N433 Infant, Child, and Adolescent Health
Gastrointestinal
Week 11
Text: Pediatric Nursing-Critical Components of Nursing Care, 3rd Edition, F.A. Davis (Advantage)
(Reviewed/Updated 9/2024)
(Reviewed 10/2024)

(PP Notes should be used as a study aid and basis for class notes. PP Notes reflect the most important concepts of the current unit **but are not a substitution for required reading of the text**.) Students are responsible for all text references that listed in **RED** as these may be the basis for test questions.

#1. Rudd & Kocisko Ch. 16; ATI Ch. 22 & 23

#2. Learning Objectives

#3. The gastrointestinal (GI) system encompasses the area from mouth to anus and includes the organs responsible for digestion and elimination. The organs in this system include **(Fig. 16–1)**:

- Mouth:
  - highly vascular; entry point of infection
- Esophagus
  - Esophagus: Lower esophageal sphincter (LES) not fully developed until age 1, causing regurgitation
- Stomach
  - Newborn stomach capacity only 10 to 20 mL
- Small and large intestines
  - Intestines: small intestine not mature at birth
  - Fluid balance and losses: low fluid volume maintained
- Liver, gallbladder, and associated bile ducts
  - Biliary system: liver relatively large at birth
- Pancreas
  - pancreatic enzymes develop postnatally until around 2 years old

Disruption of functions or disorders in the GI system may cause problems with the child's nutritional status. Children with disordered nutrition may be seen by a gastroenterologist for treatment.

GI system matures around age 2

Lots of GI upset complaints/ dehydration /vomiting/diarrhea prior to age 2

#4. History
- Important initial questions:
- What is the problem?
- How long has the child had this problem?

- Has there been weight loss?
- Is there a history of any previous illness?
- Has the child recently traveled outside of the country?

Symptoms:

- Is the child having abdominal pain?
- How often does the pain occur?

Where is the pain located?

- Does anything help the pain?
- Does the pain improve with eating?
- Does the pain improve with defecating?
- Does anything make it worse?
- **What is the normal stool pattern**?
- Does the child defecate every day?
- Is the stool large? Small? Hard? Watery?
- Does the child have a ritual before stooling?
- Does the child go to the toilet willingly?
- Does the child hide before stooling?
- Does the stool block the toilet after the child defecates?
- **Does the child have diarrhea?**
- How frequent is the diarrhea?
- Is it very watery?
- Is it bloody or with mucus?
- Is pain associated with the diarrhea?
- Does it exit the body explosively?
- **Does the patient have cramping or bloating?**
- What has been done to treat the diarrhea?
- **Does the patient have vomiting?**
- How often is the vomiting?
- Are symptoms associated with the vomiting?
- Nausea? Cramping? Abdominal pain? Headache? Fever?
- Does the child feel better after vomiting?
- What has been done for the vomiting?
- **What does the child normally eat?**
- Is there a change in the eating pattern?
- Is an infant refusing the breast or bottle?
- **Review the family history, especially for history of GI problems.**

Complete a genogram with at least three generations to show patterns of illness, if possible.

- **Review the social history:**
- **Any problems at home**

• **Any new stressors**

Abdominal Examination
The abdominal examination of a child with GI issues should include the following elements.
Inspection
• **Interaction of child with family**
• **Body positions and movements**
• Can the child climb up and down from the table?
• Can the child jump down from the table?
• **Does the infant keep their legs drawn up toward the chest?**
• Abdomen changes in size and shape with growth
• Prominent in newborns
• Flatter in older children
• **Abnormal findings include:**
• Marked distention with shiny appearance caused by air, fluid, or solid tissue enlargement
• Scaphoid or very flat in newborn
• "Missing" portions of GI tract may change appearance (Bickley & Soriano, 2020)
• Children may need distraction during the examination
• Allow them to stay on the parent's lap as much as possible during the examination.
• Infants can breastfeed or use pacifier.
• Toddlers may be reluctant to leave parent—distraction with light, toy, or other means may be effective.
• Preschoolers may want to know what is happening and ask questions; they want to know how their bodies work.
• School-age children and adolescents may be more cooperative, but they need an explanation of what will happen next.
Auscultation
• Bowel sounds are sounds of normal peristalsis.
• In newborns, air enters the stomach with first cry and reaches the rectum in 3 to 4 hours.
• Bowel sounds are recorded as present or absent.
• Assess bowel sounds in all four quadrants.
• There is an increase in sounds (frequency and volume) with eating.
• **No diagnosis can be made on bowel sounds alone.**
• Abnormal bowel sounds include:
• Hyperactive—may indicate gastroenteritis or lactose intolerance

- High-pitched, loud, tinkling rushes with obstructive process
- Absence after 5 minutes indicates a paralytic ileus (Bickley & Soriano, 2020)

• Auscultation of the infant's abdomen is easier if the baby is sucking and is quiet.

Preschoolers and school-age children may want to listen with the stethoscope after the assessment; this will increase their cooperation.

Percussion
• Assesses distention, liver, and spleen size.
• Tympanic sound shows gaseous area, dull sound with fluid.

Palpation
• Child should be relaxed, supine, arms at side, knees flexed.
• Warm palm if possible; rest entire palm on abdomen.
• Gentle flexion of hand; avoid tickling and poking.
• Use light palpation to decrease pain.
• Having the child place his or her hand on top of the examiner's will allow the child to feel some control during the examination.
• The abdomen is divided into four quadrants; check each quadrant.
• Check for hernia.
• Examine perianal region for fissures, fistula, or skin tags.
• Digital examination may be done to assess anal sphincter tone.
• **Note any of the following:**
- Site and severity of pain with any muscle guarding
- Localized tenderness with involuntary guarding, a sign of peritoneal irritation
- Check flank on each side for pain.

#5. TRACHEOESOPHAGEAL FISTULA

A tracheoesophageal fistula (TEF) is an abnormal connection (fistula) between the esophagus and the trachea. In most cases, the esophagus is discontinuous (atresia), causing immediate feeding difficulties (Wyllie et al, 2021).

Clinical Presentation
• History of polyhydramnios while in utero
• Inability to handle secretions—baby may have an overabundance of secretions
• Cyanosis with feeding
• Resistance with passage of a feeding tube

• Associated with syndromes that may have skeletal, anorectal, or limb abnormalities
• Continual choking with feedings after passage of a feeding tube will need further investigation for possible H-type fistula (Wyllie et al, 2021)
• **Five types of TEFs:**
• **Most common configuration (86%) is esophageal atresia with distal TEF: Proximal esophagus ends blindly in upper mediastinum; distal esophagus is connected to the tracheobronchial tree.**
• Second most common type (8%) is isolated esophageal atresia with no TEF: Has small stomach, gasless abdomen.
• The third most common type (4%) is H- or N-type TEF with no esophageal atresia.
• The fourth type (1%) is esophageal atresia with both a proximal and distal TEF.
• The fifth type (1%) is esophageal atresia with a proximal TEF (Wyllie et al, 2021**) (Fig. 16–2).**

Diagnostic Tests
• Coiling of feeding tube is noted on x-ray.
• Bowel gas pattern may be abnormal.
• Ultrasound of renal system
• Echocardiogram
• A contrast evaluation for fistula may be performed

Nursing Interventions
Nursing interventions for patients with TEF include emergency care, acute hospital care, and chronic care.

