15. Care Transitions

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Introduction

Importance of Harm Area

As patients prepare to move from the hospital to other settings, failing to make adequate discharge arrangements can lead to costly and unnecessary hospital readmissions, preventable adverse events, and drug-related errors.[1-12] For example, in 2008 nearly one-fifth of Medicare beneficiaries had an unplanned hospital readmission within 30 days of discharge, which together totaled nearly $15 billion; more than 75 percent of those readmissions (costing about $12 billion) were potentially preventable.[13]

Ensuring safe and seamless transitions starts well before hospital discharge.[14] Successful transitioning of patients from the hospital to other care settings is a dynamic, multifaceted process in which healthcare systems, hospitals, providers, patients, and their families share responsibility. Models or interventions such as Better Outcomes for Older Adults (BOOST), the Care Transitions Intervention (CTI), and the Transitional Care Model (TCM) were developed with the intention of improving transitions across the continuum of care. These models appear to be especially beneficial for high-risk and older adult populations, who are often hospitalized; move frequently across care settings; and experience high rates of post-discharge complications, readmissions, or morbidity and mortality.[10,15-18]

Methods for Selecting Patient Safety Practices

Initial literature searches for patient safety practices (PSPs) in the harm area of care transitions were focused on systematic reviews and guidelines. Results of these searches were reviewed by task leads for the harm areas to identify PSPs, iterate on searches as needed, and refine lists of PSPs to concentrate on. Next, the project Technical Expert Panel and Advisory Group were engaged via a survey to prioritize PSPs for inclusion in the report. These survey results, along with refined recommendations for PSP inclusion, were submitted to the Agency for Healthcare Research and Quality (AHRQ) for review. After several rounds of review with AHRQ, one care transition PSP was selected for this harm area: use of multi-element models to improve care transitions.

PSP: Use of Multi-Element Models To Improve Care Transitions

This review includes articles published from 2004 to 2017 that focus on transitional care and patient safety. It highlights three evidence-based multi-element care transition models that were developed to reduce harm and improve transitions as patients move from one setting to another, specifically from hospital to home. The three models are Better Outcomes for Older adults through Safe Transitions (BOOST), the Care Transitions Intervention (CTI), and the Transitional Care Model (TCM). The definition of this practice area, along with key elements recommended by the National Transitions of Care Coalition (NTCC), are to help shape the thinking about how best to improve transitional care practices. An overview of each of the three models and a discussion of the current evidence are presented in this chapter. The review concludes by identifying potential gaps or challenges and future directions.

Practice Description

Transitioning patients from one setting to another is a particularly vulnerable time. Safety lapses can result in negative clinical outcomes,[1-4] preventable adverse events,[5-9] and avoidable hospital readmissions.[10,12] The Joint Commission defines transitions of care as "the movement of patients between health care practitioners, settings, and home, as their conditions and care needs change."[19] In light of consequences that hospitals can face when patients return within 30 to 60 days of discharge,[20,21] this review focuses specifically on evidence related to transitions from hospitals to ambulatory care settings, by highlighting three multi-element models as indicated in the Key Findings box.

Key Findings:

BOOST
- Implementing BOOST contributes to reductions of 30-day re-hospitalization rates, and using the assessment tool accurately predicts 90 percent of readmissions.

CTI
- Implementing CTI contributes to significant reductions in healthcare costs.
- Studies show reductions in hospital readmissions at 30, 60, and 180 days.

TCM
- This model effectively reduces rates of readmissions and reduces costs for healthcare systems.

The NTCC considers the following seven key elements as essential for safe and seamless transitions, and we use this framework to present the evidence in this review:

- **Medication Management:** Ensuring the safe use of medications by patients and their families based on patients' plans of care.
- **Transition Planning:** Creating a plan/process that facilitates the safe transition of patients from one level of care to another, including home or from one practitioner to another.
- **Patient/Family Engagement and Education:** Educating and counseling patients and families to enhance their active participation in their own care, including informed decision making.
- **Communicating and Transferring Information:** Sharing of important care information among patient, family, caregiver, and healthcare providers in a timely and effective manner.
- **Follow-Up Care:** Facilitating the safe transition of patients from one level of care or provider to another through effective follow-up care activities.
- **Healthcare Provider Engagement:** Demonstrating ownership, responsibility, and accountability for the care of the patient and family/caregiver at all times.
- **Shared Accountability Across Providers and Organizations:** Enhancing the transition of care process through accountability for care of the patient by both the healthcare provider (or organization) transitioning, and the one receiving the patient.

Essential Elements of Safe and Seamless Care Transitions

Table 1 describes how the essential elements for safe and seamless transitions are represented across the three models.

Table 1: Essential Elements of Safe and Seamless Care Transitions for Three Multi-Element Models

Essential Elements	Description	Better Outcomes for Older Adults Through Safe Transitions (BOOST)	Care Transitions Intervention (CTI)	Transitional Care Management (TCM)
Medication Management	Ensuring the safe use of medications by patients and their families based on patients' plans of care.	Using the BOOST Assessment Tool, providers can screen patients for one of eight risk factors for readmissions, two of those being problem medications and polypharmacy (patients who are taking more than 5 medications). Risk-specific interventions are then performed using components of the BOOST Toolkit.	CTI promotes medication self-management as one of its four pillars, with the goal of ensuring that the patient is knowledgeable about medication and has a medication management system.	Medication management is a key element of TCM. Led by advanced practice nurses (APNs), medication reviews are done to identify discrepancies and inappropriate prescriptions.
Transition Planning	Creating a plan/ process that facilitates the safe transition of patients from one level of care to another, including home or from one practitioner to another.	The BOOST Toolkit provides a universal patient discharge checklist for all patients being discharged from the hospital to home, a general assessment of patient preparedness to be discharged, and patient transition record and discharge patient education tool to assist the care team with transition planning.	CTI formalizes the transition planning process with the implementation of a transitions care coach. The transitions care coach assists with transition planning by encouraging self-management and direct communication between patients/caregivers and primary care providers.	The TCM model facilitates transition for older patients from the hospital to the home setting. An APN meets with patients within 48 hours of discharge and then coordinates follow-up visits for them with their providers. When possible, the APN attends the follow-up visits.
Patient/Family Engagement and Education	Educating and counseling of patients and families to enhance their active participation in their own care, including informed decision making.	BOOST promotes patient education through the use of the teach-back technique. BOOST provides a video and 60–90 minute curriculum to educate the care team about the teach-back technique. BOOST also encourages the use of a DPET (Discharge Patient Education Tool) to help patients understand the discharge instructions given to them.	The transitions coach works directly with the patient/caregiver to increase self-management through a hospital visit, home visit, and three follow-up phone calls. The transitions coach assists patients in asserting a more active role through care transitions by educating them on their condition, medications, patient-centered health record, follow-up care, and any indications that their condition is worsening.	A primary role of the APN care coordinator is to educate patients and caregivers on their care. The APN discusses the care plan with patients and their family caregivers, and ensures that they understand the diagnoses, how to identify symptoms, and when to seek follow-up care.

