Managing Otitis Media in Children Ages 6 Months – 12 Years
Clinical Practice Guideline
MedStar Health

“These guidelines are provided to assist physicians and other clinicians in making decisions regarding the care of their patients. They are not a substitute for individual judgment brought to each clinical situation by the patient’s primary care provider in collaboration with the patient. As with all clinical reference resources, they reflect the best understanding of the science of medicine at the time of publication, but should be used with the clear understanding that continued research may result in new knowledge and recommendations.”

MedStar Pediatrics and MedStar Family Choice accept and endorse the clinical guidelines set forth by the American Academy of Pediatrics: The Diagnosis and Management of Acute Otitis Media, 2013. The online version of this article is available at: http://pediatrics.aappublications.org/content/131/3/e964.full.html

General Principles: Otitis Media (inflammation to the middle ear) is the most common bacterial infection in childhood and the most commonly diagnosed pediatric illness. Almost all children experience one or more episodes of otitis media before the age of 6. These guidelines were developed to provide consistent cost effective, high quality care and as a consistent mechanism of service which will also improve patient understanding and satisfaction. These guidelines are not intended either to replace a clinicians’ judgment or to establish a protocol for all patients with a particular condition.

Otitis Media may be classified as:

A. Acute Otitis Media (AOM) which is an inflammation of the middle ear associated with otalgia, generalized discomfort, and hearing loss, and
B. Otitis Media with Effusion (OME) which is a middle ear effusion lacking the clinical manifestation of acute infection such as otalgia and fever. These two entities are managed differently and shall be discussed separately in this guideline.

Diagnosis and Hearing Evaluation:

Physical Examination:
- Assessment of growth and development, whether infectious process is present.
- Examination of the head and neck (identification of predisposing factors such as nasal obstruction or craniofacial anomalies affecting the middle ear).
- Signs of symptoms of middle ear inflammation as indicated by either distinct erythema of the tympanic membrane or distinct otalgia
- The presence of middle ear effusion (bulging of the tympanic membrane, limited or absent mobility of the tympanic membrane, air fluid level behind the tympanic membrane, otorrhea)

Medical History:
1. Date of acute onset of signs or symptoms of middle ear
2. History might also include; previous treatments (nonprescription as well as prescribed medications and treatments), and the degree of compliance with treatment regimens, assessment of environmental
risk factors, which have been shown to be related to otitis media with effusion; especially infant feeding practices, passive smoking, and child-care facility placement.

Note- Observation is an appropriate option only when follow up can be ensured and antibacterial agents started if symptoms persist or worsen.

1. Nonsevere illness is mild otalgia and fever <39°C in the past 24 hours.
2. Severe illness is moderate to severe otalgia or fever >39°C.
3. A certain diagnosis of AOM meets all 3 criteria:
   a. Rapid onset
   b. Signs of middle ear effusion, and
   c. Signs and symptoms of middle ear inflammation

A. Treatment of Acute Otitis Media
AOM is determined by the following 3 criteria; rapid onset, presence of middle ear effusion, and signs and symptoms of middle ear inflammations. Most cases of AOM are viral and will resolve spontaneously, and children can be deferred antibacterial treatment for 48-72 hours and limiting management to symptomatic relief. The decision to observe or treat is based on the child’s age, diagnostic certainty and illness severity. Observation should be limited to otherwise healthy children 6 months to 2 years of age with non-severe illness at presentation and an uncertain diagnosis and to children 2 years of age and older without severe symptoms at presentation or with and uncertain diagnosis.


Medical Treatment for Acute Otitis Media
NOTE - Despite a number of new broad-spectrum antimicrobials available, Amoxicillin remains the agent of choice for initial therapy.

NOTE – There is a known rate of 0.1% of patients that may fail to respond to initial antibiotic treatment. If patient fails to respond to the initial management option within 48–72 hours, the clinician must reassess the patient to confirm AOM and exclude other causes of illness. If AOM is confirmed in the patient initially managed with observation, the clinician should begin new antibacterial therapy. If the patient was initially managed with an antibacterial agent, the clinician should change the agents.

B. Management of Otitis Media with Effusion

Recommendations and options were developed for the diagnosis and management of otitis media with effusion in otherwise healthy young children.

