Common Pediatric Illnesses in the ER & Urgent Care

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Objectives

- Identify and discuss common pediatric illnesses treated in the ED & Urgent Care setting
- Describe and evaluate management of common pediatric illnesses in the ED & Urgent Care setting
- Explore key pearls and relevant evidence based treatment guidelines for common pediatric illnesses in the ED & Urgent Care setting
- Identify, discuss, and review pearls & pitfalls for common pediatric illnesses
Disclosures: None

The content of material presented in this CE activity will not include discussion of unapproved or investigational uses of products or devices
The Sick Child

• Preparedness
  – Education of staff
  – Normal range of vital signs
  – Vaccination Status

• ABCs
  – Airway, Breathing, Circulation
  – IV or Intraosseous lines as indicated
  – Prompt evaluation of etiology in emergent cases
# Pediatric Vital Sign Normal Ranges

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Respiratory Rate</th>
<th>Heart Rate</th>
<th>Systolic Blood Pressure</th>
<th>Weight in kilos</th>
<th>Weight in pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newborn</td>
<td>30 - 50</td>
<td>120 - 160</td>
<td>50 - 70</td>
<td>2 - 3</td>
<td>4.5 - 7</td>
</tr>
<tr>
<td>Infant (1-12 months)</td>
<td>20 - 30</td>
<td>80 - 140</td>
<td>70 - 100</td>
<td>4 - 10</td>
<td>9 - 22</td>
</tr>
<tr>
<td>Toddler (1-3 yrs.)</td>
<td>20 - 30</td>
<td>80 - 130</td>
<td>80 - 110</td>
<td>10 - 14</td>
<td>22 - 31</td>
</tr>
<tr>
<td>Preschooler (3-5 yrs.)</td>
<td>20 - 30</td>
<td>80 - 120</td>
<td>80 - 110</td>
<td>14 - 18</td>
<td>31 - 40</td>
</tr>
<tr>
<td>School Age (6-12 yrs.)</td>
<td>20 - 30</td>
<td>70 - 110</td>
<td>80 - 120</td>
<td>20 - 42</td>
<td>41 - 92</td>
</tr>
<tr>
<td>Adolescent (13+ yrs.)</td>
<td>12 - 20</td>
<td>55 - 105</td>
<td>110 - 120</td>
<td>&gt;50</td>
<td>&gt;110</td>
</tr>
</tbody>
</table>
Common Cold

- Also referred to as “URI”
- Viruses are most common cause
- Last up to 14 days
- Antibiotics not needed
- Noted wheeze is normal
- Causes for concern: stridor when child at rest/calm, signs/symptoms of pneumonia, general danger signs, symptoms ongoing past 14 days
- Differential Dx: Rhinitis, Sinusitis, Laryngitis, Bronchitis, Bronchiolitis/RSV, Influenza, Infectious Mononucleosis
Common Cold: Tests/Medications

- Swabs for RSV, Influenza
- Blood draw for Mono
- Nebulizer treatments/Inhaler:
  - Albuterol nebulizer (0.63mg, 1.25mg, 2.5mg)/3ml
  - Albuterol inhaler (90mcg/spray MDI) >4 years of age
  - Duoneb-ipratropium bromide/albuterol (0.5mg/2.5mg/3ml neb)
- Tamiflu
- Oral Steroids
  - Prenisolone (0.12-2 mg/kg/d) divided qd-qid x5 days
  - Orapred (0.14-2 mg/kg/d) divided qd-qid x5 days
  - Decadron 0.08-0.3 mg/kg/day divided q6-12h
- Weight based Tylenol and/or Ibuprofen
Common Cold: Treatment

- Symptomatic treatment
- Tylenol and/or ibuprofen
- Humidifier/warm cloths
- Mucolytics
- Hydration
- Nutrition
- Monitor
- Follow up with primary care provider
# Tamiflu Dosage

<table>
<thead>
<tr>
<th>Weight (lbs)</th>
<th>Weight (kg)</th>
<th>Treatment Dosing for 5 days</th>
<th>Prophylaxis Dosing for 10 days</th>
<th>Volume of Oral Suspension (6 mg/mL) for each Dose**</th>
<th>Number of Bottles of Oral Suspension to Dispense</th>
<th>Number of Capsules and Strength to Dispense§</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any weight</td>
<td>Any weight</td>
<td>3 mg/kg twice daily</td>
<td>Not applicable*</td>
<td>0.5 mL/kg†</td>
<td>1 bottle</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

### Patients from 2 Weeks to less than 1 Year of Age

- Any weight
  - 15 kg or less: 30 mg twice daily
  - 15.1 kg thru 23 kg: 45 mg twice daily
  - 23.1 kg thru 40 kg: 60 mg twice daily
  - 40.1 kg or more: 75 mg twice daily

**Tamiflu is not approved for prophylaxis of patients less than 1 year of age.

**An oral dosing dispensing device that measures the appropriate volume in mL should be utilized with the oral suspension.