Essential Elements	Description	Better Outcomes for Older Adults Through Safe Transitions (BOOST)	Care Transitions Intervention (CTI)	Transitional Care Management (TCM)
Communicating and Transferring Information	Sharing of important care information among patient, family, caregiver, and healthcare providers in a timely and effective manner.	The BOOST Model stresses the importance of communicating with patients using the teach-back technique and encourages information transfer from provider to patient through the use of the PASS Tool (Patient Preparation to Address Situations After Discharge Successfully). The tool is a transition record that patients leave the hospital with. Providers are encouraged to use large print, avoid medical jargon, and keep sentences short to address literacy issues.	One of the four pillars of the CTI intervention is a patient-centered record owned and maintained by the patient to facilitate cross-site information transfer. The transitions coach uses the patients' health records/portal to facilitate communication between them and their providers.	Communication is a key element of TCM. APNs develop a relationship with patients and family caregivers to ensure continuity across care. The APN also fosters communication between other members of the patient's care team, including primary care providers and specialists.
Followup Care	Facilitating the safe transition of patients from one level of care or provider to another through effective follow-up care activities.	The BOOST model stresses the importance of a post-hospitalization touchpoint to decrease hospital readmissions. The implementation guide recommends follow-up phone calls within 72 hours of discharge to identify many of the new issues and barriers patients may face after discharge.	The third of the four pillars of the CTI intervention is timely follow-up care. The transitions coach works with patients to schedule and complete follow-up visits with primary care providers or specialists.	TCM emphasizes robust follow-up care. An APN care coordinator follows up with patients in person within 48 hours of discharge from acute care. Additionally, the APN follows up with phone calls and can conduct additional in-person visits through 2–6 months post-discharge.
Healthcare Provider Engagement	Demonstrating ownership, responsibility, and accountability for the care of the patient and family/caregiver at all times.	The model encourages provider engagement by having front-line personnel involved with the process of providing safe, effective care transitions in the hospital.	Health systems involved in CTI designate a care transitions coach, typically an APN, to assist patients in the transition process and encourage self-management.	TCM designates an APN care coordinator, who coordinates both with the patient's care team within the hospital setting and with the patient's primary and specialist providers to follow up post-discharge.
Shared Accountability Across Providers and Organizations	Enhancing the transition of care process through accountability for care of the patient by both the healthcare provider (or organization) transitioning and the one receiving the patient.	The BOOST Model encourages shared accountability by recommending the creation of a care transition improvement team to oversee the implementation of BOOST. The collaboration also includes a year of individual physician mentoring and access to an online resource center to facilitate implementation.	Not provided	The APN acting as care coordinator in TCM primarily takes responsibility for the patient's care by facilitating follow-up visits post-discharge for the patient and promoting communication between inpatient and outpatient providers caring for the patient.

Methods

The general methodology used across the project is available in the Methods chapter of this report. Below, is a summary of the approach that was used to search for literature and the review methods specific to the practice area.

Two databases (CINAHL® and MEDLINE®) were scanned for literature specific to the three models by using "BOOST," "Better Outcomes for Older Adults Through Safe Transitions," "CTI," "Care Transitions Intervention Model," "Transitional Care Model," and "TCM." Then we expanded the search by including "care transitions," "transitional care," "patient safety," "follow up," and "health." MeSH terms included "patient discharge," "patient transfer," "transfer," "discharge," "patient handoff," "discharge planning," "teach back models," "health," "ambulatory," and terms related to the seven essential elements previously discussed. The search string also included different healthcare settings, such as "hospitals," "inpatient," "long-term care," "nursing home," and "skilled nursing facility." To make sure we identified the most relevant articles, reference lists of selected articles were screened and additional articles were reviewed. A developer of each model was consulted to confirm that all known model-specific publications were identified.

In all, 157 de-duplicated publications were identified, and 115 full-text articles were considered eligible for further review based on whether they were published in English, explicitly focused on a transition from one care setting to another, included one of the three care transition models, and addressed ways to improve patient safety. Priority was given to intervention studies that centered on one of the three models, foundational or seminal reports, and research studies with quantitative and/or qualitative methods. Records were excluded if the focus was on children/pediatric care and/or if the publication was more of a commentary or editorial than a research study. Upon closer review, full-text articles were disqualified if they were deemed incomplete, insufficient, or "out of scope" by the review team. Out-of-scope articles referenced the care models but were primarily comprised of topics such as handoffs between providers, not from one care setting to another, or teach-back methods. As a result, 16 studies were selected for this review.

General methods for this report are described in the Methods section of the full report.

For this patient safety practice, a PRISMA flow diagram and evidence table, along with literature-search strategy and search-term details, are included in report appendixes A through C.

Review of Evidence

The next sections of this chapter present evidence from the 16 studies that we reviewed. These studies describe implementation activities that examined how implementing BOOST, CTI, and TCM have impacted the care transition process and influenced hospital readmission rates. The evidence in this section highlights intervention, prevalence, observational, and incidence studies that will inform the reader about key outcomes, and implementation strategies and resources for the three care transition models.

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15.1 BOOST: Better Outcomes by Optimizing Safe Transitions

15.1.1 Overview

Project BOOST is a multicentered quality improvement (QI) transitional care program created in 2008 by the Society of Hospital Medicine to improve care for patients as they transition from the hospital to home.[1] The objective is to reduce 30-day readmission rates, improve provider workflow, and reduce medication-related errors. The model involves tools and resources to identify and manage patients who are at high risk for readmissions, with a particular focus on older adults. The contents of the BOOST Toolkit are shown in the box on this page.

BOOST Toolkit:

- Participant Implementation Guidance
- Patient Risk Assessment—8Ps
- Universal Patient Discharge Checklist
- General Assessment of Preparedness
- The Patient Preparation to Address Situations Successfully (Patient PASS)
- Discharge Patient Education (DPET)
- Teach Back Curriculum
- Discharge Instructions for Providers
- Guidance for a 72-Hour Post-Discharge Follow-Up Call and Appointment
- General Guidance for Medication Reconciliation

When hospitals adopt this model they can tailor components to align with their unique needs, priorities, available resources, and culture. There is a toolkit that includes resources to address areas of the discharge process that are predisposed to result in adverse events.[2] Implementation outcomes (e.g., organizational change, reduced hospital readmissions) are estimated for 12 and 24 months post-discharge.[3] After the model is adopted, the hospital becomes part of a QI collaborative network through which they can communicate with and learn from other BOOST members around the country. Additionally, a BOOST Data Center allows users to store and benchmark data against control units and other providers.

BOOST is intended for use by all clinicians involved in the hospital discharge process (physicians, nurses, case managers, social workers), with a core team consisting of a team leader (nurse, case manager, social worker, or physician), QI facilitator, project manager, process owners (frontline staff involved in providing safe, effective care transitions in the hospital, including pharmacy, nursing, and case management staff), and information technology experts.

15.1.2 Key Components

- **Comprehensive Intervention**—The BOOST toolkit, which is used by hospitals to identify patients at high risk for readmissions, contains material for comprehensive intervention.
- **BOOST Implementation Guide**—Provides detailed implementation guidance for hospitals.
- **Individual Physician Mentoring**—One year of mentorship by external physicians to provide implementation technical assistance to implementation teams at each participating hospital.
- **BOOST Collaborative**—A peer-to-peer network of hospitals that are able to share resources via a listserv, regularly scheduled and ad hoc teleconferences, and other web-based platforms.

15.1.3 Clinical Outcomes

The Centers for Medicare & Medicaid Services (CMS) Hospital Readmission Reduction Program (HRRP) reduces payments to hospitals that have excessive 30-day readmissions for six diagnoses. This program applied initially to Medicare beneficiaries and, as of 2019, applies to Medicaid beneficiaries as well. The HRRP has increased attention on readmissions and length of hospital stay. In 2013, Hansen et al.

evaluated the effect of BOOST on Medicare beneficiaries' readmission rates and length of stay in a sample of 11 hospitals of varying size, academic affiliation, and location.[1] They found that BOOST was associated with a 3 percent decrease in 30-day readmissions (p=.010) after 12 months of implementation. The length of stay did not change significantly.

