

Guideline-Based Pediatric Otolaryngology care for the Family Physician

Joshua Gurberg MDCM, FRCSC

Assistant Professor of
Otolaryngology and Pediatric
Surgery, McGill University
Pediatric Otolaryngologist,
Montreal Children's Hospital



Annual refresher
course for family
physicians
Nov 30 2021

Conflict of interest statement

- Nothing to disclose





Clinical Practice Guideline

Clinical Practice Guideline: Otitis Media with Effusion (Update)

American Academy
of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™

CLINICAL PRACTICE GUIDELINE
The Diagnosis and Management of Acute Otitis Media

American Academy
of Pediatrics



DEDICATED TO THE HEALTH OF ALL CHILDREN™

Organizational Principles to Guide and Define the Child
Health Care System and/or Improve the Health of all Children

CLINICAL PRACTICE GUIDELINE

The Diagnosis and Management of Acute Otitis Media

Organizational Principles to Guide and Define the Child
Health Care System and/or Improve the Health of all Children

How guidelines work

Table 2. Guideline Definitions for Evidence-Based Statements

Statement	Definition	Implication
Strong recommendation	A strong recommendation means the benefits of the recommended approach clearly exceed the harms (or that the harms clearly exceed the benefits in the case of a strong negative recommendation) and that the quality of the supporting evidence is excellent (Grade A or B). ^a 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 the benefits exceed the harms (or that the harms exceed the benefits in the case of a negative recommendation), but the quality of evidence is not as strong (Grade B or C). ^a 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 generally follow a recommendation but should remain alert to new information and sensitive to patient preferences.
Option	An option means that either the quality of evidence that exists is suspect (Grade D) ^a or that well-done studies (Grade A, B, or C) ^a 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.
No recommendation	No recommendation means there is both a lack of pertinent evidence (Grade D) ^a and an unclear balance between benefits and harms.	Clinicians should feel little constraint in their decision making and be alert to new published evidence that clarifies the balance of benefit versus harm; patient preference should have a substantial influencing role.

Outline



Ears:

Hearing screening
Otitis media with effusion
Recurrent acute otitis media
Pediatric Vertigo

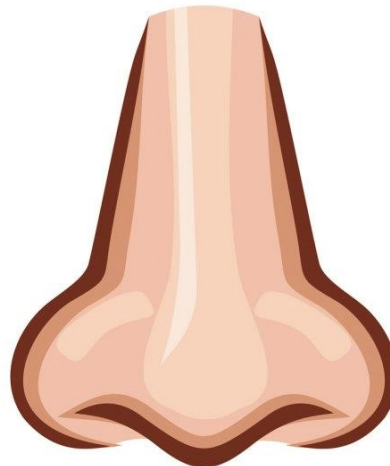


Throat:

Recurrent tonsillitis
Sleep disordered
breathing

Nose:

Acute sinusitis



Ears



Newborn hearing screening



Background

Prevalence of Sensorineural hearing loss (SNHL) in Children

- ❑ Estimates range from 1 per 1000 to 3 per 1000 depending on the degree of hearing loss, making HL one of the most common birth defects.
- ❑ Incidence of significant HL is **10 X** greater for infants with one or more risk factors.
 - ❑ Premature, neonatal infections, family history, etc.
- ❑ Progressive late-onset & acquired HL in children is a continuing challenge.
 - ❑ Prevalence of significant HL is reported at 1.8% in children 3-17 yrs.

