

AHRQ Safety Program for Telemedicine: Improving Antibiotic Use

Best Practices in Managing Acute Diarrhea Over Telemedicine

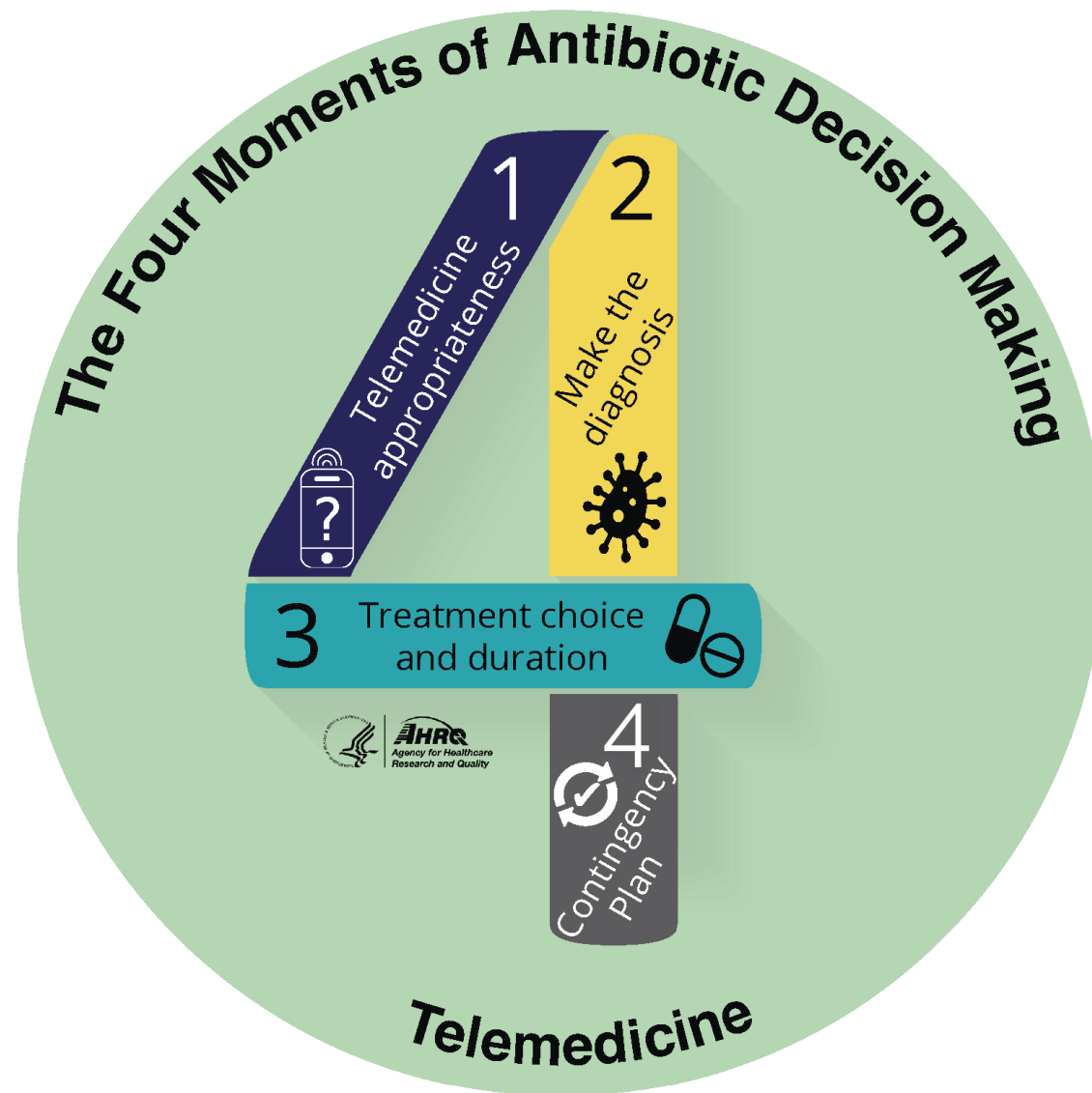


Objectives

By the end of this presentation, participants will be able to—

- Describe common causes of acute diarrhea in children and adults
- Understand when a person presenting with acute diarrhea may need to be evaluated in-person
- Understand the nonantibiotic management of acute diarrhea over telemedicine
- Discuss symptoms after the diagnosis of acute diarrhea that warrant a return to medical care

