

SECTION V

Gastroenterology

Constipation

Definition^{1,2,3,4}

Constipation is a disturbance in bowel function, characterized by infrequent or difficult defecation.

Causes^{1,2,3,5,6,7}

- Functional disorders
 - Normal colonic transit, slow transit constipation, dyssynergic defecation (e.g., anismus or pelvic floor dysfunction)
- Medications
 - Opioids, anticholinergics, calcium channel blockers, iron supplementation, antacids
- Neurological disorders
 - Parkinson's disease, multiple sclerosis, spinal cord injury, dementia
- Metabolic disorders
 - Hypothyroid, diabetes, hypercalcemia
- Blockages of the colon
 - Colon cancer, stricture or narrowing
- Mood-related disorders
 - Depression, anxiety

Risk Factors^{1,2,3,6,7}

Risk factors of constipation coincide with causes,

- Advanced age
- Female sex
 - More than twice as common than men
- Reduced mobility
- Low-fluid intake

- Low-fiber diet
- Low socioeconomic status

Signs & Symptoms^{1,2,3,4,6}

- Have \leq three stools/week.
- Rectal fullness or feeling of inadequate bowel emptying.
- Straining with defecation.
- Hard or lumpy stools.

Tests^{1,2,3,4,6,7}

Tests are warranted if constipation has no clear etiology.

- Complete blood count (CBC)
 - The presence of anemia suggests a secondary cause and should be investigated.
- Thyroid-stimulating hormone (TSH)
 - Checks for the presence of hypothyroidism (secondary cause of constipation).
- Basic metabolic panel (BMP), magnesium, and fasting glucose
 - Checks for electrolyte imbalance (hypercalcemia, low magnesium, and/or potassium) and hyperglycemia, which are secondary causes of constipation.
- Plain abdominal radiography
 - Checks for significant stool retention.
- Colonoscopy
 - Recommended if warning signs are present (e.g., anemia, unexplained weight loss, positive fecal occult blood, gastrointestinal [GI] bleeding, or constipation refractory to treatment).

Treatment & Management^{1,2,3,4,6,7}

- **Nonpharmacological and nursing interventions:**
 - Identify and treat potentially reversible causes of constipation.
 - Increase dietary fiber to 25–35 g per day.
 - Encourage adequate fluid intake (goal of 1.5–2 L/day).
 - Increase physical activity.

- Monitor for warning signs of possible malignancy.
 - Constipation presenting acutely, anemia, abdominal pain, unintentional weight loss, rectal bleeding, or a family history of colorectal cancer.
- Schedule bathroom time.
 - Make time to have a bowel movement and ensure privacy.
 - Remind patients that the best potential for a bowel movement is in the morning and about 45 minutes following a meal.
 - Do not postpone having a bowel movement if there is an urge to defecate.
- Educate patients on constipation.
 - If there are minimal to no constipation symptoms, instruct patient to stop taking laxatives.
 - Being obsessed over bowel movements is not good; having a daily bowel movement is not necessary.
 - Patients need to engage in exercise and increase their fiber intake.
- Biofeedback
 - Effective treatment for dyssynergic defecation.
- **Pharmacological and other interventions:**
 - *Consider discontinuing medications that have a side effect of constipation (if appropriate).*
 - Bulking agents (e.g., psyllium [Metamucil]).
 - Example: psyllium 1 tsp (3.4 g) QD-TID with fluids PRN.
 - Promotes softer stool by increasing the bulk of the stool. Will need to drink plenty of water for a better outcome.
 - Not recommended as first-line agent in patients on high-dose opioids or with dysphagia.
 - May cause bloating or flatulence.
 - Stool softeners (e.g., docusate sodium [Colace]).
 - Example: Colace 100 mg PO BID.
 - Not to be used as chronic treatment or in patients taking opioids.
 - Well tolerated and can be combined with a bulking agent.