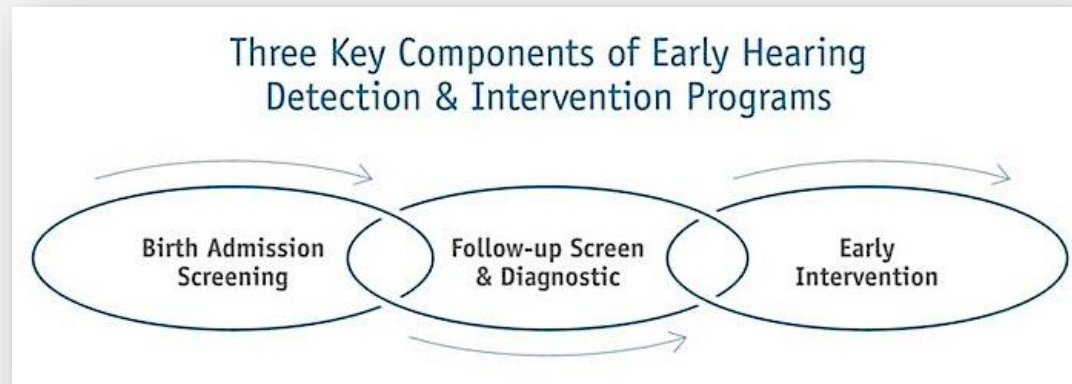


Hearing screening guidelines

- **1973...**
 - JCIH identified risk indicators such as FMHx of HL or congenital perinatal infections and recommended following children w these risk indicators.
- **2000...**
 - **Formal recommendation of Universal Neonatal Hearing Screen before hospital discharge.**
 - Also promoted a system known as the 1, 3, 6 goals of screening.

1, 3, 6 goals of screening

- 1, 3, 6 goals of screening
 - 1 → using physiologic measure before age 1 mo to screen for HL
 - 3 → Confirmation & characterization of HL by 3 mo
 - 6 → Family-centered intervention by 6 mo



What about later in childhood?

- Have a **LOW THRESHOLD** to test hearing!
- Clues:
 - Risk factors: take an otologic risk history
 - Family history of early hearing loss, NICU, kernicterus, TORCH, meningitis, ototoxic medications, recurrent AOM, noise exposure, prior otologic surgery, head trauma
 - Not meeting language milestones
 - Any parental concern!
- We can test children at any age.

Expressive Language (Speech)

- | | |
|--------------|--|
| By 3 Months | <ul style="list-style-type: none">□ Maintains eye contact when spoken to□ Cries differently for different needs, e.g. hungry vs. tired□ Coos, goos, and smiles |
| By 6 Months | <ul style="list-style-type: none">□ Begins babbling with p, b, and m sounds□ Vocalizes to gain attention and express feelings□ Uses and produces different kinds of sounds |
| By 9 Months | <ul style="list-style-type: none">□ Produces 4+ sounds in babbling□ Participates in vocal turn taking□ Begins using hand movements to communicate wants and needs e.g. reaches to be picked up |
| By 12 Months | <ul style="list-style-type: none">□ Says one or two words, e.g. "mama", "dada", "bye-bye"□ Imitates speech sounds□ Produces jargon: strings of speech-like babbling |
| By 15 Months | <ul style="list-style-type: none">□ May use 4-6 different words□ Imitates simple familiar words and sounds□ Combines sounds and gestures |
| By 18 Months | <ul style="list-style-type: none">□ Uses 20 words (mostly nouns)□ Responds to questions□ Continues to produce jargon |
| By 21 Months | <ul style="list-style-type: none">□ Uses words more than gestures□ Consistently imitates new words□ Vocabulary of 20-50 single words |
| By 24 Months | <ul style="list-style-type: none">□ Uses at least 50 words□ Beginning to use 2-word phrases□ Uses early pronouns (me, you, my) |
| By 30 Months | <ul style="list-style-type: none">□ Consistently uses 2-3 word phrases□ Produces direction words (in, on)□ At least 50% of speech is understood by caregiver |
| By 36 Months | <ul style="list-style-type: none">□ Produces 4-5 word sentences□ Uses plurals, e.g. "dogs"□ Most speech is understood by caregiver |