The Four Moments of Antibiotic Decision Making



1. Is my patient an appropriate candidate for a telemedicine visit?
2. Does my patient have signs and symptoms indicating an infection that may require antibiotics? Is a diagnostic test needed?
3. If antibiotics are indicated, what is the narrowest, safest, and shortest regimen I can prescribe?
4. What symptomatic relief should I offer or prescribe to my patient? What should I tell my patient about the expected course and the followup plan?

Case Presentation

Maria is a 31-year-old female presenting to a telemedicine appointment with two days of loose, watery stools. She is interested in starting antibiotics.



Moment 1: Obtaining the History (Part 1)

- Approximately how many stools a day have you had?
- Have you noticed blood in the stools?
- Have you had a fever, chills, light headedness, confusion?
- Have you had any syncopal episodes?
- Have you also had vomiting or abdominal pain?
- What color is your urine? (You can provide a range from light yellow to dark orange.)
- What foods and liquids are you able to keep down?
- Have you had any recent international travel? If so, to where?



Moment 1: Obtaining the History (Part 2)

- Have you eaten any undercooked meat or exotic foods in the past week?
- Have you started any new medications including antibiotics in the past few months?
- Have you taken any medications after the diarrhea started?
- Is there any chance you could be pregnant?
- What is your profession? Do you work with young children or with animals?
- What animals have you been exposed to in the past month?
- Approximately how many separate bouts of diarrhea have you had in the past year?



Moment 1: Patient's History

- Approximately four to five watery, nonbloody stools per day for the past 2 days
- Not sure if she has a fever
- No confusion or dizziness
- Mild nausea, no vomiting
- Very bloated, no abdominal pain
- Urine dark yellow
- Low appetite for past 2 days; able to keep down fried chicken and soda
- Travel to Mexico two months ago
- Not sexually active since last period
- No unusual animal exposure



Moment 1: Virtual Physical Examination

- Not ill appearing or confused; speaking in coherent, full sentences; eyes do not appear sunken in to suggest dehydration
- Pulse 100 beats per minute, no blood pressure cuff, normal breathing
- Slightly delayed skin recoil and slightly prolonged capillary refill at 2 seconds
- General discomfort but no abdominal tenderness