15.1.4 Process Outcomes

A qualitative study by Williams et al. (2014) sought to identify factors that contributed to how programs could be implemented to enhance collaboration across care settings, reduce hospital readmissions, and achieve optimal implementation of Project BOOST. The design involved an initial cohort of 6 pilot hospitals and a subsequent cohort of 24 hospitals of various academic affiliations, locations, and bed sizes. Based on qualitative findings from the first cohort, investigators added interactive exercise sessions in kickoff trainings, continued education via webinars, and increased mentoring calls, which they anticipated would lead to more complete implementation of BOOST in the second cohort. The individual mentoring component of BOOST was also refined for the second cohort. Qualitative analysis of the first cohort of hospitals included examining BOOST enrollment applications, examining the project listserv, and scripted telephone interviews with each site. Evaluation of BOOST implementation in the second cohort of hospitals occurred via mid-year and end-year surveys. By looking across the two cohorts, the investigators reported being able to better understand how the model can be implemented to enhance collaboration, as well as identifying important facilitators and barriers to implementation. Implementation facilitators included having individual physician mentoring sessions; establishing goals, objectives, and expectations that were small in scale but realistically attainable; teamwork exercises; and active patient engagement practices. Barriers included inadequate understanding of the BOOST implementation process, lack of administrative support, lack of protected time or resources dedicated to BOOST, and insufficient front staff buy-in.[2] When Lee et al. (2016) looked at the BOOST patient risk assessment tool via retrospective chart reviews, their findings indicated that the tool successfully predicted 90 percent of readmissions for patients 65 years of age and over when they assessed for two or more risk factors for readmission, but the tool was 99-percent effective in assessing risk when one factor was used. Although the tool shows promise in predicting readmissions, the authors cautioned against the use of multiple risk factors, as it could decrease the predictive power of the tool.[4]

15.1.5 Economic Outcomes

To date, no studies have intentionally studied the costs or economic outcomes related to implementing BOOST to reduce readmissions.

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15.2 CTI: Care Transitions Intervention

15.2.1 Overview

Dr. Eric Coleman developed the Care Transitions Intervention in 2002 to improve continuity of care across care settings and providers. CTI is a patient-centered, multi-component program that has since been implemented in hospitals across the country.[1] Developed based on input from patients and their caregivers, CTI aims to improve the efficiency and quality of care in the transition from hospital to home by providing patients with tools and support to navigate the healthcare system and effectively manage their health conditions.[1]

CTI's Four Pillars of Care

- **Medication Self-Management**: Patient/caregiver is knowledgeable about prescribed medication(s) and establishes a medication management process.
- **Dynamic Patient-Centered Health Record**: Patient (with assistance from caregiver, if necessary) uses the Personal Health Record (PHR) to communicate with and consult about continuity-of-care providers from across different settings.
- **Primary Care and Specialist Follow-Up**: Patient schedules and completes follow-up visits with the providers (i.e., primary care provider or specialist) and is empowered to actively participant throughout
- **Knowledge of Red Flags**: Patients understand indicators for when their condition is worsening and know how to respond.

CTI is a 4-week, low-cost, low-intensity self-management program designed to provide patients discharged from an acute care setting with skills, tools, and the support of a transition coach to ensure that their health and self-management needs are met. The intervention targets patients age 65 years and older, who often have acute or chronic health conditions such as congestive heart failure, chronic pulmonary disease, diabetes, stroke, hip fractures, pulmonary embolism, and deep vein thrombosis.[2]

CTI begins when the patient is in the hospital. A Transitions Coach sets up a meeting to discuss the patient's concerns and to engage the patient and family to begin participating in the program. Next, the Transitions Coach conducts a follow-up home visit and a series of three phone calls in order to help the patient increase self-management skills and attain personal goals, and to provide the patient and his or her family continuity across the transition. Transition coaches can be advanced practice nurses (APNs), registered nurses, social workers, student nurses, community workers, or trained volunteers. Since CTI is designed to help patients manage their care once they transition out of the hospital, no studies reported long-term participation.

15.2.2 Key Components

CTI's four pillars of care are shown in the box on this page. CTI relies on personal health records (PHRs), which document the patient's medical history, medications and allergies, any red flags or warning signs; provide a structured checklist of critical activities that take place prior to discharge (instructions and dates of follow-up appointments); and provide space for the patient to record questions and concerns.

First, a CTI transitions coach meets with a patient in the hospital prior to discharge to establish rapport, introduce the PHR, and arrange a home visit within 72 hours after discharge. One of the main goals of the home visit is to reconcile all of the patient's medications using the Medication Discrepancy Tool. During this time, the transitions coach also helps the patient understand the purpose, instructions for use, and potential side effects of each medication. If medication discrepancies are identified, the coach encourages the patient/caregiver to call the physician's office or make an appointment in person. Next, the transitions coach and patient role-play effective communication strategies to teach the patient to

clearly articulate his or her needs with providers. Another goal of the home visit is to help the patient recognize red flags or warning signs that the health condition may be worsening. The intervention is implemented in a short timeframe, only 4 weeks. The home visit takes place during the first week. For the next 3 weeks, the transitions coach continues to support the patient and his or her ability to effectively manage care. For instance, the coach calls once a week to help the patient continue to make and track progress. The coach asks patients if they received appropriate outpatient services, reminds them to share their PHR with their primary care provider or specialists, and supports their disease self-management activities.

15.2.3 Clinical Outcomes

CTI focuses on 30-, 90-, and 180-day readmissions. Readmission rates were reported in five reviewed studies about CTI, three clinical controlled trials and two randomized controlled trials. They addressed three different patient populations: Medicare Advantage beneficiaries, fee-for-service Medicare beneficiaries, and low-income patients. Intervention patients enrolled in Medicare Advantage plans who had 1 or more of 11 diagnoses (stroke, congestive heart failure, coronary artery disease, cardiac arrhythmias, chronic obstructive pulmonary disease, diabetes, spinal stenosis, hip fracture, peripheral vascular disease, deep vein thrombosis, and pulmonary embolism) had lower readmission rates than patients with these diagnoses for whom CTI was not applied in all three time periods: 30 days (8.3 vs. 11.9, p=.048), 90 days (16.7% vs. 22.5%, p=.04), and 180 days (8.6% vs. 13.9%, p=.046).[2,3] Among beneficiaries with original fee-for-service Medicare insurance and with the same conditions as the previous group, readmission rates were also lower for CTI patients than non-CTI patients at 30 days (6.8% vs. 16.7, p=.15%), 90 days (9.3% vs. 31%, p=.01), and 180 days (38.1% vs. 20.9%, p=.08).[4,5] Among low-income patients for whom CTI was implemented who had hypertension, stroke, diabetes, heart conditions, or dementia, and/or were taking four or more medications, readmission rates were generally lower than for those without CTI, but this difference was not statistically significant at 30 days (9.6% vs. 17.3%), 90 days (28.9% vs. 25%), and 180 days (32.7% vs. 36.5%).[6]

15.2.4 Process Outcomes

Parrish et al. (2009) worked with five hospitals and five community sites to identify key factors for sustaining CTI. Based on feedback from hospitals, they found that engaged leadership support, a strong project champion, adequate training of the transition coaches, and dedicated CTI staff were integral to sustaining CTI.[7] Coleman et al. (2015) adapted CTI to better serve the needs of family caregivers in one non-profit acute care hospital that had 253 beds through addition of a Family Caregiver Activation Assessment Tool (FCAA).[8] Family caregivers, who participated using the FCCA tool, experienced a mean improvement in activation of 6 points on a 1–10 scale in relation to the four intervention pillars than caregivers who did not use the tool (p<.0001), and became more involved in successful care transitions.

