

# Constipation and diarrhea

9/20/2022

Olufemi Kassim, MD

Assistant Professor, Gastroenterology

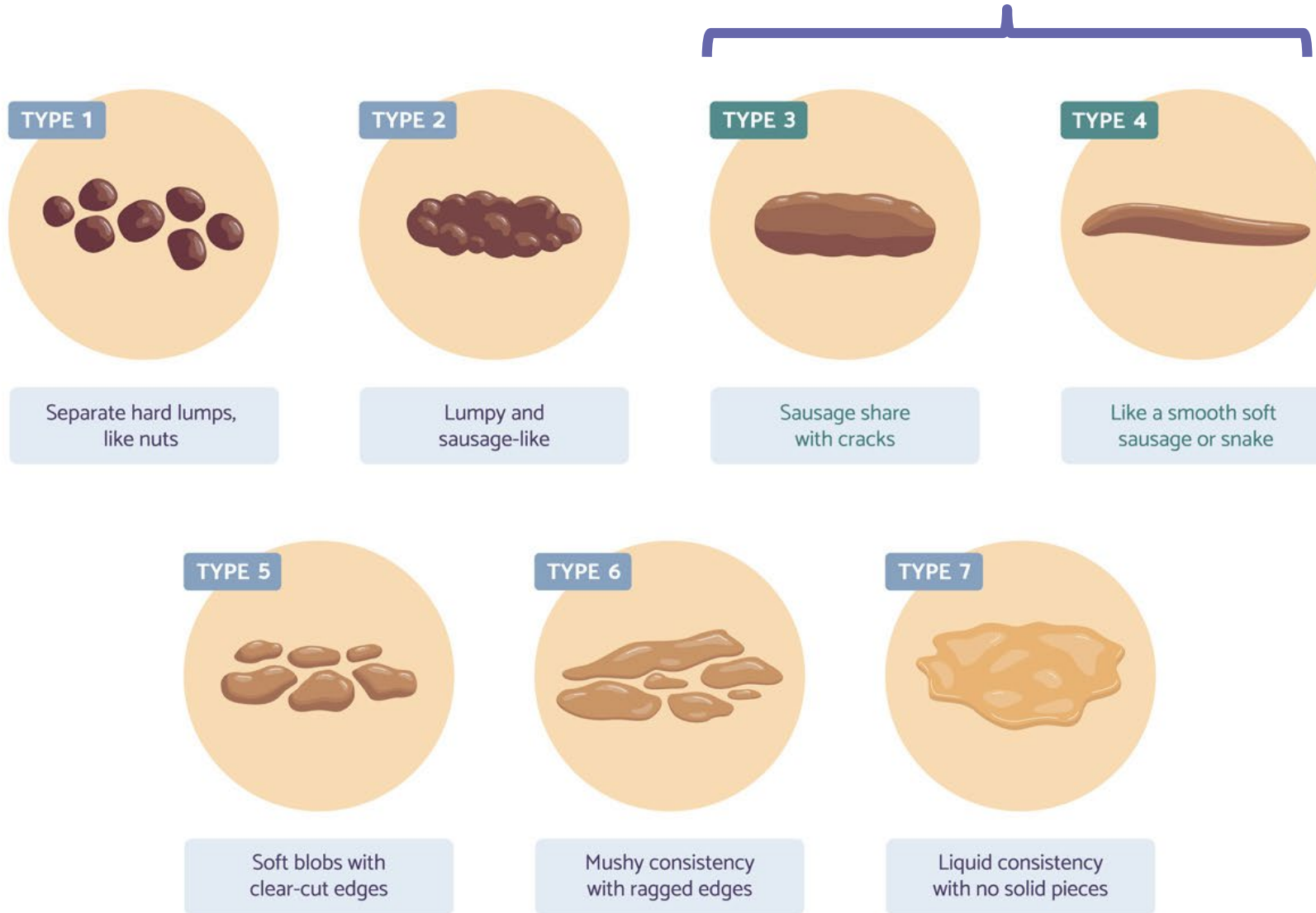
“Are my bowels normal?”

3 times  
a day



3 times a  
week

# BRISTOL STOOL CHART



# Constipation

# Definition

- Less than 3 spontaneous bowel movements per week
- Straining
- Lumpy or hard stools
- Sensation of incomplete evacuation
- Sensation of anorectal obstruction/blockage
- Manual maneuvers to facilitate bowel movements
- Additional symptoms: abdominal cramping, pain, bloating, distension, nausea, mucous, diarrhea (overflow diarrhea)

# Alarm features

Age >45  
(all patients)

~~Age >50 years~~ (or >45 years in black patients)

