Chapter 28

The Child with a Gastrointestinal Condition

Objectives

- Define each key term listed.
- Discuss three common gastrointestinal anomalies in infants.
- Discuss the postoperative nursing care of an infant with pyloric stenosis.
- Discuss the dietary management of celiac disease.
- Understand the symptoms, treatment, and nursing care of a child with Hirschprung's disease.

Objectives *(cont.)*

- Understand the treatment and nursing care of a child with intussusception.
- Interpret the nursing management of an infant with gastroesophageal reflux.
- Differentiate among three types of dehydration.
- Explain why infants and young children become dehydrated more easily than adults.
- Understand how nutritional deficiencies influence growth and development.

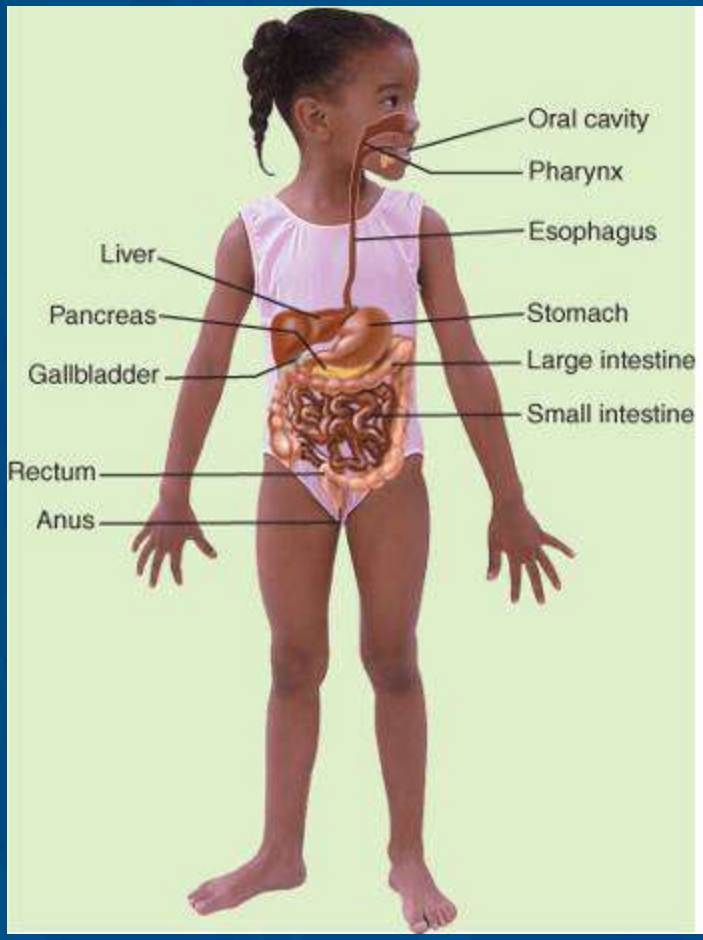
Objectives *(cont.)*

- Review the prevention of the spread of thrush in infants and children.
- Trace the route of the pinworm cycle and describe how reinfection takes place.
- Prepare a teaching plan for the prevention of poisoning in children.
- List two measures to reduce acetaminophen poisoning in children.
- Indicate the primary source of lead poisoning.

Overview of the Gastrointestinal (GI) Tract

- Transports and metabolizes nutrients necessary for the life of the cell
- Extends from mouth to anus
- Nutrients are broken down into absorbable products by enzymes from various digestive organs

GI System Differences Between Children and Adults



GASTROINTESTINAL SYSTEM

- At birth the resistance of the newborn's intestinal tract to bacterial and viral infection is incompletely developed.
- As children grow, they have higher nutritional, metabolic, and energy needs.
- Children with nausea and vomiting dehydrate more quickly than adults with those symptoms.
- The infant's stomach is small and empties rapidly.
- Newborns produce little saliva until 3 months of age.
- Swallowing is reflex for the first 3 months.
- Hepatic efficiency in the newborn is immature, somtimes causing jaundice.
- The infant's fat absorption is poor because of a decreased pool of bile acid.

Laboratory and Diagnostic Studies

- Clinical laboratory
  - CBC with differential: anemia, infections, chronic illness
  - Erythrocyte sedimentation rate (ESR) is indicative of inflammation
  - Comprehensive chemistry panel will reveal electrolyte and chemical imbalances
  - Liver function test (LFT)
  - Stool cultures
- X-ray studies
  - GI series, barium enema, flat plates of the abdomen
- Endoscopy allows direct visualization and biopsy of the GI tract
- Upper—esophagus, stomach, duodenum, bile and pancreatic ducts
- Can remove foreign objects and cauterize bleeding vessels
- Lower colon—sigmoidoscopy
- Entire colon—colonoscopy

Symptoms of GI Disorders

- Systemic signs
  - Failure to thrive (FTT)—failure to develop according to established growth parameters
  - Pruritus (itching) in the absence of allergy may indicate liver dysfunction
- Local signs
  - Pain
  - Vomiting
  - Diarrhea
  - Constipation
  - Rectal bleeding
  - Hematemesis

