Department of Pediatric Otolarygnology

Otitis Media

NATIONWIDE CHILDREN'S

*When your child needs a hospital, everything matters.*SM

Overview of Ear Infections

Approximately one in every three children will be treated for otitis media at least once before their third birthday. It is the most common reason cited for physician visits in children, according to the U.S. Department of Health and Human Services, which estimates the cost of medical treatment for the condition at nearly $3 billion annually.

The three types of otitis media commonly seen in children and teens as defined by the American Academy of Otolaryngology — Head and Neck Surgery and the American Academy of Pediatrics are:

- **Acute otitis media (AOM)**
  A diagnosis of AOM requires a history of acute onset of signs and symptoms, the presence of middle-ear effusion and signs and symptoms of middle-ear inflammation. AOM is commonly caused by bacteria such as *Streptococcus pneumoniae, Haemophilus influenzae* and *Moraxella catarrhalis* or viruses such as respiratory syncytial virus (RSV), rhinoviruses, influenza viruses and adenoviruses.

- **Otitis media with effusion (OME)**
  OME is defined as the presence of fluid in the middle ear without signs or symptoms of acute ear infection. Persistent middle-ear fluid from OME results in decreased mobility of the tympanic membrane and serves as a barrier to sound conduction.

- **Acute otitis externa (AOE)**
  More commonly known as "swimmer's ear," AOE is primarily caused by a bacterial infection, with the most common pathogens being *Pseudomonas aeruginosa* or *Staphylococcus* aureus.

New AAP Guidelines on Treatment of Otitis Media

In February 2014, the American Academy of Pediatrics published updated clinical practice guidelines to address the diagnosis and management of uncomplicated AOM in children aged 6 months to 12 years. The new recommendations are designed to reduce the use of antibiotics among children and specify circumstances under which AOM should be monitored without treatment. (See chart on back cover.) Some of the specific action statements in the guidelines include:

- AOM should be diagnosed when there is moderate to severe tympanic membrane (TM) bulging or new-onset otorrhea not caused by AOE.
- AOM may be diagnosed for mild TM bulging and ear pain for less than 48 hours or for intense TM erythema. In a nonverbal child, ear holding, tugging or rubbing suggests ear pain.
- AOM should not be diagnosed when pneumatic otoscopy and/or tympanometry do not show middle ear effusion.
- Antibiotics should be prescribed for bilateral or unilateral AOM in children aged at least 6 months of age with severe signs or symptoms (moderate to severe otalgia, otalgia for 48 hours or longer, or temperature 39°C or higher) and for nonsevere, bilateral AOM in children 6 to 23 months of age.
- On the basis of joint decision-making with the parents, unilateral, nonsevere AOM in children 6 to 23 months of age or nonsevere AOM in older children may be managed either with antibiotics or with close follow-up and withholding antibiotics unless the child worsens or does not improve within 48 to 72 hours of symptom onset.
- Clinicians should re-evaluate a child whose symptoms have worsened or not responded to the initial antibiotic treatment within 48 to 72 hours and change treatment if indicated.
- In children with recurrent AOM, tympanostomy tubes, but not prophylactic antibiotics, may be indicated to reduce the frequency of AOM episodes.

New Criteria for Ear Tubes

Approximately 667,000 children under the age of 15 undergo tympanostomy tube placement in the eardrum each year and nearly one in 15 have tubes by age 3. In 2013, the American Academy of Otolaryngology — Head and Neck Surgery Foundation published the first-ever evidence-based guidelines on the use of tympanostomy tubes in children with otitis media aged 6 months to 12 years. The table below offers information about these recommendations.