† For patients less than 1 year of age, provide an appropriate dosing device that can accurately measure and administer small volumes.

§ Oral Suspension is the preferred formulation for patients who cannot swallow capsules.
Conjunctivitis

- Most cases are viral
- Itching, redness, tearing
- Viral: Adenovirus most common, consider HSV infection
- Bacterial: Staph most common, consider if contact lenses in place; chlamydia, & gonococcal
Conjunctivitis: Treatment

- **Erythromycin:**
  (0.5% ophthalmic ointment) q4h x7-10 days
- **Gentamicin:**
  (0.3% ophthalmic ointment, solution) 1-2gtt x7d
- **Chlamydia:**
  Erythromycin (50mg/kg/day) po divided q6h x14d
- **Gonococcal---Rocephin IV x7 days
- **F/U with PCP and optometrist**
- **Worsening symptoms occur such as worsening pain, acute visual change, photophobia**
Open Wide...Please!!!!!

PHARYNGITIS
Pharyngitis

- Acute & Viral
- 90% sore throat and fever cases are related to viral infections
- 10% are Group A streptococcal
- Peak ages 4-11
- Peak months January-May
- Differential Diagnosis: GABHS, Mononucleosis, Gonococcal pharyngitis, Epiglottitis, Retropharyngeal/Peritonsillar abscess, Cervical lymphadenitis, GERD
Pharyngitis: Symptoms

- Fever
- Sore Throat
- Exudate
- Red Pharynx
- Headache
- Tonsil Enlargement
- Palate Petechiae
- Vomiting & Diarrhea
0  Surgically removed tonsils
1  Tonsils hidden within tonsil pillars
2  Tonsils extending to the pillars
3  Tonsils are beyond the pillars
4  Tonsils extend to midline
Pharyngitis: Treatment

- Symptomatic Care
- Rapid Strep Test with culture, CBC, Mono
- Penicillin VK (50-70mg/kg/d in 3 divided doses)
- Bicillin LA (0.6 units IM <27kg or 1.2 units IM >27kg) single dose
- Rocephin (50 mg/kg) IM x1 dose
- Amoxicillin (50 mg/kg/d) daily dose x10 days
- Azithromycin (12 mg/kg) daily x5 days
- Keflex (25-50 mg/kg/d) in 3-4 divided doses x10 days
- Steroids:
  - Prenisolone (0.12-2 mg/kg/d) divided qd-qid x5 days
  - Orapred (0.14-2 mg/kg/d) divided qd-qid x5 days
  - Decadron 0.08-0.3 mg/kg/day divided q6-12h
- Tylenol/Ibuprofen
- ENT Referral
Careful Injecting!

Infants <18 months
  - Vastus lateralis muscle
Children >18 months and walking
  - Deltoid muscle (C)
  - Ventrogluteal site (E)
  - Dorsogluteal site-not recommended <3 years (D)
  - Vastus lateralis muscle (B)
Otalgia

• Otalgia is defined as ear pain. Two separate and distinct types of otalgia exist. Pain that originates within the ear is primary otalgia; pain that originates outside the ear is referred otalgia.

• Typical sources of primary otalgia are external otitis, otitis media, mastoiditis, and auricular infections.
Otalgia
Acute Otitis Media (AOM) vs Otitis Media with Effusion (OME)

### Physical Signs of AOM vs. OME

<table>
<thead>
<tr>
<th>AOM***</th>
<th>OME***</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tympanic Membrane Bulging</strong></td>
<td><strong>Tympanic membrane in neutral or retracted position</strong></td>
</tr>
<tr>
<td><strong>Opacification</strong></td>
<td><strong>Opacification</strong></td>
</tr>
<tr>
<td><strong>Impaired mobility with neg. and pos. pressure</strong></td>
<td><strong>Impaired mobility with neg. and pos. pressure</strong></td>
</tr>
<tr>
<td><strong>Acute otorrhea</strong></td>
<td><strong>Segmental accumulation of fluid without acute or otalgia or frequent fussiness</strong></td>
</tr>
<tr>
<td>Infrequent presentation of AOM Segmental yellow mucopurulent fluid layered in middle ear with symptoms of acute otalgia or fussiness</td>
<td>*** tympanic membrane can be yellow, off-white, or red for both conditions</td>
</tr>
</tbody>
</table>
Acute Otitis Media

• 35% Viruses
• Common between ages 6-36 months
• Fever common
• URI usually coexist, however AOM should not correlate with source of fever
• 80% of the time, antibiotics resolve AOM within 1 week
• No antihistamines, decongestants, or steroids due to unproven effectiveness
Always Exceptions...