Nursing Interventions

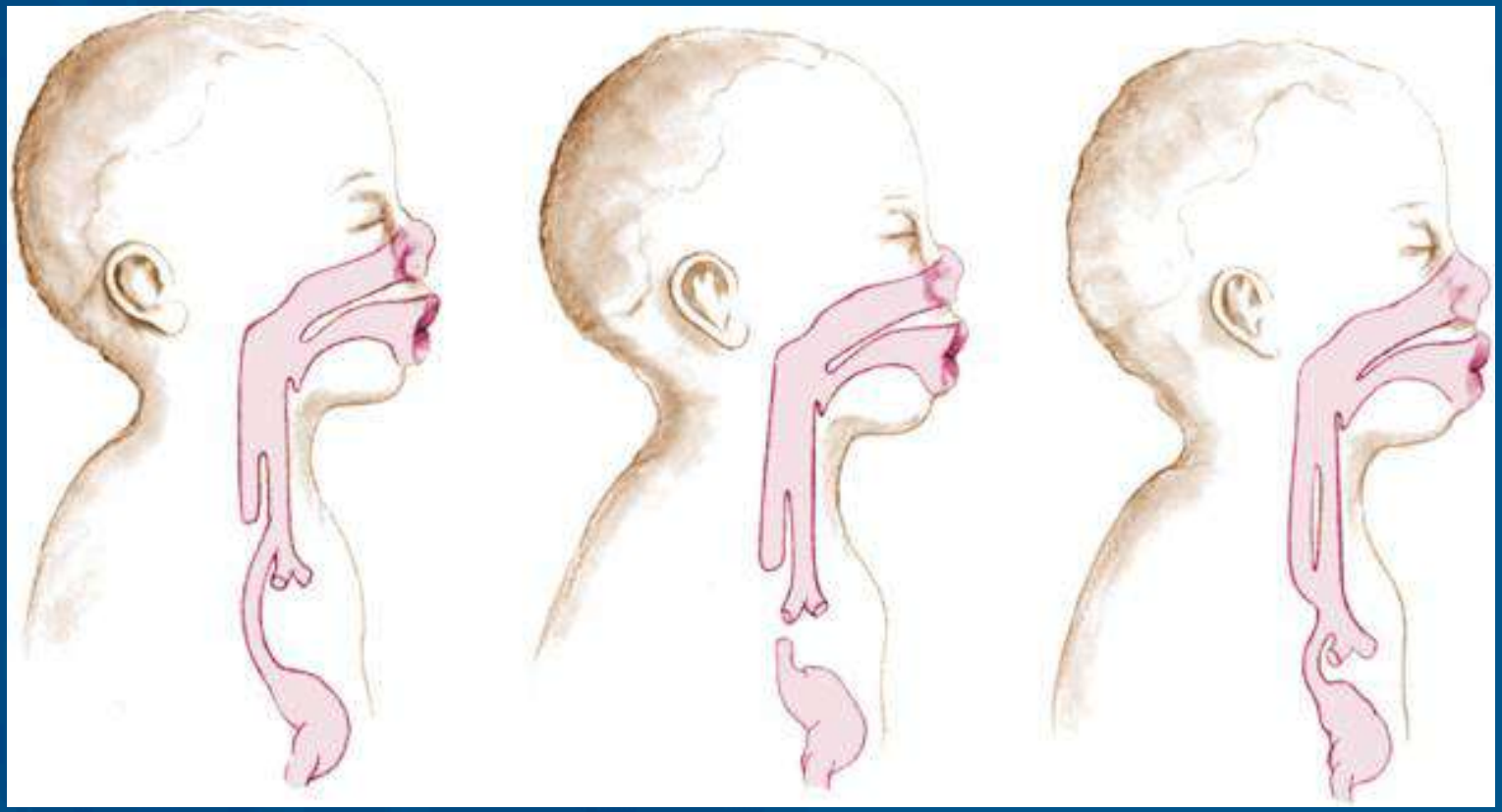
- Focuses on providing adequate nutrition and preventing infection
  - Can result from malnutrition or depressed immune function
- Developmental delays should be investigated
- Skin problems may be related to pruritus, irritation from frequent bowel movements, or other disorders
- Pain and discomfort need to be addressed

Congenital Disorders

Esophageal Atresia (Tracheoesophageal Fistula [TEF])

- TEF is caused by a failure of the tissues of the GI tract to separate properly in prenatal life
- Four types
  - Upper and lower esophagus (from the stomach) end in a blind pouch
  - Upper esophagus ends in a blind pouch; lower esophagus (from stomach) connects to the trachea
  - Upper esophagus is attached to trachea; lower esophagus (from stomach) also attached to trachea
  - Upper esophagus connects to trachea; lower esophagus (from stomach) ends in a blind pouch

Three Most Common Forms of TEF



Manifestations of TEF

- Earliest sign is when mother develops polyhydramnios
  - If it ends in blind pouch, fetus cannot swallow amniotic fluid and it will accumulate
  - At birth, the infant will vomit and choke when the first feeding is introduced
  - Drooling may also be present at birth and is related to atresia
- If upper esophagus enters trachea, the first feeding will enter the trachea and result in coughing, choking, cyanosis, and apnea
- If lower end of esophagus enters trachea, air will enter stomach each time infant breathes, causing abdominal distention

