Treating Otitis Media in Children

by Dr. Edgar Fernandez, Medical Director

According to the American Academy of Pediatrics, otitis media with effusion (OME), or inflammation of the middle ear without signs and symptoms of infection, is the most frequent primary diagnosis reported in children younger than 15 years of age by U.S. physicians’ offices. It can be caused either by bacteria or viruses, both of which can cause a variety of signs and symptoms.

Hearing loss is commonly associated with middle ear infections, and caused primarily by fluid which has accumulated without sufficient drainage from the middle ear. This can result in a conductive hearing loss ranging to greater than 40 dB pure tone average (PTA) of 500, 1000, and 2000 Hz.

In general, the younger the child and the more severe the hearing impairment, the more speech and language development can be affected. The goal of most PCPs is to restore hearing to normal as soon as possible. Therapy ranges from antimicrobial medication to tympanostomy tubes. Insertion of a tympanostomy tube drains the fluid in the middle ear, and aerates the area. After this procedure, hearing generally restores to normal. Postoperatively, the ear(s) must be protected against entry of moisture—earplugs are advised for swimming or bathing. It’s important to know that tympanostomy tubes are contraindicated for used in patients with constant otorrhea or in those with immune deficiency, e.g., patients with cilia dyskinesis, also known as Kartagener’s syndrome.

Additional Indications for Treatment

In addition to hearing loss, other important indications for treating OME include recurrent acute otitis media (AOM—inflammation of the middle ear with signs of infection), earache, ear discharge, severe tympanic membrane retraction, and irreversible damage to the middle of the three ear ossicles (incus necrosis).

Prescribing the Right Antimicrobial for AOM

Of course, it’s not enough to restore normal ventilatory function of the Eustachian tube; the bacteria must be eradicated as well. Since the majority of AOM cases are caused by pathogenic bacteria, specifically Streptococcus pneumoniae, nontypeable Haemophilus influenzae and Moraxella catarrhalis, antimicrobial treatment seems the prudent choice. However, there is some controversy over treating children with...
AOM—some physicians choose to delay prescribing antimicrobials unless symptoms persist or worsen, however, this policy is still somewhat controversial. Even though most untreated cases eventually resolve, the improvement and resolution of infection is better effected with antimicrobials than without.

Amoxicillin is the most popular microbial drug, with an excellent track record of safety and efficacy, low cost, and a good rate of tolerance. However, PCPs should be aware that some strains of bacteria are showing resistance, in some regions, to amoxicillin.

Cefaclor is well-tolerated although there have been some reports of associated serum sickness, and it may not be effective against beta-lactamase-producing organisms.

Trimethoprim-sulfamethoxazole (TMP-SMX) is relatively low cost and requires only twice-daily administration, but lacks efficacy against beta-hemolytic streptococci and many strains of pneumococci and, rarely, may cause severe reactions, such as bone marrow suppression or Stevens-Johnson syndrome. Erythromycin-sulfisoxazole may also cause such reactions, but is more effective than TMP-SMX against gram-positive cocci. Clarithromycin, a newer macrolide, is effective against beta-lactamase-producing organisms as well as some resistant pneumococci. It also requires only twice-daily administration and although costly, seems less likely to cause diarrhea than some of the other antibiotics. The efficacy of a single dose of intramuscular ceftriaxone has not been definitively evaluated.

**Duration of Antimicrobial Treatment**

Generally, antimicrobial treatment of AOM is ten days in duration, but this may vary due to severity of infection and the patient's susceptibility. For most episodes in children, ten days of treatment seems advisable, but longer may be necessary for children with recurring or chronic AOM.

**When First-line Treatment Fails**

Second-line drugs are an alternative when first-line treatment is unsatisfactory. Poor first-line results are usually due to poor compliance, concurrent or intercurrent viral infection, persistent middle ear underaeration despite bacterial killing, reinfection from other sites or from outside sources, and immature or impaired host defenses. However, switching to a second-line drug may be called for when middle ear status has not improved, the eardrum still shows abnormalities, or when purulent nasal discharge persists. Second-line drugs may also be reasonably used when AOM develops in a child already receiving antimicrobial prophylaxis or when a child is immunocompromised or when persistent experience with otitis is chronically severe.

Second line drugs include Omnicef, Ceftin, Vantin, Zithromax, Biaxin, or Bactrim DS if Penicillin allergy is present. Augmentin will be the second line after failing first line amoxicillin. Clindamycin can be used if infection is caused by penicillin-resistant S. pneumoniae.
If all else fails, Rocephin is recommended as the third line drug.

**Follow Up**
Follow up is dependent upon clinical circumstances and on symptomatic response of the patient. A patient with only a sporadic episode and immediate symptomatic improvement requires only a one-month follow-up. If the patient is an infant or if the child is experiencing a severe episode with continuing pain, follow-up within days is advised. A child who is immunocompromised or has had frequent recurrences should be seen in one or two weeks. In all cases, follow-up should be maintained at reasonable intervals until normal middle ear status is restored.