New-onset constipation in elderly patients

Severe constipation symptoms

Rectal bleeding

Unexplained weight loss

Family history of colon cancer

History of colonic resection

History of abdominal or pelvic cancer

History of abdominal or pelvic irradiation

Palpable rectal or abdominal mass on examination

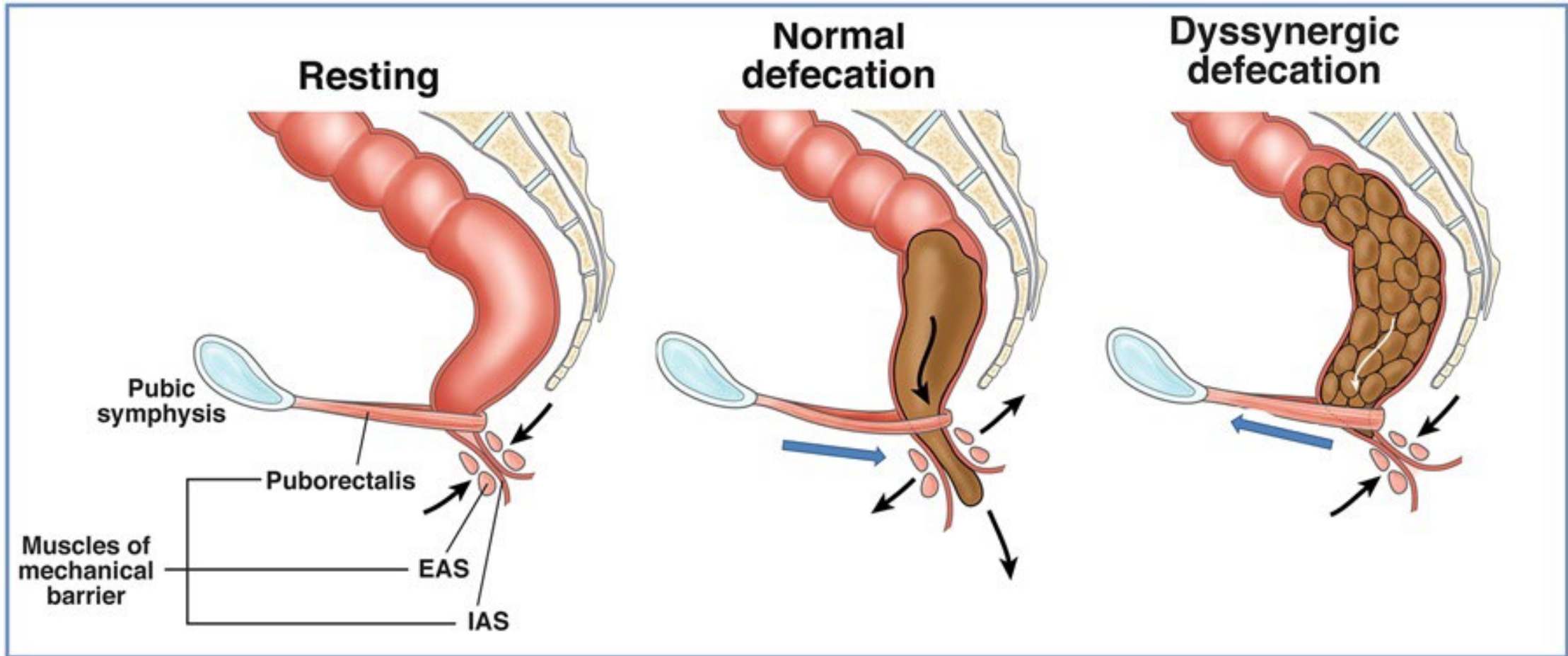
# Physical exam

- Neuro: Assess for CNS disorders and spinal lesions
- Abdomen: Examine for distension, hard stool in a palpable colon, or a mass
- Rectal: Left lateral position, with buttocks separated

# “Rectal exam”

- Perianal exam: Observe at rest, ask patient to bear down like they’re having a bowel movement, and to squeeze like they’re holding one in
  - Perineum should descend when “evacuating”, elevate when “retaining”
  - Also observe for patulous opening (e.g. neurogenic), or prolapse
  - Anal reflex can be tested with light pinprick or scratch
- Digital rectal exam:
  - Identify fecal impaction, anal stricture, or rectal mass
  - Observe internal sphincter and puborectalis muscle tone at rest and with squeeze (should augment)
  - Inappropriate contraction of the puborectalis muscle and/or anal sphincter during simulated evacuation is consistent with dyssynergia





# Work-up for constipation

- Labs: Complete blood count, thyroid stimulating hormone, calcium level
- Endoscopy:
  - Screening colonoscopy if appropriate
  - Alarm features -> diagnostic colonoscopy
- Physiologic testing: if not responding to empiric therapy
  - Transit: Sitz marker study, radioisotope
  - Defecation: Anorectal manometry, balloon expulsion testing, MR defecography
- Note: absence of computed tomography, plain x-rays etc

