

Clinical Practice Guideline: Otitis Media with Effusion

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Introduction

- ▶ **OME:** presence of fluid in the middle ear without signs or symptoms of acute ear infection
- ▶ about 90% of children have OME before school age
- ▶ 2.2 million diagnosed episodes of OME occur annually in the United States at a cost of \$4.0 billion
- ▶ Indirect cost: hearing difficulties & school performance issues
- ▶ Most episodes of OME resolve spontaneously within 3 months
 - ▶ At least 25% of OME episodes persist for 3 months
 - ▶ 5% to 10% of episodes last 1 year
- ▶ **AOM:** rapid onset of signs and symptoms of inflammation in the middle ear, most often with ear pain and an bulging eardrum

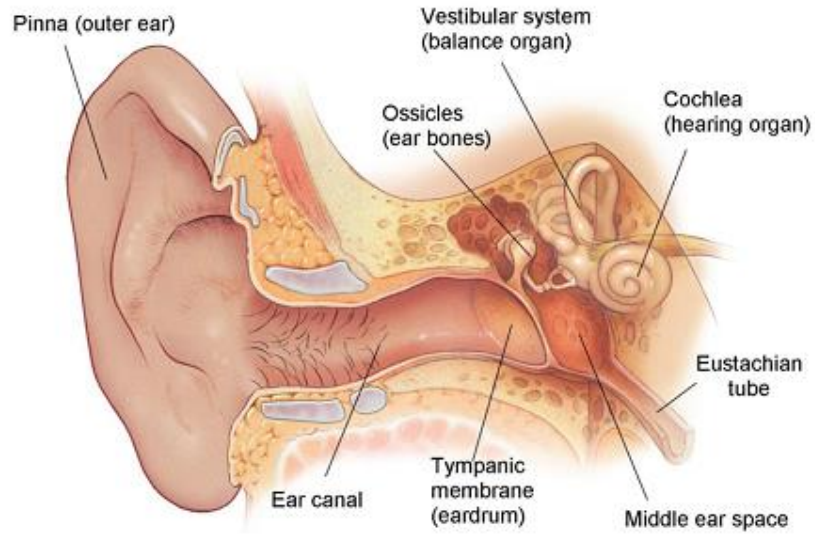


Figure 1. Location of the middle ear space. Otitis media with effusion occurs when fluid builds up in the middle ear space, which normally is air filled and lies just behind the eardrum. With permission from Rosenfeld 2005.

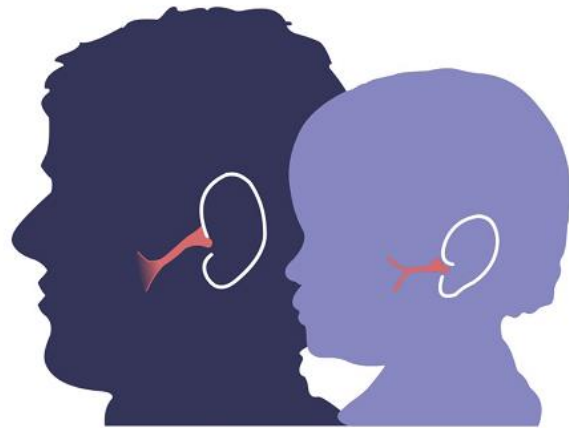
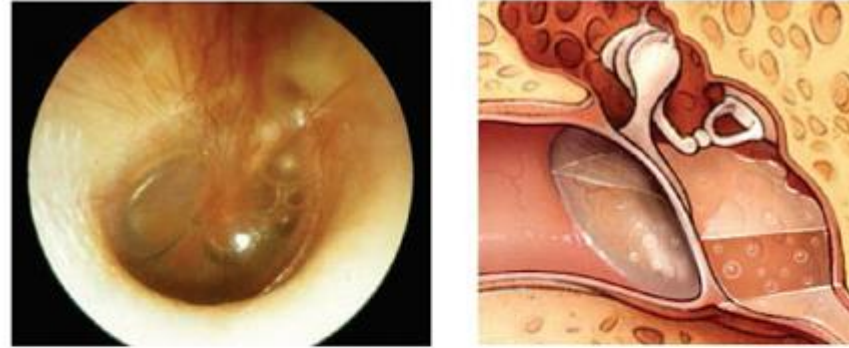


Figure 3. Position of the eustachian tube (red) as it connects the middle ear space to the back of the nose, or nasopharynx. The child's eustachian tube (right) is shorter, more floppy, and more horizontal, which makes it less effective in ventilating and protecting the middle ear than the eustachian tube in the adult (left).