Nursing Care of TEF

- Prevent pneumonia, choking, and apnea in the newborn
  - Assessment of the newborn during the first feeding for signs/symptoms of TEF is essential
  - Feeding usually is with clear water or colostrum to minimize seriousness of aspiration
- Surgical repair is essential for survival

Imperforate Anus

- Lower GI and anus arise from two different types of tissue during fetal development
- Once the two meet, perforation occurs allowing for a passageway
- When perforation does not take place, the lower end of the GI tract and anus end in a blind pouch
- Four types ranging from stenosis to complete separation or failure of the anus to form

Imperforate Anus *(cont.)*

- Manifestations
  - Failure to pass meconium in the first 24 hours must be reported
  - Infant should not be discharged home until a meconium stool has passed
- Treatment
  - Once established, infant is NPO and prepared for surgery
  - Initial surgical procedure may be a colostomy
  - Subsequent surgeries will reestablish patency of anal canal

Pyloric Stenosis

- Obstruction of the lower end of the stomach caused by overgrowth of the circular muscles of the pylorus or spasms of the sphincter
- Commonly classified as a congenital anomaly
- Symptoms usually do not appear until the infant is 2 or 3 weeks old
  - Most common surgical condition of GI tract in infancy
- Incidence is higher in boys

Manifestations of Pyloric Stenosis

- Projectile vomiting is outstanding symptom from force or pressure being exerted on the pylorus
  - Vomitus contains mucus and ingested milk
  - Infant is constantly hungry and will eat again immediately after vomiting
- Dehydration and olive-shaped mass may be felt in upper right quadrant of abdomen

Treatment of Pyloric Stenosis

- Surgery is called pyloromyotomy
- Preoperative nursing care
  - Intravenous fluids to treat or prevent dehydration
  - Thickened feedings may be given by a teaspoon or through a nipple with a large hole
  - Burped before and during feedings to remove any gas accumulated in the stomach
  - Place on right side (preferably Fowler's position) after feeding to facilitate stomach drainage into the intestines
  - If infant vomits, nurse is instructed to refeed the infant
- Postoperative nursing care
  - Monitor intravenous fluids, provide feedings as prescribed by surgeon, document intake and output, monitor surgical site

Celiac Disease

- Also known as *gluten enteropathy* and *sprue*
- Leading malabsorption problem in children
  - Thought to be caused by inherited disposition with environmental triggers
- Symptoms not evident until 6 months to 2 years of age when foods containing gluten are introduced
  - Wheat, barley, oats, and rye

Celiac Disease *(cont.)*

- Repeated exposure to gluten damage the villi of intestines resulting in malabsorption
- Characteristic profile is abdominal distention with atrophy of the buttocks

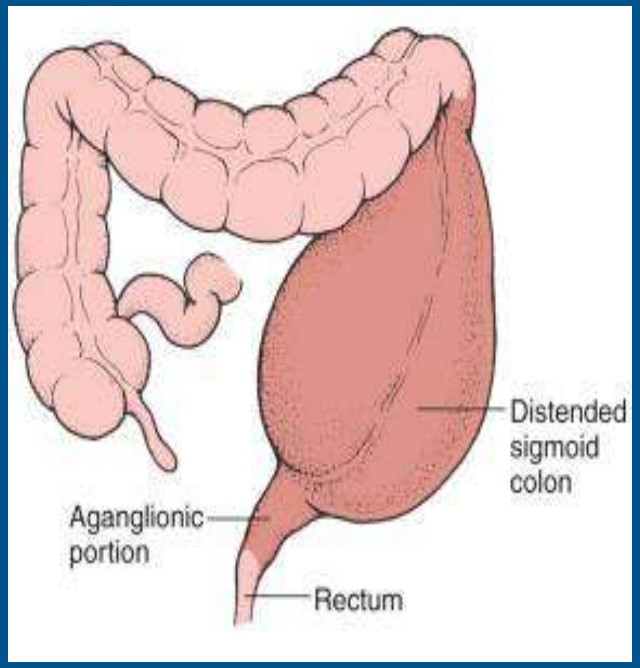
Celiac Disease *(cont.)*

- Infant presents with failure to thrive
- Infant is irritable
- Stools are large, bulky, and frothy
- Diagnosis confirmed by serum immunoglobin A (IgA) and small bowel biopsy

- Treatment
  - Lifelong diet restricted in wheat, barley, oats, and rye
  - Detailed parent teaching is essential
    - A professional nutritionist or dietitian can aid in identifying foods that are gluten-free

Hirschsprung's Disease (Aganglionic Megacolon)

- Absence of ganglionic innervation to the muscle of a segment of bowel
  - Usually in lower portion of sigmoid colon
- Lack of normal peristalsis, results in constipation
- Stools are ribbonlike due to feces passing through the narrow segment of colon
  - Portion of bowel nearest obstruction dilates, causing abdominal distention
  - Seen more often in boys and in children with Down syndrome
- May be acute or chronic



Hirschsprung's Disease (Aganglionic Megacolon) *(cont.)*

- Newborns: failure to pass meconium stools within 24 to 48 hours may be a symptom
- Infants: constipation, ribbonlike stools, abdominal distention, anorexia, vomiting, and failure to thrive
- Young children: usually seen in clinic after parents have tried over-the-counter laxatives to treat the constipation

