Dial. 2016 Oct;20(5):537-8. doi: 10.1111/1744-9987.12459. PMID: 27630062. - **No human data**

1579. Pasticci F, Fantuzzi AL, Pegoraro M, et al. Nutritional management of stage 5 chronic kidney disease. J Ren Care. 2012 Mar;38(1):50-8. doi: 10.1111/j.1755-6686.2012.00266.x. PMID: 22369595. - **Non-United States study**

1580. Patcharin N, Parida K, Somchai Y. Correlation between nutritional status qand quality of life in peritoneal dialysis patients in Burapha university, Thailand. Nephrology. 2014;19:152. doi: 10.1111/nep.12237. - **Meeting abstract**

1581. Patel SS. Treating pain to improve quality of life in end-stage renal disease. Semin Dial. 2013 May-Jun;26(3):268-73. doi: 10.1111/sdi.12066. PMID: 23432440. - **Narrative review**

1582. Patil AS, Karkal R, Chandran M, et al. Negative emotional states and coping strategies in patients with end stage renal disease (ESRD)

undergoing chronic haemodialysis. Indian Journal of Psychiatry. 2015;57(5):S35. - **Meeting abstract**

1583. Pattanayak A, Choudhuri S, Panda SS, et al. Impact of renal transplantation on erectile dysfunction due to chronic renal failure in male patients. Indian journal of urology. 2016;32 PMID: CN-01452938. - **Meeting abstract**

1584. Patte D. [Quality of life of patients treated for terminal chronic renal failure]. Presse Med. 1998 Oct 3;27(29):1499-505. PMID: 9798471. - **Non-English**

1585. Pauly RP, Maximova K, Coppens J, et al. Patient and technique survival among a Canadian multicenter nocturnal home hemodialysis cohort. Clin J Am Soc Nephrol. 2010 Oct;5(10):1815-20. doi: 10.2215/cjn.00300110. PMID: 20671218. - **Non-United States study**

1586. Pauly RP. Nocturnal home hemodialysis and short daily hemodialysis compared with kidney transplantation: emerging data in a new era. Adv Chronic Kidney Dis. 2009 May;16(3):169-72. doi: 10.1053/j.ackd.2009.02.002. PMID: 19393966. - **Narrative review**

1587. Pavinic J, Aucina G, Mikenas S, et al. Evaluation of sleep quality in hemodialysis patients using wrist actigraphy. Nephrology Dialysis Transplantation. 2017;32:iii713-iii4. doi: 10.1093/ndt/gfx181. - **Meeting abstract**

1588. Paz Rios LH, Torres C, Del Cid Fratti J, et al. Intermittent pneumatic compression for peripheral artery disease and end stage renal disease to improve quality of life and functional limitations. Circulation. 2018;138. - **Meeting abstract**

1589. Pearson GM, Walker R. Mortality and quality of life in elderly patients on dialysis in New Zealand: Results from the dialysis outcomes in the >65s study (dos65+). Journal of the American Geriatrics Society. 2018;66:S85-S6. doi: 10.1111/jgs.15376. - **Meeting abstract**

1590. Pedersen EB. [Dialysis--a life-saving therapeutic principle in acute and chronic renal failure. Survival and quality of life improved by new technological progresses and new biological findings during the last century]. Ugeskr Laeger. 2000 Jan 3;162(1):48-9. PMID: 10658496. - **Non-United States study**

1591. Pei M, Aguiar R, Pagels AA, et al. Health-related quality of life as predictor of mortality in end-stage renal disease patients: an observational study. BMC Nephrol. 2019 Apr 29;20(1):144. doi: 10.1186/s12882-019-1318-x. PMID: 31035977. - **Non-United States study**

1592. Peipert JD, Bentler PM, Klicko K, et al. Psychometric Properties of the Kidney Disease Quality of Life 36-Item Short-Form Survey (KDQOL-36) in the United States. Am J Kidney Dis. 2018 Apr;71(4):461-8. doi: 10.1053/j.ajkd.2017.07.020. PMID: 29128411. - **Relevant systematic review**

1593. Peipert JD, Hays RD. Using Patient-Reported Measures in Dialysis Clinics. Clin J Am Soc Nephrol. 2017 Nov 7;12(11):1889-

91. doi: 10.2215/cjn.02250217. PMID: 28615188. - **Relevant systematic review**

1594. Peipert JD, Waterman AD, Hays RD. Psychometric properties of living donor kidney transplant decision-making measures among dialysis patients. Quality of Life Research. 2017;26(1):128. doi: 10.1007/s11136-017-1658-6. - **Meeting abstract**

1595. Pelletier S, Chapurlat R. Optimizing bone health in chronic kidney disease. Maturitas. 2010 Apr;65(4):325-33. doi: 10.1016/j.maturitas.2009.12.021. PMID: 20092971. - **No human data**

1596. Pellizzaro CO, Thome FS, Veronese FV. Effect of peripheral and respiratory muscle training on the functional capacity of hemodialysis patients. Ren Fail. 2013;35(2):189-97. doi: 10.3109/0886022x.2012.745727. PMID: 23199095. - **Non-United States study**

1597. Peng YS, Chiang CK, Hung KY, et al. Comparison of self-reported health-related quality of life between Taiwan hemodialysis and peritoneal dialysis patients: a multi-center collaborative study. Qual Life Res. 2011 Apr;20(3):399-405. doi: 10.1007/s11136-010-9755-9. PMID: 20941546. - **Non-United States study**

1598. Peng YS, Chiang CK, Hung KY, et al. The association of higher depressive symptoms and sexual dysfunction in male haemodialysis patients. Nephrol Dial Transplant. 2007 Mar;22(3):857-61. doi: 10.1093/ndt/gfl666. PMID: 17121784. - **Non-United States study**

1599. Peng YS, Chiang CK, Kao TW, et al. Sexual dysfunction in female hemodialysis patients: a multicenter study. Kidney Int. 2005 Aug;68(2):760-5. doi: 10.1111/j.1523-1755.2005.00454.x. PMID: 16014053. - **Non-United States study**

1600. Pengo MF, Ioratti D, Bisogni V, et al. In Patients with Chronic Kidney Disease Short Term Blood Pressure Variability is Associated with the Presence and Severity of Sleep Disorders. Kidney Blood Press Res. 2017;42(5):804-15. doi: 10.1159/000484357. PMID: 29212081. - **Non-United States study**

1601. Perales Montilla CM, Duschek S, Reyes del Paso GA. Health-related quality of life in chronic kidney desease: Predictive relevance of mood and somatic symptoms. Nefrologia. 2016;36(3):275-82. doi: 10.1016/j.nefroe.2016.06.003. - **Non-United States study**

1602. Perales-Montilla CM, Duschek S, Reyes-Del Paso GA. The influence of emotional factors on the report of somatic symptoms in patients on chronic haemodialysis: the importance of anxiety. Nefrologia. 2013 Nov 13;33(6):816-25. doi: 10.3265/Nefrologia.pre2013.Aug.12097. PMID: 24241369. - **Non-English**

1603. Perales-Montilla CM, Garcia-Leon A, Reyes-del Paso GA. Psychosocial predictors of the quality of life of chronic renal failure

patients undergoing haemodialysis. Nefrologia. 2012;32(5):622-30. doi: 10.3265/Nefrologia.pre2012.Jun.11447. PMID: 23013948. - **Non-United States study**

1604. Pereira BDS, Fernandes NDS, de Melo NP, et al. Beyond quality of life: a cross sectional study on the mental health of patients with chronic kidney disease undergoing dialysis and their caregivers. Health Qual Life Outcomes. 2017 Apr 17;15(1):74. doi: 10.1186/s12955-017-0646-4. PMID: 28412933. - **Non-United States study**

1605. Pereira E, Chemin J, Menegatti CL, et al. Choice of dialysis modality-clinical and psychosocial variables related to treatment. J Bras Nefrol. 2016 Jun;38(2):215-24. doi: 10.5935/0101-2800.20160031. PMID: 27438977. - **Non-United States study**

1606. Perez Dominguez TS, Rodriguez Perez A, Buset Rios N, et al. Psychonephrology: psychological aspects in autosomal dominant polycystic kidney disease. Nefrologia. 2011;31(6):716-22. doi: 10.3265/Nefrologia.pre2011.Jul.10847. PMID: 22130288. - **Non-English**

1607. Perez-Garcia R, Rodriguez ML, Inchaustegui L, et al. Adequacy of dialysis in the elderly. Nefrologia. 1998;18(SUPPL. 5):15-21. - **Non-English**

1608. Periyar Rani S. A study of prevalence of depression and anxiety in patients with chronic kidney disease. Indian Journal of Psychiatry. 2018;60(5):S97. - **Meeting abstract**

1609. Perl J, Chan CT. Home hemodialysis, daily hemodialysis, and nocturnal hemodialysis: Core Curriculum 2009. Am J Kidney Dis. 2009 Dec;54(6):1171-84. doi: 10.1053/j.ajkd.2009.06.038. PMID: 19748715. - **Narrative review**

1610. Perl J, Dember LM, Bargman JM, et al. The Use of a Multidimensional Measure of Dialysis Adequacy-Moving beyond Small Solute Kinetics. Clin J Am Soc Nephrol. 2017 May 8;12(5):839-47. doi: 10.2215/cjn.08460816. PMID: 28314806. - **Narrative review**

1611. Perl J, Karaboyas A, Morgenstern H, et al. Association between changes in quality of life and mortality in hemodialysis patients: results from the DOPPS. Nephrol Dial Transplant. 2017 Mar 1;32(3):521-7. doi: 10.1093/ndt/gfw233. PMID: 27270292. - **Non-United States study**

1612. Perl J, Unruh ML, Chan CT. Sleep disorders in end-stage renal disease: 'Markers of inadequate dialysis'? Kidney Int. 2006 Nov;70(10):1687-93. doi: 10.1038/sj.ki.5001791. PMID: 16969388. - **Narrative review**

1613. Perry E, Joy S, Swartz R. Staying the course: Through end of life in ESRD. Journal of the American Society of Nephrology. 2019;30(3):373-4. doi: 10.1681/ASN.2019010020. - **Non-relevant review**

1614. Perwitasari DA. Health-related quality of life of hemodialysis patients in Indonesia. Value in Health. 2013;16(7):A699. doi: 10.1016/j.jval.2013.08.2116. - **Meeting abstract**

1615. Petitclerc T, Juquel JP, Raymond P, et al. [Daily hemodialysis: a future for home hemodialysis?]. Nephrologie. 2004;25(1):5-8. PMID: 15022867. - **Non-United States study**

1616. Petrovic L, Mitic I, Bozic D, et al. [Quality of life in patients with chronic renal failure]. Med Pregl. 2006 Sep-Oct;59(9-10):411-4. PMID: 17345815. - **Non-United States study**

1617. Petruzzi M, De Benedittis M, Sciancalepore M, et al. Thirst and oral symptoms in people on hemodialysis: A multinational prospective cohort study. Nephrology Dialysis Transplantation. 2012;27:ii279. doi: 10.1093/ndt/gfs227. - **Meeting abstract**

1618. Philip C, Dharamsi F, Kelly D, et al. Demographics and quality of life of emergent-only dialysis patients. Annals of Emergency Medicine. 2011;58(4):S222-S3. doi: 10.1016/j.annemergmed.2011.06.162. - **Meeting abstract**

1619. Phillips L, Davies SJ, Russell GI. Functional status of CAPD patients and their mood state, dialysis dose, comorbidity and quality of life. Edtna erca j. 1996 Jul-Sep;22(3):11-4. PMID: 10723325. - **Non-United States study**

1620. Phoophiboon V, Pongprutthipan M, Brownell N, et al. The dermatologic manifestations in chronic kidney patients stages 3-5 in King Chulalongkorn Memorial Hospital, Thailand. Journal of the American Academy of Dermatology. 2017;76(6):AB250. doi: 10.1016/j.jaad.2017.04.973. - **Meeting abstract**

1621. Picariello F, Hudson JL, Moss-Morris R, et al. Examining the efficacy of social-psychological interventions for the management of fatigue in end-stage kidney disease (ESKD): a systematic review with meta-analysis. Health Psychol Rev. 2017 Jun;11(2):197-216. doi: 10.1080/17437199.2017.1298045. PMID: 28277013. - **Relevant systematic review**

1622. Picariello F, Moss-Morris R, Macdougall IC, et al. Measuring fatigue in haemodialysis patients: The factor structure of the Chalder Fatigue Questionnaire (CFQ). J Psychosom Res. 2016 May;84:81-3. doi: 10.1016/j.jpsychores.2016.03.124. PMID: 27095163. - **Non-United States study**

1623. Piccoli GB, Magnano A, Perrotta L, et al. Daily dialysis, nocturnal dialysis, and randomized controlled trials: are we asking the right questions? Kidney Int. 2005 Dec;68(6):2913-4; author reply 4. doi: 10.1111/j.1523-1755.2005.00583_11.x. PMID: 16316380. - **No human data**

1624. Pierratos A. Daily hemodialysis: is it a complex therapy with unproven benefits? Blood Purif. 2001;19(2):206-10. doi: 10.1159/000046942. PMID: 11150811. - **Narrative review**

1625. Pierratos A. Daily nocturnal home hemodialysis. Kidney Int. 2004 May;65(5):1975-86. doi: 10.1111/j.1523-1755.2004.00603.x. PMID: 15086951. - **Non-United States study**

1626. Pierratos A. Does frequent nocturnal hemodialysis result in

better outcomes than conventional thrice-weekly hemodialysis? Nat Clin Pract Nephrol. 2008 Mar;4(3):132-3. doi: 10.1038/ncpneph0699. PMID: 18059386. - **Other: This is a commnet**

1627. Pierratos A. New approaches to hemodialysis. Annu Rev Med. 2004;55:179-89. doi: 10.1146/annurev.med.55.091902.103801. PMID: 14746516. - **Non-United States study**

1628. Pietsch LE, Sirch J, Pfeiffer S, et al. Survival and quality of life in dialysis patients after CABG. Thoracic and Cardiovascular Surgeon. 2013;61doi: 10.1055/s-0032-1332680. - **Meeting abstract**

1629. Pisani A, Spinelli L, Sabbatini M, et al. Enzyme replacement therapy in Fabry disease patients undergoing dialysis: effects on quality of life and organ involvement. Am J Kidney Dis. 2005 Jul;46(1):120-7. PMID: 15983965. - **Non-United States study**

1630. Pisoni RL, Gillespie BW, Dickinson DM, et al. The Dialysis Outcomes and Practice Patterns Study (DOPPS): design, data elements, and methodology. Am J Kidney Dis. 2004 Nov;44(5 Suppl 2):7-15. PMID: 15486868. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1631. Pizza F, Persici E, La Manna G, et al. Restless legs syndrome (RLS) in end-stage kidney disease patients undergoing long-term haemodialysis therapy: The role of peripheral neuropathy, residual renal function and positive family history of RLS. Journal of Sleep Research. 2010;19:245. doi: 10.1111/j.1365-2869.2010.00868.x. - **Meeting abstract**

1632. Pizza F, Persici E, La Manna G, et al. Restless legs syndrome in end-stage kidney disease patients undergoing long-term hemodialysis therapy: The role of peripheral neuropathy, residual renal function and positive family history of RLS. Sleep. 2010;33:A253. - **Meeting abstract**

1633. Pladys A, Couchoud C, Vigneau C, et al. French patients in daily hemodialysis: Characteristics and trajectories. Nephrology Dialysis Transplantation. 2015;30:iii311. doi: 10.1093/ndt/gfv183.22. - **Meeting abstract**

1634. Polaschek N. Living on dialysis: concerns of clients in a renal setting. J Adv Nurs. 2003 Jan;41(1):44-52. PMID: 12519287. - **Non-United States study**

1635. Polenakovic M, Pop-Jordanova N. Dialysis in the end-stage renal disease: Comorbid psychological issues. Nephrology Dialysis Transplantation. 2014;29:iii117-iii8. doi: 10.1093/ndt/gfu145. - **Meeting abstract**

1636. Polner K, Mucsi I, Braunitzer H, et al. Intensive psycho-education of patients with advanced chronic kidney disease, involving family members-initial experience, remarkable results. Nephrology Dialysis Transplantation. 2014;29:iii131. doi: 10.1093/ndt/gfu146. - **Meeting abstract**

1637. Pomidori L, Lamberti N, Malagoni AM, et al. Respiratory muscle impairment in dialysis patients: can minimal dose of exercise limit the damage? A Preliminary study in a sample of patients enrolled in the EXCITE trial. J Nephrol. 2016 Dec;29(6):863-9. doi: 10.1007/s40620-016-0325-2. PMID: 27312989. - **Non-United States study**

1638. Poon CK, Tang HL, Wong JH, et al. Effect of alternate night nocturnal home hemodialysis on anemia control in patients with end-stage renal disease. Hemodial Int. 2015 Apr;19(2):235-41. doi: 10.1111/hdi.12227. PMID: 25251291. - **Non-United States study**

1639. Poon CKY, Tang HL, Wong JHS, et al. Effect of alternate night nocturnal home hemodialysis on anemia control in patients with end-stage renal disease. Hemodialysis international. 2015;19(2):235-41. doi: 10.1111/hdi.12227. PMID: CN-01068344. - **Non-United States study**

1640. Poorgholami F, Jahromi MK, Kalani N, et al. The influence of educational interventions based on the continuous care model on the quality of life of hemodialysis patients. Biosciences Biotechnology Research Asia. 2016;13(1):441-8. doi: 10.13005/bbra/2052. - **Non-United States study**

1641. Poorsaadet L, Soltani P, Ghassami K, et al. The effects of aerobic exercise on cognitive performance and sleep quality haemodialysis patients. Australasian Medical Journal. 2018;11(5):278-85. doi: 10.21767/AMJ.2017.3279. - **Non-United States study**

1642. Pop-Jordanova N, Polenakovic M. Personality profiles and depression in haemodialysis patients. Prilozi. 2012;33(2):117-29. PMID: 23425875. - **Non-United States study**

1643. Port FK, Fenton SSA, Mazzuchi N. ESRD throughout the world: Morbidity, mortality, and quality of life. Kidney International, Supplement. 2000;57(74):S1-S2. - **No human data**

1644. Port FK, Morgenstern H, Bieber BA, et al. Understanding associations of hemodialysis practices with clinical and patient-reported outcomes: examples from the DOPPS. Nephrol Dial Transplant. 2017 Apr 1;32(suppl_2):ii106-ii12. doi: 10.1093/ndt/gfw287. PMID: 28201556. - **Other: QOL data not stratified**

1645. Porter A, Fischer M, Brooks D, et al. Factors associated with quality of life in African Americans with CKD. American Journal of Kidney Diseases. 2010;55(4):A91. doi: 10.1053/j.ajkd.2010.02.244. - **Meeting abstract**

1646. Porter AC, Vijil JC, Jr., Unruh M, et al. Health-related quality of life in Hispanics with chronic kidney disease. Transl Res. 2010 Apr;155(4):157-63. doi: 10.1016/j.trsl.2009.10.005. PMID: 20303462. - **Relevant systematic review**

1647. Porter GA. Evaluation: a progress report on measuring ESRD outcome. Nephrol News Issues. 1994

Dec;8(12):18-20. PMID: 7800067. - **Narrative review**

1648. Postlethwaite RJ, Garralda ME, Eminson DM, et al. Lessons from psychosocial studies of chronic renal failure. Arch Dis Child. 1996 Nov;75(5):455-9. PMID: 8957965. - **Narrative review**

1649. Pour-Reza-Gholi F, Nasrollahi A, Firouzan A, et al. Low-dose doxepin for treatment of pruritus in patients on hemodialysis. Iran J Kidney Dis. 2007 Jul;1(1):34-7. PMID: 19357442. - **Non-United States study**

1650. Poveda V, Ferreira R, Lourenço J, et al. Prevalence of frailty and its association with quality of life, clinical and biochemical markers in end-stage renal disease patients under dialysis. Nephrology Dialysis Transplantation. 2016;31:i560-i1. doi: 10.1093/ndt/gfw199.11. - **Meeting abstract**

1651. Powe NR. Patients, populations and policy: patient outcomes in chronic kidney disease. Trans Am Clin Climatol Assoc. 2001;112:224-32; discussion 32-4. PMID: 11419454. - **No human data**

1652. Poznanski EO, Miller E, Salguero C, et al. Quality of life for long-term survivors of end-stage renal disease. Jama. 1978 Jun 2;239(22):2343-7. PMID: 347114. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1653. Prabhu RA, Goyal NK, Nair NS, et al. Interventions for dialysis patients with hepatitis C virus (HCV) infection. Cochrane Database of Systematic Reviews. 2008(1)doi: 10.1002/14651858.CD007003. - **Non-relevant review**

1654. Prado RCP, Ferreira LC, Prado LCP. Comparative analysis of restless legs syndrome in end-stage renal disease patients undergoing peritoneal dialysis and hemodialysis in Aracaju-Sergipe: Preliminary results. Movement Disorders. 2015;30:S488-S9. doi: 10.1002/mds.26295. - **Meeting abstract**

1655. Prado RCP, Ferreira LC, Prado LCP. Restless legs syndrome in end-stage renal disease patients in Aracaju-Sergipe: Preliminary results. Movement Disorders. 2015;30:S488. doi: 10.1002/mds.26295. - **Meeting abstract**

1656. Preljevic VT, Osthus TB, Os I, et al. Anxiety and depressive disorders in dialysis patients: association to health-related quality of life and mortality. Gen Hosp Psychiatry. 2013 Nov-Dec;35(6):619-24. doi: 10.1016/j.genhosppsych.2013.05.006. PMID: 23896282. - **Non-United States study**

1657. Prinse-van Loon MM, Mutsaers BM, Verwoert-Meertens A. Integrated and specialised care of arteriovenous fistulae improves quality of life. Edtna erca j. 1996 Oct-Dec;22(4):31-3. PMID: 10723347. - **Non-relevant review**

1658. Priyamvada PS, Narendiran V, Harichandrakumar KT. Assessment of functional dependency and its clinical and socio-demographic determinants among patients with chronic kidney disease on hemodialysis. Indian

Journal of Nephrology. 2017;27:S56. - **Non-United States study**

1659. Procaccini DA, Angelini P, Aucella F, et al. [Health-related quality of life in patients with chronic kidney disease]. G Ital Nefrol. 2008 Nov-Dec;25(6):694-701. PMID: 19048570. - **Non-English**

1660. Pruchno RA, Lemay EP, Jr., Feild L, et al. Predictors of patient treatment preferences and spouse substituted judgments: the case of dialysis continuation. Med Decis Making. 2006 Mar-Apr;26(2):112-21. doi: 10.1177/0272989x06286482. PMID: 16525165. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1661. Psimenos G. "Psychodialysis": A key element for adequate hemodialysis. Dialysis and Transplantation. 2003;32(2):104+94-97. - **Non-United States study**

1662. Pucheu S, Consoli SM, Francais P, et al. The relationship of quality of life with the severity of disease and non-expression of emotions in peritoneal dialysis. Perit Dial Int. 2004 Jan-Feb;24(1):77-9. PMID: 15104343. - **Non-United States study**

1663. Pugh-Clarke K, Koufaki P, Rowley V, et al. Improvement in quality of life of dialysis patients during six months of exercise. Edtna erca j. 2002 Jan-Mar;28(1):11-2. PMID: 12035894. - **Non-United States study**

1664. Pugh-Clarke K, Naish PF, Mercer TM. [Quality of life in chronic kidney disease]. J Ren Care. 2006 Jul-Sep;32(3):167-71. PMID: 17393813. - **Patients receiving treatment in locations other than home or in-center**

1665. Punal J, Lema LV, Sanhez-Guisande D, et al. Clinical effectiveness and quality of life of conventional haemodialysis versus short daily haemodialysis: a systematic review. Nephrol Dial Transplant. 2008 Aug;23(8):2634-46. doi: 10.1093/ndt/gfn010. PMID: 18390567. - **Relevant systematic review**

1666. Punal Rioboo J, Sanchez-Iriso E, Ruano-Ravina A, et al. Short daily versus conventional hemodialysis quality of life: a cross-sectional multicentric study in Spain. Blood Purif. 2009;28(3):159-64. doi: 10.1159/000227784. PMID: 19590183. - **Non-United States study**

1667. Puneet A, Manikant S, Singh SJ. Sexual dysfunction in indian patients undergoing maintenance haemodialysis; a cross sectional study. Nephrology. 2014;19:182-3. doi: 10.1111/nep.12237. - **Meeting abstract**

1668. Purnomo N, Hamid ARAH. Comparison quality of life between chronic kidney disease patients on hemodialysis and renal transplantation. BJU International. 2016;117:21. doi: 10.1111/bju.13359. - **Meeting abstract**

1669. Purtell L, Hiremagalur B, Sowa PM, et al. Predicting improvement in healthrelated quality of life in people receiving dialysis: The leopard study. Nephrology. 2018;23:51-2. doi:

10.1111/nep.13441. - **Meeting abstract**

1670. Queeley GL, Campbell ES. Comparing Treatment Modalities for End-Stage Renal Disease: A Meta-Analysis. Am Health Drug Benefits. 2018 May;11(3):118-27. PMID: 29910844. - **Relevant systematic review**

1671. Rabindranath KS, Daly C, Butler J, et al. Psychosocial interventions for depression in dialysis patients. Cochrane Database of Systematic Reviews. 2005(3)doi: 10.1002/14651858.CD004542.pub2. PMID: CD004542. - **Non-relevant review**

1672. Rabindranath KS, Strippoli GF, Roderick P, et al. Comparison of hemodialysis, hemofiltration, and acetate-free biofiltration for ESRD: systematic review. Am J Kidney Dis. 2005 Mar;45(3):437-47. doi: 10.1053/j.ajkd.2004.11.008. PMID: 15754266. - **Relevant systematic review**

1673. Radeva M, Trachtman H, Fine R, et al. Measuring quality of life (QOL) in children and young adults in the focal segmental glomerulosclerosis clinical trial (FSGS-CT). Clinical Trials. 2010;7(4):471. doi: 10.1177/1740774510374795. - **Meeting abstract**

1674. Radic J, Ljutic D, Kovacic V, et al. Relationship between inflammation and cognitive psychomotor function in dialysis patients. Nephrology Dialysis Transplantation. 2012;27:ii293. doi: 10.1093/ndt/gfs227. - **Meeting abstract**

1675. Rafie S, Jafari M. A Comparative study on the effects of vitamin C and Pramipexole on restless legs syndrome treatment in hemodialysis patients: A randomized, doubleblind, placebo-controlled trial. International Journal of Pharmaceutical Research and Allied Sciences. 2016;5(2):128-34. - **Non-United States study**

1676. Raimann J, Usvyat LA, Bhalani V, et al. Differences in self-reported physical and mental well-being between diabetic and non-diabetic US hemodialysis patients. Nephrology Dialysis Transplantation. 2012;27:ii272. doi: 10.1093/ndt/gfs227. - **Meeting abstract**

1677. Raimundo P, Ravasco P, Proenca V, et al. Does nutrition play a role in the quality of life of patients under chronic haemodialysis? Nutr Hosp. 2006 Mar-Apr;21(2):139-44. PMID: 16734065. - **Non-United States study**

1678. Raj R, Ahuja KD, Frandsen M, et al. Symptoms and their recognition in adult haemodialysis patients: Interactions with quality of life. Nephrology (Carlton). 2017 Mar;22(3):228-33. doi: 10.1111/nep.12754. PMID: 26891151. - **Non-United States study**

1679. Rajan EJ, Subramanian S. The effect of depression and anxiety on the performance status of end-stage renal disease patients undergoing hemodialysis. Saudi J Kidney Dis Transpl. 2016 Mar;27(2):331-4. doi: 10.4103/1319-2442.178555. PMID: 26997387. - **Non-United States study**

1680. Ramakrishnan K, Sood V, Sibbel SP. Economic impact of pruritus among end-stage renal disease patients receiving hemodialysis. Value in Health. 2013;16(7):A632. doi: 10.1016/j.jval.2013.08.1878. - **Meeting abstract**

1681. Ramasubramanian V, Ponnudurai R, Soundararajan P, et al. Psychiatric morbidity in patients with chronic kidney disease undergoing hemodialysis. Asian Journal of Pharmaceutical and Clinical Research. 2015;8(1):312-6. - **Non-United States study**

1682. Rambod M, Rafii F. Perceived social support and quality of life in Iranian hemodialysis patients. J Nurs Scholarsh. 2010 Sep 1;42(3):242-9. doi: 10.1111/j.1547-5069.2010.01353.x. PMID: 20738734. - **Non-United States study**

1683. Rambod M, Shabani M, Shokrpour N, et al. Quality of life of hemodialysis and renal transplantation patients. Health Care Manag (Frederick). 2011 Jan-Mar;30(1):23-8. doi: 10.1097/HCM.0b013e3182078ab6. PMID: 21248544. - **Non-United States study**

1684. Rambod M, Sharif F, Pourali-Mohammadi N, et al. Evaluation of the effect of Benson's relaxation technique on pain and quality of life of haemodialysis patients: a randomized controlled trial. Int J Nurs Stud. 2014 Jul;51(7):964-73. doi: 10.1016/j.ijnurstu.2013.11.004. PMID: 24332569. - **Non-United States study**

1685. Ramer S, Germain A, Dohar S, et al. Event-related distress in kidney disease patients. Nephrol Dial Transplant. 2012 Jan;27(1):299-303. doi: 10.1093/ndt/gfr305. PMID: 21624943. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1686. Ramirez SP, Macedo DS, Sales PM, et al. The relationship between religious coping, psychological distress and quality of life in hemodialysis patients. J Psychosom Res. 2012 Feb;72(2):129-35. doi: 10.1016/j.jpsychores.2011.11.012. PMID: 22281454. - **Non-United States study**

1687. Ramos EC, Santos Ida S, Zanini Rde V, et al. Quality of life of chronic renal patients in peritoneal dialysis and hemodialysis. J Bras Nefrol. 2015 Jul-Sep;37(3):297-305. doi: 10.5935/0101-2800.20150049. PMID: 26398639. - **Non-United States study**

1688. Rapisarda F, De Vecchi A, Fogazzi GB, et al. Psychological aspects of patients in dialysis and in non complaint patients. Gazzetta Medica Italiana Archivio per le Scienze Mediche. 2005;164(5):379-84. - **Non-English**

1689. Rapisarda F, Tarantino A, De Vecchi A, et al. Psychological aspects and strategies of coping linked with dialysis and kidney transplantation. Gazzetta Medica Italiana Archivio per le Scienze Mediche. 2006;165(2):67-71. - **Non-United States study**

1690. Rashidi AA, Soleimani AR, Nikoueinejad H, et al. The

evaluation of increase in hemodialysis frequency on C-reactive protein levels and nutritional status. Acta Med Iran. 2013 Mar 16;51(2):119-24. PMID: 23585319. - **Non-United States study**

1691. Raspovic KM, Ahn J, LaFontaine J, et al. End-stage renal disease negatively impacts physical quality of life and may predict major amputation and mortality in patients with diabetic foot complications. Wound Repair and Regeneration. 2017;25(4):A8-A9. doi: 10.1111/wrr.12573. - **Meeting abstract**

1692. Raspovic KM, Wukich DK. Impact of end stage renal disease on quality of life in patients with diabetic foot disease. Diabetes. 2016;65:A168. doi: 10.2337/db16-382-651. - **Meeting abstract**

1693. Rathod R, Baig MS, Khandelwal PN, et al. Results of a single blind, randomized, placebo-controlled clinical trial to study the effect of intravenous L-carnitine supplementation on health-related quality of life in Indian patients on maintenance hemodialysis. Indian J Med Sci. 2006 Apr;60(4):143-53. PMID: 16679630. - **Non-United States study**

1694. Ray K. Dialysis: Daily hemodialysis improves depressive symptoms and postdialysis fatigue. Nature Reviews Nephrology. 2010;6(11):631. doi: 10.1038/nrneph.2010.137. - **Meeting abstract**

1695. Rayner H, Baharani J, Smith S, et al. Uraemic pruritus: relief of itching by gabapentin and pregabalin. Nephron. Clinical practice. 2012;122(3-4):75-9. doi: 10.1159/000349943. PMID: CN-00979233. - **Non-United States study**

1696. Razeghi E, Tavakolizadeh S, Ahmadi F. Inflammation and pruritus in hemodialysis patients. Saudi J Kidney Dis Transpl. 2008 Jan;19(1):62-6. PMID: 18087125. - **Non-United States study**

1697. Rebollo P, Arenas MD, Castejón N, et al. Pain incidence and analgesic consumption during haemodialysis sessions: Impact on health-related quality of life. Value in Health. 2014;17(7):A521-A2. doi: 10.1016/j.jval.2014.08.1631. - **Meeting abstract**

1698. Rebollo P, Gonzalez MP, Bobes J, et al. [Interpretation of health-related quality of life of patients on replacement therapy in end-stage renal disease]. Nefrologia. 2000 Sep-Oct;20(5):431-9. PMID: 11100664. - **Non-United States study**

1699. Rebollo P, Ortega F, Baltar JM, et al. Health related quality of life (HRQOL) of kidney transplanted patients: variables that influence it. Clin Transplant. 2000 Jun;14(3):199-207. PMID: 10831077. - **Non-United States study**

1700. Rebollo P, Ortega F, Baltar JM, et al. Health-related quality of life (HRQOL) in end stage renal disease (ESRD) patients over 65 years. Geriatr Nephrol Urol. 1998;8(2):85-94. PMID: 9893216. - **Non-United States study**

1701. Rebollo P, Ortega F, Baltar JM, et al. Is the loss of health-related quality of life during renal replacement therapy lower in elderly patients than in younger patients?

Nephrol Dial Transplant. 2001 Aug;16(8):1675-80. PMID: 11477173. - **Non-United States study**

1702. Rebollo Rubio A, Morales Asencio JM, Eugenia Pons Raventos M. Depression, anxiety and health-related quality of life amongst patients who are starting dialysis treatment. J Ren Care. 2017 Jun;43(2):73-82. doi: 10.1111/jorc.12195. PMID: 28239953. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1703. Reboredo Mde M, Henrique DM, Faria Rde S, et al. Exercise training during hemodialysis reduces blood pressure and increases physical functioning and quality of life. Artif Organs. 2010 Jul;34(7):586-93. doi: 10.1111/j.1525-1594.2009.00929.x. PMID: 20497161. - **Non-United States study**

1704. Reboredo MM, Pinheiro BV, Silva LP, et al. Effects of long-term of aerobic training and detraining on physical capacity and quality of life in hemodialysis patients. American Journal of Respiratory and Critical Care Medicine. 2013;187. - **Meeting abstract**

1705. Reboredo MM, Valle FMD, Barros AAA, et al. Effects of intradialytic resistance training on physical activities in daily life and physical capacity in end-stage renal disease patients. American Journal of Respiratory and Critical Care Medicine. 2017;195doi: 10.1164/ajrccm-conference.2017.B74. - **Meeting abstract**

1706. Reckert A, Hinrichs J, Pavenstadt H, et al. [Prevalence and correlates of anxiety and depression in patients with end-stage renal disease (ESRD)]. Z Psychosom Med Psychother. 2013;59(2):170-88. doi: 10.13109/zptm.2013.59.2.170. PMID: 23775555. - **Non-English**

1707. Reddy EK, Surya Prakash DR, Rama Krishna MGKD. Proportion of hearing loss in chronic renal failure: Our experience. Indian Journal of Otology. 2016;22(1):4-9. doi: 10.4103/0971-7749.176503. - **Non-United States study**

1708. Rehman IU, Chohan TA, Bukhsh A, et al. Impact of Pruritus on Sleep Quality of Hemodialysis Patients: A Systematic Review and Meta-Analysis. Medicina (Kaunas). 2019 Oct 17;55(10)doi: 10.3390/medicina55100699. PMID: 31627446. **–Systematic review**

1709. Rehman IU, Lai PSM, Lim SK, et al. Sleep disturbance among Malaysian patients with end-stage renal disease with pruritus. BMC Nephrol. 2019 Mar 25;20(1):102. doi: 10.1186/s12882-019-1294-1. PMID: 30909887. - **Non-United States study**

1710. Reid C, Hall J, Boys J, et al. Self management of haemodialysis for end stage renal disease: A systematic review. JBI Library of Systematic Reviews. 2015;9(3):69-103. - **Relevant systematic review**

1711. Reimer J, Franke GH, Lutkes P, et al. [Quality of life in patients before and after kidney transplantation]. Psychother Psychosom Med Psychol. 2002 Jan;52(1):16-23. doi: 10.1055/s-2002-19662. PMID: 11805878. - **Non-United States study**

1712. Reis JMS, Alves LS, Freitas CZG, et al. Association of nutritional status with muscular function, functional capacity, and quality of life in maintenance haemodialysis patients. Journal of Cachexia, Sarcopenia and Muscle. 2019;10(1):238. doi: 10.1002/jcsm.12407. - **Meeting abstract**

1713. Ren Q, Shi Q, Ma T, et al. Quality of life, symptoms, and sleep quality of elderly with end-stage renal disease receiving conservative management: a systematic review. Health Qual Life Outcomes. 2019 May 3;17(1):78. doi: 10.1186/s12955-019-1146-5. PMID: 31053092. **–Systematic review**

1714. Rettig RA, Sadler JH, Meyer KB, et al. Assessing health and quality of life outcomes in dialysis: a report on an Institute of Medicine workshop. Am J Kidney Dis. 1997 Jul;30(1):140-55. PMID: 9214415. - **Non-relevant review**

1715. Rettig RA. If daily dialysis is the answer, what is the question? Am J Kidney Dis. 2001 Apr;37(4):862-5. PMID: 11273889. - **No human data**

1716. Reynaga-Ornelas L, Baldwin CM, Arcoleo K, et al. Sleep disorders and dialysis modality: Predictors of HR-QOL among Mexican patients with end-stage renal disease. Sleep. 2012;35:A296. - **Meeting abstract**

1717. Reynaga-Ornelas L, Baldwin CM, Arcoleo K, et al. Sleep symptoms among patients with end-stage renal disease by dialysis treatment in central Mexico. Sleep. 2011;34:A225. - **Meeting abstract**

1718. Rhee C, Chen A, You A, et al. Relationship between depression and health-related quality of life in a prospective hemodialysis cohort. American Journal of Kidney Diseases. 2016;67(5):A90. - **Meeting abstract**

1719. Riabov SI, Petrova NN, Vasil'eva IA. [Quality of life of patients treated by hemodialysis]. Klin Med (Mosk). 1996;74(8):29-31. PMID: 9036202. - **Non-United States study**

1720. Riabov SI, Shostka GD, Petrova NN, et al. [The effect of Recormon therapy on the quality of life of patients on hemodialysis treatment]. Ter Arkh. 1996;68(8):43-6. PMID: 9019831. - **Non-United States study**

1721. Riaño-Galán I, Málaga S, Rajmil L, et al. Health related quality of life in adolescents with ESRD and kidney transplanted. Pediatric Nephrology. 2010;25(4):799. doi: 10.1007/s00467-009-1399-z. - **Meeting abstract**

1722. Riano-Galan I, Malaga S, Rajmil L, et al. Quality of life of adolescents with end-stage renal disease and kidney transplant. Pediatr Nephrol. 2009 Aug;24(8):1561-8. doi: 10.1007/s00467-009-1175-0. PMID: 19475433. - **Non-United States study**

1723. Ricardo AC, Hacker E, Lora CM, et al. Validation of the kidney disease quality of life 36 (KDQOL-36) U.S. Spanish and English versions in Hispanics with chronic kidney disease. American Journal of Kidney Diseases. 2011;57(4):A82. doi: 10.1053/j.ajkd.2011.02.267. - **Meeting abstract**

1724. Richards A, Himpson R, Harris A. LINGUISTIC VALIDATION OF THE CHRONIC

KIDNEY DISEASE AND ANAEMIA QUESTIONNAIRE (CKDAQ), A PATIENT REPORT OUTCOMES ASSESSMENT (PRO), INTO 30 ASIA-PACIFIC LANGUAGES. Value in Health. 2018;21:S391. doi: 10.1016/j.jval.2018.09.2321. - **Meeting abstract**

1725. Richards CA, Liu CF, Hebert PL, et al. Family Perceptions of Quality of End-of-Life Care for Veterans with Advanced CKD. Clin J Am Soc Nephrol. 2019 Sep 6;14(9):1324-35. doi: 10.2215/cjn.01560219. PMID: 31466952. – **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1726. Richardson C, Belenko D, Mucsi E, et al. Psychosocial distress in chronic kidney disease: Benefits of kidney transplantation. American Journal of Transplantation. 2017;17:663-4. doi: 10.1111/ajt.14306. - **Meeting abstract**

1727. Ricka R, Evers GC. [The manner of care, self care and quality of life dialysis patients]. Pflege. 2004 Feb;17(1):15-21. doi: 10.1024/1012-5302.17.1.15. PMID: 15040242. - **Non-United States study**

1728. Rioux JP, Narayanan R, Chan CT. Caregiver burden among nocturnal home hemodialysis patients. Hemodial Int. 2012 Apr;16(2):214-9. doi: 10.1111/j.1542-4758.2011.00657.x. PMID: 22304491. - **Non-United States study**

1729. Roberti J, Cummings A, Myall M, et al. Work of being an adult patient with chronic kidney disease: a systematic review of qualitative studies. BMJ Open. 2018 Sep 4;8(9):e023507. doi: 10.1136/bmjopen-2018-023507. PMID: 30181188. - **Relevant systematic review**

1730. Robinski M, Strich F, Mau W, et al. Validating a Patient-Reported Comorbidity Measure with Respect to Quality of Life in End-Stage Renal Disease. PLoS One. 2016;11(6):e0157506. doi: 10.1371/journal.pone.0157506. PMID: 27294867. - **Non-United States study**

1731. Robles GP, Delgado YM, Vasco Gómez A, et al. Psychological intervention in patients with chronic renal disease in haemodialysis. Quality of Life Research. 2017;26(1):127. doi: 10.1007/s11136-017-1658-6. - **Meeting abstract**

1732. Robson K, Ngu K, Stanley M, et al. Nocturnal in-centre haemodialysis: An Australian cohort experience. Nephrology Dialysis Transplantation. 2015;30:iii609. doi: 10.1093/ndt/gfv200.17. - **Non-United States study**

1733. Roccella M, Leggio L, Parisi L, et al. [The quality of life in developing age subjects with chronic renal diseases]. Minerva Pediatr. 2005 Jun;57(3):119-28. PMID: 16170296. - **Non-English**

1734. Rocco M, Daugirdas J, Greene T, et al. Mortality during extended follow-up in the frequent hemodialysis network nocturnal trial. Nephrology Dialysis Transplantation. 2014;29:iii37. doi: 10.1093/ndt/gfu125. - **Meeting abstract**

1735. Rocco M, Daugirdas J, Greene T, et al. Mortality during

extended follow-up in the frequent hemodialysis network nocturnal trial. Nephrology dialysis transplantation. 2014;29:iii37. doi: 10.1093/ndt/gfu125. PMID: CN-01060980. - **Meeting abstract**

1736. Rocco MV. Short daily and nocturnal hemodialysis: new therapies for a new century? Saudi J Kidney Dis Transpl. 2009 Jan;20(1):1-11. PMID: 19112213. - **Narrative review**

1737. Rocha JCG, Da Silva TG, De Castro PF, et al. Association between quality of life and depression in patients on chronic hemodialysis. Nephrology Dialysis Transplantation. 2013;28:i348-i9. doi: 10.1093/ndt/gft129. - **Meeting abstract**

1738. Rodakowska E, Wilczyńska-Borawska M, Fryc J, et al. Oral health-related quality of life in patients undergoing chronic hemodialysis. Patient Preference and Adherence. 2018;12:955-61. doi: 10.2147/PPA.S161638. - **Non-United States study**

1739. Rodrigue JR, Mandelbrot D, Pavlakis M. The quality of life and psychosocial functioning of adults awaiting kidney transplantation can be enhanced with a brief psychological intervention. American Journal of Transplantation. 2010;10:203. doi: 10.1111/j.1600-6143.2010.03107.x. - **Meeting abstract**

1740. Rogan A, McCarthy K, McGregor G, et al. Quality of life measures predict cardiovascular health and physical performance in chronic renal failure patients. PLoS One. 2017;12(9):e0183926. doi: 10.1371/journal.pone.0183926. PMID: 28910330. - **Non-United States study**

1741. Rohrig G, Polidori MC, Rascher K, et al. Burden of multimorbidity and outcome in ambulatory geriatric hemodialysis patients : Report from the QiN registry in Germany. Z Gerontol Geriatr. 2018 Jan;51(1):60-6. doi: 10.1007/s00391-016-1149-3. PMID: 27832329. - **Non-United States study**

1742. Roizen M, Rodriguez S, Bauer G, et al. Initial validation of the Argentinean Spanish version of the PedsQL 4.0 Generic Core Scales in children and adolescents with chronic diseases: acceptability and comprehensibility in low-income settings. Health Qual Life Outcomes. 2008 Aug 7;6:59. doi: 10.1186/1477-7525-6-59. PMID: 18687134. - **Non-United States study**

1743. Roljic BC, Halima R. Psychological profile of patients on hemodialysis treatment. Nephrology Dialysis Transplantation. 2018;33:i273. doi: 10.1093/ndt/gfy104.FP675. - **Meeting abstract**

1744. Romano-Zelekha O, Golan E, Ifrah A, et al. Differences in quality of life between Jewish and Arab patients on hemodialysis. Qual Life Res. 2017 Dec;26(12):3343-52. doi: 10.1007/s11136-017-1661-y. PMID: 28791563. - **Non-United States study**

1745. Romao MA, Romao Junior JE, Belasco AG, et al. [Quality of life in patients with chronic renal failure under high-efficiency hemodialysis]. Rev Gaucha Enferm. 2006 Dec;27(4):593-8. PMID:

17476966. - **Non-United States study**

1746. Rosa C, Nishimoto DY, Souza GDE, et al. Effect of continuous progressive resistance training during hemodialysis on body composition, physical function and quality of life in end-stage renal disease patients: a randomized controlled trial. Clin Rehabil. 2018 Jul;32(7):899-908. doi: 10.1177/0269215518760696. PMID: 29504416. - **Non-United States study**

1747. Rosenkranz J, Reichwald-Klugger E, Oh J, et al. Psychosocial rehabilitation and satisfaction with life in adults with childhood-onset of end-stage renal disease. Pediatr Nephrol. 2005 Sep;20(9):1288-94. doi: 10.1007/s00467-005-1952-3. PMID: 15942781. - **Non-United States study**

1748. Ross SD, Fahrbach K, Frame D, et al. The effect of anemia treatment on selected health-related quality-of-life domains: a systematic review. Clin Ther. 2003 Jun;25(6):1786-805. PMID: 12860499. - **Relevant systematic review**

1749. Rostami Z. When to start dialysis in elderly patients. Nephro-Urology Monthly. 2013;5(4):855-7. doi: 10.5812/numonthly.14288. - **No human data**

1750. Rouchon MI, Coutard C, Matysiak M, et al. High intensity interval training improves physical functioning, inflammation and quality of life in peritoneal dialysis patients. Nephrology Dialysis Transplantation. 2016;31:i58. doi: 10.1093/ndt/gfw142.5. - **Meeting abstract**

1751. Rousseau C. [Hemodialysis has a right to its part in the quality of life]. Infirm Can. 1978 Jun;20(6):28-32. PMID: 246839. - **Non-English**

1752. Roventa CE, Ciocalteu A, Poenar C. How depression affects quality of life in chronic hemodialysis? European Psychiatry. 2012;27doi: 10.1016/S0924-9338(12)74578-9. - **Meeting abstract**

1753. Roy AT, Johnson LE, Lee DB, et al. Renal failure in older people. J Am Geriatr Soc. 1990 Mar;38(3):239-53. PMID: 2088316. - **Other: case report**

1754. Roy LP. Treatment of children with end stage renal failure. Aust Paediatr J. 1983 Dec;19(4):207. PMID: 6370219. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1755. Ruiz de Alegria B, Basabe N, De Lorenzo E. Evolution of post-traumatic growth during the first 12 months of dialysis: A longitudinal study. J Ren Care. 2017 Jun;43(2):108-13. doi: 10.1111/jorc.12196. PMID: 28296241. - **Non-United States study**

1756. Rusk GH. Treatment decisions for patients and end-stage renal disease: psychological considerations. Clin Exp Dial Apheresis. 1983;7(4):313-24. PMID: 6675873. - **Non-relevant review**

1757. Russcher M, Chaves I, Lech K, et al. An observational study on

disturbed peripheral circadian rhythms in hemodialysis patients. Chronobiol Int. 2015;32(6):848-57. doi: 10.3109/07420528.2015.1048868. PMID: 26101944. - **Non-United States study**

1758. Russo GE, Giusti S, Vitaliano E, et al. [Efficacy of recombinant erythropoietin on the quality of life in patients over 60 years of age undergoing hemodialysis]. Clin Ter. 1997 Mar;148(3):89-93. PMID: 9377845. **- Non-United States study**

1759. Russo GE, Morgia A, Cavallini M, et al. [Quality of life assessment in patients on hemodialysis and peritoneal dialysis]. G Ital Nefrol. 2010 May-Jun;27(3):290-5. PMID: 20540022. **- Non-United States study**

1760. Rutkowski B, Nowaczyk R, Rutkowski P, et al. [Results of QC vs QL study (quality of care vs quality of life) 2006-2009. The way of providing hemodialysis and a concomitant therapy]. Przegl Lek. 2011;68(12):1170-8. PMID: 22519275. - **Non-English**

1761. Rutkowski B, Rychlik I. Daily hemodialysis and caregivers burden. Nephrol Dial Transplant. 2011 Jul;26(7):2074-6. doi: 10.1093/ndt/gfr298. PMID: 21708982. - **Non-relevant review**

1762. Ryan P, Le Mesurier L, Adams K, et al. Effect of increased blood flow rate on dialysis tolerability and achieved urea reduction ratio. Nephrology. 2015;20:57-8. doi: 10.1111/nep.12543. - **Meeting abstract**

1763. Saby A, Miller LS. Functional Assessment in End-Stage Renal Disease: Enhancing Quality of Life. Semin Dial. 2016 Mar-Apr;29(2):170-2. doi: 10.1111/sdi.12466. PMID: 26756940. - **No human data**

1764. Sadeghi M, Ebrahimi H, Abbasi M, et al. Relationship between anemia, quality of life, and laboratory indices in hemodialysis patients. Saudi J Kidney Dis Transpl. 2016 Sep-Oct;27(5):1063-7. doi: 10.4103/1319-2442.190905. PMID: 27752025. - **Non-United States study**

1765. Saeed Z, Ahmad AM, Shakoor A, et al. Depression in patients on hemodialysis and their caregivers. Saudi J Kidney Dis Transpl. 2012 Sep;23(5):946-52. doi: 10.4103/1319-2442.100869. PMID: 22982905. - **Non-United States study**

1766. Saffari M, Pakpour AH, Naderi MK, et al. Spiritual coping, religiosity and quality of life: a study on Muslim patients undergoing haemodialysis. Nephrology (Carlton). 2013 Apr;18(4):269-75. doi: 10.1111/nep.12041. PMID: 23432815. - **Non-United States study**

1767. Saglimbene V, Palmer S, Ruospo M, et al. High versus low dose erythropoiesis-stimulating agents in people with end-stage kidney disease treated with haemodialysis (C.E. dose): An open-label, pragmatic, multicentre, parallel-group randomised controlled trial. Nephrology Dialysis Transplantation. 2016;31:i540. doi: 10.1093/ndt/gfw198.14. - **Meeting abstract**

1768. Saglimbene V, Palmer SC, Craig JC, et al. Low versus high dose erythropoiesis-stimulating agents in hemodialysis patients with anemia: a randomized clinical trial. Plos one. 2017;12(3):e0172735. doi: 10.1371/journal.pone.0172735. PMID: CN-01401215. - **Non-United States study**

1769. Saha S, Islam R, Rahim M, et al. Dialysis adequacy and quality of life of diabetic and nondiabetic bangladeshi patients on maintenance haemodialysis. Nephrology Dialysis Transplantation. 2018;33:i502. doi: 10.1093/ndt/gfy104.SP460. - **Meeting abstract**

1770. Saif I, Worden S, Imran H, et al. β2 microglobulin clearance and quality of life - A comparison of high-flux haemodialysis & online haemodiafiltration. NDT Plus. 2010;3:iii410-iii1. - **Meeting abstract**

1771. Saini T, Murtagh FE, Dupont PJ, et al. Comparative pilot study of symptoms and quality of life in cancer patients and patients with end stage renal disease. Palliat Med. 2006 Sep;20(6):631-6. doi: 10.1177/0269216306070236. PMID: 17060257. - **Non-United States study**

1772. Saito S, Noto S, Miyazaki M. Health utility measured with EQ-5D-5L in Japanese patients undergoing hemodialysis. Value in Health. 2016;19(7):A860. - **Meeting abstract**

1773. Sakkas GK, Giannaki C, Karatzaferi C, et al. A single physical functioning score predicts mortality in hemodialysis patients. A 10-year prospective study. Nephrology Dialysis Transplantation. 2015;30:iii523. doi: 10.1093/ndt/gfv194.2. - **Meeting abstract**

1774. Sakkas GK, Giannaki CD, Karatzaferi C, et al. Current trends in the management of uremic restless legs syndrome: a systematic review on aspects related to quality of life, cardiovascular mortality and survival. Sleep Med Rev. 2015 Jun;21:39-49. doi: 10.1016/j.smrv.2014.07.006. PMID: 25261116. - **Relevant systematic review**

1775. Sakkas GK, Gourgoulianis KI, Karatzaferi C, et al. Haemodialysis patients with sleep apnoea syndrome experience increased central adiposity and altered muscular composition and functionality. Nephrol Dial Transplant. 2008 Jan;23(1):336-44. doi: 10.1093/ndt/gfm559. PMID: 17890750. - **Non-United States study**

1776. Sakkas GK, Hadjigeorgiou GM, Karatzaferi C, et al. Intradialytic aerobic exercise training ameliorates symptoms of restless legs syndrome and improves functional capacity in patients on hemodialysis: a pilot study. Asaio j. 2008 Mar-Apr;54(2):185-90. doi: 10.1097/MAT.0b013e3181641b07. PMID: 18356653. - **Non-United States study**

1777. Sakkas GK, Karatzaferi C, Liakopoulos V, et al. Polysomnographic evidence of sleep apnoea disorders in lean and overweight haemodialysis patients. J Ren Care. 2007 Oct-Dec;33(4):159-64. PMID: 18298033. - **Non-United States study**

1778. Sakthong P, Kasemsup V. Health-related quality of life in Thai peritoneal dialysis patients. Asian Biomedicine. 2011;5(6):799-805. doi: 10.5372/1905-7415.0506.104. - **Non-United States study**

1779. Salazar E, Lerma C, Lerma A, et al. Relationship between appetite levels and anxiety symptoms in chronic hemodialysis patients. Kidney Research and Clinical Practice. 2012;31(2):A71. doi: 10.1016/j.krcp.2012.04.539. - **Meeting abstract**

1780. Salcedo C, Joubert PH, Ferrer MD, et al. A phase 1b randomized, placebo-controlled clinical trial with SNF472 in haemodialysis patients. British journal of clinical pharmacology. 2019;85(4):796-806. doi: 10.1111/bcp.13863. PMID: CN-01917581. - **Non-United States study**

1781. Salehi B, Salehi M, Nsirnia K, et al. The effects of selected relaxing music on anxiety and depression during hemodialysis: a randomized crossover controlled clinical trial study. Arts in psychotherapy. 2016;48:76-80. doi: 10.1016/j.aip.2016.03.003. PMID: CN-01153544. - **Non-United States study**

1782. Sales C, Tavares R, Amado L, et al. Anxiety and depression in end stage renal disease patients and its association with clinical and laboratorial data. Nephrology Dialysis Transplantation. 2017;32:iii355. doi: 10.1093/ndt/gfx154. - **Meeting abstract**

1783. Sales C, Tavares R, Amado L, et al. Being here is a prison: Patient reported quality of life burdens associated to dialysis. Nephrology Dialysis Transplantation. 2017;32:iii713. doi: 10.1093/ndt/gfx181. - **Meeting abstract**

1784. Sales C, Tavares R, Amado L, et al. Prevalence and determinants of frailty in end stage renal disease under online hemodiafiltration. Nephrology Dialysis Transplantation. 2017;32:iii700. doi: 10.1093/ndt/gfx180. - **Meeting abstract**

1785. Salim SA, Zsom L, Cheungpasitporn W, et al. Benefits, challenges, and opportunities using home hemodialysis with a focus on Mississippi, a rural southern state. Semin Dial. 2019 Jan;32(1):80-4. doi: 10.1111/sdi.12751. PMID: 30352485. - **Narrative review**

1786. Salman SM. Restless legs syndrome in patients on hemodialysis. Saudi J Kidney Dis Transpl. 2011 Mar;22(2):368-72. PMID: 21422649. - **Non-United States study**

1787. Samavat S, Fatemizadeh S, Fasihi H, et al. Restless leg syndrome, insomnia, and depression in hemodialysis patients: Three sides of a triangle? Nephro-Urology Monthly. 2017;9(3)doi: 10.5812/numonthly.45076. - **Non-United States study**

1788. Samson W, Sathyan S, Feinn R, et al. Addition of cholecalciferol to calcitriol to treat frailty in hemodialysis and peritoneal dialysis patients. American Journal of Kidney Diseases. 2012;59(4):A72. - **Meeting abstract**

1789. Samson W, Sathyan S. Association of 25 hydroxy vitamin D with health related quality of life and

physical function in a hemodialysis population. American Journal of Kidney Diseases. 2010;55(4):A97. doi: 10.1053/j.ajkd.2010.02.269. - **Meeting abstract**

1790. Sandoval-Jurado L, Ceballos-Martinez ZI, Navarrete-Novelo C, et al. [Quality of life in patients with continuous ambulatory peritoneal dialysis]. Rev Med Inst Mex Seguro Soc. 2007 Mar-Apr;45(2):105-9. PMID: 17550694. - **Non-United States study**

1791. Saner E, Nitsch D, Descoeudres C, et al. Outcome of home haemodialysis patients: a case-cohort study. Nephrol Dial Transplant. 2005 Mar;20(3):604-10. doi: 10.1093/ndt/gfh674. PMID: 15665030. - **Non-United States study**

1792. Sangill M, Pedersen EB. The effect of glucose added to the dialysis fluid on blood pressure, blood glucose, and quality of life in hemodialysis patients: a placebo-controlled crossover study. Am J Kidney Dis. 2006 Apr;47(4):636-43. doi: 10.1053/j.ajkd.2006.01.007. PMID: 16564941. - **Non-United States study**

1793. Sanner BM, Tepel M, Esser M, et al. Sleep-related breathing disorders impair quality of life in haemodialysis recipients. Nephrol Dial Transplant. 2002 Jul;17(7):1260-5. PMID: 12105250. - **Non-United States study**

1794. Santacruz J, Babarro AA, Llana HG, et al. Quality of life and survival in patients with stage 5 chronic kidney diseae in dialysis versus conservative treatment. Nephrology Dialysis Transplantation. 2018;33:i267. doi: 10.1093/ndt/gfy104.FP659. - **Meeting abstract**

1795. Santivanez JR, Perez-Alba A, Canel JJS, et al. Expanded hemodialysis vs online hemodiafiltration for middle sized molecules clearence. Nephrology Dialysis Transplantation. 2018;33:i188. doi: 10.1093/ndt/gfy104.FP453. - **Meeting abstract**

1796. Santoro D, Satta E, Messina S, et al. Pain in end-stage renal disease: a frequent and neglected clinical problem. Clin Nephrol. 2013 Jan;79 Suppl 1:S2-11. PMID: 23249527. - **Narrative review**

1797. Santos JB, Mendonca M, Pinheiro MC, et al. Negative correlations between anxiety-depressive symptoms and quality of life among patients on hemodialysis. Sao Paulo Med J. 2010;128(2):102-3. PMID: 20676579. - **Non-United States study**

1798. Santos PR, Capote JR, Jr., Cavalcanti JU, et al. Quality of life among women with sexual dysfunction undergoing hemodialysis: a cross-sectional observational study. Health Qual Life Outcomes. 2012 Aug 31;10:103. doi: 10.1186/1477-7525-10-103. PMID: 22937965. - **Non-United States study**

1799. Santos PR, Daher EF, Silva GB, Jr., et al. Quality of life assessment among haemodialysis patients in a single centre: a 2-year follow-up. Qual Life Res. 2009 Jun;18(5):541-6. doi: 10.1007/s11136-009-9474-2. PMID: 19363660. - **Non-United States study**

1800. Santos PR, de Sales Santos IM, de Freitas Filho JLA, et al. Emotion-oriented coping increases the risk of depression among caregivers of end-stage renal disease patients undergoing hemodialysis. Int Urol Nephrol. 2017 Sep;49(9):1667-72. doi: 10.1007/s11255-017-1621-z. PMID: 28523593. - **Non-United States study**

1801. Santos PR, Franco Sansigolo Kerr LR. Clinical and laboratory variables associated with quality of life in Brazilian haemodialysis patients: a single-centre study. Rev Med Chil. 2008 Oct;136(10):1264-71. doi: /S0034-98872008001000005. PMID: 19194622. - **Non-United States study**

1802. Santos PR, Monteiro DLS, De Paula PHA, et al. Dyspepsia is associated with low protein and caloric intake among end-stage renal disease patients. International journal for vitamin and nutrition research. 2015;85(3-4):112-8. doi: 10.1024/0300-9831/a000230. PMID: CN-01154843. - **Non-United States study**

1803. Santos PR, Pontes LR. [Change in the level of quality of life in end-stage kidney patients during a 12 months follow-up]. Rev Assoc Med Bras (1992). 2007 Jul-Aug;53(4):329-34. PMID: 17823736. - **Non-English**

1804. Santos PR, Silveira Monteiro DL, de Paula PH, et al. Dyspepsia is Associated with Low Protein and Caloric Intake among End-Stage Renal Disease Patients. Int J Vitam Nutr Res. 2015;85(3-4):112-8. doi: 10.1024/0300-9831/a000230. PMID: 26780390. - **Non-United States study**

1805. Santos PR. [Relationship between gender and age with quality of life in chronic hemodialysis patients]. Rev Assoc Med Bras (1992). 2006 Sep-Oct;52(5):356-9. PMID: 17160313. - **Non-United States study**

1806. Santos PR. Comparison of quality of life between hemodialysis patients waiting and not waiting for kidney transplant from a poor region of Brazil. J Bras Nefrol. 2011 Apr-Jun;33(2):166-72. PMID: 21789430. - **Non-United States study**

1807. Santos PR. Correlation between coping style and quality of life among hemodialysis patients from a low-income area in Brazil. Hemodial Int. 2010 Jul;14(3):316-21. doi: 10.1111/j.1542-4758.2010.00449.x. PMID: 20491971. - **Non-United States study**

1808. Santos PR. Depression and quality of life of hemodialysis patients living in a poor region of Brazil. Braz J Psychiatry. 2011 Dec;33(4):332-7. PMID: 22189923. - **Non-United States study**

1809. Sanz Guajardo D, Orte L, Gomez-Campdera F, et al. [Quality of life in patients with chronic renal failure. Influence of nephrologist's early intervention and pre-dialysis clinical visit consultation]. Nefrologia. 2006;26 Suppl 3:56-65. PMID: 17469429. - **Non-United States study**

1810. Sapilak BJ, Steciwko A, Melon M. Haemodialysed patient in GP's practice. Therapeutic guidelines including patients' emotional state

based on own study. Family Medicine and Primary Care Review. 2006;8(2):320-3. - **Non-English**

1811. Sapkota A, Sedhain A, Rai MK. Quality of life of adult clients on renal replacement therapies in Nepal. J Ren Care. 2013 Dec;39(4):228-35. doi: 10.1111/j.1755-6686.2013.12021.x. PMID: 23855594. - **Non-United States study**

1812. Sarac E, Valino C, Wetzel JL, et al. Physical performance in ambulatory patients on dialysis. American Journal of Kidney Diseases. 2014;63(5):A97. doi: 10.1053/j.ajkd.2014.01.332. - **Meeting abstract**

1813. Saralegui I, García O, Robledo C, et al. Advance care planning in patientswith end-stage renal disease: What is most important to the patients? Nephrology Dialysis Transplantation. 2013;28:i268. doi: 10.1093/ndt/gft121. - **Meeting abstract**

1814. Saris-Baglama RN, Turner-Bowker DM, DeRosa MA, et al. Internet-based SF-12V2 is a reliable and valid measure of health-related quality of life for kidney disease patients. American Journal of Kidney Diseases. 2009;53(4):A68. doi: 10.1053/j.ajkd.2009.01.203. - **Meeting abstract**

1815. Sarizadeh MS, Rafieinia P, Sabahi P, et al. Effectiveness of acceptance and commitment therapy on subjective well-being among hemodialysis patients: A randomized clinical trial study. Koomesh. 2019;21(1):61-6. - **Non-English**

1816. Sarlak H, Demirkol S, Balta S, et al. Quality of life scores should be compared before and after patients have undergone dialysis. Ann Saudi Med. 2013 Sep-Oct;33(5):510. doi: 10.5144/0256.4947.2013.510a. PMID: 24188950. - **No human data**

1817. Sathvik BS, Parthasarathi G, Narahari MG, et al. An assessment of the quality of life in hemodialysis patients using the WHOQOL-BREF questionnaire. Indian J Nephrol. 2008 Oct;18(4):141-9. doi: 10.4103/0971-4065.45288. PMID: 20142925. - **Non-United States study**

1818. Sattar S, Khan N, Ahmad F, et al. Post-dialysis effects in patients on haemodialysis. J Pak Med Assoc. 2016 Jun;66(6):781-8. PMID: 27339592. - **Non-United States study**

1819. Savadi H, Khaki M, Javnbakht M, et al. The Impact of Hemodialysis on Sexual Function in Male Patients using the International Index of Erectile Function Questionnaire (IIEF). Electron Physician. 2016 May;8(5):2371-7. doi: 10.19082/2371. PMID: 27382447. - **Non-United States study**

1820. Saxena A, Nath R. Magnitude and determinants of restless legs syndrome in patients with chronic kidney disease admitted in a rural tertiary care hospital. Indian Journal of Nephrology. 2016;26(8):S69. - **Non-United States study**

1821. Schachter ME, Chan CT. Current state of intensive hemodialysis: a comparative review of benefits and barriers. Nephrol Dial Transplant. 2012 Dec;27(12):4307-

13. doi: 10.1093/ndt/gfs506. PMID: 23235954. - **Relevant systematic review**

1822. Schardong J, Dipp T, Bozzeto CB, et al. Effects of Intradialytic Neuromuscular Electrical Stimulation on Strength and Muscle Architecture in Patients With Chronic Kidney Failure: Randomized Clinical Trial. Artif Organs. 2017 Nov;41(11):1049-58. doi: 10.1111/aor.12886. PMID: 28621488. - **Non-United States study**

1823. Schatell D, Witten B. Anemia: dialysis patients experiences. Nephrol News Issues. 2004 Nov;18(12):49-54. PMID: 15595502. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1824. Schatell D. Outside the box: Home dialysis can be a problem-solver for common in-center woes. Nephrol News Issues. 2009 Sep;23(10):36-8. PMID: 19807002. - **Non-relevant review**

1825. Schick-Makaroff K, Molzahn A, Kalfoss M. Symptoms, coping and quality of life for people with chronic kidney disease. Quality of Life Research. 2018;27:S144. doi: 10.1007/s11136-018-1946-9. - **Meeting abstract**

1826. Schiffl H. Impact of advanced dialysis technology on the prevalence of dialysis-related amyloidosis in long-term maintenance dialysis patients. Hemodial Int. 2014 Jan;18(1):136-41. doi: 10.1111/hdi.12057. PMID: 23718290. - **Non-United States study**

1827. Schiffl H. Prospective randomized cross-over long-term comparison of online haemodiafiltration and ultrapure high-flux haemodialysis. Eur J Med Res. 2007 Jan 31;12(1):26-33. PMID: 17363355. - **Non-United States study**

1828. Schiller B, Finkelstein F, Burkart J, et al. Daily hemodialysis (DHD) improves sleep quality: Interim results from the FREEDOM study. Hemodialysis International. 2010;14(1):124. doi: 10.1111/j.1542-4758.2009.00434.x. - **Meeting abstract**

1829. Schlebusch L, Botha GM, Bosch BA. Coping styles in hemodialysis and continuous ambulatory peritoneal dialysis patients. Dialysis and Transplantation. 1984;13(8):517-21. - **Non-United States study**

1830. Schoenmaker NJ, Haverman L, Tromp WF, et al. Children of non-Western origin with end-stage renal disease in the Netherlands, Belgium and a part of Germany have impaired health-related quality of life compared with Western children. Nephrol Dial Transplant. 2014 Feb;29(2):448-57. doi: 10.1093/ndt/gft436. PMID: 24235076. - **Non-United States study**

1831. Schorr M, Manns BJ, Culleton B, et al. The effect of nocturnal and conventional hemodialysis on markers of nutritional status: results from a randomized trial. J Ren Nutr. 2011 May;21(3):271-6. doi: 10.1053/j.jrn.2010.04.004. PMID: 20650654. - **Non-United States study**

1832. Schouten RW, Haverkamp GL, Loosman WL, et al. Anxiety Symptoms, Mortality, and Hospitalization in Patients Receiving Maintenance Dialysis: A Cohort Study. Am J Kidney Dis. 2019 Apr 23doi: 10.1053/j.ajkd.2019.02.017. PMID: 31027882. - **Non-United States study**

1833. Schricker S, Heider T, Schanz M, et al. Strong Associations Between Inflammation, Pruritus and Mental Health in Dialysis Patients. Acta Derm Venereol. 2019 Jan 23doi: 10.2340/00015555-3128. PMID: 30673107. - **Non-United States study**

1834. Schulman G. Daily hemodialysis: the time has come?--Con. Am J Kidney Dis. 2005 May;45(5):798-803. PMID: 15861344. - **Narrative review**

1835. Schwartz CE, Merriman MP, Reed G, et al. Evaluation of the Missoula-VITAS Quality of Life Index--revised: research tool or clinical tool? J Palliat Med. 2005 Feb;8(1):121-35. doi: 10.1089/jpm.2005.8.121. PMID: 15662181. - **Other: critically ill QOL data not stratified**

1836. Schwartz DI, Pierratos A, Richardson RM, et al. Impact of nocturnal home hemodialysis on anemia management in patients with end-stage renal disease. Clin Nephrol. 2005 Mar;63(3):202-8. PMID: 15786821. - **Non-United States study**

1837. Sclauzero P, Galli G, Barbati G, et al. Assessing quality of life in dialysis patients: A role for compnents of frailty. Nephrology Dialysis Transplantation. 2012;27:ii269-ii70. doi: 10.1093/ndt/gfs227. - **Meeting abstract**

1838. Sebille V, Hardouin JB, Bonnaud-Antignac A, et al. Response shift in patients receiving a pre-emptive kidney transplant compared to similar recipients having experienced a short dialysis period: Study protocol for a prospective, observational, multicenter controlled study. Quality of Life Research. 2015;24(1):63. doi: 10.1007/s11136-015-1078-4. - **Meeting abstract**

1839. Sebille V, Hardouin JB, Giral M, et al. Prospective, multicenter, controlled study of quality of life, psychological adjustment process and medical outcomes of patients receiving a preemptive kidney transplant compared to a similar population of recipients after a dialysis period of less than three years - The PreKit-QoL study protocol. BMC nephrology. 2016;17(1) (no pagination)doi: 10.1186/s12882-016-0225-7. PMID: CN-01133661. - **Other: protocol**

1840. Sebille V, Hardouin JB, Tessier P, et al. Comparison of quality of life of pre-emptive or dialyzed patients on waiting list for kidney transplantation. prospective, observational, multicenter controlled study. Is differential item functioning occurring and is it an issue for the comparison? Quality of Life Research. 2016;25(1):145. doi: 10.1007/s11136-016-1390-7. - **Meeting abstract**

1841. Sedhain A, Sapkota A. Quality of life of adult clients with hemodialysis and renal transplantation. Nephrology. 2012;17:36. doi: 10.1111/j.1440-

1797.2012.01631.x. - **Meeting abstract**

1842. Seedat YK, MacIntosh CG, Subban JV. Quality of life for patients in an end-stage renal disease programme. S Afr Med J. 1987 Apr 18;71(8):500-4. PMID: 3551135. - **Non-United States study**

1843. Seefried L, Genest F, Luksche N, et al. Whole Body Vibration in hemodialysis patients-Beneficial effects particularly in patients with impaired physical functions. Nieren- und Hochdruckkrankheiten. 2018;47(10):497-507. doi: 10.5414/NHX01975. - **Non-English**

1844. Segura-Orti E, Kouidi E, Lison JF. Effect of resistance exercise during hemodialysis on physical function and quality of life: randomized controlled trial. Clin Nephrol. 2009 May;71(5):527-37. PMID: 19473613. - **Non-United States study**

1845. Segura-Ortí E, Kouidi E, Lisón JF. Effect of resistance exercise during hemodialysis on physical function and quality of life: randomized controlled trial. Clinical nephrology. 2009;71(5):527-37. PMID: CN-00705119. - **Non-United States study**

1846. Segura-Orti E, Rodilla-Alama V, Lison JF. [Physiotherapy during hemodialysis: results of a progressive resistance-training programme]. Nefrologia. 2008;28(1):67-72. PMID: 18336134. - **Non-United States study**

1847. Segura-Orti E. [Exercise in haemodyalisis patients: a literature systematic review]. Nefrologia. 2010;30(2):236-46. doi: 10.3265/Nefrologia.pre2010.Jan.10229. PMID: 20098466. - **Non-English**

1848. Seidel UK, Gronewold J, Volsek M, et al. Physical, cognitive and emotional factors contributing to quality of life, functional health and participation in community dwelling in chronic kidney disease. European Journal of Neurology. 2014;21:566. - **Meeting abstract**

1849. Semaan V, Noureddine S, Farhood L. Prevalence of depression and anxiety in end-stage renal disease: A survey of patients undergoing hemodialysis. Appl Nurs Res. 2018 Oct;43:80-5. doi: 10.1016/j.apnr.2018.07.009. PMID: 30220369. - **Non-United States study**

1850. Semeniuk J, Shalansky KF, Taylor N, et al. Evaluation of the effect of intravenous l-carnitine on quality of life in chronic hemodialysis patients. Clin Nephrol. 2000 Dec;54(6):470-7. PMID: 11140808. - **Non-United States study**

1851. Senol V, Sipahioglu MH, Ozturk A, et al. Important determinants of quality of life in a peritoneal dialysis population in Turkey. Ren Fail. 2010;32(10):1196-201. doi: 10.3109/0886022x.2010.517349. PMID: 20954981. - **Non-United States study**

1852. Sensky T. Measurement of the quality of life in end-stage renal failure. N Engl J Med. 1988 Nov 17;319(20):1353-4. PMID: 3185642. - **No human data**

1853. Sentveld B, van den Brink M, Brulez HF, et al. The influence of

blood volume-controlled ultrafiltration on hemodynamic stability and quality of life. Hemodial Int. 2008 Jan;12(1):39-44. doi: 10.1111/j.1542-4758.2008.00238.x. PMID: 18271839. - **Non-United States study**

1854. Seow YY, Cheung YB, Qu LM, et al. Trajectory of quality of life for poor prognosis stage 5D chronic kidney disease with and without dialysis. Am J Nephrol. 2013;37(3):231-8. doi: 10.1159/000347220. PMID: 23467046. - **Non-United States study**

1855. Seow YY, Qu LM, Tan SH, et al. Health-related quality of life (HRQoL) and survival of poor prognosis ESRD patients on dialysis versus conservative management. American Journal of Kidney Diseases. 2009;53(4):A69. doi: 10.1053/j.ajkd.2009.01.209. - **Meeting abstract**

1856. Sesso R, Rodrigues-Neto JF, Ferraz MB. Impact of socioeconomic status on the quality of life of ESRD patients. Am J Kidney Dis. 2003 Jan;41(1):186-95. doi: 10.1053/ajkd.2003.50003. PMID: 12500236. - **Non-United States study**

1857. Sesso R, Yoshihiro MM, Ajzen H. Late diagnosis of chronic renal failure and the quality of life during dialysis treatment. Braz J Med Biol Res. 1996 Oct;29(10):1283-9. PMID: 9181098. - **Non-United States study**

1858. Sesso R, Yoshihiro MM. Time of diagnosis of chronic renal failure and assessment of quality of life in haemodialysis patients. Nephrol Dial Transplant. 1997 Oct;12(10):2111-6. PMID: 9351074. - **Non-United States study**

1859. Setodji CM, Peipert JD, Hays RD. Differential item functioning of the CAHPS(R) In-Center Hemodialysis Survey. Qual Life Res. 2019 Jul 26doi: 10.1007/s11136-019-02250-5. PMID: 31350653. **– No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1860. Shafi ST, Shafi T. A comparison of anxiety and depression between pre-dialysis chronic kidney disease patients and hemodialysis patients using hospital anxiety and depression scale. Pak J Med Sci. 2017 Jul-Aug;33(4):876-80. doi: 10.12669/pjms.334.12656. PMID: 29067057. - **Non-United States study**

1861. Shafi ST, Shafi T. A comparison of quality of sleep between patients with chronic kidney disease not on hemodialysis and end-stage renal disease on hemodialysis in a developing country. Ren Fail. 2017 Nov;39(1):623-8. doi: 10.1080/0886022x.2017.1361836. PMID: 28805481. - **Non-United States study**

1862. Shafiee MA, Chamanian P, Shaker P, et al. The Impact of Hemodialysis Frequency and Duration on Blood Pressure Management and Quality of Life in End-Stage Renal Disease Patients. Healthcare (Basel). 2017 Sep 2;5(3)doi: 10.3390/healthcare5030052. PMID: 28869490. - **Relevant systematic review**

1863. Shafipour V, Jafari H, Shafipour L, et al. Assessment of the relationship between quality of life and stress in the hemodialysis patients in 2008. Pak J Biol Sci. 2010 Apr 15;13(8):375-9. PMID: 20836297. - **Non-United States study**

1864. Shah K, Murtagh F, McGeechan K, et al. Health-related quality of life in people over 75 years of age with end-stage kidney disease managed with comprehensive conservative care or dialysis. Nephrology. 2018;23:31. doi: 10.1111/nep.13441. - **Meeting abstract**

1865. Shah K, Murtagh F, McGeechan K, et al. Should we be measuring "wellbeing" in older people with end-stage kidney disease, rather than health-related quality of life? a prospective crosssectional study in the uk and australia. Nephrology. 2018;23:30. doi: 10.1111/nep.13441. - **Meeting abstract**

1866. Shah N, Reintjes F, Courtney M, et al. Home Hemodialysis (HHD) patient exits associate with higher pre-exit health care practitioner interactions and post program exit mortality. Hemodialysis International. 2017;21(1):A33. doi: 10.1111/hdi.12520. - **Meeting abstract**

1867. Shahgholian N, Dehghan M, Mortazavi M, et al. The effect of aromatherapy on pruritus in patients undergoing hemodialysis. Iranian Journal of Kidney Diseases. 2011;5:61. - **Meeting abstract**

1868. Shahgholian N, Eshghinezhad A, Mortazavi M. The effect of tai chi exercise on quality of life in hemodialysis patients. Iran J Nurs Midwifery Res. 2014 Mar;19(2):152-8. PMID: 24834084. - **Non-United States study**

1869. Shahnavazi M, Parsa-Yekta Z, Yekaninejad MS, et al. The effect of the emotional intelligence education programme on quality of life in haemodialysis patients. Appl Nurs Res. 2018 Feb;39:18-25. doi: 10.1016/j.apnr.2017.10.017. PMID: 29422155. - **Non-United States study**

1870. Shakespeare W. On dialysis, sleep and melatonin. Indian Journal of Nephrology. 2013;23(4):269. - **Non-relevant review**

1871. Shakiba M, Sanadgol H, Azmoude HR, et al. Effect of sertraline on uremic pruritus improvement in ESRD patients. Int J Nephrol. 2012;2012:363901. doi: 10.1155/2012/363901. PMID: 22973512. - **Non-United States study**

1872. Shapiro CM, Devins GM, Hussain MR. ABC of sleep disorders. Sleep problems in patients with medical illness. Bmj. 1993 Jun 5;306(6891):1532-5. PMID: 8518686. - **Narrative review**

1873. Shariati A, Jahani S, Hooshmand M, et al. The effect of acupressure on sleep quality in hemodialysis patients. Complement Ther Med. 2012 Dec;20(6):417-23. doi: 10.1016/j.ctim.2012.08.001. PMID: 23131372. - **Non-United States study**

1874. Sharma V. Effect of laughter yoga and clapping exercise on renal functions and quality of life in patients suffering from chronic kidney disease in South Delhi metro population. Gut. 2018;67:A17. doi:

10.1136/gutjnl-2018-IDDFabstracts.36. - **Meeting abstract**

1875. Shayan N, Ozcebe H, Arici M. Evaluation of health literacy (HL) and quality of life (QOL) in hemodialysis patients: Is it different in diabetic patients? Nephrology Dialysis Transplantation. 2018;33:i273. doi: 10.1093/ndt/gfy104.FP676. - **Meeting abstract**

1876. Sheingold SH, Churchill DN, Muirhead N, et al. Recombinant human erythropoietin: factors to consider in cost-benefit analysis. Am J Kidney Dis. 1991 Jan;17(1):86-92. PMID: 1898836. - **Non-United States study**

1877. Shen K, Cho Y, Pascoe EM, et al. The SIESTA trial: a randomized study investigating the efficacy, safety, and tolerability of acupressure versus sham therapy for improving sleep quality in patients with end-stage kidney disease on hemodialysis. Evidence-based complementary and alternative medicine. 2017;2017doi: 10.1155/2017/7570352. PMID: CN-01442837. - **Non-United States study**

1878. Shen Q, Huang X, Luo Z, et al. Sleep quality, daytime sleepiness and health-related quality-of-life in maintenance haemodialysis patients. J Int Med Res. 2016 Jun;44(3):698-709. doi: 10.1177/0300060515608296. PMID: 26966156. - **Non-United States study**

1879. Shi M, Chen H, Liu H, et al. Anticoagulant effect of argatroban in ESRD patients during induction period of hemodialysis with central venous catheter access. Journal of the american society of nephrology : JASN. 2008;19(Abstracts ue):462A. PMID: CN-01912344. - **Meeting abstract**

1880. Shidler NR, Peterson RA, Kimmel PL. Quality of life and psychosocial relationships in patients with chronic renal insufficiency. Am J Kidney Dis. 1998 Oct;32(4):557-66. PMID: 9774115. - **Other: Chronic renal insufficiency pts**

1881. Shield CH. The impact of nutrition and fitness on quality of life. Nephrol News Issues. 2002 Apr;16(5):52-5. PMID: 11962151. - **Non-relevant review**

1882. Shimoyama S, Hirakawa O, Yahiro K, et al. Health-related quality of life and caregiver burden among peritoneal dialysis patients and their family caregivers in Japan. Perit Dial Int. 2003 Dec;23 Suppl 2:S200-5. PMID: 17986549. - **Non-United States study**

1883. Shirazian S. Depression in CKD: Understanding the Mechanisms of Disease. Kidney International Reports. 2019;4(2):189-90. doi: 10.1016/j.ekir.2018.11.013. - **Non-relevant review**

1884. Shrestha S, Ghotekar LR, Sharma SK, et al. Assessment of quality of life in patients of end stage renal disease on different modalities of treatment. JNMA J Nepal Med Assoc. 2008 Jan-Mar;47(169):1-6. PMID: 18552884. - **Non-United States study**

1885. Shroff R, Smith C, Ranchin B, et al. Effects of Hemodiafiltration versus Conventional Hemodialysis in Children with ESKD: The HDF,

Heart and Height Study. Journal of the American Society of Nephrology : JASN. 2019;30(4):678-91. doi: 10.1681/ASN.2018100990. - **Non-United States study**

1886. Sihombing J, Hakim L, Andayani TM, et al. Quality of life of chronic kidney disease patients with routine hemodialysis in general hospitals in sleman yogyakarta. International Journal of Pharmacy and Pharmaceutical Sciences. 2017;9(2):213-6. doi: 10.22159/ijpps.2017v9i2.15844. - **Non-United States study**

1887. Sikkes ME, Kooistra MP, Weijs PJ. Improved nutrition after conversion to nocturnal home hemodialysis. J Ren Nutr. 2009 Nov;19(6):494-9. doi: 10.1053/j.jrn.2009.05.006. PMID: 19616453. - **Non-United States study**

1888. Silva AS, Silveira RS, Fernandes GF, et al. [Perceptions and changes in the quality of life of patients submitted to hemodyalisis]. Rev Bras Enferm. 2011 Sep-Oct;64(5):839-44. PMID: 22460483. - **Non-United States study**

1889. Silva CHR, Citero VA, Coqueiro DP, et al. Investigation of minor psychiatric symptoms in patients with chronic kidney disease on hemodialysis treatment. Scientia Medica. 2018;28(2)doi: 10.15448/1980-6108.2018.2.29538. - **Non-United States study**

1890. Silva Junior GB, Daher EF, Buosi AP, et al. Depression among patients with end-stage renal disease in hemodialysis. Psychol Health Med. 2014;19(5):547-51. doi: 10.1080/13548506.2013.845303. PMID: 24160459. - **Non-United States study**

1891. Silva LF, Lopes GB, Cunha TO, et al. Coping with fluid restriction and the quality of life in hemodialysis patients with very low or no daily urine output. Int J Artif Organs. 2014 Jun;37(6):427-35. doi: 10.5301/ijao.5000329. PMID: 24970556. - **Non-United States study**

1892. Silva SF, Pereira AA, Silva WA, et al. Physical therapy during hemodialyse in patients with chronic kidney disease. J Bras Nefrol. 2013 Jul-Sep;35(3):170-6. doi: 10.5935/0101-2800.20130028. PMID: 24100735. - **Non-United States study**

1893. Silva SR, Viana PC, Lugon NV, et al. Thalidomide for the treatment of uremic pruritus: a crossover randomized double-blind trial. Nephron. 1994;67(3):270-3. doi: 10.1159/000187978. PMID: CN-00105348. - **Non-United States study**