15.2.5 Economic Outcomes

Of the six CTI studies reviewed, four examined the cost or cost effectiveness of implementing CTI, which varies based on provider characteristics and benefits and salary structure. For instance, in 2002, for patients who resided in the same State, the annual cost for implementing CTI for patients receiving or eligible for Medicare Advantage was $74,310, compared to $68,830 for patients who were eligible for Medicare fee-for-service coverage.[2,4] The difference in implementation costs appear to be influenced by provider characteristics, benefits, and salary structure. For example, the salary of a transition coach could be $70,980 for an APN compared to $65,500 for a registered nurse. As part of their role, transition

coaches receive a cell phone and pager ($650), mileage reimbursement ($2,500), and other supplies such as PHR forms ($180). Coleman et al. (2006) observed that implementing CTI was significantly more cost efficient than usual care when treating patients eligible for Medicare Advantage. For example, hospital costs for those who received CTI were $2,058, as compared to $2,456 for those who received usual care (p=.049) at 180 days post-discharge.[2] In 2014, Gardner et al. observed similar patterns. Their study reports that among Medicare beneficiaries, those for whom CTI was used had significantly lower healthcare utilization during the 180 days after hospital discharge, lower total health costs ($14,729 vs. $18,779, p=.03), and an average cost avoidance of $3,762 compared to the controls.[9]

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15.3 TCM: Transitional Care Model

15.3.1 Overview

Developed in 1981 at the University of Pennsylvania's School of Nursing by a team led by Dr. Mary Naylor, the Transitional Care Model is a nurse-led intervention designed to improve the outcomes of chronically ill older adults who transition from hospital to home[1] and are at risk of readmission based on the following factors: one or more chronic illnesses, more than one hospital visit within the last 6 months, multiple prescribed medications to treat multiple conditions (i.e., polypharmacy), and living alone.[2,3] The model is implemented through the use of individualized, multidisciplinary, evidence-based clinical protocols that help to prevent declines in health and to reduce 30–60 day hospital readmissions.[2,3] In addition to reducing rates of readmissions, TCM also aims to enable patients and their family caregivers to manage their conditions themselves. Although originally designed for older adults at risk of readmission, the model has been recently adapted and tested with other populations, including individuals who are eligible for Medicaid and patients with psychiatric diagnoses in addition to chronic and other comorbidities.[4,5]

TCM's Core Components:

- Screening
- Staffing
- Maintaining Relationships
- Engaging Patients and Caregivers
- Assessing/Managing Risks and Symptoms
- Educating/Promoting Self-Management
- Collaborating
- Promoting Continuity
- Fostering Coordination

Patients who fit the criteria for the intervention meet with an advanced practice nurse either in the hospital prior to discharge or within 48 hours after discharge. The APN conducts home visits and telephone support, and is available 7 days a week through the length of the intervention (usually extending for 2 months after discharge). The APN uses the initial visit to assess the patient and develop a plan of care based on medical needs and patient values. Subsequently, the APN focuses on active engagement and education of patients and family caregivers. APNs educate patients about their health conditions and risks, including how to recognize and manage symptoms of worsening. They use home visits to monitor symptoms and do medication reconciliation. APNs serve as liaisons between patients/family caregivers and healthcare providers to ensure that followup visits are scheduled with primary or specialist providers after discharge from the hospital. APNs are available to accompany patients to these followup visits, if requested.

15.3.2 Key Components

Rigorous evaluation of interventions of TCM and detailed case summaries developed by participating APNs have led to continued refinement of the model's nine core components, shown in the box on this page.

15.3.3 Clinical Outcomes

A recent study compared TCM to augmented standard care (ASC) and resource nurse care in three hospitals that are part of a larger healthcare system. ASC included usual care plus cognitive screening within 24 hours of each patient's index hospitalization and delirium assessment continuously during the hospital stay. In resource nurse care, resource nurses coached hospital nurses and provided direct care. Resource nurses completed training on management and transition of hospitalized cognitively impaired older adults and attended seminars on cognitive impairment throughout the study period. The TCM

intervention group had lower hospital readmission rates at 30 days (6/66) than the ASC (15/66, $p<0.001$) and resource nurse care (14/71, $p=0.06$) groups.[2]

15.3.4 Process Outcomes

A pilot study by Solomon et al. (2014) found that adapting TCM for patients with psychiatric diagnoses added unique challenges. While the pilot used a psychiatric nurse practitioner and had a psychiatrist available for consult, patients had needs that could not be addressed in the existing program, primarily related to housing instability and relationship conflicts. The study team suggested adding a social worker and peer specialist as part of the care team in addition to the specialized nurse practitioner.[4]

15.3.5 Economic Outcomes

A study of TCM in Aetna's Medicare Advantage patient population found cumulative per-member cost savings of $2,170 over the 52-week period after utilizing TCM ($p<0.037$).[1] In another study, Naylor and colleagues (2014) compared post-acute care (i.e., skilled nursing facility) and readmission costs for hospitalized older adults with cognitive impairment for the three care management interventions (i.e., TCM, ASC, and resource nurse care).[2] ASC added cognitive screening within 24 hours of index hospitalization to usual care. Resource nurse care provided coaching to nurses by nurses specially trained in management and transition of cognitively impaired older adults. TCM had significantly lower costs than ASC at 30- and 180-day observations. Implementing TCM lead to significantly lower costs than implementing resource nurse care during the first 30 days. Overall, these findings suggest that implementing TCM can reduce both the amount of post-acute care (i.e., skilled nursing facility stays) and the total cost of care compared with alternative services with cognitively impaired older adults.[6]

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15.4 General Issues

15.4.1 Unintended Consequences

15.4.1.1 Negative

15.4.1.1.1 Related to Implementing BOOST

No unintended negative consequences were reported in this review of studies that examined the use of BOOST.

15.4.1.1.2 Related to Implementing CTI

No unintended negative consequences were reported in this review of studies that examined the use of CTI.

15.4.1.1.3 Related to Implementing TCM

Within a population of serious mental illness, there is a lack of patient receptivity to the intervention. Additionally, many participants lacked basic needs such as housing. Without stable housing, it is difficult to focus on managing medical conditions.[1]

The effect on re-hospitalizations dissipated after 90 days, which could potentially be attributed to the cognitive impairment many older adults face.[2]

There was no improvement in functional status, including basic activities of daily living.[2]

15.4.1.2 Positive

15.4.1.2.1 Related to Implementing BOOST

Length of hospital stay decreased in BOOST hospital units.[3]

15.4.1.2.2 Related to Implementing CTI

Primary care service utilization rates increased.[4]

15.4.1.2.3 Related to Implementing TCM

No unintended positive consequences were reported in this review of studies that examined the use of TCM.

15.4.2 Implementation

15.4.2.1 Summary of Evidence on Implementation

We reviewed 16 studies targeting three care transition models that, collectively, create a synergy for using multiple elements in order to more effectively impede preventable harm to patients as they transition across care settings. All three models were designed to target and improve care for adults age 65 and older.

15.4.2.2 Barriers and Facilitators

This section describes barriers to and facilitators of using the multi-element models BOOST, CTI, and TCM to improve care transitions.