Emergency Care
• Prevention of aspiration is important
• Tube should be placed in proximal pouch until surgery
• IV access with fluids and antibiotics
• Supine position with head elevated
• Oxygen if needed

Acute Hospital Care
• Surgical repair is indicated
• Prepare caregiver/patient for surgery
• Witness informed consent
• IV support after surgery **(Box 16-1)**
• Chest tube care
• Continued antibiotics
• Frequent suctioning with a premeasured catheter
• Elevate head of bed 30 to 45 degrees

• Tube feedings start 2 to 3 days after surgery
• Acid suppression therapy with proton pump inhibitor (PPI) such as lansoprazole, omeprazole, or pantoprazole after surgery to promote healing
• If no leak 5 to 7 days after surgery, start oral feedings
• Chest tube out with start of oral feedings
• Most babies respond well and do not experience complications

Chronic Care
• Leak of the surgical site requires continued IV therapy and chest tube.
• Leaks usually close spontaneously.
• Stricture may occur, which may require dilation of the stricture over 3 to 6 months.
• Reoccurrence of fistula formation may require more surgery for repair.

Caregiver Education
The nurse should educate caregivers in these aspects of emergency, acute, and chronic care.

Emergency Care
• Explain need for IV fluids.
• Provide information about the diagnostic tests.
• Preoperative teaching for the caregiver is essential.
• Provide reassurance to caregivers as needed.

Acute Hospital Care
• Explain postoperative procedures.
• Provide emotional support.
• Nonnutritive sucking with a pacifier should be encouraged before oral feeding begins.

#6. Cleft Lip and Palate

Most common congenital craniofacial anomaly occurs most frequently with other anomalies.

- Multidisciplinary team
  - Babies with cleft lip and cleft palate are usually managed by a specialized team that may include a plastic surgeon or craniofacial specialist, oral surgeon, dentist or orthodontist, prosthodontist, psychologist, otolaryngologist, nurse, social worker, audiologist, and speech-language pathologist.
- Surgical repair of cleft lip

- Historically, cleft lip has been repaired surgically around the age of 2 to 3 months and cleft palate at 6 to 9 months. Early repair of the cleft lip restores a normal appearance to the child's face and may improve parent–infant bonding.

- Surgical repair of cleft palate
  - May need revisions as child grows

Nursing management

Preventing injury to the suture line

Do not allow the infant to rub the facial suture line. To prevent this, position the infant in a supine or side-lying position.

Promoting adequate nutrition

In the bottle-fed infant special nipples or feeders may have to be used. When the suture line is healed, ordinary feeding may resume.

Encouraging infant-parent bonding

Encourage parents to hold the medically stable infant immediately after delivery to encourage bonding.

Providing emotional support

Refer parents to the Cleft Palate Foundation or a parent-to-parent support network.

#7. Refer to Slide

#8. Celiac disease is an **immune-mediated systemic disease caused by the ingestion of wheat gliadin and related prolamines in genetically susceptible individuals.**

When people with celiac disease eat gluten (a protein found in wheat, rye, and barley), the body mounts an immune response that attacks the small intestine. These attacks damage the villi, small finger-like projections that line the small intestine that promote nutrient absorption. When the villi get damaged, nutrients cannot be absorbed properly into the body. Celiac disease is hereditary (Wyllie et al, 2021)

Assessment

See Figure 16–3 for the clinical presentation of celiac disease.

Manifestations typically begin after food has been introduced into the diet at approximately 6 months of age and include

• Abdominal bloating

• Diarrhea
• Vomiting
• Weight loss—may appear very skinny in the extremities but normal weight in the face
• Flatulence
• Foul-smelling stools
• Delayed growth and development, including short stature, delayed puberty
• Dental enamel defects in the teeth
• Dermatitis herpetiformis—blistering, pruritic skin rash on elbows, buttocks, or knees
• More common in adults
• **Does not occur in all cases**

In its most severe form, celiac disease can cause
• **Iron deficiency anemia**
• **Vitamin B12 deficiency**
• **Osteopenia or osteoporosis due to calcium malabsorption (Wyllie et al, 2021)**

Diagnostic Studies
• Complete blood cell count (CBC) with differential
• Antitissue transglutaminase antibodies
• Total immunoglobulin A (IgA)
• IgA antiendomysial antibodies
• Vitamin B12 level, ferritin, total iron-binding capacity, folate
• Stool for occult blood, fat, Helicobacter pylori antigen (Wyllie et al, 2021)
• Endoscopy and tissue biopsy for definitive diagnosis

Nursing Interventions (Figure 16-3)

Emergency Care
• May require IV hydration for vomiting or diarrhea

Acute Hospital Care
• Prepare patient for endoscopy examination.
• Patient should not start gluten-free diet before endoscopy examination.
• Explain procedure to patient and family.
• Work with dietitian to teach patient and family about gluten-free diet before discharge.
• Caregivers and patient will need to learn components of a gluten-free diet.
• Discuss food likes and dislikes, and teach family how to read labels for gluten.
• Retrieve information from http://celiac.org about diet and support groups

Discharge

• Teach patient and family about gluten-free diet.
• Refer family to http://celiac.org for information on disease and diet.
• Refer patient and caregivers to a support group for the disease.
• **Alternative therapies:**
• Gluten-free diet is the definitive therapy and does not require medication.

Caregiver Education

Nurses must educate caregivers about these aspects of caring for a child who has celiac disease.

Emergency Care

• Recognize celiac crisis, manifested by extreme vomiting, diarrhea, and dehydration. This may occur in susceptible children who received gluten-containing foods early and have increasingly severe reactions to gluten.
• Require IV therapy and electrolyte replacement, usually normal saline with potassium.
• Once on a gluten-free diet, most patients will not require emergency care.
• Failure to respond to diet may indicate another underlying disease or failure to avoid gluten.
• Caregivers and patient will need to learn components of a gluten-free diet.
• Refer patient to a dietitian.
• Discuss food likes and dislikes, and teach family how to read labels for gluten.
• Retrieve information from http://celiac.org about diet and support groups.