Otitis media with effusion

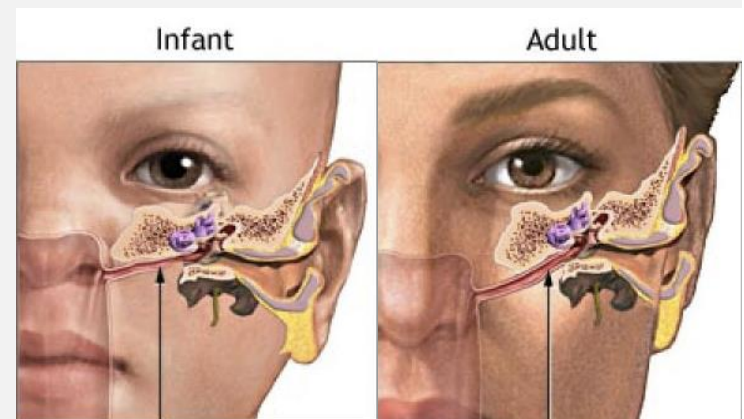
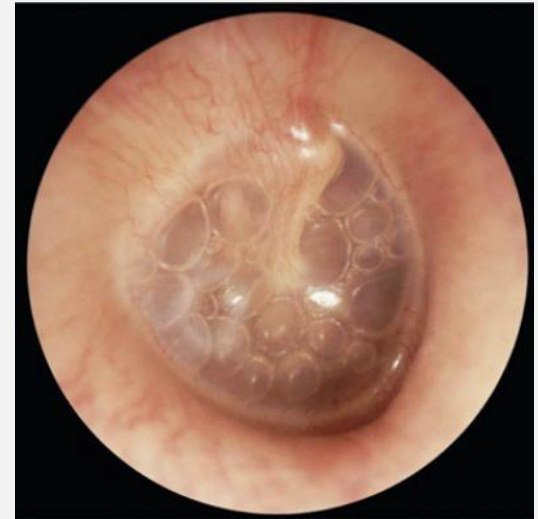
Clinical Practice Guideline

Clinical Practice Guideline: Otitis Media with Effusion (Update)

Richard M. Rosenfeld, MD, MPH¹, Jennifer J. Shin, MD, SM², Seth R. Schwartz, MD, MPH³, Robyn Coggins, MFA⁴, Lisa Gagnon, MSN, CPNP⁵, Jesse M. Hackell, MD⁶, David Hoelting, MD⁷, Lisa L. Hunter, PhD⁸, Ann W. Kummer, PhD, CCC-SLP⁹, Spencer C. Payne, MD⁹, Dennis S. Poe, MD, PhD¹⁰, Maria Veling, MD¹¹, Peter M. Vila, MD, MSPH¹², Sandra A. Walsh¹³, and Maureen D. Corrigan¹⁴

Otitis media with effusion background

- Definition = presence of fluid in the middle ear without signs or symptoms of acute ear infection
- “occupational hazard of early childhood”
 - > 90% of children develop OME prior to school age
 - average of 4 episodes of OME per year
- Risk factors
 - Eustachian tube dysfunction
 - URTI
 - Trisomy 21
 - Cleft palate
- Most episodes of OME resolve spontaneously in < 3 months



Otitis media with effusion background

- 30% to 40% of children have repeated OME episodes and 5% to 10% of episodes last 1 year
- Consequences
 - hearing loss, balance problems, poor school performance, behavioral problems, ear discomfort, recurrent AOM, reduced QOL

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
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 child less than 4 years old; adenoidectomy should not be performed unless a distinct indication (eg, nasal obstruction, chronic adenoiditis) exists other than OME.	Recommendation
12b. Surgery for children ≥ 4 y old	Clinicians should recommend tympanostomy tubes, adenoidectomy, or both when surgery is performed for OME in a child 4 years old or older.	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

Diagnosis

Ia. 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

Ib. Pneumatic otoscopy

The clinician should perform pneumatic otoscopy to assess for OME in a child with otalgia, hearing loss, or both.

Strong recommendation



Failed newborn hearing screening

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

Table 8. Frequently Asked Questions: Ear Fluid and Newborn Hearing Screening.