Otitis Media with Effusion (ear fluid)



Acute Otitis Media (ear infection)

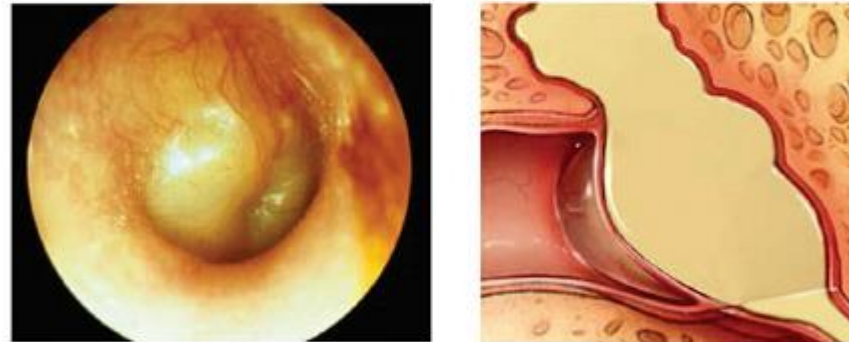


Figure 2. Comparison of otitis media with effusion (top) and acute otitis media (bottom). The left images show the appearance of the eardrum on otoscopy, and the right images depict the middle ear space. For otitis media with effusion, the middle ear space is filled with mucus or liquid (top right). For acute otitis media, the middle ear space is filled with pus, and the pressure causes the eardrum to bulge outward (bottom right). With permission from Rosenfeld 2005.

Purpose

- ▶ improve diagnostic accuracy
- ▶ identify children who are most susceptible to developmental sequelae from OME
- ▶ educate clinicians and patients regarding the favorable natural history of most OME and the lack of clinical benefits for medical therapy (eg, steroids, antihistamines, decongestants)
- ▶ OME surveillance
- ▶ hearing and language evaluation
- ▶ management of OME detected by newborn screening
- ▶ target patient for the guideline is a child aged 2months through 12 years with OME

Health care burden

▶ Incidence & prevalence:

- ▶ Approximately 2.2 million new cases of OME are diagnosed annually in the United States, with 50% to 90% of children affected by 5 years of age
- ▶ common reason for outpatient visits to pediatricians, accounting for 1 in 9 (11.4%) office encounters in primary care practices
- ▶ Only 7% to 33% of pediatricians use pneumatic otoscopy for diagnosis, and only 29% obtain an age-appropriate hearing test when the effusion persists for more than 3 months, 32% treat OME inappropriately with antibiotics

▶ Impact on children and families

- ▶ most common cause of hearing impairment in children in developed nations
- ▶ difficulties in speech and reading, delayed response to auditory input, limited vocabulary, and disturbances in attention, being less task oriented and less capable of independent classroom work
- ▶ 76% of children with OME suffer from otalgia, 64% from sleep disruption, 49% from behavioral problems, 33% to 62% from speech and hearing concerns, and 15% from balance symptoms
- ▶ sequelae that include tympanic membrane retraction/atelectasis, ossicular erosion, cholesteatoma formation, and tympanic membrane perforation

Table 4. Strength of Action Terms in Guideline Statements and Implied Levels of Obligation.

Strength	Definition ^a	Implied Obligation
Strong recommendation	A strong recommendation means that the benefits of the recommended approach clearly exceed the harms (or, in the case of a strong negative recommendation, that the harms clearly exceed the benefits) and that the quality of the supporting evidence is high (grade A or B). In some clearly identified circumstances, strong recommendations may be made based on lesser evidence when high-quality evidence is impossible to obtain and the anticipated benefits strongly outweigh the harms.	Clinicians should follow a strong recommendation unless a clear and compelling rationale for an alternative approach is present.
Recommendation	A recommendation means that the benefits exceed the harms (or, in the case of a negative recommendation, that the harms exceed the benefits), but the quality of evidence is not as high (grade B or C). In some clearly identified circumstances, recommendations may be made based on lesser evidence when high-quality evidence is impossible to obtain and the anticipated benefits outweigh the harms.	Clinicians should also generally follow a recommendation but remain alert to new information and sensitive to patient preferences and modifying factors.
Option	An option means that either the quality of evidence is suspect (grade D) or that well-done studies (grade A, B, or C) show little clear advantage to one approach versus another.	Clinicians should be flexible in their decision making regarding appropriate practice, although they may set bounds on alternatives; patient preference should have a substantial influencing role.

^aSee Table 5 for definitions of evidence grades.

Table 6. Summary of Guideline Key Action Statements.

Statement	Action	Strength
1a. Pneumatic otoscopy	The clinician should document the presence of middle ear effusion with pneumatic otoscopy when diagnosing otitis media with effusion (OME) in a child.	Strong recommendation
1b. Pneumatic otoscopy	The clinician should perform pneumatic otoscopy to assess for OME in a child with otalgia, hearing loss, or both.	Strong recommendation
2. Tympanometry	Clinicians should obtain tympanometry in children with suspected OME for whom the diagnosis is uncertain after performing (or attempting) pneumatic otoscopy.	Strong recommendation
3. Failed newborn hearing screen	Clinicians should document in the medical record counseling of parents of infants with OME who fail a newborn hearing screen regarding the importance of follow-up to ensure that hearing is normal when OME resolves and to exclude an underlying sensorineural hearing loss.	Recommendation



4a. Identifying at-risk children

Clinicians should determine if a child with OME is at increased risk for speech, language, or learning problems from middle ear effusion because of baseline sensory, physical, cognitive, or behavioral factors (Table 3).