Chronic Care

• Monitor adherence to the gluten-free diet by the patient.
• Many gluten-free products are available, so it is important to read labels.
• Provide a list of area stores/restaurants that carry gluten-free products if available.
• Regular follow-up with the gastroenterologist is essential.
• Participation in a support group either in person or online is helpful.
• Encourage child's participation in camps and outings with other children with celiac disease.
• Have caregivers and other family members screened also

#9. Appendicitis is inflammation of the appendix, a finger-shaped pouch that projects from your colon on the lower right side of your abdomen.
Appendicitis is one of the most common surgical conditions affecting children (Wyllie et al, 2021).

Assessment

Appendicitis may have the following clinical presentation.
• Initial pain in the periumbilical area that moves to the right lower quadrant of the abdomen **(Fig. 16–4)**
• Low-grade fever
• May be nauseated and have vomiting—not taking oral intake
• Usually does not have stool, but may present with diarrhea or pelvic pain
• Usually lays with knees bent
• **Rebound pain** with examination in right lower quadrant
• Pain in right side when press on left and release suddenly
• **McBurney's point is a site of extreme sensitivity in acute appendicitis, situated in the normal area of the appendix midway between the umbilicus and the anterior iliac crest in the right lower quadrant of the abdomen**
• **Pain after internal rotation of flexed thigh**
• **Pain on passive extension of right hip**
• **Pain in right lower quadrant when jumping and landing on the heels** (Bickley & Soriano, 2020)
• Pain for several days with sudden resolution; an ill-looking child may indicate perforation of the appendix

Diagnostic Testing
• CBC with differential sometimes shows elevation of the white blood cells (WBCs) and a left shift of the WBCs toward less mature cells
• Urinalysis
• Ultrasound
• Computed tomography (CT) scan usually ordered after consultation with a surgeon

Nursing Interventions
Nursing interventions for patients with appendicitis include emergency, acute, and chronic care.

Emergency Care
• Patient will be NPO.
• Monitor vital signs.
• Assist with diagnostic tests, including ultrasound and CT.
• Assist with positioning patient in position of comfort.
• Administer IV fluids as ordered.
• Explain tests to patient and family.
• Prepare patient for surgery, including required preoperative teaching.

Acute Hospital Care
• Monitor vital signs.
• Maintain IV therapy and then advance diet as tolerated.

• Assess pain with appropriate pain scale (FACES for young child, scale of 1–10 for older child) and administer pain medication as ordered.
• Encourage use of incentive spirometer.
• Encourage ambulation.
• Monitor incisional sites: three if done laparoscopically or right lower quadrant incision site if surgery is done using the traditional method.
• Provide discharge instructions to patient and caregiver.

Chronic Hospital Care

• If the appendix is ruptured, the patient may have a prolonged hospital stay because of possible peritonitis from contents of the appendix leaking into the abdomen.
• Administer IV therapy as ordered.
• Monitor nasogastric (NG) drainage if ordered.
• Monitor vital signs.
• Monitor laboratory tests, such as CBC and cultures.
• Monitor drainage and change dressings as needed.
• Assess for pain and administer medication as needed.
• Most acute appendicitis is now treated by laparoscopic removal.
• Nonsurgical treatment
• Used occasionally if patient is not well enough to undergo surgery
• Includes IV antibiotics
• Liquid or soft diet until the infection subsides

Caregiver Education

Nurses must educate parents and caregivers of children with appendicitis on the following aspects of the condition.

Emergency Care

• Provide information about the diagnostic tests.
• Preoperative teaching for the caregiver and patient is essential.

Acute Hospital

• Instruct caregiver about medication administration for pain and antibiotics.
• Encourage caregiver to assist patient with ambulation as needed and stress its importance.
• Encourage child and caregiver to report pain and assist with medication or nonpharmacological methods of relief, such as massage, distraction, music, and aromatherapy.
• Teach caregiver and patient signs of infection—redness in incision, fever, unrelieved pain.
• Provide discharge instructions and follow-up care.

Discharge Instructions

• Instruct patient and caregivers to limit lifting and physical activity for several weeks.
• Teach patient and caregiver importance of medication administration after ruptured appendix.
• Teach caregiver and patient signs of infection—redness in incision, fever, unrelieved pain.
• Teach patient and caregiver importance of keeping follow-up appointments.

#10. A hernia is a protrusion of contents through a defect or opening.
The type of hernia is defined by its location.
An inguinal hernia is a protrusion of the intraabdominal contents through the external or internal inguinal rings (Wyllie et al, 2021).

Assessment
Inguinal hernia typically has the following clinical presentation:
• Lump in the groin, commonly on the right side
• History of intermittent pain and swelling in the groin
• Feeling of weakness or pressure in the groin
• A burning, gurgling feeling at the bulge
• Patient with a hydrocele should be checked for inguinal hernia
• With incarceration—increase in pain, fever, tachycardia, bilious vomiting due to obstruction and no stooling
• With strangulation—erythema and edema over a tender groin mass

Diagnostic Testing
• Palpation of the hernia on examination
• Patient will be upright and cough or bear down, which causes the hernia to extrude and be felt during manual examination
• Reduction of the hernia during examination
• Transillumination of the hydrocele to rule out hernia—no intervention needed if only hydrocele
• Report of caregiver of lump seen in groin area

Nursing Interventions
Nursing interventions with pediatric patients with inguinal hernia include emergency care, acute care, and discharge instructions.

Emergency Care
• Start IV fluids.
• Prepare patient for surgery.
• Witness informed consent.
• Provide support to caregivers as needed.

Acute Care
• May be performed on an outpatient basis if no incarceration.
• Start IV fluids if not emergent.
• Answer questions and provide support for caregivers.
• Provide appropriate pain medication postoperatively.
• Encourage nonnutritive sucking for infants.
• Keep suture line clean and dry.
• In infants and toddlers who are not toilet trained, frequent diaper change is necessary.
• Assess circulation on the side of the surgical incision.

Discharge Instructions
• Once repaired, the patient should not have additional problems with that side.
• The opposite side, if not repaired, will need periodic examination.
• Umbilical hernias may also occur but are not repaired in newborns. They usually spontaneously close at 1 year.
• Older children may later need repair.

Caregiver Education
The nurse must educate the caregiver of a child with inguinal hernia on the following measures.

Emergency Care
• Provide information about the diagnostic tests.
• Preoperative teaching for the caregiver and patient is essential.

Discharge Teaching
• Teach caregiver care of surgical site.
• Encourage feeding of patient as tolerated.
• Administer pain medication as needed.
• Note importance of keeping scheduled appointments.
• Caregivers should observe opposite side for hernia.
• Report any problems to health-care provider

#11. Inflammatory bowel disease (IBD) is a group of chronic intestinal diseases characterized by inflammation of the bowel (the large or small intestine).
The most common types of IBD are ulcerative colitis and Crohn's disease (Wyllie et al, 2021).

#12. **Crohn's Disease**

Crohn's disease is a chronic IBD characterized by immune response to injured tissue that causes redness, swelling, and pain of the GI tract.