1894. Silveira CB, Pantoja IK, Silva AR, et al. [Quality of life of hemodialysis patients in a Brazilian Public Hospital in Belem - Para]. J Bras Nefrol. 2010 Mar;32(1):37-42. PMID: 21448518. - **Non-United States study**

1895. Sim A, Ow Yong LM, Tan CKX. Dialysis modality affects quality of life in patients with end-stage renal failure. Proceedings of Singapore Healthcare. 2012;21:S309. doi: 10.1177/20101058120210S101. - **Meeting abstract**

1896. Simic-Ogrizovic S, Jemcov T, Pejanovic S, et al. Health-related

quality of life, treatment efficacy, and hemodialysis patient outcome. Ren Fail. 2009;31(3):201-6. doi: 10.1080/08860220802669842. PMID: 19288325. - **Non-United States study**

1897. Simmons RG, Abress L. Quality of life and rehabilitation differences among alternate end-stage renal disease therapies. Transplantation Proceedings. 1988;20(1 SUPPL. 1):379-80. - **Other: no outcomes actually in the study**

1898. Simmons RG, Anderson CR, Kamstra LK, et al. Quality of life and alternate end-stage renal disease therapies. Transplantation Proceedings. 1985;17(1 II):1577-8. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1899. Simms RJ, Thong KM, Dworschak GC, et al. Increased psychosocial burden and adverse quality of life in autosomal dominant polycystic kidney disease. Nephrology Dialysis Transplantation. 2015;30:iii190. doi: 10.1093/ndt/gfv175.46. - **Meeting abstract**

1900. Simonsen E, Komenda P, Lerner B, et al. Treatment of Uremic Pruritus: A Systematic Review. Am J Kidney Dis. 2017 Nov;70(5):638-55. doi: 10.1053/j.ajkd.2017.05.018. PMID: 28720208. - **Relevant systematic review**

1901. Sims J, Bennett PN, Ockerby C, et al. The effect of holiday haemodialysis treatments on patient mood, adverse symptoms and subjective wellbeing using the Big Red Kidney Bus. Nephrology (Carlton). 2017 Feb;22(2):107-13. doi: 10.1111/nep.12811. PMID: 27161902. - **Non-United States study**

1902. Singer PA, Martin DK, Kelner M. Quality end-of-life care: patients' perspectives. Jama. 1999 Jan 13;281(2):163-8. PMID: 9917120. - **Non-United States study**

1903. Sinha S, Mahajan S, Mahajan S, et al. A comparison of sleep disordered breathing changes and quality of sleep and life in end stage renal disease (ESRD) patients before and after renal transplant. American Journal of Respiratory and Critical Care Medicine. 2014;189. - **Non-United States study**

1904. Sirich TL, Fong K, Larive B, et al. Limited reduction in uremic solute concentrations with increased dialysis frequency and time in the Frequent Hemodialysis Network Daily Trial. Kidney Int. 2017 May;91(5):1186-92. doi: 10.1016/j.kint.2016.11.002. PMID: 28089366. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1905. Siriwardana A, Hoffman A, Brennan F, et al. Improving symptoms among dialysis patients through renal supportive care. Nephrology. 2018;23:33. doi: 10.1111/nep.13441. - **Meeting abstract**

1906. Sledge R, Aebel-Groesch K, McCool M, et al. Part 2. The promise of symptom-targeted intervention to manage depression in dialysis patients: improving mood and quality of life outcomes. Nephrol

News Issues. 2011 Jun;25(7):24-8, 30-1. PMID: 21736132. - **No human data**

1907. Sledge R. KDQOL-36 and the interdisciplinary team. Nephrol News Issues. 2010 Jun;24(7):36-8. PMID: 20617630. - **Non-relevant review**

1908. Slesnick N, Pienkos S, Sun S, et al. The chronic disease self-management program--A pilot study in patients undergoing hemodialysis. Nephrol News Issues. 2015 Apr;29(4):22-3, 7-8, 30-2. PMID: 26263750. - **No human data**

1909. Slinin Y, Greer N, Ishani A, et al. Timing of dialysis initiation, duration and frequency of hemodialysis sessions, and membrane flux: a systematic review for a KDOQI clinical practice guideline. Am J Kidney Dis. 2015 Nov;66(5):823-36. doi: 10.1053/j.ajkd.2014.11.031. PMID: 26498415. - **Relevant systematic review**

1910. Sloand JA. Just because it's built, should they come? can nephrologists influence facility RRT options? Dialysis and Transplantation. 2010;39(11):470-1. doi: 10.1002/dat.20499. - **Other: Commentary**

1911. Smirnov AV, Vasil'eva IA, Nesterova OB, et al. [Quality of life and cognitive functions in patients with end-stage renal failure on hemodialysis using a succinate-containing dialyzing solution]. Ter Arkh. 2014;86(6):11-7. PMID: 25095650. - **Non-English**

1912. Smith JR, Zimmer N, Bell E, et al. A Randomized, Single-Blind, Crossover Trial of Recovery Time in High-Flux Hemodialysis and Hemodiafiltration. Am J Kidney Dis. 2017 Jun;69(6):762-70. doi: 10.1053/j.ajkd.2016.10.025. PMID: 28024931. - **Other: f/u less than 6 months**

1913. Smith JR, Zimmer N, Bell E, et al. A single-blind randomised controlled crossover study of recovery time in high-flux haemodialysis and haemodiafiltration. Nephrology Dialysis Transplantation. 2015;30:iii232. doi: 10.1093/ndt/gfv179.10. - **Meeting abstract**

1914. Smith V, Wise K. Evaluating nurses' action outcomes and exploring their perspectives of implementing the POS-S (Renal) assessment tool for haemodialysis patients. Palliative Medicine. 2018;32(1):241-2. doi: 10.1177/0269216318769196. - **Meeting abstract**

1915. Smyth B, Van Den Broek-Best O, Hong D, et al. The quality of life improvements associated with extended hours dialysis are consistent across subgroups. Nephrology. 2018;23:28. doi: 10.1111/nep.13441. - **Meeting abstract**

1916. Sofia NA, Widyaningrum, Siswanto A, et al. The influences of relaxation training (Latihan Pasrah Diri) on quality life in haemodialysis patients with depressive symptoms. Psychotherapy and Psychosomatics. 2013;82:106. doi: 10.1159/000354142. - **Meeting abstract**

1917. Sohrabi Z, Eftekhari MH, Eskandari MH, et al. Malnutrition-inflammation score and quality of life in hemodialysis patients: Is there

any correlation? Nephro-Urology Monthly. 2015;7(3)doi: 10.5812/numonthly.7(3)2015.27445. **- Non-United States study**

1918. Sohrabi Z, Salehi M, Ekramzade M, et al. Effect of selenium supplement on quality of life in hemodialysis patients. Koomesh. 2014;16(2):136-42. **- Non-United States study**

1919. Soleimani MA, Tabiban S, Bakhshande H, et al. Effect of illness perception intervention on death anxiety in hemodialysis patients: A randomized clinical trial. Journal of Mazandaran University of Medical Sciences. 2018;28(162):12-24. **- Non-English**

1920. Soleymanian T, Kokabeh Z, Ramaghi R, et al. Clinical outcomes and quality of life in hemodialysis diabetic patients versus non-diabetics. J Nephropathol. 2017 Mar;6(2):81-9. doi: 10.15171/jnp.2017.14. PMID: 28491858. **- Non-United States study**

1921. Son YJ, Choi KS, Park YR, et al. Depression, symptoms and the quality of life in patients on hemodialysis for end-stage renal disease. Am J Nephrol. 2009;29(1):36-42. doi: 10.1159/000150599. PMID: 18679023. **- Non-United States study**

1922. Son YJ, You MA, Song EK. Influence of Type D personality on health-related quality of life among Korean patients with end-stage renal disease. Int J Nurs Pract. 2012 Jun;18(3):260-7. doi: 10.1111/j.1440-172X.2012.02030.x. PMID: 22621296. **- Non-United States study**

1923. Sondergaard H, Juul S. Self-rated health and functioning in patients with chronic renal disease. Dan Med Bull. 2010 Dec;57(12):A4220. PMID: 21122461. **- Non-United States study**

1924. Song MK, Ward SE, Bair E, et al. Relationships of objective and subjective cognitive impairment to daily functioning among maintenance dialysis patients. Palliative Medicine. 2014;28(6):818-9. doi: 10.1177/0269216314532748. **- Meeting abstract**

1925. Song WJ, Sohng KY. Effects of progressive resistance training on body composition, physical fitness and quality of life of patients on hemodialysis. J Korean Acad Nurs. 2012 Dec;42(7):947-56. doi: 10.4040/jkan.2012.42.7.947. PMID: 23377590. **- Non-United States study**

1926. Song YS, Yang HJ, Song ES, et al. Sexual function and quality of life in Korean women with chronic renal failure on hemodialysis: case-control study. Urology. 2008 Feb;71(2):243-6. doi: 10.1016/j.urology.2007.10.020. PMID: 18308093. **- Non-United States study**

1927. Sonikian M, Metaxaki P, Papavasileiou D, et al. Effects of interleukin-6 on depression risk in dialysis patients. Am J Nephrol. 2010;31(4):303-8. doi: 10.1159/000285110. PMID: 20160434. **- Non-United States study**

1928. Soreide R, Svarstad E, Iversen BM. CAPD in patients above 70 years of age. Adv Perit Dial. 1991;7:73-6. PMID: 1680461. - **Non-United States study**

1929. Sorensen VR, Mathiesen ER, Watt T, et al. Diabetic patients treated with dialysis: complications and quality of life. Diabetologia. 2007 Nov;50(11):2254-62. doi: 10.1007/s00125-007-0810-1. PMID: 17876568. - **Non-United States study**

1930. Spaeth N. Life beyond dialysis: "Renal rehabilitation" programs focus on patient mental health and well-being. Dialysis and Transplantation. 2009;38(4):118-9. doi: 10.1002/dat.20313. - **Other: Commentary**

1931. Spencer RH, Munera C, Vernon MK, et al. Clinically meaningful itch reduction by CR845 an 8-week randomized, placebo-controlled study in hemodialysis patients. American Journal of Kidney Diseases. 2018;71(4):585. - **Meeting abstract**

1932. Speyer E, Beauger D, Gentile S, et al. Esrd patients health-related quality of life. A comparative analysis according to the patterns of care. Nephrology Dialysis Transplantation. 2014;29:iii526. doi: 10.1093/ndt/gfu178. - **Meeting abstract**

1933. Spiegel BM, Melmed G, Robbins S, et al. Biomarkers and health-related quality of life in end-stage renal disease: a systematic review. Clin J Am Soc Nephrol. 2008 Nov;3(6):1759-68. doi: 10.2215/cjn.00820208. PMID: 18832106. - **Relevant systematic review**

1934. Spinowitz B, Pecoits-Filho R, Winkelmayer WC, et al. Economic and quality of life burden of anemia on patients with CKD on dialysis: a systematic review. Journal of Medical Economics. 2019doi: 10.1080/13696998.2019.1588738. - **Relevant systematic review**

1935. Splinter A, Tjaden L, Haverman L, et al. Similar low health related quality of life scores among children on dialysis and renal transplanted children: An international study. Quality of Life Research. 2017;26(1):75. doi: 10.1007/s11136-017-1658-6. - **Other: meeting editorial**

1936. Splinter A, Tjaden LA, Haverman L, et al. Children on dialysis as well as renal transplanted children report severely impaired health-related quality of life. Qual Life Res. 2018 Jun;27(6):1445-54. doi: 10.1007/s11136-018-1789-4. PMID: 29374855. - **Non-United States study**

1937. Sqalli-Houssaini T, Ramouz I, Fahi Z, et al. [Effects of anxiety and depression on haemodialysis adequacy]. Nephrol Ther. 2005 Mar;1(1):31-7. doi: 10.1016/j.nephro.2005.01.007. PMID: 16895665. - **Non-United States study**

1938. Stack A, Barrett P, Yousif I, et al. Factors associated with difficulties in sexual arousal and sexual enjoyment among new patients with end stage kidney disease: Results from a national study. Nephrology. 2010;15:41. doi: 10.1111/j.1440-1797.2010.01336.x. - **Meeting abstract**

1939. Stallone G, Angelini P, Cataldi G, et al. [Evaluation of quality of life by improving the uraemic anaemia status]. G Ital Nefrol. 2003 Sep-Oct;20(5):478-83. PMID: 14634963. - **Non-United States study**

1940. Stankuviene A, Ziginskiene E, Kuzminskis V, et al. Impact of hemodialysis dose and frequency on survival of patients on chronic hemodialysis in Lithuania during 1998-2005. Medicina (Kaunas). 2010;46(8):516-21. PMID: 20966627. - **Non-United States study**

1941. Stanley M. Peritoneal dialysis versus haemodialysis (adult). Nephrology. 2010;15(SUPPL. 1):S24-S31. doi: 10.1111/j.1440-1797.2010.01228.x. - **Narrative review**

1942. Stanley M. The CARI guidelines. Peritoneal dialysis versus haemodialysis (adult). Nephrology (Carlton). 2010 Apr;15 Suppl 1:S24-31. doi: 10.1111/j.1440-1797.2010.01228.x. PMID: 20591038. - **Non-relevant review**

1943. Starks SA, Graff JC, Wicks MN. Factors Associated With Quality of Life of Family Caregivers of Dialysis Recipients. West J Nurs Res. 2019 May 16:193945919849816. doi: 10.1177/0193945919849816. PMID: 31096890. **– No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1944. Starks SA, Outlaw F, Graff JC, et al. Quality of Life and African American Women Who are Family Caregivers: A Literature Review with Implications for Psychiatric Mental Health Advanced Practice Registered Nurses. Issues Ment Health Nurs. 2018 Jun;39(6):467-81. doi: 10.1080/01612840.2017.1423427. PMID: 29451830. - **Non-relevant review**

1945. Stavrianou K, Pallikarakis N. Quality of life of end-stage renal disease patients and study on the implementation of nocturnal home hemodialysis in Greece. Hemodial Int. 2007 Apr;11(2):204-9. doi: 10.1111/j.1542-4758.2007.00170.x. PMID: 17403172. - **Non-United States study**

1946. Stavropoulou A, Grammatikopoulou MG, Rovithis M, et al. Through the Patients' Eyes: The Experience of End-Stage Renal Disease Patients Concerning the Provided Nursing Care. Healthcare (Basel). 2017 Jul 21;5(3)doi: 10.3390/healthcare5030036. PMID: 28754014. - **Non-United States study**

1947. Stec P, Schatell D, Witten B. Why we need a health-related quality of life CPM. Nephrol News Issues. 2008 Mar;22(3):28-30, 5. PMID: 18372678. - **Other: letter--no date**

1948. Steinhauser KE, Bosworth HB, Clipp EC, et al. Initial assessment of a new instrument to measure quality of life at the end of life. J Palliat Med. 2002 Dec;5(6):829-41. doi: 10.1089/10966210260499014. PMID: 12685529. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1949. Steinhauser KE, Clipp EC, Bosworth HB, et al. Measuring quality of life at the end of life:

validation of the QUAL-E. Palliat Support Care. 2004 Mar;2(1):3-14. PMID: 16594230. - **Other: unstratified diseases**

1950. Stelzer F, Bartmann APJD, Da Silva Crestani DN, et al. Restless legs syndrome in patients on chronic dialysis treated with erytropoietin. Sleep Medicine. 2011;12:S85. - **Meeting abstract**

1951. Stevens JM, Auer J, Strong CA, et al. Stepwise correction of anaemia by subcutaneous administration of human recombinant erythropoietin in patients with chronic renal failure maintained by continuous ambulatory peritoneal dialysis. Nephrol Dial Transplant. 1991;6(7):487-94. PMID: 1922910. **- Non-United States study**

1952. Stevenson JK, Campbell ZC, Webster AC, et al. eHealth interventions for people with chronic kidney disease. Cochrane Database Syst Rev. 2019 Aug 6;8:CD012379. doi: 10.1002/14651858.CD012379.pub2. PMID: 31425608. **–Systematic review**

1953. Stewart JH. Exercise and rehabilitation in dialysis patients. Med J Aust. 1981 Jun 13;1(12):610-1. PMID: 7254047. - **Meeting abstract**

1954. Stewart P. Exercise and a cycle of life: help us help ourselves. Adv Ren Replace Ther. 1999 Apr;6(2):184-6. PMID: 10230887. - **Non-relevant review**

1955. Stojanovic M, Ilic S, Stefanovic V. Influence of co-morbidity on health-related quality of life in patients treated with hemodialysis. Int J Artif Organs. 2006 Nov;29(11):1053-61. PMID: 17160962. **- Non-United States study**

1956. Stokes JB. Nocturnal hemodialysis: analysis following the Frequent Hemodialysis Network trial. Semin Dial. 2011 Nov-Dec;24(6):614-20. doi: 10.1111/j.1525-139X.2011.01001.x. PMID: 22122449. - **Relevant systematic review**

1957. Stratta P, Coppo R. [Audit on quality of life of patients with chronic kidney disease on dialysis and after transplant]. G Ital Nefrol. 2008 May-Jun;25 Suppl 41:S45-8, discussion S8-57. PMID: 18473319. **- Non-English**

1958. Stringuetta-Belik F, Silva VRO, Shirashi FG, et al. The role of intradialytic aerobic training in improved functional capacity and cognitive function in patients with chronic kidney disease on hemodialysis. European Heart Journal. 2013;34:639. - **Meeting abstract**

1959. Strippoli GF, Vecchio M, Palmer S, et al. Sexual dysfunction in women with ESRD requiring hemodialysis. Clin J Am Soc Nephrol. 2012 Jun;7(6):974-81. doi: 10.2215/cjn.12601211. PMID: 22490876. **- Non-United States study**

1960. Strippoli GF. Effects of the dose of erythropoiesis stimulating agents on cardiovascular events, quality of life, and health-related costs in hemodialysis patients: the clinical evaluation of the dose of erythropoietins (C.E. DOSE) trial protocol. Trials. 2010 Jun 9;11:70. doi: 10.1186/1745-6215-11-70.

PMID: 20534124. - **Non-United States study**

1961. Su CY, Pei J, Lu XH, et al. Gastrointestinal symptoms predict peritonitis rates in CAPD patients. Clin Nephrol. 2012 Apr;77(4):267-74. PMID: 22445469. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1962. Su LH, Wu KD, Lee LS, et al. Effects of far infrared acupoint stimulation on autonomic activity and quality of life in hemodialysis patients. Am J Chin Med. 2009;37(2):215-26. doi: 10.1142/s0192415x09006783. PMID: 19507267. - **Non-United States study**

1963. Suh MR, Jung HH, Kim SB, et al. Effects of regular exercise on anxiety, depression, and quality of life in maintenance hemodialysis patients. Ren Fail. 2002 May;24(3):337-45. PMID: 12166700. - **Non-United States study**

1964. Sullivan K, Carter S, Jawa N, et al. Actigraphy assessment of sleep quality in children with end stage renal failure on dialysis. Hemodialysis International. 2019;23(1):A33. doi: 10.1111/hdi.12726. - **Meeting abstract**

1965. Sullivan KM, Carter S, Jawa N, et al. Actigraphy assessment of sleep quality in children with end stage renal failure and dialysis. Nieren- und Hochdruckkrankheiten. 2019;48(3):108-9. doi: 10.5414/nhx02027. **– Meeting abstract**

1966. Sumiyoshi H, Mantani A, Nishiyama S, et al. Yokukansan treatment of chronic renal failure patients receiving hemodialysis, with behavioral and psychological symptoms of dementia: an open-label study. Am J Geriatr Psychiatry. 2013 Nov;21(11):1082-5. doi: 10.1016/j.jagp.2011.06.001. PMID: 23567442. - **Non-United States study**

1967. Sun H, Qiu MY, Li BQ, et al. [Effect of moxibustion on quality of life in hemodialysis patients]. Zhongguo Zhen Jiu. 2008 May;28(5):321-4. PMID: 18652319. - **Non-United States study**

1968. Sun Y, Wang Y, Yu W, et al. Association of Dose and Frequency on the Survival of Patients on Maintenance of Hemodialysis in China: A Kaplan-Meier and Cox-Proportional Hazard Model Analysis. Med Sci Monit. 2018 Jul 31;24:5329-37. doi: 10.12659/msm.909404. PMID: 30063696. - **Non-United States study**

1969. Sunder S, Kalra OP, Nashine S, et al. Comparative study of adequacy of dialysis and health-related quality of life in patients on CAPD and APD. Perit Dial Int. 2008 Sep-Oct;28(5):542-4. PMID: 18708551. - **Non-United States study**

1970. Sung JM, Kuo SC, Guo HR, et al. Decreased salivary flow rate as a dipsogenic factor in hemodialysis patients: Evidence from an observational study and a pilocarpine clinical trial. Journal of the American Society of Nephrology. 2005;16(11):3418-29. doi: 10.1681/ASN.2005040346. - **Non-United States study**

1971. Sunny W, Philip M, Fiona D, et al. Cognition in chronic kidney disease: A systematic review and meta-analysis. Nephrology. 2014;19:168-9. doi: 10.1111/nep.12237. - **Meeting abstract**

1972. Surendra NK, Abdul Manaf MR, Hooi LS, et al. Health related quality of life of dialysis patients in Malaysia: Haemodialysis versus continuous ambulatory peritoneal dialysis. BMC Nephrol. 2019 Apr 30;20(1):151. doi: 10.1186/s12882-019-1326-x. PMID: 31039745. - **Non-United States study**

1973. Suri RS, Gunaratnam L. Dialysis recovery time: more than just another serum albumin. Am J Kidney Dis. 2014 Jul;64(1):7-9. doi: 10.1053/j.ajkd.2014.04.008. PMID: 24954453. - **No human data**

1974. Susel J, Batycka-Baran A, Reich A, et al. Uraemic pruritus decreases quality of life in haemodialisis patients. Acta Dermato-Venereologica. 2013;93(5):639. doi: 10.2340/000155551701. - **Meeting abstract**

1975. Susel J, Batycka-Baran A, Reich A, et al. Uraemic pruritus markedly affects the quality of life and depressive symptoms in haemodialysis patients with end-stage renal disease. Acta Derm Venereol. 2014 May;94(3):276-81. doi: 10.2340/00015555-1749. PMID: 24217858. - **Non-United States study**

1976. Sutcliffe BK, Bennett PN, Fraser SF, et al. The deterioration in physical function of hemodialysis patients. Hemodial Int. 2018 Apr;22(2):245-53. doi: 10.1111/hdi.12570. PMID: 28474859. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

1977. Suwabe T, Barrera-Flores FJ, Rodriguez-Gutierrez R, et al. Effect of online hemodiafiltration compared with hemodialysis on quality of life in patients with ESRD: A systematic review and meta-analysis of randomized trials. PLoS One. 2018;13(10):e0205037. doi: 10.1371/journal.pone.0205037. PMID: 30335792. - **Relevant systematic review**

1978. Suzuki A, Kenmochi T, Maruyama M, et al. Quality of Life after simultaneous pancreas and kidney transplantation from living donors.-Evaluation of the donors and the recipients using a short-form 36 V2. Transplantation. 2012;94:726. - **Meeting abstract**

1979. Suzuki T, Ikeda M, Minami M, et al. Beneficial Effect of Intradialytic Electrical Muscle Stimulation in Hemodialysis Patients: A Randomized Controlled Trial. Artif Organs. 2018 Sep;42(9):899-910. doi: 10.1111/aor.13161. PMID: 30069942. - **Non-United States study**

1980. Swarna SS, Aziz K, Zubair T, et al. Pruritus Associated With Chronic Kidney Disease: A Comprehensive Literature Review. Cureus. 2019 Jul 28;11(7):e5256. doi: 10.7759/cureus.5256. PMID: 31572641. **–Systematic review**

1981. Swaroop R, Zabaneh R, Addison C. Pregnancy in end stage renal disease patients on hemodialysis. JK Science.

2009;11(3):141-3. - **Other: case report**

1982. Szabo E, Moody H, Hamilton T, et al. Choice of treatment improves quality of life. A study on patients undergoing dialysis. Arch Intern Med. 1997 Jun 23;157(12):1352-6. PMID: 9201010. - **Non-United States study**

1983. Szeifert L, Adorjani G, Zalai D, et al. [Mood disorders in patients with chronic kidney disease: significance, etiology and prevalence of depression]. Orv Hetil. 2009 Mar 29;150(13):589-96. doi: 10.1556/oh.2009.28586. PMID: 19293060. - **Non-United States study**

1984. Szepietowski JC, Balaskas E, Taube KM, et al. Quality of life in patients with uraemic xerosis and pruritus. Acta Derm Venereol. 2011 May;91(3):313-7. doi: 10.2340/00015555-1075. PMID: 21369686. - **Non-United States study**

1985. Szkudlarek M, Pawlaczyk K, Schwermer K, et al. Clinical assessment of dialytic adequacy and its influence on quality of life. Peritoneal Dialysis International. 2010;30:S138. - **Meeting abstract**

1986. Taheri Kharame Z, Zamanian H, Foroozanfar S, et al. Religious wellbeing as a predictor for quality of life in Iranian hemodialysis patients. Glob J Health Sci. 2014 Apr 23;6(4):261-9. doi: 10.5539/gjhs.v6n4p261. PMID: 24999150. - **Non-United States study**

1987. Taheri-Kharameh Z, Zamanian H, Montazeri A, et al. Negative Religious Coping, Positive Religious Coping, and Quality of Life Among Hemodialysis Patients. Nephrourol Mon. 2016 Nov;8(6):e38009. doi: 10.5812/numonthly.38009. PMID: 27896237. - **Non-United States study**

1988. Tahiri A. Prevalence of the sexual dysfunction in women treated by hemodialysis. Nephrology Dialysis Transplantation. 2015;30:iii615. doi: 10.1093/ndt/gfv200.34. - **Meeting abstract**

1989. Tain Y, Hsu C. Patient-Reported Outcomes and Observer-Reported Outcome Assessment for Childhood Chronic Kidney Disease. Value in Health. 2018;21:S100. doi: 10.1016/j.jval.2018.07.752. - **Meeting abstract**

1990. Taji Y, Morimoto T, Fukuhara S, et al. Effects of low dialysate calcium concentration on health-related quality of life in hemodialysis patients. Clin Exp Nephrol. 2005 Jun;9(2):153-7. doi: 10.1007/s10157-005-0350-2. PMID: 15980951. - **Non-United States study**

1991. Taji Y, Morimoto T, Okada K, et al. Effects of intravenous ascorbic acid on erythropoiesis and quality of life in unselected hemodialysis patients. J Nephrol. 2004 Jul-Aug;17(4):537-43. PMID: 15372416. - **Non-United States study**

1992. Takaaki Watanabe T, Kutsuna T, Harada M, et al. Difficulty with activities of daily living predicts cardiovascular events in patients undergoing maintenance haemodialysis. European Journal of Preventive Cardiology. 2019;26((Takaaki Watanabe T.; Harada M.; Kamiya K.; Matsunaga A.) Kitasato University,

Graduate School of Medical Sciences, Rehabilitation Sciences, Sagamihara, Japan):S15. doi: 10.1177/2047487319860046. **– Meeting abstract**

1993. Takemoto AY, Okubo P, Bedendo J, et al. [Evaluation of quality of life in elders undergoing hemodialysis]. Rev Gaucha Enferm. 2011 Jun;32(2):256-62. PMID: 21987985. **- Non-United States study**

1994. Takhreem M. The effectiveness of intradialytic exercise prescription on quality of life in patients with chronic kidney disease. Medscape J Med. 2008;10(10):226. PMID: 19099020. **- Relevant systematic review**

1995. Tamura MK, Larive B, Unruh ML, et al. Prevalence and correlates of cognitive impairment in hemodialysis patients: the Frequent Hemodialysis Network Trials. Clinical journal of the american society of nephrology: CJASN. 2010;5(8):1429-38. PMID: CN-00775876. **- Other: FHN baseline: no data**

1996. Tan A. Recombinant human erythropoietin (r-HuEPO): quality of life and other considerations. J cannt. 1990 Summer:13-4. PMID: 2202375. **- No human data**

1997. Tan LK, Kanagalingam D, Tan HK, et al. Obstetric outcomes in women with end-stage renal failure requiring renal dialysis. Int J Gynaecol Obstet. 2006 Jul;94(1):17-22. doi: 10.1016/j.ijgo.2006.03.033. PMID: 16756981. **- Non-United States study**

1998. Tanaka H, Kita A, Kita T, et al. Four-time weekly hemodialysis; its advantages and disadvantages. International Journal of Artificial Organs. 2015;38(7):395. doi: 10.5301/ijao.5000418. **- Meeting abstract**

1999. Tanaka H, Kita T, Okamoto K, et al. Advantage of high dose hemodialysis (HDD) with regards to laboratory tests. International Journal of Artificial Organs. 2014;37(8):609. doi: 10.5301/ijao.5000347. **- Meeting abstract**

2000. Tanaka H, Kita T, Okamoto K, et al. Can long time/high dose hemodialysis, ltd decrease in serum interleukin-6, IL-6, tumor necrotic factor-±, TNF-± and fibroblast growth factor-23, FGF-23? Nephrology Dialysis Transplantation. 2013;28:i253. doi: 10.1093/ndt/gft120. **- Meeting abstract**

2001. Tanaka M. [Management of phosphate in chronic kidney disease--Phosphorus control by hemodialysis with long treatment time]. Clin Calcium. 2009 Feb;19(2):194-7. doi: CliCa0902194197. PMID: 19182358. **- Non-United States study**

2002. Tang HL, Wong JHS, Tang CMK, et al. Effective control of serum phosphate in patients receiving nocturnal home hemodialysis with an alternate night schedule: A local experience. Hemodialysis International. 2009;13(3):415. doi: 10.1111/j.1542-4758.2009.00402.x. **- Meeting abstract**

2003. Tang HL, Wong SH, Chu KH, et al. Sodium ramping reduces hypotension and symptoms during haemodialysis. Hong Kong Med J. 2006 Feb;12(1):10-4. PMID:

16495583. - **Non-United States study**

2004. Tang SC, Lam B, Ku PP, et al. Alleviation of sleep apnea in patients with chronic renal failure by nocturnal cycler-assisted peritoneal dialysis compared with conventional continuous ambulatory peritoneal dialysis. J Am Soc Nephrol. 2006 Sep;17(9):2607-16. doi: 10.1681/asn.2005090936. PMID: 16885414. - **Non-United States study**

2005. Tang SC, Lam B, Yap DY, et al. Conversion between hemodialysis and continuous ambulatory peritoneal dialysis (CAPD) may impact on sleep apnea in favor of CAPD. Hemodialysis International. 2009;13(3):395. doi: 10.1111/j.1542-4758.2009.00402.x. - **Meeting abstract**

2006. Tang YL, Leung KCD. Impacts on quality of life in end-stage renal disease patients on chronic hemodialysis in hospital-based and community-based hemodialysis center settings. Hemodialysis International. 2009;13(3):427-8. doi: 10.1111/j.1542-4758.2009.00402.x. - **Meeting abstract**

2007. Tannor EK, Archer E, Kapembwa K, et al. Quality of life in patients on chronic dialysis in South Africa: a comparative mixed methods study. BMC Nephrol. 2017 Jan 5;18(1):4. doi: 10.1186/s12882-016-0425-1. PMID: 28056851. - **Non-United States study**

2008. Tao B, Gander J, Kutner N, et al. Change in frailty status over time among in-center hemodialysis ESRD patients in the active/adipose study. American Journal of Transplantation. 2015;15. - **Meeting abstract**

2009. Tao X, Chow SK, Wong FK. A nurse-led case management program on home exercise training for hemodialysis patients: A randomized controlled trial. Int J Nurs Stud. 2015 Jun;52(6):1029-41. doi: 10.1016/j.ijnurstu.2015.03.013. PMID: 25840898. - **Non-United States study**

2010. Tao Y, Hu W. Comparative study of chronic renal failure patients' efficacy between sustained low-efficiency daily dialysis (SLEDD) and intermittent hemodialysis (IHD). Hong Kong Journal of Nephrology. 2015;17(2):S130. doi: 10.1016/j.hkjn.2015.09.218. - **Meeting abstract**

2011. Taskapan H, Ates F, Kaya B, et al. Psychiatric disorders and large interdialytic weight gain in patients on chronic haemodialysis. Nephrology (Carlton). 2005 Feb;10(1):15-20. doi: 10.1111/j.1440-1797.2005.00321.x. PMID: 15705176. - **Non-United States study**

2012. Taskapan H, Ersoy FF, Passadakis P, et al. Body pain during daily activities in patients on peritoneal dialysis. Dialysis and Transplantation. 2005;34(2):58-73+115. - **Non-United States study**

2013. Taşkintuna N, Özçürümez G. End-stage renal disease and psychological trauma: Shame and guilt in hemodialysis patients, transplantation recipient and donor candidates, and controls. Noropsikiyatri Arsivi. 2011;48(4):249-54. doi:

10.4274/npa.y5846. - **Non-United States study**

2014. Tasmoc A, Hogas S, Covic A. A longitudinal study on illness perceptions in hemodialysis patients: changes over time. Arch Med Sci. 2013 Oct 31;9(5):831-6. doi: 10.5114/aoms.2013.38678. PMID: 24273565. - **Non-United States study**

2015. Tasmoc A, Nistor I, Donciu M, et al. Validation and evaluation of memorial symptom assessment scale short-form(MSAS-SF)in a romanian cohort of hemodialysis patients. Nephrology Dialysis Transplantation. 2014;29:iii279-iii80. doi: 10.1093/ndt/gfu158. - **Meeting abstract**

2016. Tasmoc A, Nistor I, Donciu MD, et al. Screening of executive function more usefull than global cognition assessment of prediction of mortality in hemodialysis patients. Nephrology Dialysis Transplantation. 2016;31:i294-i5. doi: 10.1093/ndt/gfw175.42. - **Meeting abstract**

2017. Tavallaii SA, Mirzamani M, Heshmatzade Behzadi A, et al. Sexual function: a comparison between male renal transplant recipients and hemodialysis patients. J Sex Med. 2009 Jan;6(1):142-8. doi: 10.1111/j.1743-6109.2008.01047.x. PMID: 19170845. - **Non-United States study**

2018. Tavsanli NG, Nehir S. Comparison of body image perception and social functioning among patients with end-stage renal failure and patients with chronic renal failure. Iranian Red Crescent Medical Journal. 2018;20(7)doi: 10.5812/ircmj.64071. - **Non-United States study**

2019. Tay LS, Wan D, Aw M, et al. Examining Health-Related Quality of Life (HRQoL), disease-specific quality of life, and coping behaviors in adolescents with renal disease. Asia-Pacific Psychiatry. 2011;3(4):204-11. doi: 10.1111/j.1758-5872.2011.00154.x. - **Non-United States study**

2020. Tediosi F, Bertolini G, Parazzini F, et al. Cost analysis of dialysis modalities in Italy. Health Serv Manage Res. 2001 Feb;14(1):9-17. doi: 10.1177/095148480101400102. PMID: 11246787. - **Non-United States study**

2021. Teixeira Dos Santos T, Moraes De Almondes K. Sleep quality in chronic kidney patients: A systematic review. Biological Rhythm Research. 2015;46(6):833-45. doi: 10.1080/09291016.2015.1056436. - **Non-relevant review**

2022. Tekdos Demircioglu D, Kavadar G, Esen Ore O, et al. Relationship between restless leg syndrome and quality of life in uremic patients. Agri. 2015;27(2):73-8. doi: 10.5505/agri.2015.19327. PMID: 25944132. - **Non-United States study**

2023. Teles F, Amorim de Albuquerque AL, Freitas Guedes Lins IK, et al. Quality of life and depression in haemodialysis patients. Psychology, health & medicine. 2018;23(9):1069-78. doi: 10.1080/13548506.2018.1469779. - **Non-United States study**

2024. Tentori F, Elder SJ, Thumma J, et al. Physical exercise among participants in the Dialysis Outcomes and Practice Patterns Study (DOPPS): correlates and associated outcomes. Nephrology, dialysis, transplantation. 2010;25(9):3050-62. doi: 10.1093/ndt/gfq138. PMID: CN-00771762. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

2025. Termorshuizen F, Korevaar JC, Dekker FW, et al. The relative importance of residual renal function compared with peritoneal clearance for patient survival and quality of life: an analysis of the Netherlands Cooperative Study on the Adequacy of Dialysis (NECOSAD)-2. Am J Kidney Dis. 2003 Jun;41(6):1293-302. PMID: 12776283. - **Non-United States study**

2026. Tessari G, Dalle Vedove C, Loschiavo C, et al. The impact of pruritus on the quality of life of patients undergoing dialysis: a single centre cohort study. J Nephrol. 2009 Mar-Apr;22(2):241-8. PMID: 19384842. - **Non-United States study**

2027. Teuwafeu DG, Ashuntantang G, Mahamat M, et al. Abnormalities of sexual functions in patients on maintenance hemodialysis. Nephrology Dialysis Transplantation. 2016;31:i295-i6. doi: 10.1093/ndt/gfw175.46. - **Meeting abstract**

2028. Thach AV, Jiang S, Rascati KL. A systematic review of health-related quality of life assessment for children and adolescents with chronic kidney disease. Value in Health. 2014;17(3):A294-A5. doi: 10.1016/j.jval.2014.03.1714. - **Meeting abstract**

2029. Thang LV, Nguyen TTH, Dung NH. Depression and erectile dysfunction of chronic renal failure patients treating with maintenance hemodialysis. Japanese Journal of Nephrology. 2012;54(3):258. - **Meeting abstract**

2030. Thangarasa T, Imtiaz R, Hiremath S, et al. Physical Activity in Patients Treated With Peritoneal Dialysis: A Systematic Review and Meta-analysis. Can J Kidney Health Dis. 2018;5:2054358118779821. doi: 10.1177/2054358118779821. PMID: 29977585. - **Relevant systematic review**

2031. Thangavelu S. Predictors of QOL in Indian patients on maintenance hemodialysis patients. Nephrology Dialysis Transplantation. 2016;31:i553-i4. doi: 10.1093/ndt/gfw198.57. - **Meeting abstract**

2032. Tharapath R, Trakarnvanich T, Prommool S, et al. Quality of life in end stage kidney disease patients: A comparison between conventional hemodialysis and on-line hemodiafiltration. Nephrology. 2010;15:112-3. doi: 10.1111/j.1440-1797.2010.01337.x. - **Meeting abstract**

2033. Thaweethamcharoen T, Srimongkol W, Noparatayaporn P, et al. Validity and reliability of KDQOL-36 in thai kidney disease patient. Value in Health Regional Issues. 2013;2(1):98-102. doi: 10.1016/j.vhri.2013.02.011. - **Non-United States study**

2034. Thaweethamcharoen T, Vasuvattakul S, Noparatayaporn P. Comparison of utility score and

quality of life score in thai patient between twice and thrice-weekly hemodialysis. Value in Health. 2012;15(4):A156. doi: 10.1016/j.jval.2012.03.842. - **Meeting abstract**

2035. Theofilou P, Aroni A, Ralli M, et al. Measuring Health: Related Quality of Life in Hemodialysis Patients. Psychometric Properties of the Missoula-VITAS Quality of Life Index (MVQOLI-15) in Greece. Health Psychol Res. 2013 Apr 18;1(2):e17. doi: 10.4081/hpr.2013.e17. PMID: 26973902. - **Non-United States study**

2036. Theofilou P. Quality of life and mental health in hemodialysis and peritoneal dialysis patients: the role of health beliefs. Int Urol Nephrol. 2012 Feb;44(1):245-53. doi: 10.1007/s11255-011-9975-0. PMID: 21547466. - **Non-United States study**

2037. Theofilou P. Self-esteem in Greek dialysis patients: the contribution of health locus of control. Iran J Kidney Dis. 2012 Mar;6(2):136-40. PMID: 22388613. - **Non-United States study**

2038. Thodis ED, Oreopoulos DG. Home dialysis first: a new paradigm for new ESRD patients. J Nephrol. 2011 Jul-Aug;24(4):398-404. doi: 10.5301/jn.2011.8374. PMID: 21623574. - **No human data**

2039. Thomas CJ. The context of religiosity, social support and health locus of control: implications for the health-related quality of life of African-American hemodialysis patients. J Health Soc Policy. 2002;16(1-2):43-54. PMID: 12809377. - **Narrative review**

2040. Thomas D, Joseph J, Francis B, et al. Effect of patient counseling on quality of life of hemodialysis patients in India. Pharm Pract (Granada). 2009 Jul;7(3):181-4. PMID: 25143797. - **Non-United States study**

2041. Thomas LW, Wang EB, Urban J, et al. Patient Reported Improvement in Quality of Life Associated With Successful Laser Hair Reduction at Hemodialysis Site With 1064-nm Nd:YAG Laser. J Drugs Dermatol. 2018 Jul 1;17(7):794-5. PMID: 30005102. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

2042. Thompson S, Klarenbach S, Molzahn A, et al. Randomised factorial mixed method pilot study of aerobic and resistance exercise in haemodialysis patients: DIALY-SIZE! BMJ Open. 2016 Sep 6;6(9):e012085. doi: 10.1136/bmjopen-2016-012085. PMID: 27601500. - **Non-United States study**

2043. Thomson BK, Huang SH, Lindsay RM. The choice of dialysate sodium is influenced by hemodialysis frequency and duration: what should it be and for what modality? Semin Dial. 2015 Mar-Apr;28(2):180-5. doi: 10.1111/sdi.12330. PMID: 25482159. - **No human data**

2044. Thomson BK, Momciu B, Huang SH, et al. Frequent nocturnal hemodialysis associates with improvement of prolonged QTc

intervals. Nephron Clin Pract. 2013;123(1-2):74-82. doi: 10.1159/000351382. PMID: 23860412. - **Non-United States study**

2045. Thong MS, van Dijk S, Noordzij M, et al. Symptom clusters in incident dialysis patients: associations with clinical variables and quality of life. Nephrol Dial Transplant. 2009 Jan;24(1):225-30. doi: 10.1093/ndt/gfn449. PMID: 18689791. - **Non-United States study**

2046. Thornton TA, Hakim RM. Meaningful rehabilitation of the end-stage renal disease patient. Semin Nephrol. 1997 May;17(3):246-52. PMID: 9165654. - **No human data**

2047. Thumfart J, Hilliger T, Stiny C, et al. Nocturnal hemodialysis improves morbidity and quality of life in comparison to peritoneal dialysis in adolescent patients. Pediatric Nephrology. 2015;30(9):1634. doi: 10.1007/s00467-015-3158-7. - **Meeting abstract**

2048. Thumfart J, Muller D. Nocturnal intermittent hemodialysis. Pediatr Nephrol. 2015 May;30(5):749-57. doi: 10.1007/s00467-014-2869-5. PMID: 25103600. - **Narrative review**

2049. Thumfart J, Pommer W, Querfeld U, et al. Intensified hemodialysis in adults, and in children and adolescents. Dtsch Arztebl Int. 2014 Apr 4;111(14):237-43. doi: 10.3238/arztebl.2014.0237. PMID: 24766711. - **Non-United States study**

2050. Thumfart J, Wagner S, Jayanti A, et al. Attitudes of nephrologists towards intensified hemodialysis. Clin Nephrol. 2018 Oct;90(4):255-61. doi: 10.5414/cn109350. PMID: 29932412. - **Non-United States study**

2051. Timmerman GM, Tahir MJ, Lewis RM, et al. Quality of Life after Dietary Self-Management Intervention for Persons with Early Stage CKD. Nephrology nursing journal. 2019;46(1):23-47. PMID: CN-01917859. - **Patients receiving treatment in locations other than home or in-center**

2052. Timmers L, Thong M, Dekker FW, et al. Illness perceptions in dialysis patients and their association with quality of life. Psychol Health. 2008;23(6):679-90. doi: 10.1080/14768320701246535. PMID: 25160810. - **Non-United States study**

2053. Tippett R, Mountford E, Coombes J, et al. Handgrip strength: Is ita reliable measurement for assessing and monitoring nutritional status of haemodialysis patients? Nephrology. 2016;21:220. doi: 10.1111/nep.12888. - **Meeting abstract**

2054. Tjaden L, Splinter A, Cransberg K, et al. Quality of life and its determinants of children on renal replacement therapy: A multicentre study. Pediatric Nephrology. 2016;31(10):1744. doi: 10.1007/s00467-016-3466-6. - **Meeting abstract**

2055. Tjaden LA, Grootenhuis MA, Noordzij M, et al. Health-related quality of life in patients with pediatric onset of end-stage renal disease: state of the art and recommendations for clinical

practice. Pediatr Nephrol. 2016 Oct;31(10):1579-91. doi: 10.1007/s00467-015-3186-3. PMID: 26310616. - **Narrative review**

2056. Tjaden LA, Vogelzang J, Jager KJ, et al. Long-term quality of life and social outcome of childhood end-stage renal disease. J Pediatr. 2014 Aug;165(2):336-42.e1. doi: 10.1016/j.jpeds.2014.04.013. PMID: 24837864. - **Non-United States study**

2057. Togashi N, Ohno K, Yamashita T, et al. Lower-limb muscle mass is a surrogate index of walking ability of present and in future in hemodialysis patients. Nephrology Dialysis Transplantation. 2016;31:i474. doi: 10.1093/ndt/gfw191.7. - **Meeting abstract**

2058. Tomasz W, Piotr S. A trial of objective comparison of quality of life between chronic renal failure patients treated with hemodialysis and renal transplantation. Ann Transplant. 2003;8(2):47-53. PMID: 14626576. - **Non-United States study**

2059. Tomayko E, Yudell B, Jeanes E, et al. Intradialytic protein supplementation improves Co-Morbid disease risk in hemodialysis patients. FASEB Journal. 2012;26. - **Meeting abstract**

2060. Tong PC, Ma LT, La IWM, et al. Translation and validation of the hong kong chinese version of the pediatric quality of life inventory™ (PEDSQL™) end-stage renal disease module. Pediatric Nephrology. 2013;28(8):1510-1. doi: 10.1007/s00467-013-2518-4. - **Meeting abstract**

2061. Torino C, Panuccio V, Tripepi R, et al. The dominant prognostic value of physical functioning among quality of life domains in end-stage kidney disease. Nephrol Dial Transplant. 2018 Nov 15doi: 10.1093/ndt/gfy334. PMID: 30445469. - **Non-United States study**

2062. Tossani E, Cassano P, Fava M. Depression and renal disease. Semin Dial. 2005 Mar-Apr;18(2):73-81. doi: 10.1111/j.1525-139X.2005.18217.x. PMID: 15771649. - **Non-relevant review**

2063. Toulabi T, Kalaveh SM, Ghasemi F, et al. The impact of multidisciplinary rehabilitation on the quality of life of hemodialysis patients in Iran. J Formos Med Assoc. 2016 Jul;115(7):553-9. doi: 10.1016/j.jfma.2015.05.013. PMID: 26100468. - **Non-United States study**

2064. Tovbin D, Gidron Y, Jean T, et al. Relative importance and interrelations between psychosocial factors and individualized quality of life of hemodialysis patients. Qual Life Res. 2003 Sep;12(6):709-17. PMID: 14516180. - **Non-United States study**

2065. Traeger J, Galland R, Arkouche W, et al. Short daily hemodialysis: A four-year experience. Dialysis and Transplantation. 2001;30(2):78-86. - **Non-United States study**

2066. Traeger J, Galland R, Delawari E, et al. Six years' experience with short daily hemodialysis: Do the early improvements persist in the mid and long term? Hemodialysis

International. 2004;8(2):151-8. doi: 10.1111/j.1492-7535.2004.01089.x. - **Non-United States study**

2067. Traisathit P, Moolkham K, Maneeton N, et al. Associated factors for depressive disorder in patients with end-stage renal disease treated with continuous ambulatory peritoneal dialysis. Ther Clin Risk Manag. 2019;15:541-8. doi: 10.2147/tcrm.s186394. PMID: 31015762. - **Non-United States study**

2068. Trajceska L, Mladenovska D, Dzekova-Vidimliski P, et al. Quality of Life-Repeated Measurements Are Needed In Dialysis Patients. Open Access Maced J Med Sci. 2018 Aug 20;6(8):1410-2. doi: 10.3889/oamjms.2018.305. PMID: 30159066. - **Non-United States study**

2069. Trakarnvanich T, Suksawang N, Kurathong S, et al. Short daily hemodialysis versus online hemodiafiltration: Which is better? Nephrology. 2010;15:103. doi: 10.1111/j.1440-1797.2010.01337.x. - **Meeting abstract**

2070. Tralongo A, Carollo A, Gullo S, et al. Quality of life in sicilian patients on peritoneal dialysis: Clinical and psychological changes with age and duration of treatment. Peritoneal Dialysis International. 2012;32:S25. - **Meeting abstract**

2071. Trbojevic J, Nesic D, Stojimirovic B. [Effect of various methods of treatment in chronic renal insufficiency on the quality of life in patients]. Srp Arh Celok Lek. 1998 Sep-Oct;126(9-10):374-8. PMID: 9863410. - **Non-United States study**

2072. Trbojevic J, Zivkovic M. [Quality of life in chronic renal insufficiency: the effect of disease development and various method of therapy]. Srp Arh Celok Lek. 1997 Jul-Aug;125(7-8):223-7. PMID: 9304236. - **Non-United States study**

2073. Trbojevic JB, Nesic VB, Stojimirovic BB. Quality of life of elderly patients undergoing continuous ambulatory peritoneal dialysis. Perit Dial Int. 2001;21 Suppl 3:S300-3. PMID: 11887841. - **Non-United States study**

2074. Trbojevic-Stankovic J, Andric B, Hadzibulic E, et al. Relationship between depression and malnutrition-inflammation status in patients on maintenance hemodialysis-a multicentric study. Nephrology Dialysis Transplantation. 2017;32:iii364. doi: 10.1093/ndt/gfx155. - **Meeting abstract**

2075. Trbojevic-Stankovic J, Stojimirovic B, Bukumiric Z, et al. Depression and quality of sleep in maintenance hemodialysis patients. Srp Arh Celok Lek. 2014 Jul-Aug;142(7-8):437-43. PMID: 25233688. - **Non-United States study**

2076. Trbojevic-Stankovic JB, Marjanović Z, Pesic S, et al. Relationship between malnutrition, inflammation and sleep quality inhemodialysis patients. Nephrology Dialysis Transplantation. 2016;31:i298-i9. doi: 10.1093/ndt/gfw176.3. - **Meeting abstract**

2077. Treadwell AA. Examining Depression in Patients on Dialysis. Nephrol Nurs J. 2017 Jul-

Aug;44(4):295-307. PMID: 29160964. - **Relevant systematic review**

2078. Trembecki J, Kokot F, Wiecek A, et al. [Improvement of sexual function in hemodialyzed male patients with chronic renal failure treated with erythropoietin (rHuEPO)]. Przegl Lek. 1995;52(9):462-6. PMID: 8834648. **- Non-United States study**

2079. Trianto HB, Rosandi R, Sasiarini L, et al. Comparison of nutritional status and quality of life between diabetic CAPD patients and non-diabetic CAPD patients in Indonesia. Diabetes Research and Clinical Practice. 2014;106:S132. - **Meeting abstract**

2080. Trigka K, Douzdampanis P, Aggelakou-Vaitsi M, et al. Self-reported depression and anxiety in prevalent patients on hemodialysis. Nephrology Dialysis Transplantation. 2013;28:i266. doi: 10.1093/ndt/gft121. - **Meeting abstract**

2081. Trigka K, Douzdampanis P, Chouchoulis K, et al. Increasing depression, anxiety and quality of life in hemodialysis. Nephrology Dialysis Transplantation. 2014;29:iii523. doi: 10.1093/ndt/gfu178. - **Non-United States study**

2082. Trinh E, Chan CT. Intensive Home Hemodialysis Results in Regression of Left Ventricular Hypertrophy and Better Clinical Outcomes. Am J Nephrol. 2016;44(4):300-7. doi: 10.1159/000449452. PMID: 27640181. - **Non-United States study**

2083. Tromp M, Van Der Lee JH, Groothoff JW. Quality of life in Dutch and Belgian children with end stage renal disease - Report from the RICH-Q study. Pediatric Nephrology. 2010;25(9):1946. doi: 10.1007/s00467-010-1577-z. - **Meeting abstract**

2084. Trotti LM, Bhadriraju S, Becker LA. Iron for restless legs syndrome. Cochrane Database Syst Rev. 2012 May 16(5):Cd007834. doi: 10.1002/14651858.CD007834.pub2. PMID: 22592724. - **Relevant systematic review**

2085. Tsai SH, Wang MY, Miao NF, et al. CE: original research: The efficacy of a nurse-led breathing training program in reducing depressive symptoms in patients on hemodialysis: a randomized controlled trial. Am J Nurs. 2015 Apr;115(4):24-32; quiz 3, 42. doi: 10.1097/01.naj.0000463023.48226.16. PMID: 25793429. - **Non-United States study**

2086. Tsai YC, Hung CC, Hwang SJ, et al. Erratum: Quality of life predicts risks of end-stage renal disease and mortality in patients with chronic kidney disease (Nephrol Dial Transplant (2010) 25 (1621-1626) DOI: 10.1093/ndt/gfp671). Nephrology Dialysis Transplantation. 2011;26(1):392. doi: 10.1093/ndt/gfq723. - **Other: erratum**

2087. Tsay SL, Cho YC, Chen ML. Acupressure and Transcutaneous Electrical Acupoint Stimulation in improving fatigue, sleep quality and depression in hemodialysis patients. American journal of Chinese medicine. 2004;32(3):407-16. doi:

10.1142/S0192415X04002065. PMID: CN-00497297. - **Non-United States study**

2088. Tsay SL, Healstead M. Self-care self-efficacy, depression, and quality of life among patients receiving hemodialysis in Taiwan. Int J Nurs Stud. 2002 Mar;39(3):245-51. PMID: 11864647. - **Non-United States study**

2089. Tsay SL, Hung LO. Empowerment of patients with end-stage renal disease--a randomized controlled trial. Int J Nurs Stud. 2004 Jan;41(1):59-65. PMID: 14670395. - **Non-United States study**

2090. Tsay SL, Rong JR, Lin PF. Acupoints massage in improving the quality of sleep and quality of life in patients with end-stage renal disease. J Adv Nurs. 2003 Apr;42(2):134-42. PMID: 12670382. - **Non-United States study**

2091. Tsevi MY, Salifou S, Sabi AK, et al. [Depression in patients on chronic hemodialysis at the Sylvanus Olympio University Hospital of Lome (Togo)]. Pan Afr Med J. 2016;25:26. doi: 10.11604/pamj.2016.25.26.9883. PMID: 28154718. - **Non-United States study**

2092. Tsikeloudi M, Pateinakis P, Patsatsi K, et al. Uremic pruritus: Prevalence, clinical characteristics and impact on quality of life in patients on maintenance peritoneal dialysis. Nephrology Dialysis Transplantation. 2012;27:ii463. doi: 10.1093/ndt/gfs243. - **Meeting abstract**

2093. Tsilonis K, Sarafidis PA, Kamperidis V, et al. Echocardiographic Parameters During Long and Short Interdialytic Intervals in Hemodialysis Patients. American journal of kidney diseases. 2016;68(5):772-81. doi: 10.1053/j.ajkd.2016.06.017. PMID: CN-01912395. - **Non-United States study**

2094. Tsobaneli J, Tsobanelis T, Kurz P, et al. Health-related quality of life in high convective volume online hemodiafiltration. Nephrology Dialysis Transplantation. 2014;29:iii282. doi: 10.1093/ndt/gfu158. - **Meeting abstract**

2095. Tsuji-Hayashi Y, Sizer Fitts S, Takai I, et al. Health-related quality of life among dialysis patients in Seattle and Aichi. Am J Kidney Dis. 2001 May;37(5):987-96. PMID: 11325681. - **Other: Japan**

2096. Tsutsui H, Koike T, Yamazaki C, et al. Identification of hemodialysis patients' common problems using the International Classification of Functioning, Disability and Health. Ther Apher Dial. 2009 Jun;13(3):186-92. doi: 10.1111/j.1744-9987.2009.00683.x. PMID: 19527464. - **Non-United States study**

2097. Tsutsui H, Ohkubo T, Tsuruta Y, et al. Development and validation of a short-version checklist for patients undergoing hemodialysis based on the International Classification of Functioning, Disability and Health. Clin Exp Nephrol. 2015 Oct;19(5):953-60. doi: 10.1007/s10157-014-1075-x. PMID: 25543186. - **Non-United States study**

2098. Tsutsui H, Ojima T, Ozaki N, et al. Validation of the Comprehensive International Classification of Functioning, Disability and Health (ICF) Core Set for Diabetes Mellitus in patients with diabetic nephropathy. Clin Exp Nephrol. 2015 Apr;19(2):254-63. doi: 10.1007/s10157-014-0983-0. PMID: 24840398. - **Non-United States study**

2099. Tu HY, Shao JH, Wu FJ, et al. Stressors and coping strategies of 20-45-year-old hemodialysis patients. Collegian. 2014;21(3):185-92. PMID: 25632712. - **Non-United States study**

2100. Tucker CM, Ziller RC, Smith WR, et al. Quality of life of patients on in-center hemodialysis versus continuous ambulatory peritoneal dialysis. Perit Dial Int. 1991;11(4):341-6. PMID: 1751601. - **Other: VAS**

2101. Tufekci A, Kara E. End-stage renal disease patients with restless legs syndrome related with hepcidin. Journal of the Neurological Sciences. 2017;381:1043. doi: 10.1016/j.jns.2017.08.2946. - **Meeting abstract**

2102. Tuna OC, Balaban OD, Mutlu C, et al. Depression and the cognitive distortions among the patients with end stage renal disease. European Neuropsychopharmacology. 2015;25:S388-S9. - **Meeting abstract**

2103. Tunckiran MA, Hoscan MB. Sexual partner satisfaction of the patients with chronic renal failure. Ren Fail. 2013;35(1):101-4. doi: 10.3109/0886022x.2012.731971. PMID: 23252511. - **Non-United States study**

2104. Turk AC, Ozkurt S, Turgal E, et al. The association between the prevalence of restless leg syndrome, fatigue, and sleep quality in patients undergoing hemodialysis. Saudi Med J. 2018 Aug;39(8):792-8. doi: 10.15537/smj.2018.8.22398. PMID: 30106417. - **Non-United States study**

2105. Turk S, Atalay H, Altintepe L, et al. Treatment with antidepressive drugs improved quality of life in chronic hemodialysis patients. Clin Nephrol. 2006 Feb;65(2):113-8. PMID: 16509460. - **Non-United States study**

2106. Turk S, Guney I, Altintepe L, et al. Quality of life in male hemodialysis patients. Role of erectile dysfunction. Nephron Clin Pract. 2004;96(1):c21-7. doi: 10.1159/000075568. PMID: 14752250. - **Non-United States study**

2107. Turk S, Solak Y, Kan S, et al. Effects of sildenafil and vardenafil on erectile dysfunction and health-related quality of life in haemodialysis patients: a prospective randomized crossover study. Nephrol Dial Transplant. 2010 Nov;25(11):3729-33. doi: 10.1093/ndt/gfq243. PMID: 20466680. - **Non-United States study**

2108. Turkmen K, Erdur FM, Guney I, et al. Sleep quality, depression, and quality of life in elderly hemodialysis patients. Int J Nephrol Renovasc Dis. 2012;5:135-42. doi: 10.2147/ijnrd.s36493.

PMID: 23091392. - **Non-United States study**

2109. Turkmen K, Guney I, Turgut F, et al. Health related quality of life, sleep quality and depression in elderly hemodialysis patients. Nephrology Dialysis Transplantation. 2012;27:ii269. doi: 10.1093/ndt/gfs227. - **Meeting abstract**

2110. Turkmen K, Guney I, Yazici R, et al. Health-related quality of life, depression and mortality in peritoneal dialysis patients in Turkey: seven-year experience of a center. Ren Fail. 2014 Jul;36(6):859-64. doi: 10.3109/0886022x.2014.899874. PMID: 24655076. - **Non-United States study**

2111. Turkmen K, Yazici R, Solak Y, et al. Health-related quality of life, sleep quality, and depression in peritoneal dialysis and hemodialysis patients. Hemodial Int. 2012 Apr;16(2):198-206. doi: 10.1111/j.1542-4758.2011.00648.x. PMID: 22136456. - **Non-United States study**

2112. Twardowski ZJ, Misra M. "Daily" dialysis--lessons from a randomized, controlled trial. N Engl J Med. 2010 Dec 9;363(24):2363-4. doi: 10.1056/NEJMe1012205. PMID: 21091061. - **Narrative review**

2113. Twardowski ZJ. Short, thrice-weekly hemodialysis is inadequate regardless of small molecule clearance. Int J Artif Organs. 2004 Jun;27(6):452-66. PMID: 15291076. - **Narrative review**

2114. Tyrrell J, Paturel L, Cadec B, et al. Older patients undergoing dialysis treatment: cognitive functioning, depressive mood and health-related quality of life. Aging Ment Health. 2005 Jul;9(4):374-9. doi: 10.1080/13607860500089518. PMID: 16019295. - **Non-United States study**

2115. Uglesic B, Ljutic D, Lasic D, et al. Depression and serum interleukin-6 levels in patients on dialysis. Psychiatr Danub. 2015 Jun;27(2):168-73. PMID: 26057312. - **Non-United States study**

2116. Ul Abideen Z, Mahmud SN, Mushtaq F, et al. Association of Hemodialysis Inadequacy and Duration with Restless Legs Syndrome: A Cross-sectional Study. Cureus. 2018 May 2;10(5):e2570. doi: 10.7759/cureus.2570. PMID: 29974025. - **Non-United States study**

2117. Uma C, Vijayalakshmi S. Effectiveness of educational intervention on knowledge and quality of life among hemodialysis patients. International Journal of Research in Ayurveda and Pharmacy. 2016;7(5):109-12. doi: 10.7897/2277-4343.075205. - **Non-United States study**

2118. Unruh ML, Cohen LM. Sleep and pain management are key components of patient care in ESRD. Nephrol Dial Transplant. 2012 Jul;27(7):2618-20. doi: 10.1093/ndt/gfs165. PMID: 22802578. - **Non-relevant review**

2119. Untas A, Aguirrezabal M, Chauveau P, et al. [Anxiety and depression in hemodialysis: validation of the Hospital Anxiety

and Depression Scale (HADS)]. Nephrol Ther. 2009 Jun;5(3):193-200. doi: 10.1016/j.nephro.2009.01.007. PMID: 19346177. - **Non-United States study**

2120. Untas A, Thumma J, Rascle N, et al. The associations of social support and other psychosocial factors with mortality and quality of life in the dialysis outcomes and practice patterns study. Clin J Am Soc Nephrol. 2011 Jan;6(1):142-52. doi: 10.2215/cjn.02340310. PMID: 20966121. - **Non-United States study**

2121. Usatii N, Butler A, Petrini J, et al. Diagnosis and dynamic monitoring of obstructive sleep apnea in patients with end-stage renal disease before and after hemodialysis using peripheral arterial tonometry. Sleep. 2014;37:A130-A1. - **Meeting abstract**

2122. Usta YY, DemIr Y. Evaluation of factors affecting fatigue in hemodialysis patients. Anatolian Journal of Clinical Investigation. 2014;8(1):21-7. - **Non-English**

2123. Uwaezuoke SN, Muoneke VU. Role of health-related quality of life assessment in children with chronic kidney disease. Current Pediatric Research. 2015;19(1-2):45-50. - **Narrative review**

2124. Vacaroiu IA, Radulescu D, Ciocalteu A, et al. Functional status of chronic renal replacement therapy in elderly patients--comparison between hemodialysis and peritoneal dialysis. Rev Med Chir Soc Med Nat Iasi. 2012 Apr-Jun;116(2):375-82. PMID: 23077923. - **Non-United States study**

2125. Van Damme-Lombaerts R, Broyer M, Businger J, et al. A study of recombinant human erythropoietin in the treatment of anaemia of chronic renal failure in children on haemodialysis. Pediatr Nephrol. 1994 Jun;8(3):338-42. PMID: 7917862. - **Non-United States study**

2126. van der Plas WY, Dulfer RR, Engelsman AF, et al. Effect of parathyroidectomy and cinacalcet on quality of life in patients with end-stage renal disease-related hyperparathyroidism: a systematic review. Nephrol Dial Transplant. 2017 Nov 1;32(11):1902-8. doi: 10.1093/ndt/gfx044. PMID: 28402557. - **Relevant systematic review**

2127. Van Duong T, Wong TC, Chen HH, et al. Association between cachexia indicators and metabolic syndromes in hemodialysis patients. Journal of Cachexia, Sarcopenia and Muscle. 2018;9(6):1153. doi: 10.1002/jcsm.12365. - **Meeting abstract**

2128. Van Eps CL, Jeffries JK, Johnson DW, et al. Quality of life and alternate nightly nocturnal home hemodialysis. Hemodial Int. 2010 Jan;14(1):29-38. doi: 10.1111/j.1542-4758.2009.00419.x. PMID: 20377650. - **Non-United States study**

2129. Van Eps CL, Jones M, Ng T, et al. The impact of extended-hours home hemodialysis and buttonhole cannulation technique on hospitalization rates for septic events related to dialysis access. Hemodial Int. 2010 Oct;14(4):451-63. doi:

10.1111/j.1542-4758.2010.00463.x. PMID: 20955279. - **Non-United States study**

2130. Van Herzeele C, De Bruyne E, Snauwaert E, et al. Psychological wellbeing of children with chronic kidney disease. Pediatric Nephrology. 2017;32(9):1792. doi: 10.1007/s00467-017-3753-x. - **Meeting abstract**

2131. van Loon I, Hamaker ME, Boereboom FTJ, et al. A closer look at the trajectory of physical functioning in chronic hemodialysis. Age Ageing. 2017 Jul 1;46(4):594-9. doi: 10.1093/ageing/afx006. PMID: 28164208. - **Non-United States study**

2132. van Loon I, Hamaker ME, Boereboom FTJ, et al. A closer look at the trajectory of physical functioning in chronic hemodialysis. Age and ageing. 2017;46(4):594-9. doi: 10.1093/ageing/afx006. PMID: CN-01447253. - **Non-United States study**

2133. van Loon IN, Bots ML, Boereboom FTJ, et al. Quality of life as indicator of poor outcome in hemodialysis: relation with mortality in different age groups. BMC Nephrol. 2017 Jul 6;18(1):217. doi: 10.1186/s12882-017-0621-7. PMID: 28679361. - **Non-United States study**

2134. van Loon IN, Bots ML, Boereboom FTJ, et al. Quality of life as indicator of poor outcome in hemodialysis: relation with mortality in different age groups. BMC nephrology. 2017;18(1):217. doi: 10.1186/s12882-017-0621-7. PMID: CN-01458217. - **Non-United States study**

2135. van Loon IN, Goto NA, Boereboom FTJ, et al. Quality of life after the initiation of dialysis or maximal conservative management in elderly patients: a longitudinal analysis of the Geriatric assessment in OLder patients starting Dialysis (GOLD) study. BMC Nephrol. 2019 Mar 29;20(1):108. doi: 10.1186/s12882-019-1268-3. PMID: 30922246. - **Non-United States study**

2136. Van Nooten F, Wiklund I, Trundell D, et al. Psychometric evaluation of the SF-36 health survey in dialysis and non-dialysis patients with Anemia associated with chronic kidney disease. American Journal of Kidney Diseases. 2016;67(5):A110. - **Meeting abstract**

2137. Van Nooten FE, Wiklund I, Trundell D, et al. Psychometric evaluation of the functional assessment of cancer therapy-anemia (FACT-An) in dialysis and non-dialysis patients with anemia associated with chronic kidney disease. Value in Health. 2016;19(3):A91. - **Meeting abstract**

2138. van Vilsteren MC, de Greef MH, Huisman RM. The effects of a low-to-moderate intensity pre-conditioning exercise programme linked with exercise counselling for sedentary haemodialysis patients in The Netherlands: results of a randomized clinical trial. Nephrol Dial Transplant. 2005 Jan;20(1):141-6. doi: 10.1093/ndt/gfh560. PMID: 15522901. - **Non-United States study**

2139. Van Zwieten A, Wong G, Palmer S, et al. Association of neurocognitive functioning with

physical and social function in adults with end-stage kidney disease on haemodialysis: The cognitive-HD study. Nephrology Dialysis Transplantation. 2016;31:i293. doi: 10.1093/ndt/gfw175.37. - **Meeting abstract**

2140. Vanderlinden JA, Scott S, Holden R, et al. Does brain tissue oxygenation (BtO2) predict cognitive decline in patients undergoing hemodialysis? A feasibility study. Canadian Journal of Neurological Sciences. 2016;43:S31. doi: 10.1017/cjn.2016.145. - **Meeting abstract**

2141. Vanholder R, Van Biesen W, Lameire N. Is starting hemodialysis on a twice-weekly regimen a valid option? Am J Kidney Dis. 2014 Aug;64(2):165-7. doi: 10.1053/j.ajkd.2014.06.003. PMID: 25060001. - **Non-relevant review**

2142. Vanya M, Bahar R, Lin J, et al. Development of a health related quality of life (HRQOL) measure for Anemia in End Stage Renal Disease (ESRD). American Journal of Kidney Diseases. 2015;65(4):A86. - **Meeting abstract**

2143. Vareesangthip J, Supasyndh O, Lekhyananda S, et al. Intradialytic-insight meditation can improve the severity of depression in hemodialysis patients. Nephrology. 2010;15:65-6. doi: 10.1111/j.1440-1797.2010.01337.x. - **Meeting abstract**

2144. Varela L, Vazquez MI, Bolanos L, et al. Psychological predictors for health-related quality of life in patients on peritoneal dialysis. Nefrologia. 2011;31(1):97-106. doi: 10.3265/Nefrologia.pre2010.Jun.10279. PMID: 21270920. - **Non-United States study**

2145. Vartia A. Effect of treatment frequency on haemodialysis dose: comparison of EKR and stdKt/V. Nephrol Dial Transplant. 2009 Sep;24(9):2797-803. doi: 10.1093/ndt/gfp177. PMID: 19386748. - **Non-United States study**

2146. Vasques De Miranda RC, Aparecida Trevizan Padulla S, Dos Santos Fahur B, et al. Functional capacity and quality of life in hemodialysis patients. Physiotherapy (United Kingdom). 2011;97:eS1300-eS1. doi: 10.1016/j.physio.2011.04.002. - **Meeting abstract**

2147. Vatvani A, Waren K, Japar K, et al. Factors affecting quality of life in end stage renal disease patients undergoing hemodialysis in Indonesia. Nephrology Dialysis Transplantation. 2017;32:iii705-iii6. doi: 10.1093/ndt/gfx180. - **Non-United States study**

2148. Vazquez I, Valderrabano F, Fort I, et al. [Differences in health-related quality of life between male and female hemodialysis patients]. Nefrologia. 2004;24(2):167-78. PMID: 15219092. - **Non-United States study**

2149. Vazquez I, Valderrabano F, Jofre R, et al. Psychosocial factors and quality of life in young hemodialysis patients with low comorbidity. J Nephrol. 2003 Nov-Dec;16(6):886-94. PMID: 14736017. - **Non-United States study**

2150. Vazquez-Rodriguez JG, del Angel-Garcia G. [Perinatal

complications in patients with chronic renal insufficiency on hemodialysis]. Ginecol Obstet Mex. 2010 Sep;78(9):486-92. PMID: 21961366. - **Non-United States study**

2151. Vecchio M, Palmer S, De Berardis G, et al. Sexual dysfunction in women with end-stage kidney disease requiring hemodialysis: A multinational cross-sectional study. Nephrology Dialysis Transplantation. 2012;27:ii287-ii8. doi: 10.1093/ndt/gfs227. - **Meeting abstract**

2152. Veerappan I, Arvind RM, Ilayabharthi V. Predictors of quality of life of hemodialysis patients in India. Indian Journal of Nephrology. 2012;22(1):18-25. doi: 10.4103/0971-4065.91185. - **Non-United States study**

2153. Vega A, Abad S, Macias N, et al. On-line hemodiafiltration at home. Hemodial Int. 2018 Apr;22(2):E33-e5. doi: 10.1111/hdi.12609. PMID: 28972690. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

2154. Vega OV, Chávez-Mendoza CA, Ortega-Vargas JL, et al. Effect of overhydration on quality of life in Mexican haemodialysis patients. Nephrology Dialysis Transplantation. 2016;31:i291-i2. doi: 10.1093/ndt/gfw175.33. - **Non-United States study**

2155. Verberne W, Geers T, Jellema W, et al. Quality of life in older patients with end2stage renal disease: Comparison of comprehensive conservative care and dialysis. Nephrology Dialysis Transplantation. 2017;32:iii351-iii2. doi: 10.1093/ndt/gfx154. - **Meeting abstract**

2156. Verberne WR, Dijkers J, Kelder JC, et al. Value-based evaluation of dialysis versus conservative care in older patients with advanced chronic kidney disease: a cohort study. BMC Nephrol. 2018 Aug 16;19(1):205. doi: 10.1186/s12882-018-1004-4. PMID: 30115028. - **Non-United States study**

2157. Verghese P, Sotillo J, Diaz J, et al. Oral health related quality of life for children with kidney disease. American Journal of Transplantation. 2018;18:717. doi: 10.1111/ajt.14918. - **Meeting abstract**

2158. Versluijs E, Van Dongen D, Van Kooij T, et al. Measuring wellbeing in kidney patients: How do we do that? Nephrology Dialysis Transplantation. 2016;31:i549. doi: 10.1093/ndt/gfw198.40. - **Meeting abstract**

2159. Vettath RE, Reddy YN, Reddy YN, et al. A multicenter cross-sectional study of mental and physical health depression in MHD patients. Indian J Nephrol. 2012 Jul;22(4):251-6. doi: 10.4103/0971-4065.101243. PMID: 23162267. - **Non-United States study**

2160. Viana FS, Boechat YEM, Lugon JR, et al. Differences in quality of life and cognition between the elderly and the very elderly hemodialysis patients. Jornal brasileiro de nefrologia : 'orgao oficial de Sociedades Brasileira e Latino-Americana de Nefrologia. 2019doi: 10.1590/2175-8239-JBN-

2018-0167. - **Non-United States study**

2161. Viecelli A, Tong A, Ju A, et al. The standardized outcomes in nephrology-hemodialysis (song-hd) initiative: Establishing a core outcome set for trials in patients on hemodialysis. Clinical Trials. 2018;15:127-8. doi: 10.1177/1740774518790846. - **Meeting abstract**

2162. Viljoen M, Bipath P, Govender C, et al. Quality of life and tryptophan levels in chronic renal failure patients on hemodialysis. Clin Nephrol. 2008 Dec;70(6):561-2. PMID: 19049719. - **Non-United States study**

2163. Villagómez Fuentes LE, Gómez García S, Rosales Salinas LE. Depression in patients of hemodialysis in northeast of Mexico. Dialisis y Trasplante. 2014;35(3):98-102. doi: 10.1016/j.dialis.2014.02.001. - **Non-United States study**

2164. Villamil Parra WA, Debray Hernández E. Level of physical activity in patients with renal failure participating in a peritoneal dialysis program. Revista de Nefrologia, Dialisis y Trasplante. 2018;38(1):28-34. - **Non-English**

2165. Vimalachandra D, Craig JC, Cowell C, et al. Growth hormone for children with chronic renal failure. Cochrane Database Syst Rev. 2001(4):Cd003264. doi: 10.1002/14651858.cd003264. PMID: 11687179. - **Relevant systematic review**

2166. Vishnevskii K, Vinogradova L, Zemchenkov A, et al. Transcutaneous electrical muscle stimulation: An effective treatment for symptomatic peripheral neuropathy in hemodialysis patients. Nephrology Dialysis Transplantation. 2015;30:iii239. doi: 10.1093/ndt/gfv179.30. - **Meeting abstract**

2167. Vitorino LM, Soares R, Santos AEO, et al. Two Sides of the Same Coin: The Positive and Negative Impact of Spiritual Religious Coping on Quality of Life and Depression in Dialysis Patients. J Holist Nurs. 2018 Dec;36(4):332-40. doi: 10.1177/0898010117725429. PMID: 28836475. - **Non-United States study**

2168. Vlachopanos G, Girousis N, Fraggedaki E. The effect of extended duration thrice-weekly in-center hemodialysis sessions on prevalent ESRD patients. Nephrology Dialysis Transplantation. 2015;30:iii247. doi: 10.1093/ndt/gfv179.54. - **Meeting abstract**

2169. Vo TQ, Tran TQ, Duong KNC, et al. Impact of chronic kidney disease on health-related quality of life: A prospective observational study using the KDQoL-36 instrument. Journal of Clinical and Diagnostic Research. 2018;12(6):LC66-LC71. doi: 10.7860/JCDR/2018/36694.11708. - **Non-United States study**

2170. Von Der Lippe N, Jørgensen JA, Østhus TB, et al. Gender differences in HRQOL in patients resuming dialysis after graft loss. Nephrology Dialysis Transplantation. 2012;27:ii222. doi: 10.1093/ndt/gfs224. - **Meeting abstract**

2171. von der Lippe N, Waldum B, Brekke FB, et al. From dialysis to transplantation: a 5-year longitudinal study on self-reported quality of life. BMC Nephrol. 2014 Dec 2;15:191. doi: 10.1186/1471-2369-15-191. PMID: 25465066. - **Non-United States study**

2172. von der Lippe N, Waldum B, Osthus TB, et al. Health related quality of life in patients in dialysis after renal graft loss and effect of gender. BMC Womens Health. 2014 Mar 1;14(1):34. doi: 10.1186/1472-6874-14-34. PMID: 24580724. - **Non-United States study**

2173. von der Lippe N, Waldum-Grevbo B, Varberg Reisaeter A, et al. Is HRQOL in dialysis associated with patient survival or graft function after kidney transplantation? BMC Nephrol. 2016 Jul 26;17:94. doi: 10.1186/s12882-016-0316-5. PMID: 27456506. - **Non-United States study**

2174. Vorobyev P, Bezmelnitsyna L, Borisenko O, et al. Epidemiology and qality of life of anemic patients on dialysis in russia: Patient-reported data. Value in Health. 2011;14(3):A66-A7. - **Meeting abstract**

2175. Vos PF, Zilch O, Jennekens-Schinkel A, et al. Effect of short daily home haemodialysis on quality of life, cognitive functioning and the electroencephalogram. Nephrol Dial Transplant. 2006 Sep;21(9):2529-35. doi: 10.1093/ndt/gfl256. PMID: 16720589. - **Non-United States study**

2176. Vrakas S, Mameletzi D, Samaras T, et al. The effects of intradialytic exercise plus music on anxiety. Nephrology Dialysis Transplantation. 2017;32:iii325. doi: 10.1093/ndt/gfx152. - **Meeting abstract**

2177. Vui Heng C. Gastrointestinal symptoms in renal failure and impact of the duration of renal replacement therapy. Journal of Gastroenterology and Hepatology. 2010;25:A70-A1. doi: 10.1111/j.1440-1746.2009.06463.x. - **Meeting abstract**

2178. Wahid A, Syed Akhtar Hussain B, Butt S, et al. Evaluation of quality of life in diabetic and non diabetic patients on hemodialysis therapy. Diabetes Technology and Therapeutics. 2014;16:A142. doi: 10.1089/dia.2014.1515. - **Meeting abstract**

2179. Waiser J, Budde K, Schreiber M, et al. The quality of life in end stage renal disease care. Transpl Int. 1998;11 Suppl 1:S42-5. PMID: 9664941. - **Non-United States study**

2180. Wald R, Goldstein MB, Perl J, et al. The Association Between Conversion to In-centre Nocturnal Hemodialysis and Left Ventricular Mass Regression in Patients With End-Stage Renal Disease. Can J Cardiol. 2016 Mar;32(3):369-77. doi: 10.1016/j.cjca.2015.07.004. PMID: 26386732. - **Non-United States study**

2181. Wald R, Yan AT, Perl J, et al. Regression of left ventricular mass following conversion from conventional hemodialysis to thrice weekly in-centre nocturnal hemodialysis. BMC Nephrol. 2012 Jan 19;13:3. doi: 10.1186/1471-2369-13-3. PMID: 22260388. - **Non-United States study**

2182. Wali SO, Alkhouli AF. Restless legs syndrome among Saudi end-stage renal disease patients on hemodialysis. Saudi Med J. 2015 Feb;36(2):204-10. doi: 10.15537/smj.2015.2.10036. PMID: 25719586. - **Non-United States study**

2183. Walker S, Fine A, Kryger MH. Sleep complaints are common in a dialysis unit. Am J Kidney Dis. 1995 Nov;26(5):751-6. PMID: 7485127. - **Non-United States study**

2184. Walsh M, Culleton B, Tonelli M, et al. A systematic review of the effect of nocturnal hemodialysis on blood pressure, left ventricular hypertrophy, anemia, mineral metabolism, and health-related quality of life. Kidney Int. 2005 Apr;67(4):1500-8. doi: 10.1111/j.1523-1755.2005.00228.x. PMID: 15780103. - **Relevant systematic review**

2185. Walsh M, Manns BJ, Klarenbach S, et al. The effects of nocturnal compared with conventional hemodialysis on mineral metabolism: A randomized-controlled trial. Hemodial Int. 2010 Apr;14(2):174-81. doi: 10.1111/j.1542-4758.2009.00418.x. PMID: 20041960. - **Non-United States study**

2186. Walter L, Hargreaves W, Kois E, et al. DESCRIPTIONS OF ANEMIA SYMPTOMS: A LINGUISTIC ANALYSIS OF SOCIAL MEDIA CONVERSATIONS IN CHRONIC KIDNEY DISEASE (CKD). American Journal of Kidney Diseases. 2019;73(5):728. doi: 10.1053/j.ajkd.2019.03.326. **– Meeting abstract**

2187. Wan EY, Chen JY, Choi EP, et al. Patterns of health-related quality of life and associated factors in Chinese patients undergoing haemodialysis. Health Qual Life Outcomes. 2015 Jul 29;13:108. doi: 10.1186/s12955-015-0308-3. PMID: 26215978. - **Non-United States study**

2188. Wan Zukiman WZH, Yaakup H, Zakaria NF, et al. Symptom Prevalence and the Negative Emotional States in End-Stage Renal Disease Patients with or without Renal Replacement Therapy: A Cross-Sectional Analysis. J Palliat Med. 2017 Oct;20(10):1127-34. doi: 10.1089/jpm.2016.0450. PMID: 28537462. - **Non-United States study**

2189. Wang A, Sherrington C, Leong T, et al. Association of neuropathy and physical parameters in people on maintenance haemodialysis: A prospective study. Nephrology. 2016;21:66. doi: 10.1111/nep.12887. - **Meeting abstract**

2190. Wang AP, Zhan JY. Related factors of self-management behavior and living quality in hemodialysis patients receiving kidney transplantation. Journal of Clinical Rehabilitative Tissue Engineering Research. 2007;11(51):10388-90. - **Non-United States study**

2191. Wang AY, Bellomo R, Cass A, et al. Predictors of health-related quality of life in survivors following acute kidney injury: a secondary analysis of post-renal study outcomes. Nephrology dialysis transplantation. 2014;29(Suppl 3):iii107-iii. PMID: CN-01658189. - **Meeting abstract**

2192. Wang AY, Bellomo R, Cass A, et al. Predictors of health-related

quality of life in survivors following acute kidney injury: A secondary analysis of post-renal study outcomes. Nephrology Dialysis Transplantation. 2014;29:iii107-iii8. doi: 10.1093/ndt/gfu144. - **Meeting abstract**

2193. Wang AY, Sherrington C, Toyama T, et al. Muscle strength, mobility, quality of life and falls in patients on maintenance haemodialysis: A prospective study. Nephrology (Carlton). 2017 Mar;22(3):220-7. doi: 10.1111/nep.12749. PMID: 26890468. - **Non-United States study**

2194. Wang LJ, Chen CK, Hsu HJ, et al. Depression, 5HTTLPR and BDNF Val66Met polymorphisms, and plasma BDNF levels in hemodialysis patients with chronic renal failure. Neuropsychiatr Dis Treat. 2014;10:1235-41. doi: 10.2147/ndt.s54277. PMID: 25045267. - **Non-United States study**

2195. Wang LJ, Wu MS, Hsu HJ, et al. The relationship between psychological factors, inflammation, and nutrition in patients with chronic renal failure undergoing hemodialysis. Int J Psychiatry Med. 2012;44(2):105-18. doi: 10.2190/PM.44.2.b. PMID: 23413658. - **Non-United States study**

2196. Wang LM, Chiou CP. Effectiveness of interactive multimedia CD on self-care and powerlessness in hemodialysis patients. Journal of nursing research. 2011;19(2):102-11. doi: 10.1097/JNR.0b013e31821b0eff. PMID: CN-00799933. - **Non-United States study**

2197. Wang MM, Bieber BB, Guidinger MM, et al. Dialysis treatment time, dialysis frequency, and delivered single pool KT/VAMONG hemodialysis patients in the China dialysis outcomes and practice patterns study (DOPPS). Nephrology Dialysis Transplantation. 2012;27:ii280. doi: 10.1093/ndt/gfs227. - **Meeting abstract**

2198. Wang R, Tang C, Chen X, et al. Poor sleep and reduced quality of life were associated with symptom distress in patients receiving maintenance hemodialysis. Health Qual Life Outcomes. 2016 Sep 8;14(1):125. doi: 10.1186/s12955-016-0531-6. PMID: 27608683. - **Non-United States study**

2199. Wang SH, Qiu MY, Cheng AH, et al. Improvement of survival quality of the patients with hemodialysis treated with moxibustion for regulating spleen and stomach functions: multi-central randomized controlled study. Zhongguo zhen jiu [Chinese acupuncture & moxibustion]. 2014;34(4):319-24. PMID: CN-00994180. - **Non-United States study**

2200. Wang SY, Zang XY, Liu JD, et al. Psychometric properties of the Functional Assessment of Chronic Illness Therapy-Fatigue (FACIT-Fatigue) in Chinese patients receiving maintenance dialysis. J Pain Symptom Manage. 2015 Jan;49(1):135-43. doi: 10.1016/j.jpainsymman.2014.04.011. PMID: 24878068. - **Non-United States study**

2201. Wang V, Seow YY, Chow WL. Influence of ethnicity on health-related quality of life of hemodialysis patients in Singapore. Int J Artif Organs. 2012 Mar;35(3):217-25. doi: 10.5301/ijao.5000014. PMID: 22461117. - **Non-United States study**

2202. Wang W, Tonelli M, Hemmelgarn B, et al. The effect of increasing dialysis dose in overweight hemodialysis patients on quality of life: a 6-week randomized crossover trial. Am J Kidney Dis. 2008 May;51(5):796-803. doi: 10.1053/j.ajkd.2007.12.031. PMID: 18436090. - **Non-United States study**

2203. Wang Y, Bu T, Yan P, et al. Comparison of Incidence and Risk of Depression in Recipients of Renal Transplantation and Patients Undergoing Hemodialysis in China. Transplantation proceedings. 2018;50(10):3449-51. doi: 10.1016/j.transproceed.2018.07.029. PMID: CN-01714312. - **Non-United States study**

2204. Wang Y, Sherrington C, Barzi F, et al. Predictors of physical performance in patients on maintenance haemodialysis. Nephrology. 2012;17:37. doi: 10.1111/j.1440-1797.2012.01631.x. - **Meeting abstract**

2205. Warady BA, Fischbach M, Geary D, et al. Frequent hemodialysis in children. Adv Chronic Kidney Dis. 2007 Jul;14(3):297-303. doi: 10.1053/j.ackd.2007.04.003. PMID: 17603985. - **Narrative review**

2206. Waren K, Wibisono P, Japar K, et al. Nutritional status and quality of life in end stage renal disease patients undergoing hemodialysis in Indonesia. Nephrology Dialysis Transplantation. 2017;32:iii354. doi: 10.1093/ndt/gfx154. - **Meeting abstract**

2207. Watanabe Y, Ohno Y, Inoue T, et al. Home hemodialysis and conventional in-center hemodialysis in Japan: a comparison of health-related quality of life. Hemodial Int. 2014 Oct;18 Suppl 1:S32-8. doi: 10.1111/hdi.12221. PMID: 25330829. - **Non-United States study**

2208. Watnick S, Kirwin P, Mahnensmith R, et al. The prevalence and treatment of depression among patients starting dialysis. Am J Kidney Dis. 2003 Jan;41(1):105-10. doi: 10.1053/ajkd.2003.50029. PMID: 12500227. - **Other: unstratified in and outpatient**

2209. Watson AR, Maxwell H, Mackinlay D. Quality of Life in Children pre and post renal transplantation. Pediatric Transplantation. 2009;13:126. - **Meeting abstract**

2210. Wee HL, Yeo QM, Lee JJ, et al. Patient-reported outcomes between hemodialysis and peritoneal dialysis patients in a multi-ethnic Asian population. Nephrology Dialysis Transplantation. 2015;30:iii609. doi: 10.1093/ndt/gfv200.16. - **Other: abstract only**

2211. Wei CY, Chung TC, Wu SC, et al. The subjective sleep quality and heart rate variability in hemodialysis patients. Ren Fail.