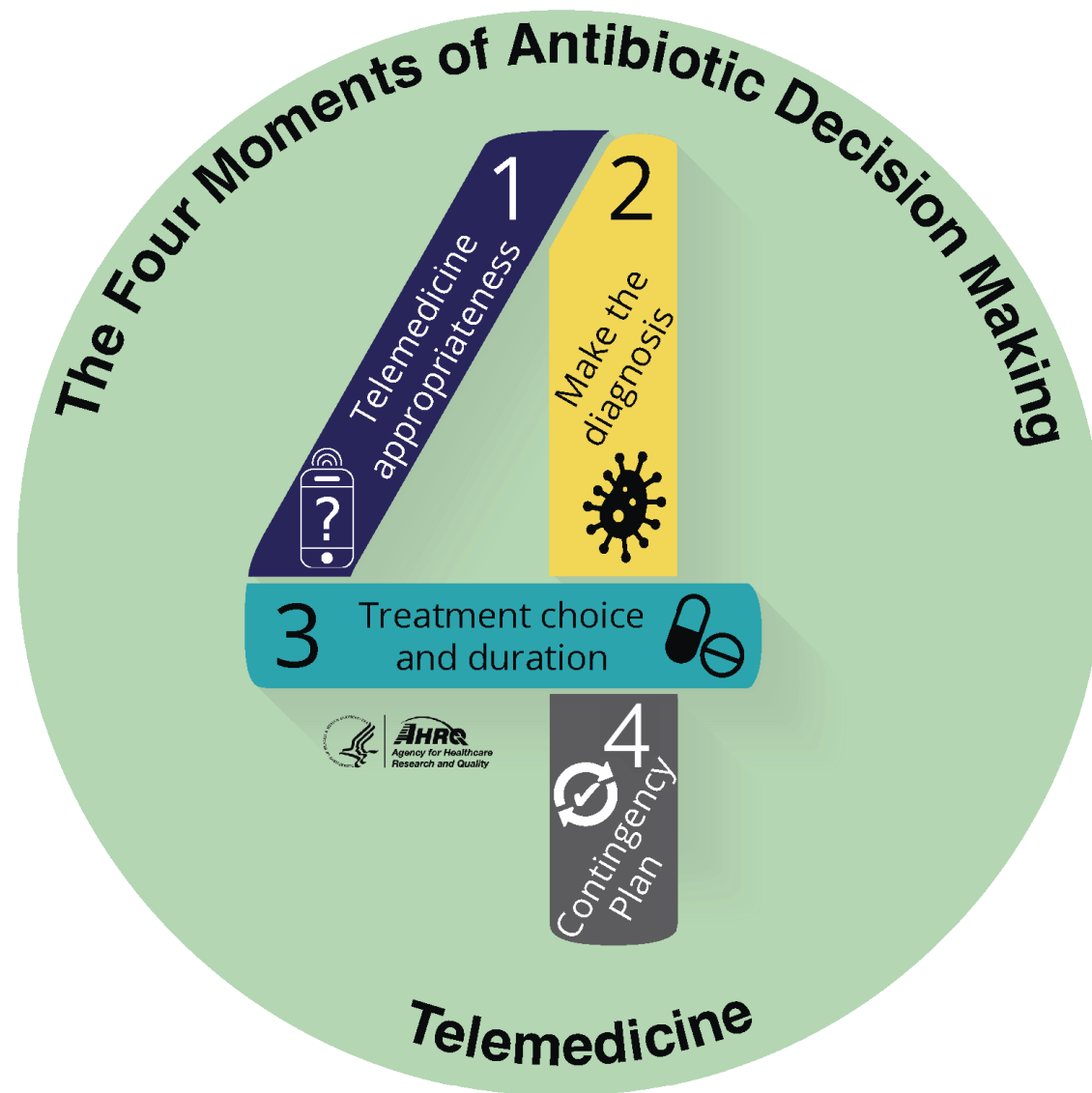


Moment 1: Telemedicine Appropriateness

Can be seen over telemedicine unless patient meets any of the following criteria as intravenous fluids may be needed, alternative diagnoses investigated, or diagnostic testing (e.g., stool cultures, computed tomography [CT] scan of abdomen):¹⁻²

1. Bloody stools, high fevers, confusion, or severe abdominal pain
 - Concern for bacterial diarrhea, ischemic colitis
2. Intractable vomiting the intake and/or retention of fluid, dizziness, or significant lethargy
 - Concern for severe dehydration
3. Acute diarrhea for over 7 days with no improvement
 - Concern for an alternate diagnosis
4. Pregnant or has severe immune compromise
 - Concern for unusual pathogens (e.g., *Listeria*) or systemic disease (e.g., concomitant bacteremia)

Moment 2: Need for Antibiotics



1. Is my patient an appropriate candidate for a telemedicine visit?
2. Does my patient have signs and symptoms indicating an infection that may require antibiotics? Is a diagnostic test needed?

Moment 2: Diagnostic Testing (Part 1)¹⁻²

- Viral acute diarrhea
 - Most visits can be managed over telemedicine
 - Typical symptoms: abrupt onset, mild nausea, low-grade fevers
 - Common viruses include norovirus, rotavirus, and adenovirus
 - Does not improve with antibiotics
 - No antiviral medications for immunocompetent patients
 - Often linked to household or community outbreaks
- In-person visit recommended if severe dehydration to determine need for hospitalization and for laboratory tests (e.g., basic metabolic panel)



Moment 2: Diagnostic Testing (Part 2)¹⁻⁴

- Bacterial causes of acute diarrhea
 - Typical symptoms include high fever, bloody stools, severe abdominal pain
 - Common bacterial causes include *Salmonella*, *Campylobacter*, *Shigella*, and *E. coli* 0157:H7 (Shiga toxin–producing *E. coli*)
 - *Clostridioides difficile* infection (or *C. diff*) can cause a colitis with similar symptoms
 - Reasonable to refer for a stool culture and/or stool multiplex PCR if concern for a bacterial cause based on epidemiologic factors
 - In-person visit recommended if severe dehydration to determine need for hospitalization and for laboratory tests (e.g., basic metabolic panel)