Crohn's disease can affect any part of the GI tract from the mouth to the anus, but it is more commonly found at the end of the small intestine and may extend through the entire thickness of the bowel wall (Wyllie et al, 2021).

Assessment
Crohn's disease may have the following clinical presentation:
• Abdominal pain
• Often presents in the right lower quadrant **(Fig. 16–5)**
• **May mimic appendicitis**
• Fever
• Diarrhea (possibly bloody)
• Nausea and vomiting
• Anorexia
• Weight loss and fatigue
• Anemia
• Delayed growth and development
• Oral aphthous ulcers: Canker sores are small, shallow lesions that develop on the soft tissues in the mouth or at the base of the gums. Unlike cold sores, canker sores do not occur on the surface of the lips and are not contagious
• Intestinal blockage
• Fistula formation
• Periods of exacerbation and remission
• May be mild with minimal symptoms to severe with fulminant disease (Kelley et al, 2017; Wyllie & Hyams, 2021)

Diagnostic Testing
• CBC, electrolytes, liver enzymes, sedimentation rate, C-reactive protein (CRP)
• Serum calcium and phosphorus, zinc, magnesium
• Total protein and albumin
• Urinalysis
• Stool for occult blood and WBCs, ova, and parasites
• Stool culture
• IBD laboratory panel
• Upper GI series with small bowel follow-up
• Ultrasound
• CT scan

• Colonoscopy with tissue biopsy
• Ophthalmic examination

Nursing Interventions

Nursing interventions for pediatric patients who have Crohn's disease include emergency, acute, and chronic care.

Emergency Care

• Periods of abdominal pain with bleeding require immediate treatment
• IV therapy
• High-dose corticosteroids, such as prednisone or prednisolone: for moderate flares of IBD, typical recommendation is prednisone at 10 to 40 mg/day; for more severe flares, dosages up to 60 mg/day may be used, tapered once patient improves

Acute Care

• May require IV therapy for hydration
• Corticosteroid therapy to induce remission
• Antibiotics may be used, such as ciprofloxacin (Cipro) and metronidazole (Flagyl)
• Tacrolimus or cyclosporine
• Start infliximab therapy
• May require surgery

Chronic Care

• Drug therapy
• Mesalamine
• Antibiotics such as ciprofloxin or metronidazole
• Immunosuppressives such as azathioprine, 6-mercaptopurine, or methotrexate
• Infliximab therapy or adalimumab and certolizumab pegol (tumor necrosis factor [TNF] blocker)—maintenance dosing every 6 to 8 weeks
• Other medications used could be stekinumab, vedolizumab, ustekinumab.
• Dual therapy can be effective for refractory disease.
• Nutritional supplementation may be necessary
• **Surgery if medication does not control the symptoms and to correct potential complications of Crohn's disease—such as clearing an intestinal blockage or repairing damage to the intestines; damage to the intestines can include a perforation or abscess (Kelley et al, 2017; Wyllie et al, 2021**)

Caregiver Education

Educate the parents and/or caregivers of Crohn's disease patients of the following measures.

Emergency Care

Caregivers need to bring patient in for treatment with signs of bleeding or pain.

Acute Care

• Caregivers and patient need education about medications.
• Discuss concerns with caregiver and patient.
• Discuss feelings with child or adolescent about having a chronic disease.
• Work with child and adolescent on diet; discuss dietary likes and dislikes.
• Strive for some normalcy in diet between exacerbations.
• Teach patient and caregivers about stress-reduction techniques such as visualization and relaxation techniques.

Chronic Care

• Review use and side effects of medications with patient and caregivers.
• Review importance of regular follow-up examinations.
• Encourage patient to report if side effects of medications occur.
• Caregivers should report any illness to gastroenterologist for possible medication adjustment.
• Refer caregiver and child to camps or other activities so that child can experience normal activities with other children with similar diseases.
• Discuss diet and how to maintain good nutrition and incorporate dietary preferences.
• Refer patient and caregivers to a support group

Ulcerative colitis causes inflammation and ulcers in the lining of the large intestine. It is **NOT** an autoimmune disease.

It usually affects the lower section (sigmoid colon) and the rectum

Ulcerative colitis causes inflammation and ulcers in the lining of the large intestine. It usually affects the lower section (sigmoid colon) and the rectum but can affect the entire colon. The more of the colon affected, the worse the symptoms will be (Wyllie et al, 2021).

Assessment

Ulcerative colitis may have the following clinical presentation:
• Abdominal **pain (Fig. 16–6)**
• Bloody diarrhea—watery with streaks of blood
• Urgency to defecate
• Anemia
• Fatigue
• Weight loss
• Loss of appetite

• Rectal bleeding
• Skin lesions
• Joint pain
• Growth failure
• Symptoms may be mild or with frequent bouts of bloody diarrhea, fever, and abdominal cramping

Diagnostic Testing

• CBC, electrolytes, liver enzymes, sedimentation rate, CRP
• Total protein, albumin
• Serum iron, total iron-binding capacity, ferritin
• Stool for occult blood and WBCs, ova, and parasites; stool culture
• Stool for Clostridium difficile
• IBD laboratory panel
• Colonoscopy with tissue biopsy

Nursing Interventions

Nursing interventions for patients with ulcerative colitis may include emergency, acute, and chronic care.

Emergency Care

• Periods of abdominal pain with bleeding require immediate treatment:
• IV therapy
• Antibiotics such as ciprofloxin or metronidazole

Acute Care

• May require IV therapy for hydration
• Corticosteroid therapy to induce remission
• Metronidazole, ciprofloxacin, and other antibiotics may be used when infections occur or to treat complications of ulcerative colitis
• Pain medication
• Antidiarrheals
• May require surgery

Chronic Care

• Drug therapy
• Aminosalicylates such as sulfasalazine or mesalamine may be given orally, as a suppository, or as an enema
• Corticosteroids—prednisone orally, IV, enema, or suppository; best suited for short-term control of IBD symptoms and disease activity
• Immunosuppressives such as azathioprine, 6-mercaptopurine
• Tofacitinib, adalimumab, golimumab, infliximab, ustekinumab, vedolizumab
• Cyclosporine A may be given for severe disease (Wyllie et al, 2021).
• Nutritional supplementation may be necessary
• Surgery if medication does not control the symptoms

• If severe, surgical resection of the colon will be performed with creation of an ileostomy

#13. Peptic Ulcer Disease

Peptic ulcers are open sores that develop on the inside lining of the stomach or the upper portion of the small intestine. The most common symptom is stomach pain. Peptic ulcers include:
• Gastric ulcers that occur on the inside of the stomach
• Duodenal ulcers that occur on the inside of the upper portion of the small intestine
The most common causes of peptic ulcers are infection with the bacterium H. pylori and long-term use of aspirin and certain other painkillers, such as ibuprofen (Advil, Motrin, others) and naproxen sodium (Aleve, Anaprox, others). Stress and spicy foods do not cause peptic ulcers. However, they can make the symptoms worse (Fashner & Gitu, 2015).