Condition	Treatment Recommendations
Recurrent Acute Otitis Media (AOM)	Clinicians **SHOULD NOT** perform tympanostomy tube insertion in children with a history of recurrent AOM who do not have a middle ear effusion in at least one ear at the time of evaluation.
	Children with recurrent AOM without middle-ear effusion **SHOULD NOT** undergo tympanostomy tube placement. However, tube placement should be considered for children with middle-ear effusion to prevent most future AOM episodes and to facilitate treatment of AOM with ear drops instead of oral antibiotics.
Otitis Media with Effusion (OME)	Children with a single OME episode lasting less than three months should not undergo tympanostomy tube insertion as most of these cases will improve spontaneously.
	Age-appropriate hearing evaluation is recommended before surgery and for all children with persistent OME lasting three or more months.
	Clinicians **SHOULD** offer tympanostomy bilateral tube insertion to children with bilateral OME for 3 months or longer **AND** documented hearing difficulties.
	Clinicians **MAY** perform tympanostomy tube insertion in children with unilateral or bilateral OME for three months or longer (chronic OME) **AND** symptoms that are likely attributable to OME that include balance (vestibular) problems, poor school performance, behavioral problems, ear discomfort or reduced quality of life.
	Clinicians **MAY** perform tympanostomy tube insertion in at-risk children with unilateral or bilateral OME that is unlikely to resolve quickly as reflected by a type B (flat) tympanogram or persistence of effusion for three months or longer.
Care Issues for Children with Tympanostomy Tubes	Children with tympanostomy tubes who develop ear infections, including uncomplicated acute tympanostomy tube otorrhea, should be treated with topical antibiotic ear drops.
	Children with tympanostomy tubes do not usually need to wear earplugs when bathing or when swimming in a chlorinated pool.

Source: American Academy of Otolaryngology—Head and Neck Surgery Foundation

In 2013, the American Academy of Pediatrics and the American Academy of Family Physicians published a revision of the 2004 guidelines for the treatment and management of AOM in children aged 6 months to 12 years. The guidelines include specific recommendations regarding the use of antibiotic treatment, appropriate choices of antibiotic agents and preventive measures. The table below summarizes these recommendations.

Condition	Treatment Recommendations
Severe AOM	The clinician should prescribe antibiotic therapy for AOM (bilateral or unilateral) in children 6 months and older with severe signs or symptoms (i.e., moderate or severe otalgia or otalgia for at least 48 hours, or temperature 39°C [102.2°F] or higher).
Nonsevere Bilateral AOM in Young Children	The clinician should prescribe antibiotic therapy for bilateral AOM in children younger than 2 years without severe signs or symptoms (i.e., mild otalgia for less than 48 hours, temperature less than 39°C [102.2°F]).
Nonsevere Unilateral AOM in Young Children	The clinician should either prescribe antibiotic therapy or offer observation with close follow-up based on joint decision-making with the parent(s)/caregiver for unilateral AOM in children 6 months to 23 months of age without severe signs or symptoms (i.e., mild otalgia for less than 48 hours, temperature less than 39°C [102.2°F]). When observation is used, a mechanism must be in place to ensure follow-up and begin antibiotic therapy if the child worsens or fails to improve within 48 to 72 hours of onset of symptoms.
Nonsevere AOM in Older Children	The clinician should either prescribe antibiotic therapy or offer observation with close follow-up based on joint decision-making with the parent(s)/caregiver for AOM (bilateral or unilateral) in children 2 years of age or older without severe signs or symptoms (i.e., mild otalgia for less than 48 hours, temperature less than 39°C [102.2°F]). When observation is used, a mechanism must be in place to ensure follow-up and begin antibiotic therapy if the child worsens or fails to improve within 48 to 72 hours of onset of symptoms.

Source: Lieberthal AS, Carroll AE, Chonmaitree T, Ganiats TG, Hoberman A, Jackson MA, Joffe MD, Miller DT, Rosenfeld RM, Sevilla XD, Schwartz RH, Thomas PA, Tunkel DE. The Diagnosis and Management of Acute Otitis Media. *Pediatrics.* 2013 Mar;131(3):e964-99. Epub 2013 Feb 25.

Referrals and Consultations

Online: **NationwideChildrens.org/ENT**
Central Scheduling Phone: **(614) 722-6200** or **(877) 722-6220** | Fax: **(614) 722-4000**
Physician Direct Connect Line for urgent physician consultations:
Phone: **(614) 355-0221** or **(877) 355-0221**
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