2011;33(2):109-17. doi: 10.3109/0886022x.2010.541578. PMID: 21332330. - **Non-United States study**

2212. Weinhandl E, Collins A. Lower risk of early death in incident dialysis patients on daily home versus in-center hemodialysis. American Journal of Kidney Diseases. 2015;65(4):A89. - **Meeting abstract**

2213. Weinhandl ED, Gilbertson DT, Collins AJ. Mortality, Hospitalization, and Technique Failure in Daily Home Hemodialysis and Matched Peritoneal Dialysis Patients: A Matched Cohort Study. Am J Kidney Dis. 2016 Jan;67(1):98-110. doi: 10.1053/j.ajkd.2015.07.014. PMID: 26319755. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

2214. Weinreich T, De los Rios T, Gauly A, et al. Effects of an increase in time vs. frequency on cardiovascular parameters in chronic hemodialysis patients. Clin Nephrol. 2006 Dec;66(6):433-9. PMID: 17176915. - **Non-United States study**

2215. Weisbord SD, Mor MK, Green JA, et al. Comparison of symptom management strategies for pain, erectile dysfunction, and depression in patients receiving chronic hemodialysis: a cluster randomized effectiveness trial. Clinical journal of the American Society of Nephrology. 2013;8(1):90-9. doi: 10.2215/CJN.04450512. PMID: CN-00853128. - **Other: clinical assessment**

2216. Weisbord SD. Sexual dysfunction and quality of life in patients on maintenance dialysis. Semin Dial. 2013 May-Jun;26(3):278-80. doi: 10.1111/sdi.12068. PMID: 23458106. - **Narrative review**

2217. Weiss M, Hayani K, Mettang T, et al. Chronic itch in hemodialysis: New data from the German Epidemiological Hemodialysis Itch Study (GEHIS) study. Experimental Dermatology. 2015;24(3):E16. doi: 10.1111/exd.12623. - **Meeting abstract**

2218. Weiss M, Mettang T, Tschulena U, et al. Chronic pruritus in hemodialysis patients in Germany: Prevalence and risk factors. Experimental Dermatology. 2014;23(3):e21. doi: 10.1111/exd.12314. - **Meeting abstract**

2219. Weiss M, Mettang T, Tschulena U, et al. Chronic pruritus in hemodialysis patients: Prevalence, quality of life and associated factors in a representative cross sectional study in Germany. Nephrology Dialysis Transplantation. 2015;30:iii313-iii4. doi: 10.1093/ndt/gfv183.29. - **Meeting abstract**

2220. Weiss M, Weisshaar E. Qualitative interviews on chronic pruritus in haemodialysis patients. Acta Derm Venereol. 2014 Nov;94(6):713-4. doi: 10.2340/00015555-1823. PMID: 24556814. - **Non-United States study**

2221. Weisshaar E, Weiss M, Passlick-Deetjen J, et al. Laboratory and dialysis characteristics in hemodialysis patients suffering from

chronic itch--results from a representative cross-sectional study. BMC nephrology. 2015;16:184. doi: 10.1186/s12882-015-0177-3. PMID: CN-01169113. - **Non-United States study**

2222. Wellard S. Validation of physical activity measurement for people on dialysis treatment. Edtna erca j. 2003 Jul-Sep;29(3):140-2. PMID: 14552088. - **Non-United States study**

2223. Welles CC, Cervantes L. Hemodialysis care for undocumented immigrants with end-stage renal disease in the United States. Curr Opin Nephrol Hypertens. 2019 Nov;28(6):615-20. doi: 10.1097/mnh.0000000000000543. PMID: 31403475. **– No human**

2224. Wendland KL, Greinert I. Sleep disorders in dialysis patients. Rehabilitation (Stuttg). 1989;28:74-7. - **Non-English**

2225. Weng CH, Hsu CW, Hu CC, et al. Blood lead level is a positive predictor of uremic pruritus in patients undergoing hemodialysis. Ther Clin Risk Manag. 2017;13:717-23. doi: 10.2147/tcrm.s135470. PMID: 28652758. - **Non-United States study**

2226. Westlie L, Umen A, Nestrud S, et al. Mortality, morbidity, and life satisfaction in the very old dialysis patient. Trans Am Soc Artif Intern Organs. 1984;30:21-30. PMID: 6533888. - **Non-United States study**

2227. White C, McDonnell H. Psychosocial distress in patients with end-stage kidney disease. J Ren Care. 2014 Mar;40(1):74-81. doi: 10.1111/jorc.12054. PMID: 24588981. - **No human data**

2228. White CA, Pilkey RM, Lam M, et al. Pre-dialysis clinic attendance improves quality of life among hemodialysis patients. BMC Nephrol. 2002 Apr 5;3:3. PMID: 11934351. - **Non-United States study**

2229. White JD. Healing the body and the soul of the CKD/ESRD patient. Nephrol News Issues. 2004 Feb;18(2):51-3. PMID: 14748250. - **Non-relevant review**

2230. Wibisono P, Vatvani AD, Japar KV, et al. Prevalence and factors associated with female sexual dysfunction in end stage renal disease patients undergoing hemodialysis in Indonesia. Nephrology Dialysis Transplantation. 2018;33:i560-i1. doi: 10.1093/ndt/gfy104.SP636. - **Meeting abstract**

2231. Wibisono P, Vatvani AD, Waren K, et al. Abnormalities of cognitive function in patients undergoing hemodialysis and its association with quality of life. Journal of the Neurological Sciences. 2017;381:1027. doi: 10.1016/j.jns.2017.08.2900. - **Non-relevant review**

2232. Wick JY. Chronic kidney disease: Pharmacist intervention can improve quality of life. 2011. - **Non-relevant review**

2233. Wicks MN, Milstead EJ, Hathaway DK, et al. Family caregivers' burden, quality of life, and health following patients' renal transplantation. J Transpl Coord. 1998 Sep;8(3):170-6. PMID: 9866547. - **No intervention of interest (frequency or duration of**

HD) AND no QOL or symptom measures in dialysis patients

2234. Wicks MN, Milstead EJ, Hathaway DK, et al. Subjective burden and quality of life in family caregivers of patients with end stage renal disease. Anna j. 1997 Oct;24(5):527-8, 31-8; discussion 39-40. PMID: 9392735. - **Other: only a single-question tool to assess QOL in caregivers**

2235. Wiedebusch S, Konrad M, Foppe H, et al. Health-related quality of life, psychosocial strains, and coping in parents of children with chronic renal failure. Pediatr Nephrol. 2010 Aug;25(8):1477-85. doi: 10.1007/s00467-010-1540-z. PMID: 20461533. - **Non-United States study**

2236. Wight JP, Edwards L, Brazier J, et al. The SF36 as an outcome measure of services for end stage renal failure. Qual Health Care. 1998 Dec;7(4):209-21. PMID: 10339023. - **Non-United States study**

2237. Wikstrom B. Itchy skin--a clinical problem for haemodialysis patients. Nephrol Dial Transplant. 2007 Jul;22 Suppl 5:v3-7. doi: 10.1093/ndt/gfm292. PMID: 17586843. - **Non-United States study**

2238. Wileman V, Farrington K, Wellsted D, et al. Medication beliefs are associated with phosphate binder non-adherence in hyperphosphatemic haemodialysis patients. British journal of health psychology. 2015;20(3):563-78. doi: 10.1111/bjhp.12116. PMID: CN-01657405. - **Non-United States study**

2239. Williams G, Shrivastava R, Chess J, et al. Nocturnal home haemodialysis-achieving more for less! Nephrology Dialysis Transplantation. 2014;29:iii458. doi: 10.1093/ndt/gfu173. - **Meeting abstract**

2240. Wilson PH, Wilson WJ. Am I disabled? Adv Ren Replace Ther. 1996 Jul;3(3):269-70. PMID: 8827209. - **Non-relevant review**

2241. Wilt TJ, MacDonald R, Ouellette J, et al. AHRQ Comparative Effectiveness Reviews. Treatment for Restless Legs Syndrome. Rockville (MD): Agency for Healthcare Research and Quality (US); 2012. - **Relevant systematic review**

2242. Wilund KR, Jeong JH, Fitschen PJ, et al. Efficacy of intradialytic protein supplementation and exercise training. Nephrology Dialysis Transplantation. 2016;31:i58-i9. doi: 10.1093/ndt/gfw142.6. - **Meeting abstract**

2243. Winkelman J, Dauvilliers Y, Partinen M, et al. Rotigotine in patients with restless legs syndrome and endstage renal disease requiring hemodialysis. Neurology. 2015;84 PMID: CN-01100298. - **Meeting abstract**

2244. Wong CKH, Chen JY, Fung SKS, et al. Health-related Quality of Life and Health Utility of Chinese Patients Undergoing Nocturnal Home Haemodialysis in comparison to Other Modes of Dialysis. Nephrology (Carlton). 2018 Jun 21doi: 10.1111/nep.13429. PMID: 29926521. - **Non-United States study**

2245. Wong CKH, Chen JY, Fung SKS, et al. Health-related quality of life and health utility of Chinese patients undergoing nocturnal home haemodialysis in comparison with other modes of dialysis. Nephrology. 2019doi: 10.1111/nep.13429. - **Non-United States study**

2246. Wong G, Howard K, Chapman J, et al. Quality of life of people with chronic kidney disease (CKD) and cancer (QUICK) study. Nephrology. 2010;15:33. doi: 10.1111/j.1440-1797.2010.01377.x. - **Meeting abstract**

2247. Wong JHS, Yip RNL, Cheung ASC, et al. The financial aspect of nocturnal home hemodialysis in hong kong: A community partnership hemodialysis (HD) program reducing the cost of HD and increasing patients' employment income. Hemodialysis International. 2009;13(3):413-4. doi: 10.1111/j.1542-4758.2009.00402.x. - **Meeting abstract**

2248. Wong KC, Woo KS, Lam WK, et al. A comparison of the effect of enalapril and metoprolol on renal function, potassium balance, lipid profile, cardiac function, exercise tolerance and quality of life in hypertensive dialysis patients. Int J Artif Organs. 1995 Dec;18(12):757-62. PMID: 8964641. - **Non-United States study**

2249. Woo J, Seo MJ, Kang GW, et al. Associations among psychosocial factor, medical factor and quality of life in patients with end-stage renal disease. European Neuropsychopharmacology. 2015;25:S363-S4. - **Meeting abstract**

2250. Wrenger E, Krautzig S, Brunkhorst R. Adequacy and quality of life with automated peritoneal dialysis. Perit Dial Int. 1996;16 Suppl 1:S153-7. PMID: 8728183. - **Non-United States study**

2251. Wu AW, Fink NE, Marsh-Manzi JV, et al. Changes in quality of life during hemodialysis and peritoneal dialysis treatment: generic and disease specific measures. J Am Soc Nephrol. 2004 Mar;15(3):743-53. PMID: 14978177. - **Narrative review**

2252. Wu AW, Predmore ZS. Patient-Reported Outcomes: Toward Better Measurement of Patient-Centered Care in CKD. Journal of the American Society of Nephrology : JASN. 2019;30(4):523-5. doi: 10.1681/ASN.2019020169. - **Narrative review**

2253. Wu F, Cui L, Gao X, et al. Quality of life in peritoneal and hemodialysis patients in China. Ren Fail. 2013;35(4):456-9. doi: 10.3109/0886022x.2013.766573. PMID: 23406057. - **Non-United States study**

2254. Wu JJ, Yang L. The quality of life and work ability in patients with chronic kidney disease in Urban China. Value in Health. 2014;17(3):A142. doi: 10.1016/j.jval.2014.03.825. - **Meeting abstract**

2255. Wu Y, Yin X, He Q, et al. Effect of individualized exercise during maintenance haemodialysis on exercise capacity and health-related quality of life in patients with uraemia. Journal of international medical research. 2014;42(3):718-27. doi: 10.1177/0300060513509037. PMID:

CN-00998939. - **Non-United States study**

2256. Wu YL, Cheung DST, Takemura N, et al. Effects of Hemodialysis on the Symptom Burden of Terminally Ill and Nonterminally Ill End-Stage Renal Disease Patients. J Palliat Med. 2019 Mar;22(3):282-9. doi: 10.1089/jpm.2018.0351. PMID: 30575494. - **Non-United States study**

2257. Wuerth D, Finkelstein SH, Finkelstein FO. Psychosocial assessment of the patient on chronic peritoneal dialysis: an overview. Adv Chronic Kidney Dis. 2007 Oct;14(4):353-7. doi: 10.1053/j.ackd.2007.07.001. PMID: 17904502. - **Non-relevant review**

2258. Wuerth D, Finkelstein SH, Finkelstein FO. The identification and treatment of depression in patients maintained on dialysis. Semin Dial. 2005 Mar-Apr;18(2):142-6. doi: 10.1111/j.1525-139X.2005.18213.x. PMID: 15771659. - **Narrative review**

2259. Wyld M, Morton RL, Polkinghorne K, et al. The impact on health-related quality-oflife of comorbid diabetes and ckd: A 12 year community cohort study. Nephrology. 2018;23:25-6. doi: 10.1111/nep.13441. - **Meeting abstract**

2260. Wyld MLR, Morton RL, Clayton P, et al. The impact of progressive chronic kidney disease on health-related quality-of-life: a 12-year community cohort study. Qual Life Res. 2019 Apr 1doi: 10.1007/s11136-019-02173-1. PMID: 30937731. - **Non-United States study**

2261. Wyngaert KV, Van Craenenbroeck A, Eloot S, et al. Functional impairment and risk of falling in the hemodialysis unit. Nephrology Dialysis Transplantation. 2018;33:i483. doi: 10.1093/ndt/gfy104.SP403. - **Meeting abstract**

2262. Xander C, Meerpohl JJ, Galandi D, et al. Pharmacological interventions for pruritus in adult palliative care patients. Cochrane database of systematic reviews (online). 2013;2013(6) (no pagination)doi: 10.1002/14651858.CD008320.pub2. PMID: CN-01459875. - **Relevant systematic review**

2263. Yamakawa M, Yamamoto T, Kishimoto T, et al. Serum levels of acetate and TCA cycle intermediates during hemodialysis in relation to symptoms. Nephron. 1982;32(2):155-61. doi: 10.1159/000182836. PMID: CN-00253475. - **Non-United States study**

2264. Yamamoto S, Kazama JJ, Maruyama H, et al. Patients undergoing dialysis therapy for 30 years or more survive with serious osteoarticular disorders. Clin Nephrol. 2008 Dec;70(6):496-502. PMID: 19049706. - **Non-United States study**

2265. Yamana E. The relationship of clinical laboratory parameters and patient attributes to the quality of life of patients on hemodialysis. Jpn J Nurs Sci. 2009 Jun;6(1):9-20. doi: 10.1111/j.1742-7924.2009.00116.x.

PMID: 19566635. - **Non-United States study**

2266. Yamashita AC, Kawanishi H. Kinetic analysis of daily hemofiltration. Hemodial Int. 2004 Oct 1;8(4):326-31. doi: 10.1111/j.1492-7535.2004.80405.x. PMID: 19379437. - **Non-United States study**

2267. Yan BP, Chan LL, Lai WH, et al. 1 Year Health-Related Quality-Of-Life Outcomes after Percutaneous Coronary Intervention in Patients with End-Stage Renal Failure. Value in Health. 2018;21:S72. doi: 10.1016/j.jval.2018.07.544. - **Meeting abstract**

2268. Yan CN, Yao WG, Bao YJ, et al. Effect of auricular acupressure on uremic pruritus in patients receiving hemodialysis treatment: a randomized controlled trial. Evidence-based complementary & alternative medicine: ecam. 2015;2015:593196. PMID: CN-01912470. - **Non-United States study**

2269. Yang F, Griva K, Lau T, et al. Health-related quality of life of Asian patients with end-stage renal disease (ESRD) in Singapore. Qual Life Res. 2015 Sep;24(9):2163-71. doi: 10.1007/s11136-015-0964-0. PMID: 25800727. - **Non-United States study**

2270. Yang F, Lau T, Lee E, et al. Comparison of the preference-based EQ-5D-5L and SF-6D in patients with end-stage renal disease (ESRD). Eur J Health Econ. 2015 Dec;16(9):1019-26. doi: 10.1007/s10198-014-0664-7. PMID: 25519850. - **Non-United States study**

2271. Yang F, Luo N, Griva K, et al. An evaluation of health-related quality of life in continuous ambulatory peritoneal dialysis and automated peritoneal dialysis modalities. Nephrology Dialysis Transplantation. 2015;30:iii494. doi: 10.1093/ndt/gfv192.14. - **Meeting abstract**

2272. Yang F, Luo N, Lau T, et al. Health-Related Quality of Life in Patients Treated with Continuous Ambulatory Peritoneal Dialysis and Automated Peritoneal Dialysis in Singapore. Pharmacoecon Open. 2018 Jun;2(2):203-8. doi: 10.1007/s41669-017-0046-z. PMID: 29623617. - **Non-United States study**

2273. Yang F, Wang VW, Joshi VD, et al. Validation of the English version of the Kidney Disease Quality of Life questionnaire (KDQOL-36) in haemodialysis patients in Singapore. Patient. 2013;6(2):135-41. doi: 10.1007/s40271-013-0015-2. PMID: 23613285. - **Non-United States study**

2274. Yang F, Wang VW, Joshi VD, et al. Validation of the kidney disease and quality of life questionnaire (KDQOL-36) in haemodialysis patients in Singapore. Value in Health. 2012;15(7):A605. doi: 10.1016/j.jval.2012.08.024. - **Meeting abstract**

2275. Yang JY, Huang JW, Chiang CK, et al. Higher plasma interleukin-18 levels associated with poor quality of sleep in peritoneal dialysis patients. Nephrol Dial Transplant.

2007 Dec;22(12):3606-9. doi: 10.1093/ndt/gfm231. PMID: 17890740. - **Non-United States study**

2276. Yang JY, Huang JW, Peng YS, et al. Quality of sleep and psychosocial factors for patients undergoing peritoneal dialysis. Perit Dial Int. 2007 Nov-Dec;27(6):675-80. PMID: 17984430. - **Non-United States study**

2277. Yang L, Wang J, Liu Y. The Impact of Quality of Life on Costs of Chronic Kidney Disease in China's Four Metropolises. Value in Health. 2018;21:S114. doi: 10.1016/j.jval.2018.07.865. - **Meeting abstract**

2278. Yang SC, Kuo PW, Wang JD, et al. Quality of life and its determinants of hemodialysis patients in Taiwan measured with WHOQOL-BREF(TW). Am J Kidney Dis. 2005 Oct;46(4):635-41. doi: 10.1053/j.ajkd.2005.06.015. PMID: 16183418. - **Non-United States study**

2279. Yang SK, Xiao L, Song PA, et al. Effect of L-carnitine therapy on patients in maintenance hemodialysis: a systematic review and meta-analysis. J Nephrol. 2014 Jun;27(3):317-29. doi: 10.1007/s40620-013-0002-7. PMID: 24535997. - **Relevant systematic review**

2280. Yang WL, Zhang F, He L, et al. Experiences with establishing the first self-care hemodialysis program in a hospital in mainland China. Ren Fail. 2013;35(2):257-61. doi: 10.3109/0886022x.2012.747141. PMID: 23228242. - **Non-United States study**

2281. Yarlas AS, White MK, Yang M, et al. Measuring the health status burden in hemodialysis patients using the SF-36(R) health survey. Qual Life Res. 2011 Apr;20(3):383-9. doi: 10.1007/s11136-010-9764-8. PMID: 20972630. - **Narrative review**

2282. Yavuz D, Acar FN, Yavuz R, et al. Male sexual function in patients receiving different types of renal replacement therapy. Transplant Proc. 2013;45(10):3494-7. doi: 10.1016/j.transproceed.2013.09.025. PMID: 24314940. - **Non-United States study**

2283. Yazawa M, Kido R, Ohira S, et al. Early Mortality Was Highly and Strongly Associated with Functional Status in Incident Japanese Hemodialysis Patients: A Cohort Study of the Large National Dialysis Registry. PLoS One. 2016;11(6):e0156951. doi: 10.1371/journal.pone.0156951. PMID: 27270615. - **Non-United States study**

2284. Yazici R, Altintepe L, Guney I, et al. Female sexual dysfunction in peritoneal dialysis and hemodialysis patients. Ren Fail. 2009;31(5):360-4. PMID: 19839835. - **Non-United States study**

2285. Ye H, Chen W, Cao P, et al. Prevalence of erectile dysfunction and its association with residual renal function in Chinese peritoneal dialysis patients. Int Urol Nephrol. 2015 Feb;47(2):383-9. doi: 10.1007/s11255-014-0767-1. PMID: 24958383. - **Non-United States study**

2286. Ye XQ, Chen WQ, Lin JX, et al. Effect of social support on psychological-stress-induced anxiety and depressive symptoms in patients receiving peritoneal dialysis. J Psychosom Res. 2008 Aug;65(2):157-64. doi: 10.1016/j.jpsychores.2008.04.007. PMID: 18655861. - **Non-United States study**

2287. YenicerioGlu Y, Kefi A, Aslan G, et al. Efficacy and safety of sildenafil for treating erectile dysfunction in patients on dialysis. BJU Int. 2002 Sep;90(4):442-5. PMID: 12175405. - **Non-United States study**

2288. Yeo QM, Wee HL, Tyagi P, et al. A comparison of patient-reported and laboratory outcomes between hemodialysis and peritoneal dialysis patients in a multi-ethnic asian population. Value in Health. 2014;17(7):A812-A3. doi: 10.1016/j.jval.2014.08.562. - **Meeting abstract**

2289. Yepes Delgado CE, Yepes Delgado FL, Vargas Betancourt ML, et al. A qualitative study of patient's perceptions of a preventive renal programme in Colombia 2008. Chronic Illn. 2010 Dec;6(4):252-62. doi: 10.1177/1742395310375991. PMID: 20663800. - **Non-United States study**

2290. Yildirim A. The importance of patient satisfaction and health-related quality of life after renal transplantation. Transplant Proc. 2006 Nov;38(9):2831-4. doi: 10.1016/j.transproceed.2006.08.162. PMID: 17112842. - **Non-United States study**

2291. Yildirim YK, Fadiloglu C. The effect of progressive muscle relaxation training on anxiety levels and quality of life in dialysis patients. Edtna erca j. 2006 Apr-Jun;32(2):86-8. PMID: 16898100. - **Non-United States study**

2292. Yilmaz M, Akbay FG, Calayoglu R, et al. Stress and anxiety level of patients waiting for cadaveric renal transplantation. Nephrology Dialysis Transplantation. 2015;30:iii648. doi: 10.1093/ndt/gfv202.44. - **Meeting abstract**

2293. Ying H, Olorundare I, Dagher N, et al. Changes in fatigue after kidney transplantation. American Journal of Transplantation. 2016;16:686. doi: 10.1111/ajt.13898. - **Meeting abstract**

2294. Ying SC, Krishnan M. Interpretation of quality of life outcomes amongst end stage renal disease patients in selected hospitals of Malaysia. International Journal of Pharmaceutical Sciences and Research. 2014;5(1):60-9. doi: 10.13040/IJPSR.0975-8232.5(1).60-69. - **Non-United States study**

2295. Yong DS, Kwok AO, Wong DM, et al. Symptom burden and quality of life in end-stage renal disease: a study of 179 patients on dialysis and palliative care. Palliat Med. 2009 Mar;23(2):111-9. doi: 10.1177/0269216308101099. PMID: 19153131. - **Non-United States study**

2296. Yong K, Dogra G, Boudville N, et al. Home haemodialysis does not improve arterial stiffness or pro-inflammatory cytokines in chronic kidney disease patients. Nephrology.

2014;19:44. doi: 10.1111/nep.12301. - **Meeting abstract**

2297. Yongsiri S, Dinchuthai P, Prongnamjai S, et al. Quality of life and nutritional status assessed by multi frequency bioimpedance spectroscopy in hemodialysis versus peritoneal dialysis patients. Kidney Research and Clinical Practice. 2012;31(2):A87. doi: 10.1016/j.krcp.2012.04.602. - **Meeting abstract**

2298. Yongsiri S, Thammakumpee J, Prongnamchai S, et al. The association between bioimpedance analysis and quality of life in pre-dialysis stage 5 chronic kidney disease, hemodialysis and peritoneal dialysis patients. J Med Assoc Thai. 2014 Mar;97(3):293-9. PMID: 25123008. - **Non-United States study**

2299. Yoshimoto-Furuie K, Yoshimoto K, Tanaka T, et al. Effects of oral supplementation with evening primrose oil for six weeks on plasma essential fatty acids and uremic skin symptoms in hemodialysis patients. Nephron. 1999;81(2):151-9. doi: 10.1159/000045271. PMID: CN-00159588. - **Non-United States study**

2300. Yoshio S, Ayano S, Chieko N, et al. Serum brain natriuretic peptide (BNP) is a possible enhancer of pruritis of hemodialysis patients. Nephrology. 2014;19:54. doi: 10.1111/nep.12236-2. - **Meeting abstract**

2301. Young BA, Chan C, Blagg C, et al. How to overcome barriers and establish a successful home HD program. Clin J Am Soc Nephrol. 2012 Dec;7(12):2023-32. doi: 10.2215/cjn.07080712. PMID: 23037981. - **Non-United States study**

2302. Youssef D. Effect of heat killed probiotic and wheat bran on gastrointestinal symptoms in hemodialysis children. Nephrology Dialysis Transplantation. 2018;33:i312-i3. doi: 10.1093/ndt/gfy104.FP797. - **Meeting abstract**

2303. Yu E, Mera J, Iijima M, et al. [Health-related quality of life factor in chronic hemodialysis patients]. Nihon Ronen Igakkai Zasshi. 2006 May;43(3):383-9. PMID: 16813100. - **Non-English**

2304. Yu HD, Petrini MA. The HRQoL of Chinese patients undergoing haemodialysis. J Clin Nurs. 2010 Mar;19(5-6):658-65. doi: 10.1111/j.1365-2702.2009.03071.x. PMID: 20500307. - **Non-United States study**

2305. Yu IC, Huang JY, Tsai YF. Symptom cluster among hemodialysis patients in Taiwan. Appl Nurs Res. 2012 Aug;25(3):190-6. doi: 10.1016/j.apnr.2010.11.002. PMID: 21273045. - **Non-United States study**

2306. Yu ZL, Yeoh LY, Seow YY, et al. Evaluation of adherence and depression among patients on peritoneal dialysis. Singapore Med J. 2012 Jul;53(7):474-80. PMID: 22815017. - **Non-United States study**

2307. Yuen D, Richardson RM, Fenton SS, et al. Quotidian nocturnal hemodialysis improves cytokine profile and enhances erythropoietin responsiveness. Asaio j. 2005 May-

Jun;51(3):236-41. PMID: 15968953. - **Non-United States study**

2308. Yun KS, Choi JY. [Effects of Dietary Program based on Self-efficacy Theory on Dietary Adherence, Physical Indices and Quality of Life for Hemodialysis Patients]. J Korean Acad Nurs. 2016 Aug;46(4):598-609. doi: 10.4040/jkan.2016.46.4.598. PMID: 27615049. - **Non-English**

2309. Yunanto A, Rizal Ah Hamid A, Rasyid N, et al. The improvement of patient's quality of life after kidney transplantation in Cipto Mangunkusumo Hospital, Indonesia. International Journal of Urology. 2017;24:128-9. doi: 10.1111/iju.13413. - **Meeting abstract**

2310. Yurtkuran M, Alp A, Yurtkuran M, et al. A modified yoga-based exercise program in hemodialysis patients: a randomized controlled study. Complement Ther Med. 2007 Sep;15(3):164-71. doi: 10.1016/j.ctim.2006.06.008. PMID: 17709061. - **Non-United States study**

2311. Zabel R, Ash S, King N, et al. Relationships between appetite and quality of life in hemodialysis patients. Appetite. 2012 Aug;59(1):194-9. doi: 10.1016/j.appet.2012.02.016. PMID: 22366641. - **Non-United States study**

2312. Zadeh MH, Moradi H. Assessment of the impact of massaging with aromatic oil on relieving itchy skin in the patients undergoing dialysis. Avicenna Journal of Phytomedicine. 2015;5:101-2. - **Meeting abstract**

2313. Zadeh Saraji N, Hami M, Boostani R, et al. Restless leg syndrome in chronic hemodialysis patients in Mashhad hemodialysis centers. J Renal Inj Prev. 2017;6(2):137-41. doi: 10.15171/jrip.2017.27. PMID: 28497091. - **Non-United States study**

2314. Zafarlotfi S, Ashtyani H, Ackad A, et al. Effects of prolonged Nocturnal hemodialysis on sleep disorders. Chest. 2009;136(4). - **Meeting abstract**

2315. Zahed NS. Effects of sertaline. On C-reactive protein in hemodialysis patients with depression. Nephrology Dialysis Transplantation. 2016;31:i559. doi: 10.1093/ndt/gfw199.6. - **Meeting abstract**

2316. Zamanian H, Taheri Kharameh Z. Translation and psychometric properties of the persian version of the dialysis symptom index in hemodialysis patients. Nephrourol Mon. 2015 Jan;7(1):e23152. doi: 10.5812/numonthly.23152. PMID: 25738123. - **Non-United States study**

2317. Zamd M, Gharbi MB, Ramdani B, et al. Sexual dysfunction in male patients undergoing hemodialysis in morocco. Saudi J Kidney Dis Transpl. 2005 Jan-Mar;16(1):33-9. PMID: 18209457. - **Non-United States study**

2318. Zaritsky J, Rastogi A, Fischmann G, et al. Short daily hemodialysis is associated with lower plasma FGF23 levels when compared with conventional hemodialysis. Nephrol Dial Transplant. 2014 Feb;29(2):437-41.

doi: 10.1093/ndt/gft382. PMID: 24009282. - **Other: insufficient followup**

2319. Zazzeroni L, Pasquinelli G, Nanni E, et al. Comparison of Quality of Life in Patients Undergoing Hemodialysis and Peritoneal Dialysis: a Systematic Review and Meta-Analysis. Kidney Blood Press Res. 2017;42(4):717-27. doi: 10.1159/000484115. PMID: 29049991. - **Relevant systematic review**

2320. Zeighami Mohammadi S. Sexual function of women with chronic renal failure undergoing hemodialysis and factors related to it. Iranian Journal of Reproductive Medicine. 2013;11:100-1. - **Meeting abstract**

2321. Zemchenkov A, Sabodash A, Karina S, et al. Quality of life changes and peritoneal membrane features according double mini-PET. Nephrology Dialysis Transplantation. 2017;32:iii696. doi: 10.1093/ndt/gfx180. - **Meeting abstract**

2322. Zhang AH, Cheng LT, Zhu N, et al. Comparison of quality of life and causes of hospitalization between hemodialysis and peritoneal dialysis patients in China. Health Qual Life Outcomes. 2007 Aug 2;5:49. doi: 10.1186/1477-7525-5-49. PMID: 17678543. - **Non-United States study**

2323. Zhang G, Weiner DE, Koch-Weser S, et al. Communication and identity: Patient-caregiver relationships in dialysis patients. American Journal of Kidney Diseases. 2016;67(5):A118. - **Meeting abstract**

2324. Zhang JP, Liu HR. [Family support and quality of life among hemodialysis patients]. Hunan Yi Ke Da Xue Xue Bao. 2001 Aug 28;26(4):359-62. PMID: 12536737. - **Non-English**

2325. Zhang R, Liu K, Yang L, et al. Reduced white matter integrity and cognitive deficits in maintenance hemodialysis ESRD patients: a diffusion-tensor study. Eur Radiol. 2015 Mar;25(3):661-8. doi: 10.1007/s00330-014-3466-5. PMID: 25326436. - **Non-United States study**

2326. Zhao QG, Zhang HR, Wen X, et al. Exercise interventions on patients with end-stage renal disease: a systematic review. Clin Rehabil. 2019 Feb;33(2):147-56. doi: 10.1177/0269215518817083. PMID: 30789077. - **Relevant systematic review**

2327. Zhou W, Hu W, Han G, et al. The impact of residual renal function on quality of life in patients with peritoneal dialysis. Clin Nephrol. 2018 Aug;90(2):106-11. doi: 10.5414/cn109064. PMID: 29932407. - **Non-United States study**

2328. Zhou X, Xue F, Wang H, et al. The quality of life and associated factors in patients on maintenance hemodialysis - a multicenter study in Shanxi province. Ren Fail. 2017 Nov;39(1):707-11. doi: 10.1080/0886022x.2017.1398095. PMID: 29141472. - **Non-United States study**

2329. Zhou XR, Yu K, Tang QQ. Effects of nutritional intervention and individualized nursing on nutritional risk, undernutrition, and

quality of life in end-stage renal disease patients with peritoneal dialysis: A randomized controlled study. Chinese Journal of Clinical Nutrition. 2011;19(4):222-6. doi: 10.3760/cma.j.issn.1674-635X.2011.04.002. - **Non-English**

2330. Zhou Y, Yin P, Li B, et al. Effect of Sedative-Hypnotic Medicines on Mortality in Peritoneal Dialysis Patients with Sleep Disorders: A Retrospective Cohort Study. Blood Purif. 2018;45(1-3):95-101. doi: 10.1159/000484922. PMID: 29402860. - **Non-United States study**

2331. Zhu Y, Zhang XD, Song J, et al. Effects of continuous renal replacement therapy on refractory hypertension in maintenance hemodialysis patients. Chinese Journal of Tissue Engineering Research. 2014;18(18):2903-8. doi: 10.3969/j.issn.2095-4344.2014.18.020. - **Non-English**

2332. Ziginskiene E, Kuzminskis V, Sileikiene E, et al. [Changes in hemodialysis adequacy in Lithuania during 1999-2005]. Medicina (Kaunas). 2007;43 Suppl 1:52-7. PMID: 17551277. - **Non-United States study**

2333. Zilch O, Vos PF, Oey PL, et al. Sympathetic hyperactivity in haemodialysis patients is reduced by short daily haemodialysis. J Hypertens. 2007 Jun;25(6):1285-9. doi: 10.1097/HJH.0b013e3280f9df85. PMID: 17563543. - **Non-United States study**

2334. Zimbudzi E, Lo C, Ranasinha S, et al. Patient reported barriers associated with poor physical and mental well-being in patients with co-morbid diabetes and chronic kidney disease: A cross sectional study. Hemodialysis International. 2018;22(1):A30. doi: 10.1111/hdi.12627. - **Meeting abstract**

2335. Zimbudzi E, Lo C, Ranasinha S, et al. The association between patient activation and health-related quality of life in patients with comorbid diabetes and chronic kidney disease. Diabetes. 2016;65:A397. doi: 10.2337/db16-1375-1656. - **Meeting abstract**

2336. Zimbudzi E, Samlero R, Kerr PG, et al. How much is enough? An investigation of the relationship between haemodialysis adequacy and quality of life of elderly patients. Nephrology (Carlton). 2016 Apr;21(4):314-20. doi: 10.1111/nep.12594. PMID: 26369623. - **Non-United States study**

2337. Zimmerman C, Srivaths P, Schwartz W, et al. The quality of life journey from dialysis to transplant in pediatric end-stage renal disease patients. Hemodialysis International. 2019;23(1):A33-A4. doi: 10.1111/hdi.12726. - **Meeting abstract**

2338. Zimmerman DL, Ruzicka M, Hebert P, et al. Short daily versus conventional hemodialysis for hypertensive patients: a randomized cross-over study. PLoS One. 2014;9(5):e97135. doi: 10.1371/journal.pone.0097135. PMID: 24875804. - **Non-United States study**

2339. Zimmerman DL, Swedko PJ, Posen GA, et al. Daily hemofiltration with a simplified method of delivery.

Asaio j. 2003 Jul-Aug;49(4):426-9. PMID: 12918585. - **Non-United States study**

2340. Zimmermann E. [Quality of life in artificial kidney therapy]. Wien Klin Wochenschr. 1989 Nov 24;101(22):780-4. PMID: 2609659. **- Non-English**

2341. Zoccali C, Dounousi E, Abd ElHafeez S, et al. Should we extend the application of more frequent dialysis schedules? A 'yes' and a hopeful 'no'. Nephrol Dial Transplant. 2015 Jan;30(1):29-32. doi: 10.1093/ndt/gfu373. PMID: 25538160. - **Narrative review**

2342. Zouari L, Omri S, Turki S, et al. Quality of life in chronic hemodialysis patients:about 71 cases. Tunis Med. 2016 Jan;94(1):40-5. PMID: 27525604. - **Non-United States study**

2343. Zoumbaridis N, Intzevidou E, Papadopoulou D, et al. Extended thrice-weekly nocturnal hemodialysis in center (NINHD) versus conventional hemodialysis (CHD). A prospective self-controlled study. Nephrology Dialysis Transplantation. 2016;31:i498. doi: 10.1093/ndt/gfw194.28. - **Meeting abstract**

2344. Zubair UB, Butt B. Assessment of Quality of Sleep and its Relationship with Psychiatric Morbidity and Socio-Demographic Factors in the Patients of Chronic Renal Disease Undergoing Hemodialysis. J Coll Physicians Surg Pak. 2017 Jul;27(7):427-31. doi: 2658. PMID: 28818166. - **Non-United States study**

2345. Zucker I, Yosipovitch G, David M, et al. Prevalence and characterization of uremic pruritus in patients undergoing hemodialysis: uremic pruritus is still a major problem for patients with end-stage renal disease. J Am Acad Dermatol. 2003 Nov;49(5):842-6. doi: 10.1067/s0190. PMID: 14576662. - **Non-United States study**

2346. Zuniga San Martin C, Dapueto PJ, Muller OH, et al. [Health related quality of life among patients on chronic hemodialysis]. Rev Med Chil. 2009 Feb;137(2):200-7. doi: /S0034-98872009000200003. PMID: 19543641. **- Non-English**

2347. Zuo ML, Yue WS, Yip T, et al. Prevalence of and associations with reduced exercise capacity in peritoneal dialysis patients. Am J Kidney Dis. 2013 Nov;62(5):939-46. doi: 10.1053/j.ajkd.2013.05.016. PMID: 23886613. - **No intervention of interest (frequency or duration of HD) AND no QOL or symptom measures in dialysis patients**

2348. Zyga S, Alikari V, Sachlas A, et al. Assessment of Fatigue in End Stage Renal Disease Patients Undergoing Hemodialysis: Prevalence and Associated Factors. Med Arch. 2015 Dec;69(6):376-80. doi: 10.5455/medarh.2015.69.376-380. PMID: 26843728. - **Non-United States study**

2349. Zyga S, Alikari V, Sachlas A, et al. Management of Pain and Quality of Life in Patients with Chronic Kidney Disease Undergoing Hemodialysis. Pain Manag Nurs. 2015 Oct;16(5):712-20. doi: 10.1016/j.pmn.2015.03.004. PMID: 26162558. - **Non-United States study**

2350. Zyoud SH, Daraghmeh DN, Mezyed DO, et al. Factors affecting quality of life in patients on haemodialysis: a cross-sectional study from Palestine. BMC Nephrol. 2016 Apr 27;17(1):44. doi: 10.1186/s12882-016-0257-z. PMID: 27117687. - **Non-United States study**

2351. Zyoud SH, Daraghmeh DN, Mezyed DO, et al. Quality of life in Palestinian patients with end-stage renal disease receiving treatment by haemodialysis: A cross-sectional study. The Lancet. 2018;391(SPEC.ISS 1):S32. - **Meeting abstract**

Appendix E. Evidence Tables

Evidence Table 1. Study design characteristics for studies comparing frequency and duration of hemodialysis in non-institutionalized patients

Study design: Author, year	KQ	Study name Recruitment period	Number of study center Dialysis location	Clinic type Clinic location	Datasource
Non-randomized clinical trial: Ayus, 2005[1]	2 and 3	NR 2003 to 2004	Single-center In-center	NR Urban	NR
Non-randomized clinical trial: Achinger, 2013[2]	2 and 3	NR NR	Single center In-center	NR Urban	NR
RCT: Chertow, 2010*[3-22]	2	FHN-Daily 2006 to 2009	Multi-center In-center	For-profit and Non-profit NR	NR
RCT: Rocco, 2011*[4-25]	2 and 3	FHN-Nocturnal 2006 to 2009	Multi-center Home and In-center	NR NR	NR
RCT: Dember, 2019[26]	3	TiME 2013 to 2015	Multi-center In-center	For-profit NR	NR
Observational prospective: Brunelli, 2010[27]	3	ArMORR cohort 2004 to 2005	Multi-center In-center	NR NR	ArMORR cohort
Observational prospective: Lacson, 2012[28]	3	NR 2006 to 2007	Multi-center network In-center	NR NR	NR
Observational prospective: Troidle, 2007[29]	3	NR 2005 to	Multi-center network In-center	NR NR	NR
Observational retrospective: Brunelli, 2016[30]	2	NR 2009 to 2010	Single-center network Home	For-profit NR	NR
Observational retrospective: Hladunewich, 2014[31]	2 and 3	Toronto PreKid 2000 to 2013	Patient registries NR	NR Urban	The Toronto Pregnancy and Kidney Disease (PreKid) Clinic and Registry and American Registry for Pregnancy in Dialysis Patients (ARPD)
Observational retrospective: Johansen, 2009[32]	2 2 and 3	NR 1997-2006	NR Home (intervention) In center (control/usual care)	NA	USRDS database

Study design: Author, year	KQ	Study name Recruitment period	Number of study center Dialysis location	Clinic type Clinic location	Datasource
Observational retrospective: Lockridge, 2011[33]	2 and 3	NR 1997 to 2009	Single-center Home	NR NR	Lynchburg dialysis electronic database; The cause of renal disease, comorbid conditions, and primary and secondary causes of death were obtained from the 2728 and 2746 forms of the Centers for Medicare and Medicaid Services; Comparison group - USRDS data
Observational retrospective: Mathew, 2016[34]	2	NR 2007 to 2011	Multi-center In-center	For-profit NR	NR
Observational retrospective: Miller, 2010[35]	3	NR 2001 to 2006	Multi-center In-center	For-profit NR	The original 5-year (July 2001-June 2006) ational database of all DaVita HD
Observational retrospective: Nesrallah, 2012[36]	2 and 3	NR 2000 to 2010	Multi-center network Home and In-center	NR NR	The International Quotidian Dialysis Registry
Observational retrospective: Rivara, 2016[37]	3	NR 2007 to 2011	Multi-center In-center	For-profit NR	Davita dialysis facility electronic medical records
Observational retrospective: Weinhandl, 2012[38]	2	NR 2005 to 2007	National registry data (NxStage and USRDS) Home and In-center	NR NR	Registry of NxStage System One users and USRDS database
Observational retrospective: Weinhandl, 2015[39]	2	NR 2006 thru 2007 (era 1) 2008 thru 2009 (erra 2)	NR Home (NxStage) In-center (USRDS)	NR NR	NxStage Registry system USRDS Database

*This is the main study. Subsequent sub-articles are cited

ArMORR=Accelerated Mortality on Renal Replacement cohort; ARPD=American Registry for Pregnancy in Dialysis Patients; FHN=Frequent Hemodialysis Network trials; KQ=Key Question; RCT = randomized controlled trial; NR=not reported; Toronto PreKid=Toronto Pregnancy and Kidney Disease Clinic; TiME=Time to Reduce Mortality in ESRD; USRDS=United States Renal Data System

Evidence Table 2. Inclusion criteria for studies comparing frequency and duration of hemodialysis in non-institutionalized patients

Study design: Author, year	KQ	Study name	Inclusion: Gender	Inclusion: Age (years)	Inclusion: Language	Inclusion: Ethnicity	Dialysis	Other inclusion criteria
Non-randomized clinical trial: Ayus, 2005[1]	2 and 3	NR	Not listed as an inclusion criterion	Not listed as an inclusion criterion	not listed as an inclusion criterion	not listed as an inclusion criterion	not listed as an inclusion criterion	Willingness to participate in the short daily hemodialysis program
Non-randomized clinical trial: Achinger, 2013[2]	2 and 3	NR	Not listed as an inclusion criterion	Not listed as an inclusion criterion	not listed as an inclusion criterion	not listed as an inclusion criterion	not listed as an inclusion criterion	Willingness to participate in the short hemodialysis program
RCT: Chertow, 2010*[3-22]	2	FHN-Daily	Not listed as an inclusion criterion	> 13	English or Spanish	not listed as an inclusion criterion	Prevalent	-Achieved mean eKt/V > 1.0 for last two baseline hemodialysis sessions -Weight > 30 kg -Mentalyl competent and willing to follow the study protocol -Able and willing to provide informed consent -Does not require HD >3 times per week due to medical comorbidity -Not pregnant or actively planning to become pregnant in the next 12 months -No History of poor adherence thrice weekly HD -Ability to come for in-center HD 6 days per week -No Expected geographic unavailability at a participating HD unit for >2 consecutive weeks or >4 weeks total during the next 14 months (excluding unavailability due to hospitalizations) -Not in an acute or chronic care hospital -No contraindication to heparin -No expectation that native kidneys will recover -Residual renal clearance <3ml/min per 35 L -Not currently on daily or nocturnal HD -If previously on daily/nocturnal HD, >3 months since subject discontinued daily/nocturnal HD -If received transplant, >= 3 months since patient returned to HD after acute rejection resulting in allograft failure -No current use of investigational drugs or participation in another clinical trial that contradicts or interferes with the trial methods/outcomes -Not scheduled living donor kidney transplant, change to peritoneal dialysis, or plans to relocate to a non-study center within next 14 months

Study design: Author, year	KQ	Study name	Inclusion: Gender	Inclusion: Age (years)	Inclusion: Language	Inclusion: Ethnicity	Dialysis	Other inclusion criteria
RCT: Chertow, 2010*[3-22] (continued)								-Life expectancy > 6 months -No medical history that might limit patient's ability to take trial treatments and complete 12 month study duration, including: receiving chemo or radiotherapy for a malignant neoplastic disease other than localized non-melanoma skin cancer, active systemic infection (including tuberculosis, disseminated fungal infection, active AIDS but not HIV), cirrhosis with encephalopathy -No medical conditions that would prevent performing the cardiac MRI procedure (e.g., inability to remain still for the procedure, a metallic object in the body, including cardiac pacemaker, inner ear (cochlear) implant, brain aneurysm clips, mechanical heart valves, recently placed artificial joints, and older vascular stents) -Tunneled catheter for HD vascular access
RCT: Rocco, 2011*[4-25]	2 and 3	FHN-Nocturnal	Not listed as an inclusion criterion	> 18	English or Spanish	not listed as an inclusion criterion	Prevalent	-ESRD requiring chronic renal replacement therapy - Achieved mean eKt/V > 1.0 for last two baseline hemodialysis sessions -Willing to perform hemodialysis at home -Able and willing to follow the study protocol -Able and willing to provide informed consent or sign the Institutional Review Board-approved consent form -No requirement for hemodialysis more than three times per week due to medical comorbidity -Not pregnant, or planning to become pregnant within the next 12 months -No history of non-compliance with hemodialysis or peritoneal dialysis treatments in the past -Able to follow the nocturnal home hemodialysis training protocol -No expected geographic unavailability at a participating HD unit or at home for >2 consecutive weeks or >5 weeks total during the next 12 months -Not currently in an acute or chronic care hospital -No contraindication to heparin -No expectation that native kidneys will recover kidney function - Glomerular filtration rate<10 ml/min per 1.73m2 as measured by the average of urea and creatinine clearances from urine collection obtained over at least 24 hours

Study design: Author, year	KQ	Study name	Inclusion: Gender	Inclusion: Age (years)	Inclusion: Language	Inclusion: Ethnicity	Dialysis	Other inclusion criteria
RCT: Rocco, 2011*[4-25] (continued)								-Not on nocturnal HD, or > than 3 months since the patient discontinued daily or nocturnal HD ->3 months since patient returned to HD after rejection resulting in allograft failure from a kidney transplant -No current use of investigational drugs or participation in another clinical trial that contradicts or interferes with the therapies or measured outcomes in this trial -Not scheduled for living donor kidney transplant, change to peritoneal dialysis, or plans to relocate to a non-study center within the next 12 months - Life expectance> 6 months -No medical history that might limit the individual's ability to take the trial treatments for the 12 month duration of the study - Medical conditions that would prevent the patient from performing the cardiac MRI procedure -Able to communicate verbally in English or Spanish -Vascular access is not a temporary non-tunneled catheter
RCT: Dember, 2019[26]	3	TiME	Not listed as an inclusion criterion	> 18	not listed as an inclusion criterion	not listed as an inclusion criterion	Prevalent; Duration: at least 120 days	-Treatment with thrice-weekly in-center hemodialysis -Initiation of dialysis within the previous 120 days -No health care proxy used to provide consent for dialysis treatment -Willing to have clinical data included in dataset
Observational prospective: Brunelli, 2010[27]	3	ArMORR cohort	Not listed as an inclusion criterion	> 18	not listed as an inclusion criterion	not listed as an inclusion criterion	not listed as an inclusion criterion	-Patients who survived until the start of at-risk time (dialysis day 31) -Sufficient covariate data for analysis
Observational prospective: Lacson, 2012[28]	3	NR	Not listed as an inclusion criterion	Not listed as an inclusion criterion	not listed as an inclusion criterion	not listed as an inclusion criterion	not listed as an inclusion criterion	-All consecutive patients initiating 5.5-hour INHD for the first time from 77 FMCNA facilities between January 1, 2006 and December 31 -CHD patients from up to 288 facilities within the surrounding geographic area that were active on January 1, 2007
Observational prospective: Troidle, 2007[29]	3	NR	Not listed as an inclusion criterion	Not listed as an inclusion criterion	not listed as an inclusion criterion	not listed as an inclusion criterion	Prevalent	-Patients able to provide their own consent -Preference for inclusion for patients with difficulty achieving an adequate Kt/V urea, had large intradialytic weight gains with hemodynamic instability, or difficulty achieving ideal dry weight
Observational retrospective: Brunelli, 2016[30]	2	NR	Not listed as an inclusion criterion	> 18	not listed as an inclusion criterion	not listed as an inclusion criterion	not listed as an inclusion criterion	-HHD for >=30 days between Jan 2009 and June 30, 2010. -Included from first full month in which they received HHD (month 0)

Study design: Author, year	KQ	Study name	Inclusion: Gender	Inclusion: Age (years)	Inclusion: Language	Inclusion: Ethnicity	Dialysis	Other inclusion criteria
Observational retrospective: Hladunewich, 2014[31]	2 and 3	Toronto PreKid	Female	Not listed as an inclusion criterion	not listed as an inclusion criterion	not listed as an inclusion criterion	Incident or Prevalent	Toronto Pre-Kid Cohort -All young women with ESRD who conceived on hemodialysis or required hemodialysis during pregnancy for CKD progressing to ESRD -No therapeutic terminations -No peripartum AKI who recovered enough function to come off hemodialysis in the postpartum period ARPD comparison group - Pregnancy cases after 1990 -No therapeutic terminations -Known dialysis hours/week and pregnancy outcomes with known gestational age or birth weight
Observational retrospective: Johansen, 2009[32]	2 2 and 3	NR	NR	NR	NR	NR	NR	Patients on nocturnal HD, or short daily HD for at least 60 days
Observational retrospective: Lockridge, 2011[33]	2 and 3	NR	Not listed as an inclusion criterion	Not listed as an inclusion criterion	not listed as an inclusion criterion	not listed as an inclusion criterion	Incident or Prevalent; Duration:	-No heparin allergy, active drug and alcohol addiction, or severe mental illness
Observational retrospective: Mathew, 2016[34]	2	NR	Not listed as an inclusion criterion	> 18	not listed as an inclusion criterion	not listed as an inclusion criterion	Incident	-Have not received peritoneal dialysis, home HD, or nocturnal HD -Had available ICD-9 codes and laboratory data during first quarter of dialysis before starting less frequent or frequent HD
Observational retrospective: Miller, 2010[35]	3	NR	Not listed as an inclusion criterion	Not listed as an inclusion criterion	not listed as an inclusion criterion	not listed as an inclusion criterion	not listed as an inclusion criterion	None
Observational retrospective: Nesrallah, 2012[36]	2 and 3	NR	Not listed as an inclusion criterion	> 18 to < 80; Other	not listed as an inclusion criterion	not listed as an inclusion criterion	not listed as an inclusion criterion	-No known or suspected dementia -Followup death status ascertainment -No missing ESRD start date -No missing data on the following comorbid conditions: diabetes, myocardial infarction, congestive heart failure, peripheral vascular disease, cerebrovascular disease, or cancer
Observational retrospective: Rivara, 2016[37]	3	NR	Not listed as an inclusion criterion	> 18	not listed as an inclusion criterion	not listed as an inclusion criterion	Incident or Prevalent	-> 60 days total dialysis treatment -Patients with a dialysis treatment session at a participating facility within 91 days of ESRD incidence -Race data available
Observational retrospective: Weinhandl, 2012[38]	2	NR	Not listed as an inclusion criterion	Not listed as an inclusion criterion	not listed as an inclusion criterion	not listed as an inclusion criterion	not listed as an inclusion criterion	-Patients whose NxStage registry information could be linked to USRDS data -DHHD patients with five or six prescribed dialysis sessions per week with Medicare primary payer status during the 3 months preceding NxStage System One use initiation or beginning renal replacement therapy during the 6 months preceding use initiation -Thrice-weekly in-center patients treated with in-center hemodialysis between 2005-2007

Study design: Author, year	KQ	Study name	Inclusion: Gender	Inclusion: Age (years)	Inclusion: Language	Inclusion: Ethnicity	Dialysis	Other inclusion criteria
Observational retrospective: Weinhandl, 2015[39]	2	NR	Not listed as an inclusion criterion	Not listed as an inclusion criterion	not listed as an inclusion criterion	not listed as an inclusion criterion	not listed as an inclusion criterion	5 or 6 prescribed dialysis sessions per week Medicare as primary payer on and during the 3 months preceding the date of daily HHD initiation

AIDS=Acquired Immunodeficiency Syndrome; AKI=acute kidney injury; ArMORR= Accelerated Mortality on Renal Replacement; ARPD= American Registry for Pregnancy in Dialysis Patients; CHD=conventional hemodialysis; CKD=chronic kidney disease; DHHD=Daily home hemodialysis; eKt/V=Equilibrated Kt/V (urea clearance); ESRD=End-stage renal disease; FHN=Frequent Hemodialysis Network trials; FMCNA=Fresenius Medical Care North America; HD=hemodialysis; HHD=home hemodialysis; HIV=Human Immunodeficiency Virus; ICD-9= International Classification of Diseases, 9th Revision; INHD=In-center nocturnal hemodialysis; kg=kilograms; KQ=key question; Kt/V= Urea clearance; L=liters; MRI=magnetic resonance imaging; NR=not reported; RCT = randomized controlled trial; TiME=Time to Reduce Mortality in ESRD; Toronto Pre-Kid=Toronto Pregnancy and Kidney Disease Clinic; USRDS= United States Renal Data System

Evidence Table 3. Interventions for studies comparing frequency and duration of hemodialysis in non-institutionalized patients

Author, year Study name	KQ	Arm	Intervention	Comments
Clinically controlled trial: Ayus, 2005[1] NR	2 and 3	1	Goal frequency per week: 3 Actual frequency per week: 3 Goal duration: 4 Hours/session Actual duration: 4 Hours/session	
Clinically controlled trial: Ayus, 2005[1] NR	2 and 3	2	Goal frequency per week: 6 Actual frequency per week: 6 Goal duration: 3 Hours/session Actual duration: 3 Hours/session	
Clinically controlled trial: Achinger, 2013[2]	2 and 3	1	Goal frequency per week: 3 Actual frequency per week: 3 Goal duration: 4 Hours/session Actual duration: 4 Hours/session	
Clinically controlled trial: Achinger, 2013[2]	2 and 3	2	Goal frequency per week: 6 Actual frequency per week: 6 Goal duration: 3 Hours/session Actual duration: 3 Hours/session	
RCT: Chertow, 2010*[3-22] FHN-Daily	2	1	Goal frequency per week: 3 Actual frequency per week: 2.88 Goal duration: 2.5 to 4 Hours/session Actual duration: 10.4 +/-1.6 Hours/week, Minutes/session 213 +/- 28	
RCT: Chertow, 2010*[3-22] FHN-Daily	2	2	Goal frequency per week: 6 Actual frequency per week: 5.17 Goal duration: 1.5 to 2.75 Hours/session Actual duration: 12.7 +/- 2.2 Hours/week, 154 +/-25 Minutes/session	
RCT: Rocco, 2011[4-25] FHN-Nocturnal	2 and 3	1	Goal frequency per week: 3 Actual frequency per week: 2.91 ± 0.21 Goal duration: <5 Hours/session Actual duration: 12. 6± 3.9 Hours/week, 256±65 Minutes/session	Percent of expected treatments: 3x vs. 6x: >80%: 97.6 vs. 72.7 <65–80%: 0 vs. 13.6 <65%: 2.4 vs. 13.6
RCT: Rocco, 2011[4-25] FHN-Nocturnal	2 and 3	2	Goal frequency per week: 6 Actual frequency per week: 5.06 ± 0.80 Goal duration: >=6 Hours/session Actual duration: 30.8 ± 9.1 Hours/week, 379 ± 62 Minutes/session	Percent of expected treatments: 3x vs. 6x: >80%: 97.6 vs. 72.7 <65–80%: 0 vs. 13.6 <65%: 2.4 vs. 13.6
RCT: Dember, 2019[26] TiME	3	1	Goal frequency per week: 3 Actual frequency per week: NR Goal duration: 3.5 Hours/session Actual duration: Majority session length >210 minutes over duration of 3 years	Actual session duration in figure 2d and supplemental figure 2d

Author, year Study name	KQ	Arm	Intervention	Comments
RCT: Dember, 2019[26] TiME	3	1	Goal frequency per week: 3 Actual frequency per week: NR Goal duration: 3.5 Hours/week Actual duration: 207 Minutes/session	Actual duration included in figure 2C and supplemental figure 2c. "We anticipated average session 3.5 hours."
RCT: Dember, 2019[26] TiME	3	2	Goal frequency per week: 3 Actual frequency per week: NR Goal duration: >/=4.25 Hours/session Actual duration: Small proportion >= 4.25 hours per week consistently	Actual session duration in figure 2d and supplemental figure 2d; If the treating nephrologist felt that the 4.25 hour duration was not appropriate for an individual patient, shorter treatments could be prescribed with the goal of achieving session durations as close to 4.25 hours as possible.
RCT: Dember, 2019[26] TiME	3	2	Goal frequency per week: 3 Actual frequency per week: NR Goal duration: >=4.25 Hours/week Actual duration: 216Minutes/session	actual duration included in figure 2C and supplemental figure 2c
Observational prospective: Brunelli, 2010[27] ArMORR cohort	3	1	Goal frequency per week: 3 Actual frequency per week: NR Goal duration: NR Actual duration: 181 to 239 Minutes/session	Study divided observationally cohort into 3 categories for analysis of duration Overall mean of 225 minutes/session in cohort
Observational prospective: Brunelli, 2010[27] ArMORR cohort	3	2	Goal frequency per week: 3 Actual frequency per week: NR Goal duration: Other: NR Actual duration: <=180 Minutes/session	Study divided observationally cohort into 3 categories for analysis of duration Overall mean of 225 minutes/session in cohort
Observational prospective: Brunelli, 2010[27] ArMORR cohort	3	3	Goal frequency per week: 3 Actual frequency per week: NR Goal duration: Other: NR Actual duration: >=240 Minutes/session	Study divided observationally cohort into 3 categories for analysis of duration Overall mean of 225 minutes/session in cohort
Observational prospective: Lacson, 2012[28] NR	3	1	Goal frequency per week: 3 Actual frequency per week: Goal duration: NR Actual duration: 3.75 Hours/session	Deleted minutes/session as this data is from 726 patients subset (of 746 in the nocturnal trial group) who had a chronic dialysis prescription previously, not arm 1 vs arm 2
Observational prospective: Lacson, 2012[28] NR	3	2	Goal frequency per week: 3 Actual frequency per week: Goal duration: >5.5 Hours/session Actual duration: 7.85 Hours/session	Deleted minutes/session as this data is from 726 patients subset (of 746 in the nocturnal trial group) who had a chronic dialysis prescription previously, not arm 1 vs arm 2
Observational prospective: Troidle, 2007[29] NR	3	2	Goal frequency per week: 3 Actual frequency per week: 3 Goal duration: 8 Hours/session Actual duration: 3.85 +/- 0.45 Hours/session	

Author, year Study name	KQ	Arm	Intervention	Comments
Observational retrospective: Brunelli, 2016[30] NR	2	1	Goal frequency per week: >=5 Actual frequency per week: 4.1 to 4.9 Goal duration: Actual duration: 14.4 (13.3-15.5) Hours/week, 3.0 (2.7-3.2) Hours/session	Treatments per week included in figure 1a
		2	Goal frequency per week: >=3 Actual frequency per week: NA (see Figure 1) Goal duration: Actual duration: 13.9 (12.8-15.0) Hours/week, 4.1 (3.8-4.4) Hours/session	Treatments per week included in figure 1a
Observational retrospective: Hladunewich, 2014[31] Toronto PreKid	2 and 3	1	Goal frequency per week: Actual frequency per week: Goal duration: Actual duration: 0 to 20 Hours/week	Article describes differences in Toronto vs. US cohort. However, only focused on combined cohort analysis comparing pregnancy outcomes by dialysis intensity. Among women with established ESRD
Observational retrospective: Hladunewich, 2014[31] Toronto PreKid	2 and 3	2	Goal frequency per week: Actual frequency per week: Goal duration: Actual duration: 21 to 36 Hours/week	Article describes differences in Toronto vs. US cohort. However, only focused on combined cohort analysis comparing pregnancy outcomes by dialysis intensity. Among women with established ESRD
Observational retrospective: Hladunewich, 2014[31] Toronto PreKid	2 and 3	3	Goal frequency per week: Actual frequency per week: Goal duration: Actual duration: 37 to 56 Hours/week	Article describes differences in Toronto vs. US cohort. However, only focused on combined cohort analysis comparing pregnancy outcomes by dialysis intensity. Among women with established ESRD
Observational retrospective: Johansen, 2009[32]	NA	1	Goal frequency: 3 days per week Actual frequency (mean) 3.5 days per week Actual duration (mean): 3 hours per session	
Observational retrospective: Johansen, 2009[32]	2 and 3	2	Goal frequency: 5-6 days per week Actual frequency (mean): 5.7 days per week Actual duration (mean): 7.5 hours per session	
Observational retrospective: Johansen, 2009[32]	2	3	Goal frequency: 5-6 days per week Actual Frequency (mean): 5.4 days per week Actual duration (mean): 2.9 hours per session	
Observational retrospective: Lockridge, 2011[33] NR	2 and 3	1	Goal frequency per week: 3 Actual frequency per week: Goal duration: Actual duration:	
Observational retrospective: Lockridge, 2011[33] NR	2 and 3	2	Goal frequency per week: Actual frequency per week: Goal duration: Actual duration: 40 Hours/week, 7 Hours/session	

Author, year Study name	KQ	Arm	Intervention	Comments
Observational retrospective: Mathew, 2016[34] NR	2	1	Goal frequency per week: 3 Actual frequency per week: Goal duration: Actual duration:	
Observational retrospective: Mathew, 2016[34] NR	2	2	Goal frequency per week: <=2 Actual frequency per week: Goal duration: Actual duration:	
Observational retrospective: Mathew, 2016[34] NR	2	3	Goal frequency per week: >=4 Actual frequency per week: Goal duration: Actual duration:	
Observational retrospective: Miller, 2010[35] NR	3	1	Goal frequency per week: Actual frequency per week: 3 Goal duration: Actual duration: <3 Hours/session	
Observational retrospective: Miller, 2010[35] NR	3	2	Goal frequency per week: Actual frequency per week: 3 Goal duration: Actual duration: 3-<3.5 Hours/session	
Observational retrospective: Miller, 2010[35] NR	3	3	Goal frequency per week: Actual frequency per week: 3 Goal duration: Actual duration: 3.5 <4 Hours/session	
Observational retrospective: Miller, 2010[35] NR	3	4	Goal frequency per week: Actual frequency per week: 3 Goal duration: Actual duration: >=4 Hours/session	
Observational retrospective: Nesrallah, 2012[36] NR	2 and 3	1	Goal frequency per week: 3 Actual frequency per week: 3 Goal duration: <5.5 Hours/session Actual duration: 3.9 Hours/session, Minutes/session 236	No patient receiving conventional dialysis switched dialysis modality, whereas 48 intensive dialysis patients switched to conventional in-center hemodialysis. Nineteen patients on intensive hemodialysis relocated to a new dialysis facility, but were confirmed alive 90 days after transfer. No patients on conventional hemodialysis relocated.
Observational retrospective: Nesrallah, 2012[36] NR	2 and 3	2	Goal frequency per week: 3 to 7 Actual frequency per week: 4.8 Goal duration: >5.5 Hours/session Actual duration: 7.4 Hours/session441Minutes/session	No patient receiving conventional dialysis switched dialysis modality, whereas 48 intensive dialysis patients switched to conventional in-center hemodialysis. Nineteen patients on intensive hemodialysis relocated to a new dialysis facility, but were confirmed alive 90 days after transfer. No patients on conventional hemodialysis relocated.

Author, year Study name	KQ	Arm	Intervention	Comments
Observational retrospective: Rivara, 2016[37] NR	3	1	Goal frequency per week: 3 Actual frequency per week: 2.9 Goal duration: Actual duration: 211 Minutes/session	
Observational retrospective: Rivara, 2016[37] NR	3	2	Goal frequency per week: 3 Actual frequency per week: 2.8 Goal duration: Actual duration: 399 Minutes/session	
Observational retrospective: Weinhandl, 2012[38] NR	2	1	Goal frequency per week: Daily-Home Actual frequency per week: 5 or 6 Goal duration: Actual duration:	
Observational retrospective: Weinhandl, 2012[38] NR	2	2	Goal frequency per week: Matched In-Center Actual frequency per week: Thrice-weekly in-Center Goal duration: Actual duration:	Identified 5 in-center dialysis patients with matching characteristics (i.e., index date of the DHHD patient; Medicare vs. non-Medicare primary payer; age, cumulative hospital days; cumulative EPO, BMI, transplant waitlist registration, CHF, ESRD duration, race, cancer, primary ESRD cause, Cerebrovascular disease, PVD, other CVD, diabetes, atherosclerotic heart disease, sex, dual Medicare/Medicaid eligibility
Observational retrospective: Weinhandl, 2012[38] NR	2	3	Goal frequency per week: Thrice-weekly In-Center Actual frequency per week: Thrice-weekly In-Center Goal duration: Actual duration:	All in-center patients considered to be thrice-weekly
Observational retrospective: Weinhandl, 2015[39]	2	1	In-center hemodialysis: 3 sessions per week	Limited information is provided for the 2 arms
Observational retrospective: Weinhandl, 2015[39]	2	2	Daily Home hemodialysis: 5-6 sessions per week	

ArMORR= Accelerated Mortality on Renal Replacement; BMI=body mass index; CHF=congestive heart failure; CVD=cerebrovascular disease; DHHD=Daily home hemodialysis; EPO=erythropoietin; ESRD=End-stage renal disease; FHN=Frequent Hemodialysis Network trials; KQ=key question; NR=not reported; PVD=peripheral vascular disease; RCT = randomized controlled trialTiME=Time to Reduce Mortality in ESRD; Toronto Pre-Kid=Toronto Pregnancy and Kidney Disease Clinic

Evidence Table 4. Population characteristics of studies comparing frequency and duration of hemodialysis in non-institutionalized patients

Study design: Author, year Study name	KQ	Arm Description	Arm N	Followup	Women N (%)	Age	Race N (%)	Education N (%)	Smoking N (%)
Clinically controlled trial: Ayus, 2005[1] NR	2 and 3	All Arms	77	12 months	NR	NR	NR	NR	NR
Clinically controlled trial: Ayus, 2005[1] NR	2 and 3	Arm 1: CHD	51	12 months	(33)	Mean: 54	White: (0); Black: (6); Latino: (92); Other: (2)	NR	Ever: (45.1)
Clinically controlled trial: Achinger, 2013[2]	2 and 3	Arm 2: SDHD	26	12 months	(35)	Mean: 51	White: (4); Black: (4); Latino: (92); Other: (0)	NR	Ever: (42.3)
Clinically controlled trial: Achinger, 2013[2]	2 and 3	All arms	77	Up to 48 months	(33.8)	NR	White: 1.3; Black: 5.; Latino: 92.2, Asian/PI: NR; Native American: NR; Other: 1.3; Unknown: NR	NR	NR
Clinically controlled trial: Ayus, 2005[1] NR	2 and 3	Arm 1: CHD	51	Up to 48 months	(33)	NR	White: (0); Black: (6); Latino: (92); Other: (2)	NR	NR
Clinically controlled trial: Ayus, 2005[1] NR	2 and 3	Arm 2: SDHD	26	Up to 48 months	(35)	NR	White: (4); Black: (4); Latino: (92); Other: (0)	NR	NR
RCT: Chan, 2012[15] FHN	2-3	All Daily and Nocturnal Arms	332	12 months	124	NR	White: 137; Black: 125; Latino: 69; Asian/PI: 32; American Indian/Alaska Native: 11; Other/mixed/unknown: 27	NR	NR
RCT: Chan, 2012[15] FHN	2-3	Arm 1: Daily - Conventional	120	12 months	47 (39.2)	Mean: 52	White: 46 (38.3); Black: 53 (44.2); Latino: 31 (26); Asian/PI: 8 (6.7); American Indian/Alaska Native: 4 (3.3); Other/mixed/unknown: 9 (7.5)	NR	NR
RCT: Chan, 2012[15] FHN	2-3	Arm 2: Daily - Intervention	125	12 months	47 (37.6)	Mean: 48.9	White: 43 (34.4); Black: 49 (39.2); Latino: 38 (30); Asian/PI: 12 (9.6); American Indian/Alaska Native: 4 (3.2); Other/mixed/unknown: 17 (13.6)	NR	NR
RCT: Chan, 2012[15] FHN	2-3	Arm 3: Nocturnal - Conventional	42	12 months	14 (33.3)	Mean: 54	White: 21 (50); Black: 11 (26.2); Latino: 0 (0); Asian/PI: 7 (16.7); American Indian/Alaska Native: 2 (4.8); Other/mixed/unknown: 1 (2.4)	NR	NR
RCT: Chan, 2012[15] FHN	2-3	Arm 4: Nocturnal - Intervention	45	12 months	16 (35.6)	Mean: 51.7	White: 27 (60); Black: 12 (26.7); Latino: 0 (0); Asian/PI: 5 (11.1); American Indian/Alaska Native: 1 (2.2); Other/mixed/unknown: 0 (0)	NR	NR

Study design: Author, year Study name	KQ	Arm Description	Arm N	Followup	Women N (%)	Age	Race N (%)	Education N (%)	Smoking N (%)
RCT: Chan, 2012[15] FHN	2-3	All Arms	332	12 months	NR	NR	NR	NR	NR
RCT: Chan, 2012[15] FHN	2-3	Arm 1: Daily trial 3x : Conventional (>=2.5hrs per session)	120	12 months	47 (39.2)	Mean: 52	White: 46 (38.3); Black: 53 (44.2); Latino: 31 (26); Asian/PI: 8 (6.7); American Indian/Alaska Native: 4 (3.3); Other/mixed/unknown: 9 (7.5)	NR	NR
RCT: Chan, 2012[15] FHN	2-3	Arm 2: Daily trial 6x per week : (1.5-2.75 hrs per session)	125	12 months	47 (37.6)	Mean: 48.9	White: 43 (34.4); Black: 49 (39.2); Latino: 38 (30); Asian/PI: 12 (9.6); American Indian/Alaska Native: 4 (3.2); Other/mixed/unknown: 17 (13.6)	NR	NR
RCT: Chan, 2012[15] FHN	2-3	Arm 3: Nocturnal trial 3x per week: Conventional (>=2.5hrs per session)	42	12 months	14 (33.3)	Mean: 54	White: 21 (50); Black: 11 (26.2); Latino: 0 (0); Asian/PI: 7 (16.7); American Indian/Alaska Native: 2 (4.8); Other/mixed/unknown: 1 (2.4)	NR	NR
RCT: Chan, 2012[15] FHN	2-3	Arm 4: Nocturnal trial 6x per week: >=6hrs per session	45	12 months	16 (35.6)	Mean: 51.7	White: 27 (60); Black: 12 (26.7); Latino: 0 (0); Asian/PI: 5 (11.1); American Indian/Alaska Native: 1 (2.2); Other/mixed/unknown: 0 (0)	NR	NR
RCT: Daugirdas, 2012[14] FHN	2-3	Nocturnal Trial: All Arms	87	12 months	NR	NR	NR	NR	NR
RCT: Daugirdas, 2012[14] FHN	2-3	Arm 1: 3 Sessions per Week	42	12 months	14 (33.3)	Mean: 54	White: 21 (50); Black: 11 (26); Other/mixed: 10 (24)	NR	NR
RCT: Daugirdas, 2012[14] FHN	2-3	Arm 2: 6 Sessions per Week	45	12 months	16 (35.6)	Mean: 51.7	White: 27 (60); Black: 12 (27); Other/mixed: 6 (13)	NR	NR
RCT: Daugirdas, 2012[14] FHN	2-3	Daily Trial: All Arms	245	12 months	NR	NR	NR	NR	NR
RCT: Daugirdas, 2012[14] FHN	2-3	Arm 1: 3 sessions per week	120	12 months	47 (39.2)	Mean: 52	White: 46 (38); Black: 53 (44); Other/mixed: 21 (18)	NR	NR

Study design: Author, year Study name	KQ	Arm Description	Arm N	Followup	Women N (%)	Age	Race N (%)	Education N (%)	Smoking N (%)
RCT: Daugirdas, 2012[14] FHN	2-3	Arm 2: 6 sessions per week	125	12 months	47 (37.6)	Mean: 48.9	White: 43 (34); Black: 49 (39); Other/mixed: 33 (26)	NR	NR
RCT: Daugirdas, 2012[14] FHN	2-3	Arm 3: No urine output (3x and 6x)	24		10 (41.7)	Mean: 51.7	NR	NR	NR
RCT: Daugirdas, 2012[14] FHN	2-3	Arm 1: 3X (urine volume>0)	31		9 (29)	Mean: 54.4	NR	NR	NR
RCT: Daugirdas, 2012[14] FHN	2-3	Arm 2: 6X (urine volume>0)	32		11 (34.4)	Mean: 52.2	NR	NR	NR
RCT: Daugirdas, 2012[14] FHN	2-3	Arm 3: no urine output	162		67 (41.4)	Mean: 49.2	NR	NR	NR
RCT: Daugirdas, 2012[14] FHN	2-3	Arm 1: 3X (urine volume>0)	48		15 (31.3)	Mean: 54.7	NR	NR	NR
RCT: Daugirdas, 2012[14] FHN	2-3	Arm 2: 6X (urine volume>0)	35		12 (34.3)	Mean: 50	NR	NR	NR
RCT: Daugirdas, 2013[10] FHN	2-3	All Arms		12 months	NR	NR	NR	NR	NR
RCT: Daugirdas, 2013[10] FHN	2-3	Arm 1: Conventional - Daily (3x weekly)	48	12 months	15 (31.3)	Mean: 54.7	NR	NR	NR
RCT: Daugirdas, 2013[10] FHN	2-3	Arm 2: Daily (6x weekly)	35	12 months	12 (34.3)	Mean: 50	NR	NR	NR

Study design: Author, year Study name	KQ	Arm Description	Arm N	Followup	Women N (%)	Age	Race N (%)	Education N (%)	Smoking N (%)
RCT: Daugirdas, 2013[10] FHN	2-3	Arm 3: Conventional - Nocturnal (3x weekly)	31	12 months	9 (29.0)	Mean: 54.4	NR	NR	NR
RCT: Daugirdas, 2013[10] FHN	2-3	Arm 4: Nocturnal (6x weekly)	32	12 months	11 (34.4)	Mean: 52.2	NR	NR	NR
RCT: Garg, 2017[16] FHN	2-3	All Arms	245	12 months	94 (38.4)	Mean: 50.4; Median: 50	Black: 102 (41.6)	Completed high school or less: 109 (45.1)	NR
RCT: Garg, 2017[16] FHN	2-3	Arm 1: 3 times/wk	120	12 months	47 (39.2)	Mean: 52; Median: 52	Black: 53 (44.2)	Completed high school or less: 53 (44.5)	NR
RCT: Garg, 2017[16] FHN	2-3	Arm 2: 6 times/wk	125	12 months	47 (37.6)	Mean: 48.9; Median: 47	Black: 49 (39.2)	Completed high school or less: 56 (45.5)	NR
RCT: Garg, 2017[16] FHN	2-3	All Arms	87	12 months	30 (34.5)	Mean: 52.8; Median: 54	Black: 23 (26.4)	Completed high school or less: 34 (39.5)	NR
RCT: Garg, 2017[16] FHN	2-3	Arm 1: 3 times/wk	42	12 months	14 (33.3)	Mean: 54; Median: 54	Black: 11 (26.2)	Completed high school or less: 14 (33.3)	NR
RCT: Garg, 2017[16] FHN	2-3	Arm 2: 6 times/wk	45	12 months	16 (35.6)	Mean: 51.7; Median: 53	Black: 12 (26.7)	Completed high school or less: 20 (45.5)	NR
Hall, 2012[19] FHN	2-3	FHN: All Arms	332	12 months	NR	NR	NR	NR	NR
		Arm 1: Nocturnal group: conventional 3x dialysis	42	12 months	(67)	Mean: 54	White: (50); Black: (26); Latino: (NR); Asian/PI: (22); American Indian/Alaska Native: (2); Other/mixed: (0)	NR	NR
		Arm 2: Nocturnal group: frequent dialysis >= 6x	45	12 months	(64)	Mean: 52	White: (60); Black: (27); Asian/PI: (13); American Indian/Alaska Native: (0); Other/mixed: (0)	NR	NR
		Arm 3: Daily Trial: 3x conventional dialysis	120	12 months	(61)	Mean: 52	White: (38); Black: (44); Asian/PI: (7); American Indian/Alaska Native: (3); Other/mixed: (8)	NR	NR
		Arm 4: Daily Trial: 6x frequent dialysis	125	12 months	(62)	Mean: 49	White: (34); Black: (39); Asian/PI: (10); American Indian/Alaska Native: (3); Other/mixed: (14)	NR	NR

Study design: Author, year Study name	KQ	Arm Description	Arm N	Followup	Women N (%)	Age	Race N (%)	Education N (%)	Smoking N (%)
RCT: Kaysen, 2012[13] FHN	2-3	FHN: All Arms	332	12 months	124 (37.3)	Mean: 51	White: 137 (41.3); Black: 125 (37.7); Latino: 69 (20.8); Asian/PI: 28 (8.4); Unknown/Other: 23 (6.9)	NR	NR
RCT: Kaysen, 2012[13] FHN	2-3	Arm 1: 3 times - Nocturnal	42	12 months	14 (33.3)	Mean: 54	White: 21 (50); Black: 11 (26.2); Latino: 0 (0); Asian/PI: 7 (16.7); Unknown/Other: 1 (2.4)	NR	NR
RCT: Kaysen, 2012[13] FHN	2-3	Arm 2: 6 times - Nocturnal	45	12 months	16 (35.6)	Mean: 51.7	White: 27 (60); Black: 12 (26.7); Latino: 0 (0); Asian/PI: 5 (11.1); Unknown/Other: 0 (0)	NR	NR
RCT: Kaysen, 2012[13] FHN	2-3	Arm 3: 3 times - Daily	120	12 months	47 (39.2)	Mean: 52	White: 46 (38.3); Black: 53 (44.2); Latino: 31 (25.8); Asian/PI: 5 (4.2); Unknown/Other: 8 (6.7)	NR	NR
RCT: Kaysen, 2012[13] FHN	2-3	Arm 4: 6 times - Daily	125	12 months	47 (37.6)	Mean: 48.9	White: 43 (34.4); Black: 49 (39.2); Latino: 38 (30.4); Asian/PI: 11 (8.8); Unknown/Other: 14 (11.2)	NR	NR
RCT: Kotanko, 2015[7] FHN	2-3	All Arms	245	12 months	NR	NR	NR	NR	NR
RCT: Kotanko, 2015[7] FHN	2-3	Arm 1: 3x weekly	120	12 months	47 (39.2)	Mean: 52	White: 46 (38.3); Black: 53 (44.2); Latino: 31 (26); Asian/PI: 8 (6.7); American Indian/Alaska Native: 4 (3.3); Other/mixed/unknown: 9 (7.5)	NR	NR
RCT: Kotanko, 2015[7] FHN	2-3	Arm 2: 6xweekly	125	12 months	47 (37.6)	Mean: 48.9	White: 43 (34.4); Black: 49 (39.2); Latino: 38 (30); Asian/PI: 12 (9.6); American Indian/Alaska Native: 4 (3.2); Other/mixed/unknown: 17 (13.6)	NR	NR
RCT: Kotanko, 2015[7] FHN	2-3	All Arms	87	12 months	NR	NR	NR	NR	NR
RCT: Kotanko, 2015[7] FHN	2-3	Arm 1: 3x weekly	42	12 months	14 (33.3)	Mean: 54	White: 21 (50); Black: 11 (26.2); Latino: 0 (0); Asian/PI: 7 (16.7); American Indian/Alaska Native:2 (4.8); Other/mixed/unknown: 1 (2.4)	NR	NR

Study design: Author, year Study name	KQ	Arm Description	Arm N	Followup	Women N (%)	Age	Race N (%)	Education N (%)	Smoking N (%)
RCT: Kotanko, 2015[7] FHN	2-3	Arm 2: 6x weekly	45	12 months	16 (35.6)	Mean: 51.7	White: 27 (60); Black: 12 (26.7); Latino: 0 (0); Asian/PI: 6 (13.3); American Indian/Alaska Native: 0 (0); Other/mixed/unknown: 0 (0)	NR	NR
RCT: Kurella, 2013[12] FHN	2-3	All Arms	299	4 and 12 months	NR	NR	NR	NR	NR
RCT: Kurella, 2013[12] FHN	2-3	Arm 1: 3xwk (daily trial)	101	4 and 12 months	40 (39.6)	Mean: 51.9	White: 46 (38.3); Black: 53 (44.2); Latino: 31 (26); Asian/PI: 8 (6.7); American Indian/Alaska Native: 4 (3.3); Other/Mixed/Unknown: 9 (7.5)	Less than high school: 20 (20); Completed high school: 29 (29); Post high school: 51 (51)	NR
RCT: Kurella, 2013[12] FHN	2-3	Arm 2: 6xwk (daily trial)	117	4 and 12 months	45 (38.5)	Mean: 48.9	White: 43 (34.4); Black: 49 (39.2); Latino: 38 (30); Asian/PI: 12 (9.6); American Indian/Alaska Native:4 (3.2); Other/Mixed/Unknown: 17 (13.6)	Less than high school: 27 (23.5); Completed high school: 25 (21.7); Post high school: 63 (54.8)	NR
RCT: Kurella, 2013[12] FHN	2-3	Arm 3: 3xwk (nocturnal trial)	40	4 and 12 months	14 (35.0)	Mean: 54.9	White: 21 (50); Black: 11 (26.2); Latino: 0 (0); Asian/PI: 7 (16.7); American Indian/Alaska Native: 2 (4.8); Other/Mixed/Unknown: 1 (2.4)	Less than high school: 5 (12.5); Completed high school: 9 (22.5); Post high school: 26 (65)	NR
RCT: Kurella, 2013[12] FHN	2-3	Arm 4: 6xwk (nocturnal trial)	41	4 and 12 months	14 (34.1)	Mean: 51.1	White: 27 (60); Black: 12 (26.7); Latino: 0 (0); Asian/PI: 5 (11.1); American Indian/Alaska Native: 1 (2.2) Other/Mixed/Unknown: 0 (0)	Less than high school: 8 (20); Completed high school: 11 (27.5); Post high school: 21 (52.5)	NR
RCT: Lo, 2017[17] FHN	2-3	All Arms			NR	NR	NR	NR	NR
RCT: Lo, 2017[17] FHN	2-3	Arm 1: Daily 3x (conventional)	91		40 (44)	Mean: 52.1	White: 18 (20); Black: 42 (46); All others: 31 (34)	NR	NR