Assessment
Early clinical presentation includes the following symptoms with gastritis; however, some patients are asymptomatic **(Fig. 16–7):**
• Recurrent abdominal pain
• Nausea, vomiting, anorexia
• Decrease in growth
• Proceeds to crampy epigastric pain
• Change in eating habits
These symptoms proceed to:
• Chronic, recurrent abdominal pain
• Episodic epigastric pain
• Vomiting that is recurrent
• Nocturnal awakening
• Anemia
• May have life-threatening GI bleeding
• Perforation of the stomach or duodenum
• Shock
Diagnostic Testing
• CBC, erythrocyte sedimentation rate (ESR)
• H. pylori antibody blood test
• H. pylori antigen in stool
• Stool for occult blood, WBC count
• Upper GI series

• Endoscopy with biopsy and H. pylori culture

Nursing Interventions

Emergency Care

• Patient should be seen immediately for:
• Sudden, persistent stomach pain
• Bloody or black stools
• Bloody vomit or coffee-grounds vomit
• NPO
• IV therapy

Acute Care

• Maintain IV therapy if needed.
• Provide explanation of treatment to patient and caregiver.
• Start treatment using triple therapy

#14. Most common result of GI illness
If left untreated, can lead to hypovolemic shock
Adequate urine output: varies by age, 0.5 mL-2 mL/kg/hr due to immature renal system
Why does fever cause dehydration?
BODY WEIGHT is the most reliable indicator of fluid loss in infants and young children

- **BP does not change until severe dehydration**
- **RR does not give adequate indication of hydration status alone**
- **REVIEW ATI**

#15. Dehydration in children can transition very quickly to an emergency/critical situation
How do we assess fluid balance and loss in infants/children?
Strict intake and output for everyone!
How to calculate Intake
**Potential fluid loss occurs more rapidly & in larger amounts than it does in adults

#16. Most common result of GI illness is dehydration, requiring supplemental fluid intake, oral or IV depending on clinical presentation
Urine output in hydrated infant/child: appx 0.5-2mL/kg/hr
Urine output in hydrated adolescent: appx 1 mL/kg/hr

(Box 16-1)

Hydration status

Oral mucosa should be pink & moist, skin turgor should be elastic, tears should be present when crying, assess urinary output in last 24 hours

Weight loss?
Decrease in output?
Crying but no tears? Not good!

#17. All babies spit up, some more than others.

- Approximately 50% of 4-month-olds regurgitate, approximately 20% to the extent that caregivers seek assistance

#18. GERD

In pediatric **gastroesophageal reflux disease (GERD)**, immaturity of the lower esophageal sphincter function is manifested by frequent transient lower esophageal relaxations, which result in retrograde flow of gastric contents into the esophagus (Wyllie et al, 2021)

Assessment

GERD may have the following clinical presentation:
• With reflux, eating is unpleasant and hurts
• A large amount of fluid may be present with recurrent vomiting
• In silent GERD, milk enters the esophagus, causing burning, coughing, and choking
• Slow weight gain or no weight gain due to association of eating with pain
• Excessive irritability and crying, especially after meals
• Arching during or after meals
• Newborns or young infants may present with apnea
• Children may have a chronic cough
• May develop chronic episodes of pneumonia
• Older children may have pain in the epigastric area
• Midsternal discomfort
• Sleep interruption
• Persistent throat soreness not associated with any infectious disease (Wyllie et al, 2021)

Diagnostic Testing

• Weight, length, head circumference

• Stool for occult blood
• Chest x-ray for respiratory symptoms
• pH probe
• Esophagram
• Gastric emptying study in older child
• In some cases, endoscopy may be used

Nursing Interventions

If baby chokes and stops breathing, initiate CPR.

Monitor intake and output.
• Monitor weight.
• Prepare infant for pH probe or other diagnostic tests.
• Assess mother's feeding style if breastfeeding; rule out overactive letdown with excessive milk.
• Administer medication as ordered.
• Metoclopramide (Reglan)
• Reglan may be indicated for infants
• Proton pump inhibitors—lansoprazole (Prevacid), omeprazole (may be opened and sprinkled on food)
• May be treated with Nissen fundoplication, if severe (Wyllie et al, 2021).
• If surgery is indicated, provide preoperative teaching to the caregivers.
• Give support postoperatively.
• Monitor intake and output, including NG tube secretions.
• Gradually increase feedings.
• Monitor weight daily.
• Administer pain medication as needed.

Caregiver Education

• Upright positioning is important for infants; caregivers should elevate head of the bed.
• Stress avoidance of food that may trigger symptoms.
• Teach administration of medication.
• May continue to breastfeed. Help correct overactive letdown if present; baby may breastfeed in upright position
• Change formula to protein hydrolyzed formula if bottle feeding
Frequent burping.
Small frequent feedings
• Teach caregivers how to thicken feedings if medically ordered.
• In older children, teach avoidance of food that may trigger symptoms—fatty foods, acidic foods (citrus juices, carbonated beverages, tomato products).
• Encourage reduction in weight in older children who are obese.

• Teach importance of medication administration.

#19. Pyloric Stenosis

Pyloric stenosis occurs in infants when the pylorus blocks food from entering the small intestine.

Normally, the muscular valve (pylorus) between the stomach and small intestine holds food in the stomach until it is ready for the next stage in the digestive process. In pyloric stenosis, the pylorus muscles thicken and become abnormally large, blocking food from reaching the small intestine. Pyloric stenosis can lead to forceful vomiting, dehydration, and weight loss.

Babies with pyloric stenosis may seem constantly hungry (Wyllie et al, 2021).

Assessment
Pyloric stenosis may have the following clinical presentation:
• Found more in boys than girls (4:1); higher incidence if mother had disease (Wyllie et al, 2021)
• Forceful, progressive, nonbilious vomiting after each feeding
• Onset of vomiting from the first week of life to as late as 5 months of age
• Vomiting becomes projectile over time
• Observation of peristaltic waves from left to right before vomiting occurs
• Eventual dehydration with decrease in serum chloride
• Poor weight gain
• Failure to thrive (FTT)
• Risk for metabolic alkalosis
• Jaundice in 2% to 5% of cases

Diagnostic Testing
• Palpation of pyloric mass in the midepigastrium (olive sign)
• Ultrasound visualization of pyloric thickening
• Upper GI series
• CBC with electrolytes
• Liver function tests, including bilirubin total and direct

Nursing Interventions
• Patient will need to be NPO.
• Monitor intake and output.
• Provide patient with pacifier for comfort.