15.4.2.2.1 Barriers Related to Implementing BOOST

Challenge of translating external QI content to a local setting[3]

Sites being encouraged to implement Project BOOT with no funds or dedicated time to support the implementation efforts.[3,5]

Limited data submission due to hospital implementation design (no geographic rollouts or simultaneous rollout on appropriate clinical floors due to limited resources).[3]

Inadequate staff understanding of hospital's current discharge process.[5]

Insufficient executive leadership support.[5]

Limited front-line staff buy-in.[5]

15.4.2.2.2 Barriers Related to Implementing CTI

Limited funding dedicated to the implementation of CTI.[6]

Lack of dedicated transition coaches.[6]

Insufficient executive leadership support.[6]

15.4.2.2.3 Barriers Related to Implementing TCM

Limited patient receptivity to TCM intervention.[1]

Insufficient communication between providers and service coordinators.[1]

Limited access to patient data due to lack of electronic health record interoperability between service facilities.[1]

15.4.2.2.4 Facilitators When Implementing BOOST

Intensive mentor engagement to assist with site accountability and implementation trouble-shooting.[3,5]

High level of institutional leadership support.[3]

Increased team engagement in reducing hospital admissions. [3]

Presence of an effective project champion to lead the implementation effort.[3]

Implementation of Project BOOST initially as a small project with specific goals.[5]

Use of interdisciplinary teams to facilitate teamwork and collaboration.[5]

Regular feedback from patients, physicians, and other involved in the project.[5]

15.4.2.2.5 Facilitators When Implementing CTI

Presence of executive leadership support for CTI or presence of a CTI champion.[6]

Dedicated transition coaches made available through specific funding allotment.[6]

Strong project management leadership.[6]

Frontline staff commitment to CTI.[6]

Continuity of transition coach relationships across care settings.[7]

15.4.2.2.6 Facilitators When Implementing TCM

Tailored care targeting specific patient populations.[1,2]

High level of institutional leadership support.[2]

High level of front-line staff buy-in.[2]

15.4.3 Resources To Assist With Implementation

The following resources were cited in our review of the evidence and can be used when implementing the three models.

BOOST

- Society of Hospital Medicine: Project BOOST Implementation Toolkit[4,3] provides a compilation of materials to help hospitals implement the intervention and optimize the discharge process at local institutions. Visit https://www.hospitalmedicine.org/clinical-topics/care-transitions to download the Project BOOST Implementation Toolkit.

CTI

- The Care Transition Measure–15[8,9] is a 15-question care transition measure questionnaire to assess the quality of care transitions and focus on patient-centeredness for the purpose of performance improvement. Visit https://caretransitions.org/wp-content/uploads/2019/09/CTM-15.pdf to access the CTM–15 questionnaire.
- The Care Transition Measure–3[8,9] is a 3-question care transition measure questionnaire to assess the quality of care transitions and focus on patient-centeredness for the purpose of performance improvement. Visit https://caretransitions.org/wp-content/uploads/2019/09/CTM-3.pdf to access the CTM–3 questionnaire.
- The Family Caregiver Activation in Transitions (FCAT) Tool[8,9] is a tool designed to facilitate productive conversations between healthcare professionals and family caregivers during the discharge process. The tool can be administered by a health professional or self-administered by the caregivers at any point of transition of care. Visit https://caretransitions.org/wp-content/uploads/2019/09/Family-Caregiver-Activation-in-Transitions-FCAT-tool.pdf to download the Family Caregiver Activation in Transitions (FCAT) tool.
- For instructions on how to implement the above tools, please visit The Care Transition Program website's Tool and Resources page at https://caretransitions.org/all-tools-and-resources/.

TCM

- TCM nurse-specific orientation and web-based modules[3,2] are available. The Foundations of Transitional Care seminar is an orientation designed for nurses and other team members reviewing evidence-based tools and strategies used for successful transitional care. There are also three TCM-specific modules, Understanding TCM Components and Tools, Applying TCM to Individual Patients, and Incorporating TCM in System Redesign, which focus on aspects of TCM implementation. For more information on these resources, please visit https://www.nursing.upenn.edu/ncth/resources/.

15.4.4 Gaps and Future Directions

15.4.4.1 Gaps

Across the three models, there are notable gaps with regard to implementation. For instance, while BOOST has been implemented in over 180 hospitals, more evidence is needed to determine its effectiveness, especially as it relates to implementing the model in care settings other than hospitals and to cost-related outcomes.[10] For CTI, although the evidence is rapidly advancing, given the prominent role of physicians, there is a need to assess their perspective and/or satisfaction regarding implemention.[8] More strategies are also needed to determine how best to incorporate patients and family caregivers voice and preferences into the CTI to further engage them[5] Since the majority of CTI studies have focused on Medicare fee-for-service or Medicare Advantage beneficiaries, the generalizability of the intervention beyond these populations should be explored. Despite advances in TCM research, gaps exist regarding the effectiveness of specific services that qualify under certain Current Procedural Terminology (CPT) codes.[11] TCM is an understudied approach, with only three studies identified that have utilized all the required elements for TCM service for Medicare's billing code.[11] Current studies often lack a focus on the organizational contexts of various health systems that promote a successful transitional care strategy; therefore, future research should focus on TCM effectiveness across a variety of different settings.

15.4.4.2 Future Directions

The evidence for each of the models is still evolving. In this section we highlight considerations for future work. The hospitals that have implemented BOOST were described as being big urban academic medical centers that often have the infrastructure and resources to run large quality improvement projects. Future implementation efforts of BOOST should focus on examining its impact in smaller or rural hospital settings, where additional financial support for QI and data collection may be required.[12] Researchers also recommended that future studies assess the influence of using BOO.ST's mentoring component as well as assessing the role of organizational content on the effectiveness of this model.[12] Researchers who studied CTI recommended more attention to factors such as medication management, patients with cardiovascular disease and diabetes, and patients older than 85 years who identified as African American or Latino, as the average profile of CTI patients was white women 76–85 years old.[6] Since researchers are starting to expand the use of TCM beyond older adults, examining the effectiveness of implementing this model for patients with lower socioeconomic status or lower incomes, and also patients with psychiatric conditions or disorders, would be beneficial to the field. Researchers should also consider examining the potential of implementing TCM to add value to emerging care delivery models, including patient-centered medical homes, accountable care organizations, community-based palliative care programs, and population health models.