Study design: Author, year Study name	KQ	Arm Description	Arm N	Followup	Women N (%)	Age	Race N (%)	Education N (%)	Smoking N (%)
RCT: Lo, 2017[17] FHN	2-3	Arm 2: Daily 6x	86		28 (33)	Mean: 49.1	White: 16 (19); Black: 35 (41); All others: 35 (41)	NR	NR
RCT: Lo, 2017[17] FHN	2-3	Arm 3: Nocturnal 3x	29		10 (34)	Mean: 56.4	White: 16 (55); Black: 11 (38); All others: 2 (7)	NR	NR
RCT: Lo, 2017[17] FHN	2-3	Arm 4: Nocturnal 6 x	31		13 (42)	Mean: 52.8	White: 19 (61); Black: 11 (36); All others: 1 (3)	NR	NR
RCT: Lo, 2017[17] FHN	2-3	All Arms	195	12 months	NR	Range: <55 to >=65	NR	NR	NR
RCT: Lo, 2017[17] FHN	2-3	Arm 1: FHN Daily Trial 3x week	72	12 months	NR	Range: <55 to >=65	White: 11 (15.3); Black: 36 (50); All others: 25 (34.7)	NR	NR
RCT: Lo, 2017[17] FHN	2-3	Arm 2: FHN Daily Trial 6x week	75	12 months	NR	Range: <55 to >=65	White: 12 (16); Black: 33 (44); All others: 30 (40)	NR	NR
RCT: Lo, 2017[17] FHN	2-3	Arm 3: FHN Nocturnal Trial 3x week	25	12 months	NR	Range: <55 to >=65	White: 13 (52); Black: 10 (40); All others: 2 (8)	NR	NR
RCT: Lo, 2017[17] FHN	2-3	Arm 4: FHN Nocturnal Trial 6x week	23	12 months	NR	Range: <55 to >=65	White: 12 (52.2); Black: 11 (47.8); All others: 0 (0)	NR	NR
RCT: Molfino, 2019[4] FHN	2-3	All Arms	147	12 months	48 (33)	Mean: 50.9	NR	NR	NR
RCT: Molfino, 2019[4] FHN	2-3	Arm 1: 3 times per week, duration 2.5-4 hours	56	12 months	NR	NR	NR	NR	NR
RCT: Molfino, 2019[4] FHN	2-3	Arm 2: 6 times per week, duration 1.5-2.75 hours	62	12 months	NR	NR	NR	NR	NR
RCT: Molfino, 2019[4] FHN	2-3	All Arms	48	12 months	18 (38)	Mean: 53.8	NR	NR	NR
RCT: Molfino, 2019[4] FHN	2-3	Arm 1: 3 times per week, duration >/=2.5 hours	23	12 months	NR	NR	NR	NR	NR

Study design: Author, year Study name	KQ	Arm Description	Arm N	Followup	Women N (%)	Age	Race N (%)	Education N (%)	Smoking N (%)
RCT: Molfino, 2019[4] FHN	2-3	Arm 2: 6 times per week, duration >/= 6 hours	18	12 months	NR	NR	NR	NR	NR
RCT: Ornt, 2013[9] FHN	2-3	All Arms	332	12 months	NR	NR	NR	NR	NR
RCT: Ornt, 2013[9] FHN	2-3	Arm 1: Conventional - Daily (3x weekly)	120	12 months	47 (39.2)	Mean: 52	White: 46 (38.3); Black: 53 (44.2); Latino: 31 (26); Asian/PI: 8 (6.7); Native American, Aboriginal, Canadian: 4 (3.3); Other/mixed/unknown: 9 (7.5)	NR	NR
RCT: Ornt, 2013[9] FHN	2-3	Arm 2: Daily (6x weekly)	125	12 months	47 (37.6)	Mean: 48.9	White: 43 (34.4); Black: 49 (39.2); Latino: 38 (30); Asian/PI: 12 (9.6); Native American, Aboriginal, Canadian: 4 (3.2); Other/mixed/unknown: 17 (13.6)	NR	NR
RCT: Ornt, 2013[9] FHN	2-3	Arm 3: Conventional - Nocturnal (3x weekly)	42	12 months	NR	NR	White: 21 (50); Black: 11 (26.2); Latino: 0 (0); Asian/PI: 7 (16.7); Native American, Aboriginal, Canadian: 2 (4.8); Other/mixed/unknown: 1 (2.4)	NR	NR
RCT: Ornt, 2013[9] FHN	2-3	Arm 4: Nocturnal (6x weekly)	45	12 months	NR	NR	White: 27 (60); Black: 12 (26.7); Latino: 0 (0); Asian/PI: 5 (11.1); Native American, Aboriginal, Canadian: 1 (2.2); Other/mixed/unknown: 0 (0)	NR	NR
RCT: Raimann, 2016[6] FHN	2-3	All Arms	332	12 months	NR	NR	NR	NR	NR
RCT: Raimann, 2016[6] FHN	2-3	Arm 2: Daily - 3x/week	120	12 months	(39)	Mean: 52	Black: (47)	NR	NR
RCT: Raimann, 2016[6] FHN	2-3	Arm 3: Daily - 6x/week	125	12 months	(38)	Mean: 48.9	Black: (44)	NR	NR
RCT: Raimann, 2016[6] FHN	2-3	Arm 4: Nocturnal - 3x/week	42	12 months	(33)	Mean: 54	Black: (27)	NR	NR

Study design: Author, year Study name	KQ	Arm Description	Arm N	Followup	Women N (%)	Age	Race N (%)	Education N (%)	Smoking N (%)
RCT: Raimann, 2016[6] FHN	2-3	Arm 5: Nocturnal - 6x/week	45	12 months	(36)	Mean: 51.7	Black: (27)	NR	NR
RCT: Unruh, 2013[11] FHN	2-3	All Arms		12 months	NR	NR	NR	NR	NR
RCT: Unruh, 2013[11] FHN	2-3	Arm 1: 3x/wk HD (daily)	120	12 months	47 (39.2)	Mean: 52	White: 46 (38.3); Black: 53 (44.2); Other/mixed: 21 (17.5)	Less than high school: 21 (17.6); Completed high school: 32 (26.9); > High school: 66 (55.5)	NR
RCT: Unruh, 2013[11] FHN	2-3	Arm 2: 6x/wk HD (daily)	125	12 months	47 (37.6)	Mean: 48.9	White: 43 (34.4); Black: 49 (39.2); Other/mixed: 33 (27.4)	Less than high school: 30 (24.4); Completed high school: 26 (21.1); > High school: 67 (54.5)	NR
RCT: Unruh, 2013[11] FHN	2-3	Arm 3: 3x/wk HD (nocturnal)	42	12 months	14 (33.3)	Mean: 54	White: 21 (50); Black: 11 (26.2); Other/mixed: 10 (23.8)	Less than high school: 5 (11.9); Completed high school: 9 (21.4); > High school: 28 (66.7)	NR
RCT: Unruh, 2013[11] FHN	2-3	Arm 4: 6x/wk HD (nocturnal)	45	12 months	16 (35.6)	Mean: 51.7	White: 27 (60); Black: 12 (26.7); Other/mixed: 6 (13.3)	Less than high school: 8 (18.2); Completed high school: 12 (27.3); > High school: 24 (54.5)	NR
RCT: Unruh, 2016[18] FHN	2-3	All Arms	332	12 months	NR	NR	NR	NR	NR
RCT: Unruh, 2016[18] FHN	2-3	Arm 1: Daily Trial, 3x week	120	12 months	47 (39.2)	Mean: 52	White: 46 (38.3); Black: 53 (44.2); Other/mixed: 21 (17.5)	Less than high school: 21 (17.6); Completed high school: 32 (26.9); Post high school: 66 (55.5)	Ever: 45 (37.5)

Study design: Author, year Study name	KQ	Arm Description	Arm N	Followup	Women N (%)	Age	Race N (%)	Education N (%)	Smoking N (%)
RCT: Unruh, 2016[18] FHN	2-3	Arm 2: Daily Trial, 6x week	125	12 months	47 (37.6)	Mean: 48.9	White: 43 (34.4); Black: 49 (39.2); Other/mixed: 33 (27.4)	Less than high school: 30 (24.4); Completed high school: 26 (21.1); Post high school: 67 (54.5)	Ever: 46 (36.8)
RCT: Unruh, 2016[18] FHN	2-3	Arm 3: Nocturnal Trial, 3x week	42	12 months	14 (33.3)	Mean: 54	White: 21 (50); Black: 11 (26.2); Other/mixed: 10 (23.8)	Less than high school: 5 (11.9); Completed high school: 9 (21.4); Post high school: 28 (66.7)	Ever: 25 (59.5)
RCT: Unruh, 2016[18] FHN	2-3	Arm 4: Nocturnal Trial, 6x week	45	12 months	16 (35.6)	Mean: 51.7	White: 27 (60); Black: 12 (26.7); Other/mixed: 6 (13.3)	Less than high school: 8 (18.2); Completed high school: 12 (27.3); Post high school: 24 (54.5)	Ever: 18 (40)
RCT: Chan, 2014[22] FHN-Daily	2	All Arms	207	12 months	NR	NR	NR	NR	NR
RCT: Chan, 2014[22] FHN-Daily	2	Three time/week conventional	99	12 months	43 (43.4)	Mean: 51.4	White: 33 (33.3); Black: 46 (46.5); Latino: 22 (22.2); Native Hawaiian/PI: 2 (2); Canadian/Alaska Native/ First Nation, Asian: 5 (5.1); Native American, aboriginal: 4 (4); Other/mixed/unknown: 9 (9.1)	NR	NR
RCT: Chan, 2014[22] FHN-Daily	2	Six times/week daily	108	12 months	41 (38)	Mean: 49.0	White: 35 (32.4); Black: 45 (41.7); Latino: 32 (29.6); Native Hawaiian/PI: 1 (0.9%); Canadian/Alaska Native/First Nation/Asian: 9 (8.3); Native American, aboriginal: 3 (2.8); Other/mixed/unknown: 15 (13.9)	NR	NR
RCT: Chertow, 2010[3] FHN-Daily	2	All Arms	245	12 months	NR	NR	NR	NR	NR
RCT: Chertow, 2010[3] FHN-Daily	2	Arm 1: Conventional Hemodialysis	120	12 months	(39.2)	Mean: 52	White: (38.3); Black: (44.2); Asian/PI: (6.7); American Indian/Alaska Native: (3.3); Other/mixed: (7.5)	NR	NR

Study design: Author, year Study name	KQ	Arm Description	Arm N	Followup	Women N (%)	Age	Race N (%)	Education N (%)	Smoking N (%)
RCT: Chertow, 2010[3] FHN-Daily	2	Arm 2: Frequent Hemodialysis	125	12 months	(37.6)	Mean: 48.9	White: (34.4); Black: (39.2); Latino: NR; Asian/PI: (9.6); American Indian/Alaska Native: (3.2); Other/mixed: (13.6)	NR	NR
RCT: Chertow, 2016[21] FHN-Daily	2	All Arms	245	Median 3.6 years	NR	NR	NR	NR	NR
RCT: Chertow, 2016[21] FHN-Daily	2	Arm 1: conventional treatment three times	120		NR	Mean: 52	Black: 53 (44)	NR	NR
RCT: Chertow, 2016[21] FHN-Daily	2	Arm 2: frequent treatment 6 times	125		NR	Mean: 48.9	Black: 49 (39)	NR	NR
RCT: Rocco, 2011[23] FHN-Nocturnal	2-3	All Arms: All patients	87		(34.5)	Mean: 52.8	White: (55.2); Black: (26.4); Asian/PI: (14.9); American Indian/Alaska Native: (3.4)	NR	NR
RCT: Rocco, 2011[23] FHN-Nocturnal	2-3	Arm 1: Conventional	42		(33.3)	Mean: 54	White: (50); Black: (26.2); Asian/PI: (16.7); American Indian/Alaska Native: (4.8); Native Hawaiian or other Pacific Islander: (19.1)	NR	NR
RCT: Rocco, 2011[23] FHN-Nocturnal	2-3	Arm 2: Frequent nocturnal	45		(35.6)	Mean: 51.7	White: (60); Black: (26.7); Asian/PI: (11.1); American Indian/Alaska Native: (2.2)	NR	NR
RCT: Rocco, 2015[24] FHN-Nocturnal	2-3	FHN Nocturnal Trial: All Arms	87	Median 3.7 years	NR	NR	NR	NR	NR
RCT: Rocco, 2015[24] FHN-Nocturnal	2-3	Arm 1: Nocturnal 3x (conventional) dialysis	42		14 (33)	Mean: 54	Black: 11 (26)	Less than high school: 5 (12) Completed high school: 9 (21); Vocational/technical/business/some college, no degree: 16 (38); Associate degree and beyond: 12 (29); Unknown: 0 (0)	NR

Study design: Author, year Study name	KQ	Arm Description	Arm N	Followup	Women N (%)	Age	Race N (%)	Education N (%)	Smoking N (%)
RCT: Rocco, 2015[24] FHN-Nocturnal	2-3	Arm 2: Nocturnal 6x (frequent) dialysis	45		16 (36)	Mean: 51.7	Black: 12 (27)	Less than high school: 8 (18); Completed high school: 12 (27); Vocational/technical/business/some college, no degree: 13 (29); Associate degree and beyond: 11 (24)	NR
RCT: Dember, 2019[26] TiME	3	Primary Analysis Population: All Arms	4470	Median 1.1 (IQR 0.5-1.7) years	(58.8)	Mean: 66.6	NR	NR	NR
RCT: Dember, 2019[26] TiME	3	Arm 1: Usual care	2532	Median 1.1 (IQR 0.5-1.7) years	1539 (60.8)	Mean: 66.5	White: 1408 (56.4); Black: 616 (24.7); Latino: 328 (13.1); Asian/PI: 104 (4.5); Other: 41 (1.6); Missing: 36 (1.4)	NR	NR
RCT: Dember, 2019[26] TiME	3	Arm 2: Intervention	1938	Median 1.1 (IQR 0.5-1.7) years	1089 (56.2)	Mean: 66.7	White: 1069 (55.7); Black: 455 (23.7); Latino: 279 (14.5); Asian/PI: 87 (4.8); Other: 28 (1.5); Missing: 20 (1.0)	NR	NR
RCT: Dember, 2019[26] TiME	3	Full Analysis Population: All Arms	7035	Median 1.1 (IQR 0.5-1.7) years	NR	NR	NR	NR	NR
RCT: Dember, 2019[26] TiME	3	Arm 1: Usual Care	3966	Median 1.1 (IQR 0.5-1.7) years	1732 (43.7)	Mean: 64.1	White: 2316 (59.1); Black: 983 (25.1); Latino: 440 (11.2); Asian/PI: 120 (3.3); Other: 60 (1.5); Missing: 48 (1.2)	NR	NR
RCT: Dember, 2019[26] TiME	3	Arm 2: Intervention	3069	Median 1.1 (IQR 0.5-1.7) years	1237 (40.3)	Mean: 64.1	White: 1750 (57.5); Black: 758 (24.9); Latino: 388 (12.8); Asian/PI: 95 (3.2); Other: 52 (1.7); Missing: 27 (0.9%)	NR	NR
Observational prospective: Brunelli, 2010[27] ArMORR cohort	3	Study Cohort	8552	1 year	3866 (45.2)	Mean: 62.3	White: 5091 (59.5); Non-white: 3461 (40.5)	NR	NR

Study design: Author, year Study name	KQ	Arm Description	Arm N	Followup	Women N (%)	Age	Race N (%)	Education N (%)	Smoking N (%)
Observational prospective: Dixon, 2016[25] FHN-Nocturnal	2-3	All Arms		Mean 12 months	NR	NR	NR	NR	NR
Observational prospective: Dixon, 2016[25] FHN-Nocturnal	2-3	Arm 1: Conventional	31	12 months	(32)	Mean: 49.5	White: (68); Other, not specified: (32)	High School Diploma or Less: (48); Some College: (26); Bachelor's Degree or More: (26)	Current: (23); Former: (23); Never: (55)
Observational prospective: Dixon, 2016[25] FHN-Nocturnal	2-3	Arm 2: Nocturnal	18	12 months	(39)	Mean: 47.9	White: (50); Other, not specified: (50)	High School Diploma or Less: (50); Some College: (44); Bachelor's Degree or More: (6)	Current: (11); Former: (28); Never: (61)
Observational prospective: Dixon, 2016[25] FHN-Nocturnal	2-3	Arm 3: Transplant	28	12 months	(43)	Mean: 49.93	White: (71); Other, not specified: (29)	High School Diploma or Less: (29); Some College: (32); Bachelor's Degree or More: (39)	Current: (7); Former: (36); Never: (57)
Observational prospective: Lacson, 2012[28] NR	3	All Arms	2808	2 years	NR	NR	NR	NR	NR
Observational prospective: Lacson, 2012[28] NR	3	Arm 1: Conventional	2062	NR	(34.2)	Mean: 54.1	White: (48.1); Black: (48.8); Other: (3.1)	NR	NR
Observational prospective: Lacson, 2012[28] NR	3	Arm 2: Nocturnal, longer duration dialysis	746	NR	(32.3)	Mean: 52.8	White: (46.3); Black: (51.0); Other: (2.7)	NR	NR

Study design: Author, year Study name	KQ	Arm Description	Arm N	Followup	Women N (%)	Age	Race N (%)	Education N (%)	Smoking N (%)
Observational prospective: Troidle, 2007[29] NR	3	Overall	16	Mean 10 months (SD 6 months)	2 (12)	Mean: 51.5	White: 6 (37); Black 10 (63)	NR	NR
Observational retrospective: Brunelli, 2016[30] NR	2	All Arms		1 year	NR	NR	NR	NR	NR
Observational retrospective: Brunelli, 2016[30] NR	2	Arm 1: System One	69	1 year	25 (36.23)	Mean: 57.03	White: 42 (60.87); Black: 24 (34.78); Latino: 1 (1.45); Asian/PI: 2 (2.9); Other: 0 (0)	NR	NR
Observational retrospective: Brunelli, 2016[30] NR	2	Arm 2: 2008@home	69	1 year	17 (24.64)	Mean: 57.28	White: 41 (59.42); Black: 22 (31.88); Latino: 2 (2.9); Asian/PI: 2 (2.9); Other: 2 (2.9)	NR	NR
Observational retrospective: Hladunewich, 2014[31] Toronto PreKid	2-3	All Arms			NR	NR	NR	NR	NR
Observational retrospective: Hladunewich, 2014[31] Toronto PreKid	2-3	Toronto PreKid	22 pregnancies		17 (100)	Mean: 34; Range: 25-39	White: 10 (59); Black: 3 (17.6); Asian/PI: 4 (23.5)	NR	NR
Observational retrospective: Hladunewich, 2014[31] Toronto PreKid	2-3	United States ARPD Cohort	70 pregnancies		(100)	Mean: 27	NR	NR	NR

Study design: Author, year Study name	KQ	Arm Description	Arm N	Followup	Women N (%)	Age	Race N (%)	Education N (%)	Smoking N (%)
Observational retrospective: Johansen, 2009[32]		All Arms	NR	60 days (minimum)	NR	NR	White: 74.4; Black: 22.6; Asian: 2.2; Native American: 0.1; Other/unknown: 0.7	NR	NR
Observational retrospective: Johansen, 2009[32]	2 and 3	Arm 1	940	60 days (minimum)	(34)	Mean: 46.7	Native American (0); Black 24.5 White (75.5); Asian (0); other (0)	NR	NR
Observational retrospective: Johansen, 2009[32]	2 and 3	Arm 2	94	60 days (minimum)	(35.1)	Mean: 47.0	Native American (0); Black (23.4); White (76.6); Asian (0); other (0)	NR	NR
Observational retrospective: Johansen, 2009[32]	2	Arm 1	430	60 days (minimum)	(31.2)	Mean: 42.2	Native American (0); Black (18.6); White (72.1); Asian (7); other (2.3)	NR	NR
Observational retrospective: Johansen, 2009[32]	2	Arm 3	43	60 days (minimum)	(27.9)	Mean: 40.9	Native American (3); Black (18.6); White (70.2); Asian (5.8); other (2.3)	NR	NR
Observational retrospective: Lockridge, 2011[33] NR	2-3	All Arms			NR	NR	NR	NR	NR
Observational retrospective: Lockridge, 2011[33] NR	2-3	Arm 1: USRDS Dialysis patients			NR	Mean: 62	NR	NR	NR
Observational retrospective: Lockridge, 2011[33] NR	2-3	Arm 2: Nightly Home Hemodialysis (NHHD)	87	Mean 3.3 years	36 (41)	Mean: 52	White: 42 (48); Black: 44 (51); Asian/PI: 1 (1)	NR	NR
Observational retrospective: Mathew, 2016[34] NR	2	All Arms	NR		NR	NR	NR	NR	NR
Observational retrospective: Mathew, 2016[34] NR	2	Arm 1: Conventional HD	50,162	Maximum 4 years	(35)	Mean: 63	White: (58); Black: (29) Others - not specified: (12)	NR	NR

Study design: Author, year Study name	KQ	Arm Description	Arm N	Followup	Women N (%)	Age	Race N (%)	Education N (%)	Smoking N (%)
Observational retrospective: Mathew, 2016[34] NR	2	Arm 2: Frequent HD	160	Maximum 4 years	(35)	Mean: 62	White: (58); Black: (29); Others - not specified: (12)	NR	NR
Observational retrospective: Mathew, 2016[34] NR	2	Arm 3: Incremental HD	434	Maximum 4 years	(35)	Mean: 64	White: (58); Black: (29); Others - not specified: (11)	NR	NR
Observational retrospective: Miller, 2010[35] NR	3	All Patients	88153		(45)	Mean: 61.8	White: (41); Black: (32); Latino: (15); Asian/PI: 2.9	NR	NR
Observational retrospective: Miller, 2010[35] NR	3	Arm 2: <3	4889		(61)	Mean: 64.2	White: (47); Black: (24); Latino: (12); Asian/PI: (5)	NR	NR
Observational retrospective: Miller, 2010[35] NR	3	Arm 3: 3-<3.5	26603		(55)	Mean: 64.4	White: (43); Black: (25); Latino: (17); Asian/PI: (4.7)	NR	NR
Observational retrospective: Miller, 2010[35] NR	3	Arm 4: 3.5<4	29744		(45)	Mean: 62.1	White: (40); Black: (33); Latino: (16); Asian/PI: (2.5)	NR	NR
Observational retrospective: Miller, 2010[35] NR	3	Arm 5: >=4	26917		(34)	Mean: 58.7	White: (38); Black: (38); Latino: (13); Asian/PI: (1.2)	NR	NR
Observational retrospective: Nesrallah, 2012[36] NR	2-3	All Arms	1726		NR	Median: 52	NR	NR	NR

Study design: Author, year Study name	KQ	Arm Description	Arm N	Followup	Women N (%)	Age	Race N (%)	Education N (%)	Smoking N (%)
Observational retrospective: Nesrallah, 2012[36] NR	2-3	Arm 1: conventional dialysis (after matching)	1388		(35.8)	NR	NR	NR	NR
Observational retrospective: Nesrallah, 2012[36] NR	2-3	Arm 2: intensive dialysis (after matching)	338		(29.6)	NR	NR	NR	NR
Observational retrospective: Rivara, 2016[37] NR	3	All Arms		5 years	NR	NR	NR	NR	NR
Observational retrospective: Rivara, 2016[37] NR	3	Arm 1: Exclusively treated with conventional hemodialysis	111707	5 years	(43)	NR	White: (47); Black: (31); Latino: (15); Asian/PI: (3); Other: (4)	NR	NR
Observational retrospective: Rivara, 2016[37] NR	3	Arm 2: Ever treated with extended-hours hemodialysis	1206	5 years	(30)	Mean: NR; Median: NR; Range: NR	White: (47); Black: (37); Latino: (10); Asian/PI: (3); Other: (3)	NR	NR
Observational retrospective: Weinhandl, 2012[38] NR	2	All Arms		mean	NR	NR	NR	NR	NR
Observational retrospective: Weinhandl, 2012[38] NR	2	Arm 1: Matched In-Center	9365	1.7 years	(37.7)	Mean: 53.2	Black: (28.3); Other: (71.7)	NR	NR
Observational retrospective: Weinhandl, 2012[38] NR	2	Arm 2: DHHD	1873	1.8 years	(35.8)	Mean: 52.2	Black: (26.5); Other: (73.5)	NR	NR

Study design: Author, year Study name	KQ	Arm Description	Arm N	Followup	Women N (%)	Age	Race N (%)	Education N (%)	Smoking N (%)
Observational retrospective: Weinhandl, 2012[38] NR	2	Arm 3: All In-Center	262249		(45.3)	Mean: 62.6	Black: (38.8); Other: (61.2)	NR	NR
Observational retrospective: Weinhandl, 2015[39]	2	All Arms	20,880	NR	NR	NR	NR	NR	NR
Observational retrospective: Weinhandl, 2015[39]	2	Arm 1	17400	Era 1: 2.05 years Era 2: 1.54 years	(34.4)	53.6 years	Black (27); non-Black (73)	NR	NR
Observational retrospective: Weinhandl, 2015[39]	2	Arm 2	3480	Era 1: 2.10 years Era 2: 1.53 years	(34.7)	53.4 years	Black (26.8); non-Black (73.2)	NR	NR

3x=3 times; 6x=6 times; %=Percentage; ArMORR= Accelerated Mortality on Renal Replacement; ARPD= American Registry for Pregnancy in Dialysis Patients; CHD=conventional hemodialysis; DHHD=daily home hemodialysis; FHN=Frequent Hemodialysis Network trials; HD=hemodialysis; IQR=interquartile range; KQ=key question; N=number of patients; NHHD=nightly home hemodialysis; NR=not reported; PI=Pacific Islander; RCT = randomized controlled trial; TiME=Time to Reduce Mortality in ESRD; SD=standard deviation; SDHD=Short daily hemodialysis; Toronto Pre-Kid=Toronto Pregnancy and Kidney Disease Clinic; USRDS= United States Renal Data System

Evidence Table 5. Categorical renal function outcomes of studies comparing hemodialysis frequency in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	n / N (%), Arm1	n / N (%), Arm2	Treatment effect
Daugirdas, 2013[20]	FHN	RCT	Daily (Nonzero Urine Output)	Creatinine; (%) Below 1st tertile of measure at baseline	12 months	32	25	NA	NA	25/32 (78.1)	17/25 (68)	p= 0.48
Daugirdas, 2013[20]	FHN	RCT	Daily (Nonzero Urine Output)	Average of Urea + Creatinine; (%) Below 1st tertile measure at baseline	12 months	32	25	NA	NA	24/32 (75)	17/25 (68)	p= 0.42
Daugirdas, 2013[20]	FHN	RCT	Daily(Nonzero Urine Output)	Urine volume/24 hours; (%) Below 1st tertile of measure at baseline*	12 months	32	25	NA	NA	26/32 (81.3)	17/25 (68)	p= 0.99
Daugirdas, 2013[20]	FHN	RCT	Daily(Nonzero Urine Output)	Urea; (%) Below 1st tertile of measure at baseline*	12 months	32	25	NA	NA	24/32 (75)	16/25 (64)	p= 0.44
Daugirdas, 2013[20]	FHN	RCT	Daily (Nonzero Urine Output)	Urea; (%) Equalto 0	12 months	32	25	NA	NA	17/32 (53.1)	12/25 (48)	p= NR

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	n / N (%), Arm1	n / N (%), Arm2	Treatment effect
Daugirdas, 2013[20]	FHN	RCT	Daily(Nonzero Urine Output)	Creatinine; (%) Equal to 0	12 months	32	25	NA	NA	17/32 (53.1)	12/25 (48)	p= NR
Daugirdas, 2013[20]	FHN	RCT	Daily (Nonzero Urine Output)	Urine volume/24 hours; (%) Equal to 0	12 months	32	25	NA	NA	17/32 (53.1)	12/25 (48)	p= NR
Daugirdas, 2013[20]	FHN	RCT	Daily(Nonzero Urine Output)	Average of Urea + Creatinine; (%) Equal to 0	12 months	32	25	NA	NA	17/32 (53.1)	12/25 (48)	p= NR

%=percentage; FHN= Frequent Hemodialysis Network trials; N=number of total patients; n=number of patients in sample; NR=not reported; RCT=randomized controlled trial

Evidence Table 6. Continuous albumin outcomes of studies comparing hemodialysis frequency in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect
Kaysen, 2012[13]	FHN	RCT	NA	Albumin level	12 months	42	45	Baseline: Mean 3.95 (SD: 0.44) Final: Mean 3.96 (SD: 0.4) Adjusted mean change: 0.00 (SE 0.03)	Baseline: Mean 3.96 (SD: 0.36) Final: Mean 3.98 (SD: 0.36) Adjusted mean change: 0.03 (SE 0.03)	Arm1 vs Arm2: Treatment effects (6x vs 3x, baseline to 12 months): 0.03 (95% CI: -0.04 to 0.10), p=0.41
Brunelli, 2016[30]	NR	Observational: retrospective	NA	Albumin level	12 months	69	69	Baseline: NR Final: Mean 3.94 (95% CI: 3.85 to 4.04)	Baseline: NR Final: Mean 4.04 (95% CI: 3.95 to 4.14)	p=0.15
Chertow, 2010[3]	FHN	RCT	NA	Albumin level	12 months	120	125	Baseline: Mean 3.98 (SD: 0.44) Final: Mean 3.96 (SD: 0.4)	Baseline: Mean 3.99 (SD: 0.37) Final: Mean 4 (SD: 0.36)	Arm1 vs Arm2: Mean difference: 0.02 (95% CI: -0.06 to 0.1), p=0.56 Arm1: Mean difference: -0.02 (SD: 0.36) Arm2: Mean difference: -0.01 (SD: 0.31)

3x=3 times; 6x=6 times; CI=confidence interval; FHN= Frequent Hemodialysis Network trials; NA=not applicable; NR=not reported; RCT=randomized controlled trial; SD=standard deviation; SE=standard error

Evidence Table 7. Categorical erythropoietin stimulating agents outcomes of studies comparing hemodialysis frequency in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Kaysen, 2012[13]	FHN	RCT	NA	Normalized protein catabolic rate	12 months	42	45	120	125			Baseline: Mean 64.67 (SD: 17.86) Final: Mean 64.26 (SD: 20.02)	Baseline: Mean 65.37 (SD: 21.23) Final: Mean 65.13 (SD: 22.53)	Arm3 vs Arm4: Treatment comparison 6x vs 3x Daily, baseline to 12 months: 0.82 (95% CI: -2.54 to 4.19), p=0.63
Brunelli, 2016[30]	NR	Observational: retrospective	NA	Normalized protein catabolic rate	12 months	69	69	NA	NA	Final: Mean 0.99 (95% CI: 0.92 to 1.07)	Final: Mean 1.12 (95% CI: 1.02 to 1.23)			p=0.05

CI=confidence interval; FHN= Frequent Hemodialysis Network trials; N=number of patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial; SD=standard deviation

Evidence Table 8. Continuous hemoglobin outcomes of studies comparing hemodialysis frequency in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect	Comments
Ornt, 2013[9]	FHN	RCT	NA	Hemoglobin level	12 months	120	125	Baseline: Median 11.9 (10^{th}, 90^{th} percentile: 10.3, 13.8) Final: Median 11.7 (10^{th}, 90^{th} percentile: 10.6, 12.8)	Baseline: Median 12.0 (10^{th}, 90^{th} percentile: 10.6, 13.3) Final: Mean 11.9 (10^{th}, 90^{th} percentile: 10.9, 13.1)	Arm1 vs Arm2: Mean difference: 0.33 (95% CI: 0.05 to 0.61), p<0.05 Arm1, Change from baseline: -0.24 (95% CI: -0.48 to 0.00) Arm2, Change from baseline: 0.09 (95% CI: -0.15 to 0.32)	
Brunelli, 2016[30]	NR	Observational: retrospective	NA	Hemoglobin level	12 months	69	69	Final: Mean 11.4 (95% CI: 11.1 to 11.7)	Final: Mean 11.5 (95% CI: 11.2 to 11.8)	p=0.54	Similar findings in stratified analysis. Number not abstracted.

CI=confidence interval; FHN= Frequent Hemodialysis Network trials; N=number of patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial

Evidence Table 9. Continuous metabolic outcomes of studies comparing hemodialysis frequency in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect	Comments
Molfino, 2019[4]	FHN	RCT	Modality (Daily Trial)	bicarbonate	12 months	56	62	Baseline: Mean 24.0 (SD: 3.74) Final: Mean 23.7 (SD: 2.97) Mean change from baseline: 0.25 (95% CI: -0.51 to 1.01)	Baseline: Mean 23 (SD: 3.3) Final: Mean 24.2 (SD: 2.64) Mean change from baseline 1.11 (95% CI, 0.36-1.86)	Arm1 vs. Arm 2: Mean difference: 0.86 (95% CI: 0.02 to 1.70), p=0.045	Data for overall participants (Table 2 and Table 3, column overall participants
Lo, 2017[5]	NR	RCT	Daily Trial 3x vs 6x	Free T3	12 months	72	75	Baseline: Median 2.37 (IQR: 2.05 to 2.73) Final: Median 2.49 (IQR: 2.24 to 2.79)	Baseline: Median 2.59 (IQR: 2.14 to 3.03) Final: Median 2.78 (IQR: 2.26 to 3.33)	Arm1 vs Arm2: 0.14 (95% CI: -0.10 to 0.38), p=0.25 Arm1: Mean change: 0.10 (95% CI: -0.11 to 0.32) Arm2: Mean change: 0.24 (95% CI: 0.04 to 0.45)	
Lo, 2017[5]	NR	RCT	Daily Trial 3x vs. 6x	Free T4	12 months	72	75	Baseline: Mean 0.86 (SD: 0.23) Final: Mean 0.9 (SD: 0.27)	Baseline: Mean 0.84 (SD: 0.21) Final: Mean 0.91 (SD: 0.3)	Arm1: change: 0.04(0.15) Arm2: change: 0.07 (0.26)	Change in Free T4 between groups p=0.58

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect	Comments
Lo, 2017[5]	NR	RCT	Daily Trial	TSH	12 months	72	75	Baseline: Mean 2.01 (SD: 1.33) Final: Mean 2.33 (SD: 1.44)	Baseline: Mean 2.06 (SD: 1.16) Final: Mean 2.02 (SD: 1.22)	Arm1 vs Arm2: p=0.15 Arm1: mean change: 0.32 (1.29) Arm2: mean change: -0.04 (0.89)	Change in TSH non-significant between groups (0.15). Not abstracted: Table 3 demonstrates the effect of hemodialysis frequency on changes in serum concentrations of TSH, FT4, and FT3, examined in all 147 Daily and 48 Nocturnal participants with endogenous thyroid function using mixed-effects models to account for missing values. Also not significant., although a significant increase in FT4 concentrations was observed in sensitivity analyses that included those receiving thyroid hormone therapy (treatment effect 0.10, 95% CI 0.01–0.20, P 5 0.03).
Brunelli, 2016[30]	NR	Observational : retrospective	NA	PTH	12 months	69	69	Baseline: NR Final: Mean 268 (95% CI: 206 to 331)	Baseline: NR Final: Mean 244 (95% CI: 186 to 301)	p=0.52	
Brunelli, 2016[30]	NR	Observational : retrospective	NA	serum calcium (mg/dl)	12 months	69	69	Baseline: NR Final: Mean 9.13 (95% CI: 8.98 to 9.28)	Baseline: NR Final: Mean 9.02 (95% CI: 8.87 to 9.17)	p=0.29	
Brunelli, 2016[30]	NR	Observational : retrospective	NA	Phosphorus level	12 months	69	69	Final: Mean 5.10 (95% CI: 4.81 to 5.40)	Final: Mean 5.38 (95% CI: 5.09 to 5.68)	p=0.19	

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect	Comments
Daugirdas, 2012[14]	FHN	RCT	Daily	Phosphorus binders	12 months	120	125	Baseline: Mean 5.92 (SD: 4.32) Final: Mean 6.64 (SD: 4.95) adjusted mean change: 0.39 (SE 0.45)	Baseline: Mean 7.17 (SD: 5.48) Final: Mean 5.7 (SD: 4.94) adjusted mean change: -0.96 (SE 0.43)	Arm 1 vs. Arm 2: mean difference: -1.35 g/d (95% CI, –2.50 to -0.20 g/d; P=0.02).	
Daugirdas, 2012[14]	FHN	RCT	Daily	Phosphorous	12 months	120	125	Baseline: Mean 5.63 (SD: 1.51) Final (10-12 months): Mean 5.66 (SD: 1.75) adjusted mean change: -0.08 (SE 0.13)	Baseline: Mean 5.88 (SD: 1.69) Final: Mean 5.24 (SD: 1.19) adjusted mean change: -0.54 (SE 0.13)	Arm 1 vs. Arm 2: mean difference: -0.46 g/d (95% CI, –0.78 to -0.13 g/d; P=<0.01).	
Daugirdas, 2012[14]	FHN	RCT	Daily	PTH	12 months	120	125	Baseline: Median 282 (10^{th}, 90^{th} percentile: 44, 846) Final (10-12 months): Median 258 (10^{th}, 90^{th} percentile: 46, 832) adjusted mean change (SE): -7.9 (-24.8 to 12.8)	Baseline: Median 326 (10th, 90th percentile: 94, 859) Final: Median 369 (10th, 90th percentile: 118, 972) adjusted mean change: 16 (-4.0 to 40.0)	Arm 1 vs. Arm 2: mean difference: 26.02 pg/ml (95% CI, –3.4to 64.2), p=0.09	

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect	Comments
Chertow, 2010[3]	FHN	RCT	NA	predialysis phosphorus - mg/dl	12 months	120	125	Baseline: Mean 5.68 (SD: 1.55) Final: Mean 5.65 (SD: 1.75)	Baseline: Mean 5.88 (SD: 1.65) Final: Mean 5.24 (SD: 1.20)	Arm1 vs Arm2: Mean difference: -0.56 (95% CI: -0.91 to -0.22, p=0.002 Arm1: Mean difference: -0.03 (SD: 1.54) Arm2: Mean difference: -0.63 (SD: 1.60) Arm1, Adjusted For: Mean difference: -0.08 (SD: 0.14) Arm1, Adjusted For: Mean difference: -0.64 (SD: 0.14)	Table 3

3x=3 times; 6x=6 times; CI=confidence interval; FHN= Frequent Hemodialysis Network trials; FT3=free triiodothyronine (T3); FT4=Free thyroxine (T4); IQR=interquartile range; N=number of patients; mg/dl=Milligrams per deciliter; NA=not applicable; NR=not reported; PTH=parathyroid-stimulating hormone; RCT=randomized controlled trial; SD=standard deviation; SE=standard error; T4=thyroxine; TSH=thyroid-stimulating hormone

Evidence Table 10. Continuous hospitalization outcomes of studies comparing hemodialysis frequency in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect	Comments
Brunelli, 2016[30]	NR	Observational: retrospective	NA	Hospitalization rate	12 months	69	69		Final: Mean 1.14	Arm2, IRR: 1.14 (95% CI: 0.73 to 1.78), p-value 0.57	
Chertow, 2010[3]	FHN	RCT	NA	hospitalizations related to vascular access	12 months	120	125	Final, counts: 24 (14 patients with events)	Final, Counts: 30 (20 patients with events)	Arm1 vs Arm2: HR 0.99 (95% CI: 0.54 to 1.82), p=0.97	table 4 - The hazard ratios and P values for rates of events (including multiple events per patient) between the frequent-hemodialysis group and the conventional-hemodialysis group were calculated with the use of the Andersen–Gill model, except where otherwise noted.
Chertow, 2010[3]	FHN	RCT	NA	hospitalizations unrelated to vascular access	12 months	120	125	Final, counts: 90 (44 patients with events)	Final, Counts: 79 (47 patients with event)	Arm1 vs Arm2: 0.80 (95% CI: 0.53 to 1.21), p=0.30	table 4 - The hazard ratios and P values for rates of events (including multiple events per patient) between the frequent-hemodialysis group and the conventional-hemodialysis group were calculated with the use of the Andersen–Gill model, except where otherwise noted.

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect	Comments
Chertow, 2010[3]	FHN	RCT	NA	infection related hospitalization	12 months	120	125	Final, counts: 20 patients with event (27 events)	Final, Counts: 23 patients with event (27 events)	Arm1 vs Arm2: HR 0.83 (95% CI: 0.49 to 1.40), p=NR	from Table 4 - The hazard ratios and P values for rates of events (including multiple events per patient) between the frequent-hemodialysis group and the conventional-hemodialysis group were calculated with the use of the Andersen–Gill model, except where otherwise noted.
Chertow, 2010[3]	FHN	RCT	NA	hospitalization secondary to/ cardiovascular-related	12 months	120	125	Final, counts: 15 events (12 patients)	Final, Counts: 17 events (15 patients)	Arm1 vs Arm2: HR 0.83 (95% CI: 0.44 to 1.59), p=NR	table 4 - The hazard ratios and P values for rates of events (including multiple events per patient) between the frequent-hemodialysis group and the conventional-hemodialysis group were calculated with the use of the Andersen–Gill model, except where otherwise noted.
Johansen, 2009[32]	NR	Retrospective cohort	NA	All cause hospitalization; non-vasuclar access-related hospitalization, cardiovascular hospitalization, infection related hospitalization	NR: 2 years, beyond 2 years	430	43	NR	NR	Not significantly associated	
Johansen, 2009[32]	NR	Retrospective cohort	NA	Hospitalization associated with congestive heart failure	NR: 2 years, beyond 2 years	430	43	NR	NR	HR: 0.77, 95% CI: 0.23 to 2.53; p-0.66	

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect	Comments
Johansen, 2009[32]	NR	Retrospective cohort	NA	Hospitalization associated vascular access	NR: 2 years, beyond 2 years	430	43	NR	NR	HR: 0.71; 95% CI: 0.31 to 1.64; p=0.43	
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	Cumulative incidence of first admission	1 year	NR	NR	58.3%	62.8%		Followup “n” not reported
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	Cumulative incidence of first admission	2 years	NR	NR	74.9%	80.2%		Followup “n” not reported
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	Cumulative incidence of CVD related admission	1 year	NR	NR	26.7%	24.1%		Followup “n” not reported
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	Cumulative incidence of infection related admission	1 year	NR	NR	22.9%	29.5%		Followup “n” not reported
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	Cumulative incidence of access dysfunction related admission	1 year	NR	NR	7.2%	7.8%		Followup “n” not reported
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	Cumulative incidence of “other” related admission	1 year	NR	NR	34.1%	36.1%		Followup “n” not reported
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	Cumulative incidence of readmission after discharge	1 year	NR	NR	82.6%	81.8%		Followup “n” not reported
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	Cumulative incidence of readmission after discharge	2 years	NR	NR	90.3%	90.2%		Followup “n” not reported

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect	Comments
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	Cumulative incidence of CVD related readmission after discharge	1 year	NR	NR	55%	47.1%		Followup “n” not reported
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	Cumulative incidence of infection related readmission after discharge	1 year	NR	NR	51.1%	53.5%		Followup “n” not reported
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	Cumulative incidence of vascular access related related readmission after discharge	1 year	NR	NR	28.2$	31.5%		Followup “n” not reported
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	Cumulative incidence of other related readmission after discharge	1 year	NR	NR	62.6%	60.8%		Followup “n” not reported
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	ITT followup hospital admission	1 year	NR	NR	NR	NR	HR, 1.01; 95% CI, 0.98 to 1.03	Followup “n” not reported
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	ITT follow up, first admission	1 year	NR	NR	NR	NR	HR, 1.14, 95% CI, 1.09 to 1.19	Followup “n” not reported
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	ITT follow up readmission	1 year	NR	NR	NR	NR	HR, 0.96, 95% CI, 0.94 to 0.99	Followup “n” not reported
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	ITT followup pooled CVD related admission	1 year	NR	NR	NR	NR	HR, 0.89; 95% CI, 0.86 to 0.93	Followup “n” not reported

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect	Comments
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	ITT followup pooled infection related re-admission	1 year	NR	NR	NR	NR	HR, 1.18, 95% CI, 1.13 to 1.23	Followup “n” not reported
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	ITT followup pooled vascular access, related re-admission	1 year	NR	NR	NR	NR	HR, 1.01 (95% CI, 0.93-1.09)	Followup “n” not reported
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	ITT followup pooled other related re-admission	1 year	NR	NR	NR	NR	HR, 1.02 (95% CI, 0.99-1.06)	Followup “n” not reported
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	ITT followup admission rates	Era 1	NR	NR	NR	161.9 per 100 patient years		
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	ITT followup admission rates	Era 2	NR	NR	NR	178.0 per 100 patient years		
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	ITT followup admission day rates	Era 1	NR	NR	NR	985.1 per 100 patient years		
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	ITT followup admission day rates	Era 2	NR	NR	NR	1025.1 per 100 patient years		
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	Relative rates of admission		NR	NR	NR	NR	HR: 1.03 (95% CI, 0.99-1.08)	
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	Relative rate of days		NR	NR	NR	NR	HR: 1.04 (95% CI, 0.98-1.11)	
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	Relative rates of admission, CVD		NR	NR	NR	NR	HR: 0.83 (95% CI, 0.78-0.88)	

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect	Comments
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	Relative rates of admission, infection		NR	NR	NR	NR	HR: 1.32 (95% CI, 1.24-1.40)	
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	Relative rates of admission, vascular access dysfunction		NR	NR	NR	NR	HR: 1.01 (95% CI, 0.90-1.13)	
Weinhandl, 2015[39]	NR	Retrospective cohort	NA	Relative rates of admission, other causes		NR	NR	NR	NR	HR: 1.02 (95% CI, 0.97-1.09)	

CI=confidence interval; FHN=Frequent Hemodialysis Network trials; HR=hazard ratio; IRR=incidence rate ratio; ITT=intention to treat; N=Number of patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial

Evidence Table 11. Continuous cardiovascular outcomes of studies comparing hemodialysis frequency in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect	Comments
Chan, 2014[22]	FHN-Daily	RCT	No Diabetes	12 months	99	108	Baseline: NR Final: NR	Baseline: NR Final: NR	Arm1 vs Arm2: Treatment effects: 44.5 (3.8, 102), p=NR	All subgroup abstracted from Figure 1 using digitizer. Shown are estimated percent differences in geometric mean changes between the frequent and conventional HD groups, with 95% CIs. The P-values refer to tests of interactions of the treatment with age (as a continuous variable) and diabetic status. The P-values were not adjusted for multiple testing.
Chan, 2014[22]	FHN-Daily	RCT	Diabetes	12 months	99	108	Baseline: NR Final: NR	Baseline: NR Final: NR	Arm1 vs Arm2: Treatment effects: -15.1 (-42.6, 26.8), p=NR, p for interaction=0.046	All subgroup abstracted from Figure 1 using digitizer. Shown are estimated percent differences in geometric mean changes between the frequent and conventional HD groups, with 95% CIs. The P-values refer to tests of interactions of the treatment with age (as a continuous variable) and diabetic status. The P-values were not adjusted for multiple testing.
Chan, 2014[22]	FHN-Daily	RCT	Age <=50	12 months	99	108	Baseline: NR Final: NR	Baseline: NR Final: NR	Arm1 vs Arm2: Treatment effect: 118.0 (35.4, 252.3)	All subgroup abstracted from Figure 1 using digitizer. Shown are estimated percent differences in geometric mean changes between the frequent and conventional HD groups, with 95% CIs. The P-values refer to tests of interactions of the treatment with age (as a continuous variable) and diabetic status. The P-values were not adjusted for multiple testing.
Chan, 2014[22]	FHN-Daily	RCT	Age >50	12 months	99	108	Baseline: NR Final: NR	Baseline: NR Final: NR	Arm1 vs Arm2: treatment effect: -6.5 (-41.8, 52.7), p interaction 0.005	All subgroup abstracted from Figure 1 using digitizer. Shown are estimated percent differences in geometric mean changes between the frequent and conventional HD groups, with 95% CIs. The P-values refer to tests of interactions of the treatment with age (as a continuous variable) and diabetic status. The P-values were not adjusted for multiple testing.

Author, year	Study name	Study design	Subgroup	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect	Comments
Chan, 2014[22]	FHN-Daily	RCT	No diabetes	12 months	99	108	Baseline: NR Final: NR	Baseline: NR Final: NR	Arm1 vs Arm2: Treatment effects: 120.1 (42.4, 242.1)	All subgroup abstracted from Figure 1 using digitizer. Shown are estimated percent differences in geometric mean changes between the frequent and conventional HD groups, with 95% CIs. The P-values refer to tests of interactions of the treatment with age (as a continuous variable) and diabetic status. The P-values were not adjusted for multiple testing.
Chan, 2014[22]	FHN-Daily	RCT	Diabetes	12 months	99	108	Baseline: NR Final: NR	Baseline: NR Final: NR	Arm1 vs Arm2: Treatment effects: -15.9 (-49.2, 41.6), p interaction =0.006	All subgroup abstracted from Figure 1 using digitizer. Shown are estimated percent differences in geometric mean changes between the frequent and conventional HD groups, with 95% CIs. The P-values refer to tests of interactions of the treatment with age (as a continuous variable) and diabetic status. The P-values were not adjusted for multiple testing.
Chan, 2014[22]	FHN-Daily	RCT	NA	48 months	99	108	Baseline: Observed Data median (10^{th}, 90^{th} percentiles) 46.3 (15.2, 77.0) Final: Observed Data median (10^{th}, 90th percentiles) 38.8 (17.6, 85.9)	Baseline: Observed Data median (10^{th}, 90^{th} percentiles) 41.1 (18.2, 76.9) Final: Observed Data median (10^{th}, 90^{th} percentiles) 44.5 (23.3, 81.2)	Arm1 vs Arm2: Treatment comparison (6× versus 3×): 17.2% (−8.8%, 50.6%), p=0.021 Arm1: Mean difference: −6.4% (95% CI: −24.5% to 16.1) Arm2: Mean difference: 9.8% (95% CI:−11.4% to 35.9%)	

Author, year	Study name	Study design	Subgroup	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect	Comments
Chan, 2014[22]	FHN-Daily	RCT	NA	12 months	99	108	Baseline: Observed Data median (10^{th}, 90^{th} percentiles) 170.4 (37.5, 338.6) Final: Observed Data median (10^{th}, 90^{th} percentiles) 151.4 (42.0, 331.3)	Baseline: Observed Data median (10^{th}, 90^{th} percentiles) 128.2 (38.4, 355.3) Final: Observed Data median (10^{th}, 90^{th} percentiles) 175.9 (52.6, 469.3)	Arm1 vs Arm2: Treatment comparison (6× versus 3×): 39.5% (3.3%, 88.4%), p=0.030 Arm1: Mean difference: −12.6% (95% CI: −32.1% to 12.4%) Arm2: Mean difference: 21.9% (95% CI:−5.0% to 56.5%)	
Chan, 2014[22]	FHN-Daily	RCT	NA	12 months	99	108	Baseline: Observed Data median (10^{th}, 90^{th} percentiles) 2.5 (0.9, 5.5) Final: Observed Data median (10^{th}, 90^{th} percentiles) 2.4 (0.9, 4.8)	Baseline: Observed Data median (10^{th}, 90^{th} percentiles) 1.9 (1, 5.1) Final: Observed Data median (10th, 90^{th} percentiles) 2.8 (1.2, 6.2)	Arm1 vs Arm2: Treatment comparison (6× versus 3×): 0.5 (−0.1, 1.2), p=0.079 Arm1: Mean difference: −0.3 (95% CI: −0.8 to 0.3) Arm2: Mean difference: 0.3 (95% CI:-0.2 to 0.8)	
Chan, 2014[22]	FHN-Daily	RCT	NA	12 months	99	108	Baseline: Observed Data median (10^{th}, 90^{th} percentiles) 116.4 (19.6, 279.5) Final: Observed Data median (10^{th}, 90^{th} percentiles) 105.2 (21, 225.5)	Baseline: Observed Data median (10th, 90^{th} percentiles) 90.9 (20.2, 255.0) Final: Observed Data median (10^{th}, 90^{th} percentiles) 125.2 (23.9, 352.7)	Arm1 vs Arm2: Treatment comparison (6× versus 3×): 50.0% (6.1%, 112.0%), p=0.022 Arm1: Mean difference: −14.5% (95% CI: −36.0%, to 14.2%) Arm2: Mean difference: 28.2% (95% CI:−3.8% to 70.8%)	Table 2. Heart rate variability outcomes - The adjusted means and treatment effects were estimated under a mixed-effects analysis applied to the 207 subjects of the Daily Trial Holter Cohort. The low- and high-frequency components and their sum were log transformed for estimation of adjusted means and treatment effects; these results are expressed as percentage changes in geometric means. The medians, 10th and 90th percentiles are expressed in milliseconds-squared without log transformation.

Author, year	Study name	Study design	Subgroup	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect	Comments
Chan, 2014[22]	FHN-Daily	RCT	NA	12 months	99	108	Baseline: Observed Data median (10th, 90th percentiles) 75.5 (45.0, 133.0) Final: Observed Data median (10th, 90th percentiles) 71.0 (38.0, 121.0)	Baseline: Observed Data median (10th, 90th percentiles) 70.0 (39.0, 116.0) Final: Observed Data median (10th, 90th percentiles) 72.0 (41.0, 114.0)	Arm1 vs Arm2: Treatment comparison (6× versus 3×: 0.7 (−9.2, 10.5), p=0.90 Arm1: Mean difference: −4.5 (95% CI: −13.1 to 4.2) Arm2: Mean difference: −3.8 (95% CI:−12.4 to 4.8)	
Chan, 2014[22]	FHN-Daily	RCT	NA	12 months	99	108	Baseline: Mean 3.11 (SD: 0.93) Final: Mean 3.04 (SD: 0.86)	Baseline: Mean 3.21 (SD: 0.98) Final: Mean 2.11 (SD: 0.78)	Arm1 vs Arm2: Mean difference: -0.97 (95% CI: -1.19 to -0.75), p<0.001	
Chan, 2014[22]	FHN-Daily	RCT	NA	12 months	99	108	Baseline: Mean 77.95 (SD: 16.88) Final: Mean 76.70 (SD: 12.42)	Baseline: Mean 74.46 (SD: 11.65) Final: Mean 77.17 (SD: 11.54)	Arm1 vs Arm2: Mean difference: 0.36 (95% CI: -3.68 to 4.39), p=0.862	
Chan, 2014[22]	FHN-Daily	RCT	NA	12 months	99	108	Baseline: Mean 3.11 (SD: 0.93) Final: Mean 3.04 (SD: 0.86)	Baseline: Mean 3.21 (SD: 0.98) Final: Mean 2.11 (SD: 0.78)	Arm1 vs Arm2: Mean difference: -0.97 (95% CI: -1.19 to -0.75), p<0.001	

3x=3 times; 6x=6 times; CI=confidence interval; FHN=Frequent Hemodialysis Network trials; HD=hemodialysis; N=number of patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial; SD=standard deviation

Evidence Table 12. Continuous diastolic blood pressure outcomes of studies comparing hemodialysis frequency in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment effect	Comments
Kotanko, 2015[7]	FHN	RCT	daily	Clinic DBP (post-HD)	10-12 months	162	170	Baseline: Mean 71.9 (SD: 11.1) Final: Mean 74.1 (SD: 12.1)	Baseline: Mean 72.9 (SD: 11.7) Final: Mean 72.4 (SD: 13.4)	Arm1 vs Arm2: Mean difference: Change from baseline: -3.4 (95%CI: -5.6; -1.2), p<0.01	Main FHN BP Paper
Kotanko, 2015[7]	FHN	RCT	daily	Clinic DBP (pre-HD)	12 months	162	170	Baseline: Mean 78.2 (SD: 11.6) Final: Mean 79.6 (SD: 12)	Baseline: Mean 81.5 (SD: 11.7) Final: Mean 76 (SD: 11.5)	Arm1 vs Arm2: Mean difference: Change from baseline: -5.1 (95% CI: -7.4 to -2.8), p=<0.001	

BP=Blood pressure; CI=confidence interval; DBP=diastolic blood pressure; FHN=Frequent Hemodialysis Network trials; HD=hemodialysis; N=number of patients; RCT=randomized controlled trial; SD=standard deviation

Evidence Table 13. Continuous systolic blood pressure outcomes of studies comparing hemodialysis frequency in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Follow up	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Treatment Effect
Kotanko, 2015[7]	FHN	RCT	daily	SBP [mmHg]	10-12 months	120	125					Predialysis systolic blood pressure and post-dialysis systolic pressure (mean change from baseline to10-12 month follow-up: -10.0; 95% CI, -13.9 to -6.0 and -7.9; 95% CI -11.8 to -3.9, respectively
Chertow, 2010[3]	FHN	RCT	NA	Weekly average predialysis systolic blood pressure-mmHg	12 months	120	125	NA	NA	Baseline: Mean 146 (SD: 18) Final: Mean 147 (SD: 18)	Baseline: Mean 147 (SD: 19) Final: Mean 137 (SD: 19)	Arm1 vs Arm2: Mean difference: -10.1 (95% CI: -14.3 to -6, p=<0.001 Arm1: Mean difference: 0.9 (SD: 16.2) Arm2: Mean difference: -9.7 (SD: 18.2) Arm1, Adjusted For: Mean difference: 0.9 (SD: 1.6) Arm1, Adjusted For: Mean difference: -9.2 (SD: 1.5)
Chertow, 2010[3]	FHN	RCT	NA	Number of BP medications	NR	120	125	NA	NA	Baseline: 92 Mean (2.8: SD) Final: 92 Mean (2.58: SD)	Baseline: 103 Mean (2.69: SD) Final: 103 Mean (1.82: SD)	Arm1 vs Arm2: p<0.001 Arm1: Mean difference -0.23 (SD: 1.35) Arm2: Mean difference -0.87 (SD: 1.85)
Brunelli, 2016[30]	NR	Observational: retrospective	NA	Systolic blood pressure (mm Hg)		69	69			Final 140.3 (95% CI: 136.0 to 144.6)	Final 133.8 (95% CI: 129.5 to 138.1)	p=0.04
Kotanko, 2015[7]	FHN	RCT	daily	# of prescribed antihypertensive drugs (per patient)	10-12 months	120	125			Baseline: Mean (SD) 2.3 (1.4) Final: Mean (SD) 2.0 (1.4)	Baseline: Mean (SD) 2.2 (1.6) Final: Mean (SD) 1.4 (1.3)	Mean change from baseline: -0.36, 95% CI, -0.65 to -0.08)

#=number; BP=blood pressure; CI=confidence interval; FHN=Frequent Hemodialysis Network trials; mmHg=millimiters of mercury; N=number of patients; RCT=randomized controlled trial; SBP=systolic blood pressure; SD=standard deviation

Evidence Table 14. Continuous left ventricular mass outcomes of studies comparing hemodialysis frequency in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Chan, 2013[8]	FHN	RCT	NA	LV mass	12 months	120	125	42	45					Mean difference: -13.1 g, 95% CI -21.3 to -5.0, p=0.002
Chan, 2013[8]	FHN	RCT	NA	LVEDV, LVESV, RVEDV, RVESV, EF	12 months	120	125	42	45					Frequent dialysis also resulted in significant reductions in LVEDV (-11.0%; 95% CI, -16.1% to -5.5%), LVESV (-14.8%; 95% CI, -22.7 to -6.2%), and RVEDV (-11.6%; 95% CI, -19.0% to -3.6%). No significant difference in RVESV or ejection fraction (There was no significant change in ratio of LV mass to LVEDV.
Chan, 2013[8]	FHN	RCT	NA	LV mass/LVEDV (g/ml)	12 months	120	125	42	45	Baseline: Median 76 g/ml (Quartile1, Quartile3: 59.7, 102.5:) Final: Median 74.2 g/ml (Quartile1, Quartile3: 58.7, 108.7:)	Baseline: Median 80.4 g/ml (Quartile 1, Quartile3 : 56.9, 110.2:) Final: Median 78.4 g/ml (Quartile 1, Quartile3 : 58.2, 116.5:)	Baseline: Median 81.5 g/ml (Quartile1, Quartile3: 62.9, 137.7:) Final: Median 80.4 g/ml (Quartile1, Quartile3: 58.3, 120.1:)	Baseline: Median 77.7 g/ml (Quartile 1, Quartile3 : 58.4, 123:) Final: Median 76.5 g/ml (Quartile 1, Quartile3 : 54.5, 120.1:)	Arm1 vs Arm2: Mean difference: 3.42 (95% CI: -1.91 to 8.75), p=0.21 Arm1: Mean difference: -2.04 (95% CI:-6.11 to 2.02) Arm2: Mean difference: 1.38 (95% CI:-2.33 to 5.10) Arm3: Mean difference: -3.48 (95% CI:-10.55 to 3.59) Arm4: Mean difference: -4.97 (95% CI:-12.2 to 2.26)
Chan, 2012[15]	FHN	RCT	For daily and nocturnal intervention arms only LVM, g	LV mass	12 months	120	125	42	45					Arm2: Mean difference: -13.1 (95% CI: -21.3 to -5.0), p=0.002 Arm4: Mean difference: -10.9 (95% CI:-23.7 to 1.8), p=0.09 Arm2: Hazard Ratio: 0.61 (95% CI:0.46 to 0.82), p<0.001 Arm4: Hazard Ratio: 0.68 (95% CI:0.44 to 1.07), p=0.095

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Chan, 2012[15]	FHN	RCT	Daily and nocturnal intervention arms only LVM/baseline BSA, g/m^2	LV mass	12 months	120	125	42	45		Final: Mean -6.9 (95% CI: -11.3 to -2.4)		Final: Mean -5.2 (95% CI: -11.4 to 1.0)	Arm2: Mean difference: -6.9 (95% CI: -11.3 to -2.4), p=0.003 Arm4: Mean difference: -5.2 (95% CI:-11.4 to 1.0), p=0.10 Arm2: HR: 0.65 (95% CI:0.49 to 0.87), p0.003 Arm4: HR: 0.74 (95% CI:0.48 to 4.46), p=0.19
Chan, 2012[15]	FHN	RCT	Daily and nocturnal intervention arms only, % change in geometric mean of LVM	LV mass	12 months	120	125	42	45		Final: Mean -7.0 (95% CI: -12.6 to -1.0)		Final: Mean -9.1 (95% CI: -17.0 to -0.5)	Arm2: Mean difference: -7.0 (95% CI: -12.6 to -1.0), p=0.02 Arm4: Mean difference: -9.1 (95% CI:-17.0 to -0.5), p=0.04 Arm2: HR: 0.64 (95% CI:0.48 to 0.85), p0.002 Arm4: HR: 0.63 (95% CI:0.40 to 0.99), p=0.04
Chan, 2012[15]	FHN	RCT	Daily and nocturnal intervention arms only, Age </ 50yr subgroup	LV mass	12 months	120	125	42	45					Arm2: Treatment effect: -20.1 (95% CI: -31.6 to -8.6), p=0.24 Arm4: Treatment effect: -14.2 (95% CI:-34.7 to 6.3), p=NR
Chan, 2012[15]	FHN	RCT	Daily and nocturnal intervention arms only,. Age > 50yr subgroup	LV mass	12 months	120	125	42	45					Arm2: Treatment effect: -5.8 (95% CI: -17.5 to 5.9), p=NR Arm4: Treatment effect: -8.3 (95% CI:-24.8 to 8.2), p=NR
Chan, 2012[15]	FHN	RCT	Daily and nocturnal intervention arms only, Gender Male subgroup	LV mass	12 months	120	125	42	45					Arm2: Treatment effect: -12.8 (95% CI: -23.1 to -2.5), p=0.73 Arm4: Treatment effect: -12.0 (95% CI:-27.7 to 3.7), p=NR

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Chan, 2012[15]	FHN	RCT	Daily and nocturnal intervention arms only, Gender Female subgroup	LV mass	12 months	120	125	42	45					Arm2: Treatment effect: -13.9 (95% CI: -27.5 to -0.2), p=NR Arm4: Treatment effect: -8.8 (95% CI:-31.7 to 14.0), p=NR
Chan, 2012[15]	FHN	RCT	Daily and nocturnal intervention arms only, Diabetes Nondiabetic subgroup	LV mass	12 months	120	125	42	45					Arm2: Treatment effect: -20.2 (95% CI: -30.7 to -9.8), p=0.15 Arm4: Treatment effect: -13.3 (95% CI:-30.3 to 3.7), p=NR
Chan, 2012[15]	FHN	RCT	Daily and nocturnal intervention arms only, Diabetes Diabetic subgroup	LV mass	12 months	120	125	42	45					Arm2: Treatment effect: -2.9 (95% CI: -15.5 to 9.7), p=NR Arm4: Treatment effect: -7.8 (95% CI:-27.4 to 11.5), p=NR
Chan, 2012[15]	FHN	RCT	Daily and nocturnal intervention arms only, Race White subgroup	LV mass	12 months	120	125	42	45					Arm2: Treatment effect: -18.8 (95% CI: -34.2 to -3.3), p=0.43 Arm4: Treatment effect: -13.7 (95% CI:-33 to 5.5), p=NR
Chan, 2012[15]	FHN	RCT	Daily and nocturnal intervention arms only, Race Black subgroup	LV mass	12 months	120	125	42	45					Arm2: Treatment effect: -14.8 (95% CI: -27.4 to -2.3), p=NR Arm4: Treatment effect: -13.2 (95% CI:-38.5 to 12.0), p=NR

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Chertow, 2016[21]	FHN-Daily	RCT	Extended follow up group >24 months	LV mass	>24 months (median of 3.6 years (10%-90% range 1.5-5.3 years)	61 people total had CMRI at 12 month and extended time period.		NA	NA		Baseline: Mean 142 (SD: 53.1) 12 months: Mean 138.1 (SD: 51.5) Final, >24months: Mean 137.6 (SD: 50.7)	Baseline: Mean 139.8 (SD: 55.3) 12 months: Mean 125.5 (SD: 46) Final, >24 months: Mean 124 (SD: 43.8)		(-8.7; 95% CI -17.9 to 0.5)
Chertow, 2010[3]	FHN	RCT	NA	LV mass	12 months	120	125	NA	NA		Baseline: Mean 141 (SD: 49) Final: Mean 138 (SD: 52)	Baseline: Mean 142 (SD: 59) Final: Mean 125 (SD: 46)		Arm1 vs Arm2: Mean difference -13.8 (95% CI: -21.8 to -5.8), p<0.001 Arm1: Mean difference -2.4 (SD: 25.9) Arm2: Mean difference -16.3 (SD: 35.3) Arm1: Adjusted mean change -2.6 (SD: 3.2) Arm2: Adjusted mean change -16.4 (SD: 2.9)

BSA=body surface area; CI=confidence interval; EF=ejection fraction; FHN=Frequent Hemodialysis Network trials; g=grams; g/m2=grams per meters squared; g/ml=grams per milliliter; HR=hazard ratio; LV=left ventricular; LVEDV=left ventricular end diastolic volume; LVESV=left ventricular end systolic volume; LVM=left ventricular mass; N=number; NA=not applicable; NR=not reported; RCT=randomized controlled trial; RVEDV=right ventricular end diastolic volume; RVESV=right ventricular end systolic volume; y=years; SD=standard deviation

Evidence Table 15. Continuous quality of life outcomes of studies comparing hemodialysis frequency in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect	Comments
Chertow, 2010[3]	FHN	RCT	NA	physical health composite score	12 months	120	125	NA	NA	Baseline: Mean 38.5 (SD: 9.3) Final: Mean 38.5 (SD: 9.6)	Baseline: Mean 38.4 (SD: 11) Final: Mean 41.7 (SD: 10.7)			Arm1 vs Arm2: Mean difference: 3.2 (95% CI: 1 to 5.4, p=0.004 Arm1: Mean difference: 0.1 (SD: 8.7) Arm2: Mean difference: 3.3 (SD: 8.9) Arm1, Adjusted For: Mean difference: 0.2 (SD: 0.8) Arm1, Adjusted For: Mean difference: 3.4 (SD: 0.8)	Patients in the frequent-hemodialysis group had an increase in adjusted mean RAND-36 physical-health composite score of 3.4±0.8; the corresponding change in patients in the conventional-hemodialysis group was 0.2±0.8 (P = 0.004) (Fig. 3 in the Supplementary Appendix).
Chertow, 2016[21]	FHN	RCT	Extended follow up of trial population	Rand-36 health survey PHC	>24 months	43	45	NA	NA	Baseline: Mean 38.1 (SD: 9.7) Final, 12 months: Mean 38.5 (SD: 9.3) Final, >24 months: Mean 37.7 (SD: 10.3) Adjusted change from baseline: -0.6 (SE 1.1)	Baseline: Mean 38.1 (SD: 11.2) Final, 12 months: Mean 38.4 (SD: 11) Final, >24 months: Mean 39.3 (SD: 12.1) Adjusted change from baseline: -0.3 (SE 1.0)			Arm 1 vs. Arm 2: Treatment comparison (6x vs. 3x) 0.2 (-2.6 to 3.1), p=0.87)	Extended follow up group >24 months

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect	Comments
Hall, 2012[19]	FHN	RCT	Daily trial	RAND-36 Physical functioning (PF) in Daily Trial	12 months	42	45	81	96			Baseline: Mean 8.2 (SD: 2.6) Final: Mean 7.9 (SD: 2.8) Adjusted mean change from baseline: -0.41 (SE 0.21)	Baseline: Mean 8.6 (SD: 2.6) Final: Mean 8.4 (SD: 2.8) Adjusted mean change from baseline: -0.20 (SE 0.19)	Arm3 vs. 4: Mean difference: 0.21 (95% CI: -0.34 to 0.76)	
Hall, 2012[19]	FHN	RCT	Daily trial	RAND-36 Physical functioning (PF) in Daily Trial	12 months	42	45	90	102	Baseline: (:) Final: (:)	Baseline: (:) Final: (:)	Baseline: Mean 61 (SD: 24.7) Final: Mean 59.1 (SD: 24.7) Adjusted mean change from baseline: 0.0 (SE 2.2)	Baseline: Mean 58.6 (SD: 27) Final: Mean 64 (SD: 27.7) Adjusted mean change from baseline: 4.5 (SE 2.1)	Arm3 vs. 4: Mean difference: 4.4 (95% CI: -1.3 to 10.2)	Table 2

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect	Comments
Hall, 2012[19]	FHN	RCT	Daily trial	RAND-36 PHC Daily in-center	12 months	42	45	90	100			Baseline: Mean 38.4 (SD: 9.4) Final: Mean 38.6 (SD: 9.5) Adjusted mean change from baseline: 0.4 (SE 0.8)	Baseline: Mean 38.7 (SD: 11) Final: Mean 42.1 (SD: 10.8) Adjusted mean change from baseline: 3.4 (SE 0.8)	Arm3 vs. 4: Mean difference: 2.9 (95% CI: 0.8 to 5.1)	
Unruh, 2013[11]	FHN	RCT	NA	RAND-36 Emotional well-being	12 months	90	102			Baseline: Mean 77.6 (SD: 16.3) Final: Mean 75.6 (SD: 20.9) Adjusted mean change from baseline: -0.3 (SE 1.7)	Baseline: Mean 73.1 (SD: 22.5) Final: Mean 80.3 (SD: 17.5) Adjusted mean change from baseline: 5.2 (SE 1.6)			Arm1 vs Arm2: Treatment comparison (6x vs 3x) baseline to 12 months: 5.5 (1.3 to 9.8), p=<=0.05	

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect	Comments
Unruh, 2013[11]	FHN	RCT		RAND-36 Energy/Fatigue	12 months	90	102			Baseline: Mean 51.2 (SD: 20.8) Final: Mean 51.6 (SD: 20.5) Adjusted mean change from baseline: 1.6 (SE 2.0)	Baseline: Mean 47.1 (SD: 25.2) Final: Mean 58.6 (SD: 23.4) Adjusted mean change from baseline: 10.0 (SE 1.9)			Arm1 vs Arm2: Treatment comparison (6x vs 3x), baseline to 12 months: 8.3 (3.2 to 13.5), p=<=-.01	
Chertow, 2016[21]	FHN	RCT	Extended follow up of trial population	Rand-36 health survey PHC	>24 months	43	45	NA	NA	Baseline: Mean 38.1 (SD: 9.7) Final, 12 months: Mean 38.5 (SD: 9.3) Final, >24 months: Mean 37.7 (SD: 10.3) Adjusted change from baseline: -0.6 (SE 1.1)	Baseline: Mean 38.1 (SD: 11.2) Final, 12 months: Mean 38.4 (SD: 11) Final, >24 months: Mean 39.3 (SD: 12.1) Adjusted change from baseline: -0.3 (SE 1.0)			Arm 1 vs. Arm 2: Treatment comparison (6x vs. 3x) 0.2 (-2.6 to 3.1), p=0.87)	Extended follow up group >24 months

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect	Comments
Unruh, 2013[11]	FHN	RCT		RAND-36 Mental Health Composite	12 months	89	100			Baseline: Mean 46.0 (SD: 10.3) Final: Mean 45.7 (SD: 11.8)	Baseline: Mean 44.3 (SD: 13.0) Final: Mean 48.8 (SD: 11.4)	Baseline: Mean 45.9 (SD: 12.6) Final: Mean 45.6 (SD: 12.2)	Baseline: Mean 45.6 (SD: 10.5) Final: Mean 48.2 (SD: 11.7)	Arm1 vs Arm2: Treatment comparison (6x vs 3x), baseline to 12 months: 3.5 (95% CI: 95% CI (LL) to 95% CI (UL)), p=<=0.01 Arm3 vs Arm4: Treatment comparison (6x vs 3x), baseline to 12 months: 3.7 (95% CI: 95% CI (LL) to 95% CI (UL)), p=NR	
Unruh, 2013[11]	FHN	RCT	NA	RAND-36 Role limitation due to emotional problems	12 months	90	102			Baseline: Mean 78.4 (SD: 35.2) Final: Mean 77.1 (SD: 38.4) Adjusted change from baseline: -0.1 (SE 3.5)	Baseline: Mean 73.6 (SD: 38.1) Final: Mean 80.2 (SD: 36.1) Adjusted change from baseline: 3.6 (SE 3.3)			Arm1 vs Arm2: Treatment comparison (6x vs 3x), baseline to 12 months: 3.8 (95% CI: -5.1 to 12.7), p=	

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect	Comments
Unruh, 2013[11]	FHN	RCT	NA	RAND-36 Social Functioning	12 months	90	102			Baseline: Mean 72.3 (SD: 25.5) Final: Mean 72.8 (SD: 29.5) Adjusted change from baseline: 0.9 (SE 2.5)	Baseline: Mean 70.4 (SD: 28.0) Final: Mean 76.8 (SD: 25.5) Adjusted change from baseline: 5.0 (SE 2.4)			Arm1 vs Arm2: Treatment comparison (6x vs 3x), baseline to 12 months: 4.1 (95% CI: -2.4 to 10.6), p=	
Garg, 2017[16]	FHN	RCT	Daily trial	feeling thermometer	12 months	81	96	NA	NA	Baseline: Mean 70.5 (SD: 17.1) Final: Mean 71.3 (SD: 20.8) Adjusted mean change from baseline: -0.6 (SD: 1.9)	Baseline: Mean 73.8 (SD: 18.8) Final: Mean 79 (SD: 14.1) Adjusted mean change from baseline: +5.8 (SD 1.7)			Arm1 vs. Arm 2: Mean difference: 6.4 (95% CI: 1.8 to 11.1), adjusted for baseline value	FHN Daily

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect	Comments
Garg, 2017[16]	FHN	RCT	Daily trial	General health scale	12 months	3	106	NA	NA	Baseline: Mean 43.7 (SD: 21.5) Final: Mean 41.3 (SD: 21.5) Adjusted mean change from baseline: -3.35 (SD 1.95)	Baseline: Mean 46.8 (SD: 21.9) Final: Mean 52.4 (SD: 22.7) Adjusted mean change from baseline: 6.34 (SD 1.83)			Arm1 vs. Arm 2: Mean difference: 9.69 (95% CI: 4.68 to 14.7), adjusted for baseline value	FHN Daily
Garg, 2017[16]	FHN	RCT	Daily trial	HUI-3 score	12 months	92	106	NA	NA	Baseline: Mean 0.53 (SD: 0.38) Final: Mean 0.63 (SD: 0.36) Adjusted mean change from baseline: 0.09 (SD 0.03)	Baseline: Mean 0.57 (SD: 0.39) Final: Mean 0.6 (SD: 0.37) Adjusted mean change from baseline: 0.04 (SD 0.03)			Arm1 vs. Arm 2: Mean difference: -0.06 (95% CI: -0.14 to 0.02), adjusted for baseline value	FHN Daily

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect	Comments
Garg, 2017[16]	FHN	RCT	Daily trial	Time to recovery (min)	12 months	86	102	NA	NA	Baseline: Median 120 (10%, 90% percentile: 0, 480) Final: Median: 180 (10%, 90% percentile: 15, 1440) Adjusted mean change from baseline: 46 (95% CI: -69 to 161)	Baseline: Median (10%, 90% percentile: 5, 1440) Final: Median: 60 (10%, 90% percentile: 0, 180) Adjusted mean change from baseline (95% CI): -79 (-83 to -74)			Arm1 vs. Arm 2: Mean difference: -84 (95% CI: -89 to -80), p<0.0001, adjusted for baseline value	FHN Daily

3x=3 times; 6x=6 times; CI=confidence interval; FHN=Frequent Hemodialysis Network trials; HUI-3= Health Utilities Index-3; LL=lower limit; min=minutes; N=number of patients; NA=not applicable; PF=physical functioning; PHC= Physical health composite; RAND-36= RAND-36 Measure of Health-Related Quality of Life; RCT=randomized controlled trial; SD=standard deviation; SE=standard error; UL=upper limit

Evidence Table 16. Continuous symptomatic measure outcomes of studies comparing hemodialysis frequency in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect	Comments
Unruh, 2013[11]	FHN	RCT	Daily and Nocturnal trials	BDI	12 months	86	95	Baseline: Mean 12.4 (SD: 9.5) Final: Mean 12.1 (SD: 9.9) adjusted change from baseline: -0.6 (SE 0.7)	Baseline: Mean 12.6 (SD: 8.6) Final: Mean 10.7 (SD: 8.8) adjusted change from baseline: -1.9 (SE 0.7)	Arm1 vs Arm2: Treatment comparison (6x vs 3x), baseline to 12 months: -1.4 (95% CI: -3.2 to 0.5), p=NR	Daily arm 1 and 2, Nocturnal arm 3 and 4
Unruh, 2013[11]	FHN	RCT	NA	Cognitive subscale of BDI score	12 months	86	95	Baseline: Mean 7.0 (SD: 7.4) Final: Mean 6.9 (SD: 7.4) adjusted change from baseline: 0.4 (SE 0.6)	Baseline: Mean 7.1 (SD: 6.3) Final: Mean 6.3 (SD: 6.5) adjusted change from baseline: -1.0 (SE 0.5)	Arm1 vs Arm2: Treatment comparison, 6x vs 3x, baseline to 12 months: -0.6 (95% CI: -2.0 to 0.9), p=NR	
Unruh, 2016[18]	FHN	RCT	NA	SPI-II: primary sleep outcome in Daily Trial (Only available for 81% of eligible study participants)	12 months	76	93	Baseline: Mean 34.7 (SD: 19.4) Final: Mean 34 (SD: 22.8)	Baseline: Mean 35.2 (SD: 20.5) Final: Mean 30.9 (SD: 22.2)	Arm1: change at 12 months (SE): −1.2 ± 1.9 Arm2: change at 12 months (SE): −3.8 ± 1.8 Treatment comparison at 12 months (6x versus 3x):−2.6 (−7.5 to 2.3) Values adjusted for clinical center and baseline score.	the observed data (Table 3) is the comparison of Daily Trial frequent (6x week) vs. conventional (3x week)
Unruh, 2016[18]	FHN	RCT	NA	% SPI-II score in Daily Trial >47	12 months	76 (Calculated form Figure 1)	93 (Calculated form Figure 1)	Baseline: 4.3% Final: 3.5%	Baseline: 2.4% Final: 1.8%	NR	Figure 2: % of participants in Daily Trial with SPI II score >47 by time and treatment CATEGORICAL OUTCOME

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect	Comments
Unruh, 2016[18]	FHN	RCT	NA	hours of sleep in Daily Trial	12 months	76 (Calculated form Figure 1)	93 (Calculated form Figure 1)	Baseline: Mean 5.98 (SD: 1.44) Final: Mean 5.89 (SD: 1.77)	Baseline: Mean 5.94 (SD: 1.82) Final: Mean 6.04 (SD: 1.77)	Arm1: change from baselin 12 months (SE): −0.05 ± 0.16 Arm2: change from baselin 12 months (SE): −0.02 ± 0.15 12 mo Treatment comparison (6× versus 3×) :0.02(−0.39 to 0.43)	Table 3: We compared between-group mean changes in scores from baseline to Month 12 for the MOS SPI-II using linear mixed effects models with an unstructured covariance matrix incorporating baseline, 4-month and 12-month scores for each measure. In accordance with prespecified analysis plans, we adjusted for the baseline score in both trials and for the clinical center in the Daily Trial There were no differences observed in self-reported snoring or number of naps at 4 or 12 months (Supplementary data, Appendix). The effects of frequent hemodialysis on quality of sleep did not significantly differ according to age, sex, race/ethnicity, ESRD vintage, current or former smoking or score on the BDI

3x=3 times; 6x=6 times; BDI=Beck's Depression Inventory; CI=confidence interval; ESRD= End-stage renal disease; FHN=Frequent Hemodialysis Network trials; MOS=Medical Outcomes Study; N=number of patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial; SD=standard deviation; SE=standard error; SPI-II= Medical Outcomes Study Sleep Problems Index-II

Evidence Table 17. Categorical cardiovascular mortality outcomes of studies comparing hemodialysis frequency in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Follow up	N, Arm1	N, Arm2	N, Arm3	N, Arm4	n / N (%), Arm1	n / N (%), Arm2	n / N (%), Arm3	n / N (%), Arm4	Treatment Effect	Comments
Weinhandl, 2012[38]	NR	Observational: retrospective	NA	CVD mortality rate	48 months	9365	1873	262249	NA	Baseline: NR Final: NR	Baseline: NR Final: NR	NR	NR	Arm1 vs Arm2: HR = 0.92 (95% CI: 0.78 to 1.09), p=0.34	Referent: matched thrice-weekly in-center patients.