Hirschsprung's Disease (Aganglionic Megacolon) *(cont.)*

- If untreated, other signs of intestinal obstruction and shock may be seen
- Enterocolitis (inflammation of the small bowel and colon) is a serious condition
  - Fever, explosive stools, and depletion of strength
- Diagnostics
  - Barium enema
  - Rectal biopsy
  - Anorectal manometry
    - Measures pressure in anal sphincter

Hirschsprung's Disease (Aganglionic Megacolon) *(cont.)*

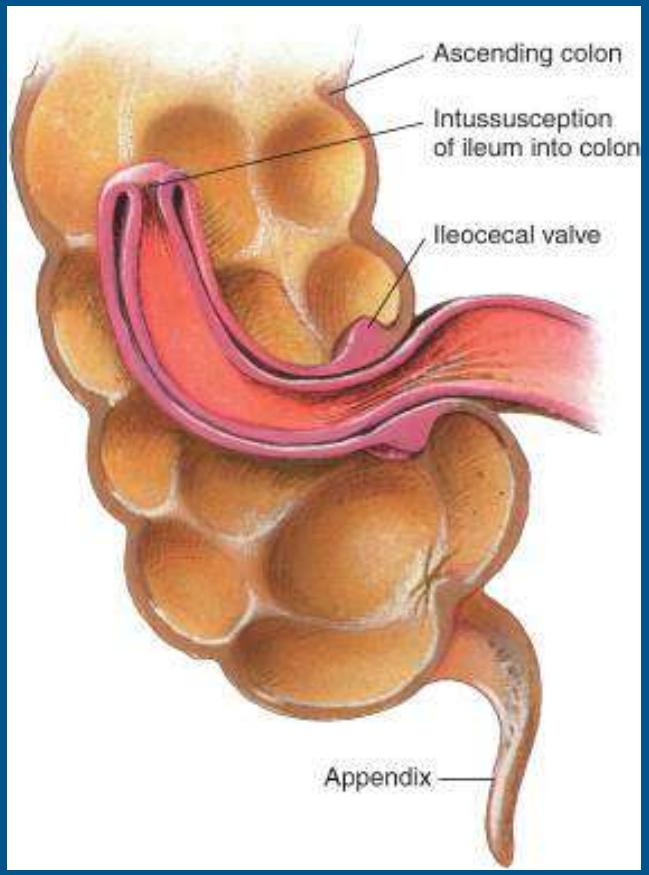
- Treatment
  - Surgery to remove impaired part of colon and an anastomosis of intestine is performed
  - In newborns, a colostomy may be needed until 12 to 18 months of age, when more extensive repair may be performed
- Nursing Care
  - Dependent upon age of child
  - In newborns, detection is high-priority
  - As child grows, careful attention to a history of constipation and diarrhea is important
  - Signs of undernutrition, abdominal distention, and poor feedings are suspect

Hirschsprung's Disease (Aganglionic Megacolon) *(cont.)*

- Enemas
  - Due to increased size of mucous membranes' surface area, an increased absorption of the fluid can be anticipated
    - Therefore, normal saline solution should be used to prevent water intoxication and death
  - Parents should check with the pediatrician to see how much saline should be administered with each enema

Intussusception

- A slipping of one part of the intestine into another part just below it
  - Often seen at the ileocecal valve
  - The mesentery, a double fan-shaped fold of peritoneum that covers most of intestine and is filled with blood vessels and nerves, is also pulled along
- Edema occurs
- At first, intestinal obstruction occurs, but then strangulation of the bowel occurs as peristalsis occurs
- Affected portion may burst, leading to peritonitis



Intussusception *(cont.)*

- Generally occurs in boys between 3 months and 6 years
  - Frequency decreases after age 36 months
- Can have spontaneous reduction
- Onset is usually sudden
  - May have a fever as high as 106° F (41.1° C)
  - As it progresses, child may show signs of shock, sweating, weak pulse, shallow, grunting respirations; abdomen is rigid
- In infants, severe pain in abdomen, loud cries, straining efforts, and kicking and drawing of legs toward abdomen
- Child vomits green or greenish-yellow fluid (bilious)
- Bowel movements diminish, little flatus is passed
- Blood and mucus with no feces are common about 12 hours after onset of obstruction, called currant jelly stools

Treatment of Intussusception

- This condition is an emergency
- Diagnosis is determined by history and physical findings
- May feel a sausage-shaped mass in right upper abdomen
- Barium enema is treatment of choice, with surgery if reduction does not occur

Meckel's Diverticulum

- Usually occurs near ileocecal valve and may be connected to umbilicus by a cord
  - A fistula may also form
  - This sac is subject to inflammation
- Most common congenital malformation of the GI tract
  - Seen more often in boys

Meckel's Diverticulum *(cont.)*

- Symptoms can occur at any age, but typically appear by 2 years of age
  - Painless bleeding from rectum
  - Bright-red or dark-red blood is more usual than tarry stools
  - Abdominal pain may or may not be present
- Diagnostics
  - Barium enema or radionuclide scintigraphy are used in diagnosing
  - X-ray films are not helpful
- Treatment
  - Surgical removal of the diverticulum
- Nursing care is same for any patient having undergone abdominal surgery