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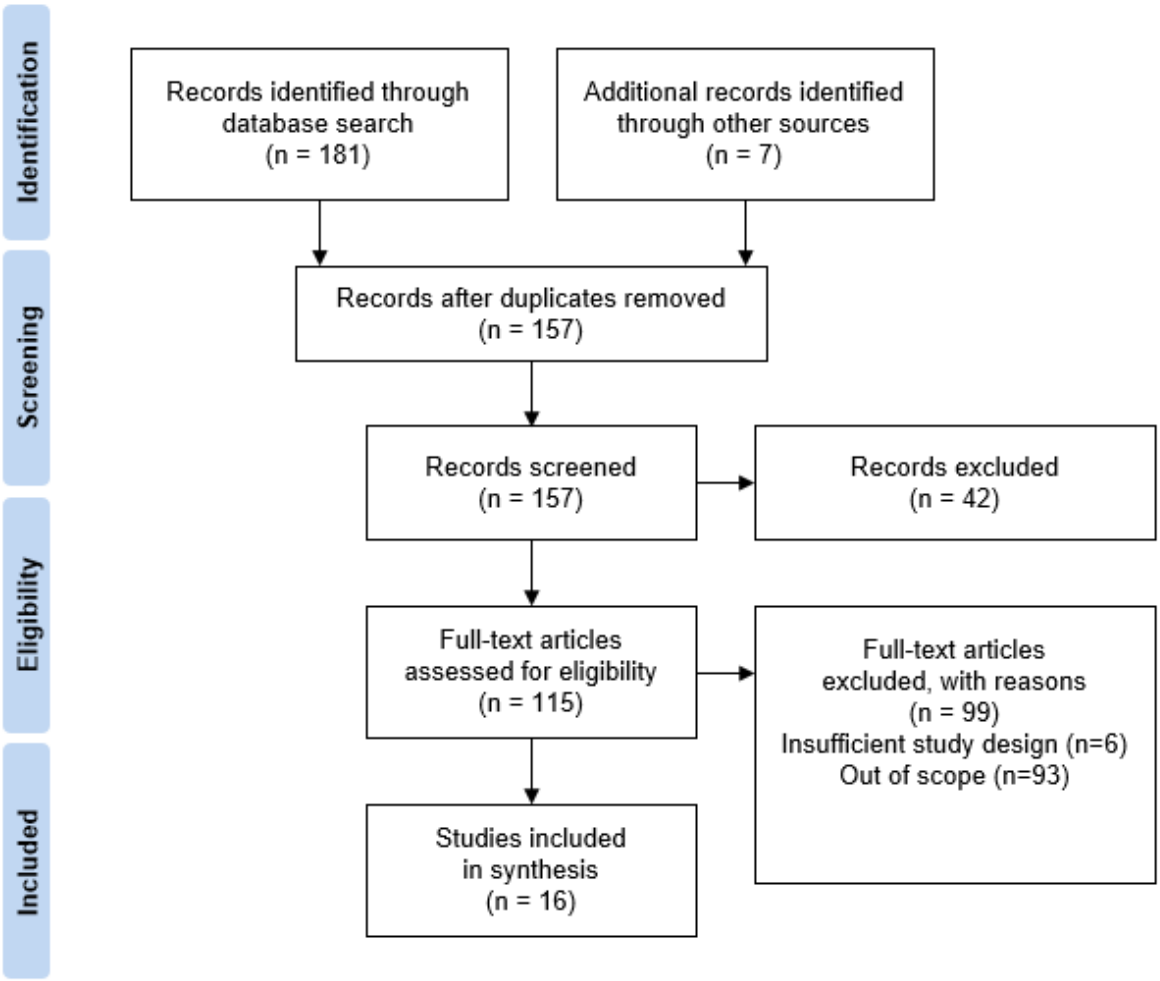
Conclusion and Comment

Moving patients from one care setting to another can pose significant risk. Implementing transitional care models such as BOOST, CTI, and TCM, which place an emphasis on medication management, transition planning, patient/family engagement and education, communication and transferring information, follow-up care, healthcare provider engagement, and shared accountability across providers and organizations, is a patient safety practice that appears to have great potential. Evidence shows that implementing these models results in standardization in discharge protocol, ultimately leading to a decrease in hospital readmissions and an increase in associated cost savings. However, more diverse studies using these models are needed to establish a firm evidence base in a variety of care settings.

Studies focusing on model implementation in a variety of care settings, including rural hospitals, patient-centered medical homes, accountable care organizations, and community-based palliative care programs, would lead to stronger clinical evidence and improved implementation. Existing studies primarily focus on Medicare populations in large urban academic medical centers. Future research on implementation of these models in a variety of settings with diverse patient populations is critical for understanding opportunities and outcomes associated with multi-element models designed to improve transitional care.

Appendix A. Care Transitions PRISMA Diagram

Figure A.1: Care Transitions, Use of Multi-Element Models To Improve Care Transitions—Study Selection for Review



PRISMA criteria described in Moher D, Liberati A, Tetzlaff J, et al. Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med. 2009 Jul 21;6(7): e1000097. doi:10.1371/journal.pmed1000097.

Appendix B. Care Transitions Evidence Tables

Table B.1: Care Transitions, Use of Multi-Element Models to Improve Care Transitions–Single Studies

Note: Full references are available in the Section 15.2 reference list (except where noted).

Author, Year	Description of Patient Safety Practice	Study Design; Sample Size; Patient Population	Setting	Outcomes: Benefits	Outcomes: Harms	Implementation Themes/Findings	Risk of Bias (High, Moderate, Low)
Coleman et al., 2004[3]	Implementing the Care Transitions Intervention (CTI), developed by Eric A. Coleman	Quasi-experimental; intervention subjects (n= 158), control subjects (1,235); patients aged 65 or older living in community	Nonprofit group managed care delivery system located in Colorado that cares for more than 56,000 patients aged 65 or older	Lower odds of rehospitalization; patients had high levels of confidence in obtaining essential information for managing their condition, communication with members of the healthcare team, and their medication regimen.	Not provided	Hospitalized subjects who received CTI were half as likely to return to the hospital as subjects who did not receive CTI. Intervention patients reported high levels of confidence in obtaining essential information for managing their condition, communicating with members of the healthcare team and understanding their medication regimen.	Not provided
Coleman et al., 2006[2]	Implementing CTI	Randomized controlled trial; n=750, community dwelling adults age 65 or older with 1 of 11 diagnoses, including stroke, congestive heart failure, coronary artery disease, cardiac arrhythmias, chronic obstructive pulmonary disease, diabetes mellitus, spinal stenosis, hip fracture, peripheral vascular disease, deep venous thrombosis and pulmonary embolism	Large not-for-profit capitated delivery system that cares for more than 60,000 patients 65 years or older in Colorado	Encouraging patients and their caregivers to assert a more active role in their care transitions lowers readmission rates and lowers costs.	Not provided	Intervention patients had lower rehospitalization rates at 30 days and at 90 days than control subjects. The mean hospital costs were lower for intervention patients ($2,508) vs. controls ($2,546) at 180 days. Transition coach and personal health record enabled patients/caregivers to ensure greater proportions of their needs were met.	Not provided

Author, Year	Description of Patient Safety Practice	Study Design; Sample Size; Patient Population	Setting	Outcomes: Benefits	Outcomes: Harms	Implementation Themes/Findings	Risk of Bias (High, Moderate, Low)
Coleman et al., 2015[8]	Implementing CTI	Prospective cohort study; n=83, patient/care giver partnerships; patients were Medicare recipients aged 65 years and older admitted to hospital between May 1, 2012, and March 31, 2013	Nonprofit acute care hospital (253 beds) serving a geographically isolated community	Increased caregiver activation of care.	Generalizability of study is unknown.	Family caregivers experienced a mean improvement in activation of 6 points on a 0-10 scale. Transition coaches identified 71% of patients as having medication discrepancies or errors after hospital discharge and coached family caregivers on how to respond. The enhanced family caregiver CTI significantly improved activation, quality, goal achievement, satisfaction, and medication safety.	Not provided
Gardner et al., 2014[9]	Implementing CTI	Quasi-experimental cohort study, intervention group (n=321), internal control group (n=919); fee-for-service Medicare beneficiaries hospitalized from January 1, 2009, to May 31, 2011	Six Rhode Island acute care hospitals	Lower healthcare utilization after discharge; lower total healthcare costs.	Not provided	Compared to control group, the intervention group had significantly lower utilization in 6 months after discharge and lower mean healthcare costs. The cost avoided per patient receiving CTI was $3,752, driven by lower 6-month rates of hospital admissions, and lower emergency department visits and observation stays.	Not provided