Moment 2: Diagnostic Testing (Part 3)¹⁻²

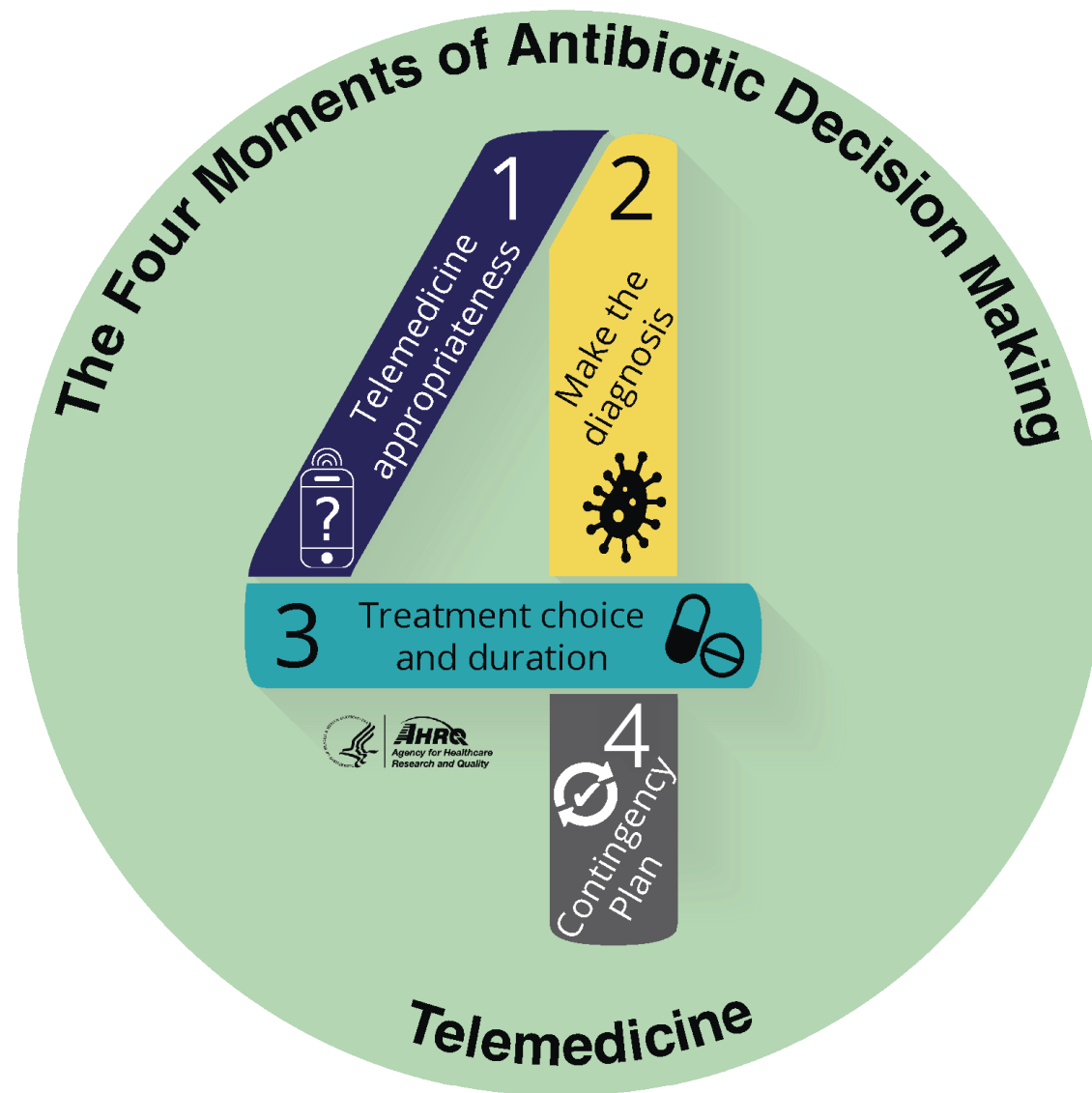
- Parasitic causes of diarrhea
 - Symptoms generally persist over 14 days
 - *Giardia lamblia*⁵
 - Typical symptoms include foul-smelling, greasy stools with flatulence
 - Risk factors: returning travelers from areas with poor sanitation or unsafe drinking water, campers/hikers drinking environmental sources of water, children in daycare and daycare workers, men who have sex with men
 - Empiric treatment with metronidazole can be considered
 - *Entamoeba histolytica*
 - Can present similar as viral or bacterial causes of diarrhea
 - Almost acquired from travel to endemic areas with poor sanitation
 - Refer to a commercial laboratory for stool testing including stool ova and parasites and/or multiplex stool PCR