# Differential diagnosis

## 1. Functional

- a. Slow-transit
- b. Normal-transit
- c. Defecatory

## 2. Secondary

# Secondary causes of constipation

<b>Mechanical</b>
Colorectal cancer
Rectocele
Sigmoidocele
Enterocoele
Anastomotic stricture
Anal stenosis/stricture
Extrinsic compression from pelvic/abdominal process
<b>Metabolic</b>
Diabetes mellitus
Hypothyroidism
Hypercalcemia
Hypokalemia
Pregnancy
Porphyria
Panhypopituitarism
Pheochromocytoma
Glucagonoma
Heavy metal poisoning (arsenic, lead, mercury)

<b>Neuropathic/Myopathic</b>
Parkinson disease
Systemic sclerosis
Multiple system atrophy
Cerebrovascular accident
Spinal cord injury/spinal cord lesions
Multiple sclerosis
Amyloidosis
Myotonic dystrophy
Dermatomyositis
Shy-Drager syndrome
Autonomic neuropathy
Chagas disease
Intestinal pseudo-obstruction (myopathy and neuropathy)
Hirschsprung disease
Ganglioneuromatosis
Hypoganglionosis

## **Medications**

Narcotic-containing analgesics

Anticholinergic agents (antispasmodics, tricyclic antidepressants, antipsychotics, antiparkinsonian drugs)

Antacids (aluminum and calcium based)

Iron supplements

Antihypertensive agents (calcium channel blockers,  $\beta$ -blockers, diuretics)

NSAIDs

Antidiarrheal agents

# Functional constipation

- a) Slow transit
- b) Normal transit (includes irritable bowel syndrome)
- c) Dyssynergic (risk factors: sexual abuse, obstetric trauma, pelvic/abdominal surgery, or traumatic injury to the pelvis/abdomen)

# Treatment

- Eliminate culprit medications
- Lifestyle modification:
  - Diet – Increase **fiber**
  - Scheduled bathroom time after morning or evening meal
  - Elevate feet with foot stool or a lower toilet
- Empiric pharmacologic therapy for 4-8 weeks
- Then physiologic testing

First line empiric treatment for constipation?