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- Osmotic agents (e.g., lactulose [Kristalose], polyethylene glycol [Miralax], magnesium citrate)
 - Example: lactulose 15–30 mL PO QD-BID.
 - Lactulose recommended in those residing in nursing homes.
 - Consider when bulking agents and stool softeners are ineffective.
 - May cause bloating and/or flatulence. Magnesium citrate should be avoided with renal impairment.
- Stimulants (e.g., senna [Peri-Colace, Senokot], or bisacodyl [Dulcolax])
 - Example: bisacodyl 5–15mg PO QD.
 - Should be used short term and avoided with bowel obstruction. Used when osmotic agents are ineffective.
 - Increases peristaltic contractions and can have unfavorable side effects such as abdominal cramping.
- Secretagogues (i.e., lubiprostone [Amitiza] and linaclotide [Linzess])
 - Example: lubiprostone 24 mcg PO BID.
 - Recommended as monotherapy and not with other laxatives.
 - They are usually well-tolerated; however may cause GI disturbances (e.g., nausea, abdominal distention). Diarrhea is the main side effect of linaclotide.
- Alvimopan (Entereg) or methylnaltrexone (Relistor)
 - Treats opioid-induced constipation.
- Enemas (used when there is evidence of fecal impaction)
 - Soapsuds enemas should not be given to older adults.
 - Tap water enemas are the safest for regular use.
 - Phosphate enemas are associated with hyperphosphatemia and should be avoided in renal disease.
- Gastroenterology consultation/referral
 - To guide treatment when the above regimen is ineffective.
- Nutritionist consultation/referral
 - To aid in dietary changes

Differential Diagnosis^{1,3,4,7}

- Colon cancer: Will have warning signs such as weight loss, positive occult blood, hematochezia, and change in bowel habits (e.g., increased frequency of bowel movements, loose stools). If there are concerns for colon cancer, consider colonoscopy or other tests (e.g., computer tomography [CT] scan of abdomen/pelvis).
- Irritable bowel syndrome with constipation (IBS-C): More common in those \leq age 50 years and will have recurrent abdominal pain, relieved by defecation. It can be difficult to differentiate between the two; however abdominal pain is not a feature of constipation by itself. Chronic constipation is exceptionally common in older adults, whereas there are lower rates of IBS diagnosed in individuals \geq age 50 years.

CLINICAL PEARLS²

- Consider the possibility of a bowel obstruction if constipation is severe or comes on suddenly.
- Some patients are obsessive–compulsive regarding their constipation and should be reminded that daily bowel movements are not required; the bowel needs a chance to work, and daily laxatives or enemas is not the answer.
- The Rome III Criteria is used to diagnose constipation (Table 5-1).

Table 5-1 Rome III Diagnostic Criteria: Functional Constipation and IBS-C

- Symptoms \geq 3 mo; onset \geq 6 mo prior to diagnosis

Functional Constipation	IBS-C
<ul style="list-style-type: none"> • Must include $>$2 of the following: <ul style="list-style-type: none"> • Straining* • Lumpy or hard stools* • Sensation of incomplete evacuation* 	<ul style="list-style-type: none"> • IBS: Recurrent abdominal pain/discomfort \geq3 d/mo for the past 3 mo, associated with \geq2 of the following: <ul style="list-style-type: none"> • Improvement with defecation

(Continues)

Functional Constipation	IBS-C
<ul style="list-style-type: none"> • Sensation of anorectal obstruction/blockage* • Manual maneuvers to facilitate defecation (eg, digital evacuation, support of the pelvic floor)* • <3 defecations/wk • Loose stool rarely present w/o use of laxatives • Insufficient criteria for IBS-C 	<ul style="list-style-type: none"> • Onset associated with change in stool frequency • Onset associated with change in stool form • IBS is subtyped by predominant stool pattern • IBS-C: hard or lumpy stools[†] ≥ 25% of defecations; loose or watery stools[‡] <25% of defecations[§]

*≥25% of defecations. †Bristol Stool Form Scale 1–2: separate, hard lumps like nuts (difficult to pass); or lumpy, sausage-shaped stool. ‡Bristol Stool Form Scale 6–7: fluffy pieces of stool with ragged edges; mushy stool; or watery w/out solid pieces (entirely liquid). §In the absence of use of anti-diarrheals or laxatives.