Hernias

- Inguinal
  - Protrusion of part of the abdominal contents through the inguinal canal in the groin
- Umbilical
  - Protrusion of a portion of the intestine through the umbilical ring
  - Appears as a soft swelling covered by skin, which protrudes when infant cries or strains

Hernias *(cont.)*

- May be present at birth (congenital) or acquired
- Is reducible if it can be put back into place by gentle pressure
- If it cannot be put back, it is irreducible or incarcerated
- Strangulated hernia is when intestine becomes caught in the passage and the blood supply is diminished
- Child may vomit and have severe abdominal pain
- Emergent surgery is indicated in this type of situation
- In most cases, same-day surgery is performed

Disorders of Motility

Gastroenteritis

- Involves inflammation of the stomach and intestines
- Colitis involves an inflammation of the colon
- Enterocolitis involves an inflammation of the colon and small intestines
- Most common noninfectious causes of diarrhea
  - Food intolerance
  - Overfeeding
  - Improper formula preparation
  - Ingestion of high amounts of sorbitol
- Priority problem in diarrhea is fluid and electrolyte imbalance and failure to thrive

Gastroenteritis *(cont.)*

- Treatment is focused on identifying and eradicating cause
- Priority goal of care is restoring fluid and electrolyte balance
- Accurate intake and output, weighing of diapers, observing for dehydration or overhydration, and keeping infant/child warm
- Review with parents proper hand hygiene techniques, safe food handling and storage, principles of cleanliness, and infection prevention

Clarifying Food Labels

- Children may have food allergies, so teach parents the following

Ingredient	What it may contain
Binder	Egg
Bulking agent	Soy
Casein	Cow's milk
Coagulant	Egg
Emulsifier	Egg
Protein extender	Soy

Vomiting

- Results from sudden contractions of diaphragm and muscles of the stomach
- Persistent vomiting requires investigation because it results in dehydration and electrolyte imbalance
  - Continuous loss of hydrochloric acid and sodium chloride from the stomach can cause alkalosis
  - Can result in death if left untreated
- Multiple causes of vomiting
  - Improper feeding technique
  - Systemic illness such as increased intracranial pressure or infection
  - Child at risk for aspiration pneumonia

Vomiting *(cont.)*

- Nursing care
  - Carefully feed and burp infant
  - Place infant on side after feeding to prevent aspiration if vomiting occurs
  - When an older child vomits, turn head to one side and offer emesis basin
  - IV fluids may be ordered
  - Slowly introduce foods to allow stomach to rest
- Documentation
  - Time, amount, color, consistency, force, frequency, and whether vomiting was preceded by nausea or feedings
  - Administration of antiemetic agents should also be documented, including time given and if/when vomiting subsided

Gastroesophageal Reflux

- Lower esophageal sphincter is relaxed or not competent, allowing stomach contents to regurgitate into esophagus
  - Associated with neuromuscular delay, such as Down syndrome or cerebral palsy
- Often seen in preterm infants
- Symptoms often decrease once child is able to stand upright and eats more solid foods
- Symptoms
  - Vomiting
  - Weight loss
  - Failure to thrive
  - Infant is fussy and hungry
  - Respiratory problems can occur when vomiting stimulates closure of epiglottis and infant presents with apnea

Gastroesophageal Reflux *(cont.)*

- History includes
  - When vomiting started
  - Type of formula
  - Type of vomiting
  - Feeding techniques
  - Infant's eating in general
- Tests include
  - Barium swallow
  - Esophageal sphincter pressure
  - pH monitoring—most diagnostic
- Nursing care
  - Careful burping
  - Prevent overfeeding
  - Proper positioning
  - Feedings are thickened with cereal
- After being fed, infant is place in an upright position or propped
  - Sitting upright in an infant seat is not recommended as it increases intra-abdominal pressure
- Administer medications to relax pyloric sphincter before meals

Diarrhea

- Diarrhea in infant is a sudden increase in stools from the infant's normal pattern, with a fluid consistency and a color that is green or contains mucus or blood
  - Acute sudden diarrhea most often caused by inflammation, infection, or a response to medications, food, or poisoning
  - Chronic diarrhea lasts more than 2 weeks and may indicate malabsorption problem, long-term inflammatory disease, or allergic responses
  - Infectious diarrhea caused by viral, bacterial, or parasitic infection, usually involves gastroenteritis

Symptoms of Diarrhea

- Stools watery and explosive; may be yellowish-green
- Listlessness, refusal to eat, weight loss, temperature may be elevated, possible vomiting
- Dehydration evidenced by sunken eyes and fontanel; dry skin, tongue, and mucous membranes; less frequent urination
- In severe cases, excessive loss of bicarbonate from GI tract results in acidosis