CI=confidence interval; CVD=cardiovascular disease; HR=hazard ratio; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported

Evidence Table 18. Categorical infection mortality outcomes of studies comparing hemodialysis frequency in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Follow up	N, Arm 1	N, Arm 2	N, Arm 3	N, Arm 4	n / N (%), Arm1	n / N (%), Arm2	n / N (%), Arm3	n / N (%), Arm4	Treatment Effect	Comments
Weinhandl, 2012[38]	NR	Observational: retrospective	NA	Infection mortality rate	48 months	9365	1873	262249	NA	Baseline: NR Final: NR	Baseline: NR Final: NR	NR	NR	Arm1 vs Arm2: HR = 1.13 (95% CI: 0.84 to 1.53), p=0.41	

CI=confidence interval; HR=hazard ratio; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported

Evidence Table 19. Categorical all cause mortality outcomes of studies comparing hemodialysis frequency in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	n / N (%), Arm1	n / N (%), Arm2	n / N (%), Arm3	n / N (%), Arm4	Treatment Effect	Comments
Chertow, 2010[40]	FHN-Daily	RCT	NA	Overall mortality rate	12 months	120	125	NA	NA	Final: 9	Final: 5			NR	Of the 5 patients in the frequent hemodialysis group who died, 4 died suddenly, and the fifth died from hemorrhage (from the vascular access). In the conventional-hemodialysis group, 3 patients died suddenly, and 1 each died from myocardial infarction, stroke, sepsis, lung cancer, hemorrhage (from the gastrointestinal tract), and enterocolitis.
Chertow, 2016[21]	FHN-Daily	RCT	Extended follow up of trial population	Overall mortality rate	>24 months	120	125	NA	NA	Final: 0.082 deaths per patient-year	Final: 0.043 deaths per patient-year			Arm1, Full Follow-up: HR 0.54 (95% CI: 0.31 to 0.93), p=0.024 Arm1, Censor Kidney transplant: HR 0.56 (95% CI: 0.32 to 0.99), p=0.043	
Mathew, 2016[34]	NR	Observational: retrospective	NA	Overall mortality rate	4 years	50162	160	434	NA	Final: Mean: 17.8 deaths per 100 person years	Final: Mean: 17.6 deaths per 100 person years	Final: Mean: 35.2 deaths per 100 person years		Arm2: HR: 1.56 (95% CI: 1.21 to 2.03), p=NR	
Johansen, 2009[32]	NR	Retrospective cohort	NA	Overall mortality rate	2 years or greater than 2 years	43		430		139 per 1000 patient-ears		91 per 1000patient-ears		HR: 0.64; 95% CI: 0.31 to 1.31; p=0.22	

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	n / N (%), Arm1	n / N (%), Arm2	n / N (%), Arm3	n / N (%), Arm4	Treatment Effect	Comments
Weinhandl, 2012[38]	NR	Observational: retrospective	NA	Overall mortality rate	48 months	9365	1873	262249	NA					Arm1 vs Arm2: HR = 0.87 (95% CI: 0.78 to 0.97), p=0.01	Intention to treat analyses. Kaplan meier curves - Figure 1 - Survival percentages in DHHD versus in-center patients were 89.4% versus 87.4% at 1 year, 80.1% versus 77.8% at 2 years, and 72.9% versus 69.8% at 3 years. The difference in survival estimates was significant (log-rank test P=0.01). additional cause specific outcomes included cachexia/dialysis withdrawal (95%CI: 0.63 (0.41–0.95), p=0.03); other specified cause: 1.06 (0.81–1.37), p=0.69; unknown cause: 0.59 (0.44–0.79), p<0.01 Did not abstract interval specific mortality (i.e., 1-6 mo; 7-12months,
Weinhandl, 2012[38]	NR	Observational: retrospective	Age <52 yr	Overall mortality rate	48 months	9365	1873	262249	NA					Arm1 vs Arm2: 0.96 (95% CI: 0.79 to 1.2), p=NR	All subgroup analyses drawn from Figure 2 (95% CI obtained from digitizer program)
Weinhandl, 2012[38]	NR	Observational: retrospective	> 52 yr	Overall mortality rate	48 months	9365	1873	262249	NA					Arm1 vs Arm2: 0.84 (95% CI: 0.74 to 0.96), p=NR	All subgroup analyses drawn from Figure 2 (95% CI obtained from digitizer program)
Weinhandl, 2012[38]	NR	Observational: retrospective	Race: black	Overall mortality rate	48 months	9365	1873	262249	NA					Arm1 vs Arm2: 0.86 (95% CI: 0.67 to 1.11), p=NR	All subgroup analyses drawn from Figure 2 (95% CI obtained from digitizer program)

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	n / N (%), Arm1	n / N (%), Arm2	n / N (%), Arm3	n / N (%), Arm4	Treatment Effect	Comments
Weinhandl, 2012[38]	NR	Observational: retrospective	Race: other	Overall mortality rate	48 months	9365	1873	262249	NA					Arm1 vs Arm2: 0.86 (95% CI: 0.76 to 0.97), p=NR	All subgroup analyses drawn from Figure 2 (95% CI obtained from digitizer program)
Weinhandl, 2012[38]	NR	Observational: retrospective	Women	Overall mortality rate	48 months	9365	1873	262249	NA					Arm1 vs Arm2: 0.80 (95% CI: 0.66 to 0.97), p=NR	All subgroup analyses drawn from Figure 2 (95% CI obtained from digitizer program)
Weinhandl, 2012[38]	NR	Observational: retrospective	Men	Overall mortality rate	48 months	9365	1873	262249	NA					Arm1 vs Arm2: 0.91 (95% CI: 0.79 to 1.04), p=NR	All subgroup analyses drawn from Figure 2 (95% CI obtained from digitizer program)
Weinhandl, 2012[38]	NR	Observational: retrospective	No CVD	Overall mortality rate	48 months	9365	1873	262249	NA					Arm1 vs Arm2: 0.80 (95% CI: 0.65 to 0.99), p=NR	All subgroup analyses drawn from Figure 2 (95% CI obtained from digitizer program)
Weinhandl, 2012[38]	NR	Observational: retrospective	Yes CVD	Overall mortality rate	48 months	9365	1873	262249	NA					Arm1 vs Arm2: 0.85 (95% CI: 0.75 to 0.97), p=NR	All subgroup analyses drawn from Figure 2 (95% CI obtained from digitizer program)
Weinhandl, 2012[38]	NR	Observational: retrospective	No DM	Overall mortality rate	48 months	9365	1873	262249	NA					Arm1 vs Arm2: 0.94 (95% CI: 0.80 to 1.11), p=NR	All subgroup analyses drawn from Figure 2 (95% CI obtained from digitizer program)

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	n / N (%), Arm1	n / N (%), Arm2	n / N (%), Arm3	n / N (%), Arm4	Treatment Effect	Comments
Weinhandl, 2012[38]	NR	Observational: retrospective	Yes DM	Overall mortality rate	48 months	9365	1873	262249	NA					Arm1 vs Arm2: 0.81 (95% CI: 0.70 to 0.95), p=NR	All subgroup analyses drawn from Figure 2 (95% CI obtained from digitizer program)
Weinhandl, 2012[38]	NR	Observational: retrospective	BMI<27	Overall mortality rate	48 months	9365	1873	262249	NA					Arm1 vs Arm2: HR 0.96 (95% CI: 0.83 to 1.10), p=NR	All subgroup analyses drawn from Figure 2 (95% CI obtained from digitizer program)
Weinhandl, 2012[38]	NR	Observational: retrospective	BMI>27	Overall mortality rate	48 months	9365	1873	262249	NA					Arm1 vs Arm2: HR 0.77 (95% CI: 0.65 to 0.92), p=NR	All subgroup analyses drawn from Figure 2 (95% CI obtained from digitizer program)
Weinhandl, 2012[38]	NR	Observational: retrospective	ESRD duration <3 yr	Overall mortality rate	48 months	9365	1873	262249	NA					Arm1 vs Arm2: HR 0.91 (95% CI: 0.78 to 1.06), p=NR	All subgroup analyses drawn from Figure 2 (95% CI obtained from digitizer program)

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	n / N (%), Arm1	n / N (%), Arm2	n / N (%), Arm3	n / N (%), Arm4	Treatment Effect	Comments
Weinhandl, 2012[38]	NR	Observational: retrospective	ESRD duration >3 yr	Overall mortality rate	48 months	9365	1873	262249	NA					Arm1 vs Arm2: HR 0.83 (95% CI: 0.71 to 0.97), p=NR	All subgroup analyses drawn from Figure 2 (95% CI obtained from digitizer program)
Weinhandl, 2012[38]	NR	Observational: retrospective	DHHD initiation year 2005 or 2006	Overall mortality rate	48 months	9365	1873	262249	NA					Arm1 vs Arm2: HR 0.93 (95% CI: 0.81 to 1.07), p=NR	All subgroup analyses drawn from Figure 2 (95% CI obtained from digitizer program)
Weinhandl, 2012[38]	NR	Observational: retrospective	DHHD initiation year 2007	Overall mortality rate	48 months	9365	1873	262249	NA					Arm1 vs Arm2: HR 0.78 (95% CI: 0.65 to 0.94), p=NR	All subgroup analyses drawn from Figure 2 (95% CI obtained from digitizer program)
Weinhandl, 2012[38]	NR	Observational: retrospective	MPP: no	Overall mortality rate	48 months	9365	1873	262249	NA					Arm1 vs Arm2: HR 0.76 (95% CI: 0.54 to 1.09), p=NR	All subgroup analyses drawn from Figure 2 (95% CI obtained from digitizer program)

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	n / N (%), Arm1	n / N (%), Arm2	n / N (%), Arm3	n / N (%), Arm4	Treatment Effect	Comments
Weinhandl, 2012[38]	NR	Observational: retrospective	MPP: yes Medicare as primary payer	Overall mortality rate	48 months	9365	1873	262249	NA					Arm1 vs Arm2: HR 0.88 (95% CI: 0.79 to 0.99), p=NR	All subgroup analyses drawn from Figure 2 (95% CI obtained from digitizer program)

BMI=body mass index; CI=confidence interval; CVD=cardiovascular disease; DHHD=daily home hemodialysis; DM=Diabetes mellitus; ESRD= End-stage renal disease; HR=hazard ratio; MPP= Medicare as primary payer; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported; yr=years

Evidence Table 20. Continuous weight outcomes of studies comparing hemodialysis frequency in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Kaysen, 2012[13]	FHN	RCT	NA	Body cell mass (kg)	12 months			120	125			Baseline: Mean 26.6 (SD: 8.2) Final: Mean 27.3 (SD: 7.7)	Baseline: Mean 27.7 (SD: 8.8) Final: Mean 27.3 (SD: 9.3)	Arm3 vs Arm4: Treatment Comparison (6x vs. 3x), baseline to 12 months, Daily: -0.23 (95% CI: -1.03 to 0.56), p=0.56
Kaysen, 2012[13]	FHN	RCT	NA	Adiposity (%)	12 months			120	125			Baseline: Mean 37.6 (SD: 13.7) Final: Mean 37.3 (SD: 12.8)		Arm3 vs Arm4: 1.85: Treatment Comparison (6x vs. 3x), baseline to 12 months, Daily (95% CI: to -0.34), p=0.76
Kaysen, 2012[13]	FHN	RCT	NA	Adiposity (%)	12 months			120	125			Baseline: Mean 37.6 (SD: 13.7) Final: Mean 37.3 (SD: 12.8)		Arm3 vs Arm4: 1.85: Treatment Comparison (6x vs. 3x), baseline to 12 months, Daily (95% CI: to -0.34), p=0.76
Kaysen, 2012[13]	FHN	RCT	NA	Lean body mass (kg)	12 months			120	125			Baseline: Mean 44.0 (SD: 10.2) Final: Mean 45.0 (SD: 9.6)	Baseline: Mean 44.6 (SD: 9.8) Final: Mean 43.2 (SD: 10.3)	Arm3 vs Arm4: Treatment Comparison (6x vs. 3x), baseline to 12 months, Daily: −1.26 (95% CI: −2.12 to −0.41), p=0.004

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Kaysen, 2012[13]	FHN	RCT	NA	Postdialysis weight	12 months			120	125			Baseline: Mean 78.9 (SD: 19.76) Final: Mean 79.19 (SD: 19.86) Adjusted mean change: 0.23 (SE 0.45)	Baseline: Mean 77.0 (SD: 20.84) Final: Mean 78.15 (SD: 21.2) Adjusted mean change: 0.85 (SE 0.43)	Arm3 vs Arm4: Treatment comparison baseline to 12 months, Daily: 0.62 (95% CI: −0.59 to 1.83), p=0.32
Kaysen, 2012[13]	FHN	RCT	NA	Predialysis weight	12 months			120	125			Baseline: Mean 81.75 (SD: 20.26) Final: Mean 81.97 (SD: 20.37) Adjusted mean change: 0.15 (SE 0.38)	Baseline: Mean 80.17 (SD: 21.26) Final: Mean 80.28 (SD: 21.51) Adjusted mean change: -0.06 (SE 0.36)	Arm3 vs Arm4: Treatment effect (6x vs 3x) in 12 months, Daily: −0.21 (95% CI: −1.24 to 0.82), p=0.69
Kaysen, 2012[13]	FHN	RCT	NA	Extra-cellular water (L)	12 months			120	125			Baseline: Mean 22.9 (SD: 4.7) Final: Mean 23.4 (SD: 4.9)	Baseline: Mean 22.7 (SD: 4.4) Final: Mean 21.6 (SD: 4.4)	Arm3 vs Arm4: Treatment comparison from 6x to 3x, baseline to 12 months, Daily: −1.12 (95% CI: −1.83 to −0.41), p=0.002
Kaysen, 2012[13]	FHN	RCT	NA	Intracellular water (L)	12 months			120	125			Baseline: Mean 21.0 (SD: 6.5) Final: Mean 21.6 (SD: 6.1)	Baseline: Mean 21.9 (SD: 6.9) Final: Mean 21.5 (SD: 7.4)	Arm3 vs Arm4: Treatment comparison, 6x to 3x, baseline to 12 months, Daily Trial: −0.19 (95% CI: −0.81 to 0.44), p=0.562

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Kaysen, 2012[13]	FHN	RCT	NA	Kinetic Volume	12 months			120	125			Baseline: Mean 36.2 (SD: 8.6) Final: Mean 37.1 (SD: 8.5)	Baseline: Mean 36.8 (SD: 9.5) Final: Mean 35.6 (SD: 9.1)	Arm3 vs Arm4: Treatment comparison, baseline to 12 months, 6x to 3x, Daily: -1.55 (95% CI: -2.8 to -0.29), p=0.02
Kaysen, 2012[13]	FHN	RCT	NA	Phase angle (degrees)	12 months			120	125			Baseline: Mean 5.21 (SD: 1.21) Final: Mean 5.34 (SD: 1.58)	Baseline: Mean 5.65 (SD: 1.74) Final: Mean 5.78 (SD: 1.96)	Arm3 vs Arm4: Treatment comparison, baseline to 12 months, Nocturnal: −0.05 (95% CI: −0.66 to 0.56), p=0.87
Kaysen, 2012[13]	FHN	RCT	NA	Reactance (ohms)	12 months			120	125			Baseline: Mean 48.2 (SD: 12.6) Final: Mean 47.4 (SD: 15.2)	Baseline: Mean 48.9 (SD: 14.1) Final: Mean 53.3 (SD: 15.3)	Arm3 vs Arm4: Treatment comparison baseline to 12 months, Daily: 5.2 (95% CI: 1.3 to 9.2), p=0.010
Kaysen, 2012[13]	FHN	RCT	NA	Resistance (ohms)	12 months			120	125			Baseline: Mean 488 (SD: 99) Final: Mean 466 (SD: 91)	Baseline: Mean 460 (SD: 89) Final: Mean 492 (SD: 93)	Arm3 vs Arm4: Treatment comparison 6x to 3x, 12 months to baseline, Daily: 30.4 (95% CI: 11.1 to 49.6), p=0.002

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Kaysen, 2012[13]	FHN	RCT	NA	Total body water	12 months			120	125			Baseline: Mean 43.9 (SD: 10.2) Final: Mean 44.9 (SD: 9.6)	Baseline: Mean 44.5 (SD: 9.7) Final: Mean 43.1 (SD: 10.2)	Arm3 vs Arm4: Treatment comparison from baseline to 12 months, 6x to 3x, Daily: -1.3 (95% CI: -2.1 to -0.4), p=0.004
Kaysen, 2012[13]	FHN	RCT	NA	Vector Length	12 months			120	125			Baseline: Mean 291.8 (SD: 64.2) Final: Mean 278.1 (SD: 58.2)	Baseline: Mean 278.0 (SD: 61.1) Final: Mean 297.4 (SD: 65.2)	Arm3 vs Arm4: Treatment comparison, baseline to 12 months, 6x to 3x, Daily: 19.6 (95% CI: 7.6 to 31.6), p=0.0015
Raimann, 2016[6]	FHN	RCT	NA	time-integrated estimate of ECF load (TIFL)	12 months	120	125			Baseline: Mean 10.57 (SD: 3.68) Final: Mean 9.34 (SD: 3.57)	Baseline: Mean 10.28 (SD: 4.13) Final: Mean 6.01 (SD: 3.2)			Arm1 vs Arm2: Mean difference: -2.97 (95% CI: -3.79 to -2.15, p<0.001 Arm1: Mean difference: -1.01 (95% CI: -1.66 to -0.36) Arm2: Mean difference: -3.99 (95% CI:-4.60 to -3.38)

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Raimann, 2016[6]	FHN	RCT	NA	interdialytic weight gain (IDWG)	12 months	120	125			Baseline: Mean 3.14 (SD: 0.96) Final: Mean 3.1 (SD: 1.04)	Baseline: Mean 3.16 (SD: 0.99) Final: Mean 2.11 (SD: 0.86)			Arm1 vs Arm2: Mean difference: -0.95 (95% CI: -1.12 to -0.78, p<0.001 Arm1: Mean difference: -0.07 (95% CI: -0.2 to 0.06) Arm2: Mean difference: -1.03 (95% CI:-1.2 to -0.9)
Raimann, 2016[6]	FHN	RCT	NA	interdialytic weight gain (IDWG)	12 months	120	125							In the Daily Trial, there were significant interactions between the assigned modality and the residual UVol; patients with lower residual UVol exhibited more pronounced effects on IDWG and TIFL. The slope estimates for IDWG were 1.2 liter × days per liter/day residual UVol (p = 0.03) and 4.7 liter × days per liter/day residual UVol (p = 0.02) for TIFL.

%=percentage; 3x=3 times; 6x=6 times; CI=confidence interval; ECF=extracellular fluid; FHN=Frequent Hemodialysis Network trials; kg=kilograms; IDWG= Interdialytic weight gain; L=liters; N=number of patients; NA=not applicable; RCT=randomized controlled trial; SD=standard deviation; SE=standard error; TIFL=Time-integrated estimate of extracellular fluid load; UVol= Urine volume

Evidence Table 21. Continuous other outcomes of studies comparing hemodialysis frequency in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect	Comments
Chan, 2012[15]	FHN	RCT	NA	Predialysis Heart rate, /min	12 months	120	125	42	45	Baseline: NR Final: Mean -0.4 (SD: 1.4)	Baseline: NR Final: Mean 2.9 (SD: 1.3)	Baseline: NR Final: Mean 0.5 (SD: 2.4)	Baseline: NR Final: Mean 4.0 (SD: 2.4)	Arm1 vs Arm2: p=0.06 Arm3 vs Arm4: p=0.27 Arm1: Mean difference: -0.4 (SD: 1.4) Arm2: Mean difference: 2.9 (SD: 1.3) Arm3: Mean difference: 0.5 (SD: 2.4) Arm4: Mean difference: 4.0 (SD: 2.4)	
Johansen, 2009[32]	NR	Retrospective cohort		Composite moratlity or major morbitity	2 years or greater than 2 years	43		430						HR, 0.83; 95% CI: 0.42 to 1.65. p=0.60	
Lo, 2017[17]	FHN	RCT	NA	prolactin, ng/ml	12 months	91	86			Baseline: Median 64.3 (IQR: 34.9 to 108.7) Final: Median 45.8 (IQR: 29.0 to 90.4)	Baseline: Median 59.7 (IQR: 40.5 to 99.1) Final: Median 58.4 (IQR: 36.0 to 110.1)			Arm1 vs Arm2: treatment effect: -1% (95% CI: -26.7% to 33.5%, p=0.95 Arm1: Mean difference: -14.6% adjusted mean change from baseline (95% CI: -33.1% to 8.9%) Arm2: Mean difference: -15.5% adjusted mean change from baseline (95% CI:-34.6% to 9.1%)	
Kurella, 2013[12]	FHN	RCT	Daily	3MS, MMSE	12 months	101	117			Baseline: Mean 87 (SD: 10) Final: Mean 89 (SD: 9)	Baseline: Mean 87 (SD: 9) Final: Mean 89 (SD: 10)			Mean difference: +0.2 (-1.8 to 2.2)	figure 3 and maybe figure 1 and s1 give numbers of f/u

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect	Comments
Kurella, 2013[12]	FHN	RCT	daily	Improvement in trail B score	12 months	101	117							Arm1 vs Arm2: OR 0.99 (95% CI: 0.59 to 1.66), p=NR	
Kurella, 2013[12]	FHN	RCT	daily	Extended cognitive battery	12 months	31	28							No significant differences in tests of attention or psychomotor speed. Significantly larger improvements in Rey Auditory Verbal Learning Test Immediate Recall and the Controlled Oral Word Association Tests	
Chertow, 2010[3]	FHN	RCT	NA	failure to complete trail making test part B in 5 min	12 months	120	125	NA	NA	6 months, counts: 22 (Proportion: 27.2) Final, counts: 19 (Proportion: 23.5)	6 months, Counts: 25 (Proportion: 26.3) Final, Counts: 23 (Proportion: 24.2)			Arm1 vs Arm2: RR 0.99 (95% CI: 0.81 to 1.21), p=0.27	table 3 - P values for the number of antihypertensive agents and the failure to complete the Trail Making Test Part B in 5 minutes were calculated with the use of exact Wilcoxon rank-sum tests, stratified according to quartiles of the corresponding baseline values.

3MS= Modified Mini-Mental State Examination; /min=per minute; CI=confidence interval; FHN=Frequent Hemodialysis Network trials; f/u=followup; MMSE= Mini-Mental State Examination; N=number of patients; NA=not applicable; ng/ml=nanograms per milliliter; NR=not reported; OR=odds ratio; RCT=randomized controlled trial; RR=relative risk; SD=standard deviation

Evidence Table 22. Continuous albumin outcomes of studies comparing hemodialysis duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Lacson, 2012[28]	NR	Observational: prospective	Pre-conversion to INHD, a subset of 725 patients (97% of intervention group)	Albumin level	180 days	2062	746	NA	NA	Baseline: NR Final: Increase in albumin, not described whether mean/median: 0.2	Baseline: NR Final: Increase in albumin, not described whether mean/median: 0.6			NR

INHD=in-center nocturnal hemodialysis; N=number of patients; NA=not applicable; NR=not reported

Evidence Table 23. Continuous hemoglobin outcomes of studies comparing hemodialysis duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Lacson, 2012[28]	NR	Observational: prospective	Pre-conversion to INHD, a subset of 725 patients (97% of intervention group)	Hemoglobin level	180 days	2062	746	NA	NA					Arm1, Change in hemoglobin, no mean/median described: 0.1 Arm2, Change in hemoglobin, no mean/median described: 0.4

INHD=in-center nocturnal hemodialysis; N=number of patients; NA=not applicable; NR=not reported

Evidence Table 24. Continuous phosphorous outcomes of studies comparing hemodialysis duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect	Comments
Lacson, 2012[28]	NR	Observational: prospective	Subgroup of 725 patients with data prior to conversion from CHD to nocturnal HD (97% of full nocturnal group)	Phosphorus level	180 days	2062	746	NA	NA	Baseline: not stated whether mean or median 5.75 Final: not stated whether mean or median 5.85	Baseline: not stated whether mean or median 5.73 Final: not stated whether mean or median 5.02			Arm2: p<0.001	Described p-values for WBC's, but no data presented.
Troidle, 2007[29]	NR	Observational: prospective	NA	Phosphorus level	NR	14	NA	NA	NA	Baseline: Mean 5.3 (SD: 1.27) Final, 6 months: NR	Baseline: NR Final, 4 months: Mean 4.4 (SD: 1.1)			Arm1 vs Arm2: p=0.049	Serum phosphorus (mg/dL), pre-post comparison, p=0.049

CHD=conventional hemodialysis; HD=hemodialysis; mg/dL=milligrams per deciliter; N=number of patients; NA=not applicable; NR=not reported; WBC=white blood cells

Evidence Table 25. Continuous calcium outcomes of studies comparing hemodialysis duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect	Comments
Lacson, 2012[28]	NR	Observational: prospective	Pre-conversion to INHD, a subset of 725 patients (97% of intervention group)	Calcium	180 days	2062	746	NA	NA	Baseline: NR Final: NR	Baseline: NR Final: Mean 0.1-0.2 increase in mean serum calcium			Arm2: p=<0.001	not described, between baseline and 180 days for subgroup after conversion
Troidle, 2007[29]	NR	Observational: prospective	NA	Serum calcium (mg/dL)	6 months	14	NA	NA	NA	Baseline: Mean 9.3 (SD: 1.0) Final: NR	Baseline: NR Final: Mean 9.3 (SD: 0.81)			Pre-post comparison, p=0.94	Pre-post comparison, p=0.94

INHD=in-center nocturnal hemodialysis; mg/dL=milligrams per deciliter; N=number of patients; NA=not applicable; NR=not reported; SD=standard deviation

Evidence Table 26. Categorical compliance outcomes of studies comparing hemodialysis duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n / N (%), Arm1	n / N (%), Arm2	Treatment Effect	Comments
Dember, 2019[26]	TiME	RCT	Full Analysis Population	Compliance and adherence	36 months	6498	5007	Baseline: NR Final: 3305/3966 (83.3)	Baseline: NR Final: 2526/3069 (82.3)	NR	
Dember, 2019[26]	TiME	RCT	the primary analysis population excluded patients who had, at baseline, an estimated body water volume .42.5 L as determined by the Watson formula	Compliance and adherence	36 months	6498	5007	Baseline: NR Final: 2103/2532 (83.1)	Baseline: NR Final: 1584/1938 (81.7)	NR	
Dember, 2019[26]	TiME	RCT	NA	Compliance and adherence	Mean 13.2 months	6498	5007	Baseline: NR Final: 2103/2532 (83.1)	Baseline: NR Final: 1584/1938 (81.7)	Arm1 vs Arm2: RR 0.99 (95% CI: 0.85 to 1.16), p=0.94	Missed dialysis sessions. data from primary analysis population

CI=confidence interval; L=liters; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial; RR=relative risk; TiME=Time to Reduce Mortality in ESRD

Evidence Table 27. Continuous compliance outcomes of studies comparing hemodialysis duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Effect
Dember, 2019[26]	TiME	RCT	Full Analysis Population	Compliance and adherence	36 months	6498	5007			Arm1: Missed dialysis sessions per 100 patient-years: 1351 (1237-1475) per 100 patient-yr Arm2: Missed dialysis sessions per 100 patient-years: 1285 (1169-1413) per 100 patient-yr
Dember, 2019[26]	TiME	RCT	the primary analysis population excluded patients who had, at baseline, an estimated body water volume .42.5 L as determined by the Watson formula	Compliance and adherence	36 months	6498	5007			Arm2: Rate ratio of missed dialysis sessions: 0.99 (0.85-1.16)
Dember, 2019[26]	TiME	RCT	Full Analysis Population	Compliance and adherence	36 months	6498	5007			Arm2: Rate ratio Missed dialysis sessions: 0.95 (0.84-1.08)
Dember, 2019[26]	TiME	RCT	the primary analysis population excluded patients who had, at baseline, an estimated body water volume .42.5 L as determined by the Watson formula	Compliance and adherence	36 months	6498	5007			Arm1: Missed dialysis sessions per 100 patient-years: 1253 (1133-1386) per 100 patient-yr Arm2: Missed dialysis sessions per 100 patient-years: 1246 (1103-1407) per 100 patient-yr

L=liters; N=number of patients; patient-yr=patient-years; RCT=randomized controlled trial; TiME=Time to Reduce Mortality in ESRD

Evidence Table 28. Categorical hospitalization outcomes of studies comparing hemodialysis duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n (%), Arm1	n (%), Arm2	Treatment Effect	Comments
Dember, 2019[26]	TiME	RCT	NA	Hospitalization rate	Mean 13.2 months	6498	5007	Final, counts: 1792 (70.8)	Final, Counts: 1.64 (70.4)	Arm1 vs Arm2: RR 0.96 (95% CI: 0.86 to 1.06), p=0.40	Data from primary analysis population
Dember, 2019[26]	TiME	RCT	the primary analysis population excluded patients who had, at baseline, an estimated body water volume .42.5 L as determined by the Watson formula	Hospitalizations	36 months	6498	5007	Final, counts: 1792 (70.8)	Final, Counts: 1364 (70.4)	Arm1 vs Arm2: HR 0.95 (95% CI: 0.87 to 1.05), p=NR	
Dember, 2019[26]	TiME	RCT	Full Analysis Population	Hospitalizations	36 months	6498	5007	Final, counts: 2751 (69.4)	Final, Counts: 2116 (68.9)	Arm1 vs Arm2: HR 0.98 (95% CI: 0.9 to 1.06), p=NR	

CI=confidence interval; HR=hazard ratio; L=liters; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial; TiME=Time to Reduce Mortality in ESRD

Evidence Table 29. Continuous hospitalization outcomes of studies comparing hemodialysis duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect
Dember, 2019[26]	TiME	RCT	the primary analysis population excluded patients who had, at baseline, an estimated body water volume .42.5 L as determined by the Watson formula	Hospitalization rate	36 months	6498	5007			Arm1, hospitalizations per 100 person-year: 214.1 (202.5-226.3) per 100 py Arm2, hospitalizations per 100 person-year: 204.5 (186.9-223.7) per 100 py
Dember, 2019[26]	TiME	RCT	Full Analysis Population	Hospitalization rate	36 months	6498	5007			Arm1, Hospitalizations per 100 person-years: 204.6 (194.5-215.2) per 100 py Arm2, Hospitalizations per 100 person-years: 196.0 (181.5-211.7) per 100 py
Dember, 2019[26]	TiME	RCT	the primary analysis population excluded patients who had, at baseline, an estimated body water volume .42.5 L as determined by the Watson formula	Hospitalization rate	36 months	6498	5007			Arm2, Hospitalization Rate ratio: 0.96 (0.86-1.06)
Dember, 2019[26]	TiME	RCT	Full Analysis Population	Hospitalization rate	36 months	6498	5007			Arm2, Hospitalization Rate Ratio: 0.97(0.87-1.05)
Dember, 2019[26]	TiME	RCT	The primary analysis population excluded patients who had, at baseline, an estimated body water volume .42.5 L as determined by the Watson formula	Hospitalization rate	36 months	6498	5007			Arm2, Hazard ratio: 0.95 (95% CI: 0.87 to 1.05)
Dember, 2019[26]	TiME	RCT	Full analysis	Hospitalization rate	36 months	6498	5007			Arm2, Hazard Ratio: 0.98 (95% CI: 0.90 to 1.06)

L=liters; N=number of patients; py=person-years; RCT=randomized controlled trial; TiME=Time to Reduce Mortality in ESRD

Evidence Table 30. Continuous diastolic blood pressure outcomes of studies comparing hemodialysis duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment effect
Dember, 2019[26]	TiME	RCT	the primary analysis population excluded patients who had, at baseline, an estimated body water volume .42.5 L as determined by the Watson formula	Clinic DBP (NR, assumed predialysis)	Weighted average of all predialysis DBP per patient over length of trial (median 1.1 years) months	6498	5007	Baseline: Mean 73.6 (SD: 14.7) Final: Mean 73.5 (SD: 11.0)	Baseline: Mean 74.2 (SD: 14.8) Final: Mean 73.9 (SD: 11.4)	NR
Dember, 2019[26]	TiME	RCT	NA	Clinic DBP (predialysis DBP, measured at every dialysis session)	Mean 13.2 months	6498	5007	Baseline: NR Final: Mean 73.5 (SD: 11)	Baseline: NR Final: Mean 73.9 (SD: 11.4)	Arm1 vs Arm2: p=0.80
Dember, 2019[26]	TiME	RCT	Full Analysis Population	Clinic DBP (predialysis)	weighted average of all sessions' BP with median length of 1.1 years months	6498	5007	Baseline: Mean 74.8 (SD: 15.3) Final: Mean 74.6 (SD: 11.3)	Baseline: Mean 75.3 (SD: 15.1) Final: Mean 74.8 (SD: 11.5)	NR

DBP=diastolic blood pressure; N=number of patients; NR=not reported; RCT=randomized controlled trial; SD=standard deviation; TiME=Time to Reduce Mortality in ESRD

Evidence Table 31. Continuous systolic blood pressure outcomes of studies comparing hemodialysis duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect	Comments
Dember, 2019[26]	TiME	RCT	NA	Clinic SBP (predialysis SBP, measured at every dialysis section)	Mean 13.2 months	6498	5007	Baseline: (:) Final: Mean 143 (SD: 19.1)	Baseline: (:) Final: Mean 143.3 (SD: 19.2)	Arm1 vs Arm2: p=0.88	Data for primary analysis population.
Dember, 2019[26]	TiME	RCT	The primary analysis population excluded patients who had, at baseline, an estimated body water volume .42.5 L as determined by the Watson formula	Clinic SBP (Predialysis)	weighted average of all dialysis sessions per patient, median length 1.1 years for full trial	6498	5007	Baseline: Mean 142.5 (SD: 25.8) Final: Mean 143 (SD: 19.1)	Baseline: Mean 144.5 (SD: 26.1) Final: Mean 143.3 (SD: 19.2)	NR	Assume baseline data table is predialysis
Dember, 2019[26]	TiME	RCT	Full analysis population	Clinic SBP (predialysis)	weighted average over all dialysis sessions per patient, median follow-up of 1.1 for entire trial	6498	5007	Baseline: Mean 143.2 (SD: 26.1) Final: Mean 143.4 (SD: 19.1)	Baseline: Mean 144.4 (SD: 25.9) Final: Mean 143.0 (SD: 19.0)	NR	
Troidle, 2007[29]	NR	Observational: prospective	NA	Clinic SBP (Systolic blood pressure (post))	6 months	14	NA	Pre: Mean 136 (SD: 24)	Post: Mean: 128 (SD: 20)	Pre vs Post: p=NR	Pre-post comparison

L=liters; N=number of patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial; SBP=systolic blood pressure; SD=standard deviation; TiME=Time to Reduce Mortality in ESRD

Evidence Table 32. Continuous quality of life outcomes of studies comparing hemodialysis duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect	Comments
Dember, 2019[26]	TiME	RCT	Primary Analysis Population	KDQOL Short form-36, burden	Mean 13.2 months	6498	5007	Baseline: Mean 54.0 (SD: 29.2) Final: Mean 54.9 (SD: 29.0)	Baseline: Mean 51.2 (SD: 29.3) Final: Mean 53.0 (SD: 28.7)	Arm1 vs Arm2: p=0.62	Data from primary analysis population
Dember, 2019[26]	TiME	RCT	Primary Analysis Population	KDQOL Short form-36, effect	Mean 13.2 months	6498	5007	Baseline: Mean 78.0 (SD: 20.7) Final: Mean 79.7 (SD: 19.3)	Baseline: Mean 74.4 (SD: 22.8) Final: Mean 78.4 (SD: 19.6)	Arm1 vs Arm2: p=0.07	Data from primary analysis population
Dember, 2019[26]	TiME	RCT	Primary Analys Population	KDQOL Short form-36, symptoms	Mean 13.2 months	6498	5007	Baseline: Mean 80.9 (SD: 14.8) Final: Mean 81.0 (SD: 14.0)	Baseline: Mean 79.0 (SD: 16.0) Final: Mean 80.2 (SD: 14.6)	Arm1 vs Arm2: p=0.48	
Dember, 2019[26]	TiME	RCT	NA	KDQOL Short form-36, mental component score	Mean 13.2 months	6498	5007	Baseline: Mean 51.5 (SD: 10.9) Final: Mean 51.5 (SD: 10.6)	Baseline: Mean 49.9 (SD: 12.0) Final: Mean 51.0 (SD: 11.1)	Arm1 vs Arm2: p=0.16	Data from primary analysis population
Dember, 2019[26]	TiME	RCT	NA	KDQOL Short form-36, physical component score	Mean 13.2 months	6498	5007	Baseline: Mean 37.7 (SD: 10.9) Final: Mean 37.9 (SD: 10.4)	Baseline: Mean 37.9 (SD: 10.6) Final: Mean 37.8 (SD: 10.9)	Arm1 vs Arm2: p=0.63	Data from primary analysis population

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect	Comments
Troidle, 2007[29]	NR	Observational: prospective	NA	SF-36, mental component score	6 months	NR	NR	Baseline: Mean 56 (SD: 4.8) Final, 4 months: NR	Baseline: NR Final, 4 months: Mean 48 (SD: 9.8)		Conventional hemodialysis patient reference values: 49 (SD 10.5)
Troidle, 2007[29]	NR	Observational: prospective	NA	SF-36, physical component score	6 months	14	NR	Baseline: Mean 45 (SD: 7.5) Final, 4 months: NR	Baseline: NR Final, 4 months: Mean 44 (SD: 0.8)		Conventional hemodialysis patient reference values: 33 (SD 10.8)

KDQOL=Kidney Disease Quality of Life; N=number of patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial; SD=standard deviation; SF-36=Short Form-36; TiME=Time to Reduce Mortality in ESRD

Evidence Table 33. Categorical all cause mortality outcomes of studies comparing hemodialysis duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n / N (%), Arm1	n / N (%), Arm2	Treatment Effect	Comments
Dember, 2019[26]	TiME	RCT	NA	Overall mortality rate	Mean 13.2 months	6498	5007	Final: 565/2532	Final: 425/1938	Arm1 vs Arm2: HR 1.04 (95% CI: 0.91 to 1.19), p=NR	Data for primary analysis population. For unadjusted mortality outcome, HR 0.97 (95% CI 0.84, 1.12)
Dember, 2019[26]	TiME	RCT	The primary analysis population excluded patients who had, at baseline, an estimated body water volume .42.5 L as determined by the Watson formula	Deaths	36 months	6498	5007	Final, counts: 565	Final, Counts: 425	NR	
Dember, 2019[26]	TiME	RCT	Full Analysis Population	Deaths	36 months	6498	5007	Final, counts: 804	Final, Counts: 602	NR	

CI=confidence interval; HR=hazard ratio; L=liters; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial; TiME=Time to Reduce Mortality in ESRD

Evidence Table 34. Continuous all cause mortality outcomes of studies comparing hemodialysis duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment effect
Lacson, 2012[28]	NR	Observational: prospective	NA	Overall mortality rate	2 year	2062	746	1 year: mortality rate in percent 15% 2 year: mortality rate in percent: 27%	1 year: mortality rate in percent for in-center hemodialysis (INHD) 9% 2 year: mortality rate in percent: 19%	1 year: Arm1 vs Arm2, hazard ratio for INHD vs. conventional: 0.73 (95% CI: 0.56 to 0.96), p=0.02 2 year: Arm1 vs Arm2, hazard ratio for INHD: 0.75 (95% CI: 0.61 to 0.91), p=0.004
Brunelli, 2010[27]	ArMORR cohort	Observational: prospective	NA	Overall mortality rate	12 months	NR	NR			Arm1 vs Arm2 vs Arm3: Hazard ratio, females, < 240 min/session vs >=240 min/session: 1.24(1.01-1.52), p=
Brunelli, 2010[27]	ArMORR cohort	Observational: prospective	NA	Overall mortality rate	12 months	NR	NR			Arm1 vs Arm2 vs Arm3: Baseline exposure (0-30 days): Hazard ratio, <240 min vs >=240 min/session: 1.24 (1.10-1.41), p=0.001 Arm1 vs Arm2 vs Arm3: Time-adjusted exposure hazard ratio, <240 min vs >=240 min per session: 0.89 (0.78-1.02), p=0.09 Arm1 vs Arm2 vs Arm3: Hazard ratio (marginal struc analysis), quantified in each 15 min decrement in session length: 1.12 (1.08-1.16), p<0.001
Brunelli, 2010[27]	ArMORR cohort	Observational: prospective	Age <65 subgroup for <240 min dialysis group	Overall mortality rate	12 months	NR	NR			Arm1 vs Arm2 vs Arm3: Hazard ratio <240 vs >=240 min in age<65: 1.25 (0.99-1.57), p=
Brunelli, 2010[27]	ArMORR cohort	Observational: prospective	Age >65 subgroup for <240 min dialysis group	Overall mortality rate	12 months	NR	NR			Arm1 vs Arm2 vs Arm3: Hazard ratio <240 min vs >=240 min for age >=65: 1.19 (1.00-1.40), p=

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment effect
Brunelli, 2010[27]	ArMORR cohort	Observational: prospective	HR for <240 fistula/graft access	Overall mortality rate	12 months	NR	NR			Arm1 vs Arm2 vs Arm3: Hazard ratio <240 min vs >=240 min for fistula/graft access: 1.30 (1.02-1.65), p=
Brunelli, 2010[27]	ArMORR cohort	Observational: prospective	HR for <240 min by catheter access	Overall mortality rate	12 months	NR	NR			Arm1 vs Arm2 vs Arm3: Hazard ratio <240 min vs >=240 min for catheter access: 1.50 (1.28-1.76), p=
Brunelli, 2010[27]	ArMORR cohort	Observational: prospective	HR for + congestive heart failure (yes)	Overall mortality rate	12 months	NR	NR			Arm1 vs Arm2 vs Arm3: Hazard ratio for <240 min vs >=240 min in congestive heart failure-yes: 1.32 (0.97-1.81), p=
Brunelli, 2010[27]	ArMORR cohort	Observational: prospective	<240 vs >=240 min/session in congestive heart failure-NO	Overall mortality rate	12 months	NR	NR			Arm1 vs Arm2 vs Arm3: hazard ratio <240 min vs >=240 min for NO congestive heart failure: 1.44 (1.24-1.67), p=
Brunelli, 2010[27]	ArMORR cohort	Observational: prospective	HR for <240 vs >=240 min/session in males	Overall mortality rate	12 months	NR	NR			Baseline Arm1 vs Arm2 vs Arm3: Hazard ratio for <240 min vs >=240 min in males: 1.57 (1.31-1.87), p=NR
Brunelli, 2010[27]	ArMORR cohort	Observational: prospective	baseline eKt/v <=1.2	Overall mortality rate	12 months	NR	NR			Arm1 vs Arm2 vs Arm3: hazard ratio <240 vs >=240 min in <=1.2 eKt/V at baseline: 1.35 (1.10-1.65), p=

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment effect
Brunelli, 2010[27]	ArMORR cohort	Observational: prospective	HR in baseline eKt/v >1.2	Overall mortality rate	12 months	NR	NR			Arm1 vs Arm2 vs Arm3: Hazard ratio at baseline eKt/V >1.2: 1.45 (1.21-1.72), p=
Brunelli, 2010[27]	ArMORR cohort	Observational: prospective	HR for <240 vs >=240 among NO hospitalizations in days 0-30 of study	Overall mortality rate	12 months	NR	NR			Arm1 vs Arm2 vs Arm3: hazard ratio for <240 min vs >=240 min in no hospitalizations: 1.40 (1.20-1.63), p=
Brunelli, 2010[27]	ArMORR cohort	Observational: prospective	hospitalizations: yes in days 0-30 of study	Overall mortality rate	12 months	NR	NR			Arm1 vs Arm2 vs Arm3: hazard ratio <240 vs >=240 min for yes-hospitalization: 1.46 (1.10-1.93), p=
Dember, 2019[26]	TiME	RCT	Full Analysis Population	Overall mortality rate	36 months	6498	5007	Final: deaths per 100 person-years: 17.4 (16.2-18.6) per 100 py	Final: deaths per 100 person-years: 16.9 (15.5-18.2) per 100 py	NR
Dember, 2019[26]	TiME	RCT	primary analysis population	Overall mortality rate	36 months	6498	5007	Final: deaths per 100 person-years: 19.7 (18.1-21.4) per 100 py	Final: deaths per 100 person-years: 19.2 (17.4-21.0) per 100 py	NR
Dember, 2019[26]	TiME	RCT	primary analysis population	Overall mortality rate	36 months	6498	5007	NR	Final: Mortality hazard ratio: 0.97 (95% CI: 0.84 to 1.12), p=NR	NR
Dember, 2019[26]	TiME	RCT	Full Analysis Population	Overall mortality rate	36 months	6498	5007	NR	Final: Mortality Hazard Ratio: 0.97 (0.85-1.12) (95% CI: 0.85 to 1.12), p=NR	NR

ArMORR=Accelerated Mortality on Renal Replacement cohort; eKt/V= Equilibrated Kt/V (urea clearance); HR=hazard ratio; INHD= In-center nocturnal hemodialysis; L=liters; min=minutes; N=number of patients; NR=not reported; py=person-years; RCT=randomized controlled trial; TiME=Time to Reduce Mortality in ESRD

Evidence Table 35. Categorical hypotension outcomes of studies comparing hemodialysis duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n (%), Arm1	n (%), Arm2	Treatment Effect
Dember, 2019[26]	TiME	RCT	NA	Hypotension	Mean 13.2 months	6498	5007	Final, counts: 475 (18.8)	Final, Counts: 325 (16.89)	Arm1 vs Arm2: RR 1.02 (95% CI: 0.57 to 1.83), p=0.95
Dember, 2019[26]	TiME	RCT	Full Analysis population	Postdialysis hypotension	36 months	6498	5007	Final, counts: 774 (19.5)	Final, Counts: 539 (17.6)	NR
Dember, 2019[26]	TiME	RCT	The primary analysis population excluded patients who had, at baseline, an estimated body water volume .42.5 L as determined by the Watson formula	Postdialysis hypotension	36 months	6498	5007	Final, counts: 475 (18.8)	Final, Counts: 325 (16.8)	NR

L=liters; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial; RR=relative risk; TiME=Time to Reduce Mortality in ESRD

Evidence Table 36. Continuous hypotension outcomes of studies comparing hemodialysis duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	=Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect
Dember, 2019[26]	TiME	RCT	Full Analysis population	Postdialysis hypotension	36 months	6498	5007			Arm2: Rate ratio: 1.11 (0.69-1.77)
Dember, 2019[26]	TiME	RCT	the primary analysis population excluded patients who had, at baseline, an estimated body water volume .42.5 L as determined by the Watson formula	Postdialysis hypotension	36 months	6498	5007			Arm2: Rate ratio: 1.02 (0.57-2.83)
Dember, 2019[26]	TiME	RCT	Full Analysis population	Postdialysis hypotension	36 months	6498	5007	Baseline: NR Final: Postdialysis hypotension per 100 person-years 68.1 (51.8-89.6) per 100 patient-years	Baseline: NR Final: Postdialysis hypotension per 100 person-years 75.2 (51.2-110.4) per 100 patients-yr	NR
Dember, 2019[26]	TiME	RCT	the primary analysis population excluded patients who had, at baseline, an estimated body water volume .42.5 L as determined by the Watson formula	Postdialysis hypotension	36 months	6498	5007	Baseline: NR Final: Postdialysis hypotension per 100 patient-years 74.0 (51.8-105.8) per 100 patient-yr	Baseline: NR Final: Postdialysis hypotension per 100 patient-years 75.5 (47.6-119.9) per 100 patient-yr	NR

L=liters; N=number of patients; NR=not reported; patient-yr=patient-years; RCT=randomized controlled trial; RR=relative risk; TiME=Time to Reduce Mortality in ESRD

Evidence Table 37. Continuous equilibrated KtIV outcomes of studies comparing hemodialysis duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment effect	Comments
Lacson, 2012[28]	NR	Observational: prospective	Pre-conversion to INHD, a subset of 725 patients (97% of intervention group)	eKT/V	90-180 days after conversion to INHD	2062	746		Baseline is prior to Nocturnal HD: Mean 1.4 90-180 days after conversion to INHD: Mean 2.3	NR	Study compared CHD eKt/v but did not report these numbers, just the p-value

CHD=conventional hemodialysis; eKt/V=equilibrated Kt/V (urea clearance); INHD=In-center nocturnal hemodialysis; N=number of patients; NR=not reported

Evidence Table 38. Categorical other outcomes of studies comparing hemodialysis duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n (%), Arm1	n (%), Arm2	Treatment Effect	Comments
Rivara, 2016[37]	NR	Observational: retrospective	NA	Current dialysis modality at time of death	60 months	111707	1206	Final, counts: 29,796	Final, Counts: 62	Arm1 vs Arm2: HR - 0.67 (95% CI: 0.49 to 0.93), p=NR	- Hazard ratio from marginal structural Cox model comparing extended-hours hemodialysis to conventional hemodialysis, reference group: conventional hemodialysis, adjusted for age, sex, race, year of incidence, insurance, congestive heart failure, diabetes, arteriosclerotic heart disease, and other cardiovascular comorbidities. - Dialysis modality of 91 day period prior to death (HR 0.68 (0.49, 0.93) - Extended -hours for all events after extend-hours initiation (HR 0.62 (0.47, 0.81) - Finally, in interaction analyses, no evidence of effect modification by age, sex, or race was found (P > 0.2 for each).
Dember, 2019[26]	TiME	RCT	Primary Analysis Population	Hypokalemia events	1.1 years	2532	1938	Final, counts: 888 (35.1)	Final, counts: 615 (31.7)	Arm1 vs Arm2: Rate Ratio=NR, p=0.14	Rate ratio not reported
Dember, 2019[26]	TiME	RCT	Full Analysis Population	Hypokalemia events	1.1 years	3966	3069	Final, counts: 1291 (32.6)	Final, counts: 915 (29.8)	Arm1 vs Arm2: Rate Ratio=NR, p=0.07	Rate ratio not reported
Dember, 2019[26]	TiME	RCT	Primary Analysis Population	Hypophosphatemia events	1.1 years	2532	1938	Final, counts: 979 (38.7)	Final, counts: 753 (38.9)	Arm1 vs Arm2: Rate Ratio=NR, p=0.12	Rate ratio not reported
Dember, 2019[26]	TiME	RCT	Full Analysis Population	Hypophosphatemia events	1.1 years	3966	3069	Final, counts: 1375 (34.7)	Final, counts: 1092 (35.6)	Arm1 vs Arm2: Rate Ratio=NR, p=0.06	Rate ratio not reported

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n (%), Arm1	n (%), Arm2	Treatment Effect	Comments
Dember, 2019[26]	TiME	RCT	Primary Analysis Population	Hyperbicarbonatemia events	1.1 years	2532	1938	Final, counts: 1548 (61.1)	Final, counts: 1249 (64.4)	Arm1 vs Arm2: Rate Ratio=NR, p=0.32	Rate ratio not reported
Dember, 2019[26]	TiME	RCT	Full Analysis Population	Hyperbicarbonatemia events	1.1 years	3966	3069	Final, counts: 2397 (60.4)	Final, counts: 1959 (63.8)	Arm1 vs Arm2: Rate Ratio=NR, p=0.13	Rate ratio not reported
Dember, 2019[26]	TiME	RCT	Primary Analysis Population	Hypoalbuminemia events	1.1 years	2532	1938	Final, counts: 1349 (53.3)	Final, counts: 1036 (53.5)	Arm1 vs Arm2: Rate Ratio=NR, p=0.96	Rate ratio not reported
Dember, 2019[26]	TiME	RCT	Full Analysis Population	Hypoalbuminemia events	1.1 years	3966	3069	Final, counts: 1984 (50.0)	Final, counts: 1572 (51.2)	Arm1 vs Arm2: Rate Ratio=NR, p=0.79	Rate ratio not reported

HR=hazard ratio; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial; TiME=Time to Reduce Mortality in ESRD

Evidence Table 39. Continuous other outcomes of studies comparing hemodialysis duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n (%), Arm1	n (%), Arm2	Treatment Effect	Comments
Dember, 2019[26]	TiME	RCT	Primary Analysis Population	Interdialytic weight gain in kg (SD)	1.1 years	2532	1938	Final: 1.65 (SD: 0.84)	Final: 1.69 (SD: 0.81)	Arm1 vs Arm2: Rate Ratio=NR, p=0.25	Rate ratio not reported
Dember, 2019[26]	TiME	RCT	Full Analysis Population	Interdialytic weight gain in kg (SD)	1.1 years	3966	3069	Final: 1.88 (SD: 1.00)	Final: 1.93 (SD: 0.98)	Arm1 vs Arm2: Rate Ratio=NR, p=0.28	Rate ratio not reported
Dember, 2019[26]	TiME	RCT	Primary Analysis Population	Ultrafiltration rate, ml/h per kg (SD)	1.1 years	2532	1938	Final: 7.51 (SD: 3.02)	Final: 7.37 (SD: 2.77)	Arm1 vs Arm2: Rate Ratio=NR, p=0.42	Rate ratio not reported
Dember, 2019[26]	TiME	RCT	Full Analysis Population	Ultrafiltration rate, ml/h per kg (SD)	1.1 years	3966	3069	Final: 7.14 (SD: 2.82)	Final: 7.01 (SD: 2.60)	Arm1 vs Arm2: Rate Ratio=NR, p=0.29	Rate ratio not reported
Dember, 2019[26]	TiME	RCT	Primary Analysis Population	Hypokalemia events per 100 patient-years	1.1 years	2532	1938	Final: 81.1 events per 100 patient-years (CI: 73.0, 90.2 CI)	Final: 71.4 events per 100 patient-years (CI: 62.6, 81.5)	Arm1 vs Arm2: Rate Ratio=NR, p=0.14	Rate ratio not reported
Dember, 2019[26]	TiME	RCT	Full Analysis Population	Hypokalemia events per 100 patient-years	1.1 years	3966	3069	Final: 74.1 events per 100 patient-years (CI: 63.3, 82.9)	Final: 64.3 events per 100 patient-years (CI: 57.6, 71.7)	Arm1 vs Arm2: Rate Ratio=NR, p=0.07	Rate ratio not reported
Dember, 2019[26]	TiME	RCT	Primary Analysis Population	Hypophosphatemia events per 100 patient-years	1.1 years	2532	1938	Final: 72.6 events per 100 patient-years (CI: 65.8, 80.2)	Final: 81.9 events per 100 patient-years (CI: 72.8, 92.2)	Arm1 vs Arm2: Rate Ratio=NR, p=0.12	Rate ratio not reported
Dember, 2019[26]	TiME	RCT	Full Analysis Population	Hypophosphatemia events per 100 patient-years	1.1 years	3966	3069	Final: 61.2 events per 100 patient-years (CI: 56.4, 66.5)	Final: 69.7 events per 100 patient-years (CI: 62.8, 77.3)	Arm1 vs Arm2: Rate Ratio=NR, p=0.06	Rate ratio not reported

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n (%), Arm1	n (%), Arm2	Treatment Effect	Comments
Dember, 2019[26]	TiME	RCT	Primary Analysis Population	Hyperbicarbonatemia events per 100 patient-years	1.1 years	2532	1938	Final: 188.3 events per 100 patient-years (CI: 167.4, 211.7)	Final: 205.9 events per 100 patient-years (CI: 180.2, 235.3)	Arm1 vs Arm2: Rate Ratio=NR, p=0.32	Rate ratio not reported
Dember, 2019[26]	TiME	RCT	Full Analysis Population	Hyperbicarbonatemia events per 100 patient-years	1.1 years	3966	3069	Final: 177.0 events per 100 patient-years (CI: 157.6, 198.8)	Final: 202.7 events per 100 patient-years (CI: 177.4, 231.6)	Arm1 vs Arm2: Rate Ratio=NR, p=0.13	Rate ratio not reported
Dember, 2019[26]	TiME	RCT	Primary Analysis Population	Hypoalbuminemia events per 100 patient-years	1.1 years	2532	1938	Final: 173.4 events per 100 patient-years (CI: 158.3, 190.9)	Final: 174.0 events per 100 patient-years (CI: 156.9, 192.9)	Arm1 vs Arm2: Rate Ratio=NR, p=0.96	Rate ratio not reported
Dember, 2019[26]	TiME	RCT	Full Analysis Population	Hypoalbuminemia events per 100 patient-years	1.1 years	3966	3069	Final: 156.5 events per 100 patient-years (CI: 145.0, 169.0)	Final: 159.1 events per 100 patient-years (CI: 145.1, 174.6)	Arm1 vs Arm2: Rate Ratio=NR, p=0.79	Rate ratio not reported
Troidle, 2007[29]	NR	Observational: prospective	NA	Time to recovery (minutes)		14	NR	Baseline: Mean 198 (SD: 240) Final: NR	Baseline: NR Final: Mean 126 (SD: 120)	NR	Conventional hemodialysis patient reference values: 375 (SD 461)
Troidle, 2007[29]	NR	Observational: prospective	NA	Kt/V urea	6 months	14	NR	Baseline: Mean 1.2 (SD: 0.16) Final: NR	Baseline: NR Final: Mean 2.6 (SD: 0.65)	Arm1 vs Arm2: p=0.003	Pre-post comparison, p=0.003
Troidle, 2007[29]	NR	Observational: prospective	NA	Total ultrafiltration (L/Rx)	6 months	14	NR	Baseline: Mean 3.9 (SD: 1.4) Final: NR	Baseline: NR Final: Mean 5.0 (SD: 1.9)	Arm1 vs Arm2: p=NR	pre-post comparison

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n (%), Arm1	n (%), Arm2	Treatment Effect	Comments
Troidle, 2007[29]	NR	Observational: prospective	NA	Ultrafiltration rate (mL/h/kg)	6 months	14	NR	Baseline: Mean 10.3 (SD: 4.5) Final: NR	Baseline: NR Final: Mean 5.9 (SD: 1.7)	Arm1 vs Arm2: p=NR	Pre-post comparison

CI=confidence interval; HR=hazard ratio; kg=kilograms; Kt/V=urea clearance; L/Rx= Total ultrafiltration in liters per dialysis session; mL/h/kg=milliliters per hours per kilogram; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial; SD=standard deviation; TiME=Time to Reduce Mortality in ESRD

Evidence Table 40. Categorical renal function outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n / N (%), Arm1	n / N (%), Arm2	Treatment effect
Daugirdas, 2013[20]	FHN	RCT	Nocturnal (Nonzero Urine Output)	Urine volume/24 hours; (%) Below 1st tertile of measure at baseline	12 months	79	67	11.99/22 (54.5)	19.992/24 (83.3)	p= 0.06
Daugirdas, 2013[20]	FHN	RCT	Nocturnal(Nonzero Urine Output)	Urea, Creatinine Kr, Average of Urea + Creatinine; (%) Below 1st tertile of measure at baseline	12 months	79	67	14/20 (70)	18.009/23 (78.3)	p= 0.003
Daugirdas, 2013[20]	FHN	RCT	Daily (Nonzero Urine Output)	Creatinine; (%) Below 1st tertile of measure at baseline	12 months	79	67	24.992/32 (78.1)	17/25 (68)	p= 0.48
Daugirdas, 2013[20]	FHN	RCT	Daily (Nonzero Urine Output)	Average of Urea + Creatinine; (%) Below 1st tertile of measure at baseline	12 months	79	67	24/32 (75)	17/25 (68)	p= 0.42
Daugirdas, 2013[20]	FHN	RCT	Daily(Nonzero Urine Output)	Urine volume/24 hours; (%) Below 1st tertile of measure at baseline*	12 months	79	67	26.016/32 (81.3)	17/25 (68)	p= 0.99
Daugirdas, 2013[20]	FHN	RCT	Daily(Nonzero Urine Output)	Urea; (%) Below 1st tertile of measure at baseline*	12 months	79	67	24/32 (75)	16/25 (64)	p= 0.44
Daugirdas, 2013[20]	FHN	RCT	Daily (Nonzero Urine Output)	Urea; (%) Equal to 0	12 months	79	67	16.992/32 (53.1)	12/25 (48)	p= NR
Daugirdas, 2013[20]	FHN	RCT	Daily(Nonzero Urine Output)	Creatinine; (%) Equal to 0	12 months	79	67	16.992/32 (53.1)	12/25 (48)	p= NR

%=percentage; FHN=Frequent Hemodialysis Network trials; N=number of total patients; n=number of sample patients; NR=not reported; RCT=randomized controlled trial

Evidence Table 41. Continuous albumin outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Follow up	N, Arm 1	N, Arm 2	N, Arm 3	N, Arm 4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect	Comments
Kaysen, 2012[13]	FHN	RCT	NA	Albumin level	12 months	42	45	NA	NA	Baseline: Mean 3.93 (SD: 0.53) Final: Mean 4.12 (SD: 0.39)	Baseline: Mean 3.88 (SD: 0.49) Final: Mean 4.08 (SD: 0.53)	Baseline: Mean 3.95 (SD: 0.44) Final: Mean 3.96 (SD: 0.4)	Baseline: Mean 3.96 (SD: 0.36) Final: Mean 3.98 (SD: 0.36)	Arm1 vs Arm2: Treatment effects (6x vs 3x, baseline to 12 months): 0.01 (95% CI: -0.14 to 0.12), p=0.88 Arm3 vs Arm4: Treatment effects (6x vs 3x, baseline to 12 months): 0.03 (95% CI: -0.04 to 0.10), p=0.41	
Ayus, 2005[1]	NR	NRCT	NA	Albumin level	12 months	51	26	NA	NA	Baseline: Mean 4.06 (SD: 0.26) Final: Mean 4.08 (SD: 0.25)	Baseline: Mean 3.96 (SD: 0.40) Final: Mean 4.07 (SD: 0.33)			Change from baseline: Arm1, p=<0.05 Change from baseline: Arm2, p=NS	
Dixon, 2016[25]	FHN-Nocturnal	Observational: prospective	NA	Albumin level	12 months	31	18	NA	NA	Baseline: Mean 4.1 (SD: 0.5) Final: Mean 4.1 (SD: 0.5)	Baseline: Mean 3.8 (SD: 0.7) Final: Mean 4.0 (SD: 0.4)	Baseline: Mean 4.1 (SD: 0.5) Final: Mean 4.5 (SD: 0.4)		NR	
Rocco, 2015[24]	FHN-Nocturnal	RCT	NA	Albumin level	12 months	42	45	NA	NA	Baseline: Mean 3.92 (SD: 0.51) Final: Mean 4.13 (SD: 0.39)	Baseline: Mean 3.90 (SD: 0.48) Final: Mean 4.06 (SD: 0.52)			NR	Predialysis serum albumin (g/dl)

Author, year	Study name	Study design	Subgroup	Outcome definition	Follow up	N, Arm 1	N, Arm 2	N, Arm 3	N, Arm 4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect	Comments
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	Albumin level	12 months	42	45	NA	NA	Baseline: Mean 3.93 (SD: 0.53) Final: Mean 4.12 (SD: 0.38)	Baseline: Mean 3.88 (SD: 0.49) Final: Mean 4.08 (SD: 0.53)			Arm1 vs Arm2: Treatment comparison of change: nocturnal vs conventional (95% CI): −0.02 (−0.18, 0.15), p=0.85 Arm1: Change from baseline to follow-up: 0.19±0.46 Arm1: Mean difference: 0.19 (se: ±0.06) Arm2: Change from baseline to follow-up: 0.20±0.41 Arm2: Mean difference: 0.18 (se: ±0.06)	d To convert values for serum albumin to grams per liter, multiply by 10.

CI=confidence interval; FHN=Frequent Hemodialysis Network trials; g/dl=grams per deciliter; N=number of patients; NA=not applicable; NR=not reported; NRCT=non-randomized controlled trial; RCT=randomized controlled trial; SD=standard deviation; SE=standard error

Evidence Table 42. Continuous C-reactive protein level outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect
Ayus, 2005[1]	NR	NRCT	NA	CRP level	12 months	51	26	Baseline: Mean 0.50 (IQR: 0.32 to 0.75) Final: Mean 0.64 (IQR: 0.27 to 1.20)	Baseline: Mean 1.22 (IQR: 0.37 to 3.70) Final: Mean 0.05 (IQR: 0.05 to 1.17)	Arm1 vs Arm2: p<0.01

IQR=interquartile range; N=number of patients; NA=not applicable; NR=not reported; NRCT=non-randomized controlled trial

Evidence Table 43. Continuous erythropoiesis-stimulating agent outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Ornt, 2013[9]	FHN	RCT	NA	ESA use	12 months	120	125	42	45	Baseline: Mean 8638 Final: Mean 8925	Baseline: Mean 8500 Final: Mean 7000	Baseline: Mean 7750 Final: Mean 7000	Baseline: Mean 6563 Final: Mean 6250	Arm1 vs Arm2: Mean difference: -17.2 (95% CI: -35.8 to 6.8), p=NR Arm3 vs Arm4: Mean difference: 38.8 (95% CI: -9.87 to 113.9), p=NR
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	ESA use	12 months	42	45	NA	NA	Baseline: Mean 42600 (SD: 53761) Final: Mean 42735 (SD: 53261)	Baseline: Mean 43939 (SD: 68173) Final: Mean 56678 (SD: 58436)			Arm1 vs Arm2: Treatment comparison of change: nocturnal vs conventional (95% CI): 1.35 (0.87, 2.09) p=0.18 Arm1: Change from baseline to follow-up: 135±75,813 Arm1: Mean difference: −2 (se: ±17%) Arm2: Change from baseline to follow-up: 12,739±63,244 Arm2: Mean difference: 33 (se: ±24%)

CI=confidence interval; ESA=erythropoietin-stimulating agent; FHN=Frequent Hemodialysis Network trials; N=number of patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial; SD=standard deviation

Evidence Table 44. Continuous normalized protein catabolic outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Molfino, 2019[4]	FHN	RCT	Modality (Daily Trial)	Normalized protein catabolic rate	12 months	79	80	NA	NA	Baseline: Mean 1.04 (SD: 0.25) Final: Mean 0.99 (SD: 0.23)	Baseline: Mean 1.06 (SD: 0.25) Final: Mean 1.09 (SD: 0.29)			NR
Molfino, 2019[4]	FHN	RCT	modality (Nocturnal Trial)	Normalized protein catabolic rate	12 months	79	80	NA	NA	Baseline: Mean 0.96 (SD: 0.21) Final: Mean 1.11 (SD: 0.2)	Baseline: Mean 0.87 (SD: 0.19) Final: Mean 1.09 (SD: 0.36)			NR
Kaysen, 2012[13]	FHN	RCT	NA	Normalized protein catabolic rate	12 months	42	45	120	125	Baseline: Mean 62.86 (SD: 21.15) Final: Mean 74.55 (SD: 38.81)	Baseline: Mean 64.42 (SD: 21.6) Final: Mean 69.97 (SD: 24.23)	Baseline: Mean 64.67 (SD: 17.86) Final: Mean 64.26 (SD: 20.02)	Baseline: Mean 65.37 (SD: 21.23) Final: Mean 65.13 (SD: 22.53)	Arm1 vs Arm2: Treatment comparison 6x vs 3x Nocturnal, baseline to 12 months: 5.65 (95% CI: -2.98 to 14.27), p=0.20 Arm3 vs Arm4: Treatment comparison 6x vs 3x Daily, baseline to 12 months: 0.82 (95% CI: -2.54 to 4.19), p=0.63

CI=confidence interval; FHN=Frequent Hemodialysis Network trials; N=number of patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial; SD=standard deviation

Evidence Table 45. Continuous hemoglobin outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Ornt, 2013[9]	FHN	RCT	NA	Hemoglobin level	12 months	120	125	42	45	Baseline: Mean 11.9 Final: Mean 11.7	Baseline: Mean 12.0 Final: Mean 11.9	Baseline: Mean 11.9 Final: Mean 11.7	Baseline: Mean 12.1 Final: Mean 11.9	Arm1 vs Arm2: Mean difference: 0.33 (95% CI: 0.05 to 0.61), p<0.05 Arm1, Change from baseline: -0.24 Arm2, Change from baseline: 0.09 Arm3 vs Arm4: Mean difference: -0.12 (95% CI: -0.61 to 0.37), p=NR Arm3, Change from baseline: 0.13 Arm4, Change from baseline: 0.01
Ayus, 2005[1]	NR	NRCT	NA	Hemoglobin level	12 months	51	26	NA	NA	Baseline: Mean 12.7 (SD: 1.31) Final: Mean 12.0 (SD: 0.7	Baseline: Mean 10.8 (SD: 1.93) Final: Mean 12.7 (SD: 1.00)			Arm1 vs Arm2: p<0.05 Arm2: p<0.0001
Dixon, 2016[25]	FHN-Nocturnal	Observational: prospective	NA	Hemoglobin level	12 months	31	18	28	NA	Baseline: Mean 11.5 (SD: 1.3) Final: Mean 11.9 (SD: 1.5	Baseline: Mean 11.5 (SD: 1.3) Final: Mean 11.3 (SD: 2.1)	Baseline: Mean 12.0 (SD: 1.8) Final: Mean 13.8 (SD: 1.2)		NR
Rocco, 2015[24]	FHN-Nocturnal	RCT	NA	Hemoglobin level	12 months	42	45	NA	NA	Baseline: Mean 11.93 (SD: 1.09) Final: Mean 11.94 (SD: 1.10	Baseline: Mean 11.63 (SD: 1.12) Final: Mean 11.73 (SD: 1.17)			NR

CI=confidence interval; FHN=Frequent Hemodialysis Network trials; N=number of patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial; SD=standard deviation

Evidence Table 46. Continuous phosphorous binder outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment effect
Daugirdas, 2012[14]	FHN	RCT	Daily	Phosphorus binders	12 months	162	170	Baseline: Mean 5.92 (SD: 4.32) Final: Mean 6.64 (SD: 4.95)	Baseline: Mean 7.17 (SD: 5.48) Final: Mean 5.7 (SD: 4.94)	NR

CI=confidence interval; FHN=Frequent Hemodialysis Network trials; N=number of patients; NR=not reported; RCT=randomized controlled trial; SD=standard deviation

Evidence Table 47. Continuous phosphorous outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect	Comments
Daugirdas, 2012[14]	FHN	RCT	Daily trial	Phosphorus level	10-12 months	162	170	NA	NA	Baseline: Mean 5.63 (SD: 1.51) Final: Mean 5.65 (SD: 1.75)	Baseline: Mean 5.88 (SD: 1.69) Final: Mean 5.24 (SD: 1.19)			NR	Baseline data in table 1 is different than their outcomes data. Some patients missing but assumed pts were same as baseline data
Daugirdas, 2012[14]	FHN	RCT	Nocturnal	Phosphorus level	10-12 months	162	170	NA	NA	Baseline: Mean 5.66 (SD: 1.65) Final: Mean 5.9 (SD: 1.99)	Baseline: Mean 5.74 (SD: 1.53) Final: Mean 4.72 (SD: 1.32)			NR	baseline data in table 1 is different than analyzed data. Also, numbers would likely be smaller as a result, but they don't report

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect	Comments
Chan, 2012[15]	FHN	RCT	NA	Phosphorus level	12 months	120	125	42	45					Arm1 vs Arm2: p=0.005 Arm3 vs Arm4: p<0.001 Arm1: Mean difference: -0.08 (SD: 0.13) Arm2: Mean difference: -0.54 (SD: 0.13) Arm3: Mean difference: 0.12 (SD: 0.23) Arm4: Mean difference: -1.11 (SD: 0.23)	predialysis phosphate level, millimoles per liter
Ayus, 2005[1]	NR	NRCT	NA	Phosphorus level	12 months	51	26	NA	NA	Baseline: Mean 4.98 (SD: 1.49) Final: Mean 5.02 (SD: 1.14)	Baseline: Mean 6.26 (SD: 2.57) Final: Mean 4.20 (SD: 1.16)			Arm1 vs Arm2: p<0.05 Arm1: p<0.0001	
Troidle, 2007[29]	NR	Observational: prospective	NA	Phosphorus level	NR	NR	NR	NA	NA	Baseline: Mean 5.3 (SD: 1.27) Final, 6 months: NR	Baseline: NR Final, 4 months: Mean 4.4 (SD: 1.1)			Arm1 vs Arm2: p=0.049	Serum phosphorus (mg/dL), pre-post comparison, p=0.049

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect	Comments
Dixon, 2016[25]	FHN-Nocturnal	Observational: prospective	NA	Phosphorus level	12 months	31	18	28	NA	Baseline: Mean 5.4 (SD: 1.6) Final: Mean 5.8 (SD: 1.6)	Baseline: Mean 5.3 (SD: 1.8) Final: Mean 4.3 (SD: 1.6)	Baseline: Mean 5.1 (SD: 1.6) Final: Mean 2.7 (SD: 0.4)		NR	
Rocco, 2015[24]	FHN-Nocturnal	RCT	NA	Phosphorus level	12 months	42	45	NA	NA	Baseline: Mean 5.77 (SD: 1.65) Final: Mean 5.96 (SD: 1.97)	Baseline: Mean 5.82 (SD: 1.59) Final: Mean 4.73 (SD: 1.33)			NR	Predialysis phosphorus (mg/dl)
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	Phosphorus level	12 months	42	45	NA	NA	Baseline: Mean 5.65 (SD: 1.84) Final: Mean 5.91 (SD: 2)	Baseline: Mean 5.75 (SD: 1.63) Final: Mean 4.72 (SD: 1.31)			Arm1 vs Arm2: Treatment comparison of change: nocturnal vs conventional (95% CI): −1.4 (−2.1, −0.7), p=<0.001 Arm1: Mean difference: 0.3 (se: ±0.3 Arm2: Mean difference: −1.1 (se: ±0.3	

CI=confidence interval; FHN=Frequent Hemodialysis Network trials; mg/dl=milligrams per deciliter; N=number of patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial; SD=standard deviation; SE=standard error

Evidence Table 48. Categorical metabolic outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n (%), Arm1	n (%), Arm2	Treatment Effect
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	Hypokalemia (Potassium <3.5 mEq/l)	12 months	42	45	Final, counts: 9 (total numbers of events: 16)	Final, Counts: 13 (total numbers of events: 62)	Arm1 vs Arm2: p=0.47
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	Hypophosphatemia <2.17 mg/dl(With phosphorus added to the dialysate)	NR	42	45	Final, counts: 2 (total numbers of events: 4)	Final, Counts: 3 (total numbers of events: 6)	Arm1 vs Arm2: p=1.0
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	Hypophosphatemia<2.17mg/dl) (Without phosphorus added to the dialysate)	12 months	42	45	Final, counts: 3 (total numbers of events: 5)	Final, Counts: 10 (total numbers of events: 11)	Arm1 vs Arm2: p=0.071
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	Potassium <3.0 mEq/l	12 months	42	45	Final, counts: 0 (Number of events: 0)	Final, Counts: 2 (Number of events: 8)	Arm1 vs Arm2: p=0.49

FHN=Frequent Hemodialysis Network trials; mEq/l=milliequivalents per liter; mg/dl=milligrams per deciliter; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial

Evidence Table 49. Continuous metabolic outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect	Comments
Molfino, 2019[4]	FHN	RCT	Modality (Daily Trial)	Bicarbonate	12 months	79	80	NA	NA	Baseline: Mean 24.0 (SD: 3.74) Final: Mean 23.7 (SD: 2.97)	Baseline: Mean 23 (SD: 3.3) Final: Mean 24.2 (SD: 2.64)			Arm1: Mean difference: 0.92 (95% CI: 0.04 to 1.81), p=0.04	Data for Euthyroid patients
Molfino, 2019[4]	FHN	RCT	Modality (Nocturnal Trial)	Bicarbonate	12 months	79	80	NA	NA	Baseline: Mean 21.6 (SD: 3.47) Final: Mean 22.1 (SD: 2.23)	Baseline: Mean 21.8 (SD: 4.09) Final: Mean 25.4 (SD: 3.67)			Arm1: Mean difference: 3.25 (95% CI: 1.46 to 5.04), p=0.001	Euthyroid
Lo, 2017[5]	NR	RCT	Daily Trial 3x vs 6x	Free T3	12 months	72	75	25	23	Baseline: Mean 2.46 (SD: 0.75) Final: Mean 2.59 (SD: 0.74)	Baseline: Mean 2.57 (SD: 0.88) Final: Mean 2.81 (SD: 0.95)			Arm1 vs Arm2: p=0.71 Arm1: change: 0.12 (0.43) Arm2: Change: 0.24 (0.64)	
Lo, 2017[5]	NR	RCT	Nocturnal Trial 3x vs. 6x	Free T3	12 months	72	75	25	23	Baseline: Mean 3.27 (SD: 1.42) Final: Mean 2.97 (SD: 1.2)	Baseline: Mean 2.83 (SD: 0.38) Final: Mean 3.17 (SD: 0.99)			Arm1 vs Arm2: p=0.07 Arm1: Change: -0.30 (-0.36) Arm2: Change: 0.34 (1)	
Lo, 2017[5]	NR	RCT	Daily Trial 3x vs. 6x	Free T4	12 months	72	75	25	23	Baseline: Mean 0.86 (SD: 0.23) Final: Mean 0.9 (SD: 0.27)	Baseline: Mean 0.84 (SD: 0.21) Final: Mean 0.91 (SD: 0.3)			Arm1: change: 0.04(0.15) Arm2: change: 0.07 (0.26)	Change in Free T4 between groups p=0.58
Lo, 2017[5]	NR	RCT	Nocturnal Trial	Free T4	12 months	72	75	25	23	Baseline: Mean 0.96 (SD: 0.11) Final: Mean 0.93 (SD: 0.14)	Baseline: Mean 1.02 (SD: 0.18) Final: Mean 1.04 (SD: 0.18)			Arm1 vs Arm2: p=0.12 Arm1: Change: -0.04 (0.14) Arm2: Change: 0.02 (0.11)	p=0.12

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect	Comments
Lo, 2017[5]	NR	RCT	Nocturnal Trial	TSH	12 months	72	75	25	23	Baseline: Mean 1.71 (SD: 0.75) Final: Mean 1.86 (SD: 0.89)	Baseline: Mean 1.93 (SD: 1) Final: Mean 1.87 (SD: 0.97)			Arm1 vs Arm2: p=0.84 Arm1: Change: 0.15 (1.06) Arm2: Change: -0.06 (0.68)	p=0.84
Lo, 2017[5]	NR	RCT	Daily Trial	TSH	12 months	72	75	25	23	Baseline: Mean 2.01 (SD: 1.33) Final: Mean 2.33 (SD: 1.44)	Baseline: Mean 2.06 (SD: 1.16) Final: Mean 2.02 (SD: 1.22)			Arm1 vs Arm2: p=0.15 Arm1: mean change: 0.32 (1.29) Arm2: mean change: -0.04 (0.89)	Change in TSH non-significant between groups (0.15).