Based on: Longstreth GF et al. *Gastroenterology*. 2006; 130:1480-1491.

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Dysphagia

Definition^{1,3,5,6}

Dysphagia refers to swallowing difficulty.

Types^{2,5,7}

Oropharyngeal dysphagia (transfer): impaired movement of a food bolus or liquid from the oropharynx to upper esophagus

Esophageal dysphagia (transit): impaired movement of food bolus through the esophagus distal to the upper esophageal sphincter (most common)

Causes^{2,3,4,5,7}

Oropharyngeal Dysphagia	Esophageal Dysphagia
Neurologic: stroke, Parkinson's disease, dementia, multiple sclerosis, mass lesion	Mechanical obstruction: esophageal cancer, esophageal stricture (gastroesophageal reflux), Schatzki ring
Muscular: myasthenia gravis, polymyositis	Motility disorders: diffuse esophageal spasms, achalasia
Metabolic: thyrotoxicosis, Cushing disease	Esophageal carcinoma (Consider squamous cell if there is a history of smoking or alcohol abuse.)
Infection: syphilis, oral mucositis	
Radiation to the oral cavity or neck	
Oropharyngeal tumors	
Xerostomia (e.g., anticholinergic drugs)	
Poor dentition or poor fitting dentures	

Risk Factors

Risk factors coincide with the causes of dysphagia.

- Advanced age

Signs & Symptoms^{2,3,4,5,7}

Oropharyngeal Dysphagia	Esophageal Dysphagia
Dysphagia is noted within a second of attempting to swallow.	Dysphagia is noted several seconds after initiating a swallow.
Coughing during meals.	Feeling of food or liquids “catching” in the throat (usually worse with solids).
Gagging.	Regurgitation.
Aspiration.	Heartburn.
Odynophagia.	Chest pain (seen with esophageal spasm).
Change in voice (e.g., hoarseness).	

- Unintentional weight loss and anemia
 - Needs to be investigated; sign of potential underlying malignancy.

Tests^{2,3,5,6,7}

- Modified barium swallow (MBS) or videofluoroscopy
 - MBS is typically the first test ordered in the workup of dysphagia.
 - An alternative to videofluoroscopy: Fiberoptic endoscopic evaluation of swallowing (FEES) commonly used in long-term care facilities.
- Esophagogastroduodenoscopy (EGD)
 - Can take biopsies and allows for dilation of strictures.
- Esophageal manometry
 - Used to identify neuromuscular disorders; ordered if the above tests are negative and dysphagia persistent.

Management & Treatment^{1,2,3,4,5,6,7,8}

- **Nonpharmacological and nursing interventions:**
 - Identify and treat the underlying cause of dysphagia.
 - Performing a full neurological examination can assist in determining the underlying cause of dysphagia (e.g., rigidity or shuffling gait can indicate Parkinson's disease).
 - Implement measures to prevent malnutrition and aspiration.
 - This includes diet modification, slowing the rate of eating, eating in an upright posture, and reducing bolus size.
 - Ensuring thickened-liquids and avoiding liquids to avoid aspiration pneumonia.
 - Teach the Heimlich maneuver.
 - This is crucial for staff and family members.
 - Medication modifications.
 - Consider switching PO meds to liquid form, if able. Teach patients if medications can be crushed to make administration easier.
 - Ensure adequate fluid intake when taking medications to avoid esophageal damage.
 - Encourage proper oral hygiene.
 - Poor oral care is a risk factor for pneumonia; encourage routine dental visits.
 - Encourage products that alleviate dry mouth.
- **Pharmacological and other interventions:**
 - Medications in select patients may include:
 - Botulinum toxin injection.
 - Reserved in individuals who are poor surgical candidates.
 - Nitrates, calcium channel blockers.
 - Reserved in individuals with motility disorders (achalasia, esophageal spasms).
 - Speech therapy consultation/referral
 - Certain tests are coordinated by a speech language pathologist, such as the MBS, which can identify which foods are better swallowed.