There are instances where a bulging tympanic membrane is absent and child still has AOM:

I. Active/acute draining to ear (otorrhea)

II. Semicolor shaped accumulation at the margin of the tympanic membrane

III. Redness of the tympanic membrane doesn’t confirm AOM. Is it unilateral?

IV. Immobility of the tympanic membrane need not be absolute
What do I treat with?

- High dose amoxicillin overcomes drug resistance
- Auralgan ear drops for otalgia in *nonperforated* TM
- Amoxicillin 80-90 mg/kg TID x10 days (1st line)
- Augmentin 80 mg/kg TID x10 days (had amoxicillin in the last 30 days or have an otitis/conjunctivitis combo)
- Azithromycin 10 mg/kg Day 1, then 5 mg/kg x4 days
- Rocephin 50 mg/kg IM x1 dose
- Septra 0.4 mg/kg BID 7-10 days
# RECOMMENDED ANTIBIOTICS FOR TREATMENT OF ACUTE OTITIS MEDIA

<table>
<thead>
<tr>
<th>INITIAL IMMEDIATE OR DELAYED TREATMENT</th>
<th>TREATMENT AFTER INITIAL TREATMENT FAILURE (48-72 H)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recommended first-line treatment</strong></td>
<td><strong>Recommended first-line treatment</strong></td>
</tr>
<tr>
<td>Amoxicillin (80-90 mg/kg/d in 2 divided doses)</td>
<td>Ceftriaxone, 3 d clindamycin (30-40 mg/kg/d in 3 divided doses), with or without third-generation cephalosporin</td>
</tr>
<tr>
<td>Cefdinir (14 mg/kg/d in 1 or 2 doses)</td>
<td>Amoxicillin-clavulanate (90 mg/kg/d amoxicillin, with 6.4 mg/kg/d clavulanate in 2 divided doses)</td>
</tr>
<tr>
<td><strong>OR</strong></td>
<td><strong>OR</strong></td>
</tr>
<tr>
<td>Cefuroxime (30 mg/kg/d in 2 divided doses)</td>
<td>Failure of second antibiotic</td>
</tr>
<tr>
<td><strong>Amoxicillin-clavulanate</strong> (90 mg/kg/d amoxicillin, with 6.4 mg/kg/d clavulanate [amoxicillin to clavulanate ratio, 14:1] in 2 divided doses)</td>
<td>Cefpodoxime (10 mg/kg/d in 2 divided doses)</td>
</tr>
<tr>
<td></td>
<td>Ceftriaxone (50 mg IM or IV for 3 d)</td>
</tr>
<tr>
<td></td>
<td>Clindamycin (30-40 mg/kg/d in 3 divided doses) plus third-generation cephalosporin</td>
</tr>
<tr>
<td>Ceftriaxone (50 mg IM or IV daily for 1 or 3 d)</td>
<td>Tympanocentesis&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>Consult specialist&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Note: Cefdinir, cefuroxime, cefpodoxime, and ceftriaxone are highly unlikely to be associated with cross-reactivity with penicillin allergy based on their distinct chemical structures.

<sup>a</sup>May be considered in patients who have received amoxicillin in previous 30 d or who have otitis-conjunctivitis syndrome.

<sup>b</sup>Perform tympanocentesis/drainage if skilled in procedure, or seek consultation from otolaryngologist for tympanocentesis/drainage. If tympanocentesis reveals multidrug-resistant bacteria, seek infectious disease specialist consultation.

Abbreviations: IM, intramuscular; IV, intravenous.

From: Lieberthal AS, et al.<sup>2</sup>
Otitis Media with Effusion

- Acute fullness in the ear
- Opacified and poorly mobile tympanic membrane in the neutral or retracted position
- Tympanocentesis treatment of choice due to reducing pressure caused by thick mucoid fluid
- The major pathogen in AOM, Streptococcus pneumoniae, is infrequently recovered when tympanocentesis is performed for OME
- A child who is fussy or can report “pain,” doesn’t support a diagnosis of AOM, so treat accordingly.

NOTE: No antibiotics for OME, procedural improvement as first line
Otitis Externa

*Inflammation of the external auditory canal*
Otitis Externa: Treatment

1. Clean Ear Canal
2. Irrigate
3. Pain Management
4. Acetic Acid 2%
5. Use Wick if needed
6. Oral Antibiotics
7. Ofloxin drops
8. Cortisporin otic solution drops or suspension
9. Treat diabetics with po Cipro
World of Rashes

- Blisters in & around the mouth
- Blisters on palms of hands

- Between the fingers
- On the wrists
- Around the waist
- On the genitals
- Between the toes

- Usually does not appear on head and face—except in babies
World of Rashes

Rash on face

"Lacelike" rash on extremities
Rashes: Facts

✓ Can originate from a drug/medication, infectious culprit, or allergic reaction
✓ Everyone has different rash presentation, with similarity commonly noted
✓ History during assessment highly important
✓ Vaccines are aiding in decreasing incidence of diseases in relation to rash manifestation
✓ Some rashes will disappear without treatment, however TIME and SEVERITY are significant
✓ Viral vs Bacterial
✓ Fungal identification pertinent
What do I do?