**Recurrence**
Recurrence two or more months after treatment is usually caused by a different organism. But if an episode recurs within sixty days, the same treatment may be reapplied. If the original episode responded to a first-line antimicrobial, it’s reasonable to prescribe it again. If the first-line attempt failed but a second-line drug was successful, use of the second-line drug again would be appropriate.

**Bullous myringitis** is a physical manifestation of AOM and always associated with middle ear infection. Treat the same as the underlying AOM.

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**Patient-related Considerations**
- Age
- Frequency and severity of previous episodes of AOM
- Interval since the last episode
- Prior treatment and the child’s response
- History of adverse drug reactions, if any
- Concurrent medical problems or risk factors
- Environmental risk factors, e.g., day care attendance or other exposure to infectious disease

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### Corticosteroids—
**What Do You Tell Parents?**

“But Doctor, I heard that steroids will stunt my child’s growth.” You have all probably heard this from concerned parents worried about the risks of steroids for their child’s asthma. Here are some facts that will help you show inhaled corticosteroids’ benefits far outweigh their risk.

- Poorly controlled asthma can actually delay their child’s growth
- The National Asthma Education and Prevention Program (NAEPP) found that inhaled corticosteroids in mild or moderate persistent asthma, compared to as-needed beta₂–agonist reduced airway hyper responsiveness and reduced symptom frequency, **decreasing the need for urgent care or hospital visits.**
- Inhaled corticosteroids used in conjunction with beta₂–agonists have been shown to result in a **reduced need for quick relief, short acting beta₂–agonists.**
- IEHP’s Family Asthma Program can help families identify asthma triggers and reduce the frequency of asthma symptoms.

For more information on asthma management, consult IEHP’s website at www.iehp.org for the latest Asthma Quick Reference Guide. The IEHP Health Management unit is also available to assist you and your members with asthma. You can reach them at 1-866-224-4347 or by contacting the Health Management Manager, Jeanna Kendrick at 909-890-1528.
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If you need additional forms or have any questions, call Provider Services at (909) 890-2054 or email Provider_Services@iehp.org.

Advanced Notice...

…to our IEHP Providers about some of the featured topics in the next issue of “The Pulse,” IEHP’s Member Newsletter (Vol. 21, May 2004).

✔ What Parents Should Know About Teething
✔ Specialized Phones for Members with Disabilities
✔ WIC Nutrition Program
✔ Staying Cool in Hot Weather
✔ Childhood Depression

COMING UP IN accessAbilities
IEHP’s newsletter for Members with disabilities…

✔ Staying Active and Independent with Low Vision
✔ Privacy Rights
✔ Medications and the Sun
✔ Getting Medications Quickly

IEHP announces...

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Starting April 1st, IEHP will PAY YOUR TUITION for accredited CME courses offered at

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• 8,000 peer-reviewed topics
• 62 specialities
• Any course, any time—24/7
In February, 2004 the following changes were approved by the Pharmacy and Therapeutics Subcommittee for implementation on March 9th.

<table>
<thead>
<tr>
<th>Drug*</th>
<th>Therapeutic Class</th>
<th>Previous Change</th>
<th>New Change</th>
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<tbody>
<tr>
<td>Paxil (Paroxetine)</td>
<td>Central Nervous System Agents: Antidepressants (SSRI)</td>
<td>• The IEHP P&amp;T Subcommittee had restricted the use of Fluoxetine and Paroxetine with code 1 restriction. &lt;br&gt;• Restriction for Fluoxetine was to use in the treatment of depression, obsessive-compulsive disorder, and bulimia nervosa. &lt;br&gt;• Restriction for Paroxetine was to use in the treatment of depression, obsessive-compulsive disorder, and panic disorder.</td>
<td>None</td>
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<tr>
<td>Prozac (Fluoxetine)</td>
<td>Central Nervous System Agents: Antidepressants (SSRI)</td>
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<td>Celexa (Citalopram)</td>
<td>Central Nervous System Agents: Antidepressants (SSRI)</td>
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<td>Zoloft (Sertraline)</td>
<td>Central Nervous System Agents: Antidepressants (SSRI)</td>
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Restricted to use after failure of first line therapies for at least 6 weeks (duration of therapy should be used for each drug) or prescribed by a Psychiatrist. (First line includes fluoxetine, paroxetine)

Note: Fluoxetine and paroxetine should be used for 6 weeks to evaluate the clinical response. If failed, sertraline or citalopram may be tried without prior authorization through step therapy.

Psychiatrists may prescribe any of the above SSRIs without any restrictions.

*Generic to be dispensed as available.

We welcome any recommendations and comments regarding the formulary. Please call us at (909) 890-2067 with your comments and/or suggestions.
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- Increased reimbursement for each Diabetes measures—from $15 to $25
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- New $50 Quality bonus if a Member achieves Hgb A1c result of 7.0 or less
- New $50 Quality bonus if a Member achieves Ldl result of 100 or less

New program Rules:
Paid claims that are subsequently deemed under PIP guidelines as “inappropriately billed” will be recouped from future PIP payments

Coming Soon: PM 160 submission going online!