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- Will make suggestions regarding eating and drinking aids to improve swallowing safety.
- Dietitian consultation/referral
 - To ensure patient is on the proper diet.
- Rehabilitative exercises
 - To strengthen swallowing muscles.
- Percutaneous endoscopic gastrostomy tube
 - Considered when nutritional status is poor and/or recurrent aspiration (risks vs benefits should first be discussed, especially in patients with advanced dementia).
- Surgical intervention
 - Endoscopic dilatation recommended with strictures.

Note: Beers listed items, as mentioned above, include nondihydropyridines calcium channel blockers

CLINICAL PEARLS^{1,2,6}

- If dysphagia is not treated, it can lead to pulmonary complications (e.g., silent aspiration, pneumonia), malnutrition, and death. It is the third leading cause of infection-related death in adults > age 85.
- Dysphagia is an independent risk factor for aspiration pneumonia and malnutrition.
- Dysphagia to liquids and solids is usually due to an underlying neuromuscular disorder. If due to solids alone, this is reflective of an underlying mechanical obstruction.

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Fecal Incontinence

Definition^{1,4,6}

Fecal incontinence (FI) is the loss of bowel control, resulting in the involuntary passage of feces.

Note: FI is the second leading cause of nursing home placement.

Types^{1,4,6}

Passive incontinence: unaware of passing small amount of stool.

Urge incontinence: aware of the need to defecate; however has leakage of stool due to inability to get to the restroom in time.

Fecal leakage: the leakage of stool following incomplete bowel movement.

Causes^{1,2,4,6}

- Idiopathic
- Neurological conditions (e.g., dementia, multiple sclerosis, stroke)

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- Inflammatory conditions (e.g., inflammatory bowel disease, radiation proctitis)
- Infectious diarrhea
- Dysfunction of the anorectal sphincters
- Fecal impaction
- Excessive laxative use
- Diabetes

Risk Factors^{1,2,4,6}

- Advanced age
- Nursing home patient
- Female sex
- Immobility
- Rectal trauma
- History of pelvic radiation therapy
- Depression
- Renal disease
- Urinary incontinence

Signs & Symptoms^{1,2,4,5}

- Urinary incontinence
- Constipation
- Skin irritation
- Hemorrhoids
- Anal fissures
- Perineal scarring (can indicate prior trauma or surgery)
- Weakened sphincter tone
- Patulous anus

Tests^{1,2,4,5,6,7}

Diagnosis is made clinically

- CBC, C-reactive protein (CRP)
 - Not ordered routinely, ordered if concern for underlying infection or inflammation.

- Abdominal plain film
 - Ordered if there is a concern for fecal impaction.
- Anorectal manometry
 - Ordered in select patients to determine rectal resting and squeeze pressures.
- Anal ultrasonography
 - Evaluates for damage of the anal sphincters.
- Colonoscopy or flexible sigmoidoscopy
 - To determine if a mechanical cause is present (e.g., colonic mass).

Management & Treatment^{1,2,4,5,6,7,8,9}

- **Nonpharmacological and nursing interventions:**
 - Investigate and treat the underlying reversible causes of fecal incontinence, such as:
 - Treat the infectious source.
 - Treat the fecal impaction.
 - Encourage mobility.
 - Biofeedback and pelvic floor exercises.
 - Patient must be cognitively intact and cooperative for biofeedback to be effective.
 - Encourage dietary changes.
 - Make one food change at a time and keep record of this in a food diary, with goal to determine if symptoms change.
 - Foods that are known to contribute to loose stools include, but not limited to: prunes, figs, artificial sweeteners, caffeine, and some vegetables. Remove any offending foods.
 - Encourage increased consumption of dietary fiber (this creates bulk and bulky stools stimulates peristalsis).
 - Schedule bathroom time.
 - Encourage using the bathroom following a meal, and ensure privacy.