3x=3 times; 6x=6 times; CI=confidence interval; N=number of patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial; SD=standard deviation; T3= triiodothyronine; T4=thyroxine; TSH=thyroid-stimulating hormone

Evidence Table 50. Continuous calcium outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect
Ayus, 2005[1]	NR	NRCT	NA	Calcium phosphorus product	6 months	51	26	Baseline: Mean 44.8 (SD: 13.2) Final: Mean 44.3 (SD: 10.6)	Baseline: Mean 52.5 (SD: 23.0) Final: Mean 37.5 (SD: 11.1)	Arm1: p<0.0001 Arm2: p<0.001
Troidle, 2007[29]	NR	Observational: prospective	NA	Serum calcium (mg/dL)	6 months	NR	NR	Baseline: Mean 9.3 (SD: 1.0) Final: NR	Baseline: NR Final: Mean 9.3 (SD: 0.81)	Pre-post comparison, p=0.94

mg/dL=milligrams per deciliter; N=number of patients; NA=not applicable; NR=not reported; NRCT=non-randomized controlled trial; SD=standard deviation

Evidence Table 51. Categorical calcium outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n / N (%), Arm1	n / N (%), Arm2	Treatment Effect
Rocco, 2015[24]	FHN-Nocturnal	RCT	NA	CHF events	12 months	42	45	Baseline: 7/42 (17) Final: 6/39 (15)	Baseline: 5/45 (11) Final: 3/38 (8)	NR

CHF=congestive heart failure; FHN=Frequent Hemodialysis Network trials; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial

Evidence Table 52. Categorical stroke outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n (%), Arm1	n (%), Arm2	Treatment Effect
Rocco, 2015[24]	FHN-Nocturnal	RCT	NA	Stroke events	12 months	42	45	6 months, counts: 1 (2) 12 months, counts: 0(0)	6 months, Counts: 1 (2) 12 months, Counts: 1(3)	NR

FHN=Frequent Hemodialysis Network trials; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial

Evidence Table 53. Categorical hospitalization outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n (%), Arm1	n (%), Arm2	Treatment Effect
Johansen, 2009[32]	NR	Retrospective cohort	NA	All cause hospitalization	2 years; greater than 2 years	940	94	NR	NR	HR: 0.87; 95% CI: 0.42b tp 1.81; p=0.71
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	Hospitalization rate	12 months	42	45	Final, counts: 30 (Numbers of patients with events: 16)	Final, Counts: 43 (Numbers of patients with events: 19)	Arm1 vs Arm2: HR 1.42 (95% CI: 0.69 to 2.90), p=0.34
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	Infection hospitalizations	12 months	42	45	Final, counts: 5 (Number of events: 7)	Final, Counts: 14 (Number of events: 8)	Arm1 vs Arm2: 2.04 (95% CI: 0.80 to 5.17), p=NR
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	Non-access hospitalizations	12 months	42	45	Final, counts: 15 (Number of events: 26)	Final, Counts: 17 (Number of events: 35)	Arm1 vs Arm2: HR 1.32 (95% CI: 0.60 to 2.89), p=0.48
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	Cardiovascular hospitalizations	12 months	42	45	Final, counts: 3 (: 4)	Final, Counts: 5 (: 6)	Arm1 vs Arm2: HR 1.60 (95% CI: 0.49 to 5.22), p=NR

FHN=Frequent Hemodialysis Network trials; HR=hazard ratio; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial

Evidence Table 54. Categorical myocardial infarction outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n (%), Arm1	n (%), Arm2	Treatment Effect
Rocco, 2015[24]	FHN-Nocturnal	RCT	NA	MI events	12 months	42	45	6 months, counts: 4 (10) 12 months, counts: 4(11)	6 months, Counts: 5 (11) 12 months, Counts: 4(10)	NR

FHN=Frequent Hemodialysis Network trials; MI=myocardial infarction; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial

Evidence Table 55. Categorical peripheral arterial disease outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n (%), Arm1	n (%), Arm2	Treatment Effect
Rocco, 2015[24]	FHN-Nocturnal	RCT	NA	PAD events	12 months	42	45	6 months, counts: 7 (17) 12 months, counts: 6(15)	6 months, Counts: 8 (18) 12 months, Counts: 7(18)	NR

FHN=Frequent Hemodialysis Network trials; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported; PAD=peripheral arterial disease; RCT=randomized controlled trial

Evidence Table 56. Categorical vascular access length outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n (%), Arm1	n (%), Arm2	Hazard ratio (95% CI)	Comments
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	Vascular access complications/thrombosis-vascular access failures	12 months	42	45	Final, counts: 10 (total numbers of events: 13)	Final, Counts: 13 (total numbers of events: 17)	Arm1 vs Arm2: HR 1.27 (95% CI: 0.60 to 2.71), p=0.54	
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	Vascular Access interventions/thrombosis	12 months	42	45	Final, counts: 15 (total numbers of events: 21)	Final, Counts: 23 (total numbers of events: 34)	6 months, Arm1 vs Arm2: Hazard ratio (95% confidence interval) 1.62 (0.91, 2.87), p=0.10 Final, Arm1 vs Arm2: HR 1.62 (95% CI: 0.91 to 2.87), p=0.10	The fraction of events affecting fistulas, grafts, and catheters were 50, 6, and 44% in the frequent nocturnal arm and 19, 24, and 57% in the conventional arm. A total of 51% of patients in the frequent nocturnal arm and 36% of patients in the conventional arm suffered a vascular access failure or underwent at least one vascular access procedure (time to first access event HR = 1.88, 95% CI 0.97–3.64, P = 0.06, Figure 6)

CI=confidence interval; FHN=Frequent Hemodialysis Network trials; HR=hazard ratio; N=number of total patients; n=number of sample patients; NA=not applicable; RCT=randomized controlled trial

Evidence Table 57. Categorical other morbidity outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n (%), Arm1	n (%), Arm2	Treatment Effect
Rocco, 2015[24]	FHN-Nocturnal	RCT	NA	Abdominal aortic aneurysm repair or bypass grafting	12 months	42	45	6 months, counts: 5 (12) Final, counts: 4 (10)	6 months, Counts: 2 (4) Final, Counts: 1 (3)	NR
Rocco, 2015[24]	FHN-Nocturnal	RCT	NA	Atrial fibrillation	12 months	42	45	6 months, counts: 0 (0) Final, counts: 0 (0)	6 months, Counts: 6 (13) Final, Counts: 5 (13)	NR
Rocco, 2015[24]	FHN-Nocturnal	RCT	NA	Chronic pulmonary disease	12 months	42	45	6 months, counts: 2 (5) Final, counts: 2 (5)	6 months, Counts: 2 (4) Final, Counts: 2 (5)	NR
Rocco, 2015[24]	FHN-Nocturnal	RCT	NA	Dementia	12 months	42	45	6 months, counts: 0 (0) Final, counts: 0 (0)	6 months, Counts: 0 (0) Final, Counts: 0 (0)	NR
Rocco, 2015[24]	FHN-Nocturnal	RCT	NA	Diabetes and diabetic complications	12 months	42	45	6 months, counts: 18 (43) Final, counts: 16 (41)	6 months, Counts: 19 (42) Final, Counts: 18 (47)	NR

FHN=Frequent Hemodialysis Network trials; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial

Evidence Table 58. Continuous diastolic blood pressure outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment effect
Daugirdas, 2013[10]	FHN	RCT	NA	Clinic DBP (mm Hg)	12 months	48	35	31	32	Baseline: Mean 78.3 (SD: 10.4)	Baseline: Mean 83.1 (SD: 10.9)	Baseline: Mean 84.8 (SD: 12.1)	Baseline: Mean 80.1 (SD: 8.9)	Arm1: Spearman R (change from baseline) 0.12, p=0.51 Arm2: Spearman R (change from baseline) 0.33, p=0.11 Arm3: Spearman R (change from baseline) 0.21, p=0.34 Arm4: Spearman R (change from baseline) 0.11, p=0.60
Dixon, 2016[25]	FHN-Nocturnal	Observational: prospective	NA	Clinic DBP (mmHg)	12 months	31	18	28	NA	Baseline: Mean 80 (SD: 16) Final: Mean 84 (SD: 12)	Baseline: Mean 79 (SD: 19) Final: Mean 76 (SD: 12)	Baseline: Mean 81 (SD: 16) Final: NR		NR
Kotanko, 2015[7]	FHN	RCT	nocturnal	Clinic DBP (post-HD)	10-12 months	162	170	NA	NA	Baseline: Mean 76.3 (SD: 14.9) Final: Mean 74.1 (SD: 12.1)	Baseline: Mean 75.1 (SD: 11.9) Final: Mean 72.4 (SD: 13.4)			Arm1 vs Arm2: Mean difference: Change from baseline: -1.3 (95% CI: -5.2 to 2.6), p=NS

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment effect
Rocco, 2015[24]	FHN-Nocturnal	RCT	NA	Clinic DBP (predialysis DBP (mmHg)	12 months	42	45	NA	NA	Baseline: Mean 83.1 (SD: 23.8) Final: Mean 82.9 (SD: 12.9)	Baseline: Mean 79.6 (SD: 10.6) Final: Mean 75.9 (SD: 14.2)			NR
Chan, 2012[15]	FHN	RCT	NA	Clinic DBP (predialysis DBP, mmHg)	12 months	120	125	42	45	Final: Mean 0.6 (SD: 0.9)	Final: Mean -4.5 (SD: 0.9)	Final: Mean 0.3 (SD: 1.5)	Final: Mean -4.2 (SD: 1.5)	Arm1 vs Arm2: p<0.001, arm1 vs arm2 Arm3 vs Arm4: p=0.02 Arm1: Mean difference 0.6 (SD: 0.9), p=NR Arm2: Mean difference -4.5 (SD: 0.9), p=NR Arm3: Mean difference 0.3 (SD: 1.5), =NR Arm4: Mean difference -4.2 (SD: 1.5), p=NR
Kotanko, 2015[7]	FHN	RCT	nocturnal	Clinic DBP (pre-HD)	10-12 months	162	170	NA	NA	Baseline: Mean 82.9 (SD: 13.9) Final: Mean 83.0 (SD: 12.7)	Baseline: Mean 79.5 (SD: 11.0) Final: Mean 76 (SD: 13.9)			Arm1 vs Arm2: Mean difference: Change from baseline: -4.5 (95% CI: -8.3 to -0.7), p=<0.05

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment effect
Ayus, 2005[1]	NR	NRCT	NA	Clinic DBP (mmHg)	12 months	51	26	NA	NA	Baseline: Mean 75 (SD: 9.10) 6 months: Mean 74 (SD: 7.1) Final: Mean 75 (SD: 6.8)	Baseline: Mean 73 (SD: 7.62) 6 months: Mean 72 (SD: 6.95) Final: Mean 73 (SD: 7.07)			6 months, Arm1 vs Arm2: p=NS Final, Arm1 vs Arm2: p=NS

CI=confidence interval; DBP=diastolic blood pressure; FHN=Frequent Hemodialysis Network trials; mmHg=millimeters of mercury; N=number of patients; NA=not applicable; NR=not reported; NRCT=non-randomized controlled trial; NS=not significant; RCT=randomized controlled trial; SD=standard deviation

Evidence Table 59. Continuous systolic blood pressure outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Daugirdas, 2013[10]	FHN	RCT	NA	Clinic SBP (mm Hg)	12 months	48	35	31	32	Baseline: Mean 146.5 (SD: 17.7)	Baseline: Mean 153.8 (SD: 15.5)	Baseline: Mean 155.5 (SD: 20.8)	Baseline: Mean 145.8 (SD: 13.1)	Arm1: Spearman R (change from baseline) 0.09, p=0.61 Arm2: Spearman R (change from baseline) 0.45, p=0.02 Arm3: Spearman R (change from baseline) -0.20, p=0.38 Arm4: Spearman R (change from baseline) 0.02, p=0.94
Chan, 2012[15]	FHN	RCT	NA	Clinic SBP (mm Hg)	12 months	120	125	42	45					Arm1: Mean difference: 0.7 (SD: 1.6), p<0.001 Arm2: Mean difference: -9.3 (SD: 1.5), p<0.001 Arm3: Mean difference: -1.4 (SD: 2.5), p=0.02 Arm4: Mean difference: -9.4 (SD: 2.5), p=0.02
Dixon, 2016[25]	FHN-Nocturnal	Observational: prospective	NA	Clinic SBP (mm Hg)	12 months	31	18	28	NA	Baseline: Mean 147 (SD: 27) Final: Mean 149 (SD: 26)	Baseline: Mean 143 (SD: 31) Final: Mean 135 (SD: 17)			NR

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Kotanko, 2015[7]	FHN	RCT	nocturnal	Clinic SBP (post-HD)	10-12 months	162	170	NA	NA	Baseline: Mean 139.2 (SD: 21.2) Final: Mean 132.3 (SD: 2.8)	Baseline: Mean 136.1 (SD: 18.5) Final: Mean 129.3 (SD: 20.3)			Arm1 vs Arm2: Mean difference: Change from baseline: -2.0 (95% CI: -9.2 to 5.2), p=NS
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	Clinic SBP (predialysis)	12 months	42	45	NA	NA	Baseline: Mean 153 (SD: 22) Final: Mean 151 (SD: 19)	Baseline: 153 SD (22:) Final: Mean 137 (SD: 21)			Arm1 vs Arm2: Treatment comparison of change: nocturnal vs conventional (95% CI): −9.7 (−16.9, −2.5), p=0.009 Arm1: Mean difference: −0.1 (se: ±2.6) Arm2: Mean difference: −9.8 (se: ±2.7)
Kotanko, 2015[7]	FHN	RCT	nocturnal	Clinic SBP (Pre-HD)	10-12 months	162	170	NA	NA	Baseline: Mean 152.6 (SD: 22.2) Final: Mean 150.7 (SD: 18.6)	Baseline: Mean 144.9 (SD: 13.7) Final: Mean 137 (SD: 20.5)			Arm1 vs Arm2: Mean difference: CHange from baseline: -8.0 (95% CI: -14.5 to -1.6), p<0.05
Troidle, 2007[29]	NR	Observational: prospective	NA	Clinic SBP (Systolic blood pressure (post))	6 months	0	0	NA	NA	Pre: Mean 136 (SD: 24)	Post: Mean: 128 (SD: 20)			Pre vs Post: p=NR

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Daugirdas, 2013[10]	FHN	RCT	NA	Lowest intradialytic systolic BP (mm Hg)	12 months	48	35	31	32					Arm1: Spearman R (change from baseline): 0.06, p=0.05 Arm2: Spearman R (change from baseline): 0.39, p=0.73 Arm3: Spearman R (change from baseline): 0.07, p=0.76 Arm2: Spearman R (change from baseline): 0.77, p=0.00
Ayus, 2005[1]	NR	NRCT	NA	Clinic SBP (mmHg)	12 months	51	26	NA	NA	Baseline: Mean 143 (SD: 12.4) Final: Mean 145 (SD: 11.6)	Baseline: Mean 145 (SD: 13.0) Final: Mean 142 (SD: 11.3)			Arm1 vs Arm2: p=NS

CI=confidence interval; FHN=Frequent Hemodialysis Network trials; HD=hemodialysis; mm Hg=millimeters of mercury; N=number of patients; NA=not applicable; NR=not reported; NRCT=non-randomized controlled trial; NS=not significant; RCT=randomized controlled trial; SBP=systolic blood pressure; SD=standard deviation

Evidence Table 60. Continuous blood pressure medication outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment Effect
Kotanko, 2015[7]	FHN	RCT	nocturnal	Number of BP meds	10-12 months	162	170	Baseline: 42 Mean (1.6: SD) Final: 42 Mean (1.6: SD)	Baseline: 45 Mean (1.9: SD) Final: 45 Mean (1.1: SD)	Arm1 vs Arm2: Change from baseline: -0.44 (95% CI: -0.89 to -0.03), p<0.05
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	Number of BP meds	12 months	42	45	Baseline: 39 Mean (1.74: SD) Final: 39 Mean (2: SD)	Baseline: 37 Mean (2.38: SD) Final: 37 Mean (1.41: SD)	Arm1 vs Arm2: p<0.001 Arm1: Change from baseline to follow-up 0.26±1.43 Arm2: Change from baseline to follow-up -0.97±2.09

BP=blood pressure; FHN=Frequent Hemodialysis Network trials; N=number of patients; NA=not applicable; RCT=randomized controlled trial; SD=standard deviation

Evidence Table 61. Continuous left ventricular mass outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Chan, 2013[8]	FHN	RCT	NA	LV mass	12 months	120	125	42	45	Baseline: Median 76 g/ml (Quartile1, Quartile3: 59.7, 102.5:) Final: Median 74.2 g/ml (Quartile1, Quartile3: 58.7, 108.7:)	Baseline: Median 80.4 g/ml (Quartile1, Quartile3: 56.9, 110.2:) Final: Median 78.4 g/ml (Quartile1, Quartile3: 58.2, 116.5:)	Baseline: Median 81.5 g/ml (Quartile1, Quartile3: 62.9, 137.7:) Final: Median 80.4 g/ml (Quartile1, Quartile3: 58.3, 120.1:)	Baseline: Median 77.7 g/ml (Quartile1, Quartile3: 58.4, 123:) Final: Median 76.5 g/ml (Quartile1, Quartile3: 54.5, 120.1:)	Arm1 vs Arm2: Mean difference: 3.42 (95% CI: -1.91 to 8.75), p=0.21 Arm1: Mean difference: -2.04 (95% CI:-6.11 to 2.02) Arm2: Mean difference: 1.38 (95% CI:-2.33 to 5.10) Arm3: Mean difference: -3.48 (95% CI:-10.55 to 3.59) Arm4: Mean difference: -4.97 (95% CI:-12.2 to 2.26)
Chan, 2012[15]	FHN	RCT	NA	LV mass	12 months	120	125	42	45					Arm2: Mean difference: -13.1 (95% CI: -21.3 to -5.0), p=0.002 Arm4: Mean difference: -10.9 (95% CI:-23.7 to 1.8), p=0.09 Arm2: Hazard Ratio: 0.61 (95% CI:0.46 to 0.82), p<0.001 Arm4: Hazard Ratio: 0.68 (95% CI:0.44 to 1.07), p=0.095
Chan, 2012[15]	FHN	RCT	NA	LV mass	12 months	120	125	42	45		Final: Mean -6.9 (95% CI: -11.3 to -2.4)		Final: Mean -5.2 (95% CI: -11.4 to 1.0)	Arm2: Mean difference: -6.9 (95% CI: -11.3 to -2.4), p=0.003 Arm4: Mean difference: -5.2 (95% CI:-11.4 to 1.0), p=0.10 Arm2: HR: 0.65 (95% CI:0.49 to 0.87), p0.003 Arm4: HR: 0.74 (95% CI:0.48 to 4.46), p=0.19
Chan, 2012[15]	FHN	RCT	NA	LV mass	12 months	120	125	42	45		Final: Mean -7.0 (95% CI: -12.6 to -1.0)		Final: Mean -9.1 (95% CI: -17.0 to -0.5)	Arm2: Mean difference: -7.0 (95% CI: -12.6 to -1.0), p=0.02 Arm4: Mean difference: -9.1 (95% CI:-17.0 to -0.5), p=0.04 Arm2: HR: 0.64 (95% CI:0.48 to 0.85), p0.002 Arm4: HR: 0.63 (95% CI:0.40 to 0.99), p=0.04

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Chan, 2012[15]	FHN	RCT	Age	LV mass	12 months	120	125	42	45					Arm2: Treatment effect: -20.1 (95% CI: -31.6 to -8.6), p=0.24 Arm4: Treatment effect: -14.2 (95% CI:-34.7 to 6.3), p=NR
Chan, 2012[15]	FHN	RCT	Age	LV mass	12 months	120	125	42	45					Arm2: Treatment effect: -5.8 (95% CI: -17.5 to 5.9), p=NR Arm4: Treatment effect: -8.3 (95% CI:-24.8 to 8.2), p=NR
Chan, 2012[15]	FHN	RCT	Sex	LV mass	12 months	120	125	42	45					Arm2: Treatment effect: -12.8 (95% CI: -23.1 to -2.5), p=0.73 Arm4: Treatment effect: -12.0 (95% CI:-27.7 to 3.7), p=NR
Chan, 2012[15]	FHN	RCT	Sex	LV mass	12 months	120	125	42	45					Arm2: Treatment effect: -13.9 (95% CI: -27.5 to -0.2), p=NR Arm4: Treatment effect: -8.8 (95% CI:-31.7 to 14.0), p=NR
Chan, 2012[15]	FHN	RCT	Diabetes	LV mass	12 months	120	125	42	45					Arm2: Treatment effect: -20.2 (95% CI: -30.7 to -9.8), p=0.15 Arm4: Treatment effect: -13.3 (95% CI:-30.3 to 3.7), p=NR
Chan, 2012[15]	FHN	RCT	Diabetes	LV mass	12 months	120	125	42	45					Arm2: Treatment effect: -2.9 (95% CI: -15.5 to 9.7), p=NR Arm4: Treatment effect: -7.8 (95% CI:-27.4 to 11.5), p=NR
Chan, 2012[15]	FHN	RCT	Race/ethnicity	LV mass	12 months	120	125	42	45					Arm2: Treatment effect: -18.8 (95% CI: -34.2 to -3.3), p=0.43 Arm4: Treatment effect: -13.7 (95% CI:-33 to 5.5), p=NR

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Chan, 2012[15]	FHN	RCT	Race/ethnicity	LV mass	12 months	120	125	42	45					Arm2: Treatment effect: -14.8 (95% CI: -27.4 to -2.3), p=NR Arm4: Treatment effect: -13.2 (95% CI:-38.5 to 12.0), p=NR
Ayus, 2005[1]	NR	NRCT	NA	LV mass	12 months	51	26	NA	NA	Baseline: Mean 148 (SD: 34) Final: NR	Baseline: Mean 154 (SD: 33) Final: Mean 108 (SD: 25)			Arm1: Mean difference: NR, p=NS Arm2: Mean difference: -30%, p<0.0001
Rocco, 2015[24]	FHN-Nocturnal	RCT	NA	LV mass	12 months	42	45	NA	NA	Baseline: Mean 134.9 (SD: 41.8) Final: Mean 132.8 (SD: 41.7)	Baseline: Mean 138.5 (SD: 47.9) Final: Mean 133.3 (SD: 56.5)			Arm1 vs Arm2: p=NR
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	LV mass	12 months	42	45	NA	NA	Baseline: Mean 132 (SD: 41) Final: Mean 133 (SD: 42)	Baseline: Mean 141 (SD: 48) Final: Mean 132 (SD: 55)			Arm1 vs Arm2: Treatment comparison of change: nocturnal vs conventional (95% CI) −10.9 (−23.7, 1.8), p=0.09 Arm1: Mean difference 1.7 (SD: 4.5) Arm1: Change from baseline to follow-up 0.6±24.9 Arm2: Mean difference −9.2 (SD: ±4.6) Arm2: Change from baseline to follow-up -8.2±31.7

CI=confidence interval; FHN=Frequent Hemodialysis Network trials; g/ml=grams per milliliter; HR=hazard ratio; LV=left ventricular; N=number of patients; NA=not applicable; NR=not reported; NRCT=non-randomized controlled trial; NS=not significant; RCT=randomized controlled trial; SD=standard deviation

Evidence Table 62. Categorical hypertension outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n (%), Arm1	n (%), Arm2	Treatment Effect
Rocco, 2015[24]	FHN-Nocturnal	RCT	NA	Hypertension	12 months	42	45	6 months, counts: 39 (93) Final, counts: 36 (92)	6 months, Counts: 41 (91) Final, Counts: 35 (92)	NR

FHN=Frequent Hemodialysis Network trials; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial

Evidence Table 63. Continuous quality of life outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect	Comments
Unruh, 2016[18]	FHN	RCT	NA	% SPI II score>47 : Nocturnal Trial	12 months	120	125	42	45	Baseline: 4.3% Final: 3.5%	Baseline: 2.4% Final: 1.8%			NR	Figure 2: Percent of participants in the Nocturnal Trial with SPI II score >47 by time and treatment.
Troidle, 2007[29]	NR	Observational: prospective	NA	Beck Depression Inventory.	6 months	NR	NR	NA	NA	Baseline: Mean 10.1 (SD: 5.6) Final: NR	Baseline: NR Final, 6 months: Mean: 6.9 (SD: 6.2)			NR	Conventional hemodialysis patient reference values: 10.7 (SD 7.4)
Hall, 2012[19]	FHN	RCT	Nocturnal Trial	RAND-36 PHC in Nocturnal Trial	12 months	42	45	120	125	Baseline: Mean 38.4 (SD: 8.5) Final: Mean 40.6 (SD: 9.2)	Baseline: Mean 35.8 (SD: 8.7) Final: Mean 39.8 (SD: 12.2)			Arm1: Mean difference: 0.6 (95% CI: -3.4 to 4.7)	Table 3
Unruh, 2013[11]	FHN	RCT	NA	RAND-36 Emotional well-being	12 months	120	125	42	45	Baseline: Mean 77.6 (SD: 16.3) Final: Mean 75.6 (SD: 20.9)	Baseline: Mean 73.1 (SD: 22.5) Final: Mean 80.3 (SD: 17.5)	Baseline: Mean 77.1 (SD: 21.7) Final: Mean 75.6 (SD: 21.4)	Baseline: Mean 75.7 (SD: 18.1) Final: Mean 78.4 (SD: 18.0)	Arm1 vs Arm2: Treatment comparison (6x vs 3x) baseline to 12 months: 5.5 (95% CI: 95% CI (LL) to 95% CI (UL)), p=<=0.05 Arm3 vs Arm4: Treatment comparison (6x vs 3x) baseline to 12 months: 5.3 (95% CI: 95% CI (LL) to 95% CI (UL)), p=NR	

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect	Comments
Unruh, 2013[11]	FHN	RCT		RAND-36 Energy/Fatigue	12 months	120	125	42	45	Baseline: Mean 51.2 (SD: 20.8) Final: Mean 51.6 (SD: 20.5)	Baseline: Mean 47.1 (SD: 25.2) Final: Mean 58.6 (SD: 23.4)	Baseline: Mean 48.4 (SD: 19.5) Final: Mean 49.6 (SD: 22.6)	Baseline: Mean 48.6 (SD: 22.9) Final: Mean 51.4 (SD: 25.0)	Arm1 vs Arm2: Treatment comparison (6x vs 3x), baseline to 12 months: 8.3 (95% CI: 95% CI (LL) to 95% CI (UL)), p=<=-.01 Arm3 vs Arm4: Treatment comparison (6x vs 3x), baseline to 12 months: 3.0 (95% CI: 95% CI (LL) to 95% CI (UL)), p=NR	
Unruh, 2013[11]	FHN	RCT		RAND-36 Mental Health Composite	12 months	120	125	42	45	Baseline: Mean 46.0 (SD: 10.3) Final: Mean 45.7 (SD: 11.8)	Baseline: Mean 44.3 (SD: 13.0) Final: Mean 48.8 (SD: 11.4)	Baseline: Mean 45.9 (SD: 12.6) Final: Mean 45.6 (SD: 12.2)	Baseline: Mean 45.6 (SD: 10.5) Final: Mean 48.2 (SD: 11.7)	Arm1 vs Arm2: Treatment comparison (6x vs 3x), baseline to 12 months: 3.5 (95% CI: 95% CI (LL) to 95% CI (UL)), p=<=0.01 Arm3 vs Arm4: Treatment comparison (6x vs 3x), baseline to 12 months: 3.7 (95% CI: 95% CI (LL) to 95% CI (UL)), p=NR	
Hall, 2012[19]	FHN	RCT	Nocturnal trial	RAND-36 Physical Functioning (PF) in Nocturnal Trial	12 months	42	45	120	125	Baseline: Mean 62.6 (SD: 18.3) Final: Mean 63.5 (SD: 23.4)	Baseline: Mean 57.7 (SD: 25.2) Final: Mean 55 (SD: 34.3)			Arm1: Mean difference: -4.2 (95% CI: -14.1 to 5.7)	Table 3

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect	Comments
Unruh, 2013[11]	FHN	RCT	NA	RAND-36 Role limitation due to emotional problems	12 months	120	125	42	45	Baseline: Mean 78.4 (SD: 35.2) Final: Mean 77.1 (SD: 38.4)	Baseline: Mean 73.6 (SD: 38.1) Final: Mean 80.2 (SD: 36.1)	Baseline: Mean 77.0 (SD: 39.3) Final: Mean 82.9 (SD: 33.2)	Baseline: Mean 87.4 (SD: 24.9) Final: Mean 89.7 (SD: 26.7)	Arm1 vs Arm2: Treatment comparison (6x vs 3x), baseline to 12 months: 3.8 (95% CI: 95% CI (LL) to 95% CI (UL)), p= Arm3 vs Arm4: Treatment comparison (6x vs 3x), baseline to 12 months: 4.9 (95% CI: 95% CI (LL) to 95% CI (UL)), p=NR	
Unruh, 2013[11]	FHN	RCT	NA	RAND-36 Social Functioning	12 months	120	125	42	45	Baseline: Mean 72.3 (SD: 25.5) Final: Mean 72.8 (SD: 29.5)	Baseline: Mean 70.4 (SD: 28.0) Final: Mean 76.8 (SD: 25.5)	Baseline: Mean 75.6 (SD: 25.6) Final: Mean 76.0 (SD: 26.2)	Baseline: Mean 73.1 (SD: 25.3) Final: Mean 80.4 (SD: 26.1)	Arm1 vs Arm2: Treatment comparison (6x vs 3x), baseline to 12 months: 4.1 (95% CI: 95% CI (LL) to 95% CI (UL)), p= Arm3 vs Arm4: Treatment comparison (6x vs 3x), baseline to 12 months: 7.2 (95% CI: 95% CI (LL) to 95% CI (UL)), p=NR	
Troidle, 2007[29]	NR	Observational: prospective	NA	SF-36, mental component score	6 months	NR	NR	NA	NA	Baseline: Mean 56 (SD: 4.8) Final, 4 months: NR	Baseline: NR Final, 4 months: Mean 48 (SD: 9.8)				Conventional hemodialysis patient reference values: 49 (SD 10.5)
Troidle, 2007[29]	NR	Observational: prospective	NA	SF-36, physical component score	6 months	NR	NR	NA	NA	Baseline: Mean 45 (SD: 7.5) Final, 4 months: NR	Baseline: NR Final, 4 months: Mean 44 (SD: 0.8)				Conventional hemodialysis patient reference values: 33 (SD 10.8)

3x=3 times; 6x=6 times; CI=confidence interval; FHN=Frequent Hemodialysis Network trials; LL=lower limit; N=number of patients; NA=not applicable; NR=not reported; PHC=Physical health composite; RAND=36= RAND-36 Measure of Health-Related Quality of Life; RCT=randomized controlled trial; SD=standard deviation; SF-36=Short Form-36; SPI=II= Medical Outcomes Study Sleep Problems Index-II; UL=upper limit

Evidence Table 64. Continuous symptom measures outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Unruh, 2013[11]	FHN	RCT	Daily and Nocturnal trials	BDI	12 months	120	125	42	45	Baseline: Mean 12.4 (SD: 9.5) Final: Mean 12.1 (SD: 9.9)	Baseline: Mean 12.6 (SD: 8.6) Final: Mean 10.7 (SD: 8.8)	Baseline: Mean 12.2 (SD: 9.2) Final: Mean 11.1 (SD: 10.2)	Baseline: Mean 11.2 (SD: 8.1) Final: Mean 9.7 (SD: 8.6)	Arm1 vs Arm2: Treatment comparison (6x vs 3x), baseline to 12 months: -1.4 (95% CI: -3.2 to 0.5), p=NR Arm3 vs Arm4: Treatment comparison (6x vs 3x), baseline to 12 months: -0.6 (95% CI: -2.0 to 0.9), p=NR
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	Beck depression	12 months	42	45	NA	NA	Baseline: Mean 11.7 (SD: 9.3) Final: Mean 11.1 (SD: 10.2)	Baseline: Mean 11.8 (SD: 7.9) Final: Mean 9.7 (SD: 8.6)			Arm1 vs Arm2: Treatment comparison of change: nocturnal vs conventional (95% CI): −1.5 (−4.9, 1.9), p=0.39 Arm1: Mean difference: −0.4 (se: ±1.3) Arm1: Change from baseline to follow-up: -0.6±9.6 Arm2: Mean difference: −1.9 (se: ±1.2) Arm2: Change from baseline to follow-up: -2.1±5.2

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Unruh, 2013[11]	FHN	RCT	NA	Cognitive subscale of BDI score	12 months	120	125	42	45	Baseline: Mean 7.0 (SD: 7.4) Final: Mean 6.9 (SD: 7.4)	Baseline: Mean 7.1 (SD: 6.3) Final: Mean 6.3 (SD: 6.5)	Baseline: Mean 6.5 (SD: 6.9) Final: Mean 6.6 (SD: 7.8)	Baseline: Mean 6.2 (SD: 6.1) Final: Mean 5.3 (SD: 5.9)	Arm1 vs Arm2: Treatment comparison, 6x vs 3x, baseline to 12 months: 2.0 (95% CI: -2.0 to 0.9), p=NR Arm3 vs Arm4: Treatment comparison, 6x vs 3x, baseline to 12 months: -1.6 (95% CI: -4.1 to 0.8), p=NR
Troidle, 2007[29]	NR	Observational: prospective	NA	Fatigue scale.	6 months	NR	NR	NA	NA	Baseline: Mean 19 (SD: 6.5) Final, 4 months: NR	Baseline: NR Final, 4 months: Mean 19 (SD: 6.6)			
Garg, 2017[16]	FHN	RCT	Nocturnal	General health scale	12 months	162	170	NA	NA	Baseline: Mean 45 (SD: 20.4) Final: Mean 46.5 (SD: 18.5)	Baseline: Mean 40.3 (SD: 18.4) Final: Mean 51.8 (SD: 24.5)			Arm1: Mean difference: 6.56 (95% CI: -1.54 to 14.66)
Garg, 2017[16]	FHN	RCT	Nocturnal trial	HUI-3 score	12 months	162	170	NA	NA	Baseline: Mean 0.64 (SD: 0.34) Final: Mean 0.61 (SD: 0.35)	Baseline: Mean 0.53 (SD: 0.32) Final: Mean 0.48 (SD: 0.38)			Arm1: Mean difference: -0.07 (95% CI: -0.21 to 0.08)

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	physical health composite	12 months	42	45	NA	NA	Baseline: Mean 38.4 (SD: 8.5) Final: Mean 40.6 (SD: 9.2)	Baseline: Mean 37 (SD: 9.3) Final: Mean 40.3 (SD: 12.3)			Arm1 vs Arm2: Treatment comparison of change: nocturnal vs conventional (95% CI): 0.6 (−3.4, 4.7), p=0.75 Arm1: Mean difference: 2.1 (se: ±1.5) Arm1: Change from baseline to follow-up: 2.1±9.6 Arm2: Mean difference: 2.7 (se: ±1.4) Arm2: Change from baseline to follow-up: 3.3±9.0
Garg, 2017[16]	FHN	RCT	Nocturnal	Time to recovery (min)	12 months	162	170	NA	NA	Baseline: Median 180 (Range: to) Final: Median: 120 (10, 90 percentile: 0, 1440)	Baseline: Median 180 (Range: to) Final: Median: 30 (10, 90 percentile: 0, 180)			Arm1: Mean difference: -63 (95% CI: -71 to -54), p=0.0004

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Unruh, 2016[18]	FHN	RCT	NA	SPI-II in nocturnal group	12 months	120	125	42	45	Baseline: Mean 32 (SD: 18.4) Final: Mean 33 (SD: 23.1)	Baseline: Mean 33.8 (SD: 17.4) Final: Mean 29.8 (SD: 17.7)			Arm1 vs Arm2: 12 mo Treatment comparison at 6x vs 3x dialysis: -4.5(−12.2–3.2) Arm1: change from baseline to 12 months (SE): +1.2 ± 2.8 Arm1: change from baseline to 12 months (SE): +1.2 ± 2.8 Arm2: change from baseline to 12 months (SE): −3.3 ± 2.8

3x=3 times; 6x=6 times; BDI=Beck's Depression Inventory; CI=confidence interval; FHN=Frequent Hemodialysis Network; HUI=Health Utilities Index; mo=months; N=sample size; NA=not applicable; NR=not reported; p=p-value; RCT=randomized controlled trial; SD=standard deviation; SE=standard error; SPI-II=Medical Outcomes Study Sleep Problems Index-II

Evidence Table 65. Categorical cardiovascular mortality outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n / N (%), Arm1	n / N (%), Arm2	Treatment Effect
Johansen, 2009[32]	NR	Retrospecitve cohort	NA	Composite mortality risk or major copmorbid event	2 years or greater than 2 years	940	94	NR	NR	HR: 0.56; 95% CI: 0.35 to 0.89; p=0.01
Rocco, 2015[24]	FHN-Nocturnal	RCT	NA	CVD mortality rate	>12 months	42	45	Baseline: NR 6 months: 0/42 Final: 2/39	Baseline: NR 6 months: 0/45 Final: 7/35	NR

3x=3 times; 6x=times; BDI=Beck's Depression Inventory; CI=confidence interval; CVD=cardiovascular disease; FHN=Frequent Hemodialysis Network trials; HUI-3=Health Utilities Index-3; min=minutes; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial; SD=standard deviation; SE=standard error; SPI-II=Medical Outcomes Study Sleep Problems Index-II

Evidence Table 66. Categorical infection mortality outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n / N (%), Arm1	n / N (%), Arm2	Treatment Effect
Rocco, 2015[24]	FHN-Nocturnal	RCT	NA	Infection mortality rate	>12 months	42	45	Baseline: NR 6 months: 0/42 Final: 0/39	Baseline: NR 6 months: 0/45 Final: 2/37	NR

FHN=Frequent Hemodialysis Network trials; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial

Evidence Table 67. Categorical mortality composite outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n / N (%), Arm1	n / N (%), Arm2	Treatment Effect	Comments
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	death/LV mass composite	12 months	42	45	Baseline: NR Final: NR	Baseline: NR Final: NR	Arm1 vs Arm2: HR 0.68 (95% CI: 0.44 to 1.07), p=0.095	
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	death/PHC composite.	12 months	42	45	Baseline: NR Final: NR	Baseline: NR Final: NR	Arm1 vs Arm2: HR 0.91 (95% CI: 0.58 to 1.43), p=0.68	In the frequent nocturnal arm, three patients had no 12-month LV mass data and three patients had incomplete data for the baseline to 12-month physical health composite (PHC) score comparisons; the respective numbers in the conventional arm were 0 and 1, respectively
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	Non-access hospitalization and death	12 months	42	45	Baseline: NR Final: 15/42 (38.1)	Baseline: NR Final: 18/45 (40)	Arm1 vs Arm2: RR 1.33 (95% CI: 0.67 to 2.65), p=0.42	Number of randomized patients for the non-access hospitalization/death outcome, and number of patients providing both baseline and follow-up measurements for the remaining outcomes

CI=confidence interval; FHN=Frequent Hemodialysis Network trials; LV=left ventricular; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported; PHC=physical health composite; RCT=randomized controlled trial; RR=relative risk

Evidence Table 68. Categorical all cause mortality outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n / N (%), Arm1	n / N (%), Arm2	Treatment Effect
Nesrallah, 2012[36]	NR	Observational: retrospective	US data	Overall mortality rate	NR	1388	338	Final: event rate per 100 person years: 13.9	Final: event rate per 100 person year: 5.5	Arm1 vs Arm2: HR 0.226
Lockridge, 2011[33]	NR	Observational: retrospective	NA	Overall mortality rate	120 months	NR	87			Standardized Mortality Ratio 0.30 (0.16-0.51)
Rocco, 2015[24]	FHN-Nocturnal	RCT	NA	Overall mortality rate	>12 after trial months	42	45	Final: 5/38	Final: 14/32	Arm1 vs Arm2: HR 5.98 (95% CI: 1.71 to 20.92), p=0.002
Rocco, 2015[24]	FHN-Nocturnal	RCT	Age ≤ 50 years	Overall mortality rate	>12 months	42	45	Final: 2/15 Deaths Per Patient Year: 0.037	Final: 4/19 Deaths Per Patient Year: 0.060	NR
Rocco, 2015[24]	FHN-Nocturnal	RCT	Age > 50 years	Overall mortality rate	>12 months	42	45	Final: 3/27 Deaths Per Patient Year: 0.030	Final: 10/26 Deaths Per Patient Year: 0.134	NR
Rocco, 2015[24]	FHN-Nocturnal	RCT	Male	Overall mortality rate	>12 months	42	45	Final: 4/28 Deaths Per Patient Year: 0.042	Final: 9/29 Deaths Per Patient Year: 0.097	NR
Rocco, 2015[24]	FHN-Nocturnal	RCT	Female	Overall mortality rate	>12 months	42	45	Final: 1/14 Deaths Per Patient Year: 0.017	Final: 5/16 Deaths Per Patient Year: 0.104	NR
Rocco, 2015[24]	FHN-Nocturnal	RCT	Non-Black	Overall mortality rate	>12 months	42	45	Final: 5/30 Deaths Per Patient Year: 0.047	Final: 11/33 Deaths Per Patient Year: 0.108	NR
Rocco, 2015[24]	FHN-Nocturnal	RCT	Black	Overall mortality rate	>12 months	42	45	Final: 0/11 Deaths Per Patient Year: 0.000	Final: 3/12 Deaths Per Patient Year: 0.078	NR
Rocco, 2015[24]	FHN-Nocturnal	RCT	LV Mass ≤ 132 (g)	Overall mortality rate	>12 months	42	45	Final: 2/18 Deaths Per Patient Year: 0.028	Final: 7/24 Deaths Per Patient Year: 0.098	NR
Rocco, 2015[24]	FHN-Nocturnal	RCT	LV Mass > 132 (g)	Overall mortality rate	>12 months	42	45	Final: 7/24 Deaths Per Patient Year: 0.036	Final: 3/21 Deaths Per Patient Year: 0.101	NR
Rocco, 2015[24]	FHN-Nocturnal	RCT	< 4 Years vintage	Overall mortality rate	>12 months	42	45	Final: 4/30 Deaths Per Patient Year: 0.037	Final: 7/28 Deaths Per Patient Year: 0.075	NR
Rocco, 2015[24]	FHN-Nocturnal	RCT	≥ 4 Years vintage	Overall mortality rate	>12 months	42	45	Final: 1/12 Deaths Per Patient Year: 0.022	Final: 7/17 Deaths Per Patient Year: 0.148	NR
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	Overall mortality rate	12 months	42	45	Final: 1/42	Final: 2/45	NR

CI=confidence interval; FHN=Frequent Hemodialysis Network trials; g=grams; HR=hazard ratio; LV=left ventricular; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial; US=United States

Evidence Table 69. Continuous all cause mortality outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	Outcome, Arm1	Outcome, Arm2	Treatment effect
Rocco, 2015[24]	FHN-Nocturnal	RCT	NA	Overall mortality rate	>12 past trial months	42	45	Baseline: (Death Rate/Patient-Year: 0.023) Final: (Death Rate/Patient-Year: 0.099)	Baseline: (Death Rate/Patient-Year: r 0.043) Final: (Death Rate/Patient-Year: 0.032)	NR

FHN=Frequent Hemodialysis Network trials; g=grams; HR=hazard ratio; N=number of patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial

Evidence Table 70. Categorical hypotension outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n (%), Arm1	n (%), Arm2	Treatment Effect
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	Hypotension	12 months	42	45	Final, counts: 28 (total numbers of events: 136)	Final, Counts: 25 (total numbers of events: 71)	NR
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	Percent of dialysis treatments with a hypotensive episode	12 months	42	45	Final, : (9.5)	Final, : (3.1)	Arm1 vs Arm2: p<0.001

FHN=Frequent Hemodialysis Network trials; g=grams; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial

Evidence Table 71. Categorical vascular access complication outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	n (%), Arm1	n (%), Arm2	Treatment Effect
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	Access hospitalizations	NR months	42	45	Final, counts: 3 (Number of events: 4)	Final, Counts: 5 (Number of Events: 8)	Arm1 vs Arm2: HR 2.15 (95% CI: 0.67 to 6.89), p=0.20

CI=confidence interval; FHN=Frequent Hemodialysis Network trials; g=grams; HR=hazard ratio; N=number of total patients; n=number of sample patients; NA=not applicable; NR=not reported; RCT=randomized controlled trial

Evidence Table 72. Continuous weight outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Kaysen, 2012[13]	FHN	RCT	NA	Adiposity (%)	12 months	42	45	120	125	Baseline: Mean 37.9 (SD: 14.6) Final: Mean 37.5 (SD: 15.1)	Baseline: Mean 40.9 (SD: 17.7) Final: Mean 44.4 (SD: 18.5)	Baseline: Mean 37.6 (SD: 13.7) Final: Mean 37.3 (SD: 12.8)		Arm1 vs Arm2: 4.17: Treatment Comparison (6x vs. 3x), baseline to 12 months, Nocturnal (95% CI: to -0.36), p=1.90 Arm3 vs Arm4: 1.85: Treatment Comparison (6x vs. 3x), baseline to 12 months, Daily (95% CI: to -0.34), p=0.76
Kaysen, 2012[13]	FHN	RCT	NA	Adiposity (%)	12 months	42	45	120	125	Baseline: Mean 37.6 (SD: 13.7) Final: Mean 37.3 (SD: 12.8)	Baseline: Mean 40.9 (SD: 17.7) Final: Mean 44.4 (SD: 18.5)	Baseline: Mean 37.6 (SD: 13.7) Final: Mean 37.3 (SD: 12.8)		Arm1 vs Arm2: 4.17: Treatment Comparison (6x vs. 3x), baseline to 12 months, Nocturnal (95% CI: to -0.36), p=1.90 Arm3 vs Arm4: 1.85: Treatment Comparison (6x vs. 3x), baseline to 12 months, Daily (95% CI: to -0.34), p=0.76

Evidence Table 72. Continuous weight outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients (continued)

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Kaysen, 2012[13]	FHN	RCT	NA	Lean body mass (kg)	12 months	42	45	120	125	Baseline: Mean 46.3 (SD: 11.7) Final: Mean 44.8 (SD: 11.4)	Baseline: Mean 47.4 (SD: 12.5) Final: Mean 48.2 (SD: 12.0)	Baseline: Mean 44.0 (SD: 10.2) Final: Mean 45.0 (SD: 9.6)	Baseline: Mean 44.6 (SD: 9.8) Final: Mean 43.2 (SD: 10.3)	Arm1 vs Arm2: Treatment Comparison (6x vs. 3x), baseline to 12 months, Nocturnal: −0.45 (95% CI: -2.18 to 1.28), p=0.61 Arm3 vs Arm4: Treatment Comparison (6x vs. 3x), baseline to 12 months, Daily: −1.26 (95% CI: −2.12 to −0.41), p=0.004
Kaysen, 2012[13]	FHN	RCT	NA	Postdialysis weight	12 months	42	45	120	125	Baseline: Mean 83.45 (SD: 24.08) Final: Mean 84.05 (SD: 25.64)	Baseline: Mean 88.55 (SD: 28.19) Final: Mean 89.07 (SD: 28.56)	Baseline: Mean 78.9 (SD: 19.76) Final: Mean 79.19 (SD: 19.86)	?	Arm1 vs Arm2: Treatment comparison baseline to 12 months, Nocturnal: 0.51 (95% CI: −1.66 to 2.69), p=0.64 Arm3 vs Arm4: Treatment comparison baseline to 12 months, Daily: 0.62 (95% CI: −0.59 to 1.83), p=0.32
Kaysen, 2012[13]	FHN	RCT	NA	Predialysis weight	12 months	42	45	120	125	Baseline: Mean 85.83 (SD: 25.05) Final: Mean 86.57 (SD: 26.25)	Baseline: Mean 90.83 (SD: 28.95) Final: Mean 91.11 (SD: 28.87)	Baseline: Mean 81.75 (SD: 20.26) Final: Mean 81.97 (SD: 20.37)	Baseline: Mean 80.17 (SD: 21.26) Final: Mean 80.28 (SD: 21.51)	Arm1 vs Arm2: Treatment effect (6x vs 3x) in 12 months, Nocturnal: 0.17 (95% CI: −2.2 to 2.55), p=0.89 Arm3 vs Arm4: Treatment effect (6x vs 3x) in 12 months, Daily: −0.21 (95% CI: −1.24 to 0.82), p=0.69
Raimann, 2016[6]	FHN	RCT	NA	interdialytic weight gain (IDWG)	12 months	120	125	42	45	Baseline: Mean 3.14 (SD: 0.96) Final: Mean 3.1 (SD: 1.04)	Baseline: Mean 3.16 (SD: 0.99) Final: Mean 2.11 (SD: 0.86)	Baseline: Mean 2.37 (SD: 1.49) Final: Mean 2.55 (SD: 1.02)	Baseline: Mean 2.27 (SD: 1.42) Final: Mean 2.04 (SD: 0.87)	Arm1 vs Arm2: Mean difference: -0.95 (95% CI: -1.12 to -0.78, p<0.001 Arm1: Mean difference: -0.07 (95% CI: -0.2 to 0.06) Arm2: Mean difference: -1.03 (95% CI:-1.2 to -0.9) Arm3: Mean difference: 0.21 (95% CI:-0.03 to 0.44) Arm4: Mean difference: -0.25 (95% CI:-0.49 to -0.02)

3x=3 times; 6x=6 times; CI=confidence interval; FHN=Frequent Hemodialysis Network; kg=kilogram; N=sample size; NA=not applicable; NR=not reported; p=p-value; RCT=randomized controlled trial; SD=standard deviation; SE=standard error

Evidence Table 73. Continuous vascular access outcomes in studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Achinger, 2013[2]	NR	Nonrandomized	NA	Frequency distribution of dialysis access	48 months	51	26	NA	NA	No thrombectomies (58%) One thrombectomy (20%) 2-4 thrombectomies (12%) 5 or more thrombectomies (10%)	No thrombectomies (50%) One thrombectomy (31%) 2-4 thrombectomies (19%) 5 or more thrombectomies (0%)			NR
Achinger, 2013[2]	NR	Nonrandomized	NA	Rate of fistulagram, or thrombectomy	48 months	51	26	NA	NA	543.2 per 1000 person years (95% CI: 432.9 to 673.0)	400.8 per 1000 person years (95% CI: 270.2 to 499.7)			IR: 0.74; 95%CI: 0.4 to 1.36; p=0.33
Achinger, 2013[2]	NR	Nonrandomized	NA	Access revision	48 months	51	26	NA	NA	7	1			P=0.25
Achinger, 2013[2]	NR	Nonrandomized	NA	Thrombectomies per 1000 person years	48 months	51	26	NA	NA	388 (95%CI, 296.0 to 499.7)	307.3 (95%CI: 194.5 to 461.3)			incidence rate ratio=0.79 with 95%CI: from 0.39 to 1.60, P = 0.51
Achinger, 2013[2]	NR	Nonrandomized	NA	Incidence of Fistulagram	48 months	51	26	NA	NA					incidence rate ratio=0.73 with 95%CI: from 0.15 to 3.53, P=0.69
Achinger, 2013[2]	NR	Nonrandomized	Univariate analysis	Time to first access procedure	48 months	51	26	NA	NA					log rank P=0.85

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Achinger, 2013[2]	NR	Nonrandomized	Multivariable adjusted analysis	Time to first access procedure	48 months	51	26	NA	NA					Hazard ratio=0.99; 95% CI, 0.42–2.36, P=0.96

CI=confidence interval; IR=incidence rate; N=population; NA=not available; NR=not reported; p=p-value

Evidence Table 74. Continuous birth weight outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Hladunewich, 2014[31]	Toronto PreKid	Observational: retrospective	NA	Birth weight (grams)	36 weeks	22 pregnancies	70 pregnancies	NA	NA	Final: Mean 1767 (IQR: 558, 2348)	Final: Mean 2257 (IQR: 1505, 2812)	Final: Mean 2529 (IQR: 1577, 2990)		NR

3x=3 times; 6x=6 times; %=percentage; CI=confidence interval; FHN=Frequent Hemodialysis Network trials; IDWG=interdialytic weight gain; IQR=interquartile range; kg=kilograms; N=number of patients; NA=not applicable; NR=not reported; SD=standard deviation; Toronto PreKid=Toronto Pregnancy and Kidney Disease Clinic; RCT=randomized controlled trial

Evidence Table 75. Continuous body cell mass outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Kaysen, 2012[13]	FHN	RCT	NA	Body cell mass (kg)	12 months	42	45	120	125	Baseline: Mean 28.9 (SD: 9.2) Final: Mean 28.4 (SD: 9.5)	Baseline: Mean 29.5 (SD: 9.6) Final: Mean 30.2 (SD: 9.5)	Baseline: Mean 26.6 (SD: 8.2) Final: Mean 27.3 (SD: 7.7)	Baseline: Mean 27.7 (SD: 8.8) Final: Mean 27.3 (SD: 9.3)	Arm1 vs Arm2: Treatment Comparison (6x vs. 3x), baseline to 12 months, Nocturnal: -0.28 (95% CI: -1.84 to 1.28), p=0.73 Arm3 vs Arm4: Treatment Comparison (6x vs. 3x), baseline to 12 months, Daily: -0.23 (95% CI: -1.03 to 0.56), p=0.56

3x=3 times; 6x=6 times; CI=confidence interval; FHN=Frequent Hemodialysis Network trials; kg=kilograms; N=number of patients; NA=not applicable; SD=standard deviation; RCT=randomized controlled trial

Evidence Table 76. Categorical other outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm3	N, Arm4	n (%), Arm1	n (%), Arm2	n (%), Arm3	n (%), Arm4	Treatment Effect
Hladunewich, 2014[31]	Toronto PreKid	Observational: retrospective	NA	Live birth rates	36 weeks	22 pregnancies	70 pregnancies	NA	NA	Final, Proportion: 38	Final, Proportion: 75	Final, Proportion: 85		
Rocco, 2011[23]	FHN-Nocturnal	RCT	NA	Other vascular procedures	12 months	42	45	NA	NA	Final, counts: 6 (Number of events: 8)	Final, Counts: 12 (Number of events: 17)			Arm1 vs Arm2: HR 2.25 (95% CI: 0.87 to 5.83), p=0.095

%=percentage; CI=confidence interval; FHN=Frequent Hemodialysis Network trials; HR=hazard ratio; N=number of total patients; n=number of sample patients; NA=not applicable; Toronto PreKid=Toronto Pregnancy and Kidney Disease Clinic; RCT=randomized controlled trial

Evidence Table 77. Continuous other outcomes of studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm 3	N, Arm 4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Achinger, 2013[2]	NA	Non-randomized control	NA	Total access procedures	48 months	51	26	NA	NA	543.2 procedures per 1000 person years	400.8 procedures per 1000 person years	NA	NA	IR =0.74, 95%CI 0.40 to 1.36; p=0.33
Hladunewich, 2014[31]	Toronto PreKid	Observational: retrospective	NA	Gestational age (weeks)	36 weeks	22 pregnancies	70 pregnancies	NA	NA	Final: Mean 27 (IQR: 20.3, 33.5)	Final: Mean 34.3 (IQR: 26.8, 36.3)	Final: Mean 36.3 (IQR: 31, 37.5)		Arm1 vs Arm2 vs Arm3: p=0.002
Kaysen, 2012[13]	FHN	RCT	NA	Extra-cellular water (L)	12 months	42	45	120	125	Baseline: Mean 23.8 (SD: 5.6) Final: Mean 22.3 (SD: 5.4)	Baseline: Mean 24.6 (SD: 6.2) Final: Mean 24.3 (SD: 5.9)	Baseline: Mean 22.9 (SD: 4.7) Final: Mean 23.4 (SD: 4.9)	Baseline: Mean 22.7 (SD: 4.4) Final: Mean 21.6 (SD: 4.4)	Arm1 vs Arm2: Treatment comparison from 6x to 3x, baseline to 12 months, Nocturnal: 0.02 (95% CI: −1.23 to 1.27), p=0.98 Arm3 vs Arm4: Treatment comparison from 6x to 3x, baseline to 12 months, Daily: −1.12 (95% CI: −1.83 to −0.41), p=0.002
Kaysen, 2012[13]	FHN	RCT	NA	Intracellular water (L)	12 months	42	45	120	125	Baseline: Mean 22.8 (SD: 7.3) Final: Mean 22.4 (SD: 7.5)	Baseline: Mean 23.3 (SD: 7.5) Final: Mean 23.8 (SD: 7.5)	Baseline: Mean 21.0 (SD: 6.5) Final: Mean 21.6 (SD: 6.1)	Baseline: Mean 21.9 (SD: 6.9) Final: Mean 21.5 (SD: 7.4)	Arm1 vs Arm2: Treatment comparison, 6x to 3x, baseline to 12 months, Nocturnal Trial: -0.22 (95% CI: -1.45 to 1.01), p=0.73 Arm3 vs Arm4: Treatment comparison, 6x to 3x, baseline to 12 months, Daily Trial: −0.19 (95% CI: −0.81 to 0.44), p=0.562

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm 3	N, Arm 4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Kaysen, 2012[13]	FHN	RCT	NA	Kinetic Volume	12 months	42	45	120	125	Baseline: Mean 38.2 (SD: 12.1) Final: Mean 38.7 (SD: 13.5)	Baseline: Mean 37.6 (SD: 9..3) Final: Mean 41.2 (SD: 20.5)	Baseline: Mean 36.2 (SD: 8.6) Final: Mean 37.1 (SD: 8.5)	Baseline: Mean 36.8 (SD: 9.5) Final: Mean 35.6 (SD: 9.1)	Arm1 vs Arm2: Treatment comparison, baseline to 12 months, 6x to 3x, Nocturnal: -0.56 (95% CI: -4.38 to 3.26), p=0.77 Arm3 vs Arm4: Treatment comparison, baseline to 12 months, 6x to 3x, Daily: -1.55 (95% CI: -2.8 to -0.29), p=0.02
Kaysen, 2012[13]	FHN	RCT	NA	Phase angle (degrees)	12 months	42	45	120	125	Baseline: Mean 5.54 (SD: 1.48) Final: Mean 5.98 (SD: 1.66)	Baseline: Mean 5.49 (SD: 1.51) Final: Mean 5.79 (SD: 1.67)	Baseline: Mean 5.21 (SD: 1.21) Final: Mean 5.34 (SD: 1.58)	Baseline: Mean 5.65 (SD: 1.74) Final: Mean 5.78 (SD: 1.96)	Arm1 vs Arm2: Treatment comparison, baseline to 12 months, Daily: 0.28 (95% CI: −0.11 to 0.67), p=0.16 Arm3 vs Arm4: Treatment comparison, baseline to 12 months, Nocturnal: −0.05 (95% CI: −0.66 to 0.56), p=0.87
Kaysen, 2012[13]	FHN	RCT	NA	Reactance (ohms)	12 months	42	45	120	125	Baseline: Mean 48.7 (SD: 13.3) Final: Mean 53.9 (SD: 13.9)	Baseline: Mean 47.5 (SD: 13.8) Final: Mean 53.9 (SD: 16.2)	Baseline: Mean 48.2 (SD: 12.6) Final: Mean 47.4 (SD: 15.2)	Baseline: Mean 48.9 (SD: 14.1) Final: Mean 53.3 (SD: 15.3)	Arm1 vs Arm2: Treatment comparison baseline to 12 months, Nocturnal: 1.4 (95% CI: -5.1 to 7.9), p=0.67 Arm3 vs Arm4: Treatment comparison baseline to 12 months, Daily: 5.2 (95% CI: 1.3 to 9.2), p=0.010

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm 3	N, Arm 4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Kaysen, 2012[13]	FHN	RCT	NA	Resistance (ohms)	12 months	42	45	120	125	Baseline: Mean 470 (SD: 90) Final: Mean 483 (SD: 108)	Baseline: Mean 467 (SD: 111) Final: Mean 481 (SD: 94)	Baseline: Mean 488 (SD: 99) Final: Mean 466 (SD: 91)	Baseline: Mean 460 (SD: 89) Final: Mean 492 (SD: 93)	Arm1 vs Arm2: Treatment comparison 6x to 3x, 12 months to baseline, Nocturnal: 17.9 (95% CI: 11.1 to 49.6), p=0.30 Arm3 vs Arm4: Treatment comparison 6x to 3x, 12 months to baseline, Daily: 30.4 (95% CI: 11.1 to 49.6), p=0.002
Kaysen, 2012[13]	FHN	RCT	NA	Total body water	12 months	42	45	120	125	Baseline: Mean 46.7 (SD: 11.4) Final: Mean 44.7 (SD: 11.3)	Baseline: Mean 47.9 (SD: 12.2) Final: Mean 48.1 (SD: 11.9)	Baseline: Mean 43.9 (SD: 10.2) Final: Mean 44.9 (SD: 9.6)	Baseline: Mean 44.5 (SD: 9.7) Final: Mean 43.1 (SD: 10.2)	Arm1 vs Arm2: Treatment comparison from baseline to 12 months, 6x to 3x, Nocturnal: −0.4 (95% CI: −2.2 to 1.3), p=0.63 Arm3 vs Arm4: Treatment comparison from baseline to 12 months, 6x to 3x, Daily: -1.3 (95% CI: -2.1 to -0.4), p=0.004

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm 3	N, Arm 4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Kaysen, 2012[13]	FHN	RCT	NA	Vector Length	12 months	42	45	120	125	Baseline: Mean 274.5 (SD: 57.3) Final: Mean 289.4 (SD: 75.1)	Baseline: Mean 460.5 (SD: 95.4) Final: Mean 484.2 (SD: 96.5)	Baseline: Mean 291.8 (SD: 64.2) Final: Mean 278.1 (SD: 58.2)	Baseline: Mean 278.0 (SD: 61.1) Final: Mean 297.4 (SD: 65.2)	Arm1 vs Arm2: Treatment comparison, baseline to 12 months, 6x to 3x, Nocturnal: 9.4 (95% CI: −11.6 to 30.5), p=0.38 Arm3 vs Arm4: Treatment comparison, baseline to 12 months, 6x to 3x, Daily: 19.6 (95% CI: 7.6 to 31.6), p=0.0015
Troidle, 2007[29]	NR	Observational: prospective	NA	Time to recovery (minutes)		NR	NR	NA	NA	Baseline: Mean 198 (SD: 240) Final: NR	Baseline: NR Final: Mean 126 (SD: 120)			NR
Raimann, 2016[6]	FHN	RCT	NA	time-integrated estimate of ECF load (TIFL)	12 months	120	125	42	45	Baseline: Mean 10.57 (SD: 3.68) Final: Mean 9.34 (SD: 3.57)	Baseline: Mean 10.28 (SD: 4.13) Final: Mean 6.01 (SD: 3.2)	Baseline: Mean 7.53 (SD: 4.95) Final: Mean 7.14 (SD: 4.3)	Baseline: Mean 5.34 (SD: 3.57) Final: Mean 5.3 (SD: 3.21)	Arm1 vs Arm2: Mean difference: -2.97 (95% CI: -3.79 to -2.15, p<0.001 Arm1: Mean difference: -1.01 (95% CI: -1.66 to -0.36) Arm2: Mean difference: -3.99 (95% CI:-4.60 to -3.38) Arm3: Mean difference: 0.24 (95% CI:-0.92 to 1.40) Arm4: Mean difference: -1.15 (95% CI:-2.28 to -0.02)

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm 3	N, Arm 4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Chan, 2012[15]	FHN	RCT	NA	Predialysis Heart rate, /min	12 months	120	125	42	45	Baseline: NR Final: Mean -0.4 (SD: 1.4)	Baseline: NR Final: Mean 2.9 (SD: 1.3)	Baseline: NR Final: Mean 0.5 (SD: 2.4)	Baseline: NR Final: Mean 4.0 (SD: 2.4)	Arm1 vs Arm2: p=0.06 Arm3 vs Arm4: p=0.27 Arm1: Mean difference: -0.4 (SD: 1.4) Arm2: Mean difference: 2.9 (SD: 1.3) Arm3: Mean difference: 0.5 (SD: 2.4) Arm4: Mean difference: 4.0 (SD: 2.4)
Ayus, 2005[1]	NR	NRCT	NA	Erythropoietin dose (U/d)	12 months	51	26	NA	NA	Baseline: Mean 8,450 (IQR: 5,025 to 14,183) 6 months: Mean 10,825 (IQR: 4,704 to 15,979) Final: Mean 11,167 (IQR: 6,300 tp 16,938)	Baseline: Mean 15,000 (IQR: 6,250 to 24,500) 6 months: Mean 9,960 (IQR: 5,972 to 17,950) Final: Mean 9,443 (IQR: 6,313 to 14,795)			Arm1 vs Arm2: p=NS Arm2: p<0.01
Ayus, 2005[1]	NR	NRCT	NA	Erythropoietin resistance index (weekly EPO U/kg per g/dl Hgb)	12 months	51	26	NA	NA	Baseline: Mean 9.0 (IQR: 5.5 to 15.9) 6 months: Mean 12.3 (IQR: 6.6 to 17.6) Final: Mean 11.0 (IQR: 7.5 to 19.1)	Baseline: Mean 19.5 (IQR: 8.6 to 37.6) 6 months: Mean 11.9 (IQR: 8.2 to 17.1) Final: Mean 10.5 (IQR: 5.5 to 14.6)			Arm2: p<0.0001

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm 3	N, Arm 4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Lo, 2017[17]	FHN	RCT	NA	prolactin, ng/ml	12 months	91	86	29	31	Baseline: Median 64.3 (IQR: 34.9 to 108.7) Final: Median 45.8 (IQR: 29.0 to 90.4)	Baseline: Median 59.7 (IQR: 40.5 to 99.1) Final: Median 58.4 (IQR: 36.0 to 110.1)	Baseline: Median 66.2 (IQR: 42.2 to 100.9) Final: Median 65.4 (IQR: 46.1, to 97.8)	Baseline: Median 72.6 (IQR: 33.4 to 151.0) Final: Median 58.1 (IQR: 25.8 to 206.1)	Arm1 vs Arm2: treatment effect: -1% (95% CI: -26.7% to 33.5%, p=0.95 Arm3 vs Arm4: treatment effect: -17.4% (95% CI: -50.4% to 37.4%, p=0.46 Arm1: Mean difference: -14.6% adjusted mean change from baseline (95% CI: -33.1% to 8.9%) Arm2: Mean difference: -15.5% adjusted mean change from baseline (95% CI:-34.6% to 9.1%) Arm3: Mean difference: 11.4% adjusted mean change from baseline (95% CI:-21.4% to 57.8%) Arm 4: 6x weekly nocturnal trial -8.1% (95% CI: -37.1 to 34.4) adjusted mean change from baseline

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm 3	N, Arm 4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Unruh, 2016[18]	FHN	RCT	NA	hours of sleep in Daily Trial	12 months	120	125	42	45	Baseline: Mean 5.98 (SD: 1.44) Final: Mean 5.89 (SD: 1.77)	Baseline: Mean 5.94 (SD: 1.82) Final: Mean 6.04 (SD: 1.77)			Arm1 vs Arm2: Mean difference: +0.02 (95% CI: -0.35 to 0.39) Arm1: change from baseline to 4 months (SE): −0.00 ± 0.14 Arm1: change from baselin 12 months (SE): −0.05 ± 0.16 Arm2: change from baselin 4 months (SE): 0.02 ± 0.14 Arm2: change from baselin 12 months (SE): −0.02 ± 0.15 12 mo Treatment comparison (6× versus 3×) :0.02(−0.39–0.43)
Unruh, 2016[18]	FHN	RCT	NA	hours of sleep in Nocturnal group	12 months	120	125	42	45	Baseline: Mean 6.37 (SD: 1.45) Final: Mean 6.24 (SD: 1.55)	Baseline: Mean 6.51 (SD: 1.43) Final: Mean 6.80 (SD: 1.71)			Arm1 vs Arm2: 3x vs 6x dialysis comparison in 12 months: 0.43 (−0.09–0.96) Arm1: change from baseline to 12 months (SE): −0.16 ± 0.19 Arm1: change from baseline to 12 months (SE): −0.16 ± 0.19 Arm2: change from baseline to 12 months (SE): +0.27 ± 0.19
Troidle, 2007[29]	NR	Observational : prospective	NA	Kt/V urea	6 months	NR	NR	NA	NA	Baseline: Mean 1.2 (SD: 0.16) Final: NR	Baseline: NR Final: Mean 2.6 (SD: 0.65)			Arm1 vs Arm2: p=0.003
Troidle, 2007[29]	NR	Observational : prospective	NA	Total ultrafiltration (L/Rx)	6 months	NR	NR	NA	NA	Baseline: Mean 3.9 (SD: 1.4) Final: NR	Baseline: NR Final: Mean 5.0 (SD: 1.9)			Arm1 vs Arm2: p=NR

Author, year	Study name	Study design	Subgroup	Outcome definition	Followup	N, Arm1	N, Arm2	N, Arm 3	N, Arm 4	Outcome, Arm1	Outcome, Arm2	Outcome, Arm3	Outcome, Arm4	Treatment Effect
Troidle, 2007[29]	NR	Observational: prospective	NA	Ultrafiltration rate (mL/h/kg)	6 months	NR	NR	NA	NA	Baseline: Mean 10.3 (SD: 4.5) Final: NR	Baseline: NR Final: Mean 5.9 (SD: 1.7)			Arm1 vs Arm2: p=NR

3x=3 times; 6x=6 times; /min=per minute; CI=confidence interval; ECF=extracellular fluid; EPO=erythropoietin; g/dl=grams per deciliter; Hgb=hemoglobin; IQR=interquartile range; Kt/V=urea clearance; L=liters; L/Rx=Total ultrafiltration in liters per dialysis session; mL/h/kg=milliliters per hour per kilogram; N=number of patients; NA=not applicable; NR=not reported; ng/ml=nanograms per milliliter; NR=not reported; RCT=randomized controlled trial; SD=standard deviation; SE=standard error; TIFL=Time-integrated estimate of extracellular fluid load; U/d=units per dose; U/kg=units per kilogram

Evidence Table 78. Risk of bias assessment of randomized clinical trial studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Domain 1: Risk of bias arising from the randomization process	Domain 2: Risk of bias due to deviations from the intended interventions	Domain 2: Risk of bias due to deviations from the intended interventions	Domain 3: Missing outcome data	Domain 4: Risk of bias in measurement of the outcome	Domain 5: Risk of bias in selection of the reported result	Overall risk of bias judgement
Chertow, 2010[3] FHN-Daily	Low	Low	Some Concerns	Low	Low	Some concerns	Some concerns
Dember, 2019[26]	Low	Some Concerns	High	Low	Low	High	High
Rocco, 2011[23] FHN-Nocturnal	Low	Low	Some concerns	Low	Low	Low	Some concerns

FHN=Frequent Hemodialysis Network; High=high risk of bias; Low=low risk of bias; Some concerns=some concerns regarding risk of bias

Evidence Table 79. Risk of bias assessment of observational studies comparing hemodialysis frequency and duration in non-institutionalized patients

Author, year	Domain 1: Confounding	Domain 2: Selection	Domain 3: Classification of interventions	Domain 4: Deviations from intended interventions	Domain 5: Missing data	Domain 6: Measurement of outcomes	Domain 7: Selection of reported result	Overall risk of bias judgement
Achinger, 2013[2]	Low	Low	Low	Low	Moderate	Moderat	Low	Moderate
Ayus, 2005[1]	Low	Low	Low	Low	Low	Moderate	Low	Moderate
Brunelli, 2010[27]	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Serious	Serious
Brunelli, 2016[30]	Serious	Serious	Moderate	Moderate	Moderate	Moderate	Moderate	Serious
Hladunewich, 2014[31]	Serious	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Serious
Johansen, 2009[32]	Critical	Moderate	Low	Low	Moderate	Moderate	Low	Critical
Lacson, 2012[28]	Serious	Low	Moderate	Moderate	Moderate	Moderate	No information	Serious
Lockridge, 2011[33]	Critical	Low	Low	Serious	Low	Low	Low	Critical
Mathew, 2016[34]	Critical	Critical	Moderate	Critical	Critical	No Information	Low	Critical
Miller, 2010[35]	Moderate	Low	Moderate	Serious	Low	Low	Moderate	Serious
Nesrallah, 2012[36]	Moderate	Moderate	Moderate	Moderate	Low	Low	Moderate	Moderate
Rivara, 2016[37]	Serious	Moderate	Moderate	Low	Low	Low	Low	Moderate
Troidle, 2007[29]	Serious	Serious	Low	Low	Low	Low	Moderate	Serious
Weinhandl, 2012[38]	Serious	Serious	Moderate	Low	No information	Low	Low	Serious
Weinhandl, 2015[39]	Critical	Serious	Low	Low	Moderate	Moderate	Low	Serious

Critical=critical risk of bias; Low=low risk of bias; Moderate=moderate risk of bias; Serious=serious risk of bias

References

1. Ayus JC, Mizani MR, Achinger SG, et al. Effects of short daily versus conventional hemodialysis on left ventricular hypertrophy and inflammatory markers: a prospective, controlled study. Journal of the American Society of Nephrology : JASN. 2005 Sep;16(9):2778-88. doi: 10.1681/asn.2005040392. PMID: 16033855.

2. Achinger SG, Ikizler TA, Bian A, et al. Long-term effects of daily hemodialysis on vascular access outcomes: a prospective controlled study. Hemodialysis international International Symposium on Home Hemodialysis. 2013 Apr;17(2):208-15. doi: 10.1111/j.1542-4758.2012.00756.x. PMID: 23016876.

3. Chertow GM, Levin NW, Beck GJ, et al. In-center hemodialysis six times per week versus three times per week. New England journal of medicine. 2010;363(24):2287‐300. doi: 10.1056/NEJMoa1001593. PMID: CN-00771307.

4. Molfino A, Beck GJ, Li M, et al. Association between change in serum bicarbonate and change in thyroid hormone levels in patients receiving conventional or more frequent maintenance haemodialysis. Nephrology (Carlton, Vic). 2019 Jan;24(1):81-7. doi: 10.1111/nep.13187. PMID: 29064128.

5. Lo JC, Beck GJ, Kaysen GA, et al. Thyroid function in end stage renal disease and effects of frequent hemodialysis. Hemodialysis international International Symposium on Home Hemodialysis. 2017 Oct;21(4):534-41. doi: 10.1111/hdi.12527. PMID: 28301073.

6. Raimann JG, Chan CT, Daugirdas JT, et al. The Effect of Increased Frequency of Hemodialysis on Volume-Related Outcomes: A Secondary Analysis of the Frequent Hemodialysis Network Trials. Blood purification. 2016;41(4):277-86. doi: 10.1159/000441966. PMID: 26795100.

7. Kotanko P, Garg AX, Depner T, et al. Effects of frequent hemodialysis on blood pressure: Results from the randomized frequent hemodialysis network trials. Hemodialysis international International Symposium on Home Hemodialysis. 2015 Jul;19(3):386-401. doi: 10.1111/hdi.12255. PMID: 25560227.

8. Chan CT, Greene T, Chertow GM, et al. Effects of frequent hemodialysis on ventricular volumes and left ventricular remodeling. Clinical journal of the American Society of Nephrology : CJASN. 2013 Dec;8(12):2106-16. doi: 10.2215/cjn.03280313. PMID: 23970131.

9. Ornt DB, Larive B, Rastogi A, et al. Impact of frequent hemodialysis on anemia management: results from the Frequent Hemodialysis Network (FHN) Trials. Nephrology, dialysis, transplantation : official publication of the European Dialysis and Transplant Association - European Renal Association. 2013 Jul;28(7):1888-98. doi: 10.1093/ndt/gfs593. PMID: 23358899.

10. Daugirdas JT, Greene T, Rocco MV, et al. Effect of frequent hemodialysis on residual kidney function. Kidney international. 2013 May;83(5):949-58. doi: 10.1038/ki.2012.457. PMID: 23344474.

11. Unruh ML, Larive B, Chertow GM, et al. Effects of 6-times-weekly versus 3-times-weekly hemodialysis on depressive symptoms and self-reported mental health: Frequent Hemodialysis Network (FHN) Trials. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2013 May;61(5):748-58. doi: 10.1053/j.ajkd.2012.11.047. PMID: 23332990.

12. Kurella Tamura M, Unruh ML, Nissenson AR, et al. Effect of more frequent hemodialysis on cognitive function in the frequent hemodialysis network trials. American journal of kidney diseases : the official journal of the National Kidney

Foundation. 2013 Feb;61(2):228-37. doi: 10.1053/j.ajkd.2012.09.009. PMID: 23149295.

13. Kaysen GA, Greene T, Larive B, et al. The effect of frequent hemodialysis on nutrition and body composition: frequent Hemodialysis Network Trial. Kidney international. 2012 Jul;82(1):90-9. doi: 10.1038/ki.2012.75. PMID: 22456602.

14. Daugirdas JT, Chertow GM, Larive B, et al. Effects of frequent hemodialysis on measures of CKD mineral and bone disorder. Journal of the American Society of Nephrology : JASN. 2012 Apr;23(4):727-38. doi: 10.1681/asn.2011070688. PMID: 22362907.

15. Chan CT, Greene T, Chertow GM, et al. Determinants of left ventricular mass in patients on hemodialysis: Frequent Hemodialysis Network (FHN) Trials. Circ Cardiovasc Imaging. 2012 Mar;5(2):251-61. doi: 10.1161/circimaging.111.969923. PMID: 22360996.

16. Garg AX, Suri RS, Eggers P, et al. Patients receiving frequent hemodialysis have better health-related quality of life compared to patients receiving conventional hemodialysis. Kidney international. 2017 Mar;91(3):746-54. doi: 10.1016/j.kint.2016.10.033. PMID: 28094031.

17. Lo JC, Beck GJ, Kaysen GA, et al. Hyperprolactinemia in end-stage renal disease and effects of frequent hemodialysis. Hemodialysis international International Symposium on Home Hemodialysis. 2017 Apr;21(2):190-6. doi: 10.1111/hdi.12489. PMID: 27774730.

18. Unruh ML, Larive B, Eggers PW, et al. The effect of frequent hemodialysis on self-reported sleep quality: Frequent Hemodialysis Network Trials. Nephrology, dialysis, transplantation : official publication of the European Dialysis and Transplant Association - European Renal Association. 2016 Jun;31(6):984-91. doi: 10.1093/ndt/gfw062. PMID: 27190356.

19. Hall YN, Larive B, Painter P, et al. Effects of six versus three times per week hemodialysis on physical performance, health, and functioning: Frequent Hemodialysis Network (FHN) randomized trials. Clinical journal of the American Society of Nephrology : CJASN. 2012 May;7(5):782-94. doi: 10.2215/cjn.10601011. PMID: 22422538.

20. Daugirdas JT, Greene T, Rocco MV, et al. Effect of frequent hemodialysis on residual kidney function. Kidney international. 2013;83(5):949‐58. doi: 10.1038/ki.2012.457. PMID: CN-00877614.

21. Chertow GM, Levin NW, Beck GJ, et al. Long-Term Effects of Frequent In-Center Hemodialysis. Journal of the American Society of Nephrology : JASN. 2016 Jun;27(6):1830-6. doi: 10.1681/asn.2015040426. PMID: 26467779.

22. Chan CT, Chertow GM, Daugirdas JT, et al. Effects of daily hemodialysis on heart rate variability: results from the Frequent Hemodialysis Network (FHN) Daily Trial. Nephrology, dialysis, transplantation : official publication of the European Dialysis and Transplant Association - European Renal Association. 2014 Jan;29(1):168-78. doi: 10.1093/ndt/gft212. PMID: 24078335.

23. Rocco MV, Lockridge RS, Beck GJ, et al. The effects of frequent nocturnal home hemodialysis: the Frequent Hemodialysis Network Nocturnal Trial. Kidney international. 2011;80(10):1080‐91. doi: 10.1038/ki.2011.213. PMID: CN-00831189.

24. Rocco MV, Daugirdas JT, Greene T, et al. Long-term Effects of Frequent Nocturnal Hemodialysis on Mortality: the Frequent Hemodialysis Network (FHN)

Nocturnal Trial. American journal of kidney diseases. 2015;66(3):459‐68. doi: 10.1053/j.ajkd.2015.02.331. PMID: CN-01107239.

25. Dixon BS, Vanburen JM, Rodrigue JR, et al. Cognitive changes associated with switching to frequent nocturnal hemodialysis or renal transplantation Dialysis and Transplantation. BMC nephrology. 2016;17(1). doi: 10.1186/s12882-016-0223-9.

26. Dember LM, Lacson E, Jr., Brunelli SM, et al. The TiME Trial: A Fully Embedded, Cluster-Randomized, Pragmatic Trial of Hemodialysis Session Duration. Journal of the American Society of Nephrology : JASN. 2019 May;30(5):890-903. doi: 10.1681/asn.2018090945. PMID: 31000566.

27. Brunelli SM, Chertow GM, Ankers ED, et al. Shorter dialysis times are associated with higher mortality among incident hemodialysis patients. Kidney international. 2010 Apr;77(7):630-6. doi: 10.1038/ki.2009.523. PMID: 20090666.

28. Lacson E, Jr., Xu J, Suri RS, et al. Survival with three-times weekly in-center nocturnal versus conventional hemodialysis. Journal of the American Society of Nephrology : JASN. 2012 Apr;23(4):687-95. doi: 10.1681/asn.2011070674. PMID: 22362905.

29. Troidle L, Hotchkiss M, Finkelstein F. A thrice weekly in-center nocturnal hemodialysis program. Adv Chronic Kidney Dis. 2007 Jul;14(3):244-8. doi: 10.1053/j.ackd.2007.03.002. PMID: 17603977.

30. Brunelli SM, Wilson SM, Ficociello LH, et al. A Comparison of Clinical Parameters and Outcomes over 1 Year in Home Hemodialysis Patients Using 2008K@home or NxStage System One. ASAIO journal (American Society for Artificial Internal Organs : 1992). 2016 Mar-Apr;62(2):182-9. doi: 10.1097/mat.0000000000000315. PMID: 26692402.

31. Hladunewich MA, Hou S, Odutayo A, et al. Intensive hemodialysis associates with improved pregnancy outcomes: a Canadian and United States cohort comparison. Journal of the American Society of Nephrology : JASN. 2014 May;25(5):1103-9. doi: 10.1681/asn.2013080825. PMID: 24525032.

32. Johansen KL, Zhang R, Huang Y, et al. Survival and hospitalization among patients using nocturnal and short daily compared to conventional hemodialysis: a USRDS study. Kidney international. 2009 Nov;76(9):984-90. doi: 10.1038/ki.2009.291. PMID: 19692997.

33. Lockridge RS, Kjellstrand CM. Nightly home hemodialysis: outcome and factors associated with survival. Hemodialysis international International Symposium on Home Hemodialysis. 2011 Apr;15(2):211-8. doi: 10.1111/j.1542-4758.2011.00542.x. PMID: 21435157.

34. Mathew A, Obi Y, Rhee CM, et al. Treatment frequency and mortality among incident hemodialysis patients in the United States comparing incremental with standard and more frequent dialysis. Kidney international. 2016 Nov;90(5):1071-9. doi: 10.1016/j.kint.2016.05.028. PMID: 27528548.

35. Miller JE, Kovesdy CP, Nissenson AR, et al. Association of hemodialysis treatment time and dose with mortality and the role of race and sex. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2010 Jan;55(1):100-12. doi: 10.1053/j.ajkd.2009.08.007. PMID: 19853336.

36. Nesrallah GE, Lindsay RM, Cuerden MS, et al. Intensive hemodialysis associates with improved survival compared with conventional hemodialysis. Journal of the American Society of Nephrology : JASN. 2012 Apr;23(4):696-705. doi: 10.1681/asn.2011070676. PMID: 22362910.

37. Rivara MB, Adams SV, Kuttykrishnan S, et al. Extended-hours hemodialysis is associated with lower mortality risk in patients with end-stage renal disease. Kidney

international (no pagination), 2016. 2016;Date of Publication: March 19. doi: 10.1016/j.kint.2016.06.028. PMID: CN-01244838.

38. Weinhandl ED, Liu J, Gilbertson DT, et al. Survival in daily home hemodialysis and matched thrice-weekly in-center hemodialysis patients. Journal of the American Society of Nephrology : JASN. 2012 May;23(5):895-904. doi: 10.1681/asn.2011080761. PMID: 22362906.

39. Weinhandl ED, Nieman KM, Gilbertson DT, et al. Hospitalization in daily home hemodialysis and matched thrice-weekly in-center hemodialysis patients. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2015 Jan;65(1):98-108. doi: 10.1053/j.ajkd.2014.06.015. PMID: 25085647.

40. Chertow GM, Levin NW, Beck GJ, et al. In-center hemodialysis six times per week versus three times per week. N Engl J Med. 2010 Dec 9;363(24):2287-300. doi: 10.1056/NEJMoa1001593. PMID: 21091062.

Appendix F. Evidence Tables: Quality of Life and Symptom Measure

Evidence Table F.1. Study characteristics of randomized controlled trial studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis

Author, year	Study name	Study period	Location	Inclusion criteria
Chertow, 2010[1] Chertow, 2016[2] Garg, 2017[3] Hall, 2012[4] Lo, 2017[5] Lo, 2017[6] Unruh, 2013[7]	FHN, Daily*	2006 to 2009	In-center Multi-center	Age: >13 Language: English or Spanish Prevalent dialysis Achieved mean eKt/V > 1.0 for last two baseline hemodialysis sessions Weight > 30 kg Must be able and willing to follow the study protocol for any reason (including mental incompetence) Must be able and willing to provide informed consent or sign the Institutional Review Board-approved consent form Does not require HD >3 times per week due to medical comorbidity Not Currently pregnant, or actively planning to become pregnant in the next 12 months No History of poor adherence thrice weekly HD Ability to come for in-center HD 6 days per week, including ability to arrange adequate transportation No Expected geographic unavailability at a participating HD unit for >2 consecutive weeks or >4 weeks total during the next 14 months (excluding unavailability due to hospitalizations) Not currently in an acute or chronic care hospital No contraindication to heparin, including allergy or heparin induced thrombocytopenia No Expectation that native kidneys will recover Residual renal clearance <3ml/min per 35 L Not currently on daily or nocturnal HD or less than 3 months since the subject discontinued daily or nocturnal HD Not less than 3 months since patient returned to HD after acute rejection resulting in allograft failure No current use of investigational drugs or participation in another clinical trial that contradicts or interferes with the therapies or measured outcomes in this trial Not scheduled for living donor kidney transplant, change to peritoneal dialysis, or plans to relocate to a non-study center within the next 14 months Life expectancy greater than 6 months No medical history that might limit the patient's ability to take the trial treatments and complete the 12 month duration of the study

Author, year	Study name	Study period	Location	Inclusion criteria
Chertow, 2010[1] Chertow, 2016[2] Garg, 2017[3] Hall, 2012[4] Lo, 2017[5] Lo, 2017[6] Unruh, 2013[7] (continued)				No medical conditions that would prevent the subject from performing the cardiac MRI procedure Vascular access being used for HD is not a non-tunneled catheter Additional criteria beyond the main study:[6] The primary analytic cohort included individuals with TSH values between 0.2 and 8.0 millilunits per mL classified as having endogenous thyroid function, including 14 individuals with TSH levels of 5.0–7.9 millilunits per mL (6.2% of the source cohort) Not receiving thyroid hormone supplementation (all with TSH <5 IIU/mL except 3 with TSH of 7.0–7.9 millilunits per mL and 2 with TSH >10 millilunits per mL) and 3 with TSH level >8 millilunits per mL in the absence of thyroid hormone supplementation from primary analysis. No missing TSH at baseline, TSH<= 0.01 IIU/mL, treatment with propylthiouracil, or lack of both FT3 and FT4 measures.
Rocco, 2011[8] Rocco, 2015[9] Rocco, 2011[10] Unruh, 2016[11]	FHN, Nocturnal *	2006 to 2009	Home or in-center Not stated	Age: >18 Language: English or Spanish Prevalent Patients with end-stage renal disease requiring chronic renal replacement therapy Age > 18 years Achieved mean eKt/V > 1.0 for last two baseline hemodialysis sessions Willing to perform hemodialysis at home Must be able and willing to follow the study protocol Must be able and willing to provide informed consent or sign the Institutional Review Board-approved consent form Current requirement for hemodialysis less than or equal to three times per week due to medical comorbidity. (Ultrafiltration session on a fourth day per week not an exclusion criterion) Not pregnant, or planning to become pregnant within the next 12 months Compliance with hemodialysis or peritoneal dialysis treatments in the past Able to follow the nocturnal home hemodialysis training protocol for any reason, including inability to train the patient or the patient's caregiver Availability at a participating HD unit or at home for >2 consecutive weeks or >5 weeks total during the next 12 months (excluding unavailability due to hospitalizations) Not in an acute or chronic care hospital No contraindication to heparin, including allergy or heparin induced thrombocytopenia No expectation that native kidneys will recover kidney function glomerular filtration rate (GFR) </=10 ml/min per 1.73m^2 No current use of investigational drugs or participation in another clinical trial that contradicts or interferes with the therapies or measured outcomes in this trial

Author, year	Study name	Study period	Location	Inclusion criteria
Rocco, 2011[8] Rocco, 2015[9] Rocco, 2011[10] Unruh, 2016[11] (continued)				Not scheduled for living donor kidney transplant, change to peritoneal dialysis, or plans to relocate to a non-study center within the next 12 months Life expectancy greater than 6 months No medical history that might limit the individual's ability to take the trial treatments for the 12 month duration of the study No medical conditions that would prevent the patient from performing the cardiac MRI procedure No temporary non-tunneled catheter
Kaysen, 2011[12] Unruh, 2013[7]	FHN, both	2006 to 2009	Home or in-center Multi-center	See above inclusion and exclusion criteria
Burrowes, 2005[13] Jhamb, 2011[14] Liang, 2011[15] Unruh, 2003[16] Unruh, 2003[17]	HEMO	1995 to 2000	In-center Multi-center	Age: 18 to 80† Duration of prior dialysis: >=3 months Urea clearance <1.5 ml/min/35 L of urea Albumin>2.6 g per dL Equilibrated Kt/V>1.30 was achieved within 4.5 hours during 2 of 3 consecutive monitored dialysis sessions during which high-dose goal was targeted No severe comorbid conditions such as severe cardiac disease, active malignancies requiring chemotherapy or radiation therapy, known acquired immunodeficiency syndrome (AIDS); or were unable or unwilling to follow study procedures.
Crews, 2019[18]	SOCIABLE	2016 to 2017	In-center	Age: >60 Duration of prior dialysis: at least 6 moths English speaking At least on limitation in physical function Low SES
Aramwit, 2012[19]		NR	NS	Age>18 HD patients for at least 3 months Having mild to severe pruritus as measured by the VAS during the previous 6 weeks
Begum, 2004[20]		NR	In-center Multi-center	Age: >20 With symptoms of dry or itchy skin
Belayev, 2015[21]		NR	NS	Language: English Cognitively intact Adults Not undergoing work up for a living donor kidney transplant or considering PD Receiving HD 3x.wk
Berman, 2016[22]		NR	In-center Multi-center	Language: English Included if deemed medically non-transplantable

Author, year	Study name	Study period	Location	Inclusion criteria
Birdee, 2015[23]		2012 to 2013	In-center Single-center (clinic)	Age: >18 Maintenance HD for at least 3 month, expected to stay on hemodialysis for at least 6 months no unstable cardiac disease, no chronic lung disease requiring oxygen, no active cerebrovascular disease, no major depression, no cognitive impairment Not participating in another mind-body program or class
Brass, 2001[24]		NR	In-center Multi-center	Age: >18 Prevalent Medically suitable to undergo graded ergometer exercise testing, plasma acetylcarnitine/carnitine ratio >0.4 required for randomization, effectively dialyzed, unlikely to require changes in dialysis prescription No claudication, if screening identified a medical condition that precluded safe performance of maximal exercise testing, Ability to cooperate with exercise testing, or the use of immunosuppressives, growth hormones, androgens, or anabolic steroids within the 3 months before study entry.
Burrowes, 2012[25]		1995 to 2000	In-center Multi-center	Age: 18 to 80 none, although eligibility criteria listed in referenced protocol manuscript
Chan, 2019[26]		NR	In-center Multi-center	Age: 55-80 Impaired exercise ability Maintenance HR for at least 3 months No temporary vascular access, uncontrolled diabetes mellitus, active autoimmune disease, malignancy, severe obesity, alcoholism or other recreational drug use, unstable cardiac disease, peripheral vascular disease, medically unstable Must not do mor than 2 hours of moderate physical activity per week No anabolic, catabolic, or cytotoxic medication in the past 3 months.
Dember, 2019[27]	TIME	2013 to 2015	In-center Multi-center	Age: >18 Prevalent/Duration of prior dialysis: at least 120 days No health care proxy used to provide consent for dialysis treatment Willing to have clinical data included in dataset
Deniston, 1990[28]		1984 to 1987	In-center Multi-center	Age: >18 Prevalent baseline hemoglobin <8.5 Postmenopausal women or women receiving oral contraceptives hypertensive patients stable on anti-hypertensive drugs for 3 months
Duggal, 2019[29]		2017 to 2018	In-center Multi-center	Age: 18 to 89 Recovery time: 6+ hours at baseline. Kt/V >/=1.3 for those dialyzing three times per week, or standardized Kt/V greater than 2.1 for those dialyzing four times per week Not pregnant, breastfeeding, considering pregnancy No planned change in dialysis rate or timing, or if primary nephrologist had a medical objection to patients involvement.

