Otitis media is common in children, due to recurrent infections (recurrent acute otitis media - RAOM) or persistent fluid inadequately cleared through eustachian tubes (chronic otitis media with effusion - COME). Both conditions can cause significant problems such as ear pain, drainage, hearing loss, imbalance and recalcitrant fevers. RAOM is commonly treated with antibiotics, while COME is not.

ASSESSMENT
Perform a standard health history and physical exam (HPE).

HPE RED FLAGS

Patient History
- Failed newborn hearing screen
- Trisomy 21
- Cleft palate
- Eustachian tube dysfunction
- Immunocompromised
- Developmental disorders that would affect speech and language
- Craniofacial disorders

Physical Exam
- Middle ear effusion that doesn’t clear in 3 months
- Tympanic membrane perforation
- Cholesteatoma
- Tender mastoid (red and swollen)

Family History
- Hearing loss/disorder
- Craniofacial syndromes

Situational History
- Purulent ear drainage not amenable to topical ear drops
- Decreased hearing
- Ringing in the ears
- Imbalance
- Failed hearing screen
- Speech delay
- 3+ episodes of RAOM in 6 months

FAST FACTS
90%
of children have otitis media before they’re 5 years of age

2 million+
new cases of otitis media diagnosed annually

Otitis media is common in children, due to recurrent infections (recurrent acute otitis media - RAOM) or persistent fluid inadequately cleared through eustachian tubes (chronic otitis media with effusion - COME). Both conditions can cause significant problems such as ear pain, drainage, hearing loss, imbalance and recalcitrant fevers. RAOM is commonly treated with antibiotics, while COME is not.

ASSESSMENT
Perform a standard health history and physical exam (HPE).

HPE RED FLAGS

Patient History
- Failed newborn hearing screen
- Trisomy 21
- Cleft palate
- Eustachian tube dysfunction
- Immunocompromised
- Developmental disorders that would affect speech and language
- Craniofacial disorders

Physical Exam
- Middle ear effusion that doesn’t clear in 3 months
- Tympanic membrane perforation
- Cholesteatoma
- Tender mastoid (red and swollen)

Family History
- Hearing loss/disorder
- Craniofacial syndromes

Situational History
- Purulent ear drainage not amenable to topical ear drops
- Decreased hearing
- Ringing in the ears
- Imbalance
- Failed hearing screen
- Speech delay
- 3+ episodes of RAOM in 6 months

MENTION/TREATMENT OF OTITIS MEDIA

Determine type of otitis media.

Chronic otitis media with effusion (COME)
- Treat with acetaminophen or ibuprofen for pain
- Do NOT treat with antibiotics or systemic steroids, or with antihistamines as primary treatment
- Obtain hearing test
- Reevaluate at 3 months to evaluate for resolution of effusion

Recurrent acute otitis media (RAOM)
- Treat with acetaminophen or ibuprofen for pain
- Treat with antibiotics

WHEN TO REFER
Refer patient to Cincinnati Children’s ENT if:
- Patient fails in-office hearing tests
- Effusion is persistent >3 months
- 3 episodes of RAOM in 6 months
- Send to Cincinnati Children’s Emergency Department for further evaluation if you are concerned about these possible complications of otitis media: mastoiditis, subperiosteal abscess, meningitis, and the like

If you have clinical questions about patients with either form of otitis media, email ENT@cchmc.org.

If you would like additional copies of this tool, or would like more information, please contact the Physician Outreach and Engagement team at Cincinnati Children’s.
## Otitis Media

### Standard Workup
- **Situational History**
- **Family History**
- **Physical Exam**

### HPE RED FLAGS

<table>
<thead>
<tr>
<th>Situational History</th>
<th>Patient History</th>
<th>Family History</th>
<th>Physical Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Purulent ear drainage not amenable to topical ear drops</td>
<td>• Failed newborn hearing screen</td>
<td>• Hearing loss/disorder</td>
<td>• Middle ear effusion that doesn’t clear in 3 months</td>
</tr>
<tr>
<td>• Decreased hearing</td>
<td>• Trisomy 21</td>
<td>• Craniofacial syndromes</td>
<td>• Tympanic membrane perforation</td>
</tr>
<tr>
<td>• Ringing in the ears</td>
<td>• Cleft palate</td>
<td></td>
<td>• Cholesteatoma</td>
</tr>
<tr>
<td>• Imbalance</td>
<td>• Eustacian tube dysfunction</td>
<td></td>
<td>• Tender mastoid (red and swollen)</td>
</tr>
<tr>
<td>• Failed hearing screen</td>
<td>• Immunocompromised</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Speech delay</td>
<td>• Developmental disorders that would affect speech and language</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 3+ episodes of RAOM in 6 months</td>
<td>• Craniofacial disorders</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Determine COME or RAOM

<table>
<thead>
<tr>
<th>COME Red Flags?</th>
<th>RAOM Red Flags?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Yes -&gt; Refer to ENT Specialist</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### COME Medical Therapy
- Treat with pain control — acetaminophen or ibuprofen
- Observe
- Do NOT treat with antibiotics or systemic steroids
- Do NOT treat with antihistamines as primary treatment
- Obtain hearing test
- Reevaluate at 3 months to evaluate for resolution of effusion
- Refer to ENT if patient fails in-office hearing tests, effusion is persistent >3 months, concern for serious complications such as mastoiditis, subperiosteal abscess, meningitis or other

### RAOM Medical Therapy
- Treat with pain control — acetaminophen or ibuprofen
- First-line treatment
  - Amoxicillin 90 mg/kg/day divided into 2 doses for 7 – 10 days
  - In amoxicillin-allergic patients — Second or third generation cephalosporins (if PCN allergy not severe), Azithromycin, or Clindamycin (20 – 30 mg/kg/day)
- If additional antibiotics needed:
  - Augmentin, cefdinir, cefpodoxime, ceftriaxone
  - If failed high-dose amoxicillin and/or oral cephalosporins, Ceftriaxone IM for 3 doses
  - Refer to ENT if patient fails in-office hearing tests, 3 episodes of RAOM in 6 months, concern for serious complications such as mastoiditis, subperiosteal abscess, meningitis or other

### Special circumstance while waiting for ear tubes, use prophylaxis for RAOM
- Once daily amoxicillin 45mg/kg/dose
- If PCN allergic, once daily Bactrim

---

For urgent issues, or to speak with the specialist on call 24/7, call the Physician Priority Link at 1-888-636-7997.