- Offer emotional support (fecal incontinence can be socially embarrassing).
- Manual disimpaction.
 - An option in older adults with fecal impaction and laxative ineffective.
- Implement measures to prevent skin breakdown (FI can lead to pressure ulcers).
 - Frequent turning and use of barrier cream (e.g., zinc oxide).
- Use of a stool collection system.
 - Preferred over pads or diapers; use of pouches or rectal tubes prevent exposure of perianal skin to stool and reduces odor and embarrassment. These are a good option in bedbound older adults.
- **Pharmacological and other interventions:**
 - Rid of excessive laxative use.
 - Bulking agent (e.g., psyllium [Metamucil] or methylcellulose [Citrucel]).
 - Example: psyllium 1 tsp (3.4 g) QD-TID with fluids PRN.
 - Improves stool consistency and reduces the frequency of defecation; should be gradually introduced to avoid bloating.
 - Antidiarrheal agents (e.g., loperamide [Imodium], codeine).
 - Example: loperamide 2–4 mg PO following loose stools (max 16 mg/day).
 - *Rule out infection before starting medication.*
 - These agents slow down bowel motility. Can be used with radiation proctitis and inflammatory bowel disease.
 - Loperamide recommended as first-line treatment (may cause xerostomia, dizziness, or abdominal cramps). If not tolerated, switch to codeine or low-dose amitriptyline (Elavil) (10–25 mg QHS).

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- Enemas and/or suppositories (e.g., phosphate enema, glycerin rectal, bisacodyl [Dulcolax]).
 - Example: glycerin rectal 2 g suppository once daily PRN.
 - Used if fecal impaction is the underlying cause of FI and in those with spinal injury.
 - Rectal preparation is used as first-line treatment but, if not effective, can switch to an oral laxative (e.g., lactulose [Generlac, Enulose] or sennosides [Senokot]).
 - Suppositories may cause perianal irritation whereas enemas used chronically can lead to fluid and electrolyte imbalance.
- Wound, ostomy continence (WOC) nurse consultation/referral
 - Enhances the care for patients suffering from FI; research has shown agencies with WOC nurses have significantly better outcomes than those without WOC nurses.
- Gastroenterology consultation/referral
 - Can guide medical decision making and determine if surgery is the right option, especially if fecal incontinence is refractory to medical therapy.

Note: Beers listed items, as mentioned above, include amitriptyline.

Differential Diagnosis¹

- Colorectal cancer: Will have warning signs, such as rectal bleeding and/or anemia, and/or family history of colon cancer. Symptoms come on quickly. A colonoscopy can confirm colonic mass.
- Inflammatory bowel disease (IBD): May have rectal bleeding and abdominal pain; lab studies may reveal leukocytosis and/or elevated inflammatory markers.

CLINICAL PEARLS³

- Fecal incontinence is distressing physically, psychologically, and socially, placing older adults at risk for nursing home placement and poor health.

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Gastroesophageal Reflux Disease

Definition^{1,4,5}

Gastroesophageal reflux disease (GERD) is defined as the reflux of gastric contents into the esophagus.

Causes^{1,2,4,5}

- Incompetent lower esophageal sphincter (LES) muscle relaxation.

Risk Factors^{1,2,4,5}

- Family history of heartburn
- Advanced age
- Truncal obesity
- Hiatal hernia
- Tobacco smoking
- Alcohol
- Some foods
 - May include caffeinated beverages, spicy foods (limited evidence).
- Some medications
 - Includes nitrates, calcium channel blockers, antihistamines, antidepressants, anticholinergics, NSAIDs.
- Gastroparesis
- Scleroderma

Signs & Symptoms^{1,2,3,4,5}

- Heartburn
 - 30–60 min after eating and reclining.
- Sour regurgitation
- Dysphagia
 - May indicate development of esophageal stricture.
- Chronic cough
- Sore throat
- Atypical chest pain
- Worsening asthma
- Nausea or vomiting

Tests^{1,2,3,4,5}

- A trial round of a proton pump inhibitor (PPI)
 - Further workup recommended if no improvement noted after 2 months.
 - Positive response indicates 78% sensitivity and 54% specificity for GERD.

- Upper endoscopy (esophagogastroduodenoscopy)
 - Safe procedure, including in very frail elderly patients; should be done if reflux symptoms continue despite medication.
 - Determines severity of reflux disease and evaluates for complications such as esophageal cancer or Barrett's esophagus.
- Ambulatory pH monitoring, 24-hour
 - Not usually performed but is an option if upper endoscopy is negative and GERD symptoms are persistent despite PPI therapy. It will determine if symptoms are related to acid or not.
- Esophageal manometry
 - Not usually a benefit in older adults unless planning for antireflux surgery.