Author, year	Study name	Study period	Location	Inclusion criteria
Mehrotra, 2019[30]		2015 to 2017	In-center Multi-center	Age: >21 Prevalent Major depressive disorder or dysthymia
Natarajan, 2014[31]		2011 to	In-center Single-center (clinic)	Age: 18 to 80 Currently receiving hemodialysis treatment Not pregnant or nursing women No HIV/AIDs or liver disease diagnoses No active dependency on controlled substances and alcohol Not on anticoagulant therapy regimen Must sign consent form, No social conditions or medical debilitating disease/disorder that would interfere with or serve as a contraindication to adherence to the study protocol
Pai, 2009[32]		2003 to 2005	In-center Multi-center network	Age: >18 Language: English Stable HD regimen for at least 3 months
Rodrigue, 2011[33]		2007 to 2009	In-center NS	Age: 18 to 70 Language: English ESRD or CKD Approved for transplant Living within 60 miles of the transplant center Not already receiving psychological treatment No prior transplant Not listed for liver/kidney transplantation, known No cognitive impairment (Mini Mental Status Exam score <23).
Sloan, 1998[34]		NR	In-center Multi-center	no clinical contraindication to L-carnitine Had not previously received L-carnitine
Sloand, 2004[35]		NR	In-center Single-center (clinic)	No child bearing potential, severe liver disease, polycythemia, evidence of hemochromatosis, 10 or more blood transfusions 2 years prior to the study, hypersensitivity to IV iron, receipt of IV iron 1 month prior to the study, weight less than 50Kg
Song, 2015[36]		2010 to 2012	In-center Multi-center	Age: >18 Language: English Ethnicity: White, non-Hispanic; Black, non-Hispanic Prevalent Creatinine clearance of 6 or higher Not hearing impaired

Author, year	Study name	Study period	Location	Inclusion criteria
Steiber, 2006[37]		2001 to 2002	In-center NS	Age: >18 Prevalent Minimum 3 hours HD 3x/week On dialysis for at least 1 year Must meet 2 of the following risk factors: >/= 65yo; 1 year treatment; female; use of aspirin or mannitol; Type 2 Diabetes Mellitus; left atrial dilation, left ventricular hypertrophy No pervious transplant (within the last 2 months) of L-carnitine; severe blood loss; disease affecting skeletal muscle function; severe liver disease; pregnancy; free carnitine >40
Tawney, 2000[38]		NR	NS	Sufficient mobility to transfer independently around the room No: excessive fluid gain; severe valval disease; uncontrolled angina; severe joint pain; dizziness; dyspnea; uncompensated heart failure; inadequately managed diabetes; uncontrolled hypertension or hyperkalemia

† inclusion criteria gathered from the original study: Eknoyan G, Beck GJ, Cheung AK et al. Effect of dialysis dose and membrane flux in maintenance hemodialysis. N Engl J Med 2002; 347: 2010–2019 [39]

AIDS=Acquired Immunodeficiency Syndrome; CKD=chronic kidney disease; dl=deciliters; eKt/V=equilibrated Kt/V (urea clearance); ESRD=end stage renal disease; FHN=Frequent Hemodialysis Network trials; FT3=Free triiodothyronine (T3); FT4=Free thyroxine (T4); g=grams; GFR=glomerular filtration rate; HD=hemodialysis; HIV=Human Immunodeficiency Virus; IV=intravenous; kg=kilograms; Kt/V=urea clearance; L=liters; m^2=meters squared; ml=milliliter; MRI=magnetic resonance imaging; SOCIABLE = Seniors optimizing community integration to advance better living with ESRD; TSH=thyroid-stimulating hormone; VAS=Visual Analogue Scale

Evidence Table F.2. Study characteristics of cohort studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Abdel-Kader, 2009[40]		2004 to 2006	Home or in-center Multi-center network	Prospective	Age: 18 to 90 No active malignancy Living at home No active infection (pneumonia) No active coronary artery disease (e.g., unstable angina, myocardial infarction) within the last 6 months No advanced cirrhosis No advanced dementia No active alcohol abuse No active treatment for sleep apnea No refractory psychiatric disease Safe home environment	CKD patients compared to dialysis patients
Abdel-Kader, 2009[41]		2004 to 2007	NRCKD, PD and HD patients in western PA	Cross-sectional	Age: 18 to 90 No severe comorbid illness No unsafe home environment	
Abreo, 2017[42]		2009 to 2011	Not stated	Retrospective	Age: >18 Language: English or Spanish HD for at least 3 months	
Agarwal, 2011[43]		Not stated	Not stated	Prospective	All groups: not obese Control group: no hypertension, CKD, or diabetes CKD group: eGFR>15; no hospitalization in the last 2 months; no hypertension or arrhythmia Hemodialysis group: no atrial fibrillation	
Agganis, 2010[44]		Not stated	In-center Multi-center network	Prospective	Language: English Sufficient visual and hearing acuity to complete the survey No pre-existing advanced dementia or confusion Medically stable without access-related hospitalization within 1 month Maintenance HD for at least 1 month	

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Allen, 2002[45]	HEMO	1995 to 2000	In-center	Cross-sectional analysis of main study participants[39]	Dialyzed 3 times per week for ≥3 months Not scheduled for a living related renal transplant Did not return to dialysis <6 months after renal transplantation Able to achieve equilibrated Kt/V of 1.3 in 4.5 hours or less due to large body size or access problems Residual renal urea clearance<1.5 mL/min per 35L volume distribution for urea No pregnancy, malignancy, ongoing chemotherapy/radiation, unstable or new onset ischemic heart disease within past 3 months, severe congestive heart failure despite maximal medical therapy, AIDS, active systemic infection, chronic pulmonary disease requiring supplemental oxygen, severe liver disease, or severe malnutrition	
Anand, 2011[46]		2005 to 2007	In-center Multi-center	Prospective	Language: English or Spanish No: speech, hearing, or cognitive impairment; prior or imminent transplant	
Atcherson, 1978[47]		1977 to 1977	Single-center (clinic)	qualitative interviews	Individuals who did home hemodialysis from 1970-1976 then transitioned to in-center hemodialysis	Of note: this is a qualitative study, no comparison group
Barakzoy, 2006[48]		2005 to 2005	In-center Single-center network	Prospective	Age: >18 Possess decision-making capacity No history of drug abuse Not receiving continuous treatment for chronic pain	HD patients SF-MPQ pain score compared before and after pain treatment using WHO pain ladder
Barrett, 1990[49]		1985 to 1986	Home or in-center	Prospective	Minimal care in center HD, home HD or chronic ambulatory PD	
Bleyer, 2019[50]		NR	NR	Survey	Individuals (or families) with autosomal dominant tubulointerstitial kidney disease	

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Bremer, 1989[51]		Not stated	Home or in-center Multi-center network	Cross-sectional study	Age: >18 Prevalent HD Current treatment for at least 90 days Medically stable All patients in the smaller treatment groups were selected (70 self-care center hemodialysis and 87 home hemodialysis patients) Random sample of 200 patients in each of the larger treatment modalities (center staff-assisted hemodialysis; CAPD; functioning cadaver transplant; and functioning living-related transplant)	Study looked at responders and non-responders by modality. Some groups (self-care center, home hemodialysis, and CAPD) were oversampled to ensure large enough groups for analyses.
Bremer, 1997[52]		Not stated	In-center Single-center (clinic)	Prospective	Age: 18 to 65 HD patients on the wait list for transplant Normal vision	
Broers, 2015[53]		2008 to 2011	Multi-center network	Retrospective	Patients with >=2 surveys 12 months apart	Unable to tell from the article if the Fresenius Medical Care North America database includes just Americans or dialysis patients in Canada/Mexico.
Bullen, 2018[54]		Not stated	In-center Single-center (clinic)	pre-post test	Age: >18 Were fully conscious during HD treatments Received HD three times a week Able to provide consent	
Cardone, 2011[55]		Not stated	In-center Single-center (clinic)	Retrospective	Nocturnal home hemodialysis	

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Chiu, 2009[56]		Not stated	In-center Multi-center	Cross-sectional	Duration >=3 months	
Christensen, 1989[57]		1984 to 1987	In-center	Prospective	Dialysis patients post-transplant	
Christensen, 1991[58]		1987 to 1989	In-center Single-center (clinic)	Prospective	Undergoing chronic dialysis	
Cohen, 2019[59]		2014 to 2016	Home or in-center Multi-center	Retrospective	Age: >18 No veterans affairs beneficiaries	
Cukor, 2007[60]		Not stated	In-center Single-center (clinic)	not specified	Adults	
Cukor, 2008[61]		Not stated	In-center Single-center (clinic)	Prospective	Adults	
Cukor, 2008[62]		Not stated	In-center Single-center (clinic)	Prospective	On HD	
Cukor, 2014[63]		Not stated	In-center Multi-center	Prospective	Age: >18 Language: English Duration: >=6 months Elevated depressed affect No current hospitalization No altered mental status (Mini-Mental Status Examination score must be ≥23), psychosis, current substance abuse, current ongoing psychotherapy, a change in psychotropic medication in the last 6 months.	
Curtin, 2002[64]		Not stated	In-center Multi-center	Prospective	Age: >18 Language: English	

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Debnath, 2018[65]		Not stated	In-center Single-center (clinic)	Cross-sectional	Race/Ethnicity: Mexican American Duration: 6 months Diagnosis of type 2 diabetes On in-center hemodialysis 3x/week No cardiovascular event within past 30 days No refractory psychiatric disease	
Delano, 1989[66]		Not stated	In-center NS	pre-post treatment with epogen	On maintenance hemodialysis Patients receiving treatment with recombinant human erythropoietin	
Deniston, 1989[67]		1984 to 1986	Home or in-center Multi-center	Cross-sectional	Age: >18 Duration: 6 months Residing in Michigan ESRD onset between 1981 and 1985	
Domenic Sridharan, 2018[68]		2016 to 2016	In-center Multi-center	Cross-sectional	Language: English Duration: >=3 months Willing to participate	
Drayer, 2006[69]		2002 to 2003	In-center Single-center (clinic)	Prospective	Language: English Prevalent Not demented Receiving chronic thrice-weekly dialysis	
Duque, 2006[70]		Not stated	In-center Single-center (clinic)	Prospective	Age: <63 No inflammatory skin disease	
Dwyer, 2002[71] Liu, 2012[72]	HEMO	1995 to 1999	In-center Multi-center	Cross-sectional	Age: 18 to 80 Duration on dialysis: ≥3 months In-center hemodialysis 3x/week with residual renal clearance <1.5 ml/min. No severe malnutrition indicated, current active malignancies requiring radiation or chemotherapy, symptomatic acquired immunodeficiency syndrome (AIDS), cirrhosis with encephalopathy, severe congestive heart failure, unstable or new onset angina pectoris, chronic pulmonary disease, and current hospitalization	

Evidence Table F.2. Study characteristics of cohort studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis (continued)

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Evans, 1990[73]		Not stated	In-center Multi-center	Compared recipients of EPO in clinical trials to patients in the National Kidney Dialysis and Kidney Transplantation Study	Age: >18 Duration: 3 months Have a known history and monitored status of at least 1 month's duration at participating dialysis centers Clinically stable condition based on documented patient history Life expectancy greater than 6 months If female, using approved contraceptives or judged unable to become pregnant Ambulatory Hematocrit ≤ 0.30 Serum ferritin level > 100 micrograms per L and transferrin saturation greater than 20% No evidence of gastrointestinal blood loss or hemolysis Aspartate aminotransferase level stable for the past month and not more than twice normal No systemic hematologic disease or chronic inflammatory disease that would interfere with data analysis No changes in general health within the past month, No current drug addiction Controlled supine diastolic blood pressure of <100 mm Hg No thrombocytopenia (defined as platelet count, <100x 10^9 per L) No neutropenia (defined as leukocyte count, <2.0 x 10^9 per L), No hematologic evidence of toxic reactions to aluminum (acquired, non-iron-deficient microcytosis) No deferoxamine mesylate (Desferal) therapy No positive Coombs test Not on immunosuppressant therapy (including corticosteroids) within the past month No changes in medication (other than dose) within the prior month No participation in any other clinical investigational drug or biologic study No androgen therapy in the preceding month No history of seizures.	

Evidence Table F.2. Study characteristics of cohort studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis (continued)

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Evans, 1991[74]		Not stated	Multi-center	Prospective	Enrollment in the National Kidney Dialysis and Kidney Transplantation Study, the Kidney Transplant Immunosuppressive Protocol Study, or the AmGen, Inc. phase 3 clinical trial of EPO	Data obtained from the National Kidney Dialysis and Kidney Transplantation Study (NKDKTS), the Kidney Transplant Immunosuppressive Protocol Study (KTIPS), and the AMGen, Inc phase 3 clinical trial of EPO.
Feroze, 2011[75]		2001 to 2007	In-center Multi-center	Prospective	Age: >18 Duration: >= 8 weeks Signed IRB consent form	
Feroze, 2012[76]		Not stated	Home or in-center	Cross-sectional	Age: 18 to 95 Duration: 6 months	
Finkelstein, 2009[77]		2003 to 2006	In-center Multi-center	Cohort	Age: >18 Language: English or French GFR <60 ml/min/1.73 m^2 on the basis of estimated GFR using the Modification of Diet in Renal Disease formula	NOTE: this study includes sites in the US AND Canada

Evidence Table F.2. Study characteristics of cohort studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis (continued)

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Finkelstein, 2012[78] Jaber, 2010[79]	FREEDOM	2006 to 2009	Home Multi-center	Prospective	Age: >18 End-stage renal disease requiring dialysis Candidate for starting short daily HD (prescribed six times per week) at home and who had Medicare as their primary insurance payer. Not currently using device, nor prior enrollment in the study Not currently enrolled in an investigational drug or device trial that might impact the outcome measures, and not those with low likelihood of surviving the first 4–6 weeks encompassing the training period. Medicare as primary payer (but not Medicare HMO) Ability to understand HIPAA compliant authorization statement	
Fowler, 2006[80]		Not stated	In-center Single-center (clinic)	Prospective	Receiving dialysis at one of two facilities	
Fukuhara, 2003[81]		Not stated	In-center Multi-center	Cross-sectional	HD patients	
Gabbay,2010[82]		1997 to 2006	In-center Multi-center	Retrospective	Age: >18 Duration: 6 months All participants received hemodialysis at a DCI outpatient facility. No treatment by PD, death, kidney transplantation or loss to follow up within 6 months after starting dialysis	
Gerson, 2004[83]		1998 to 2003	Nephrology practices	Prospective	Age: 11 to 18 Language: English or Spanish Attended 1 of the participating outpatient nephrology practices or dialysis clinics (hemodialysis or peritoneal dialysis), had CKD, or kidney transplant recipients,	Note: parents or guardians of the study completed the questionnaires, not the children.
Goldstein, 2006[84]		Not stated	In-center: renal transplant care Multi-center	not specified	Age: 2 to 18	

Evidence Table F.2. Study characteristics of cohort studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis (continued)

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Goldstein, 2008[85]		2004 to 2006	Home or in-center Multi-center	Cross-sectional and case control	Age: children 5-18 and parents of children age 2-18 On prevalent HD at least 2 months	
Goldstein, 2009[86]		Not stated	Home or in-center: renal transplant care Multi-center	Cross-sectional	Age: 2 to 18 Written parental informed consent and child assent	
Gorodetskaya, 2005[87]		2002 to 2004	Not stated	Cross-sectional and longitudinal	Language: English Signed written informed consent	
Harris, 2012[88]		2001 to 2003	In-center Single-center network	Prospective	All patients on chronic HD at the 2 study sites	
Hedayati, 2006[89]		Not stated	Not stated	Retrospective	Language: English Had health care power of attorney Able to sign consent	
Hernandez, 2018[90]		Not stated	In-center Single-center (clinic)	pre-post	Age: >18 Language: English On chronic HD for ≥ 3 months Elevated symptoms of depression Had serious comorbid conditions as reported by staff	
Hicks, 2004[91]		1996 to 1997	Not stated	survey	Age: >18 On dialysis	
Hornberger, 1992[92]		1990 to 1991	In-center Single-center (clinic)	Prospective	Language: English or Spanish On HD for at least 3 months No acute illness requiring hospitalization	

Evidence Table F.2. Study characteristics of cohort studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis (continued)

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Hynes, 2019[93]		Not stated	In-center Multi-center	Pre-post	Age: ≥ 18 Fluent in English or Spanish On maintenance dialysis Able to provide informed consent	
Jhamb, 2009[94]		1995 to 1998	In-center Multi-center	Prospective	Age: >18 Language: English or Spanish Incident HD: >45 days Gave informed consent. BMI<>50 No missing information on vitality items or CHOICE Health Experience Questionnaire	
Johansen, 2007[95]		1996 to 1997	Not stated	Prospective	Patients on incident dialysis in the US in 1996 and ESRD program in 1997 who were included in the Dialysis Morbidity and Mortality Study Wave 2 Standard Analytic File of the USRDS	
Johnson, 1982[96]		Not stated	In-center Single-center (clinic)	Cross-sectional	Age: 18 to 55 End-stage renal disease of sufficient severity to require treatment with either hemodialysis or transplantation If subject had a transplant, patient must have been transplanted with a cadaveric graft or living-related transplant If patient has failed transplantation and is currently on hemodialysis, the most recent transplantation must have been cadaveric Clinically stable; Must not have been hospitalized within the past 3 months for intercurrent problem or problems related either to hemodialysis or transplantation is not eligible.	
Julius, 1989[97]		1981 to 1984	Home or in-center Multi-center	Cross-sectional	Age: >18 Duration: 6 months	Interview took place in 1985, patients diagnosed with ESRD between 1981 and 1984
Kimmel, 1995[98]		1992 to 1994	In-center Multi-center	Prospective	HD for at least 6 months No: HIV, psychiatric diagnosis of psychosis Did not fail Mini-Mental Status exam	

Evidence Table F.2. Study characteristics of cohort studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis (continued)

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Kimmel, 1998[99]		1992 to 1996	In-center Single-center (clinic)	Prospective	ESRD HD patients No: HIV; psychiatric diagnosis; mini-mental status score of less than 23	
Kimmel, 2003[100]		2001 to 2001	Multi-center network	Cross-sectional	Language: English Had decision-making capacity Not too sick to participate	
Ko, 2007[101]		2004 to 2005	In-center Single-center (clinic)	Cross-sectional	Mentally competent to complete two surveys	
Kring, 2009[102]		Not reported	In-center Single-center	Cross-sectional	Age: >18 Language: English Duration: >=3 months Actively undergoing in-center hemodialysis No dementia or other condition that impaired ability to answer questions, cognitive or medical changes occurring during hemodialysis that prevented answering questions	
Kurella, 2004[103]		Not stated	In-center: nephrology practices affiliated with University of California San Francisco Multi-center	not specified	Language: English ESRD patients were on in-center hemodialysis CKD patients had eGFR < 60 on 2 occasions within the past 12 months No significant hearing impairment	

Evidence Table F.2. Study characteristics of cohort studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis (continued)

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Kurella, 2005[104]		Not stated	In-center Multi-center	Cross-sectional	Language: English In-center hemodialysis or eGFR <60 on at least 2 occasions within the preceding 12 months	
Kutner, 1998[105]		1987 to	In-center Multi-center	Prospective	Age: >60 Chronic dialysis Participated in follow-up interview	
Kutner, 2000[106]		1996 to 1997	Home or in-center Multi-center	Cross-sectional	Age: >20 Language: English or Spanish Incident HD No cognitive impairment	
Kutner, 2005[107]		1996 to 1997	In-center Multi-center	Prospective	Age: >18 No intermittent dialysis treatment due to fluid overload or HF No home HD No previous treatment	
Kutner, 2007[108]		1996 to 1997	Home or in-center Multi-center network	Prospective	Age: >18 Incident HD or PD on day 60 of dialysis Not receiving intermittent dialysis because of fluid overload or heart failure Not on home HD No past transplant	
Kutner, 2010[109]		2005 to 2007	In-center	Prospective	Age: >18 ESRD Initiated dialysis between 2005-2007	
Lacson, 2009[110]		2006 to 2006	In-center Multi-center network	survey	On dialysis	
Lacson, 2014[111]		2006 to 2006	In-center Multi-center network	Retrospective	Incident dialysis	

Evidence Table F.2. Study characteristics of cohort studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis (continued)

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Laskin, 2017[112]		2011 to 2014	In-center Multi-center	Cross over	Age: 3 to 21 Duration: >2 months No kidney transplant No switch from peritoneal dialysis w/in subsequent 6 months Not received >3 days or >12 hr per week of HD No use of temporary or femoral dialysis catheter Included children listed for a deceased donor transplant	
Li, 2016[113]		Not stated	NR Single-center (clinic)	Cross-sectional non interventional	Age: >18 No hospitalization in the last 3 months except for vascular access repair No amputation or prostheses of the lower extremities Ability to ambulate and to complete all study tests Likelihood of good compliance No acute infection or other inflammatory illness No current heart failure, lung failure, severe liver disease, or active cancer (except for basal cell carcinoma) No MI or angina pectoris within the last 12 months	
Liebman, 2016[114]		2006 to 2006	In-center Multi-center	Retrospective	Age: >18 Not dialyzing on the unit on a temporary basis	This study includes MCID data
Mapes, 2004[115]		Not stated	Not stated	not specified	Treated in a DOPPS study dialysis center	A stratified sample of KDQOL scores in the DOPPS study, US, Japan, Europe
Maung, 2017[116]		2015 to 2015	In-center Single-center (clinic)	Cross-sectional	Age: >18 Language: English Had the specified weekly frequency of hemodialysis treatment for at least 6 months	

Evidence Table F.2. Study characteristics of cohort studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis (continued)

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
McAdams-DeMarco, 2016[117]		2009 to 2013	In-center	Prospective	Patients on dialysis	
McClellan, 1991[118]		1986 to	Not stated	Prospective	Incident dialysis less than 6 weeks prior to the study	
McDade-Montez, 2006[119]		Not stated	In-center Single-center network	not specified	Age: >18 Language: English No severe cognitive impairment	Reports that patient data was drawn from several earlier studies conducted at University of Iowa over a 9 year period, but doesn't specify the years
Mehdi, 2009[120]		Not stated	In-center Multi-center	Retrospective	Age: >18 HD 3 months or longer Signed consent	
Mittal, 2001[121]		1996 to 1998	In-center Single-center (clinic)	Prospective	Did not die or receive a kidney transplant between 1996 and 1998	
Mittal, 2001[122]		1996 to 1998	In-center Single-center (clinic)	Prospective	Receiving HD or PD for a minimum of 3 months prior to the study	
Neri, 2009[123]		Not stated	In-center Single-center network	cross-sectional	Age: 18 to 67 Employed	

Evidence Table F.2. Study characteristics of cohort studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis (continued)

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Neul, 2013[124]		2009 to 2011	Home or in-center	Retrospective	Age: <18 No significant cognitive delays Must be able to complete the survey alone of with assistance of medical staff	
Neul, 2015[125]		Not stated	Not stated	pilot study	Age: ≥8 years and caregivers of both eligible and ineligible children (ineligible=<8 age, cognitive delays, evidence that patient could not comprehend QoL item content, and who completed recent semiannual QoL pair assessment surveys	Description of a pilot study
Novak, 2008[126]		2003 to 2006	In-center Single-center (clinic)	Retrospective	Incident dialysis On PD for 6 months or more Must not have received HD for 6 months or more prior to PD initiation	
Painter, 2012[127]		Not stated	In-center Single-center (clinic)	Prospective	Age: >18 Language: English ESRD requiring kidney replacement therapy Stable on conventional HD for at least 3 months or scheduled for a kidney transplant from a living donor No orthopedic or musculoskeletal factors that could be exacerbated by the disease Hematocrit >33% No cardiovascular event No pulmonary disease No peripheral vascular disease No progressive degenerative muscular disease in the last year No diabetes	

Evidence Table F.2. Study characteristics of cohort studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis (continued)

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Painter, 2017[128]		Not stated	Home	Quasi-experimental	Language: English Ambulatory Able to provide informed consent No cognitive dysfunction No progressive neurologic disease No severe rheumatologic or orthopedic conditions No angina upon exertion No MI or cardiac surgery within the last year	
Parker, 2003[129]		Not stated	In-center	Prospective	CKD on intermittent HD	
Parkerson, 2000[130]		Not stated	In-center Multi-center	Prospective	All patients receiving dialysis at 3 centers in North Carolina	
Patel, 2002[131]		2001 to 2001	In-center Single-center (clinic)	Prospective	Receiving HD for at least 6 months No: HIV infection or psychiatric diagnosis	
Pifer, 2003[132]		Not stated	In-center	Prospective	Patients at one of the demonstration centers	
Pisoni, 2006[133]		1996 to 2004	In-center Multi-center	Prospective	Treated in a DOPPS study dialysis center	NOTE: DOPPS cohort contains data from 300 randomly selected dialysis facilities in 12 countries.
Plantinga, 2007[134]		1995 to 1998	In-center Multi-center	Prospective	Incident dialysis Had 1-year QOL measurement Had 6 month hemoglobin measurement	

Evidence Table F.2. Study characteristics of cohort studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis (continued)

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Pruchno, 2009[135]		2001 to 2006	Not stated	Prospective	Age: >55 Language: English On HD for at least 6 months No cognitive, hearing, and speech impairments that would preclude their ability to answer questions on the telephone	
Ramakrishnan, 2013[136]		2009 to 2012	In-center	Retrospective	On HD or PD Received treatment at a large dialysis organization between January 2009-May 2012 and had responded to the KDQOL-36 survey	Large dialysis organization
Rao, 2000[137]		Not stated	Not stated	not specified	Subsection of parent study of patients with ESRD	
Raspovic, 2017[138]		2009 to 2016	Not stated	Retrospective	Patients with diabetic foot disease.	
Rosas, 2001[139]		Not stated	In-center Multi-center	Prospective	Age: >18 Language: English On chronic HD for at least 6 months No cognitive impairment	
Roumelioti, 2011[140]		2004 to 2008	In-center Multi-center	Prospective	Age: >18 Advanced CKD No CPAP No active medical or psychiatric disease	
Saad, 2015[141]		2013 to 2013	In-center Single-center (clinic)	Retrospective	Patients on Hemodialysis	

Evidence Table F.2. Study characteristics of cohort studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis (continued)

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Saban, 2008[142]		Not stated	VA dialysis	Prospective	Language: English Any HD patient receiving care at a Veteran's Affairs facility in the past 3 years No live kidney donor identified No skilled nursing care Life expectancy>1 year No cognitive impairment No severe hearing or speech impairment Access to a phone	
Saban, 2010[143]		2001 to 2003	In-center Multi-center	Comparison of 2 prospective studies	Receiving HD	
Schneider, 2003[144]		Not stated	In-center Multi-center	Cross-sectional	Primary caregivers of hemodialysis or transplant patients Alert and oriented Not actively using drugs/alcohol Living with the HD patient No relatives/friends of HD patients in long-term care facilities	
Schneider, 2004[145]		Not stated	Multi-center	Prospective	Primary caregiver of ESRD patients and living with the patient No active drug or alcohol use	
Seethala, 2010[146]		2008 to 2008	In-center Single-center (clinic)	Prospective	Language: English No evidence of significant cognitive impairment based on Mini-Cog scores <3 On dialysis for >3 months No vision problems that limited their ability to read the study surveys.	
Shafi, 2010[147]		1995 to 1998	Not stated	Prospective	Age: >18 Language: English or Spanish Incident dialysis Able to provide informed consent	See main study for characteristics

Evidence Table F.2. Study characteristics of cohort studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis (continued)

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Simmons, 1984[148]		1983 to 1984	Home or in-center Multi-center	Cross-sectional	Age: 19 to 55 Duration: 1 year Nondiabetic On their respective therapy (HD, PD or transplant) for at least 1 year	
Simmons, 1990[149]		1970 to 1984	Home or in-center Multi-center	Cross-sectional	Age: 19 to 56 Nondiabetic On present therapy for at least 1 year	
Siskind, 1993[150]		Not stated	In-center	Prospective	Met the Medicare eligibility requirements for IDPN	
Song, 2009[151]		2007 to 2008	In-center Multi-center	Baseline interview data from an RCT	Age: >18 Race/Ethnicity: Self-identified Black/African American, non-Hispanic HD for at least 3 months	
Song, 2011[152]		Not stated	In-center Multi-center	Cross-sectional descriptive	Age: >18 Language: English Receiving in-center HD or PD for at least 6 months prior to dialysis Normal cognitive function	Stated: 3 dialysis centers
Song, 2018[153]		2012 to 2015	In-center Multi-center	longitudinal cohort	Age: >19 Language: English Duration: >=1 month No uncompensated hearing impairment Not a kidney transplantation candidate Not too ill to participate in an hour-long data collection session No more than 3 errors on a gross cognitive screening test (the 10-item Short Portable Mental Status Questionnaire [SPMSQ]) No documented advanced dementia	
Sorensen, 2012[154]		Not stated	In-center Single-center (clinic)	Prospective	Language: English Sufficient vision and hearing to complete cognitive tests No advanced dementia; confusion; non-access acute hospitalization in the last month On maintenance HD >1 month	

Evidence Table F.2. Study characteristics of cohort studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis (continued)

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Spinowitz, 1990[155]		1994 to 1997	Multi-center	Retrospective	On HD	
Steele, 1996[156]		Not stated	In-center	Prospective	Age: 21 to 80 Continuous ambulatory PD (CAPD) for at least 3 months Ability to fill out self-rating forms No acute psychiatric or medical illness 2 months prior to the study	
Steele, 1996[157]		Not stated	In-center Single-center (clinic)	Prospective	Age: 21 to 80 On chronic peritoneal dialysis (CPD) for at least 3 months No psychiatric or medical illness 2 months prior to the study No prior HD or transplantation	
Suri, 2011[158]		Not stated	Home or in-center Multi-center	cross-sectional	Prevalent HD Patients enrolled in the FHN trials	
Tell, 1995[159]		Not stated	In-center Single-center (clinic)	Cross-sectional	Age: >18 Considered competent	
Thomas, 2011[160]	FREEDOM	2002 to 2002	In-center	Cross-sectional	Race/ethnicity: Black, non-Hispanic Mentally stable enough to participate No physical limitation to compromise participation	
Thomas, 2012[161]		Not stated	In-center	Prospective	Race/ethnicity: Black, non-Hispanic No acute illness Mentally stable	
Thomas-Hawkins, 2000[162]		Not stated	Multi-center	Prospective	Age: >18 Language: English On dialysis for 6 months or more Attended regularly scheduled dialysis visits Able to give consent	

Evidence Table F.2. Study characteristics of cohort studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis (continued)

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Ting, 2003[163]		1996 to 2002	Home or in-center Single-center (clinic)	Prospective	Age: >18 Prevalent HD or PD for at least 3 months for 3- or 4-times weekly before starting short daily HD treatments Adequate vascular access Compliance with fluid management and treatment protocols Ability to understand and sign informed consent For in-center patients, willingness to reuse dialyzers and ability to transport to and from the clinic 6 times a week Willing to commit at least 3 months in study and provide consent Initially, patient selection was based on medical indications to justify the additional expenses; nonmedical reasons were added within 3 months of starting the study for patients who volunteered for the study	
Troidle, 2003[164]		2000 to 2002	In-center Single-center (clinic)	Prospective	Either on continuous PD or daily HD	
Troidle, 2007[165]		Not stated	In-center Multi-center network	Prospective	Prevalent dialysis Able to provide their own consent Preference was given to patients who had difficulty achieving an adequate Kt/V urea, had large intradialytic weight gains with hemodynamic instability, or difficulty in achieving ideal dry weight	
Unruh, 2004[166]		1995 to 2001	In-center Multi-center	Retrospective	Age: 18 to 80 Race/ethnicity: Black, non-Hispanic Receiving HD for 3 or more months	
Unruh, 2004[167]		1995 to 1998	In-center Single-center network	Prospective	Age: >17 Language: English or Spanish Incident HD	

Evidence Table F.2. Study characteristics of cohort studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis (continued)

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Unruh, 2006[168]		1995 to 1998	Home or in-center Multi-center	Prospective	Age: >18 Language: English or Spanish Incident HD Responded to CHOICE Health Experience Questionnaire (CHEQ) and completed at least the items regarding sleep quality No home HD	
Unruh, 2008[169]		2004 to 2005	In-center	Prospective	Age: 45 to 90 No craniofacial abnormalities No use of home oxygen No history of uvulopalatopharyngoplasty No active malignancy No acute infection No active coronary artery disease No advanced cirrhosis No advanced dementia No active alcohol abuse No refractory psychiatric disease	
Unruh, 2008[170]	HEMO	1995 to 2000	In-center Multi-center	Prospective	Dialyzed 3 times per week for ≥3 months Not scheduled for a living related renal transplant Did not return to dialysis <6 months after renal transplantation Able to achieve equilibrated Kt/V of 1.3 in 4.5 hours or less due to large body size or access problems Residual renal urea clearance<1.5 mL/min per 35L volume distribution for urea No pregnancy, malignancy, ongoing chemotherapy/radiation, unstable or new onset ischemic heart disease within past 3 months, severe congestive heart failure despite maximal medical therapy, AIDS, active systemic infection, chronic pulmonary disease requiring supplemental oxygen, severe liver disease, or severe malnutrition	

Evidence Table F.2. Study characteristics of cohort studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis (continued)

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Unruh, 2011[171]		Not stated	Home or in-center Multi-center	Other (enter information as described in the article)	Age: >21 Language: English or Spanish Prevalent HD FHN major criteria: no anticipated kidney transplantation or relocation within the next 14 months, no medical need for HD >3 x per week, no history of poor adherence to HD, no medical condition preventing cardiac magnetic resonance imaging, ability to achieve a mean eKt/V urea ≥1.0 Enrolled in either FHN trial and completed baseline sleep questionnaires with baseline sleep scores, whether or not they were randomized	
Vu, 1999[172]		Not stated	Not stated	Prospective	Patients with lupus nephritis	
Walters, 2002[173]		1996 to 2000	In-center Multi-center	Prospective	Age: >18 No concomitant life-threatening conditions Life expectancy >12 months	
Ware, 2019[174]		Not stated	In-center: non-dialysis patients Single-center network	survey	CKD stages 3-5	
Wasse, 2007[175]		Not stated	Not stated	Prospective	Age: >18 Race/ethnicity: White, non-Hispanic; Black, non-Hispanic Incident dialysis No intermittent dialysis Not on home HD Attended dialysis units in the in the US though 1994	
Weisbord, 2003[176]		Not stated	In-center Single-center network	Prospective	All patients receiving 3x weekly ambulatory HD for at least 3 months prior to the study Charlson Comorbidity index of >/=8	

Evidence Table F.2. Study characteristics of cohort studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis (continued)

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Weisbord, 2004[177]		Not stated	Not stated	DSI development study	Dialysis patients and renal providers	
Weisbord, 2005[178]		2003 to 2003	In-center Multi-center	Prospective	Receiving HD 3x/wk	
Weisbord, 2007[179]		2003 to 2003	In-center Multi-center	Prospective	Race/ethnicity: White, non-Hispanic; Black, non-Hispanic On HD for at least 3 months	
Welch, 1999[180]		Not stated	In-center Multi-center	Prospective	Adults Race/Ethnicity: Black, non-Hispanic No psychiatric disorders	
Williams, 2004[181]		Not stated	In-center Multi-center	pre-post	Prevalent HD No bacteremia, psychosis, senility, or other conditions prejudicing short-term survival No history of malignancy within the previous 3 years No history of noncompliance Not pregnant	
Wolcott, 1988[182]		Not stated	Multi-center	Prospective	Age: 20 to 65 Language: English On dialysis (same modality) for at least 6 months No: stroke; dementia; acute or chronic psychosis; temporary modality change, major visual impairment; major hearing impairment; no major medical or surgical event int eh previous 3 months Independently ambulatory	
Wolcott, 1989[183]		Not stated	NR University of California Los Angeles	not reported	Language: English No acute psychiatric disorder No visual or hearing impairment	

Evidence Table F.2. Study characteristics of cohort studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis (continued)

Author, year	Study	Study period	Location	Study design	Inclusion Criteria	COMMENTS about Study Characteristics
Wuerth, 1997[184]		Not stated	In-center Single-center network	Prospective	On chronic PD	
Young, 2010[185]		2001 to 2007	Not stated	Prospective	Included diabetic patients with CKD 5	Investigator from the University of Washington and the Group Health Research institute.

AIDS=Acquired Immunodeficiency Syndrome; BMI=body mass index; CKD=chronic kidney disease; CAPD=continuous ambulatory peritoneal dialysis; CHEQ=CHOICE Health Experience Questionnaire; CHOICE=Choices for Healthy Outcomes in Caring for End-Stage Renal Disease Cohort Study; CPD=chronic peritoneal dialysis; DOPPS= The Dialysis Outcomes and Practice Patterns Study; DSI=Dialysis Symptom Index; eGFR=estimated glomerular filtration rate; eKt/V=equilibrated Kt/V (urea clearance); EPO=erythropoietin; ESRD=end stage renal disease; FHN=Frequent Hemodialysis Network trials; FREEDOM= Following Rehabilitation, Economics and Everyday-Dialysis Outcome Measurements Study; GFR=glomerular filtration rate; HD=hemodialysis; HEMO= The Hemodialysis Study; HIPAA=Health Insurance Portability and Accountability Act; HIV=Human Immunodeficiency Virus; HMO=Health Maintenance Organization; IDPN=intradialytic parenteral nutrition; KDQOL=Kidney Disease Quality of Life; KDQOL-36= Kidney Disease Quality of Life-36; Kt/V=urea clearance; KTIPS=Kidney Transplant Immunosuppressive Protocol Study; L=liters; m^2=meters squared; MCID=minimal clinically important difference; ml/min=milliliters per minute; mm Hg=millimeters of mercury; NKDKTS=National Kidney Dialysis and Kidney Transplantation Study; PD=peritoneal dialysis; QOL=quality of life; SF-MPQ= Short-Form McGill Pain Questionnaire; SPMSQ=Short Portable Mental Status Questionnaire; US=United States; USRDS= United States Renal Data System; WHO=World Health Organization

Evidence Table F3. Interventions and outcomes of randomized controlled trial studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis

Author, year; Study Subgroup	Interventions	Outcomes
Chertow, 2010[1], FHN	HD 3x week (conventional) HD 6x week	Metabolic/inflammatory control Phosphorus level, ESA use Hypertension/pressure control Clinic SBP, LV mass, Morbidity Hospitalization rate, Hospitalization rate Quality of life and symptom measures Mortality Overall mortality rate Harms Hypotension, Vascular access complications/thrombosis, Hospitalizations, Other Dialysis recovery time
Chertow, 2016[2], FHN Extended followup of study pop	HD 3x week (conventional) HD 6x week	Metabolic/inflammatory control Phosphorus level, ESA use Hypertension/pressure control Clinic SBP, LV mass, Morbidity Hospitalization rate, Hospitalization rate Quality of life and symptom measures Mortality Overall mortality rate Harms Hypotension, Vascular access complications/thrombosis, Hospitalizations, Other Dialysis recovery time

Author, year; Study Subgroup	Interventions	Outcomes
Garg, 2017[3], FHN	HD 3x week (conventional) HD 6x week	Metabolic/inflammatory control Phosphorus level, ESA use Hypertension/pressure control Clinic SBP, LV mass, Morbidity Hospitalization rate, Hospitalization rate Quality of life and symptom measures Mortality Overall mortality rate Harms Hypotension, Vascular access complications/thrombosis, Hospitalizations, Other Dialysis recovery time
Hall, 2012[4], FHN	HD 3x week (conventional) HD 6x week	Metabolic/inflammatory control Phosphorus level, ESA use Hypertension/pressure control Clinic SBP, LV mass, Morbidity Hospitalization rate, Hospitalization rate Quality of life and symptom measures Mortality Overall mortality rate Harms Hypotension, Vascular access complications/thrombosis, Hospitalizations, Other Dialysis recovery time
Lo, 2017[5], FHN	HD 3x week (conventional) HD 6x week	Metabolic/inflammatory control Phosphorus level, ESA use Hypertension/pressure control Clinic SBP, LV mass, Morbidity Hospitalization rate, Hospitalization rate Quality of life and symptom measures Mortality Overall mortality rate Harms Hypotension, Vascular access complications/thrombosis, Hospitalizations, Other Dialysis recovery time

Author, year; Study Subgroup	Interventions	Outcomes
Lo, 2017[6], FHN	HD 3x week (conventional) HD 6x week	Metabolic/inflammatory control Phosphorus level, ESA use Hypertension/pressure control Clinic SBP, LV mass, Morbidity Hospitalization rate, Hospitalization rate Quality of life and symptom measures Mortality Overall mortality rate Harms Hypotension, Vascular access complications/thrombosis, Hospitalizations, Other Dialysis recovery time
Rocco, 2011[8], FHN	Conventional Frequent nocturnal HD	Metabolic/inflammatory control Albumin level, serum phosphate, serum creatinine Hypertension control/pressure control LV mas, blood pressure Morbidity Hospitalization rate Quality of life and symptom measures Mortality Overall mortality, Other Target dry weight
Rocco, 2015[9], FHN	Conventional Frequent nocturnal HD	Metabolic/inflammatory control Albumin level, serum phosphate, serum creatinine Hypertension control/pressure control LV mas, blood pressure Morbidity Hospitalization rate Quality of life and symptom measures Mortality Overall mortality, Other Target dry weight

Author, year; Study Subgroup	Interventions	Outcomes
Rocco, 2011[10], FHN	Conventional Frequent nocturnal HD	Metabolic/inflammatory control Albumin level, serum phosphate, serum creatinine Hypertension control/pressure control LV mas, blood pressure Morbidity Hospitalization rate Quality of life and symptom measures Mortality Overall mortality, Other Target dry weight
Unruh, 2016[11], FHN Age; Depression; Race/ethnicity; Sex	Conventional Frequent nocturnal HD	Metabolic/inflammatory control Albumin level, serum phosphate, serum creatinine Hypertension control/pressure control LV mas, blood pressure Morbidity Hospitalization rate Quality of life and symptom measures Mortality Overall mortality, Other Target dry weight
Unruh, 2013[7], FHN	HD 3x week (conventional) HD 6x week Frequent nocturnal HD	Quality of life and symptom measures
Kaysen, 2011[12], FHN	HD 3x week (conventional) HD 6x week Frequent nocturnal HD	Quality of life and symptom measures
Unruh, 2003[17], HEMO	Self-administered KDQOL-LF Interviewer administered KDQOL-LF	Metabolic/inflammatory control Albumin level, creatinine, cholesterol Hypertension/pressure control post dialysis weight, BMI, knee height, upper arm circumference Morbidity Hospitalization rate, hospitalization duration not related to vascular access, cardiac hospitalization Quality of life and symptom measures Mortality Overall mortality rate, cardiovascular mortality rate, cause specific mortality, peripheral vascular mortality, all-cause mortality

Author, year; Study Subgroup	Interventions	Outcomes
Burrowes, 2005[13], HEMO	Appetite rating very good appetite rating good appetite rating fair appetite rating poor/very poor	Quality of life and symptom measures
Jhamb, 2011[14], HEMO	Quartile 1 Vitality Score Quartile 2 Vitality Score Quartile 3 Vitality Score Quartile 4 Vitality Score	Quality of life and symptom measures
Liang, 2011[15], HEMO	HD patients with CHF	Metabolic/inflammatory control Albumin level, creatinine, cholesterol Hypertension/pressure control post dialysis weight, BMI, knee height, upper arm circumference Morbidity Hospitalization rate, hospitalization duration not related to vascular access, cardiac hospitalization Quality of life and symptom measures Mortality Overall mortality rate, cardiovascular mortality rate, cause specific mortality, peripheral vascular mortality, all-cause mortality
Unruh, 2004[16], HEMO	standard Kt/V High Kt/V Low flux High flux	Quality of life and symptom measures
Dember, 2019[27], TIME Primary Analysis and Full Analysis population	3 times per week, usual care (<4.25 hours/ session) 3 times per week, >=4.25 hours per week	Hypertension/pressure control pre-dialysis BP Morbidity Hospitalization rate Quality of life Mortality death Other weight gain, fluid removal rate, missed sessions
Crews, 2019[18], SOCIABLE	SOCIABLE intervention—intervening on more than one socioecologic domain to increase resilience	Patient acceptance of intervention Quality of life (Physical and social functioning (through ADLs))
Aramwit, 2012[19]	Seracin treatment cream-base treatment	Quality of life Other Skin hydration, irritation, and pigmentation

Author, year; Study Subgroup	Interventions	Outcomes
Begum, 2004[20]	fish oil safflower oil	Quality of life and symptom measures Other Red blood cell fatty acids
Belayev, 2015[21]	Receiving HD 3x/week	Quality of life and symptom measures
Berman, 2016[22]	Usual care dialysis (determined by clinic) Dialysis altered to meet a blood pressure goal	Metabolic/inflammatory control Phosphorus level, Phosphorus binders, demonstration of feasibility of recruitment randomization and application of the protocol; difference in PTH level; difference in vitamin D level Hypertension/pressure control Number of BP meds, Difference in blood pressure Morbidity dry weight increase Symptom measures
Birdee, 2015[23]	Intra-dialysis yoga Education	Quality of life Harms BP, heart rate, respirations, temperature Other Feasibility of the intra-dialysis yoga program
Brass, 2001[24]	Study A- placebo Study A- 20mg/kg L-carnitine Study B- placebo Study B - 10 mg/kg, 20 mg/kg or 40 mg/kg L-carnitine	Metabolic/inflammatory control VO2 max Quality of life
Chan, 2019[26]	Exercise training	Exercise capacity Muscle mass Quality of life (function)
Cukor, 2014[63]	Wait list 3 months of cognitive behavioral therapy	Metabolic/inflammatory control weight gain Symptom measures
Deniston, 1990[28]	Michigan population (conventional care) EPO population	Symptom measures
Duggal, 2019[29]	Usual care blood flow rate reduced by 100 mL/min or to a minimum blood flow rate of 300 mL/min,	Morbidity Time to recovery from hemodialysis Quality of life

Author, year; Study Subgroup	Interventions	Outcomes
Laskin, 2017[112] children	conventional HD treatment of 3 days per week for 4 h (12 h per week 5 days per week shorter, more frequent HD for 2 h 25 min (12 h total per week; intervention)	Metabolic/inflammatory control Phosphorus level, Phosphorus binders, Hemoglobin level, ESA use, PTH Hypertension/pressure control LV mass, pre-systolic BP Quality of life Other dry weight changes, Interdialytic weight gains., Vitamin D, number of dialysis treatments
Mehrotra, 2019[30]	CBT Sertraline	Symptom measure
Natarajan, 2014[31]	Placebo Renadyl	Metabolic/inflammatory control urea, creatinine, CBC, liver function, indoxyl metabolites, p-cresyl sulfate, serum pentosidine, beta-2 microglobulin, NF-kappaB, sCD30 Quality of life
Pai, 2009[32]	Standard of Care Pharmaceutical care	Quality of life
Rodrigue, 2011[33]	standard care (prior to treatment) QOL therapy (prior to treatment) supportive therapy (prior to treatment)	Quality of life and symptom measures
Sloan, 1998[34]	placebo x 6 months 1000 mg L carnitine x 6 months 3 months placebo then 3 months L carnitine (or vice versa)	Metabolic/inflammatory control Normalized protein catabolic rate, Albumin level, Kt/V urea Quality of life
Sloand, 2004[35]	Placebo IV saline infusion 1000mg iron in 5ooml saline	Symptom measures
Song, 2015[36]	Usual Care SPIRIT intervention	Symptom measures
Steiber, 2006[37]	Placebo Carnitine	Quality of life Other Carnitine levels; EPO use
Tawney, 2000[38]	Dialysis patients	Quality of life
Unruh, 2008[170], HEMO	Entire populations received HD	Quality of life

ADL = activities of daily living; BMI=body mass index; BP=blood pressure; CHF=congestive heart failure; EPO=erythropoietin; ESA=erythropoietin-stimulating agent; h=hours; FHN=Frequent Hemodialysis Network trials; HD=hemodialysis; HEMO=The Hemodialysis Study; IV=intravenous; ml=milliliters; KDQOL-LF=Kidney Disease Quality of Life-

Long Form; Kt/V=urea clearance; L=liters; LV=left ventricular; min=minutes; mg/kg=milligrams per kilogram; NF-kappaB=nuclear factor Kappa B; PTH=parathyroid-stimulating hormone; SBP=systolic blood pressure; SOCIABLE = Seniors optimizing community integration to advance better living with ESRD; SPIRIT=Sharing Patient's Illness Representationsto Increase Trust; TiME= Time to Reduce Mortality in ESRD; VO2 max=maximum rate of Oxygen consumption

Evidence table F4. Interventions and outcomes of cohort studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis

Author, year	Study population/intervention details	Outcomes
Abdel-Kader, 2009[40]	CKD stage 4 or 5 ESRD on maintenance HD	Quality of life Symptom measure
Abdel-Kader, 2009[41]	HD patients PD patients CKD stages 4/5	Quality of life Symptom measure
Abreo, 2017[42]	Prevalent patients on HD	Symptom measure Other Bioimpedence spectroscopy; hydration status (fluid overload)
Agarwal, 2011[43]	Control (no CKD, no hemodialysis) CKD (no hemodialysis) Hemodialysis	Symptom measure Other: Sleep actigraphy; Activity classification; CVD; missed dialysis
Agganis, 2010[44]	HD patients	Symptom measure
Allen, 2002[45]	HEMO: Low dose, high dose; low flux; high flux HD	Quality of life
Anand, 2011[46]	Patients on dialysis	Quality of life Other Vitamin D levels
Atcherson, 1978[47]	HD patients	Quality of life
Barakzoy, 2006[48]	ESRD patients	Symptom measure
Barrett, 1990[49]	HD patients Continuous peritoneal dialysis	Quality of life Symptom measure
Bleyer, 2019[50]	People (and their families) with ADTKD	Quality of life
Bremer, 1989[51]	Center hemodialysis Home hemodialysis Continuous peritoneal dialysis first transplant	Quality of life Other income, education, sleep, activities, pain, sexual activity, tiredness, employment
Bremer, 1997[52]	Matched control, on dialysis awaiting treatment	Quality of life Symptom measure Other Physiologic adjustment; neurophysical functioning
Broers, 2015[53]	Dialysis patients	Morbidity: Hospitalization rate, Hospitalization Quality of life Mortality Overall mortality
Bullen, 2018[54]	Acupuncture/massage	Quality of life Symptom measure

Author, year	Study population/intervention details	Outcomes
Burrowes, 2012[25]	No intervention: exposure is nutritional status	Metabolic/inflammatory control Serum albumin, serum creatinine Quality of life and symptom measures
Cardone, 2011[55]	Nocturnal hemodialysis	Morbidity Pill burden Quality of life
Chiu, 2009[56]	Maintenance dialysis patients	Metabolic/inflammatory control Phosphorus level adherence to phosphorus binders Quality of life
Christensen, 1989[57]	Successful transplant Unsuccessful transplant Chronic HD	Quality of life
Christensen, 1991[58]	All groups on maintenance HD to transplant or no transplant	Quality of life
Cohen, 2019[59]	Dialysis patients	Quality of life
Cukor, 2007[60]	No psychopathology Depression Anxiety Other pathology	Symptom measure
Cukor, 2008[61]	Non-depressed Intermittently depressed Persistently depressed	Metabolic/inflammatory control Albumin level, URR, calcium phosphate product Quality of life Symptom measure
Cukor, 2008[62]	HD patients	Quality of life Symptom measure
Curtin, 2002[64]	HD patients	Symptom measure
Debnath, 2018[65]	Depressed Not depressed	Quality of life Symptom measure
Delano, 1989[66]	Anemic HD patients, received EPO	Metabolic/inflammatory control hematocrit, VO2max Quality of life
Deniston, 1989[67]	ESRD patients	Quality of life
Domenic Sridharan, 2018[68]	Compared satisfaction with vascular access site in dialysis patients	Quality of life
Drayer, 2006[69]	HD patients	Symptom measure Mortality Overall mortality rate
Duque, 2006[70]	Compared dialysis patients with and without pruritus	Quality of life Symptom measure
Dwyer, 2002[71]		Quality of life
Evans, 1990[73]	Conventional care - NKDKTS population Population receiving recombinant EPO	Quality of life Symptom measure

Author, year	Study population/intervention details	Outcomes
Evans, 1991[74]	Compared treatment modality in dialysis patients	Quality of life
Feroze, 2011[75]	Compared by SF-36 Mental Health dimension	Quality of life Mortality Overall mortality
Feroze, 2012[76]	Maintenance dialysis patients	Symptom measure
Finkelstein, 2009[77]	Compared by level of hemoglobin	Quality of life
Finkelstein, 2012[78]	FREEDOM: Shorter duration hemodialysis	Quality of life
Fowler, 2006[80]	Dialysis patients	Quality of life
Fukuhara, 2003[81]	DOPPS participants	Quality of life
Gabbay,2010[82]	HD patients	Quality of life
Gerson, 2004[83]	Compared by hematocrit level	Quality of life
Goldstein, 2006[84]	ESRD sample Healthy sample	Quality of life
Goldstein, 2008[85]	Children with ESRD	Quality of life
Goldstein, 2009[86]	HD patients PD patients Transplant patients	Quality of life
Gorodetskaya, 2005[87]	GFR >=60 GFR 30-60 GFR 15-30 GFR <15 GFR<15 + dialysis	Quality of life
Harris, 2012[88]	HD patients	Morbidity Transplantation Symptom measure Mortality Overall mortality
Hedayati, 2006[89]	Entire cohort on dialysis	Symptom measure
Hernandez, 2018[90]	HD patients	Symptom measure
Hicks, 2004[91]	ESRD patients	Quality of life Other patient preference for transplantation
Hornberger, 1992[92]	HD patients	Quality of life
Hynes, 2019[93]	HD patients	Quality of life
Jaber, 2010[79]		Symptom measure
Jhamb, 2009[94]	Incident HD and PD patients	Quality of life Mortality Overall mortality rate
Johansen, 2007[95]	Patients on dialysis	Quality of life

Author, year	Study population/intervention details	Outcomes
Johnson, 1982[96]	HD not waiting for transplant HD waiting for transplant Status post-transplant HD failed transplant	Quality of life
Julius, 1989[97]	In-center hemodialysis patients PD patients Cadaveric transplant Transplant from relative	Quality of life
Kimmel, 1995[98]	Patients on HD for at least 6 months	Quality of life Symptom measure
Kimmel, 1998[99]	All ESRD patients on HD	Quality of life Symptom measure
Kimmel, 2003[100]	Compared 3 HD units	Quality of life
Ko, 2007[101]	ESRD patients	Quality of life
Kring, 2009[102]	ESRD patients	Quality of life Symptom measure
Kurella, 2004[103]	CKD patients ESRD patients	Symptom measure
Kurella, 2005[104]	CKD patients ESRD patients	Symptom measure
Kutner, 1998[105]	Elderly Black and White patients	Morbidity Time to recovery from hemodialysis, Number of days in bed during the past 3 months (0 vs 1+), number of nights hospitalized during the past 6 months (0 vs 1+)Quality of life Symptom measure
Kutner, 2000[106]	HD patients PD patients	Quality of life
Kutner, 2005[107]	HD patients PD patients Stratified by race	Morbidity cardiovascular Quality of life
Kutner, 2007[108]	Incident dialysis patients, compared individuals with and without sleep difficulty	Quality of life Symptom measure
Kutner, 2010[109]	Comprehensive Dialysis Study population USRDS incident dialysis patients	Symptom measure
Lacson, 2009[110]	Patients on dialysis	Quality of life
Lacson, 2014[111]	Incident HD patients	Morbidity Hospitalization rate, Hospitalization rate Symptom measure
Levy, 2019[186]	Patients with secondary hyperparathyroism on maintenance HD	Symptom measures

Author, year	Study population/intervention details	Outcomes
Li, 2016[113]	Normal controls Maintenance HD	Quality of life
Liebman, 2016[114]	Patients on dialysis	Quality of life Mortality Overall mortality rate
Liu, 2012[72]		Quality of Life
Mapes, 2004[115]	DOPPS population	Quality of life
Maung, 2017[116]	Patients on HD thrice weekly for at least 6 months	Symptom measure
McAdams-DeMarco, 2016[117]	Patients on dialysis waiting for transplant	Quality of life
McClellan, 1991[118]	Incident dialysis patients	Quality of life
McDade-Montez, 2006[119]	ESRD hemodialysis patients	Symptom measure
Mehdi, 2009[120]	Patients on HD for greater than 3 months	Quality of life
Mittal, 2001[121]	Patients on HD	Quality of life
Mittal, 2001[122]	PD patients HD patients	Quality of life
Neri, 2009[123]	Employed HD patients	Quality of life
Neul, 2013[124]	Thrice weekly dialysis in-center Home nightly PD Home HD	Quality of life
Neul, 2015[125]	Children on chronic dialysis	Quality of life
Novak, 2008[126]	Incident PD patients	Symptom measure
Painter, 2012[127]	Control Conventional HD (thrice weekly) Conventional to Daily HD Conventional to Transplant	Quality of life
Painter, 2017[128]	Peritoneal dialysis Maintenance HD	Quality of life
Parker, 2003[129]	HD patients	Quality of life Symptom measure
Parkerson, 2000[130]	Patients on dialysis	Quality of life Mortality 1 year survival prediction
Patel, 2002[131]	Patients on dialysis	Symptom measure
Pifer, 2003[132]	Managed care patients at Kaiser; Health Options, Inc; Xantus Health Care Corporation	Quality of life
Pisoni, 2006[133]	DOPPS population	Symptom measure Mortality Overall mortality rate

Author, year	Study population/intervention details	Outcomes
Plantinga, 2007[134]	HD patients, compared by hemoglobin level	Metabolic/inflammatory control Hemoglobin level Quality of life
Pruchno, 2009[135]	ESRD patients	Symptom measure
Ramakrishnan, 2013[136]	Patients on PD or HD	Morbidity Itchiness Quality of life
Rao, 2000[137]	ESRD patients	Quality of life
Raspovic, 2017[138]	Patients: diabetic foot disease without ESRD Patients: diabetic foot disease and ESRD	Quality of life Symptom measure
Rocco, 2011[10]	Conventional nocturnal dialysis Frequent nocturnal dialysis	Quality of life
Rosas, 2001[139]	Patients on HD	Symptom measure
Roumelioti, 2011[140]	CKD 4-5 Hemodialysis	Symptom measure
Saad, 2015[141]	Patients on Hemodialysis	Quality of life
Saban, 2008[142]	Veterans Affairs patients on HD	Quality of life
Saban, 2010[143]	VETERANS study participants (male only) DOPPS study participants (male only, US cohort)	Quality of life
Schneider, 2003[144]	Caregivers of ESRD patients	Symptom measure
Schneider, 2004[145]	Caregivers of ESRD patients	Symptom measure
Seethala, 2010[146]	Women on maintenance HD	Symptom measure
Shafi, 2010[147]	CHOICE study population	Quality of life
Simmons, 1984[148]	HD patients PD patients Transplant patients	Quality of life
Simmons, 1990[149]	In-center hemodialysis Continuous ambulatory peritoneal dialysis Current transplant Past transplant	Quality of life
Siskind, 1993[150]	ESRD patients	Quality of life
Song, 2009[151]	Patients on dialysis	Quality of life Symptom measure
Song, 2011[152]	In-center PD and HD patients	Quality of life Other Activities and experiences of the previous day
Song, 2018[153]	Patients on dialysis	Quality of life Symptom measure
Sorensen, 2012[154]	Patients on maintenance HD	Symptom subscale Other Neurocognitive deficits

Author, year	Study population/intervention details	Outcomes
Spinowitz, 1990[155]	Patients on maintenance HD	Quality of life
Steele, 1996[156]	Patients on PD	Quality of life Symptom measure
Steele, 1996[157]	Patients on PD	Quality of life Symptom measure
Suri, 2011[158]	FHN trial participants regarding caregivers	Quality of life
Tell, 1995[159]	White patients on HD Black patients on HD	Quality of life
Thomas, 2011[160]	FREEDOM interventions in African-Americans on HD for at least 1 month	Quality of life Other: Religostiy, Social Support
Thomas, 2012[161]	African American patients on HD	Quality of life
Thomas-Hawkins, 2000[162]	On dialysis for at least 6 months	Quality of life
Ting, 2003[163]	Short daily HD	Metabolic/inflammatory control Phosphorus binders, Albumin level, ESA use, calcium, alkaline phosphatase, serum bicarbonate, or PTH Hypertension/pressure control Clinic SBP (and report how it was measured), Clinic DBP (and report how it was measured), number of hypertensive meds Morbidity Hospitalization rate, Hospitalization rate, admissions Quality of life Mortality Survival Harms Vascular access complications/thrombosis Other mean dry weights
Troidle, 2003[164]	PD patients Daily HD patients	Quality of life Symptom measure
Troidle, 2007[165]	Nocturnal HD patients	Quality of life Symptom measure
Unruh, 2004[166]	African Americans and non-African Americans on HD	Quality of life
Unruh, 2004[167]	Incident HD patients in CHOICE study	Quality of life Symptom measure
Unruh, 2006[168]	CHOICE study population	Quality of life Symptom measure

Author, year	Study population/intervention details	Outcomes
Unruh, 2008[169]	Matched control (no HD) Hemodialysis	Morbidity CVD, lung disease, diabetes Symptom measure
Unruh, 2008[170]		Quality of life Symptom measure
Unruh, 2011[171]	FHN study population	Symptom measure
Vu, 1999[172]	ESRD patients with lupus ESRD patients without lupus	Quality of life Symptom measure
Walters, 2002[173]	Gambro Healthcare dialysis patients	Quality of life Symptom measure
Ware, 2019[174]	CKD 3-5 Dialysis Transplant	Quality of life
Wasse, 2007[175]	ESRD patients on dialysis, compared by vascular access	Quality of life
Weisbord, 2003[176]	Patients on HD for at least 3 months	Quality of life Symptom measure
Weisbord, 2004[177]	ESRD patients and renal care providers	Symptom measure
Weisbord, 2005[178]	Patients receiving thrice weekly HD	Quality of life Symptom measure
Weisbord, 2007[179]	African Americans patients on dialysis Whites patients on dialysis	Symptom measure
Welch, 1999[180]	Patients on HD	Quality of life
Williams, 2004[181]	Three-times weekly HD Six-times weekly HD	Quality of life
Wolcott, 1988[182]	Patients on dialysis	Metabolic/inflammatory control most recent chemical values Morbidity recent kidney disease diagnosis Quality of life Symptom measure
Wolcott, 1989[183]	University of California Los Angeles dialysis patients	Quality of life Symptom measure
Wuerth, 1997[184]	Chronic PD patients	Quality of life
Young, 2010[185]	Patients with stage 5 diabetic chronic kidney disease	Symptom measure Mortality Overall mortality rate

ADTKD = Autosomal dominant tubulointerstitial kidney disease; CHOICE=Choices for Healthy Outcomes in Caring for End-Stage Renal Disease Cohort Study; CKD=chronic kidney disease; CVD=cardiovascular disease; DBP=diastolic blood pressure; DOPPS=The Dialysis Outcomes and Practice Patterns Study; EPO=erythropoietin; ESA=erythropoietin-stimulating agent; ESRD=end stage renal disease; FHN=Frequent Hemodialysis Network trials; FREEDOM=Following Rehabilitation, Economics and Everyday-Dialysis Outcome Measurements Study; GFR=glomerular filtration rate; HD=hemodialysis; KQ4=key question 4; NKDKTS=National Kidney Dialysis and Kidney

Transplantation Study; PD=peritoneal dialysis; PTH=parathyroid-stimulating ; SBP=systolic blood pressure; SF-36: Short Form-36; VETERAN=Veteran End-Stage Renal Disease Study; VO2max=Maximum rate of Oxygen consumption

Evidence table F5. Population characteristics of studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis

Study design, Study Name, n	Study size, n	Followup period	Sex, % female range	Age	Race/ethnicity, range of mean %	Education
RCT, FHN, 12*	Daily, 245 Nocturnal, 87	1 to 3.7 years (range of means)	38 to 62	49.1 to 65 (range of means)	WNH: 34 to 60 BNH: 26 to 50 LH: 69 API: 13 to 22 AI/AN: 0 to 3 Other: 0 to 40	Less than High School: 12 to 21 Completed HS: 21 to 27 College degree: 17 to 38 Post grad: 4 to 6 Completed HS or less: 33 to 45 Greater than HS: 55 (1 study)
RCT, HEMO, 6*	1798-3632	2.84+/-1.84 years (mean)	55 to 56.2	56.4 to 63.3 (range of means)	WNH: 34 to 36 BNH: 43.7 to 65 LH: 13.1 to 14.5 API: NR AI/AN: NR Other, non-black: 35.6	Less than High School: 37.2 to 38.7 At least HS: 61 to 63.5
RCT,TIME, 1*	4470	1.1 years (median)	58.8	66.6 (mean)	WNH: 55.7 to 56.4 BNH: 23.7 to 24.7 LH: NR API: 4.5 to 4.8 AI/AN: NR Other: 1.5 to 1.6	NR
RCT,SOCIABLE, 1	12	5 months	41.6	68.6 to 69.5 (range of means)	BNH: 100	NR
All other RCTs, 19	Range: 6-1846	2 weeks to 20 months	38 to 70.9	42.7 to 74.4	WNH: 15 to 55 BNH: 7 to 100 LH: 6 to 51 API: to 33 AI/AN: 5 to 15 Other: 0 to 30	Less than High School: 14 to 27 Completed HS: 13 to 33 Years of education: 10.2 to 12.4 Greater than HS: 54 to 100 Some college: 70 to 20 College degree: 17 to 38 Post grad: 4 to 6 Completed HS or Less: 33 to 45
Cohort, 142 studies in 145 articles FREEDOM, 3 HEMO, 2	9 to 71012	49 studies: 1 month to 3 years	136 studies: 20 to 83.3	Child: 12.1 (mean, 1 study) Adult; 47.2 to 74.4 (mean, 136 studies)	2 studies 100 WNH 9 studies 100 BNH	Less than High School: 10 to 72.5 Completed HS: 15 to 66 College degree: 3.8 to 40.9 Post grad: 4 to 6 Completed HS or Less: 33 to 45 Greater than HS: 55

%=percentage; AI/AN=American Indian/Native American; API=Asian/Pacific Islander; BNH=Black non-Hispanic; FHN=Frequent Hemodialysis Network trials; FREEDOM=Following Rehabilitation, Economics and Everyday-Dialysis Outcome Measurements Study; HEMO=The Hemodialysis Study; HS=high school; KQ4=key question

4; LH=Latino/Hispanic; n=number of patients; NR=not reported; post grad=postgraduate degree; RCT=randomized controlled trial; TiME=Time to Reduce Mortality in ESRD; WNH=White non-Hispanic

* summary of the overall study

Evidence Table F6.1. List of instruments used to measure quality of life of people with ESRD treated by dialysis (ESRD specific)

Tool	Tool subscale	Author. Year	Domain
KDQOL		Birdee, 2015[23] Bremer, 1989[51] Chan, 2019[26] Hernandez, 2018[90] Ko, 2007[101] Li, 2016[113] Liu, 2012[72] Mapes, 2004[115] McAdams-DeMarco, 2016[117] Painter, 2012[127] Ramakrishnan, 2013[136] Rao, 2000[137] Saban, 2010[143] Shafi, 2010[147] Tawney, 2000[38] Ting, 2003[163] Unruh, 2003[17] Unruh, 2004[166] Unruh, 2004[16]	Overall quality of life
KDQOL	Adapted by authors	Hicks, 2004[91]	Overall health Emotional health Energy level Physical activity Social activity Effect of ESRD on daily life
KDQOL	Burden/effects	Ware, 2019[174]	Burden/effects
KDQOL	Cardiopulmonary symptoms	Rao, 2000[137]	Cardiopulmonary symptoms
KDQOL	Cognitive function	Kurella, 2004[103] Kutner, 2007[108] Sorensen, 2012[154] Rao, 2000[137]	Cognitive function
KDQOL	Cramps	Rao, 2000[137]	Cramps
KDQOL	Dialysis related symptoms	Rao, 2000[137]	Dialysis related symptoms
KDQOL	dialysis staff encouragement	Kutner, 2000[106]	dialysis staff encouragement
KDQOL	Effects of kidney disease	Kutner, 2000[106]	Effects of kidney disease
KDQOL	Energy	Rao, 2000[137]	Energy
KDQOL	Kidney disease component subscale	Saban, 2008[142]	Kidney disease component subscale

Tool	Tool subscale	Author. Year	Domain
KDQOL	Mental composite summary	Dember, 2019[27] Jhamb, 2011[14] Johansen, 2007[95] Saad, 2015[141] Unruh, 2008[170]	Mental composite summary
KDQOL	Mood questions	Kutner, 2007[108]	Mood questions
KDQOL	Physical composite summary	Dember, 2019[27] Jhamb, 2011[14] Johansen, 2007[95] Saad, 2015[141] Unruh, 2008[170]	Physical composite summary
KDQOL	Psychological dependency	Rao, 2000[137]	Psychological dependency
KDQOL	sleep	Agarwal, 2011[43] Burrowes, 2012[25] Jhamb, 2011[14] Kurella, 2005[104] Rao, 2000[137]	sleep
KDQOL	Social functioning	Rao, 2000[137]	Social functioning
KDQOL	Symptoms-problems	Ware, 2019[174]	symptoms-problems
KDQOL-36		Aramwit, 2012[19] Chertow, 2010[1] Cohen, 2019[59] Cukor, 2007[60] Cukor, 2008[61] Cukor, 2008[62] Cukor, 2014[63] Debnath, 2018[65] Domenic Sridharan, 2018[68] Drayer, 2006[69] Finkelstein, 2009[77] Fukuhara, 2003[81] Ko, 2007[101] Kutner, 2005[107] Neri, 2009[123] Neul, 2015[125] Parkerson, 2000[130] Steiber, 2006[37] Thomas-Hawkins, 2000[162] Unruh, 2004[167] Unruh, 2004[16] Walters, 2002[173] Wasse, 2007[175]	Overall quality of life

Tool	Tool subscale	Author. Year	Domain
KDQOL-36	acute form of SF-12	Gorodetskaya, 2005[87]	acute form of SF-12
KDQOL-36	burden/effects	Dember, 2019[27] Hynes, 2019[93]	burden/effects
KDQOL-36	Effect of kidney disease scale	Dember, 2019[27]	Effect of kidney disease scale
KDQOL-36	Mental composite Summary	Anand, 2011[46] Broers, 2015[53] Burrowes, 2005[13] Hynes, 2019[93] Lacson, 2009[110] Liang, 2011[15] Mittal, 2001[122]	Mental composite Summary
KDQOL-36	Pain	Kutner, 2007[108] Rao, 2000[137]	Pain
KDQOL-36	Physical composite summary	Anand, 2011[46] Broers, 2015[53] Burrowes, 2005[13] Hynes, 2019[93] Lacson, 2009[110] Liang, 2011[15] Mittal, 2001[122]	Physical composite summary
KDQOL-36	symptoms-problems	Dember, 2019[27] Hynes, 2019[93]	symptoms-problems
PedsQL	3.0 End-Stage Renal Disease (ESRD) Module	Goldstein, 2008[85] Laskin, 2017[112] Neul, 2013[124] Goldstein, 2009[86] Neul, 2015[125]	General Fatigue About My Kidney Disease Treatment Problems Family and Peer Interaction Worry Perceived Physical Appearance Communication
PedsQL	4.0 Generic Scale	Goldstein, 2006[84] Goldstein, 2008[85] Laskin, 2017[112] Neul, 2013[124] Neul, 2015[125]	Physical quality of life Emotional quality of life Social quality of life School functioning Summary scores: Psychosocial health and total scores
DSI		Abdel-Kader, 2009[40] Abdel-Kader, 2009[41] Berman, 2016[22] Kring, 2009[102] Song, 2009[151] Weisbord, 2004[177] Weisbord, 2005[178] Weisbord, 2007[179]	Symptoms related to dialysis

Tool	Tool subscale	Author. Year	Domain
CHEQ	Sleep quality domain	Jhamb, 2009[94] Unruh, 2006[168]	Sleep
CHEQ		Plantinga, 2007[134]	Cognitive function Sexual function Sleep Work Recreation Travel Finances General quality of life Diet Freedom Time Body image Dialysis access Symptoms
CHEQ	Sleep domain Vitality domain Bodily pain domain	Unruh, 2004[167]	Sleep Vitality Bodily pain
General Dialysis Treatment Stress Scale		Wolcott, 1989[183]	Illness/treatment stress
Home Dialysis Interview Schedule		Atcherson, 1978[47]	General quality of life in home hemodialysis
Kidney Disease Questionnaire (KDQ)		Brass, 2001[24]	Physical symptoms Fatigue Depression Relationships with others Frustration
Renal Quality of Life Profile (RQLP)		Pai, 2009[32]	Eating/Drinking Physical Activities Leisure Time Psychosocial Activities Impact of Treatment
unnamed validated questionnaire specifically designed for use in ESRD		Barrett, 1990[49]	Physical well-being Psychological Social well-being

Evidence Table F6.2. List of instruments used to measure quality of life of people with ESRD treated by dialysis—ESRD validated but not ESRD specific.

Tool	Tool subscale	Author. Year	Domain
SF-36		Abdel-Kader, 2009[41] Cardone, 2011[55] Curtin, 2002[64] Feroze, 2011[75] Kutner, 2000[106] Painter, 2012[127] Rao, 2000[137] Sloan, 1998[34] Song, 2011[152] Thomas, 2012[161] Troidle, 2003[164] Vu, 1999[172]	Overall quality of life
SF-36	Author modified (no details on modification)	Natarajan, 2014[31]	General quality of life
SF-36	Bodily pain	Jhamb, 2009[94] Unruh, 2011[171]	Pain
SF-36	Depression score	Lacson, 2014[111]	Depression
SF-36	Energy/fatigue	Painter, 2017[128]	Energy/fatigue
SF-36	Mental composite and Physical composite summaries	Allen, 2002[45] Gabbay,2010[82] Mittal, 2001[121] Pifer, 2003[132] Plantinga, 2007[134] Raspovic, 2017[138] Rodrigue, 2011[33] Suri, 2011[158] Troidle, 2007[165] Unruh, 2006[168] Unruh, 2011[171]	Mental and physical composite scores
SF-36	Mental composite summary	Dwyer, 2002[71] Thomas, 2011[160] Abdel-Kader, 2009[40] Chan, 2019[26] Chiu, 2009[56] Drayer, 2006[69] Dwyer, 2002[71] Finkelstein, 2012[78] Liebman, 2016[114] Mittal, 2001[121] Allen, 2002[45]	Mental composite summary

Tool	Tool subscale	Author. Year	Domain
SF-36	Mental health	Jhamb, 2009[94]	Mental health
SF-36	Mental health functions	Bremer, 1997[52]	Mental health functions
SF-36	Mental health composite	Rocco, 2011[8]	Mental health composite
SF-36	Physical composite summary	Abdel-Kader, 2009[40] Chiu, 2009[56] Drayer, 2006[69] Dwyer, 2002[71] Dwyer, 2002[71] Finkelstein, 2012[78] Kaysen, 2011[12] Liebman, 2016[114] Mittal, 2001[121] Rocco, 2011[8] Rocco, 2015[9] Thomas, 2011[160] Rocco, 2011[8]	Physical composite summary
SF-36	Physical health composite	Rocco, 2011[8]	Physical health composite
SF-36	Physical composite summary	Abdel-Kader, 2009[40]	Physical composite summary
SF-36	Physical functioning	Bremer, 1997[52] Jhamb, 2009[94] Kaysen, 2011[12] Painter, 2017[128]	Physical functioning
SF-36	Physical health problems	Rocco, 2011[8]	Physical health problems
SF-36	vitality	Jhamb, 2009[94] Jhamb, 2011[14] Unruh, 2011[171]	vitality
SF-36 (as part of the KDQOL-LF)		Liu, 2012[72]	Physical functioning Bodily pain Mental health General health Vitality Role emotional Role physical Social functioning

Tool	Tool subscale	Author. Year	Domain
BDI		Chertow, 2010[1] Christensen, 1989[57] Cukor, 2007[60] Cukor, 2008[61] Cukor, 2014[63] Debnath, 2018[65] Feroze, 2012[76] Garg, 2017[3] Harris, 2012[88] Hedayati, 2006[89] Jaber, 2010[79] Kimmel, 1998[99] Kimmel, 1998[99] Li, 2016[113] Lo, 2017[5] Lo, 2017[6] Maung, 2017[116] Patel, 2002[131] Rocco, 2011[10] Rocco, 2011[8] Steele, 1996[157] Steele, 1996[156] Suri, 2011[158] Troidle, 2003[164] Troidle, 2007[165] Unruh, 2011[171] Unruh, 2013[7] Weisbord, 2007[179] Weisbord, 2007[179] McDade-Montez, 2006[119] Unruh, 2013[7] Weisbord, 2005[178]	Depression
RAND-36		Chertow, 2010[1] Chertow, 2016[2] Garg, 2017[3] Lacson, 2009[110] Lo, 2017[5] Lo, 2017[6] Rocco, 2011[10] Suri, 2011[158] Unruh, 2013[7]	Overall quality of life
RAND-36	Physical functioning	Hall, 2012[4]	Physical functioning
RAND-36	Physical health composite	Hall, 2012[4]	Physical health composite

Tool	Tool subscale	Author. Year	Domain
SF-12	Mental composite and Physical composite summaries	Belayev, 2015[21] Ware, 2019[174]	Mental and Physical composite summaries
SF-12		Pisoni, 2006[133] Song, 2009[151]	Overall quality of life
Hospital Anxiety and Depression Scale (HADS)		Cukor, 2008[62] Li, 2016[113] Song, 2015[36]	Anxiety and depression
PHQ-9		Belayev, 2015[21] Seethala, 2010[146] Young, 2010[185]	Depression
BDI-II		Mehrotra, 2019[30]	Depression

Evidence Table F6.3. List of instruments used to measure quality of life of people with ESRD treated by dialysis—Not ESRD validated or specific.