Author, Year	Description of Patient Safety Practice	Study Design; Sample Size; Patient Population	Setting	Outcomes: Benefits	Outcomes: Harms	Implementation Themes/Findings	Risk of Bias (High, Moderate, Low)
Hansen et al., 2013[10]	Implementing BOOST (Better Outcomes for Older Adults through Safe Transitions), which was created by the Society of Hospital Medicine	Semi controlled pre-post study, (n=11); hospitals serving medical or mixed medical-surgical patient populations	Sample of 11 hospitals varying in geography, size, and academic affiliation, including community teaching hospitals, community non-teaching hospitals, academic medical centers; range of 300-600 beds	Decrease in readmission rates post-intervention.	Not provided	Participation in Project BOOST seemed to be associated with a decrease in readmission rates but no significant change in length of stay among hospitals implementing BOOST tools.	Not provided
Hirschman et al., 2015[11]	Implementing the Transitional Care Model (TCM)	Evidence summary	Not provided	A cumulative per-member savings of $2,170 at 1 year post-enrollment ($p<.05$) was observed in the TCM intervention relative to comparison group.	Not provided	Not provided	Not provided
Lee et al., 2016[12]	Implementing BOOST, which was created by the Society of Hospital Medicine	Retrospective design; case notes review; sample: n=324 (mean age 75); patients age 65 and older readmitted to acute medical unit	Large hospital in South London; acute medical unit with 58 beds	Use of BOOST Tool correctly predicted readmissions in U.K. and assisted in identifying high-risk patients.	BOOST Tool precision in the U.K. has yet to be determined.	Three hundred twenty-four patients were admitted for readmissions with a median of 7 days between discharge and readmission. The BOOST Tool correctly predicted 90% of readmissions using two or more risk factors and 99.1% of readmissions if one risk factor was included.	Not provided

Author, Year	Description of Patient Safety Practice	Study Design; Sample Size; Patient Population	Setting	Outcomes: Benefits	Outcomes: Harms	Implementation Themes/Findings	Risk of Bias (High, Moderate, Low)
Parrish et al., 2009[7]	Implementing CTI	Implementation study; n=791; 18 years and older; average CTI patients: white women aged 76–85	Ten sites: five hospital led, 5 community led	Increased patient self-management of conditions.	Not provided	Presence of leadership support was determined to be critical factor in support of CTI. Sites identified engaging hospital and community-based leaders, providing additional transition coach training, and the assigning of consistent and dedicated transition coaches as available lessons. Future CTI should focus on medication management, patients with cardiovascular disease conditions or diabetes, patients older than 85 years, and African-American and Latino patients.	Not provided
Parry et al., 2009[4]	Implementing CTI	Randomized controlled trial; intervention group (n=44), control group (n=42); fee-for-service Medicare patients	Two community based hospitals in Colorado with the same parent company	Reduced hospital readmissions,	Not provided	Intervention patients were less likely to be readmitted to a hospital in general and for the same condition at 30, 90, and 180 days in comparison to control patients.	Not provided

Author, Year	Description of Patient Safety Practice	Study Design; Sample Size; Patient Population	Setting	Outcomes: Benefits	Outcomes: Harms	Implementation Themes/Findings	Risk of Bias (High, Moderate, Low)
Naylor et al., 2012[1] (full reference available in Section 15.3 reference list)	Implementation of TCM	Prospective, quasi-experimental study; 172 patients; community-based older adults coping with common chronic illnesses (i.e., all primary diagnoses except neurological disorders or cancer, end-stage renal disease, and untreated psychiatric disorders) in Aetna's Medicare Advantage program in the mid-Atlantic region	Community/outpatient	There was a significant reduction in hospital re-admissions at 3 months post-enrollment among TCM enrollees compared to the control group (45 readmissions in intervention group, 60 in controls, p<0.041). There also was a 28% reduction in total hospital days (252 vs. 351, p, 0.032). Mean score for satisfaction level with the model was 9.6 out of maximum of 10 for overall patient satisfaction.	Each advanced practice nurse (APN) managed a caseload of 18-–20 members. APNs completed a mean of 8.2 (standard deviation [SD] 3.5, range 1-25) home or physician office visits with each enrollee. Each visit lasted approximately 50 minutes. A mean of 8.4 (SD 7.21, range 151) phone contacts were completed. Total cost of TCM for the 155 Aetna enrollees included was $217,000. In comparison to the matched control group and taking into consideration cost of intervention, TCM was associated with a significant short-term decrease in total healthcare costs at 3 months of $439 per member per month (P, 0.026) and cumulative per-member savings of $2,170 over the 52-week post-enrollment period (P<0.037).	Not provided	The matched control group was obtained from a geographic area which had a 20% lower acute care utilization rate at baseline compared to the mid-Atlantic region where TCM was implemented. The higher rate in the intervention group region may suggest greater opportunity for improvement. Also, the matched control group did not have data on health status, quality of life, and satisfaction data.

Author, Year	Description of Patient Safety Practice	Study Design; Sample Size; Patient Population	Setting	Outcomes: Benefits	Outcomes: Harms	Implementation Themes/Findings	Risk of Bias (High, Moderate, Low)
Naylor et al., 2014[2] (full reference available in Section 15.3 reference list)	Augmented Standard Care (ASC) versus Resource Nurse Care (RNC) versus TCM	Prospective comparative effectiveness study; 202 patients with caregiver; community-dwelling adults age 65 years and older who were hospitalized with plan to return home, lived within 30 miles of admitting hospital, spoke English, and had a family caregiver willing to enroll in the study	Three hospitals within an academic health system	Twenty-five percent of the TCM group were rehospitalized or died by day 83, compared to day 58 for the RNC group and day 33 for the ASC group. The TCM group had lower mean readmission rates per patient at 30 days compared with the RNC (P<0.001) and ASC groups (p=0.06). At 90 days post-index hospitalization, the TCM group had significant lower mean readmission rates per patient compared to the ASC group (p=0.02) only. No significant group differences in functional status were observed.	Not provided	Not provided	Not provided

Author, Year	Description of Patient Safety Practice	Study Design; Sample Size; Patient Population	Setting	Outcomes: Benefits	Outcomes: Harms	Implementation Themes/Findings	Risk of Bias (High, Moderate, Low)
Roper et al., 2017[5] (full reference available in Section 15.3 reference list)	Implementing the TCM	Systematic review; 23,354 patients total sorted into 3 patient groups; 1. Medicaid Recipients intervention group (n=13,476), control group (n=7,899); 2. Medicare Recipients intervention group (n=254), control group (n=764) 3. Adult Patients intervention group (n=685), control group (n=276)	120 general hospitals across 14 regional networks (NC); metropolitan (Southern CA), 13 system-affiliated medical centers; metropolitan (Portland), 4 university-based practice groups and 12 community county health centers	The three identified studies each reported reduced all-cause hospital readmissions within the first month following discharge. Effects varied from modest (1.8% reduction) to substantial (approximately 20% reduction).	Not provided	Not provided	Two of the studies were institutional improvement designs, none were randomized controlled trials.
Solomon et al., 2014[4] (full reference available in Section 15.3 reference list)	Implementing TCM with psychiatric patients	Randomized pilot study; 20 patients in intervention group; adults with psychiatric diagnosis discharged from hospital for acute physical illness	Two psychiatric units of an acute care hospital	Not provided	Not provided	Participants with an active need for medical services were most receptive to the program. Provider challenges included poor communication and coordination with other services. Additionally, the research team decided from the pilot to add a social worker and peer specialist to the care team.	The pilot study had reflections and lessons learned, but no concrete outcomes.
Voss et al., 2011[5]	Implementing CTI	Not provided	Not provided	Reduced hospital readmissions.	Limited generalizability.	Thirty-day readmissions were fewer for participants who received CTI.	Not provided

Author, Year	Description of Patient Safety Practice	Study Design; Sample Size; Patient Population	Setting	Outcomes: Benefits	Outcomes: Harms	Implementation Themes/Findings	Risk of Bias (High, Moderate, Low)
Williams et al., 2014[2] (full reference available in Section 15.1 reference list)	Implementing BOOST	Qualitative evaluation; n=6 pilot site hospitals and 27 later sites; patient population not available (focus is on hospitals)	Cohort of hospitals including community non-teaching and community teaching, ranging from 100 to 800 beds	Unique mentorship element of Project BOOST proved valuable in helping sites overcome unique challenges and identify factors for success.	Barriers led to less complete implementation of Project BOOST in some hospitals.	Facilitators of Project BOOST implementation included mentor, a small beginning teamwork, and proactive engagement. Common barriers included inadequate understanding of current discharge process, insufficient administrative support, lack of protected time or dedicated resources, lack of front staff buy-in.	Not provided