Fiber

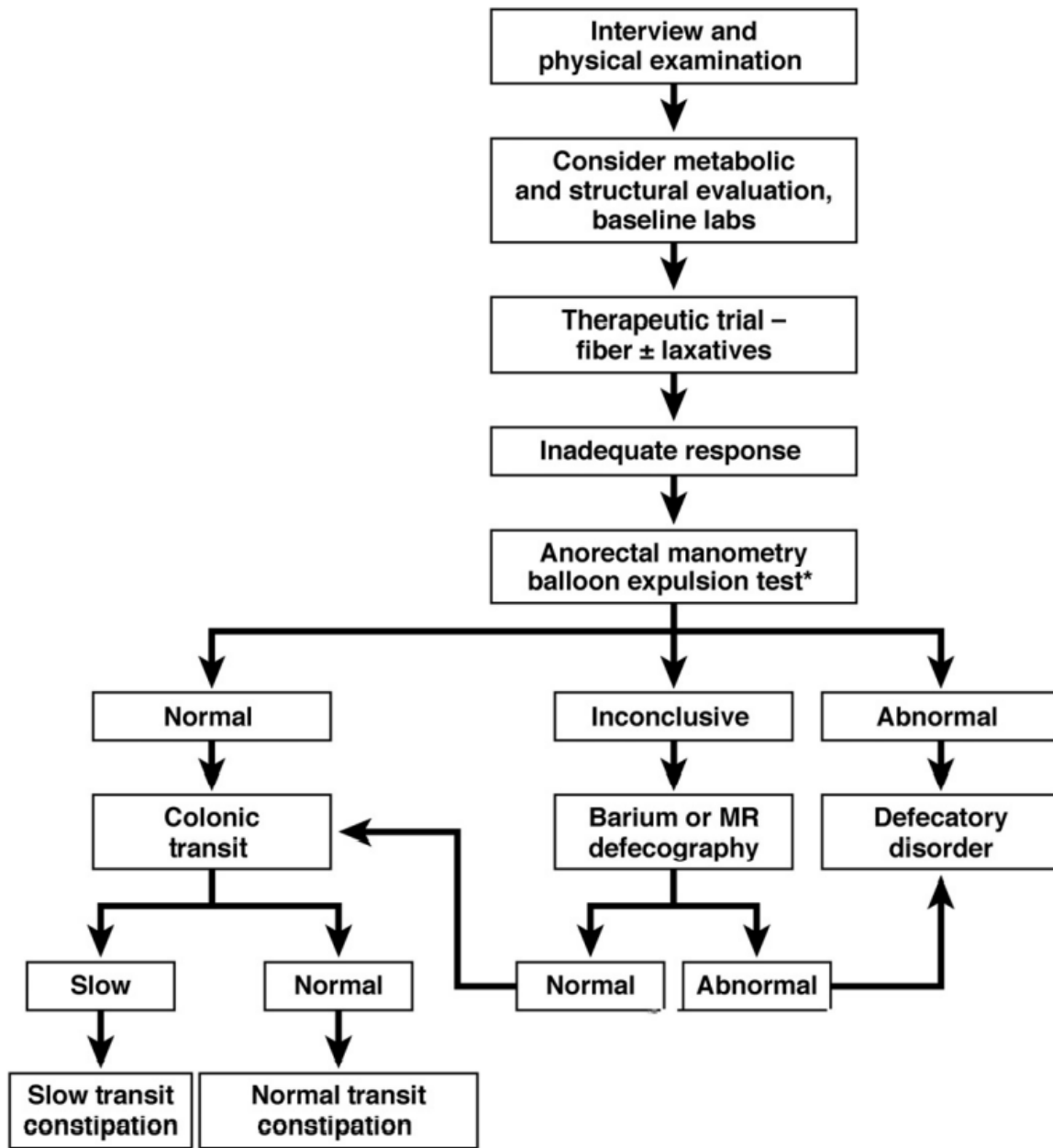


# Fiber supplementation

- 20-30 g/day total
- Insoluble (non-fermentable) – accelerates transit by **increasing stool biomass** leading to direct stimulation of secretion of secretion and motility
  - Citrucel (methylcellulose)
- Soluble (fermentable) – accelerate transit via **hydrophilic properties**, and **osmotic effects** of fermentable byproducts
  - FiberCon (calcium polycarbophil) and Benefiber (wheat dextrin)
- Both: Metamucil and Konsyl (psyllium husk)
- Adverse effects: bloating, distention, flatulence (particularly with soluble)
- Severely constipated and/or with severely delayed transit and/or defecatory disorders will likely not benefit

# Next steps

- Osmotic laxatives (polyethylene glycol (PEG), lactulose, lactitol, mannitol, sorbitol)
  - Not absorbed by the small intestine
  - Net water and electrolyte secretion, reduced stool viscosity, increased fecal biomass (with secondary effects on peristalsis)
  - AEs: Abdominal cramping, bloating
- Saline laxatives (magnesium citrate, magnesium sulfate, sodium and disodium phosphate)
  - Induce movement of water into the small intestine and colon
- Stimulant laxatives (bisacodyl, sodium picosulfate, conjugated anthraquinone derivatives (cascara sagrada, aloe, senna)
  - Decrease water absorption and stimulate intestinal motility and prostaglandin release
- Secretory agents (lubiprostone, linaclotide, plecanatide, tegaserod (off the market), prucalopride)



\*Because anorectal manometry, rectal balloon expulsion test may not be available in all practice settings, it is acceptable, in such circumstances, to proceed to assessing colonic transit with the understanding that delayed colonic transit does not exclude a defecatory disorder.

**Figure 1.** Treatment algorithm for chronic constipation. MR, magnetic resonance.

# Question 1

A 36-year-old woman is evaluated for a 12-year history of refractory constipation. Her symptoms began after a difficult childbirth. She has constipation marked by straining, bloating, and a constant sensation of incomplete emptying. She sometimes has 4 or more days between bowel movements. When she does have a bowel movement, the stool is soft-formed. Trials of several fiber supplements, lactulose, milk of magnesia, docusate, bisacodyl, polyethylene glycol, and lubiprostone have provided only transient relief for no more than 4 weeks before the gradual return of symptoms. There is no family history of gastrointestinal malignancies or inflammatory bowel disease. Medications are polyethylene glycol, psyllium, and bisacodyl.

On physical examination, vital signs are normal. BM! Is 17. Tenderness to palpation is noted in the lower abdomen. No masses are noted. Rectal examination reveals normal resting tone, an increase in external anal sphincter tone, and poor relaxation of the pelvic floor when bearing down. Soft stool is noted in the rectal vault.

Anorectal manometry confirms paradoxical muscle contraction during the Valsalva maneuver consistent with pelvic floor dyssynergia.

Which of the following is the most appropriate management?

- (A) Increase polyethylene glycol
- (B) Increase psyllium
- (C) Start biofeedback therapy
- (D) Start enema therapy

Diarrhea

# Definitions

- High frequency (>3/day)
- Abnormally loose stools
- Can also be defined as stool weight >200 g/day (heavily influenced by fiber intake)
- Should be characterized as acute (<4 weeks) or chronic (>4 weeks)

# Acute diarrhea

- Vast majority due to infectious gastroenteritis or foodborne illness
- Without alarm features, supportive care is usually sufficient
- Symptoms will usually resolve in immunocompetent patients within 1 week

