

OTC MEDICATIONS AND PEDIATRIC PATIENTS

I. Introduction

A. The most important tool in giving correct drug therapy advice to a parent is knowledge of the "real" problem. Asking good questions will often aid the pharmacist in appropriate OTC selection.

1. Patient's age
2. Previous drug history
3. Allergies
4. Symptoms
5. Other questions pertinent to the symptoms

B. Age of children

1. Premature infant - birth at < 38 weeks gestation
2. Term infant - birth at 38 to 42 weeks gestation
3. Neonate - day 0 to 30
4. Infant - month 1 to 23 (some define as 1-12 mo)
5. Preschool child - 2 to 5 years
6. Child - 6 to 12 years
7. Adolescent - 12 to 18 years

C. Development of children

1. Eating soft foods - 9 to 18 months
2. Crawling - 7 months
3. Walk alone - 12 months
4. Bowel control - 1½ to 2½ years
5. Talking in partial sentences - 2½ to 3 years

D. Weight of children

40 weeks	3.1-4 kg	4 years	17 kg	11 years	35 kg
3 months	5 kg	5 years	18 kg	12 years	40 kg
6 months	7 kg	6 years	20 kg	Adult	70 kg
9 months	8 kg	7 years	23 kg		
1 year	10 kg	8 years	25 kg		
2 years	12 kg	9 years	28 kg		
3 years	15kg	10 years	33 kg		

II. Pediatric Drug Administration

A. Medication Administration

1. Measuring spoons
 - Household spoons range from 2.5 to 7.8 mL in size
 - Measuring cups are available in 5, 10, and 15 mL sizes
 - Oral syringes or droppers may be preferred
2. Crushing tablets

- Children \geq 4 years of age should be able to swallow tablets or capsules whole
- Do not crush sustained release or enteric coated tablets
- Most capsules can be opened and poured onto soft foods

3. Other

- Infants--may want to place some medicine (premeasured) onto the nipple of a bottle and then the baby sucks the nipple the medicine will be in the child's mouth.
- Give medications before a meal (if possible), when the child is the most hungry
- Other formulations: powder packets, extemporaneous suspensions/solutions

III. Pediatric Disorders

A. Fever

1. *How old is the child? Does the child have any other chronic illness? Is the child allergic to any medications? How long has the fever persisted? Was any treatment given? Does the child have any other problems, e.g., vomiting, diarrhea, chills, breathing trouble? Are other people ill at home or school? Is the infant generally kept wrapped up in blankets?*

2. Low-grade fever is defined as body temperature $> 38^{\circ}\text{C}$ or 100.4°F . A fever $> 39^{\circ}\text{C}$ or 102.2°F can induce seizures.

3. Prolonged fever (> 24 hours) can cause dehydration; any fever persisting > 24 hours send patient to the ER.

4. You must decide whether to treat the fever with acetaminophen and/or send the patient to the ER.

- Fever is often a symptom of a more serious bacterial or viral infection.
- In general, send infants < 3 months to the ER.
- Children with fever $> 39^{\circ}\text{C}$ or 102.2°F may need to go to the ER.

5. Treatment

- Nonpharmacologic
 - Unwrap the baby
 - Wear light clothing such as cotton
 - Sponge baths
- Pharmacologic
 - Acetaminophen 10-15mg/kg q4h prn (drug of choice)
 - Aspirin - Reye's syndrome develops in children who have taken aspirin < 3 months after a viral illness, e.g., influenza. The American Academy of Pediatrics recommends that children < 16 years of age do not receive aspirin if they have had a viral illness within the last 3 months.
 - Ibuprofen 5-10mg/kg q8h prn - increased incidence of adverse side effects when compared to acetaminophen

B. Infantile Colic

1. *How old is the child? Does the child have any other chronic illness? Is the child allergic to any medications? How long has the child been crying? Is this crying in relation to mealtime? Is the baby bottle feed? How often do you burp the baby? What kind of formula are you using?*

2. Defined as excessive crying associated with paroxysmal abdominal pain more than 3 times a day; each episode lasting > 10 minutes; characterized by a screaming infant, red face, stomach is hard, hands are moist, fists clenched, knees are drawn up to the chest

3. Usually occurs in bottle-fed infants aged 1-4 months, beginning at the dinner hour and lasting for 4-6 hours; exhaustion usually stops the crying episode. Caused by

- a. Ingestion of air
- b. Too much or too little milk
- c. Introducing solid foods before 3 months of age
- d. Passive inhalation of tobacco smoke

4. "Non classic" colic occurs in babies same age but lasts > 24 hours.

5. Treatment

- a. Nonpharmacologic
 - (1) Formula changes
 - (2) Burp the infant frequently
 - (3) Pacifier
 - (4) Constant motion: swings, rockers, cradles, car rides
- b. Pharmacologic
 - (1) Possibly acetaminophen; other drugs such as sedatives, antispasmodics, antiflatulents, and laxatives have not been shown to be effective and may ↑ the likelihood of adverse events.

C. Constipation

1. *How old is the child? Does the child have any other chronic illness? Is the child allergic to any medications? When was the child's last bowel movement? How long has the constipation lasted? Has the child's diet changed lately? What does the child's diet consist of, e.g, milk products, cheeses, apple juice, breads?*

2. Can be acute or chronic and often occurs when a baby is weaned off baby food and started on eating foods; age 9-18 months.