Recommendation

4b. Evaluating at-risk children

Clinicians should evaluate at-risk children (Table 3) for OME at the time of diagnosis of an at-risk condition and at 12 to 18 mo of age (if diagnosed as being at risk prior to this time).

Recommendation

5. Screening healthy children

Clinicians should *not* routinely screen children for OME who are not at risk (Table 3) and do not have symptoms that may be attributable to OME, such as hearing difficulties, balance (vestibular) problems, poor school performance, behavioral problems, or ear discomfort.

Recommendation (against)

6. Patient education

Clinicians should educate families of children with OME regarding the natural history of OME, need for follow-up, and the possible sequelae.

Recommendation

Table 3. Risk Factors for Developmental Difficulties in Children with Otitis Media with Effusion.^a

- Permanent hearing loss independent of otitis media with effusion
- Suspected or confirmed speech and language delay or disorder
- Autism spectrum disorder and other pervasive developmental disorders
- Syndromes (eg, Down) or craniofacial disorders that include cognitive, speech, or language delays
- Blindness or uncorrectable visual impairment
- Cleft palate, with or without associated syndrome
- Developmental delay

^aSensory, physical, cognitive, or behavioral factors that place children who have otitis media with effusion at increased risk for developmental difficulties (delay or disorder).¹

7. Watchful waiting

Clinicians should manage the child with OME who is not at risk with watchful waiting for 3 mo from the date of effusion onset (if known) or 3 mo from the date of diagnosis (if onset is unknown).

Strong recommendation

8a. Steroids

Clinicians should recommend against using intranasal steroids or systemic steroids for treating OME.

Strong recommendation
(against)

8b. Antibiotics

Clinicians should recommend against using systemic antibiotics for treating OME.

Strong recommendation
(against)

8c. Antihistamines or
decongestants

Clinicians should recommend against using antihistamines, decongestants, or both for treating OME.

Strong recommendation
(against)

9. Hearing test

Clinicians should obtain an age-appropriate hearing test if OME persists for ≥ 3 mo or for OME of any duration in an at-risk child.

Recommendation

10. Speech and language

Clinicians should counsel families of children with bilateral OME and documented hearing loss about the potential impact on speech and language development.

Recommendation

11. Surveillance of chronic OME	Clinicians should reevaluate, at 3- to 6-mo intervals, children with chronic OME until the effusion is no longer present, significant hearing loss is identified, or structural abnormalities of the eardrum or middle ear are suspected.	Recommendation
12a. Surgery for children <4 y old	Clinicians should recommend tympanostomy tubes when surgery is performed for OME in a <i>child less than 4 years old</i> ; adenoidectomy should not be performed unless a distinct indication (eg, nasal obstruction, chronic adenoiditis) exists other than OME.	Recommendation
12b. Surgery for children \geq 4 y old	Clinicians should recommend tympanostomy tubes, adenoidectomy, or both when surgery is performed for OME in a <i>child 4 years old or older</i> .	Recommendation
13. Outcome assessment	When managing a child with OME, clinicians should document in the medical record resolution of OME, improved hearing, or improved quality of life.	Recommendation

Table 12. Evidence-Based Recommendations for Tympanostomy Tube Insertion.^a

Statement	Action	Strength
<i>Recommendations for performing tympanostomy tube insertion</i>		
Chronic bilateral otitis media with effusion (OME) with hearing difficulty	Clinicians should offer bilateral tympanostomy tube insertion to children with bilateral OME for ≥ 3 mo (chronic OME) AND documented hearing difficulties.	Recommendation
Chronic OME with symptoms	Clinicians may perform tympanostomy tube insertion in children with unilateral or bilateral OME for ≥ 3 mo (chronic OME) AND symptoms that are likely attributable to OME that include, but are not limited to, vestibular problems, poor school performance, behavioral problems, ear discomfort, or reduced quality of life.	Option
Recurrent acute otitis media (AOM) with middle ear effusion (or OME)	Clinicians should offer bilateral tympanostomy tube insertion to children with recurrent AOM who have unilateral or bilateral middle ear effusion (or OME) at the time of assessment for tube candidacy.	Recommendation
Tympanostomy tubes in at-risk children	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 ≥ 3 mo (chronic OME).	Option
<i>Recommendations for NOT performing tympanostomy tube insertion</i>		
OME of short duration	Clinicians should <i>NOT</i> perform tympanostomy tube insertion in children with a single episode of OME of < 3 mo of duration.	Recommendation (against tubes)
Recurrent AOM without middle ear effusion (or OME)	Clinicians should <i>NOT</i> perform tympanostomy tube insertion in children with recurrent AOM who do not have middle ear effusion (or OME) in either ear at the time of assessment for tube candidacy.	Recommendation (against tubes)

^aFrom the American Academy of Otolaryngology—Head and Neck Surgery Foundation’s clinical practice guideline on tympanostomy tubes¹⁷; refer to the guideline for details on the evidence and rationale underlying each recommendation.