# Alarm features in acute diarrhea

Severe abdominal pain

Bloody stools

Fever

Recent hospitalization or antimicrobial use

Special populations

- Elderly patients

- Immunocompromised patients

- Patients with inflammatory bowel disease

- Pregnant patients



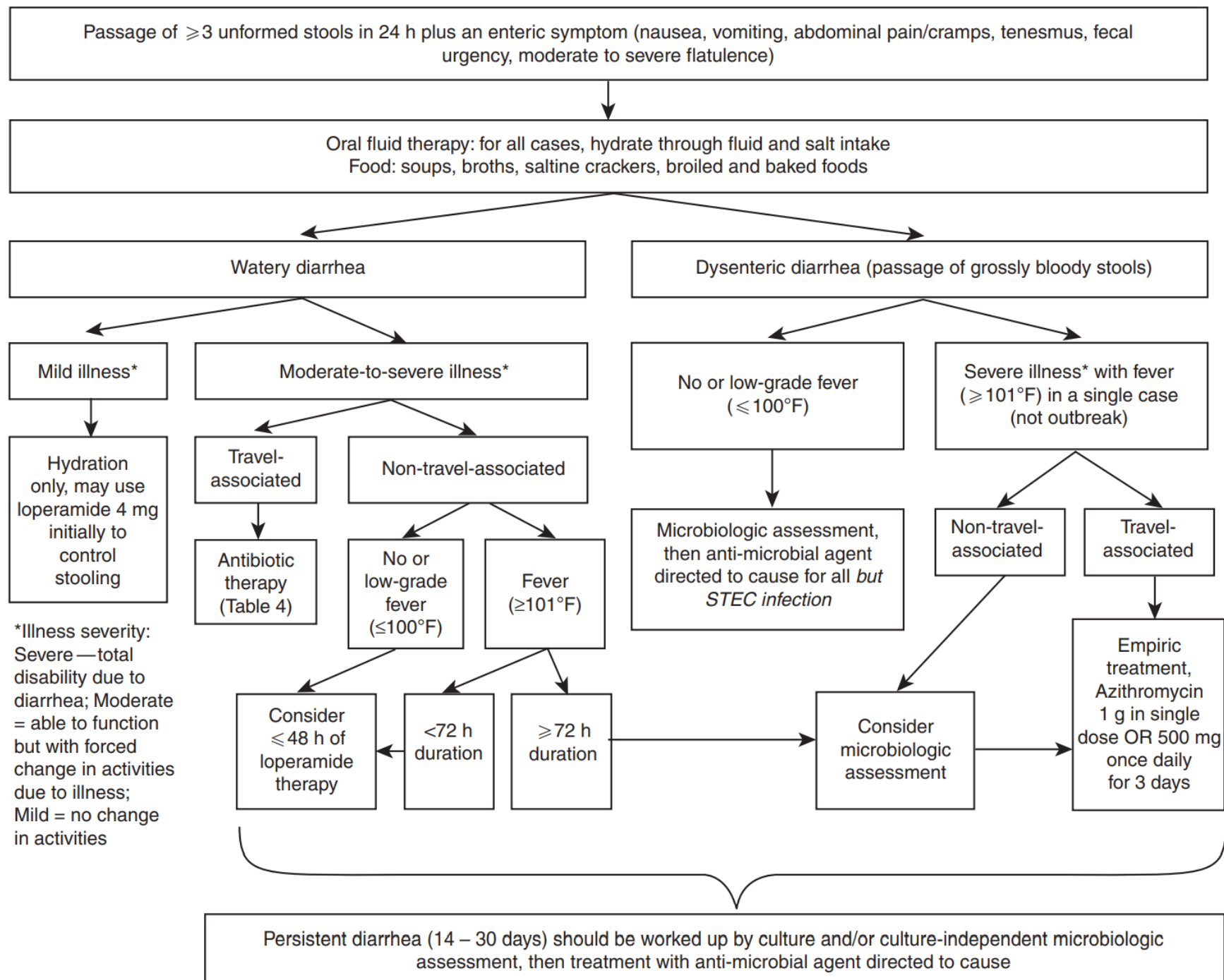


Figure 1. Approach to empiric therapy and diagnostic directed management of the adult patient with acute diarrhea (suspect infectious etiology)

# Management of acute diarrhea

- Hydration: most healthy adults can keep up with consumption of water, sports drinks, soups and saltine crackers
- Oral rehydration solution: in elderly patients with severe diarrhea, or any traveler with cholera like watery diarrhea
- Non-antibiotics:
  - Bismuth subsalicylates (anti-secretory)
  - Loperamide/diphenoxylate (anti-motility)
    - *Causes segmental contraction of gut, slowing intraluminal movement of fluids allowing for greater absorption*
    - *Secondary effect – inhibition of calmodulin, reduced mucosal secretion*
    - *(Diphenoxylate also has atropine-like effects)*
- Antibiotics

# Antibiotics

- Community acquired – discouraged as most diarrhea is viral (Norovirus, Rotavirus, Adenovirus)
- Can consider in traveler’s diarrhea when the likelihood of bacterial pathogens is high