Question	Suggested Response
How many babies who fail their newborn hearing screen will really have hearing loss?	Only a very small number of babies who fail will have permanent hearing loss; overall, only about 2 or 3 of every 1000 children in the US are born deaf or hard of hearing.
How common is middle ear fluid in children who fail a hearing screen?	Middle ear fluid is a very common cause of a failed newborn hearing screen and is found in about 6 of every 10 children who fail. The fluid will often go away on its own in the first few months of life, but if it does not, it may require help from a doctor to remove it.
Can I assume that middle ear fluid is the reason for the failed test?	No. The newborn hearing screen cannot determine the cause of hearing loss. About 90% of the time, hearing loss goes away when the fluid does, but 10% of children may still have hearing loss that needs further medical attention. For this reason, it is very important to retest your child's hearing after fluid is gone.
If my child gets ear tubes, how long will it take before the fluid's effect on hearing goes away?	For about 70% of children, hearing loss caused by fluid will go away right after the tubes are in place; however, for about 30% of children, it could take up to several months before hearing improves. So if your child still has some hearing loss after getting tubes, keep in mind that hearing could still improve over time.
Are some babies more likely than others to have problems with middle ear fluid?	Middle ear fluid is more common in children with an abnormal roof of the mouth (called "cleft palate"), those with atypical face shape or skull bones, or those who have certain inherited (genetic) problems.
If my baby seems to hear normally, can the tests be wrong?	Parent assessment of child hearing is not always accurate, so it is important to have the child's hearing professionally tested. Just because a baby reacts to sounds does not mean that the child has full range of hearing; a baby may hear certain sounds but not others. Only a professional hearing test that checks each ear separately can accurately tell how your child hears.

At risk children

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

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

Screening healthy children

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)

Patient education

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 9. Frequently Asked Questions: Treating and Managing Ear Fluid.

Question	Answer
What is ear fluid?	Ear fluid, also called otitis media with effusion, is a buildup of mucus or liquid behind the ear drum without symptoms of infection.
Is it possible that the ear fluid will just go away on its own?	Fluid often goes away on its own, so your doctor will often recommend watchful waiting for the first 3 mo. Be sure to follow up with your doctor to make sure that the fluid goes away completely.
Does it matter how long the fluid has been there?	The fluid is most likely to go away quickly if it has been there <3 mo or has a known start time, such as that after a cold or ear infection. Fluid is much more likely to persist when it has been there for at least 3 mo or when it is found during a regular checkup visit and the start date is unknown.
How might the ear fluid affect my child?	The most common symptoms of ear fluid are mild discomfort, fullness in the ear, and mild hearing problems. Some children also have disturbed sleep, emotional distress, delayed speech, irritability, clumsiness, balance problems, or trouble learning in school.
What can I do at home to help the fluid go away?	Keep your child away from secondhand smoke, especially in closed spaces, such as the car or inside of the house. If your child is >12 mo old and still uses a pacifier, stopping the pacifier in the daytime may help the fluid go away.
Will medications or other therapies help the fluid go away?	Medical treatment does not work well, so you should <i>not</i> give your child antibiotics, antihistamines, decongestants, steroids (by mouth or in the nose), or drugs to reduce acid reflux. No benefits have ever been shown for chiropractic therapy, special diets, herbal remedies, complementary medicine, or alternative (natural) therapies.
Do I still need to follow up with my doctor, even if my child seems fine?	Yes, because the fluid may still be there and could later cause problems. Fluid that lasts a long time can damage the ear and require surgery. Also, young children often do not express themselves well, even when struggling with hearing problems or other issues related to the fluid. The best way to prevent problems is to see the doctor every 3 to 6 mo until the fluid goes away.
Does the fluid cause hearing loss?	The fluid can make it harder for your child to hear, especially in a group setting or with background noise, but the effect is usually small and goes away when the fluid clears up.
How can I help my child hear better?	Stand or sit close to your child when you speak and be sure to let him or her see your face. Speak very clearly, and if your child does not understand something, repeat it. Hearing difficulties can be frustrating for your child, so be patient and understanding. See Table 11 for specific strategies.
Will the fluid turn into an ear infection?	The fluid cannot directly turn into an ear infection, but during a cold it increases your child's risk of getting an ear infection because the fluid makes it easier for germs to grow and spread.
Can my child travel by airplane if ear fluid is present?	If the ear is completely full of fluid, there is usually no problem, but when the fluid is partial or mixed with air, it can hurt when the plane is coming down. Your doctor can measure the amount of fluid with a tympanogram, which gives a flat reading when the ear is full. It may help to keep your child awake when the plane is landing and to encourage him or her to swallow to even out the pressure.