- Suspect otitis media with effusion in young children. Most children have at least one episode of otitis media with effusion before entering school. Otitis media with effusion may be identified following an acute episode of otitis media, or it may be an incidental finding.
- Use pneumatic otoscopy to assess middle ear status. Recommended for assessment of the middle ear because it combines visualization of the tympanic membrane (otoscopy) with a test of membrane mobility (pneumatic otoscopy). When pneumatic otoscopy is performed by an experienced examiner, the accuracy for diagnosis of otitis media with effusion may be between 70% and 79%.
- Tympanometry may be performed to confirm suspected otitis media with effusion. Because the strengths of Tympanometry (it provides a quantitative measure of tympanic membrane mobility) and pneumatic otoscopy (many abnormalities of the eardrum and ear canal that can skew the results of tympanometry are visualized) offset the weaknesses of each, using the two tests together improves the accuracy of diagnosis.
- A child who has had fluid in both middle ears for a total of 3 months should undergo hearing evaluation. Before 3 months of effusion, hearing evaluation is an option.
CAREFUL ANTIBIOTIC USE

Otitis media with effusion does not require antibiotic treatment
Acute otitis media does not always require antibiotic treatment

OTITIS MEDIA
Differentiating Acute Otitis Media (AOM) from Otitis Media with Effusion (OME):
A tool for promoting appropriate antibiotic use.

Always use pneumatic otoscopy or tympanometry to confirm middle ear effusion

No effusion
Not OME or AOM

Yes effusion present

Signs or symptoms of AOM including ear pain, fever, and bulging yellow or red TM

Yes

AOM
- History of acute onset of signs and symptoms WITH
- The presence of middle ear effusion (indicated by bulging of the TM or limited/absent TM mobility or otitis media or air-fluid level) WITH
- Signs or symptoms of middle-ear inflammation (indicated by distinct erythema of the TM or distinct otitis)

TREATMENT
Management should include assessment of pain; if pain is present, clinician should recommend treatment to reduce pain.

Age | Certain Diagnosis | Uncertain Diagnosis
--- | --- | ---
< 6 mo | Antibacterial therapy | Antibacterial therapy
6 mo to 2 y | Antibacterial therapy | Antibacterial therapy if severe illness; observation option if nonsevere illness
≥ 2 y | Antibacterial therapy if severe illness; observation option if nonsevere illness | Observation option

OME
- Presence of effusion (including immobility of the tympanic membrane) WITHOUT
- Signs or symptoms of acute infection. Nonspecific signs and symptoms (rhinitis, cough, diarrhea) are often present.

TREATMENT
Antibiotic treatment has not been demonstrated to be effective in long-term resolution of OME. A single course of treatment for 10-14 days may be used when a parent or caregiver expresses a strong aversion to impending surgery.

Share this algorithm with parents. Explain when the risks of using antibiotics outweigh the benefits.

Avoiding unnecessary treatment of OME would save up to 6.8 million courses of antibiotics each year.

References:
VII. Parent Education /Counseling

Please discuss items below with your patients
(recommended handout from CDC: Middle Ear Fluid in Young Children Otitis Media with Effusion, http://www.cdc.gov/GetSmart/campaign-materials/print-materials/Factsheet-FluidMiddleEar-color.pdf

Information can also be obtained though Centricity Handouts. Ear Infection: Pediatrics Otitis Media.

1. Definition and description of otitis media- Inflammation of area behind the eardrum. The inflammation occurs as a result of a middle ear infection, and can occur in one or both ears. In children, the eustachian tube is shorter than in adults and allows bacteria and viruses to find their way into the middle ear. This results in acute otitis media. The pressure and inflammation, which builds-up within the middle ear results in pain and the inability of the eardrum to vibrate. During the infection it is not uncommon to note some hearing loss. Acute otitis media is a common childhood ailment. Many children experience 2-3 episodes of otitis media by the age of three.

2. Otitis media with effusion - is characterized by fluid in the middle ear without evidence of ear infection.

3. Symptoms of otitis media with effusion - Most common symptom of otitis media with effusion are discomfort with behavior changes.

4. What to expect at the doctors examination-
   - Examination of the ears by otoscope
   - Other tests that may be performed are pneumatic otoscopy (used to check the back of the middle ear as well as test how well the membrane vibrates) and tympanometry (measures the air pressure in the middle ear which will tell how well the eustachian tube is functioning). These two tests will help the doctor determine a course of treatment.

5. Environmental Risk Factors- Scientific evidence shows that the following environmental factors may increase the potential risks of getting otitis media with effusion:
   - Bottle-feeding rather than breast feeding infants
   - Passive smoking (exposure to another persons’ cigarette smoke)
   - Group child care facility attendance
   - Having infant drink from bottle while lying flat

6. How we treat otitis media - Observation or medications are options that need to be discussed with your parents for treatment of otitis media with effusion.

   \[\Rightarrow\] In most cases otitis media with effusion goes away by itself.
References:


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