**Table 4. Acute diarrhea antibiotic treatment recommendations**

Antibiotic <sup>a</sup>	Dose	Treatment duration
Levofloxacin	500 mg by mouth	Single dose <sup>b</sup> or 3-day course
Ciprofloxacin	750 mg by mouth or	Single dose <sup>b</sup>
	500 mg by mouth	3-day course
Ofloxacin	400 mg by mouth	Single dose <sup>b</sup> or 3-day course
Azithromycin <sup>c,d</sup>	1,000 mg by mouth or	Single dose <sup>b</sup>
	500 mg by mouth	3-day course <sup>d</sup>
Rifaximin <sup>e</sup>	200 mg by mouth three times daily	3-days

ETEC, Enterotoxigenic *Escherichia coli*.  
<sup>a</sup>Antibiotic regimens may be combined with loperamide, 4 mg first dose, and then 2 mg dose after each loose stool, not to exceed 16 mg in a 24-h period.  
<sup>b</sup>If symptoms are not resolved after 24 h, complete a 3-day course of antibiotics.  
<sup>c</sup>Use empirically as first line in Southeast Asia and India to cover fluoroquinolone-resistant *Campylobacter* or in other geographical areas if *Campylobacter* or resistant ETEC are suspected.  
<sup>d</sup>Preferred regimen for dysentery or febrile diarrhea.  
<sup>e</sup>Do not use if clinical suspicion for *Campylobacter*, *Salmonella*, *Shigella*, or other causes of invasive diarrhea.

# Chronic diarrhea (>4 weeks)

- Exclude irritable bowel syndrome
- Assess medications
- Dietary history: exclude lactose and fructose consumption, excess fiber, or poorly absorbed carbohydrates (FODMAPs)
- Alarm features: unintentional weight loss, diarrhea waking up at night,, recent antibiotic use, hematochezia, high volume, very frequent (>6-10/day), malnutrition, family history of colon cancer, celiac disease or inflammatory bowel disease

# Physical exam

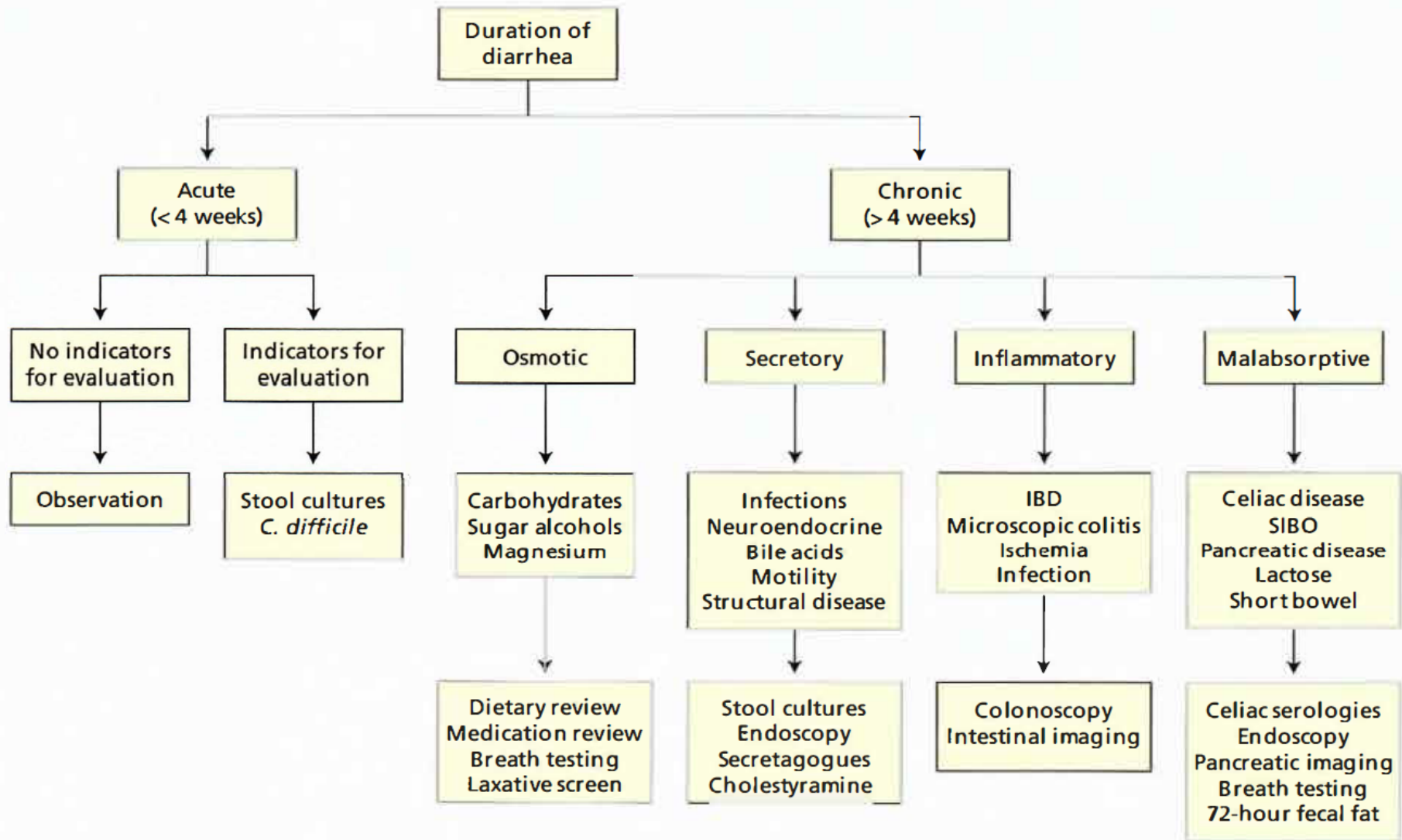
- Digital rectal exam:
  - Anal sphincter tone (particularly with incontinence)
  - Identify mass, fissure, hemorrhoidal disease