• Thorough history
• Assessment
• Red Flags
• Medications
• Monitor
• Recheck/Reevaluate/Follow UP
Roseola

- Also referred to as “Viral Exanthem”
- Affects children 3 years of age and younger
- Abrupt fever (3-7 days), inflamed TM, fatigue
- Red Flag------febrile seizures
- Antipyretics (Tylenol 15mg/kg or Ibu 10mg/kg)
- Hydration
Fifth disease (erythema infectiosum) is a common childhood illness caused by parvovirus B19. A human virus, parvovirus B19 is not the same parvovirus that pets get, and it cannot be passed from humans to animals or vice versa.

Fifth disease is common in kids between the ages of 5 and 15. Fifth disease typically produces a red rash on the face that makes the child appear to have a "slapped cheek." The rash then spreads to the trunk, arms, and legs in a distinctive lacy pattern.
Hand-Foot-Mouth Disease

• Affects infants and children <5 years of age
• Coxsackievirus A16 is the most common cause of hand, foot, and mouth disease in the United States
• Prodrome period (fever, malaise, sore throat, and poor appetite), followed by herpangina in oral cavity after 2\textsuperscript{nd} day of fever
• Rash appears within 1-2 days on palms of hand and soles of feet
• Symptomatic treatment
Impetigo

- Bacterial skin infection from either Staphylococcus aureus or Streptococcus pyogenes
- Face and extremities MOST common involved sites
- Honey-colored crusted erosions
- Keflex (25mg/kg/day) divided into 2 doses x10 days
- Topical Bactroban tid x10 days
- Proper hand washing
- Return to school 24 hours after starting antibiotics
Dermatophyte Infection: Tinea

• Tinea Capitis, Tinea Corporis, Tinea Cruris, Tinea Pedis, Tinea Unguium (onychomycosis)
• Capitis- Griseofulvin (20mg/kg/d) single dose or divided, for 6-8 weeks
• Corporis/Pedis/Cruris- Lamisil (solution or spray), Loprox (cream or lotion), Nizoral (cream) bid or QD in 15g, 30g, 60g
• Unguium- Oral terbinafine (260mg/d, 6 weeks for fingernails and 12 weeks for toenails) or topical nail lacquer
Candidiasis
Candidiasis

- Caused by yeast like fungus, Candida albicans
- Normal flora, however, epidermis invasion occurs with moisture, darkness, and warmth...produces overgrowth
- Pediatric most common sites are oral cavity and diaper area
- Oral origin referred to as thrush
- Oral area treatment: Nystatin oral suspension (100,000 U/ml) qid x10 days
- Diaper area treatment: Nystatin cream (100,000 units/g) with each diaper change x3 days
Wait, My Child Won’t Sleep Because Of........
Pinworms

- Prevalence highest in preschoolers and in school-age children
- White, threadlike worm for which humans are the ONLY hosts
- Female deposit eggs on perianal skin and then die
- Perianal pruritus with excoriation common
- Treatment: transparent tape for kids under 2 years of age or Pyrantel pamoate (>2 years of age), 11mg/kg x1 dose, may repeat in 2 weeks
FYI.....

Keep Me Home If...

- I'm vomiting
- I have a rash, lice or nits
- I have diarrhea
- I have an eye infection
- I have a sore throat
- I'm just not feeling very good.
- I have a fever

Two or more times in 24 hours.
Body rash, especially with a fever or itching. Lice or nits. 3 or more watery stools in 24 hours. Thick mucus or pus draining from the eye. With fever or swollen glands. Unusually tired, pale, lack of appetite, confused or cranky. Temperature of 100°F or more, taken under the arm AND sore throat, rash vomiting, diarrhea, earache or just not feeling good.

When Your Child is Sick:
1. Have plans for back up child care.
2. Tell your caregiver what is wrong with your child, even if your child stays home.
Pearls for Practice

- Fever is not dangerous in of itself unless greater than or equal to 105 degrees or coexisting with other acute vs prolonged symptoms
- Viruses are the most common cause of fever
- History and physical are your friend and will aid in differential diagnosis along with treatment plan
- Tylenol and/or ibuprofen are necessary (at correct dosages)
- Reassessment and identify primary care provider
- Vaccinations are necessary
- Antibiotics are not ALWAYS the answer
- Infants that won’t stop crying during exam MAY warrant a more serious illness
- Parent/caretaker involvement
That’s a WRAP....
References

ANY QUESTIONS?!?!?!?

"What do you mean you're the new Paediatric Specialist?"