- Provide IV therapy with isotonic solution and added electrolytes as needed.
- Teach caregivers about diagnostic tests to be performed.
- Prepare patient for surgical correction.
- Teach caregivers about surgery to be performed and answer questions.
- Provide emotional support to caregivers.
- Provide breastfeeding mother with electric pump for pumping and storage.
- Give appropriate pain medication postoperatively.
- Monitor incisional site for infection.
- Fold diapers low to avoid incisional area.
- Monitor intake and output.
- Record daily weight.
- Advance diet as ordered; small amounts of fluid frequently.
- It is important to burp patient after feeding to decrease air in stomach.

Hospital Care

- Patient may continue to vomit postoperatively because of edema.
- In most cases, the surgery alleviates the problem.

Bring patient to the hospital or clinic for evaluation of persistent vomiting or lethargy.

#20. Intestinal obstruction is mechanical or functional blockage of the intestines that prevents the normal movement of the products of digestion. The small or the large intestine may be affected.

Bilious vomiting in an infant is a surgical emergency until proven otherwise (Wyllie et al, 2021). Malrotation **(Fig. 16–9)** occurs when the small or large intestine is not positioned in the abdominal cavity in the correct position. When the small or large intestine is twisted or malpositioned, it carries with it the bands, vascular vessels, and ligaments that supply the organ. Bile in the emesis of an infant is therefore an ominous sign until proven otherwise

#21. A volvulus is an **abnormal twisting of a portion of the GI tract, usually the intestine, which can impair blood flow.**

Volvulus can lead to gangrene and death of the involved segment of the GI tract, intestinal obstruction, perforation of the intestine, and peritonitis.

The stomach, small intestine, cecum, and sigmoid colon are all subject to volvulus.

Malrotation of the bowel during fetal development can predispose one to a volvulus, which often has a sudden onset (Wyllie et al, 2021

Assessment
Volvulus may have the following clinical presentation:
• Most often occurs in the first 6 months (Fig. 16–10)
• Intense crying and pain
• Pulling up of the legs
• Abdominal distention
• Vomiting, usually bilious
• Tachycardia and tachypnea

Diagnostic Testing
• Upper GI series
• CBC with electrolytes

Nursing Interventions
• **SURGICAL EMERGENCY**
• Patient needs counterclockwise rotation to restore normal perfusion
•Keep patient NPO.
• Establish IV therapy.

Strict I and O
• Insert NG tube.
• Prepare patient for surgery.
• Provide patient with pacifier.
• Provide emotional support for caregiver.
• Provide pain relief after surgery—use Neonatal Pain Scale for infants.
• Monitor incisional area.
• With return of bowel sounds, start feedings.
• Once patient is maintaining good intake, he or she will be discharged.
• Encourage nonnutritive sucking before oral feedings.
• Teach caregivers signs of infection or complications.
• Teach caregivers importance of follow-up appointments. With significant damage, may need resection

#22. Intussusception occurs when **part of the intestine slides into an adjacent part of the intestine.**

This "telescoping" can block food or fluid from passing through.

Intussusception also cuts off the blood supply to the affected portion of the intestine, which can lead to a perforation, infection, and death of bowel tissue.

Intussusception is the most common cause of intestinal obstruction in children younger than 3 (Wyllie et al, 2021).

Assessment
Intussusception typically has the following cause and clinical presentation:
• May be caused by Meckel's diverticulum, polyp, or enlargement of lymph tissue
• Sudden drawing up of legs and crying with possible vomiting, then symptom free
• **Pain will occur in regular intervals, every 15 to 20 minutes**
• Vomiting will contain bile:
• After 12 hours, develop currant-jelly stools (stool mixed with blood and mucus)
• Increased abdominal distention
• As problem progresses:
• Fever
• Peritoneal irritation with tenderness and guarding
• Tachycardia
• Elevated WBC (Wyllie et al, 2021)
Diagnostic Testing
• Ultrasound
• CBC with differential
• **Barium enema may correct the problem**
Nursing Interventions.
• Prepare patient for ultrasound.
• Keep patient NPO.
• Establish IV therapy.
• Maintain record of intake and output.
• Provide patient with pacifier.
• Reduction may be done with barium enema, air insufflation, or water-soluble solution.
• Reintroduce to regular feeding gradually.
• Provide pain medication as needed.
• When bowel sounds return, start gradual oral feedings.

• Once patient is maintaining good intake
, he or she will be discharged.

Caregiver Education

• Explain procedures to caregivers.
• Answer caregiver questions as needed.
• Encourage caregiver to hold and rock patient.
• Encourage caregiver to hold patient, either postprocedure or postoperatively.
• Encourage caregiver to participate in oral feedings.
• Teach caregivers signs of infection or complications.
• Teach caregivers importance of follow-up appointments.

#23. **Acute gastroenteritis** in children is often defined as onset of diarrhea without chronic disease, with or without abdominal pain, fever, nausea, or vomiting.

In the United States, the condition is a major source of morbidity and hospitalization in children younger than 5 (Burns et al, 2021).

Assessment

Gastroenteritis may have the following clinical presentation:
• Watery diarrhea
• Abdominal cramping
• Vomiting
• Headache
• May have fever and chills—temperature above 102.5°F
• Stools with blood or pus
• Symptoms last from 1 to 2 days up to 10 days

Diagnostic Testing

• Usually diagnosed by symptoms and examination
• May test stool for culture (bacterial and viral), ova and parasites, WBC count
• Blood work—CBC and electrolytes **if patient appears dehydrated**

Nursing Interventions

• Antibiotics may be administered if stool culture is positive.
• If patient is not dehydrated, care may be given at home.
• Withhold fluids for 2 to 3 hours.
• Start with 1 tablespoon of fluid every 15 minutes for 1 hour, then 1 oz of fluid.

• Every half hour, give Pedialyte, water, popsicles, or oral rehydration solution.
• After several hours of retaining fluid, the patient may have clear broth and several saltines.
• If patient starts to vomit, stop fluids and start over.
• If only diarrhea, provide brief period of rest from intake, then start fluids.
• Moisturize lips with Vaseline.
• Allow pacifier for infants for nonnutritive sucking.
• Keep perineal area clean and dry between diarrhea episodes.
• May continue to breastfeed.
• Patient should return to a regular diet during the second 24 hours (Fig. 16–11).
• Caregiver should bring the patient to clinic or hospital if there are any of the following symptoms:
• Prolonged vomiting
• No urination for 8 to 12 hours or less than five to six wet diapers in an infant
• Depressed fontanel
• Dry mucous membranes
• Lethargy

Education
• Instruct caregivers on how to give fluids for recovery.
• Instruct caregivers not to give any antidiarrheals such as Imodium or Pepto-Bismol

#24. • If patient is dehydrated, IV therapy must be instituted. Initially an isotonic solution such as normal saline may be given followed by a hypertonic solution such as D5 1/2 normal saline.
• Patient may require additional electrolytes in the IV if there is an imbalance.
• There is a risk for metabolic acidosis.
• There is a risk for hypovolemic shock.

#25. Refer to slide.