# Differential

Category	Clinical Features	Examples
Secretory	Large-volume, watery stools Does not stop with fasting	Medications (e.g., colchicine, NSAIDs) SIBO Hormone-producing tumors (e.g., gastrinoma, VIPoma, carcinoid, somatostatinoma) Bile acid malabsorption Noninvasive infections (e.g., cholera)
Osmotic	Diarrhea stops with fasting Bloating, gas	Medications (e.g., magnesium sulfate laxative) Carbohydrate malabsorption
Steatorrhea	Bulky, greasy, oily, malodorous stools Weight loss	Pancreatic insufficiency Small-bowel mucosal disease (e.g., celiac disease) SIBO Bile acid deficiency Lymphatic obstruction
Impaired motility	Bloating, nausea Features of underlying disorder	Diabetes mellitus Postsurgery Hyperthyroidism Scleroderma
Inflammatory	Abdominal pain +/- fever, bleeding, weight loss	Inflammatory bowel disease Invasive/inflammatory infections (e.g., <i>Clostridium difficile</i> ) Ischemia

# Work-up for chronic diarrhea

- Assess medications (always)
- Labs:
  - Complete blood count (anemia – blood loss or malabsorption, leukocytosis - inflammatory)
  - Basic metabolic panel (electrolyte disturbances, dehydration)
  - Giardia antigen – especially if exposed to young kids, contaminated water in lakes and streams
    - *Other infectious causes are rare in chronic diarrhea and testing is not recommended*
- Endoscopy:
  - Screening colonoscopy if indicated
  - <45 if features of IBD (need ileoscopy and biopsies to assess for microscopic colitis)
- Additional work-up may include:
  - Fecal fat/pancreatic elastase (steatorrhea)
  - Fecal lactoferrin/calprotectin (inflammation)
  - Tissue transglutaminase IgA (if not IgA deficient) (celiac disease)
  - Testing for bile acid malabsorption (or empiric trial of bile acid sequestrants)



**FIGURE 21.** Evaluation of diarrhea. *C. difficile* = *Clostridium difficile*; IBD = inflammatory bowel disease; SIBO = small intestinal bacterial overgrowth.



# Treatment of functional diarrhea

- Loperamide
- Cholestyramine (4 g twice daily)
- Other options for IBS

# Question 2

A 40-year-old man is evaluated for a 6-month history of intermittent episodes of two to four loose stools per day. When he has diarrhea, he also notices crampy abdominal pain and bloating. He has not had nausea, vomiting, anorexia, fever, melena, hematochezia, recent travel, or any new medications, including antibiotics. He is overweight but has been exercising and watching his diet for the past 6 months, and he has intentionally lost 6.8 kg (15.0 lb). The main change in his diet has been switching to diet soda and using sugar-free sweeteners. He takes no medications. On physical examination, vital signs are normal. The abdomen is obese but soft with normal bowel sounds and no distention or tenderness.

Which of the following is the most appropriate management?

- (A) Abdominal CT scan
- (B) Colonoscopy with biopsies
- (C) Discontinuation of sugar-free sweeteners
- (D) Gluten-free diet
- (E) Tissue transglutaminase IgA antibody testing

# Irritable bowel syndrome

Irritable bowel syndrome

**Abdominal pain**

(Plus constipation/diarrhea)

# Irritable bowel syndrome

## **Table 1. Rome IV diagnostic criteria for irritable bowel syndrome (4)**

Recurrent abdominal pain on average at least 1 d/wk in the last 3 mo, associated with 2 or more of the following criteria

1. Related to defecation
2. Associated with a change in the frequency of stool
3. Associated with a change in the form (appearance) of stool

These criteria should be fulfilled for the last 3 months with symptom onset at least 6 months before diagnosis.