Moment 2: Antibiotic Therapy¹⁻²

- Empiric antibiotic therapy **not** suggested over telemedicine
 - Taking antibiotics for *E. coli* can trigger a bacterial stress response, increasing risk of developing hemolytic uremic syndrome⁴
 - Unnecessary antibiotics for *C. difficile* infection can exacerbate patient outcomes
- If patient is currently taking antibiotics:
 - Review reason and determine if needs to be continued
 - If infection resolved, suggest discontinuation of antibiotics
- If diarrhea continues for over a month without improvement, consider referral for an in-person visit to evaluate for noninfectious cause (e.g., inflammatory bowel disease, celiac disease, food intolerance)
 - Antibiotic therapy **not** suggested for these conditions

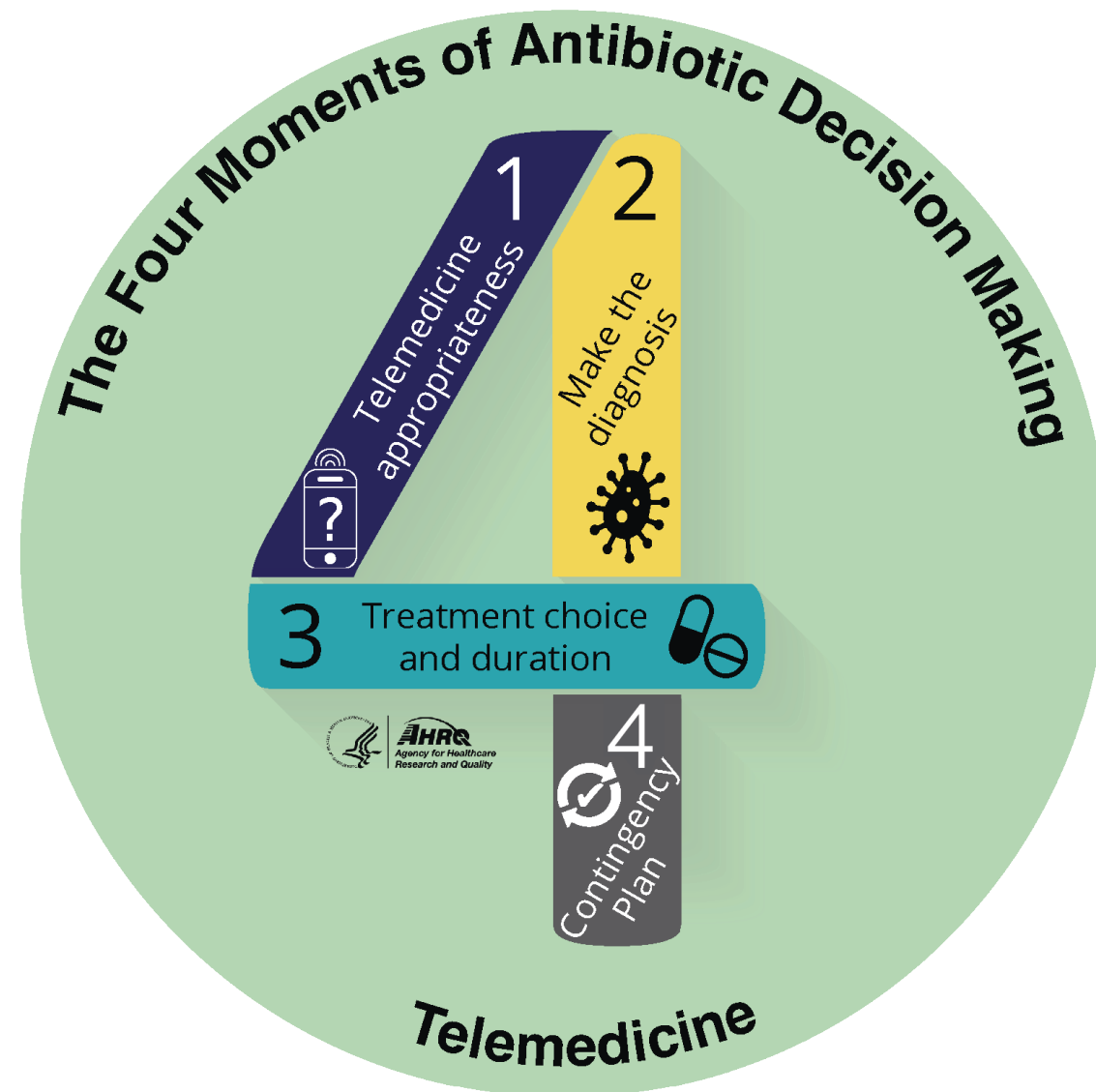


Moment 3



1. Is my patient an appropriate candidate for a telemedicine visit?
2. Does my patient have signs and symptoms indicating an infection that may require antibiotics? Is a diagnostic test needed?
3. If antibiotics are indicated, what is the narrowest, safest, and shortest regimen I can prescribe?

Moment 4



1. Is my patient an appropriate candidate for a telemedicine visit?
2. Does my patient have signs and symptoms indicating an infection that may require antibiotics? Is a diagnostic test needed?
3. If antibiotics are indicated, what is the narrowest, safest, and shortest regimen I can prescribe?
4. What symptomatic relief should I offer or prescribe to my patient? What should I tell my patient about the expected course and the followup plan?

Moment 4: Supportive Care (Part 1)¹⁻²

- Adults: Drink 8–12 cups of fluids per day (water, broth, oral rehydration solutions such as Pedialyte[®])
- Younger children: Drink 1–2 cups of fluids or eat bland foods
- Older children: Drink 2–4 cups of fluids after each loose stool
- Small, bland meals recommended until symptoms improve
 - BRAT diet = bananas, rice (plain, white), applesauce, toast (plain, white)
- Avoid sugary drinks, caffeine, and greasy foods