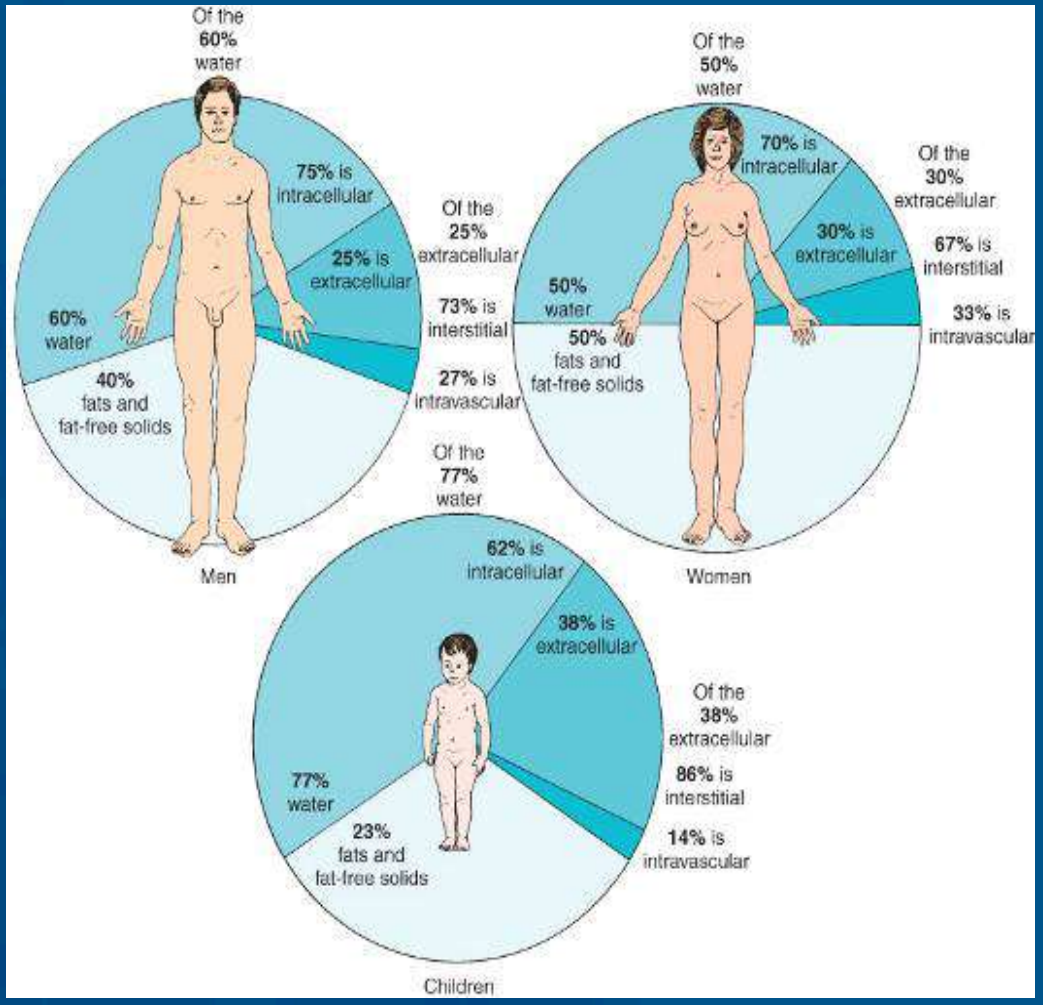
Constipation

- Difficult or infrequent defecation with the passage of hard, dry fecal material
  - May be periods of diarrhea or encopresis (constipation with fecal soiling)
- May be a symptom of other disorders
- Diet, culture, and social, psychological, and familial patterns may also influence occurrence
- Daily use of laxatives or enemas should be discouraged

Constipation *(cont.)*

- Fewer than 7 bowel movements in a 2-week period
- Ask caregiver to define constipation
- Evaluate dietary and bowel habits
  - Some infants develop constipation due to high iron content in formula
- Note frequency, color, and consistency of stool
- Document any medications child is taking
- Dietary modifications include increasing roughage in diet
  - Foods high in fiber include whole-grain breads and cereals, raw vegetables and fruits, bran, and popcorn for older children
- Stool softener may be prescribed

Fluid and Electrolyte Imbalance



Fluid and Electrolyte Imbalance *(cont.)*

- In children under 2 years of age, surface area is important because more water is lost through the skin than through the kidneys
- Metabolic rate and heat production are also 2 to 3 times greater in infants per kg of body weight
  - Produces more waste products, which must be diluted to be excreted
  - Stimulates respirations, which increase evaporation through the lungs
  - Greater percentage of body water in children under 2 years is contained in extracellular compartment

Fluid and Electrolyte Imbalance *(cont.)*

- *Fluid turnover is rapid, and dehydration occurs more quickly in infants than in adults*
- A sick infant does not adapt as readily to shift in intake and output
- Less able to concentrate urine and require more water than an adult's kidneys to excrete a given amount of solute

Fluid and Electrolyte Imbalance *(cont.)*

- Electrolyte balance depends on fluid balance and cardiovascular, renal, adrenal, pituitary, parathyroid, and pulmonary regulatory mechanisms
- Signs of dehydration may not be evident until the fluid loss reaches 4%, and severe dehydration may not be evident until the fluid loss reaches 10%
- Can treat with oral fluids or parenteral fluids

Dehydration

- Causes fluid and electrolyte disturbances
- Evaluation of type and severity, including clinical observation and chemical analysis of the blood
- Types of dehydration are classified according to level of serum sodium, which depends on the relative losses of water and electrolytes
  - Isotonic
  - Hypotonic
  - Hypertonic