Treatment



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)

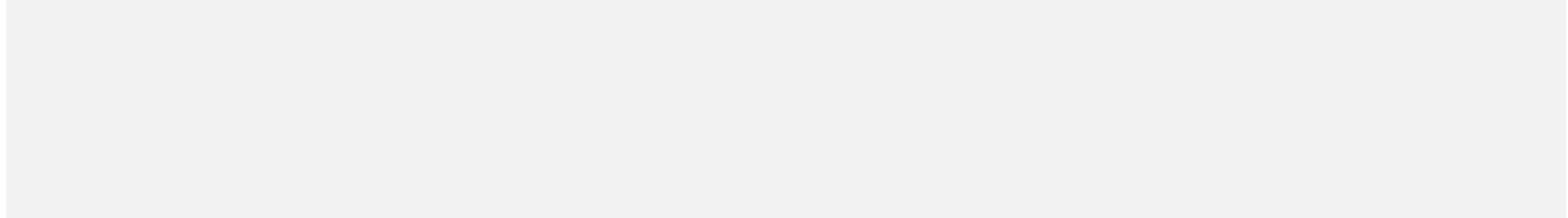
8c. Antihistamines or decongestants

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

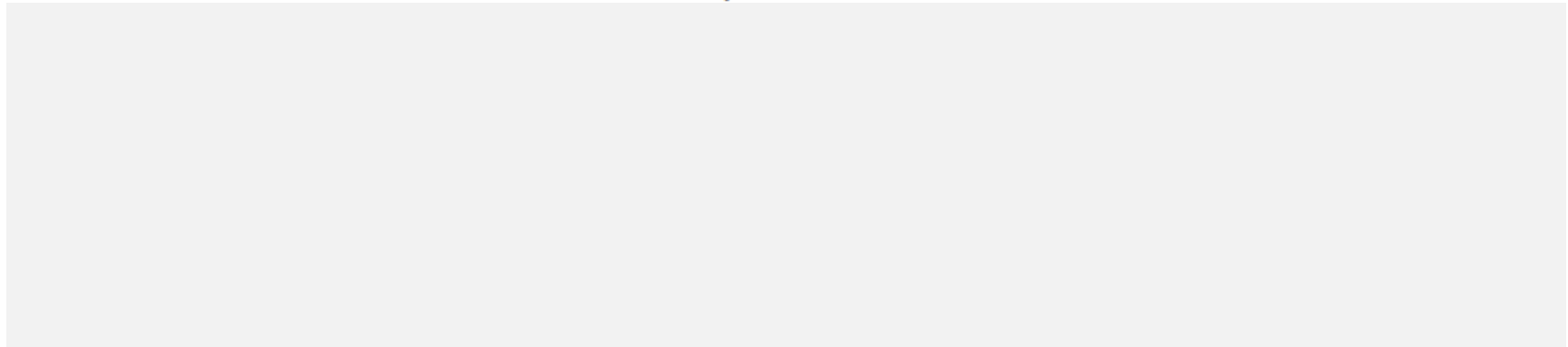
Strong recommendation (against)



Surveillance for hearing loss



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



Surgery

12a. Surgery for children <4 y old

Clinicians should recommend tympanostomy tubes when surgery is performed for OME in a *child less than 4 years old*; adenoidectomy should not be performed unless a distinct indication (eg, nasal obstruction, chronic adenoiditis) exists other than OME.

Recommendation

12b. Surgery for children ≥ 4 y old

Clinicians should recommend tympanostomy tubes, adenoidectomy, or both when surgery is performed for OME in a *child 4 years old or older*.