# Diagnosis

- “Positive diagnosis” vs. diagnosis of exclusion
- Low diagnostic yield of additional work-up in patients with alarm features
  - Minimal benefit to patient outcomes or satisfaction
- Shortens time to appropriate therapy

# Management

- Low FODMAP diet
- Fiber
- Peppermint oil
- Tricyclic antidepressants (amitriptyline, nortriptyline)
- Gut hypnotherapy
- IBS-C: lubiprostone, linaclotide, tegaserod (women <65 with <1 CV risk factor who have not responded to secretagogues)
- IBS-D: rifaximin, alosetron, eluxadoline
- No: Anti-spasmodics, bile acid sequestrants

# Question 3

A 23-year-old man is evaluated for chronic diarrhea. He has had intermittent loose stools over the past 2 to 3 years; however, over the past 6 months, diarrhea has become more severe (five to six bowel movements per day) and constant. Stools are described as mushy and malodorous and are accompanied by crampy abdominal pain and bloating. He has lost 2.3 kg (5.0 lb) over the past 6 months despite consuming more calories. He has not had fever or gastrointestinal bleeding and has no history of foreign travel. He has type 1 diabetes mellitus that is well controlled with insulin. He does not smoke cigarettes or drink alcohol. On physical examination, vital signs are normal. He has evidence of muscle wasting and pedal edema. The abdomen is scaphoid but soft with increased bowel sounds. No distention or tenderness is noted. Laboratory studies reveal a hemoglobin level of 10.4 g/dL (104 g/L) and a mean corpuscular volume of 100 fL.

Which of the following is the most appropriate diagnostic test to perform next?

- (A) Anti-Saccharomyces cerevisiae antibodies
- (B) Flexible sigmoidoscopy
- (C) Tissue transglutaminase antibody testing
- (D) Upper endoscopy with small-bowel biopsies
- (E) Video capsule endoscopy



# Question 4

A 40-year-old man is evaluated in follow-up for irritable bowel syndrome with constipation (IBS-C), which was diagnosed 3 months ago. His IBS symptoms did not respond to a trial of psyllium, which was discontinued owing to bloating. A trial of polyethylene glycol had similar results. He has no other medical problems and takes no other medications.

On physical examination, vital signs are normal. Abdominal examination reveals generalized abdominal tenderness but is otherwise normal.

Which of the following is the most appropriate treatment?

- (A) Start a bran-based dietary supplement
- (B) Start bisacodyl
- (C) Start linaclotide
- (D) Start rifaximin

# Question 5

25-year-old woman is evaluated for a 6-month history of constipation characterized by straining and infrequent bowel movements (once every 3 days). She has also had frequent passage of mucus, generalized abdominal discomfort, and bloating. She has not had weight loss. Symptoms began gradually and have slowly progressed. Her symptoms are severe enough to affect her appetite; she deliberately avoids some meals because eating often worsens her symptoms. Bran supplementation made her symptoms worse. There is no family history of colon cancer. Her medications are a multivitamin and an oral contraceptive agent.

On physical examination, vital signs are normal. Abdominal examination reveals generalized tenderness to light palpation but no masses. Rectal examination findings are normal.

Laboratory studies reveal a hemoglobin level of 13 g/dL (130 g/L).

In addition to starting polyethylene glycol, which of the following is the most appropriate initial management?

- (A) Obtain a comprehensive metabolic panel
- (B) Obtain colonoscopy
- (C) Obtain tissue transglutaminase testing
- (D) Reassurance and patient education

# References

1. American College of Physicians. MKSAP : Medical Knowledge Self-Assessment Program 17. Philadelphia, PA :American College of Physicians
2. American Gastroenterological Association, Bharucha AE, Dorn SD, Lembo A, Pressman A. American Gastroenterological Association medical position statement on constipation. *Gastroenterology*. 2013;144(1):211-217.
3. Lacy BE, Pimentel M, Brenner DM, et al. AAcg clinical guideline: management of irritable bowel syndrome. *Am J Gastroenterol*. 2021;116(1):17-44.
4. Mearin F, Lacy BE, Chang L, et al. Bowel disorders. *Gastroenterology*. Published online February 18, 2016:S0016-5085(16)00222-5.
5. Riddle MS, DuPont HL, Connor BA. ACG clinical guideline: diagnosis, treatment, and prevention of acute diarrheal infections in adults. *Am J Gastroenterol*. 2016;111(5):602-622.
6. Smalley W, Falck-Ytter C, Carrasco-Labra A, Wani S, Lytvyn L, Falck-Ytter Y. Aga clinical practice guidelines on the laboratory evaluation of functional diarrhea and diarrhea-predominant irritable bowel syndrome in adults(lbs-d). *Gastroenterology*. 2019;157(3):851-854.