Dehydration *(cont.)*

- *Maintenance fluid therapy* replaces normal water and electrolyte losses
- Deficit therapy restores preexisting body fluid and electrolyte deficiencies
  - Shock is greatest threat to life in isotonic dehydration
  - Children with hypotonic dehydration are at risk for water intoxication
- Potassium is lost in almost all degrees of dehydration and is replaced only after normal urinary excretion is confirmed

Overhydration

- The body receives more fluid than it can excrete
- Manifests as edema (excess fluid in interstitial spaces)
  - Interstitial fluid is similar to plasma, but contains little protein
  - Any factor causing sodium retention can cause edema
- Flow of blood out of the interstitial compartments depends on adequate circulation of blood and lymph
- Low protein levels disturb osmotic cellular pressure
- Anasarca is severe generalized edema

Overhydration *(cont.)*

- Treatment
  - IV therapy is ordered and child is monitored
  - Is dependent upon type of electrolyte imbalance child has
  - If child has a hypertonic type of dehydration, tomato juice should *not* be offered
  - If child has a hypotonic type of dehydration, plain water should *not* be offered
- Nursing care
  - Early detection and management of edema are essential
  - Accurate daily weight, vital signs, observing physical appearance, and noting changes in urine output
  - Important for nurse to monitor clinical laboratory results and adjust fluids and foods offered to the child

Nutritional Deficiencies

Failure to Thrive

- Failure to gain weight and often lose weight
- Can be caused by
  - Physical (organic) pathology (OFTT), such as congenital heart or malabsorption syndrome
  - Non-organic (NFTT) is from the lack of parent-infant interaction resulting from environmental factors or neglect

Failure to Thrive *(cont.)*

- Often admitted to hospital
- Presents with weight loss, irritability, disturbances of food intake, vomiting, diarrhea, and general neuromuscular spasticity sometimes accompany the condition
- Children fall below the third percentile in weight and height on standard growth charts
- Development is delayed
- Due to multiple factors, there may be a disturbance in the mother-child relationship
- Prevention of environmental FTT consists chiefly of social measures
- Pregnancy history sometimes reveals circumstances that may contribute to a lack of mother-infant bonding

Failure to Thrive *(cont.)*

- Multidisciplinary approach in accordance with circumstances
- In some cases, child is removed from home environment and placed elsewhere
- Assigning the same nursing staff to care for the child may increase nurturing and interaction with the infant and parent

Failure to Thrive *(cont.)*

- Nurse is vital in supporting rather than in rejecting the mother
  - Encourages mother to assist with daily care of child
  - Points out developmental patterns and provides anticipatory guidance in this area
- Prognosis is uncertain
  - Emotional starvation, particularly in the early years, can be psychologically traumatic
  - Inadequacies in intelligence, language, and social behavior have been documented in children who fail to thrive

Kwashiorkor

- Severe deficiency of protein in the diet despite the fact that the number of calories consumed may be nearly adequate
- Belongs to a class of disorders termed *protein-energy malnutrition*
- Seen most often in third-world countries

Kwashiorkor *(cont.)*

- Occurs in children 1 to 4 years of age who have been weaned from the breast
  - Oral intake is deficient in protein
  - Child fails to grow normally
  - Muscles become weak and wasted
  - Edema of abdomen
  - Diarrhea, skin infections, irritability, anorexia, and vomiting may be present
  - Hair thins and is dry and may contain a white streak
  - Child looks apathetic and weak

Kwashiorkor *(cont.)*

- Treatment is mainly preventive
- Simple protein powder sprinkled on the culturally prepared meal will alleviate the problem

Rickets

- Caused by deficient amounts of vitamin D
  - Exposure to sunshine is necessary for proper absorption and metabolism of calcium and phosphorus
- Classic symptoms are bow-legs; knock-knees; beading of the ribs, called rachitic rosary; and, improper formation of teeth
  - Vitamin supplements along with exercise and exposure to outdoor sunlight is primary form of treatment

Scurvy

- Caused by insufficient fruits and vegetables that contain vitamin C
- Symptoms include joint pain, bleeding gums, loose teeth, lack of energy
- Vitamin C
  - Easily destroyed by heat and exposure to air
  - Not stored in the body and daily intake of the vitamin is necessary
- Vitamin supplements and dietary intake such as citrus fruits and raw leafy vegetables

Infections

Appendicitis

- Most common reason for emergency abdominal surgery
  - Small appendage arising from the cecum
  - Lumen may become obstructed with fecal matter or with lymphoid tissue after a viral illness or with parasites
  - Stasis, increased swelling, edema, and growth of organisms
- Initial pain usually in periumbilical and increases within a 4-hour period
- When inflammation spreads to peritoneum, pain localizes in RLQ of abdomen
- Appendix may become gangrenous or rupture
- Can lead to peritonitis and septicemia

Appendicitis *(cont.)*

- Characteristic symptoms
  - Tenderness in RLQ, known as McBurney's point
  - Guarding
  - Rebound tenderness
  - Pain on lifting thigh while in supine position
  - Pain in RLQ
- Diagnostics can include
  - Blood tests
  - Abdominal X-ray
  - CT scan
  - Ultrasound
- Treatment
  - Surgical intervention typically required
- Nursing care is the same as with most other abdominal surgery patients

Thrush (Oral Candidiasis)