3. Treatment

- a. small children and infants
 - (1) Nonpharmacologic
 - (a) Eliminate constipating foods
 - (2) Pharmacologic
 - (a) Rectal preparations
 - i) Soapsuds enemas
 - ii) Rectal mineral oil
 - iii) Glycerin suppositories
 - (b) Oral preparations
 - i) Docusate
 - ii) MOM
- b. older children
 - (1) Nonpharmacologic
 - (a) Eliminate constipating foods

- (2) Pharmacologic
 - (a) Malt soup extract 1-2 tsp tid-qid
 - (b) Sorbitol
 - (c) Senna
 - (d) Avoid oral cathartics

D. Diarrhea

1. *How old is the child? Does the child have any other chronic illness? Is the child allergic to any medications? Does the child have a fever? What is the frequency and consistency of the stools? Do the stools contain blood? Are other members of the family ill? Is the child vomiting? What has been the child's activity level? Has there been any recent travel, illness, or antibiotic therapy?*
2. Signs of dehydration include:
 - a. Dry mucous membranes
 - b. Lack of tears when crying
 - c. Poor skin turgor
 - d. Dry diapers
 - e. Sunken eyes
 - f. Sunken fontanelles
3. In general, infants < 6 mo and lethargic children should be seen in the ER or if the child is severely dehydrated.
4. Causes
 - a. Bacterial or viral infections
 - b. Food intolerance
 - c. Irritable bowel syndrome
 - d. Drugs
 - e. Foods, e.g., juices
5. Treatment (if child seems fine despite diarrhea and has normal activity level)
 - a. Nonpharmacologic
 - (1) Oral rehydration solutions
 - (a) Clear non-carbonated beverages
 - i) Soups
 - ii) Apple juice diluted with water
 - iii) Flattened ginger ale
 - iv) Gatorade
 - (b) Introduce full liquids (no milk) after child had maintained a reduced stool pattern for 24-48 hours.
 - (2) Move to the BRAT diet (Banana, rice, applesauce, toast) and slowly introduce milk products 5-7 days later.
 - b. Pharmacologic
 - (1) Attapulgate, polycarbophil, and loperamide
 - (2) Be careful, antidiarrheal agents trap toxins in the gut.
 - (3) Limit use to 2 days for patients > 3 years of age
 - (4) If diarrhea is persistent, go to the physician

E. Vomiting

1. *How old is the child? Does the child have any other chronic illness? Is the child allergic to any medications? How long has the child been vomiting? Has the child been ill, e.g, bacterial infection?*

2. Frequently caused by viral gastroenteritis, formula intolerance, or proper feeding techniques.
3. The infant with projectile vomiting manifested by bilious emesis should be sent immediately to the ER.
4. Most children can be treated with hydration.
 - a. 0.5-2 oz of water every 30-60 minutes
 - b. Advance to clear liquids and then full liquids as tolerated
5. if due to inadequate feeding technique or formula intolerance
 - a. Change to a lactose-free formula
 - b. Ensure proper feeding, e.g. burping, not feeding the child too rapidly

F. Cough and Cold

1. *How old is the child? Does the child have any other chronic illness, e.g. allergies? Is the child allergic to any medications? Is the cough productive or nonproductive? How long has the child been coughing? Does the child have any other symptoms, e.g., sniffles, congestion, fever, watery eyes?*
2. A head cold; a cough is a protective mechanism to protect airway patency
3. Treatment
 - a. Nonpharmacologic
 - (1) Ensure plenty of hydration, rest, and consult physician if breathing is difficult
 - (2) Small children and infants
 - (a) Nasal saline drops
 - (b) Bulb suctioning
 - (c) Humidifier
 - (d) Avoid oral decongestants/antihistamines
 - b. Pharmacologic
 - (1) Use medications as little as possible
 - (2) Expectorants
 - (a) Guaifenesin
 - i) May be effective for dry coughs that keep the child awake at night.
 - ii) Some studies show no benefit of guaifenesin over placebo for reduction of cough symptoms.
 - iii) If given to a patient with a productive cough, mucous build up could induce pneumonia.
 - (b) Water
 - (3) Antitussives
 - (a) Dextromethorphan
 - i) Non-productive cough only
 - ii) Dependency?
 - (4) Antihistamines
 - (a) Not efficacious in treating the common cold. Studies conducted in children showed no benefit of antihistamines over placebo in relief of common cold symptoms.
 - (b) Adverse effects
 - i) Drowsiness
 - ii) Impair mental function
 - iii) Produce a dry sensation in the mouth

- iv) Agitation
 - v) Hallucinations
 - vi) Seizures
- (5) Decongestants
- (a) Relieve nasal congestion
 - (b) Adverse effects
 - i) Nervousness
 - ii) Insomnia
 - iii) Excitability
 - iv) Nausea
 - v) Vomiting
 - (c) Recommend oral products only.
 - (d) Nasal congestion may be relieved by saline drops.

- Recommend using single item products for treating immediate symptoms; combination products should not be used unless absolutely necessary.
- Recommend antihistamines for allergy and post nasal drip only - not for cold symptoms.
- Recommend water or increased fluids as an expectorant. But do not force fluids.
- Recommend dextromethorphan only products for non-productive coughs, especially, coughs that keep the child awake at night.