- Sports drinks are often high in sugar; may be used if preferred options are unavailable or unlikely to be consumed.
- Probiotics are not routinely recommended for acute diarrhea, as their benefits are uncertain and vary by product.



Moment 4: Supportive Care (Part 2)¹⁻²

- Consider loperamide (Imodium[®]); only if patient has strong preference for antidiarrheal medication⁶
 - Avoid if fevers or blood in stool – can lead to severe disease
 - Not recommended in children – can cause central nervous system toxicities
- Alternative medication for adults with fevers or bloody diarrhea: bismuth salicylate (Pepto-Bismol[®])⁷
 - Not recommended for children under 12 years – may increase risk of Reye's syndrome

Moment 4: Expectations and Followup Plan¹⁻²

- Symptoms should improve within 3 days
- Seek in-person medical care if—
 - Diarrhea lasts >7 days without improvement
 - Develop intractable vomiting without being able to keep fluids down
 - Develop significant weakness or lethargy
 - Develop fevers higher than 101.3 degrees Fahrenheit (38.5 degrees Celsius)
 - Develop severe abdominal pain, bloody or black/tarry stools



Take-Home Messages

- ✓ Acute diarrhea is the passage of ≥ 3 loose or watery stools per day for ≤ 14 days
- ✓ Obtain a detailed history and physical examination to determine patient's hydration status and to determine if diagnostic testing or an in-person visit is warranted
- ✓ Most cases can be managed over telemedicine; in-person visits are necessary if patients—
 - Have signs of moderate to severe dehydration that cannot be managed at home
 - Have bloody stools, high fever, confusion, or severe abdominal pain
 - Have had more than 7 days of diarrhea without any improvement
 - Are pregnant or have severe immune compromise
- ✓ Provide detailed instructions to patients on staying hydrated as well as when to seek in-person medical care if symptoms are worsening or not improving

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References

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