- Usually caused by a fungus, Candida
- Anorexia may be present
- Systemic symptoms are generally mild if infection remains in the mouth; can pass into GI tract causing inflammation of the esophagus and stomach
- Responds well to local application of antifungal suspension, such as nystatin
  - Medication should remain in contact with "patches" as long as possible
- With proper care, the condition disappears within a few days after onset

Worms

- Pinworms (Enterobiasis)
  - Looks like a white thread; lives in lower intestine but lays eggs outside anus
  - Eggs become infective within hours of being deposited
  - Route of entry into the body is through the mouth
  - “Scotch tape” test
- Antihelminth medications are given for both types of worm infestations
- Roundworms (Ascariasis)
  - Seen more in U.S. southern states and among immigrants and migratory workers
  - Caused by unsanitary disposal of human feces and poor hygiene
  - Eggs can survive for weeks in soil
  - If child eats soil, eggs develop into larvae in intestine, penetrate intestinal wall and enter liver; from there, the worms circulate to the lungs and heart
  - Chronic cough without fever is characteristic of this form of infestation

Patient Teaching

- Main nursing responsibility is educating parents and child about the prevention of worm infestation through general hygiene, food handling and preparation, as well as through environmental controls

Poisoning

- Goals of treatment
  - Remove the poison
  - Prevent further absorption
  - Call the poison control center
  - Provide supportive care—seek medical help

Detecting the Poison by Specific Odor of Vomitus

Odor of Vomitus	Probable Content
Sweet	Chloroform, acetone
Bitter almond	Cyanide
Pear	Chloral hydrate
Garlic	Phosphorus, arsenic
Shoe polish	Nitrobenzene
Violet	Turpentine

Poisoning *(cont.)*

- General concepts
  - Volume of swallow
  - Principles of care—education
  - Poison control centers—nationwide phone number is 1-800-222-1222
  - Ipecac syrup—no longer recommended
  - Activated charcoal—given for some substances
  - Charcoal or any gastric lavage is not effective if administered after 1 hour post-ingestion

Poisonous Plants

Plant	Causes symptoms of
Azalea, Buttercup, Marigold	Aconitine poisoning
Lantana, Jimsonweed	Atropine poisoning
Sweet pea, Black mountain laurel	Curare poisoning
Apricot or peach pits, Elderberry	Cyanide poisoning
Camellia seeds, Foxglove, Oleander	Similar to digitalis poisoning
Goldenrod, Nightshade, Poinsettia	Nitrate poisoning
Laurel, Water hemlock	Resin poisoning
Camellia, Marigold, Tulips, Violets	Salicylate poisoning

Selected OTC Drugs that Are Deadly to Toddlers

Generic name	Trade name	Toxicity
Benzocaine	Orajel	Methemoglobinemia, seizures
Camphor	Vicks VapoRub Campho-Phenique	CNS depression, seizure
Diphenoxylate	Lomotil	CNS depression
Methyl salicylate	Oil of wintergreen Icy-hot balm Arthritis ointment	Cardiovascular collapse
Phenylpropanolamine	Many decongestants such as Afrin and Sudafed	Hypertension, intracranial bleeding, cardiac arrhythmia, CNS depression, seizures
Tetrahydrozoline hydrochloride	Visine eye drops	Tachycardia

Safety Alert

- Many over-the-counter medications are considered harmless by parents but can be deadly to the toddler or small child
- Keep all medications (prescription or otherwise), including herbal supplements, out of reach of small children

Poisons Commonly Encountered in Pediatrics

- Acids
- Alkalines
- Medications
- Cyanide
- Ethanol
- Petroleum distillates
- Carbon monoxide
- Lead
- Arthropods, insect stings
- Snakes
- Poisonous plants

Lead Poisoning (Plumbism)

- Results when a child repeatedly ingests or absorbs substances containing lead
- Incidence higher in inner-city tenements
- Children who chew on window sills and stair rails ingest flakes of paint, putty, or crumbled plaster
- Eating nonfood items is called pica
- Can have a lasting effect on the CNS, especially the brain
- Mental retardation occurs in severe cases of lead poisoning

Lead Poisoning (Plumbism) *(cont.)*

- Symptoms occur gradually
  - Lead settles in soft tissues and bones
  - Is excreted in urine
- Beginning stages, signs may be weakness, weight loss, anorexia, pallor, irritability, vomiting, abdominal pain, and constipation
- Later stages, signs may be anemia and nervous system involvement

Lead Poisoning (Plumbism) *(cont.)*

- Lead is toxic to the synthesis of heme in the blood, which is necessary for hemoglobin formation and renal tubule functioning
- Blood lead levels are primary screening test
- X-ray films of bones may show further lead deposits
- History may reveal pica
- Treatment is aimed at reducing concentration of lead in blood
  - Chelating agents may be taken for several months
- Prognosis depends on extent of poisoning

Foreign Bodies

- 80% of all ingestions occur in children between 6 months and 3 years of age
  - About 80% of items ingested pass through the GI tract without difficulty
  - May take up to 6 days to occur
- Caution parents not to use laxatives and to maintain a normal diet to avoid intestinal spasms

Review Question

- What should the nurse monitor before administering intravenous fluid to a child who is dehydrated?

Review

- Objectives
- Key Terms
- Key Points
- Online Resources
- Review Questions