Tool	Tool subscale	Author. Year	Domain
3-item tool on restless leg syndrome		Sloand, 2004[35]	Restless leg syndrome
Appetite and Diet Assessment Tool (ADAT)		Dwyer, 2002[71]	Appetite and diet
Activities of Daly Living (ADL)		Julius, 1989[97] Song, 2018[153]	Activities of daily living: Mobility Self-care Instrumental
Affect Balance Scale		Deniston, 1989[67]	Psychosocial: Positive affect Negative affect
Alberta Quality of Life	Combined 7 scales: Campbell Life Satisfaction Scale, Bradburn Affect Scale, Mental Health Scale, Perceived Health Scale, Karnofsky Scale, a physical symptoms scale, and an activity scale	Williams, 2004[181]	Psychological well-being Physical well-being
Appetite and Diet Assessment Tool		Burrowes, 2005[13]	Appetite
BAI		Feroze, 2012[76] Li, 2016[113]	Anxiety
Beeson Cognitive Test		Chan, 2019 [26]	Cognition
Bradburn Affect Balance Scale		Kutner, 1998[105]	Positive Mood Negative Mood
Brief nocturnal and daytime sleep questionnaires		Parker, 2003[129]	Sleep
Campbell Index of Wellbeing		Hornberger, 1992[92] Simmons, 1984[148]	Overall well-being
Beck's Depression Inventory	Cognitive Depression Index (CDI; 15 of 21 BDI items)	Kimmel, 1998[99] Patel, 2002[131] Unruh, 2013[7] Weisbord, 2007[179]	Depression

Tool	Tool subscale	Author. Year	Domain
Center for Epidemiologic Studies Depression scale (CES-D)		Agganis, 2010[44] Hedayati, 2006[89] Hernandez, 2018[90] Kutner, 1998[105] Pruchno, 2009[135] Schneider, 2004[145] Vu, 1999[172]	Depression
Child Health Questionnaire Parent Form (CHQPF50)		Gerson, 2004[83]	Physical functioning Limitations in school work and activities with friends General health Bodily pain and discomfort Limitations in family activities Emotional/time impact on the parent Impact of emotional or behavior problems on school work and other daily activities Self-esteem Mental health Behavior Family cohesion Change in health
CKD-QOL		Ware, 2019[174]	Role and social functioning Fatigue Psychologic distress Cognitive functioning) Overall quality of life
Cousineau Scale of Perceived Burden		Suri, 2011[158]	Self-perceived burden of HD patients on unpaid caregivers
Current health and activities questionnaire		Wolcott, 1989[183]	Overall health Current activity of daily living abilities Pain Health-related activity of daily living restrictions Health-related vocational function restrictions Health-related household task restriction Current vocational function ability
Custom QOL Survey		Bleyer, 2019 [50]	Quality of life

Tool	Tool subscale	Author. Year	Domain
Duke Severity of Illness Checklist		Parkerson, 2000[130]	Physical health Mental health Social health Perceived health Disability General health Self-esteem Anxiety Depression Anxiety-depression Pain
Duke Social Support and Stress Scale		Parkerson, 2000[130]	Family support Family stress Non-family support Non-family stress Social support Social stress
Duo subjective questionnaire for assessment of uremic pruritus (adapted)		Begum, 2004[20]	Symptoms and severity of uremic pruritus
Community Healthy Activities Model Program for Seniors (CHAMPS)		Painter, 2017[128]	
Edmonton Symptom Assessment System (ESAS)		Song, 2018[153]	Overall symptoms
Effort-Reward Imbalance Questionnaire (ERI)		Neri, 2009[123]	Occupational stress
Epworth Sleepiness Scale (ESS)		Maung, 2017[116] Parker, 2003[129] Roumelioti, 2011[140]	Sleep
Fatigue assessment scale		Troidle, 2007[165]	Fatigue
Fatigue Severity Scale (FSS)		Schneider, 2003[144] Schneider, 2004[145]	Fatigue
Female Sexual Function Index (FSFI)		Seethala, 2010[146]	Sexual function
Foot and Ankle Ability Measure (FAAM)		Raspovic, 2017[138]	Activities of daily living and sports-related activities in relation to lower-extremity function

Tool	Tool subscale	Author. Year	Domain
Functional Assessment of Chronic Illness Therapy—Spirituality Scale (FACIT-Sp)		Weisbord, 2003[176]	Physical well-being Social/family well-being Emotional well-being Functional well-being Spiritual well-being
Functional Assessment of Chronic Illness-fatigue		Birdee, 2015[23]	Fatigue
Generalized Anxiety Disorder 7-item Scale (GAD-7)		Bullen, 2018[54] Mehrotra, 2019[30]	Anxiety
Global Illness Stress		Wolcott, 1988[182]	Illness-related stress on self, souse, children, other family members, and closest friend
Global Quality of Life Scale		Mehrotra, 2019[30]	Overall quality of life
Hamilton Depression Rating Scale (HAM-D)		Cukor, 2014[63]	Depression
Health Utilities Index (HUI-3)		Garg, 2017[3] Gorodetskaya, 2005[87] Lo, 2017[5] Lo, 2017[6]	Vision Hearing Speech Ambulation Dexterity Emotion Cognition Pain
Hopkins symptom checklist (HSCL)		Rodrigue, 2011[33]	Anxiety Depression
Human Activity Profile (HAP)		Anand, 2011[46]	Physical activity
Illness Effects Questionnaire (IEQ)		Harris, 2012[88] Kimmel, 1995[98] Kimmel, 1998[99] Patel, 2002[131] Weisbord, 2005[178]	Burden of illness
Index of Activities of Daily Living		Crews, 2019 [18]	Activities of daily living

Tool	Tool subscale	Author. Year	Domain
Inventory of Functional Status-Dialysis (IFS-Dialysis)		Thomas-Hawkins, 2000[162]	Functional status: Personal care activities Household activities Social and community activities
Index of General Affect (IGA)		Bremer, 1989[51] Deniston, 1989[67] Deniston, 1990[28] Spinowitz, 1990[155]	Cognitive evaluation of life circumstances
International Index of Erectile Function, short form (IIEF-5)		Rosas, 2001[139]	Erectile dysfunction
Insomnia Severity Index		Abreo, 2017[42]	Sleep
Instrumental Activities and Daily Living Scales		Song, 2018[153]	Physical function
Interpersonal Support Evaluation List		Tell, 1995[159]	Social support
Investigator generated 47 question list of symptoms		Curtin, 2002[64]	Common hemodialysis symptoms
Index of Psychological Affect (IPA)		Siskind, 1993[150]	Overall quality of life, psychological affect
Index of Well Being (IWB)		Bremer, 1989[51] Christensen, 1989[57] Deniston, 1989[67] Evans, 1990[73] Evans, 1991[74] Fowler, 2006[80] Johnson, 1982[96] Simmons, 1990[149] Siskind, 1993[150] Unruh, 2004[166] Unruh, 2004[16] Unruh, 2008[170]	Psychological affect Life satisfaction
The Kupfer-Detre System-2 questionnaire (KDS2)		Steele, 1996[157]	Somatic symptoms
Life Events Stress Scale		Cukor, 2008[61]	Stressful life events

Tool	Tool subscale	Author. Year	Domain
London Evaluation of Illness survey (LEVIL)		Duggal, 2019[29]	General well-being Pain Feeling washed out or drained Sleep quality Shortness of breath Appetite
Lubben Social Network Scale		Tell, 1995[159] Crews, 2019[18]	Social contacts Living arrangements
McGill Pain Questionnaire, short form		Belayev, 2015[21]	Pain
McGill Quality of Life Questionnaire		Kimmel, 2003[100]	Physical quality of life Psychological quality of life Existential quality of life Support
McGill Short form		Duque, 2006[70]	Pain
Multidimensional Fatigue Inventory (MFI-20)		Schneider, 2003[144]	General fatigue Reduction in activity Physical fatigue Mental fatigue Reduction in motivation
Modality Specific Stress		Wolcott, 1988[182]	Stress
Modality specific treatment stress scale		Wolcott, 1989[183]	Stress
Medical Outcomes Study, Sleep Problems Index (MOS-SPI)		Unruh, 2011[171]	Sleep
Memorial Symptom Assessment Scale Short Form (MSAS-SF)		Weisbord, 2003[176]	Stresses associated with continuous ambulatory peritoneal dialysis and hemodialysis
Multidimensional Health Assessment Questionnaire		Mehdi, 2009[120]	Functional status Psychologic status Pain Fatigue Global assessment of quality of life Painful joint count
Multidimensional Health Locus of Control scale		Wolcott, 1988[182]	Health-related locus of control

Tool	Tool subscale	Author. Year	Domain
Multidimensional Scale of Perceived Social Support		Patel, 2002[131]	Social support
Patient Assessed Quality of Life (PAQOL)		Steele, 1996[157]	Overall quality of life
Physician's health questionnaire, 2 questions (PHQ-2)		Kutner, 2010[109]	Depression
Physical activity index		Kutner, 2000[106]	
Physical activity questionnaire		Chan, 2019[26]	Physical activity
Physical performance battery		Suri, 2011[158]	
Profile of Mood States-Short Form (POMS)		Birdee, 2015[23] Rodrigue, 2011[33] Wolcott, 1989[183]	Mood
Positive and Negative Affect Scales		Bremer, 1989[51]	Psychological: Positive Affect Negative Affect
Patient Related Anxiety Scale (PRAS)		Steele, 1996[157]	Anxiety
Profile of Mood scale		Wolcott, 1988[182]	Mood
Patient Reported Outcomes Measurement Information System (PROMIS)	Depression short form	Berman, 2016[22] Bullen, 2018[54]	Depression
Pittsburgh Sleep Quality Index (PSQI)		Harris, 2012[88] Maung, 2017[116] Mehrotra, 2019[30]	Sleep
Patient-assessed QOL index (PAQOL)		Steele, 1996[156]	Overall quality of life
Pittsburgh Symptom Score Index (PSS)		Novak, 2008[126]	
Perceived Stress Scale (PSS-4)		Abdel-Kader, 2009[41]	Stress

Tool	Tool subscale	Author. Year	Domain
Post-Traumatic Symptoms Scale 10 (PTSS-10)		Song, 2015[36]	Fatigue Trouble sleeping Difficulty concentrating Restless legs Change in taste Loss of appetite Nausea or vomiting Pruritus Bone pain Muscle pain Weakness
Quality of Life Index (QLI)		Kring, 2009[102] Welch, 1999[180]	Health care Physical health and functioning Occupation Education Leisure Future Peace of mind Personal faith Life goals Personal appearance Self-acceptance General happiness General satisfaction

Tool	Tool subscale	Author. Year	Domain
Quality of Life Questionnaire (investigator developed)		Wuerth, 1997[184]	Family Social supports Structured activity/responsibility Physical condition Hobbies/recreation Energy Spirituality/Religion Exercise/Physical recreation Travel Autonomy/independence Appetite Life circumstances Dialysis regime Mental status Cooking Driving Sleep Sex Vision: ability to see Pets Relationship with dialysis medical team Physical pain
Quality of Life Inventory (QOLI)		Rodrigue, 2011[33]	Health Self-esteem Goals and values Money Work Play Learning Creativity Helping Love relationship Relationships with children, relatives, and friends Home Neighborhood Community
Quality of Life Scale		Wolcott, 1988[182]	Overall quality of life

Tool	Tool subscale	Author. Year	Domain
Quality of life "questionnaire"		Delano, 1989[66]	Well-being Better appetite Socialization Sleep habits Symptoms Exercise capacity Sexual life
Quality of life questionnaire		Johnson, 1982[96]	Sleep Hospitalizations Fatigue Sexual performance Employment Overall well-being Emotional health Impact of renal failure on income Impact of renal failure on daily life Social relationships Life satisfaction
Quality of well-being scale-self-administered		Saban, 2008[142]	Mobility Physical activity Social activity
Investigator-developed questionnaires		Simmons, 1984[148]	Uremic symptoms
Revised Illness Perception Questionnaire (IPQ-R)		Fowler, 2006[80]	Cognitive illness representation Emotional representation in response to illness
Rosenberg happiness scale		Simmons, 1990[149]	Emotional well-being
Rosenberg self-esteem scale		Simmons, 1990[149]	Emotional well-being
Structured Clinical Interview for Depression (SCID)		Hedayati, 2006[89]	Depression
The Schedule of Evaluation of Individual Quality of Life–Direct Weighting (SEIQOL-DW)		Abdel-Kader, 2009[41]	Overall quality of life
SF-6D		Saban, 2008[142]	Physical functioning Role limitation Social pain functioning Mental health Vitality

Tool	Tool subscale	Author. Year	Domain
Short-Form McGill Pain Questionnaire (SF-MPQ)		Barakzoy, 2006[48]	Pain
Sheehan Disability scale		Mehrotra, 2019[30]	Functional impairment in 3 domains: Work/school Social life Family life
Simmons self-esteem scale		Wolcott, 1988[182]	Self-esteem
Sickness Impact Profile (SIP)	physical dysfunction dimension	Julius, 1989[97] Christensen, 1991[58]	Sickness-related physical dysfunction: Ambulation Body care and movement Mobility
Sickness Impact Profile (SIP)		Deniston, 1990[28] Evans, 1990[73] Hornberger, 1992[92] Siskind, 1993[150] Spinowitz, 1990[155]	Psychological well-being Energy Appetite Activity Work Sex Overall quality of life
Skindex-16		Duque, 2006[70]	Skin-related quality of life: Physical symptoms Emotional well-being Function
Sleep Habits Questionnaire		Unruh, 2008[169]	Sleep
Sleep Problems Index II (SPI-II)		Unruh, 2016[11]	Sleep
Spitzer Quality of Life Index (SQLI)		McClellan, 1991[118]	Overall quality of life Activity Daily living Health Social support Outlook
State-Trait Anxiety Inventory		Christensen, 1989[57]	Anxiety
Symptom Assessment Questionnaire		Levy, 2019[186]	Symptoms
Satisfaction With Life Scale		Harris, 2012[88] Kimmel, 1998[99] Kimmel, 2003[100] Mehrotra, 2019[30] Patel, 2002[131]	Overall quality of life

Tool	Tool subscale	Author. Year	Domain
Profile of Mood States	Total Mood Disturbance	Wolcott, 1988[182]	Emotional distress
Trail making B		Rocco, 2011[10]	

ADAT=Appetite and Diet Assessment Tool; ADL=Activities of Daily Living; BDI=Beck's Depression Inventory; BDI-II=Beck's Depression Inventory-2; CDI=Cognitive Depression Index; CES-D=Center for Epidemiologic Studies Depression scale; CHAMPS= Community Healthy Activities Model Program for Seniors; CHEQ=CHOICE Health Experience Questionnaire; CHQPF50=Child Health Questionnaire Parent Form; CKD-QOL=Chronic Kidney Disease Quality of Life Tool; DSI=Dialysis Symptom Index; ERI= Effort-Reward Imbalance Questionnaire; ESAS=Edmonton Symptom Assessment System; ESRD=end stage renal disease; ESS=Epworth Sleepiness Scale; FAAM=Foot and Ankle Ability Measure; FACIT-Sp=Functional Assessment of Chronic Illness Therapy—Spirituality Scale; FSFI=Female Sexual Function Index; FSS=Fatigue Severity Scale; GAD-7=General Anxiety Disorder 7-item scale; HADS=Hospital Anxiety and Depression Scale; HAM-D=Hamilton Depression Rating Scale; HAP= Human Activity Profile; HD=hemodialysis; HSCL=Hopkins Symptom Checklist; HUI-3=Health Utilities Index-3; IEQ=Illness Effects Questionnaire; IFS-Dialysis=Inventory of Functional Status-Dialysis; IGA=Index of General Affect; IIEF-5=International Index of Erectile Function, short form; IPA=Index of Psychological Affect; IPQ-R=Revised Illness Perception Questionnaire; IWB=Index of Wellbeing; KDQ=Kidney Disease Questionnaire; KDQOL=Kidney Disease Quality of Life; KDQOL-36=Kidney Disease Quality of Life-36; KDQOL-LF=Kidney Disease Quality of Life-Long Form; KDS2=Kupfer-Detre System-2 questionnaire; KQ=Key question; LEVIL=London Evaluation of Illness survey; MFI-20=Multidimensional Fatigue Inventory; MOS-SPI=Medical Outcomes Study: Sleep Problem Index; MSAS-S=Memorial Symptom Assessment Scale Short Form; PAQOL=Patient Assessed Quality of Life; PedsQL=Pediatric Quality of Life; PHQ-2=Patient Health Questionnaire-2; PHQ-29=Patient Health Questionnaire-9; POMS=Profile of Mood States; PRAS=Patient Related Anxiety Scale; PROMIS= Patient Reported Outcomes Measurement Information System; PSQI=Pittsburgh Sleep Quality Index; PSS= Pittsburgh Symptom Score Index; PSS-4=Perceived Stress Scale; PTSS-10=Post-Traumatic Symptoms Scale-10; QLI=Quality of Life Index; QOLI=Quality of Life Inventory; RAND-36=RAND-36 Measure of Health-Related Quality of Life; RQLP=Renal Quality of Life Profile; SCID=Structured Clinical Interview for Depression; SEIQOL-DW=The Schedule of Evaluation of Individual Quality of Life–Direct Weighting; SF-12=Short Form-12; SF-36=Short Form 36; SF-6D=Short Form-6D; SF-MPQ=Short-Form McGill Pain Questionnaire; SIP=Sickness impact Profile; SPI-II=Sleep Problems Index II

Evidence table F7.1. Reliability and validity of tools most commonly used across studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis-ESRD Specific

Tool	Tool subscale	Reliability	Validity	Feasibility	Usability
KDQOL	Overall	Chronbach's alpha: 0.68-0.94[143] Reliable with no data [16, 17, 115, 136, 141, 166]	Valid with no data†[16, 17, 51, 90, 115, 166]	NR	NR
KDQOL	Dialysis staff encouragement	Test-retest:0.82[106]	NR	NR	NR
KDQOL	Effects of kidney disease	Test-retest:0.61[106]	NR	NR	NR
KDQOL	Cognitive function	Chronbach's alpha:: 0.72[108] Reliable with no data [103]	construct: cut off of 60 sensitivitiy = 52%, specificity 82%[103] Valid with no data†[154]	NR	NR
KDQOL	Composite?	Chronbach's alpha: 0.66 to 0.92[137]	construct: relative validity of sub-scales; correlation with SF-36 scales[103]	NR	NR
KDQOL	MCS	Chronbach's alpha: 0.72 to 0.79[170]	Valid with no data†[141, 170]	NR	Used in clinical practice
KDQOL	PCS	Chronbach's alpha: 0.72 to 0.79[170]	Valid with no data†[141, 170]	NR	Used in clinical practice
KDQOL	Burden/effects	Test-retest: 0.79/0.86[174]	Valid with no data†[174]	NR	
KDQOL	Symptoms/problems	Test-retest: 0.85[174]	Valid with no data†[174]	NR	NR
KDQOL	Sleep	Reliable with no data [104]	Valid with no data†[104]	NR	Used in clinical practice
KDQOL	All other subscales	NR	NR	NR	NR
KDQOL SF-36	Overall	Chronbach's alpha: 0.84[123] Reliable with no data [81, 107, 162, 173, 175]	Valid with no data†[61, 65, 68, 77, 107, 173, 175]	NR	NR
KDQOL SF-36	Pain	Chronbach's alpha: 0.83[108]	NR	NR	NR
KDQOL SF-36	MCS	Reliable with no data [122]	Valid with no data†[122]	NR	Used in clinical practice[53]
KDQOL SF-36	PCS	Reliable with no data [122]	Valid with no data†[122]	NR	Used in clinical practice[53]
KDQOL SF-36	Effect of kidney disease	NR	NR	NR	Used in clinical practice[27]
KDQOL SF-36	Burden/effects	NR	NR	NR	Used in clinical practice[27]
KDQOL SF-36	Symptoms/problems	NR	NR	NR	Used in clinical practice[27]
KDQOL SF-36	All other subscales	NR	NR	NR	NR
PedsQL	Overall		Valid with no data†[86]	NR	NR

Tool	Tool subscale	Reliability	Validity	Feasibility	Usability
PedsQL	Child ESRD module	Chronbach's alpha: 0.77[85]	Factor analysis: Confirmatory Factor Analysis (CFA) for child with ESRD self-report: CFI 0.94, RMSEA 0.062, and NNFI 0.93[85]	Patient burden: Minimal missing[85]	NR
PedsQL	Parent ESRD total score	Chronbach's alpha: 0.33[85]	Factor analysis: Confirmatory Factor Analysis for parent: CFI of 0.95, RMSEA 0.077, and NNFI 0.94[85]	Patient burden: Minimal missing[85]	NR
PedsQL	CDI	Reliable with no data [124]	Valid with no data†[124]	NR	NR
PedsQL	Generic scale	Reliable with no data [112, 124]	Valid with no data†[112]	NR	NR
PedsQL	End-stage renal disease scale (3.0)	NR	Valid with no data†[112]	NR	NR
PedsQL	All other subscales	NR	NR	NR	NR
DSI	Overall	Chronbach's alpha: 0.86[40] Chronbach's alpha: 0.87[102] Test-retest: 0.80[102] Test-retest: 0.52[178]	Content: noted good not reported[177] Valid with no data†[40, 102]	NR	NR
CHEQ	Overall	NR			
	Sleep quality	Chronbach's alpha: 0.75[94, 168]			
Home Dialysis Interview Schedule					
KDQ					
RQLP					
unnamed validated questionnaire specifically designed for use in ESRD					
Home Dialysis Interview Schedule					

Evidence table F7.2. Reliability and validity of tools most commonly used across studies utilizing instruments used to measure quality of life of people with ESRD treated by dialysis-ESRD validated

Tool	Tool subscale	Reliability	Validity	Feasibility	Usability
SF-36	Overall	Reliable with no data*[152]	Valid with no data*[152]	NR	NR
SF-36	MCS	Chronbach's alpha: 0.73[52] Test-retest: 0.9 or more[71] Reliable with no data*[40, 78, 160, 171]	Valid with no data†[40, 41, 78, 94, 121, 132, 134, 187]	NR	NR
SF-36	PCS	Chronbach's alpha: 0.78[52] Test-retest: 0.9 or more[71] Reliable with no data[40, 78, 160, 171]	Valid with no data†[12, 40, 41, 78, 94, 121, 132, 134, 187, 188]	NR	NR
SF-36	Social functioning	Test-retest: 0.62[106]	NR	NR	NR
SF-36	Vitality	Reliable with no data [94]	Valid with no data†[94]	NR	NR
SF-36	Bodily pain	Reliable with no data [171]	Valid with no data†[40]	NR	NR
SF-36	All other subscales	NR	NR	NR	NR
BDI	Overall	Chronbach's alpha: 0.85[119] Reliable with no data [5, 63, 131, 171]	Other construct: 62% Sensitivity and 81% specificity for diagnosing depression in HD patients[89] Valid with no data[5, 7, 60, 61, 63, 79, 88, 131]	NR	NR
BDI	Non-somatic scale	Chronbach's alpha: 0.86[119]	Valid with no data[119]	NR	NR
RAND-36	Overall	Reliable with no data [5]	Valid with no data†[5, 7, 110]	NR	NR
RAND-36	Physical functioning	NR	Valid with no data†[4]	Computer-adapted testing[4]	NR
RAND-36	Physical health composite	NR	Valid with no data†[4]	Computer-adapted testing[4]	NR
SF-12	Overall	NR	NR	NR	NR
SF-12	MCS	Chronbach's alpha: 0.87[174] Reliable with no data [21]	Valid with no data[21, 174]	NR	NR
SF-12	PCS	Chronbach's alpha: 0.84[174] Reliable with no data [21]	Valid with no data[21, 174]	NR	NR
HADS‡	Overall	Reliable with no data [62]	Valid with no data [62]	NR	NR
HADS‡	Subscales	NR	NR	NR	NR
PHQ-9	Overall	NR	NR	NR	NR
BDI-II	Overall	NR	NR	NR	NR

***** Explicitly state in the article that the tool was reliable but no data presented.

† Explicitly state in the article that the tool was valid but no data presented

‡ a later study questioned its clinical utility in patients with ESRD because a unified factor structure failed to emerge.

BDI = Beck Depression Inventory; BDI-II = Beck Depression Inventory II; CDI=Cognitive Depression Index; CFA=Confirmatory Factor Analysis; CFI=Comparative Fit Index; CHEQ = CHOICE Health Experience Questionnaire; DSI = Dialysis Symptom Index; ESRD = End-stage Renal Disease; ESRD = End-stage Renal Disease; HADS = Hospital Anxiety and Depression scale; KDQ=Kidney Disease Questionnaire; KDQOL = Kidney Disease Quality of Life; KDQOL; KDQOL-SF-36 = Kidney Disease Quality of Life Short Form 36; NR=not reported; MCS=Mental Composite Score; NNFI= non-normed fit index; PCS=Physical Composite Score; PedsQL = Pediatric Quality of Life Inventory; PHQ-9 = Physician's Health Questionnaire 9; RAND-36= RAND-36; RMSEA=root mean squared error of approximation; RQLP=Renal Quality of Life Profile; Measure of Health-Related Quality of Life; SF-12 = Short Form 12; SF-36 = Short Form 36

Evidence table F8.1. MCID in tools designed specifically for ESRD patients and for tools not specifically designed for ESRD patients but validated in that population—ESRD Specific

Tool	Tool subscale	MCID	Study population
KDQOL -36	MCS	1 point increase in PCS and MCS scores associated with significant HR mortality (0.97 for PCS, 0.99 for MCS) and hospitalization (0.99 for PCS and 1.00 for MCS)[53]	ESRD
KDQOL -36	PCS	1 point increase in PCS and MCS scores associated with significant HR mortality (0.97 for PCS, 0.99 for MCS) and hospitalization (0.99 for PCS and 1.00 for MCS)[53]	ESRD
PedsQL	Child ESRD module	4.36[189]	ESRD
PedsQL	Parent ESRD total score	4.5[189]	ESRD

Evidence table F8.2. MCID in tools designed specifically for ESRD patients and for tools not specifically designed for ESRD patients but validated in that population—ESRD validated

Tool	Tool subscale	MCID	Study population
SF-36	Overall	Each 10 unit decrease in score was associated impacts death HRs[75] "In many populations, SF-36 is regarded sensitive to change, but robust estimations of its minimal clinically important difference (MCID) and interpretability are lacking."[190]	Dialysis CKD stage 5
SF-36	Depression score	2 more likely to be depressed, but unclear where this cut off came from[111]	Hemodialysis patients
SF-36	MCS	change in score from 2-5[114]	Dialysis patients—MCID was derived from other populations: Osteoarthritis[191] Crohn's disease,[192] temporomandibular joint and muscle disorder,[193] and general[194]
SF-36	PCS	change in score from 2-5[114] For the physical component summary, MCID was estimated at 5.7 points"[190]	Dialysis patients—MCID was derived from other populations: Osteoarthritis[195] Crohn's disease,[192] temporomandibular joint and muscle disorder,[193] and general[194] CKD stage 5
RAND-36	Physical functioning	>=3.0 points for PHC and PF clinically meaningful because of their associations with subsequent morbidity and disability[4]	ESRD
RAND-36	Physical health composite	>=3.0 points for PHC and PF clinically meaningful because of their associations with subsequent morbidity and disability[4]	ESRD
BDI-II	Overall	17.5%[30]	Hemodialysis patients

BDI II – Beck Depression inventory II; CKD=chronic kidney disease; ESRD=end stage renal disease; KDQOL-36 = Kidney Disease Quality of Life, Short Form 36; MCID=Minimal clinically important difference; MCS = mental component summary score; PCS = physical component summary score; PedsQL = Pediatric Quality of Life Inventory; PF=Physical functioning; PHC=Physical health composite; RAND-36= RAND-36 Measure of Health-Related Quality of Life

Evidence Table F9.1. Validation methods for tools specifically designed for use in an ESRD population.

Tool	Author, Year	Subscale	General/ not defined	Construct	Content	Relative	Discriminant	Other	Population
KDQOL	Hays, 1994[196]	Overall	NR	Exploratory factor analysis	NR	known group differences	NR	NR	ESRD
KDQOL	Kurella, 2004[103]	Cognitive function	Compared to the gold standard: Modified Mini-Mental State Exam correlation coefficients, Bland-Altman plots, and receiver operating characteristic curves	NR	NR	NR	NR	NR	ESRD and CKD
KDQOL	Rao, 2000[137]	Symptoms/ problems Effects of kidney disease	NR	NR	NR	One-way analysis of variance F ratios	NR	NR	ESRD
KDQOL-36	Gorodetskaya, 2005[87]	Overall	NR	NR	NR	NR	NR	NR	CKD 4 and 5
KDQOL-36	Piepert, 2018[197]	Overall	NR	Correlations between SF-12 and KDQOL-36 scales and “known groups” analyses	NR	NR	NR	NR	Patients on dialysis
KDQOL-36	Ricardo, 2013[198]	Overall and subscales	NR	Correlation between the overall health rating score and each of the subscales score	NR	NR	NR	NR	Mild to moderate CKD

Tool	Author, Year	Subscale	General/ not defined	Construct	Content	Relative	Discriminant	Other	Population
PedsQL	Goldstien, 2008	ESRD module of version 3.0	NR	NR	NR	NR	Range of effect sizes	NR	Pediatric ESRD
PedsQL	Varni, 1999[199]	Overall	NR	Multitrait-multimethod strategy	NR	NR	Clinical: Known-groups methodology	NR	Pediatric cancer patients and their parents
PedsQL	Varni, 2001[200]	Generic, Version 4.0weis	NR	Known groups method: Multitrait-multimethod analysis	NR	NR	Multitrait-multimethod analysis	NR	Children and their parents: well-child visits; hospital specialty visits; hospital inpatient or outpatient in the last 3 months.
PedsQL	Varni, 2003[201]	Generic, Version 4.0	NR	Known groups method	NR	NR	NR	NR	Children and their parents
PedsQL	Varni, 2007[202]	Generic core, total score, physical health summary, emotional functioning	NR	Of patient proxy: Known groups method	NR	NR	NR	NR	Children 2 to 16 years (healthy and with a known chronic condition) old and their parents
DSI	Weisbord, 2004[177]	Overall	NR	NR	Clinical experts judge the clinical relevance and wording of each of the items	NR	NR	NR	Dialysis population
CHEQ	Wu, 2001[203]	Overall	NR	Multitrait-multimethod strategy	NR	NR	NR	Convergent: agreement between measures	ESRD

Evidence Table F9.2. Validation methods for tools validated in an ESRD population.*

Tool	Author, Year	Subscale	General/ not defined	Construct	Content	Relative	Discriminant	Other	Population
SF-36	McHorney, 1993[204]	Overall (8 subscales)	NR	NR	NR	Unadjusted general linear models to estimate mean differences between pairs: resulting F-statistic for each scale	Compared the convergent validity of each subscale to the other subscales,	Factorial validity: common-factor variance Convergent: correlations of each of the subscales with the hypothesized component(s)	General population of clinicians and patients
SF-36	Johansen, 2001[205]	Physical activity	NR	NR	NR	NR	NR	Study to establish validity in ESRD (PAR, PASE, HAP, and SF-36): Method not defined: compared physical tests to measure score.	ESRD
SF-36	Diaz-Buxo, 2000[206]	All scales	ANCOVA correlating SF-36 scores to laboratory variables	NR	NR	NR	NR	PD and HD patients	**SF-36 (cont)**
BDI	Ambrosini, 1991[207]	Overall	Criterion validity	NR	NR	NR	Criterion: Sensitivity, specificity and positive predictive powers comparing to the Kiddie-Schedule for Affective Disorders and Schizophrenia (K-SADS)	Outpatient adolescents	**BDI**

Tool	Author, Year	Subscale	General/ not defined	Construct	Content	Relative	Discriminant	Other	Population
BDI	Beck 1961[208]	Overall	Differences in each depth of depression category The Kruskal-Wallis One-way Analysis of Variance by Ranks, Mann-Whitney U test Correlation	NR	NR	NR		Psychiatric inpatient and outpatients	
BDI	Beck, 1988[209]	Overall	NR	NR	NR	NR	Statistical differences in scores between "normal" patients and those with psychiatric disorder. Statistical differences in scores between patients with different disorders.	Concurrent: Pearson product-moment correlations	Psychiatric and non-psychiatric populations (review article)
BDI	Gatewood-Colwell, 1989[210]	Overall	NR	Factor analysis	NR	NR	NR	Concurrent: Compared to the Geriatric Depression Scale, Pearson product moment coefficient.	Geriatric population

Tool	Author, Year	Subscale	General/ not defined	Construct	Content	Relative	Discriminant	Other	Population
BDI	Watnick, 2005[211]	Overall	Compared to The Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (gold standard), calculated PPV, NPV, sensitivity, specificity. Constructed ROC to detect differences	NR	NR	NR	NR	NR	Dialysis patients
RAND-36	Hays, 2005[212]	Overall	NR	Method not reported	NR	NR	NR	NR	General with some comparisons in an ESRD population
SF-12	Peipert, 2018[197]	MCS, PCS, symptoms/problems, effects	The SF-12 was used as a comparative standard in a ESRD population for the KDQOL-36	NR	NR	NR	NR	NR	ESRD
SF-12	Resnick, 2001[213]	Overall	NR	confirmatory factor analysis Hypothesis testing	NR	NR	NR	NR	Independent living older adults in a retirement community

Tool	Author, Year	Subscale	General/ not defined	Construct	Content	Relative	Discriminant	Other	Population
SF-12	Ware, 1996[214]	MCS and PCS	NR	Known groups validity	NR	F-statistics compared	NR	NR	General population with chronic diseases
HADS	Bjelland, 2002[215]	Overall	NR	NR	NR	NR	NR	Concurrent: Correlation with BDI, General Health Questionnaire, The Clinical Anxiety Scale, Spielberger's State-Trait Anxiety Inventory	General Population
PHQ-9	Kroenke, 2001[216]	Overall	NR	Examined functional status, disability days, symptom-relates difficulty, and healthcare utilization	NR	NR	NR	Criterion: ROC analysis	General Population

Tool	Author, Year	Subscale	General/ not defined	Construct	Content	Relative	Discriminant	Other	Population
PHQ-9	Watnick, 2005[211]	Overall	Compared to The Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (gold standard), calculated PPV, NPV, sensitivity, specificity. Constructed ROC to detect differences	NR	NR	NR	NR	NR	Dialysis patients
BDI-II	Button, 2015[217]	Overall	Cut-point validity	NR	NR	NR	NR	Cut-point: kappa coefficients to assess the agreement between the dichotomized global ratings and the classifications predicted from the optimal ROC cut-points	General

* Content and face validity were not reported in any of the studies on validation of this set of tools.

ANCOVA=Analysis of Covariance; BDI=Beck's Depression Inventory; BDI-II=Beck's Depression Inventory-II; CHEQ=CHOICE Health Experience Questionnaire; CKD=chronic kidney disease; DSI=Dialysis Symptom Index; ESRD=end stage renal disease; HADS=Hospital Anxiety and Depression Scale; HAP=Human Activity Profile; HD=hemodialysis; K-SADS=Kiddie-Schedule for Affective Disorders and Schizophrenia ; KDQOL=Kidney Disease Quality of Life; KDQOL-36=Kidney Disease Quality of Life-36; MCS=Mental Composite Score; NPV=Negative Predictive Value; PAR=Physical Activity Recall questionnaire; PASE=Physical Activity Scale for the Elderly;

PCS=Physical Composite Score; PD=peritoneal dialysis; PedsQL=Pediatric Quality of Life; PHQ-9=Patient Health Questionnaire-9; PPV=Positive Predictive Value; RAND-36=RAND-36 Measure of Health-Related Quality of Life; ROC=Receiver Operating Characteristic; SF-12=Short Form-12; SF-36=Short Form-36

Evidence Table F10. Placebo effect.

Author, year	RCT	Arm	KDQ, total	KDQ, physical symptoms	KDQ, fatigue	KDQ, depression				
Brass, 2001[24]	RCT	Placebo	5-5.29	4.2-4.88	4.9-5.14	5.38-5.53				
		l-carnitine	4.83-5.27	4.23-5.04	4.65-5.09	5.07-5.36				
Author, year	**RCT**	**Arm**	**RLS**							
Sloand, 2004[35]	RCT	Placebo	9-9							
		Iron infusion	7-5							
Author, year	**RCT**	**Arm**	**SF-36 Physical function**	**SF-36 Role physical**	**SF-36 Bodily pain**	**SF-36 General health**	**SF-36 vitality**	**SF-36 mental health**	**SF-36 PCS**	**SF-36 MCS**
Steiber, 2006[37]	RCT	Placebo	30.3-29.2	40.6-40.1	50.2-47.9	40.3-39.2	46.3-48	49.5-46.2	37.3-35.7	49.6-51.8
		L-carnetine	37-35.9	33.9-43.2	42.9-50.9	42.9-43.2	44.1-46.1	50.2-51.4	36.1-39.7	49.7-54.2

KDQ=Kidney Disease Questionnaire; MCS=Mental Composite Score; PCS=Physical Composite Score; RCT=randomized controlled trial; SF-36=Short Form-36

References

1. Chertow GM, Levin NW, Beck GJ, et al. In-center hemodialysis six times per week versus three times per week. New England journal of medicine. 2010;363(24):2287-300. doi: 10.1056/NEJMoa1001593. PMID: CN-00771307.

2. Chertow GM, Levin NW, Beck GJ, et al. Long-Term Effects of Frequent In-Center Hemodialysis. Journal of the American Society of Nephrology : JASN. 2016 Jun;27(6):1830-6. doi: 10.1681/asn.2015040426. PMID: 26467779.

3. Garg AX, Suri RS, Eggers P, et al. Patients receiving frequent hemodialysis have better health-related quality of life compared to patients receiving conventional hemodialysis. Kidney international. 2017 Mar;91(3):746-54. doi: 10.1016/j.kint.2016.10.033. PMID: 28094031.

4. Hall YN, Larive B, Painter P, et al. Effects of six versus three times per week hemodialysis on physical performance, health, and functioning: Frequent Hemodialysis Network (FHN) randomized trials. Clinical journal of the American Society of Nephrology : CJASN. 2012 May;7(5):782-94. doi: 10.2215/cjn.10601011. PMID: 22422538.

5. Lo JC, Beck GJ, Kaysen GA, et al. Hyperprolactinemia in end-stage renal disease and effects of frequent hemodialysis. Hemodialysis international International Symposium on Home Hemodialysis. 2017 Apr;21(2):190-6. doi: 10.1111/hdi.12489. PMID: 27774730.

6. Lo JC, Beck GJ, Kaysen GA, et al. Thyroid function in end stage renal disease and effects of frequent hemodialysis. Hemodialysis international International Symposium on Home Hemodialysis. 2017 Oct;21(4):534-41. doi: 10.1111/hdi.12527. PMID: 28301073.

7. Unruh ML, Larive B, Chertow GM, et al. Effects of 6-times-weekly versus 3-times-weekly hemodialysis on depressive symptoms and self-reported mental health: Frequent Hemodialysis Network (FHN) Trials. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2013 May;61(5):748-58. doi: 10.1053/j.ajkd.2012.11.047. PMID: 23332990.

8. Rocco MV, Larive B, Eggers PW, et al. Baseline characteristics of participants in the Frequent Hemodialysis Network (FHN) daily and nocturnal trials. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2011 Jan;57(1):90-100. doi: 10.1053/j.ajkd.2010.08.024. PMID: 21122961.

9. Rocco MV, Daugirdas JT, Greene T, et al. Long-term Effects of Frequent Nocturnal Hemodialysis on Mortality: the Frequent Hemodialysis Network (FHN) Nocturnal Trial. American journal of kidney diseases. 2015;66(3):459-68. doi: 10.1053/j.ajkd.2015.02.331. PMID: CN-01107239.

10. Rocco MV, Lockridge RS, Beck GJ, et al. The effects of frequent nocturnal home hemodialysis: the Frequent Hemodialysis Network Nocturnal Trial. Kidney international. 2011;80(10):1080-91. doi: 10.1038/ki.2011.213. PMID: CN-00831189.

11. Unruh ML, Larive B, Eggers PW, et al. The effect of frequent hemodialysis on self-reported sleep quality: Frequent Hemodialysis Network Trials. Nephrology, dialysis, transplantation : official publication of the European Dialysis

and Transplant Association - European Renal Association. 2016 Jun;31(6):984-91. doi: 10.1093/ndt/gfw062. PMID: 27190356.

12. Kaysen GA, Larive B, Painter P, et al. Baseline physical performance, health, and functioning of participants in the Frequent Hemodialysis Network (FHN) trial. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2011 Jan;57(1):101-12. doi: 10.1053/j.ajkd.2010.08.021. PMID: 21184919.

13. Burrowes JD, Larive B, Chertow GM, et al. Self-reported appetite, hospitalization and death in haemodialysis patients: findings from the Hemodialysis (HEMO) Study. Nephrology, dialysis, transplantation : official publication of the European Dialysis and Transplant Association - European Renal Association. 2005 Dec;20(12):2765-74. doi: 10.1093/ndt/gfi132. PMID: 16204298.

14. Jhamb M, Pike F, Ramer S, et al. Impact of fatigue on outcomes in the hemodialysis (HEMO) study. American journal of nephrology. 2011;33(6):515-23. doi: 10.1159/000328004. PMID: 21555875.

15. Liang KV, Pike F, Argyropoulos C, et al. Heart failure severity scoring system and medical- and health-related quality-of-life outcomes: the HEMO study. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2011 Jul;58(1):84-92. doi: 10.1053/j.ajkd.2011.01.029. PMID: 21549465.

16. Unruh M, Benz R, Greene T, et al. Effects of hemodialysis dose and membrane flux on health-related quality of life in the HEMO Study. Kidney international. 2004;66(1):355-66. doi: 10.1111/j.1523-1755.2004.00738.x. PMID: CN-00489824.

17. Unruh M, Yan G, Radeva M, et al. Bias in assessment of health-related quality of life in a hemodialysis population: a comparison of self-administered and interviewer-administered surveys in the HEMO study. Journal of the American Society of Nephrology : JASN. 2003 Aug;14(8):2132-41. PMID: 12874468.

18. Crews DC, Delaney AM, Walker Taylor JL, et al. Pilot Intervention Addressing Social Support and Functioning of Low Socioeconomic Status Older Adults With ESRD: The Seniors Optimizing Community Integration to Advance Better Living with ESRD (SOCIABLE)Study. Kidney Medicine. 2019;1(1):13-20. doi: 10.1016/j.xkme.2018.12.001.

19. Aramwit P, Keongamaroon O, Siritientong T, et al. Sericin cream reduces pruritus in hemodialysis patients: a randomized, double-blind, placebo-controlled experimental study. BMC nephrology. 2012 Sep 24;13:119. doi: 10.1186/1471-2369-13-119. PMID: 23006933.

20. Begum R, Belury MA, Burgess JR, et al. Supplementation with n-3 and n-6 polyunsaturated fatty acids: effects on lipoxygenase activity and clinical symptoms of pruritus in hemodialysis patients. Journal of renal nutrition. 2004;14(4):233-41. PMID: CN-00551341.

21. Belayev LY, Mor MK, Sevick MA, et al. Longitudinal associations of depressive symptoms and pain with quality of life in patients receiving chronic hemodialysis. Hemodialysis international International Symposium on Home Hemodialysis. 2015 Apr;19(2):216-24. doi: 10.1111/hdi.12247. PMID: 25403142.

22. Berman N, Reid MC, Teresi J, et al. More with Less: A Trial of Reduced-Intensity Treatment in Transplant-Ineligible Hemodialysis Patients. Journal of palliative medicine. 2016

May;19(5):503-8. doi: 10.1089/jpm.2015.0338. PMID: 27139523.

23. Birdee GS, Rothman RL, Sohl SJ, et al. Feasibility and Safety of Intradialysis Yoga and Education in Maintenance Hemodialysis Patients. Journal of renal nutrition : the official journal of the Council on Renal Nutrition of the National Kidney Foundation. 2015 Sep;25(5):445-53. doi: 10.1053/j.jrn.2015.02.004. PMID: 25869658.

24. Brass EP, Adler S, Sietsema KE, et al. Intravenous L-carnitine increases plasma carnitine, reduces fatigue, and may preserve exercise capacity in hemodialysis patients. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2001 May;37(5):1018-28. PMID: 11325685.

25. Burrowes JD, Russell GB, Unruh M, et al. Is nutritional status associated with self-reported sleep quality in the HEMO study cohort? Journal of renal nutrition : the official journal of the Council on Renal Nutrition of the National Kidney Foundation. 2012 Sep;22(5):461-71. doi: 10.1053/j.jrn.2011.08.004. PMID: 22056151.

26. Chan KN, Chen Y, Lit Y, et al. A randomized controlled trial of exercise to prevent muscle mass and functional loss in elderly hemodialysis patients: Rationale, study design, and baseline sample. Contemporary clinical trials communications. 2019;15((Chan K.N., knchan@stanford.edu; Myers J.N., drj993@aol.com) Cardiology Division, Veterans Affairs Palo Alto Health Care System, United States). doi: 10.1016/j.conctc.2019.100365.

27. Dember LM, Lacson E, Jr., Brunelli SM, et al. The TiME Trial: A Fully Embedded, Cluster-Randomized, Pragmatic Trial of Hemodialysis Session Duration. Journal of the American Society of Nephrology : JASN. 2019 May;30(5):890-903. doi: 10.1681/asn.2018090945. PMID: 31000566.

28. Deniston OL, Luscombe FA, Buesching DP, et al. Effect of long-term epoetin beta therapy on the quality of life of hemodialysis patients. ASAIO Trans. 1990 Jul-Sep;36(3):M157-60. PMID: 2123632.

29. Duggal V, Hussein WF, Reiterman M, et al. The effect of blood flow rate on dialysis recovery time in patients undergoing maintenance hemodialysis: A prospective, parallel-group, randomized controlled trial. Hemodialysis international International Symposium on Home Hemodialysis. 2019 Mar 4. doi: 10.1111/hdi.12741. PMID: 30834652.

30. Mehrotra R, Cukor D, Unruh M, et al. Comparative efficacy of therapies for treatment of depression for patients undergoing maintenance hemodialysis. Annals of Internal Medicine. 2019;170(6):369-79. doi: 10.1093/ndt/gfr778.

31. Natarajan R, Pechenyak B, Vyas U, et al. Randomized controlled trial of strain-specific probiotic formulation (Renadyl) in dialysis patients. BioMed research international. 2014;2014:568571. doi: 10.1155/2014/568571. PMID: 25147806.

32. Pai AB, Boyd A, Chavez A, et al. Health-related quality of life is maintained in hemodialysis patients receiving pharmaceutical care: a 2-year randomized, controlled study. Hemodialysis international International Symposium on Home Hemodialysis. 2009 Jan;13(1):72-9. doi: 10.1111/j.1542-4758.2009.00328.x. PMID: 19210281.

33. Rodrigue JR, Mandelbrot DA, Pavlakis M. A psychological intervention to improve quality of life and reduce psychological distress in adults awaiting kidney

transplantation. Nephrology, dialysis, transplantation : official publication of the European Dialysis and Transplant Association - European Renal Association. 2011 Feb;26(2):709-15. doi: 10.1093/ndt/gfq382. PMID: 20603243.

34. Sloan RS, Kastan B, Rice SI, et al. Quality of life during and between hemodialysis treatments: role of L-carnitine supplementation. American journal of kidney diseases : the official journal of the National Kidney Foundation. 1998 Aug;32(2):265-72. PMID: 9708611.

35. Sloand JA, Shelly MA, Feigin A, et al. A double-blind, placebo-controlled trial of intravenous iron dextran therapy in patients with ESRD and restless legs syndrome. American journal of kidney diseases. 2004;43(4):663-70. PMID: CN-00461755.

36. Song MK, Ward SE, Fine JP, et al. Advance care planning and end-of-life decision making in dialysis: a randomized controlled trial targeting patients and their surrogates. American journal of kidney diseases. 2015;66(5):813-22. doi: 10.1053/j.ajkd.2015.05.018. PMID: CN-01133114.

37. Steiber AL, Davis AT, Spry L, et al. Carnitine treatment improved quality-of-life measure in a sample of Midwestern hemodialysis patients. JPEN J Parenter Enteral Nutr. 2006 Jan-Feb;30(1):10-5. doi: 10.1177/014860710603000110. PMID: 16387893.

38. Tawney KW, Tawney PJ, Hladik G, et al. The life readiness program: a physical rehabilitation program for patients on hemodialysis. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2000 Sep;36(3):581-91. doi: 10.1053/ajkd.2000.16197. PMID: 10977791.

39. Eknoyan G, Beck GJ, Cheung AK, et al. Effect of dialysis dose and membrane flux in maintenance hemodialysis. N Engl J Med. 2002 Dec 19;347(25):2010-9. doi: 10.1056/NEJMoa021583. PMID: 12490682.

40. Abdel-Kader K, Unruh ML, Weisbord SD. Symptom burden, depression, and quality of life in chronic and end-stage kidney disease. Clinical journal of the American Society of Nephrology : CJASN. 2009 Jun;4(6):1057-64. doi: 10.2215/cjn.00430109. PMID: 19423570.

41. Abdel-Kader K, Myaskovsky L, Karpov I, et al. Individual quality of life in chronic kidney disease: influence of age and dialysis modality. Clinical journal of the American Society of Nephrology : CJASN. 2009 Apr;4(4):711-8. doi: 10.2215/cjn.05191008. PMID: 19339411.

42. Abreo AP, Dalrymple LS, Chertow GM, et al. Predialysis volume overload and patient-reported sleep duration and quality in patients receiving hemodialysis. Hemodialysis international International Symposium on Home Hemodialysis. 2017 Jan;21(1):133-41. doi: 10.1111/hdi.12446. PMID: 27346666.

43. Agarwal R, Light RP. Sleep and activity in chronic kidney disease: a longitudinal study. Clinical journal of the American Society of Nephrology : CJASN. 2011 Jun;6(6):1258-65. doi: 10.2215/cjn.10581110. PMID: 21415310.

44. Agganis BT, Weiner DE, Giang LM, et al. Depression and cognitive function in maintenance hemodialysis patients. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2010 Oct;56(4):704-12. doi: 10.1053/j.ajkd.2010.04.018. PMID: 20673602.

45. Allen KL, Miskulin D, Yan G, et al. Association of nutritional markers with physical and mental health status in

prevalent hemodialysis patients from the HEMO study. Journal of renal nutrition : the official journal of the Council on Renal Nutrition of the National Kidney Foundation. 2002 Jul;12(3):160-9. doi: 10.1053/jren.2002.33512. PMID: 12105813.

46. Anand S, Kaysen GA, Chertow GM, et al. Vitamin D deficiency, self-reported physical activity and health-related quality of life: the Comprehensive Dialysis Study. Nephrology, dialysis, transplantation : official publication of the European Dialysis and Transplant Association - European Renal Association. 2011 Nov;26(11):3683-8. doi: 10.1093/ndt/gfr098. PMID: 21430182.

47. Atcherson E. The quality of life: a study of hemodialysis patients. Health Soc Work. 1978 Nov;3(4):54-69. PMID: 738674.

48. Barakzoy AS, Moss AH. Efficacy of the world health organization analgesic ladder to treat pain in end-stage renal disease. Journal of the American Society of Nephrology : JASN. 2006 Nov;17(11):3198-203. doi: 10.1681/asn.2006050477. PMID: 16988057.

49. Barrett BJ, Vavasour HM, Major A, et al. Clinical and psychological correlates of somatic symptoms in patients on dialysis. Nephron. 1990;55(1):10-5. doi: 10.1159/000185911. PMID: 2352574.

50. Bleyer AJ, Kidd K, Johnson E, et al. Quality of life in patients with autosomal dominant tubulointerstitial kidney disease. Clinical nephrology. 2019 Oct 7. doi: 10.5414/cn109842. PMID: 31587753.

51. Bremer BA, McCauley CR, Wrona RM, et al. Quality of life in end-stage renal disease: a reexamination. American journal of kidney diseases : the official journal of the National Kidney Foundation. 1989 Mar;13(3):200-9. PMID: 2493190.

52. Bremer BA, Wert KM, Durica AL, et al. Neuropsychological, physical, and psychosocial functioning of individuals with end-stage renal disease. Ann Behav Med. 1997 Fall;19(4):348-52. doi: 10.1007/bf02895153. PMID: 9706361.

53. Broers NJ, Usvyat LA, Kooman JP, et al. Quality of Life in Dialysis Patients: A Retrospective Cohort Study. Nephron. 2015;130(2):105-12. doi: 10.1159/000430814. PMID: 26044799.

54. Bullen A, Awdishu L, Lester W, et al. Effect of Acupuncture or Massage on Health-Related Quality of Life of Hemodialysis Patients. J Altern Complement Med. 2018 Nov;24(11):1069-75. doi: 10.1089/acm.2018.0030. PMID: 29851511.

55. Cardone KE, Manley HJ, Grabe DW, et al. Quantifying home medication regimen changes and quality of life in patients receiving nocturnal home hemodialysis. Hemodialysis international International Symposium on Home Hemodialysis. 2011 Apr;15(2):234-42. doi: 10.1111/j.1542-4758.2011.00539.x. PMID: 21395973.

56. Chiu YW, Teitelbaum I, Misra M, et al. Pill burden, adherence, hyperphosphatemia, and quality of life in maintenance dialysis patients. Clinical journal of the American Society of Nephrology : CJASN. 2009 Jun;4(6):1089-96. doi: 10.2215/cjn.00290109. PMID: 19423571.

57. Christensen AJ, Holman Jr JM, Turner CW, et al. Quality of life in end-stage renal disease: Influence of renal transplantation. Clinical transplantation. 1989;3(1):46-53.

58. Christensen AJ, Holman Jr JM, Turner CW, et al. A prospective study of quality of life in end-stage renal disease: Effects of cadaveric renal transplantation. Clinical transplantation. 1991;5(1):40-7.

59. Cohen DE, Lee A, Sibbel S, et al. Use of the KDQOL-36 for assessment of health-related quality of life among dialysis patients in the United States. BMC nephrology. 2019 Apr 1;20(1):112. doi: 10.1186/s12882-019-1295-0. PMID: 30935377.

60. Cukor D, Coplan J, Brown C, et al. Depression and anxiety in urban hemodialysis patients. Clinical journal of the American Society of Nephrology : CJASN. 2007 May;2(3):484-90. doi: 10.2215/cjn.00040107. PMID: 17699455.

61. Cukor D, Coplan J, Brown C, et al. Course of depression and anxiety diagnosis in patients treated with hemodialysis: a 16-month follow-up. Clinical journal of the American Society of Nephrology : CJASN. 2008 Nov;3(6):1752-8. doi: 10.2215/cjn.01120308. PMID: 18684897.

62. Cukor D, Coplan J, Brown C, et al. Anxiety disorders in adults treated by hemodialysis: a single-center study. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2008 Jul;52(1):128-36. doi: 10.1053/j.ajkd.2008.02.300. PMID: 18440682.

63. Cukor D, Ver Halen N, Asher DR, et al. Psychosocial intervention improves depression, quality of life, and fluid adherence in hemodialysis. Journal of the American Society of Nephrology : JASN. 2014 Jan;25(1):196-206. doi: 10.1681/asn.2012111134. PMID: 24115478.

64. Curtin RB, Bultman DC, Thomas-Hawkins C, et al. Hemodialysis patients' symptom experiences: effects on physical and mental functioning. Nephrology nursing journal : journal of the American Nephrology Nurses' Association. 2002 Dec;29(6):562, 7-74; discussion 75, 98. PMID: 12596605.

65. Debnath S, O'Connor J, Hura C, et al. Quality of Life and Depression Among Mexican Americans on Hemodialysis: A Preliminary Report. Therapeutic apheresis and dialysis : official peer-reviewed journal of the International Society for Apheresis, the Japanese Society for Apheresis, the Japanese Society for Dialysis Therapy. 2018 Apr;22(2):166-70. doi: 10.1111/1744-9987.12642. PMID: 29193825.

66. Delano BG. Improvements in quality of life following treatment with r-HuEPO in anemic hemodialysis patients. American journal of kidney diseases : the official journal of the National Kidney Foundation. 1989 Aug;14(2 Suppl 1):14-8. PMID: 2757025.

67. Deniston OL, Carpentier-Alting P, Kneisley J, et al. Assessment of quality of life in end-stage renal disease. Health Serv Res. 1989 Oct;24(4):555-78. PMID: 2807935.

68. Domenick Sridharan N, Fish L, Yu L, et al. The associations of hemodialysis access type and access satisfaction with health-related quality of life. Journal of vascular surgery. 2018 Jan;67(1):229-35. doi: 10.1016/j.jvs.2017.05.131. PMID: 28822665.

69. Drayer RA, Piraino B, Reynolds CF, 3rd, et al. Characteristics of depression in hemodialysis patients: symptoms, quality of life and mortality risk. Gen Hosp Psychiatry. 2006 Jul-Aug;28(4):306-12. doi: 10.1016/j.genhosppsych.2006.03.008. PMID: 16814629.

70. Duque MI, Thevarajah S, Chan YH, et al. Uremic pruritus is associated with higher kt/V and serum calcium

concentration. Clinical nephrology. 2006 Sep;66(3):184-91. PMID: 16995341.

71. Dwyer JT, Larive B, Leung J, et al. Nutritional status affects quality of life in Hemodialysis (HEMO) Study patients at baseline. Journal of renal nutrition : the official journal of the Council on Renal Nutrition of the National Kidney Foundation. 2002 Oct;12(4):213-23. PMID: 12382213.

72. Liu T, Liang KV, Rosenbaum A, et al. Peripheral vascular disease severity impacts health outcomes and health-related quality of life in maintenance hemodialysis patients in the HEMO Study. Nephrology, dialysis, transplantation : official publication of the European Dialysis and Transplant Association - European Renal Association. 2012 Jul;27(7):2929-36. doi: 10.1093/ndt/gfr760. PMID: 22273665.

73. Evans RW, Rader B, Manninen DL. The quality of life of hemodialysis recipients treated with recombinant human erythropoietin. Cooperative Multicenter EPO Clinical Trial Group. Jama. 1990 Feb 9;263(6):825-30. PMID: 2404150.

74. Evans RW. Recombinant human erythropoietin and the quality of life of end-stage renal disease patients: a comparative analysis. American journal of kidney diseases : the official journal of the National Kidney Foundation. 1991 Oct;18(4 Suppl 1):62-70. PMID: 1928082.

75. Feroze U, Noori N, Kovesdy CP, et al. Quality-of-life and mortality in hemodialysis patients: roles of race and nutritional status. Clinical journal of the American Society of Nephrology : CJASN. 2011 May;6(5):1100-11. doi: 10.2215/cjn.07690910. PMID: 21527646.

76. Feroze U, Martin D, Kalantar-Zadeh K, et al. Anxiety and depression in maintenance dialysis patients: preliminary data of a cross-sectional study and brief literature review. Journal of renal nutrition : the official journal of the Council on Renal Nutrition of the National Kidney Foundation. 2012 Jan;22(1):207-10. doi: 10.1053/j.jrn.2011.10.009. PMID: 22200444.

77. Finkelstein FO, Story K, Firanek C, et al. Health-related quality of life and hemoglobin levels in chronic kidney disease patients. Clinical journal of the American Society of Nephrology : CJASN. 2009 Jan;4(1):33-8. doi: 10.2215/cjn.00630208. PMID: 18987300.

78. Finkelstein FO, Schiller B, Daoui R, et al. At-home short daily hemodialysis improves the long-term health-related quality of life. Kidney international. 2012 Sep;82(5):561-9. doi: 10.1038/ki.2012.168. PMID: 22622497.

79. Jaber BL, Lee Y, Collins AJ, et al. Effect of daily hemodialysis on depressive symptoms and postdialysis recovery time: interim report from the FREEDOM (Following Rehabilitation, Economics and Everyday-Dialysis Outcome Measurements) Study. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2010 Sep;56(3):531-9. doi: 10.1053/j.ajkd.2010.04.019. PMID: 20673601.

80. Fowler C, Baas LS. Illness representations in patients with chronic kidney disease on maintenance hemodialysis. Nephrology nursing journal : journal of the American Nephrology Nurses' Association. 2006 Mar-Apr;33(2):173-4, 9-86. PMID: 16613412.

81. Fukuhara S, Lopes AA, Bragg-Gresham JL, et al. Health-related quality of life among dialysis patients on three continents: the Dialysis Outcomes and Practice Patterns Study. Kidney international. 2003 Nov;64(5):1903-10. doi: 10.1046/j.1523-1755.2003.00289.x. PMID: 14531826.

82. Gabbay E, Meyer KB, Griffith JL, et al. Temporal trends in health-related quality of life among hemodialysis patients in the United States. Clinical journal of the American Society of Nephrology : CJASN. 2010 Feb;5(2):261-7. doi: 10.2215/cjn.03890609. PMID: 20019114.

83. Gerson A, Hwang W, Fiorenza J, et al. Anemia and health-related quality of life in adolescents with chronic kidney disease. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2004 Dec;44(6):1017-23. PMID: 15558522.

84. Goldstein SL, Graham N, Burwinkle T, et al. Health-related quality of life in pediatric patients with ESRD. Pediatric nephrology (Berlin, Germany). 2006 Jun;21(6):846-50. doi: 10.1007/s00467-006-0081-y. PMID: 16703376.

85. Goldstein SL, Graham N, Warady BA, et al. Measuring health-related quality of life in children with ESRD: performance of the generic and ESRD-specific instrument of the Pediatric Quality of Life Inventory (PedsQL). American journal of kidney diseases : the official journal of the National Kidney Foundation. 2008 Feb;51(2):285-97. doi: 10.1053/j.ajkd.2007.09.021. PMID: 18215706.

86. Goldstein SL, Rosburg NM, Warady BA, et al. Pediatric end stage renal disease health-related quality of life differs by modality: a PedsQL ESRD analysis. Pediatric nephrology (Berlin, Germany). 2009 Aug;24(8):1553-60. doi: 10.1007/s00467-009-1174-1. PMID: 19421787.

87. Gorodetskaya I, Zenios S, McCulloch CE, et al. Health-related quality of life and estimates of utility in chronic kidney disease. Kidney international. 2005 Dec;68(6):2801-8. doi: 10.1111/j.1523-1755.2005.00752.x. PMID: 16316356.

88. Harris TJ, Nazir R, Khetpal P, et al. Pain, sleep disturbance and survival in hemodialysis patients. Nephrology, dialysis, transplantation : official publication of the European Dialysis and Transplant Association - European Renal Association. 2012 Feb;27(2):758-65. doi: 10.1093/ndt/gfr355. PMID: 21771748.

89. Hedayati SS, Bosworth HB, Kuchibhatla M, et al. The predictive value of self-report scales compared with physician diagnosis of depression in hemodialysis patients. Kidney international. 2006 May;69(9):1662-8. doi: 10.1038/sj.ki.5000308. PMID: 16598203.

90. Hernandez R, Burrows B, Wilund K, et al. Feasibility of an Internet-based positive psychological intervention for hemodialysis patients with symptoms of depression. Soc Work Health Care. 2018 Nov-Dec;57(10):864-79. doi: 10.1080/00981389.2018.1523268. PMID: 30277449.

91. Hicks LS, Cleary PD, Epstein AM, et al. Differences in health-related quality of life and treatment preferences among black and white patients with end-stage renal disease. Quality of life research : an international journal of quality of life aspects of treatment, care and rehabilitation. 2004 Aug;13(6):1129-37. doi: 10.1023/B:QURE.0000031350.56924.cc. PMID: 15287279.

92. Hornberger JC, Redelmeier DA, Petersen J. Variability among methods to assess patients' well-being and consequent effect on a cost-effectiveness analysis. J Clin Epidemiol. 1992 May;45(5):505-12. PMID: 1588356.

93. Hynes DM, Fischer M, Fitzgibbon M, et al. Integrating a Medical Home in an Outpatient Dialysis Setting: Effects on Health-Related Quality of Life. Journal of general internal

medicine. 2019 Jul 24. doi: 10.1007/s11606-019-05154-9. PMID: 31342329.

94. Jhamb M, Argyropoulos C, Steel JL, et al. Correlates and outcomes of fatigue among incident dialysis patients. Clinical journal of the American Society of Nephrology : CJASN. 2009 Nov;4(11):1779-86. doi: 10.2215/cjn.00190109. PMID: 19808226.

95. Johansen KL, Chertow GM. Chronic kidney disease mineral bone disorder and health-related quality of life among incident end-stage renal-disease patients. Journal of renal nutrition : the official journal of the Council on Renal Nutrition of the National Kidney Foundation. 2007 Sep;17(5):305-13. doi: 10.1053/j.jrn.2007.06.005. PMID: 17720099.

96. Johnson JP, McCauley CR, Copley JB. The quality of life of hemodialysis and transplant patients. Kidney international. 1982 Sep;22(3):286-91. PMID: 6757524.

97. Julius M, Hawthorne VM, Carpentier-Alting P, et al. Independence in activities of daily living for end-stage renal disease patients: biomedical and demographic correlates. American journal of kidney diseases : the official journal of the National Kidney Foundation. 1989 Jan;13(1):61-9. PMID: 2643311.

98. Kimmel PL, Peterson RA, Weihs KL, et al. Aspects of quality of life in hemodialysis patients. Journal of the American Society of Nephrology : JASN. 1995 Nov;6(5):1418-26. PMID: 8589317.

99. Kimmel PL, Peterson RA, Weihs KL, et al. Psychosocial factors, behavioral compliance and survival in urban hemodialysis patients. Kidney international. 1998 Jul;54(1):245-54. doi: 10.1046/j.1523-1755.1998.00989.x. PMID: 9648085.

100. Kimmel PL, Emont SL, Newmann JM, et al. ESRD patient quality of life: symptoms, spiritual beliefs, psychosocial factors, and ethnicity. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2003 Oct;42(4):713-21. PMID: 14520621.

101. Ko B, Khurana A, Spencer J, et al. Religious beliefs and quality of life in an American inner-city haemodialysis population. Nephrology, dialysis, transplantation : official publication of the European Dialysis and Transplant Association - European Renal Association. 2007 Oct;22(10):2985-90. doi: 10.1093/ndt/gfm341. PMID: 17597086.

102. Kring DL, Crane PB. Factors affecting quality of life in persons on hemodialysis. Nephrology nursing journal : journal of the American Nephrology Nurses' Association. 2009 Jan-Feb;36(1):15-24, 55. PMID: 19271620.

103. Kurella M, Luan J, Yaffe K, et al. Validation of the Kidney Disease Quality of Life (KDQOL) cognitive function subscale. Kidney international. 2004 Dec;66(6):2361-7. doi: 10.1111/j.1523-1755.2004.66024.x. PMID: 15569327.

104. Kurella M, Luan J, Lash JP, et al. Self-assessed sleep quality in chronic kidney disease. International urology and nephrology. 2005;37(1):159-65. doi: 10.1007/s11255-004-4654-z. PMID: 16132780.

105. Kutner NG, Devins GM. A comparison of the quality of life reported by elderly whites and elderly blacks on dialysis. Geriatr Nephrol Urol. 1998;8(2):77-83. PMID: 9893215.

106. Kutner NG, Zhang R, McClellan WM. Patient-reported quality of life early in dialysis treatment: effects associated with usual exercise activity. Nephrology nursing journal :

journal of the American Nephrology Nurses' Association. 2000 Aug;27(4):357-67; discussion 68, 424. PMID: 11276627.

107. Kutner NG, Zhang R, Brogan D. Race, gender, and incident dialysis patients' reported health status and quality of life. Journal of the American Society of Nephrology : JASN. 2005 May;16(5):1440-8. doi: 10.1681/asn.2004080639. PMID: 15800127.

108. Kutner NG, Zhang R, Huang Y, et al. Association of sleep difficulty with Kidney Disease Quality of Life cognitive function score reported by patients who recently started dialysis. Clinical journal of the American Society of Nephrology : CJASN. 2007 Mar;2(2):284-9. doi: 10.2215/cjn.03000906. PMID: 17699426.

109. Kutner NG, Zhang R, Huang Y, et al. Depressed mood, usual activity level, and continued employment after starting dialysis. Clinical journal of the American Society of Nephrology : CJASN. 2010 Nov;5(11):2040-5. doi: 10.2215/cjn.03980510. PMID: 20884777.

110. Lacson E, Jr., Xu J, Lin SF, et al. Association between achievement of hemodialysis quality-of-care indicators and quality-of-life scores. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2009 Dec;54(6):1098-107. doi: 10.1053/j.ajkd.2009.07.017. PMID: 19782455.

111. Lacson E, Jr., Bruce L, Li NC, et al. Depressive affect and hospitalization risk in incident hemodialysis patients. Clinical journal of the American Society of Nephrology : CJASN. 2014 Oct 7;9(10):1713-9. doi: 10.2215/cjn.01340214. PMID: 25278546.

112. Laskin BL, Huang G, King E, et al. Short, frequent, 5-days-per-week, in-center hemodialysis versus 3-days-per week treatment: a randomized crossover pilot trial through the Midwest Pediatric Nephrology Consortium. Pediatric nephrology (Berlin, Germany). 2017 Aug;32(8):1423-32. doi: 10.1007/s00467-017-3656-x. PMID: 28389745.

113. Li YN, Shapiro B, Kim JC, et al. Association between quality of life and anxiety, depression, physical activity and physical performance in maintenance hemodialysis patients. Chronic Dis Transl Med. 2016 Jun;2(2):110-9. doi: 10.1016/j.cdtm.2016.09.004. PMID: 29063031.

114. Liebman S, Li NC, Lacson E. Change in quality of life and one-year mortality risk in maintenance dialysis patients. Quality of life research : an international journal of quality of life aspects of treatment, care and rehabilitation. 2016 Sep;25(9):2295-306. doi: 10.1007/s11136-016-1257-y. PMID: 26941217.

115. Mapes DL, Bragg-Gresham JL, Bommer J, et al. Health-related quality of life in the Dialysis Outcomes and Practice Patterns Study (DOPPS). American journal of kidney diseases : the official journal of the National Kidney Foundation. 2004 Nov;44(5 Suppl 2):54-60. PMID: 15486875.

116. Maung S, Sara AE, Cohen D, et al. Sleep disturbance and depressive affect in patients treated with haemodialysis. Journal of renal care. 2017 Mar;43(1):60-6. doi: 10.1111/jorc.12188. PMID: 28000424.

117. McAdams-DeMarco MA, Ying H, Olorundare I, et al. Frailty and Health-Related Quality of Life in End Stage Renal Disease Patients of All Ages. J Frailty Aging. 2016;5(3):174-9. PMID: 29240319.

118. McClellan WM, Anson C, Birkeli K, et al. Functional status and quality of life: predictors of early mortality among

patients entering treatment for end stage renal disease. J Clin Epidemiol. 1991;44(1):83-9. PMID: 1986062.

119. McDade-Montez EA, Christensen AJ, Cvengros JA, et al. The role of depression symptoms in dialysis withdrawal. Health Psychol. 2006 Mar;25(2):198-204. doi: 10.1037/0278-6133.25.2.198. PMID: 16569111.

120. Mehdi S, Prete PE, Hashimzadeh M, et al. A study of musculoskeletal disease in two chronic hemodialysis populations and its impact on quality of life. J Clin Rheumatol. 2009 Dec;15(8):405-7. doi: 10.1097/RHU.0b013e3181c4c57f. PMID: 19956000.

121. Mittal SK, Ahern L, Flaster E, et al. Self-assessed physical and mental function of haemodialysis patients. Nephrology, dialysis, transplantation : official publication of the European Dialysis and Transplant Association - European Renal Association. 2001 Jul;16(7):1387-94. PMID: 11427630.

122. Mittal SK, Ahern L, Flaster E, et al. Self-assessed quality of life in peritoneal dialysis patients. American journal of nephrology. 2001 May-Jun;21(3):215-20. doi: 10.1159/000046250. PMID: 11423691.

123. Neri L, Rocca Rey LA, Gallieni M, et al. Occupational stress is associated with impaired work ability and reduced quality of life in patients with chronic kidney failure. The International journal of artificial organs. 2009 May;32(5):291-8. PMID: 19569038.

124. Neul SK, Minard CG, Currier H, et al. Health-related quality of life functioning over a 2-year period in children with end-stage renal disease. Pediatric nephrology (Berlin, Germany). 2013 Feb;28(2):285-93. doi: 10.1007/s00467-012-2313-7. PMID: 23052652.

125. Neul SK. Quality of Life Intervention Planning: Pilot Study in Youth with Kidney Failure Who Are on Dialysis. Nephrology nursing journal : journal of the American Nephrology Nurses' Association. 2015 Sep-Oct;42(5):487-96; quiz 97. PMID: 26591273.

126. Novak MJ, Sheth H, Bender FH, et al. Improvement in Pittsburgh Symptom Score index after initiation of peritoneal dialysis. Adv Perit Dial. 2008;24:46-50. PMID: 18986000.

127. Painter P, Krasnoff JB, Kuskowski M, et al. Effects of modality change on health-related quality of life. Hemodialysis international International Symposium on Home Hemodialysis. 2012 Jul;16(3):377-86. doi: 10.1111/j.1542-4758.2012.00676.x. PMID: 22413899.

128. Painter PL, Agarwal A, Drummond M. Physical Function and Physical Activity in Peritoneal Dialysis Patients. Peritoneal dialysis international : journal of the International Society for Peritoneal Dialysis. 2017 Nov-Dec;37(6):598-604. doi: 10.3747/pdi.2016.00256. PMID: 28970364.

129. Parker KP, Kutner NG, Bliwise DL, et al. Nocturnal sleep, daytime sleepiness, and quality of life in stable patients on hemodialysis. Health and quality of life outcomes. 2003 Nov 21;1:68. doi: 10.1186/1477-7525-1-68. PMID: 14633280.

130. Parkerson GR, Jr., Gutman RA. Health-related quality of life predictors of survival and hospital utilization. Health Care Financ Rev. 2000 Spring;21(3):171-84. PMID: 11481754.

131. Patel SS, Shah VS, Peterson RA, et al. Psychosocial variables, quality of life, and religious beliefs in ESRD patients treated with hemodialysis. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2002 Nov;40(5):1013-22. doi: 10.1053/ajkd.2002.36336. PMID: 12407647.

132. Pifer TB, Bragg-Gresham JL, Dykstra DM, et al. Quality of life and patient satisfaction: ESRD managed care demonstration. Health Care Financ Rev. 2003 Summer;24(4):45-58. PMID: 14628399.

133. Pisoni RL, Wikstrom B, Elder SJ, et al. Pruritus in haemodialysis patients: International results from the Dialysis Outcomes and Practice Patterns Study (DOPPS). Nephrology, dialysis, transplantation : official publication of the European Dialysis and Transplant Association - European Renal Association. 2006 Dec;21(12):3495-505. doi: 10.1093/ndt/gfl461. PMID: 16968725.

134. Plantinga LC, Fink NE, Jaar BG, et al. Relation between level or change of hemoglobin and generic and disease-specific quality of life measures in hemodialysis. Quality of life research : an international journal of quality of life aspects of treatment, care and rehabilitation. 2007 Jun;16(5):755-65. doi: 10.1007/s11136-007-9176-6. PMID: 17286191.

135. Pruchno R, Wilson-Genderson M, Cartwright FP. Depressive symptoms and marital satisfaction in the context of chronic disease: a longitudinal dyadic analysis. J Fam Psychol. 2009 Aug;23(4):573-84. doi: 10.1037/a0015878. PMID: 19685992.

136. Ramakrishnan K, Bond TC, Claxton A, et al. Clinical characteristics and outcomes of end-stage renal disease patients with self-reported pruritus symptoms. Int J Nephrol Renovasc Dis. 2013;7:1-12. doi: 10.2147/ijnrd.s52985. PMID: 24379689.

137. Rao S, Carter WB, Mapes DL, et al. Development of subscales from the symptoms/problems and effects of kidney disease scales of the kidney disease quality of life instrument. Clinical therapeutics. 2000 Sep;22(9):1099-111. doi: 10.1016/s0149-2918(00)80087-9. PMID: 11048907.

138. Raspovic KM, Ahn J, La Fontaine J, et al. End-Stage Renal Disease Negatively Affects Physical Quality of Life in Patients With Diabetic Foot Complications. Int J Low Extrem Wounds. 2017 Jun;16(2):135-42. doi: 10.1177/1534734617707081. PMID: 28682731.

139. Rosas SE, Joffe M, Franklin E, et al. Prevalence and determinants of erectile dysfunction in hemodialysis patients. Kidney international. 2001 Jun;59(6):2259-66. doi: 10.1046/j.1523-1755.2001.00742.x. PMID: 11380829.

140. Roumelioti ME, Buysse DJ, Sanders MH, et al. Sleep-disordered breathing and excessive daytime sleepiness in chronic kidney disease and hemodialysis. Clinical journal of the American Society of Nephrology : CJASN. 2011 May;6(5):986-94. doi: 10.2215/cjn.05720710. PMID: 21441128.

141. Saad MM, El Douaihy Y, Boumitri C, et al. Predictors of quality of life in patients with end-stage renal disease on hemodialysis. Int J Nephrol Renovasc Dis. 2015;8:119-23. doi: 10.2147/ijnrd.s84929. PMID: 26366104.

142. Saban KL, Stroupe KT, Bryant FB, et al. Comparison of health-related quality of life measures for chronic renal failure: quality of well-being scale, short-form-6D, and the kidney disease quality of life instrument. Quality of life research : an international journal of quality of life aspects of treatment, care and rehabilitation. 2008 Oct;17(8):1103-15. doi: 10.1007/s11136-008-9387-5. PMID: 18791810.

143. Saban KL, Bryant FB, Reda DJ, et al. Measurement invariance of the kidney disease and quality of life instrument (KDQOL-SF) across veterans and non-veterans. Health and quality of life outcomes. 2010 Oct 25;8:120. doi: 10.1186/1477-7525-8-120. PMID: 20973987.

144. Schneider RA. Fatigue among caregivers of chronic renal failure patients: a principal components analysis. Nephrology nursing journal : journal of the American Nephrology Nurses' Association. 2003 Dec;30(6):629-33, 64. PMID: 14730783.

145. Schneider RA. Chronic renal failure: assessing the Fatigue Severity Scale for use among caregivers. J Clin Nurs. 2004 Feb;13(2):219-25. PMID: 14723674.

146. Seethala S, Hess R, Bossola M, et al. Sexual function in women receiving maintenance dialysis. Hemodialysis international International Symposium on Home Hemodialysis. 2010 Jan;14(1):55-60. doi: 10.1111/j.1542-4758.2009.00404.x. PMID: 19758295.

147. Shafi T, Jaar BG, Plantinga LC, et al. Association of residual urine output with mortality, quality of life, and inflammation in incident hemodialysis patients: the Choices for Healthy Outcomes in Caring for End-Stage Renal Disease (CHOICE) Study. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2010 Aug;56(2):348-58. doi: 10.1053/j.ajkd.2010.03.020. PMID: 20605303.

148. Simmons RG, Anderson C, Kamstra L. Comparison of quality of life of patients on continuous ambulatory peritoneal dialysis, hemodialysis, and after transplantation. American journal of kidney diseases : the official journal of the National Kidney Foundation. 1984 Nov;4(3):253-5. PMID: 6388319.

149. Simmons RG, Anderson CR, Abress LK. Quality of life and rehabilitation differences among four end-stage renal disease therapy groups. Scand J Urol Nephrol Suppl. 1990;131:7-22. PMID: 2075473.

150. Siskind MS, Lien YH. Effect of intradialytic parenteral nutrition on quality of life in hemodialysis patients. The International journal of artificial organs. 1993 Aug;16(8):599-603. PMID: 8225651.

151. Song MK, Hanson LC. Relationships between psychosocial-spiritual well-being and end-of-life preferences and values in African American dialysis patients. Journal of pain and symptom management. 2009 Sep;38(3):372-80. doi: 10.1016/j.jpainsymman.2008.11.007. PMID: 19356896.

152. Song MK, Gilet CA, Lin FC, et al. Characterizing daily life experience of patients on maintenance dialysis. Nephrology, dialysis, transplantation : official publication of the European Dialysis and Transplant Association - European Renal Association. 2011 Nov;26(11):3671-7. doi: 10.1093/ndt/gfr071. PMID: 21382996.

153. Song MK, Paul S, Ward SE, et al. One-Year Linear Trajectories of Symptoms, Physical Functioning, Cognitive Functioning, Emotional Well-being, and Spiritual Well-being Among Patients Receiving Dialysis. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2018 Aug;72(2):198-204. doi: 10.1053/j.ajkd.2017.11.016. PMID: 29395483.

154. Sorensen EP, Sarnak MJ, Tighiouart H, et al. The kidney disease quality of life cognitive function subscale and cognitive performance in maintenance hemodialysis patients. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2012 Sep;60(3):417-26. doi: 10.1053/j.ajkd.2011.12.029. PMID: 22425261.

155. Spinowitz BS. EPO--one year later: a look at rehabilitation. The impact of long-term epoetin beta therapy on ESRD patient quality of life. Nephrol News Issues. 1990 Jun;4(6):35-7. PMID: 2205809.

156. Steele TE, Baltimore D, Finkelstein SH, et al. Quality of life in peritoneal dialysis patients. J Nerv Ment Dis. 1996 Jun;184(6):368-74. PMID: 8642387.

157. Steele TE, Wuerth D, Finkelstein S, et al. Sexual experience of the chronic peritoneal dialysis patient. Journal of the American Society of Nephrology : JASN. 1996 Aug;7(8):1165-8. PMID: 8866408.

158. Suri RS, Larive B, Garg AX, et al. Burden on caregivers as perceived by hemodialysis patients in the Frequent Hemodialysis Network (FHN) trials. Nephrology, dialysis, transplantation : official publication of the European Dialysis and Transplant Association - European Renal Association. 2011 Jul;26(7):2316-22. doi: 10.1093/ndt/gfr007. PMID: 21421590.

159. Tell GS, Mittelmark MB, Hylander B, et al. Social support and health-related quality of life in black and white dialysis patients. Anna j. 1995 Jun;22(3):301-8; discussion 9-10. PMID: 7786078.

160. Thomas CJ. The confluence of human genomics, environment, and determinants of health-related quality of life among African American hemodialysis patients. Soc Work Public Health. 2011;26(4):417-30. doi: 10.1080/19371918.2011.579505. PMID: 21707350.

161. Thomas CJ, Washington TA. Religiosity and social support: implications for the health-related quality of life of African American hemodialysis patients. J Relig Health. 2012 Dec;51(4):1375-85. doi: 10.1007/s10943-011-9483-7. PMID: 21590493.

162. Thomas-Hawkins C. Symptom distress and day-to-day changes in functional status in chronic hemodialysis patients. Nephrology nursing journal : journal of the American Nephrology Nurses' Association. 2000 Aug;27(4):369-79; discussion 80, 428. PMID: 11276628.

163. Ting GO, Kjellstrand C, Freitas T, et al. Long-term study of high-comorbidity ESRD patients converted from conventional to short daily hemodialysis. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2003 Nov;42(5):1020-35. PMID: 14582046.

164. Troidle L, Wuerth D, Finkelstein S, et al. The BDI and the SF36: which tool to use to screen for depression? Adv Perit Dial. 2003;19:159-62. PMID: 14763054.

165. Troidle L, Hotchkiss M, Finkelstein F. A thrice weekly in-center nocturnal hemodialysis program. Adv Chronic Kidney Dis. 2007 Jul;14(3):244-8. doi: 10.1053/j.ackd.2007.03.002. PMID: 17603977.

166. Unruh M, Miskulin D, Yan G, et al. Racial differences in health-related quality of life among hemodialysis patients. Kidney international. 2004 Apr;65(4):1482-91. doi: 10.1111/j.1523-1755.2004.00529.x. PMID: 15086492.

167. Unruh ML, Levey AS, D'Ambrosio C, et al. Restless legs symptoms among incident dialysis patients: association with lower quality of life and shorter survival. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2004 May;43(5):900-9. PMID: 15112181.

168. Unruh ML, Buysse DJ, Dew MA, et al. Sleep quality and its correlates in the first year of dialysis. Clinical journal of the American Society of Nephrology : CJASN. 2006 Jul;1(4):802-10. doi: 10.2215/cjn.00710206. PMID: 17699290.

169. Unruh ML, Sanders MH, Redline S, et al. Subjective and objective sleep quality in patients on conventional thrice-weekly hemodialysis: comparison with matched controls from

the sleep heart health study. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2008 Aug;52(2):305-13. doi: 10.1053/j.ajkd.2008.04.019. PMID: 18617308.

170. Unruh ML, Newman AB, Larive B, et al. The influence of age on changes in health-related quality of life over three years in a cohort undergoing hemodialysis. J Am Geriatr Soc. 2008 Sep;56(9):1608-17. doi: 10.1111/j.1532-5415.2008.01849.x. PMID: 18721224.

171. Unruh M, Kurella Tamura M, Larive B, et al. Impact of sleep quality on cardiovascular outcomes in hemodialysis patients: results from the frequent hemodialysis network study. American journal of nephrology. 2011;33(5):398-406. doi: 10.1159/000326343. PMID: 21474924.

172. Vu TV, Escalante A. A comparison of the quality of life of patients with systemic lupus erythematosus with and without endstage renal disease. J Rheumatol. 1999 Dec;26(12):2595-601. PMID: 10606368.

173. Walters BA, Hays RD, Spritzer KL, et al. Health-related quality of life, depressive symptoms, anemia, and malnutrition at hemodialysis initiation. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2002 Dec;40(6):1185-94. doi: 10.1053/ajkd.2002.36879. PMID: 12460037.

174. Ware JE, Richardson MM, Meyer KB, et al. Improving CKD-Specific Patient-Reported Measures of Health-Related Quality of Life. Journal of the American Society of Nephrology : JASN. 2019;30(4):664-77. doi: 10.1681/ASN.2018080814.

175. Wasse H, Kutner N, Zhang R, et al. Association of initial hemodialysis vascular access with patient-reported health status and quality of life. Clinical journal of the American Society of Nephrology : CJASN. 2007 Jul;2(4):708-14. doi: 10.2215/cjn.00170107. PMID: 17699486.

176. Weisbord SD, Carmody SS, Bruns FJ, et al. Symptom burden, quality of life, advance care planning and the potential value of palliative care in severely ill haemodialysis patients. Nephrology, dialysis, transplantation : official publication of the European Dialysis and Transplant Association - European Renal Association. 2003 Jul;18(7):1345-52. PMID: 12808172.

177. Weisbord SD, Fried LF, Arnold RM, et al. Development of a symptom assessment instrument for chronic hemodialysis patients: the Dialysis Symptom Index. Journal of pain and symptom management. 2004 Mar;27(3):226-40. doi: 10.1016/j.jpainsymman.2003.07.004. PMID: 15010101.

178. Weisbord SD, Fried LF, Arnold RM, et al. Prevalence, severity, and importance of physical and emotional symptoms in chronic hemodialysis patients. Journal of the American Society of Nephrology : JASN. 2005 Aug;16(8):2487-94. doi: 10.1681/asn.2005020157. PMID: 15975996.

179. Weisbord SD, Fried LF, Unruh ML, et al. Associations of race with depression and symptoms in patients on maintenance haemodialysis. Nephrology, dialysis, transplantation : official publication of the European Dialysis and Transplant Association - European Renal Association. 2007 Jan;22(1):203-8. doi: 10.1093/ndt/gfl521. PMID: 16998218.

180. Welch JL, Austin JK. Quality of life in black hemodialysis patients. Adv Ren Replace Ther. 1999 Oct;6(4):351-7. PMID: 10543716.

181. Williams AW, Chebrolu SB, Ing TS, et al. Early clinical, quality-of-life, and biochemical changes of "daily hemodialysis" (6 dialyses per week). American journal of

kidney diseases : the official journal of the National Kidney Foundation. 2004 Jan;43(1):90-102. PMID: 14712432.

182. Wolcott DL, Nissenson AR, Landsverk J. Quality of life in chronic dialysis patients. Factors unrelated to dialysis modality. Gen Hosp Psychiatry. 1988 Jul;10(4):267-77. PMID: 3417127.

183. Wolcott DL, Marsh JT, La Rue A, et al. Recombinant human erythropoietin treatment may improve quality of life and cognitive function in chronic hemodialysis patients. American journal of kidney diseases : the official journal of the National Kidney Foundation. 1989 Dec;14(6):478-85. PMID: 2596475.

184. Wuerth DB, Finkelstein SH, Juergensen DM, et al. Quality of life assessment in chronic peritoneal dialysis patients. Adv Perit Dial. 1997;13:125-7. PMID: 9360665.

185. Young BA, Von Korff M, Heckbert SR, et al. Association of major depression and mortality in Stage 5 diabetic chronic kidney disease. Gen Hosp Psychiatry. 2010 Mar-Apr;32(2):119-24. doi: 10.1016/j.genhosppsych.2009.11.018. PMID: 20302984.

186. Levy AR, Xing S, Brunelli SM, et al. Symptoms of Secondary Hyperparathyroidism in Patients Receiving Maintenance Hemodialysis: A Prospective Cohort Study. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2019 Oct 16. doi: 10.1053/j.ajkd.2019.07.013. PMID: 31629575.

187. Mason DP, Solovera-Rozas M, Feng J, et al. Dialysis after lung transplantation: prevalence, risk factors and outcome. J Heart Lung Transplant. 2007 Nov;26(11):1155-62. doi: 10.1016/j.healun.2007.08.006. PMID: 18022082.

188. Kim JY, Hyun YY, Lee JE, et al. Serum globotriaosylceramide assay as a screening test for fabry disease in patients with ESRD on maintenance dialysis in Korea. The Korean journal of internal medicine. 2010 Dec;25(4):415-21. doi: 10.3904/kjim.2010.25.4.415. PMID: 21179280.

189. Varni JW, Burwinkle TM, Seid M. The PedsQL 4.0 as a school population health measure: feasibility, reliability, and validity. Quality of life research : an international journal of quality of life aspects of treatment, care and rehabilitation. 2006 Mar;15(2):203-15. doi: 10.1007/s11136-005-1388-z. PMID: 16468077.

190. Erez G, Selman L, Murtagh FE. Measuring health-related quality of life in patients with conservatively managed stage 5 chronic kidney disease: limitations of the Medical Outcomes Study Short Form 36: SF-36. Quality of life research : an international journal of quality of life aspects of treatment, care and rehabilitation. 2016 Nov;25(11):2799-809. doi: 10.1007/s11136-016-1313-7. PMID: 27522214.

191. Berkman ND, Lohr KN, Ansari M, et al. Grading the Strength of a Body of Evidence When Assessing Health Care Interventions for the Effective Health Care Program of the Agency for Healthcare Research and Quality: An Update

Methods Guide for Effectiveness and Comparative Effectiveness Reviews. Rockville MD; 2008.

192. Coteur G, Feagan B, Keininger DL, et al. Evaluation of the meaningfulness of health-related quality of life improvements as assessed by the SF-36 and the EQ-5D VAS in patients with active Crohn's disease. Alimentary pharmacology & therapeutics. 2009 May 1;29(9):1032-41. doi: 10.1111/j.1365-2036.2009.03966.x. PMID: 19222413.

193. Ingram M, Choi YH, Chiu CY, et al. USE OF THE MINIMAL CLINICALLY IMPORTANT DIFFERENCE (MCID) FOR EVALUATING TREATMENT OUTCOMES WITH TMJMD PATIENTS: A PRELIMINARY STUDY(). Journal of applied biobehavioral research. 2011 Dec 1;16(3-4):148-66. doi: 10.1111/j.1751-9861.2011.00068.x. PMID: 22919263.

194. Frendl DM, Ware JE, Jr. Patient-reported functional health and well-being outcomes with drug therapy: a systematic review of randomized trials using the SF-36 health survey. Medical care. 2014 May;52(5):439-45. doi: 10.1097/mlr.0000000000010311. PMID: 24714581.

195. Angst F, Aeschlimann A, Stucki G. Smallest detectable and minimal clinically important differences of rehabilitation intervention with their implications for required sample sizes using WOMAC and SF-36 quality of life measurement instruments in patients with osteoarthritis of the lower extremities. Arthritis and rheumatism. 2001 Aug;45(4):384-91. doi: 10.1002/1529-0131(200108)45:4<384::aid-art352>3.0.co;2-0. PMID: 11501727.

196. Hays RD, Kallich JD, Mapes DL, et al. Development of the kidney disease quality of life (KDQOL) instrument. Quality of life research : an international journal of quality of life aspects of treatment, care and rehabilitation. 1994 Oct;3(5):329-38. PMID: 7841967.

197. Peipert JD, Bentler PM, Klicko K, et al. Psychometric Properties of the Kidney Disease Quality of Life 36-Item Short-Form Survey (KDQOL-36) in the United States. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2018 Apr;71(4):461-8. doi: 10.1053/j.ajkd.2017.07.020. PMID: 29128411.

198. Ricardo AC, Hacker E, Lora CM, et al. Validation of the Kidney Disease Quality of Life Short Form 36 (KDQOL-36) US Spanish and English versions in a cohort of Hispanics with chronic kidney disease. Ethnicity & disease. 2013 Spring;23(2):202-9. PMID: 23530302.

199. Varni JW, Seid M, Rode CA. The PedsQL: measurement model for the pediatric quality of life inventory. Medical care. 1999 Feb;37(2):126-39. doi: 10.1097/00005650-199902000-00003. PMID: 10024117.

200. Varni JW, Seid M, Kurtin PS. PedsQL 4.0: reliability and validity of the Pediatric Quality of Life Inventory version 4.0 generic core scales in healthy and patient populations. Medical care. 2001 Aug;39(8):800-12. doi: 10.1097/00005650-200108000-00006. PMID: 11468499.

201. Varni JW, Burwinkle TM, Seid M, et al. The PedsQL 4.0 as a pediatric population health measure: feasibility, reliability, and validity. Ambulatory pediatrics : the official journal of the Ambulatory Pediatric Association. 2003 Nov-Dec;3(6):329-41. PMID: 14616041.

202. Varni JW, Limbers CA, Burwinkle TM. Parent proxy-report of their children's health-related quality of life: an analysis of 13,878 parents' reliability and validity across age subgroups using the PedsQL 4.0 Generic Core Scales. Health and quality of life outcomes. 2007 Jan 3;5:2. doi: 10.1186/1477-7525-5-2. PMID: 17201923.

203. Wu AW, Fink NE, Cagney KA, et al. Developing a health-related quality-of-life measure for end-stage renal disease: The CHOICE Health Experience Questionnaire. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2001 Jan;37(1):11-21. doi: 10.1053/ajkd.2001.20631. PMID: 11136162.

204. McHorney CA, Ware JE, Jr., Raczek AE. The MOS 36-Item Short-Form Health Survey (SF-36): II. Psychometric and clinical tests of validity in measuring physical and mental health constructs. Medical care. 1993 Mar;31(3):247-63. doi: 10.1097/00005650-199303000-00006. PMID: 8450681.

205. Johansen KL, Painter P, Kent-Braun JA, et al. Validation of questionnaires to estimate physical activity and functioning in end-stage renal disease. Kidney international. 2001 Mar;59(3):1121-7. doi: 10.1046/j.1523-1755.2001.0590031121.x. PMID: 11231369.

206. Diaz-Buxo JA, Lowrie EG, Lew NL, et al. Quality-of-life evaluation using Short Form 36: comparison in hemodialysis and peritoneal dialysis patients. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2000 Feb;35(2):293-300. doi: 10.1016/s0272-6386(00)70339-8. PMID: 10676729.

207. Ambrosini PJ, Metz C, Bianchi MD, et al. Concurrent validity and psychometric properties of the Beck Depression Inventory in outpatient adolescents. Journal of the American Academy of Child and Adolescent Psychiatry. 1991 Jan;30(1):51-7. doi: 10.1097/00004583-199101000-00008. PMID: 2005064.

208. Beck AT, Ward CH, Mendelson M, et al. An inventory for measuring depression. Archives of general psychiatry. 1961 Jun;4:561-71. doi: 10.1001/archpsyc.1961.01710120031004. PMID: 13688369.

209. Beck AT, Steer RA, Garbin MG. Psychometric properties of the Beck Depression Inventory: twenty-five years of evaluation. Clinical Psychology Review. 1988;8(1):77-100. doi: 10.1016/0272-7358(88)90050-5.

210. Gatewood-Colwell G, Kaczmarek M, Ames MH. Reliability and validity of the Beck Depression Inventory for a white and Mexican-American gerontic population. Psychological reports. 1989 Dec;65(3 Pt 2):1163-6. doi: 10.2466/pr0.1989.65.3f.1163. PMID: 2623107.

211. Watnick S, Wang PL, Demadura T, et al. Validation of 2 depression screening tools in dialysis patients. American journal of kidney diseases : the official journal of the National Kidney Foundation. 2005 Nov;46(5):919-24. doi: 10.1053/j.ajkd.2005.08.006. PMID: 16253733.

212. Hays RD, Morales LS. The RAND-36 measure of health-related quality of life. Annals of medicine. 2001 Jul;33(5):350-7. PMID: 11491194.

213. Resnick B, Parker R. Simplified scoring and psychometrics of the revised 12-item Short-Form Health Survey. Outcomes management for nursing practice. 2001 Oct-Dec;5(4):161-6. PMID: 11898312.

214. Ware J, Jr., Kosinski M, Keller SD. A 12-Item Short-Form Health Survey: construction of scales and preliminary tests of reliability and validity. Medical care. 1996 Mar;34(3):220-33. doi: 10.1097/00005650-199603000-00003. PMID: 8628042.

215. Bjelland I, Dahl AA, Haug TT, et al. The validity of the Hospital Anxiety and Depression Scale. An updated literature review. Journal of psychosomatic research. 2002 Feb;52(2):69-77. PMID: 11832252.

216. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. Journal of general internal medicine. 2001 Sep;16(9):606-13. doi: 10.1046/j.1525-1497.2001.016009606.x. PMID: 11556941.

217. Button KS, Kounali D, Thomas L, et al. Minimal clinically important difference on the Beck Depression Inventory--II according to the patient's perspective. Psychological medicine. 2015 Nov;45(15):3269-79. doi: 10.1017/s0033291715001270. PMID: 26165748.