Treatment & Management^{1,2,3,4,5,6}

- **Nonpharmacological and nursing interventions:**
 - Encourage dietary changes
 - Avoid greasy or spicy foods, fats, caffeine, and/or alcoholic beverages.
 - Eat smaller, more frequent meals.
 - Avoid eating 3 hours before going to bed (if nocturnal symptoms present).
 - After eating, sit upright for about 3 hours and avoid reclining.
 - Encourage weight loss, if obese.
 - Avoid smoking and secondhand smoke.
 - Advise against wearing tight clothing.
- **Pharmacological and other interventions:**
 - Antacids (e.g., aluminum hydroxide/magnesium hydroxide/simethicone [Mylanta], calcium carbonate/magnesium hydroxide [Rolaids], calcium carbonate [Tums])
 - Example: Rolaids 2–4 chewable tabs PO PRN (max: 12 tabs/24 hrs).

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- Provides rapid relief of GERD symptoms; recommended with symptoms that occur less than once weekly.
- Monitor for adverse effects: diarrhea, hypercalcemia, hypo-hypermagnesium, nephrolithiasis.
- Proton-pump inhibitors (e.g., esomeprazole [Nexium], lansoprazole [Prevacid], omeprazole [Prilosec])
 - Example: omeprazole 20 mg PO QD-BID, 30 minutes before breakfast for 8 weeks (*some may need this longer*).
 - Not to be given concomitantly with clopidogrel (Plavix).
 - Offers quick symptom relief and promotes healing in erosive esophagitis.
 - Preferred over H₂ blockers in the short- and long-term treatment of GERD.
 - Adverse reactions include risk of osteoporosis, fracture, low magnesium, infectious gastroenteritis (*Clostridium difficile*), pneumonia, and vitamin B12-deficiency with long-term use.
- Histamine-2 receptor antagonists (e.g., famotidine [Pepcid AC], ranitidine [Zantac])
 - Example: ranitidine 150 mg PO QD or BID (may require decreased dose based off renal function).
 - Cimetidine (Tagamet) avoided in older adults given increased risk of delirium and drug interactions.
 - Provides heartburn relief for about 8–12 hours.
 - Can be used as an adjunct to proton-pump inhibitor (PPI) therapy if symptoms are still present.
 - Caution use in patients with delirium (or high risk of delirium). Adverse reactions include headache, constipation or diarrhea, dizziness, and xerostomia.
- Gastroenterology consultation/referral
 - Refer when patients do not respond to the typical treatment.

- Can determine if surgery is the right option, especially if medications control symptoms but patient not willing to take long-term PPI therapy or if GERD symptoms continue despite PPI therapy. Surgery is unlikely to be beneficial if PPIs are ineffective.

Note: Beers listed items, as mentioned above, include proton-pump inhibitors (avoid use beyond 8 weeks) and H₂-receptor antagonists.

Differential Diagnosis^{1,2,3}

- Peptic ulcer disease (PUD): Endoscopy would show an ulcer and patient typically will have nocturnal symptoms that awaken them at night. Compared to GERD, an upper endoscopy would show the severity or extent of tissue damage; about one-third will have erosion or ulcers in the esophagus. GERD does not typically cause nighttime symptoms or disrupt sleep. Heartburn as the main symptom indicates GERD, not PUD.
- Malignancy: Will have other symptoms such as anemia, worsening dysphagia, GI bleeding, and/or unintentional weight loss. May have abnormal blood work, such as anemia or elevated LFTs.

CLINICAL PEARLS^{1,2,3}

- Complications of GERD after the age of 65 years include Barrett's esophagus, esophageal adenocarcinoma, esophagitis, bleeding, and peptic stricture.
- The mainstay of treatment includes lifestyle changes (e.g., head of bed elevation, losing weight) and controlling symptoms with acid-suppressing therapy.

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