Appendix C. Care Transitions Search Terms

Method	Search	Search String for: CINAHL	Search String for: MEDLINE
Search 2008-Present, English Only MedLine Publication Types: • Clinical Trial • Clinical Trial, Phase I • Clinical Trial, Phase II • Clinical Trial, Phase III • Clinical Trial, Phase IV • Comparative Study • Controlled Clinical Trial • Corrected and Republished Article • Evaluation Studies • Guideline • Journal Article • Meta-Analysis • Multicenter Study • Practice Guideline • Published Erratum • Randomized Controlled Trial • Review	BOOST Model	((AB “BOOST” OR “Better Outcomes by Optimizing Safe Transitions”) AND ((MH “Patient Discharge” OR "Transfer, Discharge" OR “Hand Off (Patient Safety)" OR "Discharge Planning") OR (AB “Discharge Planning” OR "Patient Discharge" OR "Patient Transfer" OR "Patient Handoff")))	((AB “BOOST” OR “Better Outcomes by Optimizing Safe Transitions”) AND ((MH “Patient Discharge” OR “Patient Transfer” OR "Patient Handoff”) OR (AB “Discharge Planning” OR "Patient Discharge" OR "Patient Transfer" OR "Patient Handoff")))

Method	Search	Search String for: CINAHL	Search String for: MEDLINE
• Scientific Integrity Review • Technical Report • Twin Study • Validation Studies CINAHL Publication Types: • Clinical Trial • Corrected Article • Journal Article • Meta-Analysis • Meta Synthesis • Practice Guidelines • Randomized Controlled Trial • Research Review • Systematic Review			
Search 2008-Present, English Only MedLine Publication Types: • Clinical Trial • Clinical Trial, Phase I	Care Transitions Intervention (CTI) Model	((AB "Care Transitions Intervention" OR "CTI") AND ((MH "Patient Discharge" OR "Transfer, Discharge" OR "Hand Off (Patient Safety)" OR "Discharge Planning") OR (AB "Discharge Planning" OR "Patient Discharge" OR	((AB "Care Transitions Intervention" OR "CTI") AND ((MH "Patient Discharge" OR "Patient Transfer" OR "Patient Handoff") OR (AB "Discharge Planning" OR "Patient Discharge" OR "Patient Transfer" OR "Patient Handoff"))

Method	Search	Search String for: CINAHL	Search String for: MEDLINE
• Clinical Trial, Phase II • Clinical Trial, Phase III • Clinical Trial, Phase IV • Comparative Study • Controlled Clinical Trial • Corrected and Republished Article • Evaluation Studies • Guideline • Journal Article • Meta-Analysis • Multicenter Study • Practice Guideline • Published Erratum • Randomized Controlled Trial • Review • Scientific Integrity Review • Technical Report • Twin Study • Validation Studies CINAHL Publication Types: • Clinical Trial • Corrected Article		"Patient Transfer" OR "Patient Handoff"))) AND ((MH “Patient Safety”) OR (AB "Patient Safety")))	AND ((MH “Patient Safety”) OR (AB "Patient Safety")))

Method	Search	Search String for: CINAHL	Search String for: MEDLINE
• Journal Article • Meta-Analysis • Meta Synthesis • Practice Guidelines • Randomized Controlled Trial • Research Review • Systematic Review			
Search 2008-Present, English Only MedLine Publication Types: • Clinical Trial • Clinical Trial, Phase I • Clinical Trial, Phase II • Clinical Trial, Phase III • Clinical Trial, Phase IV • Comparative Study • Controlled Clinical Trial • Corrected and Republished Article	Teach-Back Model	(((MH “Teaching") OR (AB "Teach-Back Communication" OR “Teach-Back” OR “Teachback”)) AND ((MH “Patient Discharge” OR "Transfer, Discharge" OR “Hand Off (Patient Safety)" OR "Discharge Planning") OR (AB “Discharge Planning” OR "Patient Discharge" OR "Patient Transfer" OR "Patient Handoff")))	(((MH “Teaching") OR (AB "Teach-Back Communication" OR “Teach-Back” OR “Teachback”)) AND ((MH “Patient Discharge” OR “Patient Transfer” OR "Patient Handoff") OR (AB “Discharge Planning” OR "Patient Discharge" OR "Patient Transfer" OR "Patient Handoff")))

Method	Search	Search String for: CINAHL	Search String for: MEDLINE
• Evaluation Studies • Guideline • Journal Article • Meta-Analysis • Multicenter Study • Practice Guideline • Published Erratum • Randomized Controlled Trial • Review • Scientific Integrity Review • Technical Report • Twin Study • Validation Studies CINAHL Publication Types: • Clinical Trial • Corrected Article • Journal Article • Meta-Analysis • Meta Synthesis • Practice Guidelines • Randomized Controlled Trial • Research Review • Systematic Review			

Method	Search	Search String for: CINAHL	Search String for: MEDLINE
Search 2008-Present, English Only MedLine Publication Types: • Clinical Trial • Clinical Trial, Phase I • Clinical Trial, Phase II • Clinical Trial, Phase III • Clinical Trial, Phase IV • Comparative Study • Controlled Clinical Trial • Corrected and Republished Article • Evaluation Studies • Guideline • Journal Article • Meta-Analysis • Multicenter Study • Practice Guideline • Published Erratum • Randomized Controlled Trial • Review • Scientific Integrity Review • Technical Report			

Method	Search	Search String for: CINAHL	Search String for: MEDLINE
• Twin Study • Validation Studies CINAHL Publication Types: • Clinical Trial • Corrected Article • Journal Article • Meta-Analysis • Meta Synthesis • Practice Guidelines • Randomized Controlled Trial • Research Review • Systematic Review			
Search 2008-Present, English Only MedLine Publication Types: • Clinical Trial • Clinical Trial, Phase I • Clinical Trial, Phase II • Clinical Trial, Phase III	Transitional Care Model (TCM)	((AB “Transitional Care Model” OR “TCM”) AND ((MH “Patient Discharge” OR "Transfer, Discharge" OR “Hand Off (Patient Safety)" OR "Discharge Planning") OR (AB “Discharge Planning” OR "Patient Discharge" OR "Patient Transfer" OR "Patient Handoff")))	((AB “Transitional Care Model” OR “TCM”) AND ((MH “Patient Discharge” OR “Patient Transfer” OR "Patient Handoff”) OR (AB “Discharge Planning” OR "Patient Discharge" OR "Patient Transfer" OR "Patient Handoff")))

Method	Search	Search String for: CINAHL	Search String for: MEDLINE
• Clinical Trial, Phase IV • Comparative Study • Controlled Clinical Trial • Corrected and Republished Article • Evaluation Studies • Guideline • Journal Article • Meta-Analysis • Multicenter Study • Practice Guideline • Published Erratum • Randomized Controlled Trial • Review • Scientific Integrity Review • Technical Report • Twin Study • Validation Studies CINAHL Publication Types: • Clinical Trial • Corrected Article • Journal Article • Meta-Analysis • Meta Synthesis			

Method	Search	Search String for: CINAHL	Search String for: MEDLINE
• Practice Guidelines • Randomized Controlled Trial • Research Review • Systematic Review			

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