#26. **Constipation** in infants and children **is not typically caused by serious disease**.

The cause of most constipation is functional or idiopathic, meaning there is no sign of injury or infection, blood, or anatomic abnormality to explain the very real symptoms (Wyllie et al, 2021).

Assessment

• Infrequent stools (less than twice a week) that are usually hard and may be small and pebble-like or large
• Complaints of pain with stooling
• Leaking of stool between bowel movements (encopresis)-- Resulting in smears of BM in underwear.
• Holding behaviors with stooling (hiding, dancing movements, squeezing buttocks together)
• Impaction—inability to stool with abdominal pain and sometimes vomiting
• History should cover general stooling habits
• On physical examination, stool may be palpated in the colon
• Assessment for anal wink and examination of anus for fissures on rectal examination

Diagnostic Testing

• Occult blood
• Flat plate of abdomen
• Barium enema (unprepped)—helps to rule out Hirschsprung's disease
• Colonic transport examination (done infrequently)
• Anorectal manometry

Nursing Interventions

• Impaction accompanied by vomiting; may need admission for disimpaction.
• Child may need IV fluids.
• Enemas or oral electrolyte solutions may be used for disimpaction.
• If disimpaction is needed but child is not in acute distress, child may be treated at home with high-dose polyethylene glycol with close follow-up monitoring.
• Child may be admitted to the hospital if disimpaction does not work at home or child becomes worse with similar treatment as described earlier.
• Family must understand the importance of using medication as directed.

Chronic Home Care

• Medications
• Polyethylene glycol 3350 without electrolytes (MiraLAX or GlycoLax)
• Mineral oil
• Lactulose
• Short-term therapy with Senna (Senokot)
• Dulcolax also may be used for short-term therapy

• Enemas may be helpful on a short-term basis
• **Behavior modification**
• Regular times for stooling, usually after meals for 5 to 10 minutes
• Daily record of stools and medication
• Reward chart for success
• Increase in exercise
• Increase in fluid intake
• Dietary improvement, including increased fiber
• Elimination of cow's milk protein may help
• Biofeedback therapy
• Follow-up visits are important for weaning of medication

Education

• If the child starts to vomit or has severe abdominal pain, caregiver should bring the child for immediate evaluation.
• Education of caregiver and child about procedures
• Education of caregiver and child about medication
• On discharge, stress to caregiver and child importance of continuing medication regularly

Regular use of medication

Discuss behavior modification with caregiver and child.

• Child should sit on toilet for set time and not get up until he or she has bowel movement or time is up (5–10 minutes at least, depending on child's age).
• Child should sit on toilet after meals.
• Record of stools and medication should be kept.
• Use reward chart.
• Participation of child is important for success in the therapy.
• Reward should be a privilege such as extra TV or video game time; child should be part of selecting reward.
• No food rewards should be given.
• Increase of fruits and vegetables
• Increase of fluids
• Increase fiber in diet—for age 1–3 years 19 g; age 4–8 years, 25 g; age 9–13 years, 26 g for girls and 31 g for boys; age 14–18 years, 29 g for girls and 38 g for boys. Adding the child's age in years + 5 equals the needed grams of fiber in the diet daily (Koppen et al, 2015). This can be used to increase fiber intake toward dietary recommendations.
• Use of probiotics may be helpful. Study about their use is ongoing

#27. Hirschsprung's disease is a congenital condition that causes blockage of the intestine **because of a lack of nerves in the bottom segment of the colon.**

These nerves normally allow the muscles in the wall of the bowel to contract and move digested material toward the anus to be eliminated.

Hirschsprung's disease occurs in 1 out of every 5,000 live births. The disease occurs **more often in males than in females** (Wyllie & Hyams, 2021).

Assessment

Hirschsprung's disease may have the following clinical presentation:
• Failure to pass meconium in the first 24 hours of life with increased abdominal distention (Fig. 16–12)
• Constipation from birth
• No bowel movement more than once a week
• Ribbon-like or watery stools
• Thin child with protuberant abdomen
• Vomiting
• Poor weight gain

Diagnostic Testing

• Empty rectum on digital examination
• Abdominal x-ray (kidneys, ureter, bladder)
• Barium enema (unprepped)
• Rectal biopsy (definitive test for diagnosis)
• Anorectal manometry is more accurate for short or ultrashort segments and is not used in newborns

Nursing Interventions

• Establish IV therapy for fluid and electrolyte balance.
• Antibiotic therapy as needed.
• If not an emergency, caregiver may administer enemas before admission for surgery.
• Caregiver will need instruction in giving enema.
• Prepare child for surgery.
• May need enema to evacuate colon.
• Provide emotional support for caregiver.
• Maintain NG tube.
• Monitor operative site.
• Administer antibiotics.

• Observe for complications such as enterocolitis (watery diarrhea, abdominal distention, and fever).
• Warm saline irrigation of rectum
• Advance feedings as tolerated if no complication.
• Monitor for complications such as chronic constipation or impaction.
• Refer to gastroenterologist for follow-up.
• Observe stools for normal pattern and consistency.
Caregiver Education
• Explain procedures to caregivers.
• Answer caregiver questions as needed.
• Teach parent signs of enterocolitis and impaction that need immediate intervention.
• Encourage caregiver to hold patient, either postprocedure or postoperatively.
• Encourage caregiver to participate in oral feedings.
• Have caregiver provide breast milk if possible; provide breast pump for use.
• Teach caregivers importance of keeping follow-up appointments.
• Child may be having difficulty with passing stools or leaking because of tight anus and pull-through surgery.
• Caregiver needs to monitor stooling and be alert for problems.
• Teach caregiver that child may be a fussy eater at first; it is important to deemphasize mealtime stress.
• Treatment for older child may be the same as for chronic constipation; child needs to be active participant in treatment.
• Genetic counseling may be recommended

#28. Refer to slide.

#29. A body mass index (BMI) above the 85th percentile for the child's age and sex is defined as overweight and a BMI greater than or equal to 95th percentile is defined as obesity by the Centers for Disease Control and Prevention (CDC).