Recommendation



Outcome assessment

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





CLINICAL PRACTICE GUIDELINE

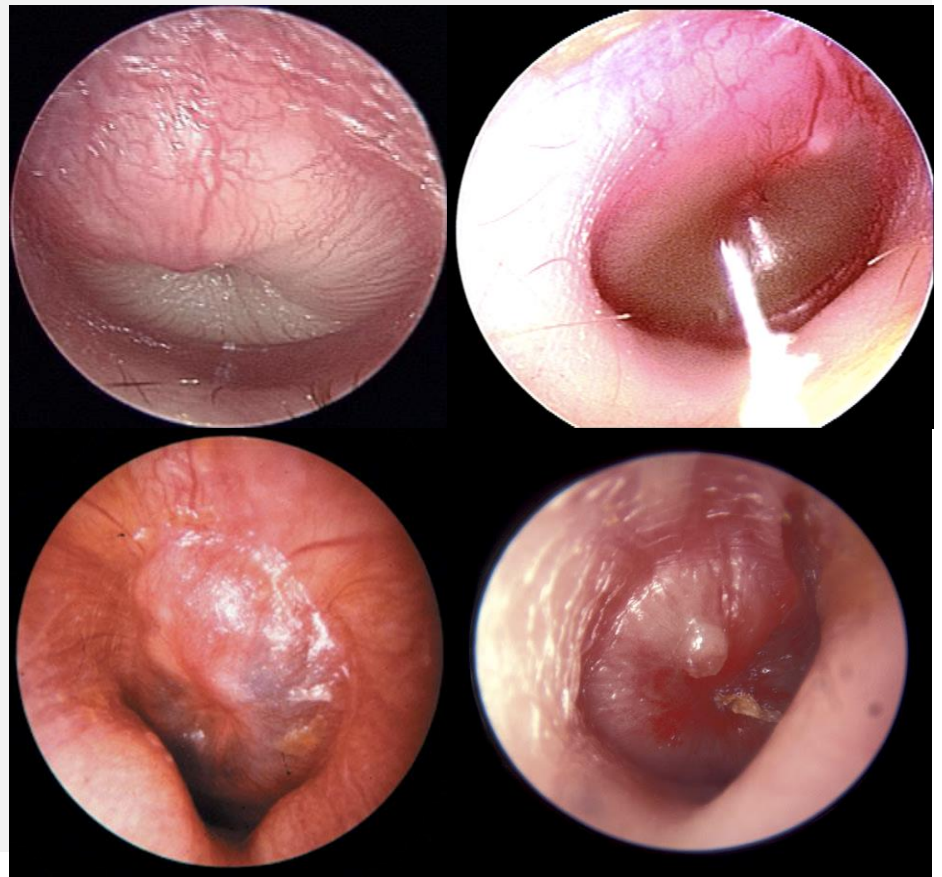
The Diagnosis and Management of Acute Otitis Media

Acute otitis media diagnosis

- Key action statement 1A
 - Clinicians should diagnose AOM in children who present with moderate to severe bulging of the TM or new onset of otorrhea not due to acute otitis externa
- Key action statement 1B
 - Clinicians should diagnose AOM in children who present with mild bulging of the TM and recent (less than 48 hours) onset of ear pain (holding, tugging, rubbing of the ear in a nonverbal child) or intense erythema of the TM.
- Key action statement 1C
 - Clinicians should not diagnose AOM in children who do not have a middle ear effusion

Acute otitis media diagnosis

- AOM = middle ear fluid + middle ear INFLAMMATION



Treatment - supportive

- Key action statement 2
 - The management of AOM should include an assessment of pain. If pain is present, the clinician should recommend treatment to reduce pain.





Treatment - antibiotics

- Key action statements 3 A,B,C,D

TABLE 4 Recommendations for Initial Management for Uncomplicated AOM^a

Age	Otorrhea With AOM ^a	Unilateral or Bilateral AOM ^a With Severe Symptoms ^b	Bilateral AOM ^a Without Otorrhea	Unilateral AOM ^a Without Otorrhea
6 mo to 2 y	Antibiotic therapy	Antibiotic therapy	Antibiotic therapy	Antibiotic therapy or additional observation
≥2 y	Antibiotic therapy	Antibiotic therapy	Antibiotic therapy or additional observation	Antibiotic therapy or additional observation ^c

^a Applies only to children with well-documented AOM with high certainty of diagnosis (see Diagnosis section).