Assessment
• BMI greater than 95% is considered obese
• BMI of 85% to 94% is considered overweight
• Adiposity rebound at a young age
• Knee pain
• Abdominal pain
• Daytime somnolence

• Polycystic ovary disease
• Menstrual irregularities
• Acne
• Hirsutism
• Infertility
• May have associated problems
• Diabetes
• Fatty liver disease
• Heart disease
• Hypertension
• Hyperlipidemia
• Obstructive sleep apnea
• Gallbladder disease
• Slipped capital femoral epiphysis

Diagnostic Testing

• **Height, weight, BMI at each visit**
• CBC
• Lipid profile
• Fasting glucose
• Liver function tests
• Thyroid-stimulating hormone
• Cortisol a.m. (morning)
• Height and weight measurements
• **BMI = weight in kilograms divided by the height in meters squared (kg/m2)**
• Most commonly used measure
• Skinfold thickness—calipers measure subcutaneous fat from several areas and compare with controls
• Bioelectric impedance analysis
• Ultrasound
• Sleep study (Wyllie et al, 2021)

Nursing Interventions

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• Symptoms of heart disease, uncontrolled hypertension, or diabetes with blood sugar not well controlled may require hospitalization.
• Hip or leg pain should have immediate evaluation.
• Stabilize any health conditions.
• Encourage caregivers to not overfeed in infancy.
• Patient needs individualized weight loss program
• Nutrition assessment

• Referral to nutrition
• Change in diet
• Discuss speed of eating
• Discuss caregiver effect on eating
• Encourage patient to not skip meals
• Encourage increase and change in physical activity
• Decrease screen time (television or video games) to 2 hours a day or less
• No eating in front of the TV
• Change daily routine to increase activity
• Behavior modification
• Small, gradual changes over time
• Positive reinforcement for changes
• **Provide some choice**
• Family involvement
• Family must be involved in plan and role-model healthy eating and physical activity.
• Need education concerning short- and long-term consequences of obesity.
• Promote positive parenting skills; consistent messages.
• Provide healthy meals and snacks.
• Support groups
• **Medication**
• Only for patient 16 years or older
• Orlistat—needs close supervision if used
• Surgical intervention—bariatric surgery
It may be a consideration for late adolescent patient.
• **Patient must meet stringent criteria. The selection criteria for adolescents considered for a bariatric procedure should include a BMI ≥35 kg/m2 with major comorbidities (i.e., type 2 diabetes mellitus, moderate-to-severe sleep apnea [apnea–hypopnea index >15], pseudotumor cerebri, or severe NAFLD) or a BMI ≥40 kg/m2 with other comorbidities (e.g., hypertension, insulin resistance, glucose intolerance, substantially impaired quality of life or activities of daily living, dyslipidemia, sleep apnea with apnea–hypopnea index >5). The associated risk-benefit analysis should also include the consideration of the potential long-term health risks of untreated or inadequately treated obesity for the individual candidate (American Society for Metabolic and Bariatric Surgery, 2017).**

Caregiver Education

Nurses must educate parents and caregivers on the following topics related to obesity.
Education
• Signs of complications such as uncontrolled diabetes and heart disease should be taught to the caregiver and patient.
• Caregiver should be taught short- and long-term consequences of obesity.
• Caregiver needs to know importance of not overfeeding.
• Importance of healthy diet and activity should be emphasized, with input from family.
• Discuss with caregiver and child feelings about food and mealtimes.
• **Obesity is a chronic condition that requires caregiver assistance for success with weight loss.**
• Teach importance of diet with resources (2016;(**Box 16-2**).
• Teach importance of regular exercise.
• Teach importance of reduction in sedentary behavior.

#30. FTT is defined as weight for age that is less than the 5th percentile on multiple occasions or weight deceleration that crosses two major percentile lines on a growth chart (Maaks et al, 2020).

Assessment
• The clinical presentation of FTT includes:
• Poor weight gain of less than the 5th or 3rd percentile for age on graph
• Vomiting
• Food refusal
• Food fixation
• Abnormal feeding practices
• Anticipatory gagging
• Irritability
• Height, head circumference, and developmental skills may be affected
• Chronic physical problems
• Psychosocial problems in parent–child relationship can lead to nonorganic FTT
• May be caused by inborn error of metabolism with more severe symptoms
• Nonorganic: food restriction, food rituals, and poor appetite
• Organic: vomiting, diarrhea, and abdominal distention
Diagnostic Testing

• **History: prenatal, perinatal, neonatal, postnatal health, developmental, family, psychosocial**
• Height, weight, BMI, head circumference (<2 years), skinfold measurement
• Physical examination noting abnormalities
• Vital signs
• Feeding assessment
• Quantity of food
• Ability to suck, chew, swallow
• Meals and child feeding
• Feeding history including calorie intake, feeding behaviors, frequency, and intake
• Breastfeeding including frequency and length, formula preparation if bottle feeding
• Twenty-four–hour diet recall for infant, 3 days for older children
• Developmental assessment
• Basic metabolic profile
• Vitamin D, lead, zinc, iron screening
• Albuin with severe FTT
• CBC/ESR, serum electrolytes
• Urinalysis and urine culture
• Sweat chloride test
• Stool studies for fat, reducing substances, ova and parasites, and culture
• Thyroid-stimulating hormone
• Chest radiograph, renal ultrasound
• With growth failure: karyotype, bone age

Nursing Interventions

Nursing interventions for FTT include the following measures.

• Lack of intake or need for immediate intake may require hospitalization.
• Evaluate and intervene to protect the child from abuse if intentional abuse by withholding nutrition is suspected.
• Hospitalization may be necessary if outpatient management is not practical or feasible.
• Stabilize any conditions.
• Encourage caregivers to recognize feeding cues in infancy.
• Provide parent education about feeding and parental support.
• Program for patient must be individualized
• Nutrition assessment **(see Table 16-2)**
• Referral to nutrition
• Feeding clinic

• Discuss caregiver effect on eating
• Provide parent education and support
• Assist parent with learning positive parenting techniques
• Treat underlying chronic conditions
• Social work referral, especially if nonorganic FTT
• Evaluate for normal weight gain every 1 to 3 weeks
• May take up to 2 weeks for growth to occur if the condition is severe.
• Catch-up growth may occur rapidly.
• Develop a goal weight within normal range for the child's age, sex, and height.

Education

Family involvement
• Family needs to be involved in plan.
• Need education concerning short- and long-term consequences of FTT.
• Promote positive parenting skills; consistent messages.
• Provide healthy meals and snacks and recognize feeding patterns and behaviors.
• Reinforce importance of follow-up visits

CLINICAL JUDGMENT

Definitions of Failure to Thrive
• Weight less than 80% of median weight for length
• Weight for length less than 80% of ideal weight
• Weight for length less than 10th percentile
• BMI for chronological age less than 5th percentile
• Weight for chronological age and sex less than 5th percentile or two standard deviations below the mean
• Length for chronological age less than 5th percentile
• Weight decrease crosses more than two major percentile lines on age and population appropriate growth chart
• Height, head circumference, and developmental skills may be affected
• Three basic causes: inadequate intake, inadequate caloric absorption, and excessive calorie expenditure with poor intake

Maaks, D. L., Starr, N. B., Brady, M. A., Gaylord, N. M., Driessnack, M., & Duderstadt, K. (2020). Pediatric primary care. Saunders.

• FTT **can be a chronic condition** that requires caregiver assistance for success with weight gain and maintenance.
• Teach importance of diet **(see Table 16-2).**
• Assist parent with learning positive parenting techniques.
• Reinforce importance of follow-up visits

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#31.