^b A toxic-appearing child, persistent otalgia more than 48 h, temperature $\geq 39^{\circ}\text{C}$ (102.2°F) in the past 48 h, or if there is uncertain access to follow-up after the visit.

^c This plan of initial management provides an opportunity for shared decision-making with the child's family for those categories appropriate for additional observation. If observation is offered, a mechanism must be in place to ensure follow-up and begin antibiotics if the child worsens or fails to improve within 48 to 72 h of AOM onset.

Treatment – antibiotic choice

- Statement 4A
 - Clinicians should prescribe amoxicillin for AOM when a decision to treat with antibiotics has been made and the child has not received amoxicillin in the past 30 days or the child does not have concurrent purulent conjunctivitis or the child is not allergic to penicillin.
- Statement 4B
 - Clinicians should prescribe an antibiotic with additional β -lactamase coverage for AOM when a decision to treat with antibiotics has been made and the child has received amoxicillin in the past 30 days or has concurrent purulent conjunctivitis or has a history of recurrent AOM unresponsive to amoxicillin
- Statement 4C
 - Clinicians should reassess the patient if the caregiver reports that the child's symptoms have worsened or failed to respond to the initial antibiotic treatment within 48 to 72 hours and determine whether a change in therapy is needed.

Antibiotic choice

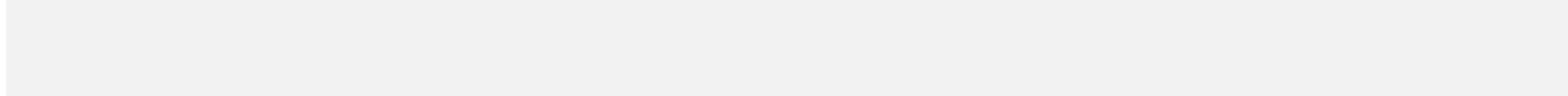


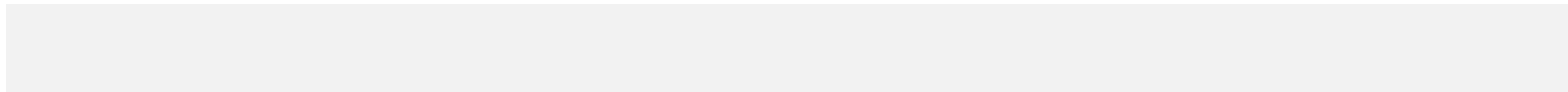
TABLE 5 Recommended Antibiotics for (Initial or Delayed) Treatment and for Patients Who Have Failed Initial Antibiotic Treatment

Initial Immediate or Delayed Antibiotic Treatment		Antibiotic Treatment After 48–72 h of Failure of Initial Antibiotic Treatment	
Recommended First-line Treatment	Alternative Treatment (if Penicillin Allergy)	Recommended First-line Treatment	Alternative Treatment
Amoxicillin (80–90 mg/kg per day in 2 divided doses)	Cefdinir (14 mg/kg per day in 1 or 2 doses)	Amoxicillin-clavulanate ^a (90 mg/kg per day of amoxicillin, with 6.4 mg/kg per day of clavulanate in 2 divided doses)	Ceftriaxone, 3 d Clindamycin (30–40 mg/kg per day in 3 divided doses), with or without third-generation cephalosporin Failure of second antibiotic
or	Cefuroxime (30 mg/kg per day in 2 divided doses)	or	
Amoxicillin-clavulanate ^a (90 mg/kg per day of amoxicillin, with 6.4 mg/kg per day of clavulanate [amoxicillin to clavulanate ratio, 14:1] in 2 divided doses)	Cefpodoxime (10 mg/kg per day in 2 divided doses)	Ceftriaxone (50 mg IM or IV for 3 d)	Clindamycin (30–40 mg/kg per day in 3 divided doses) plus third-generation cephalosporin Tympanocentesis ^b Consult specialist ^b
	Ceftriaxone (50 mg IM or IV per day for 1 or 3 d)		

IM, intramuscular; IV, intravenous.

^a May be considered in patients who have received amoxicillin in the previous 30 d or who have the otitis-conjunctivitis syndrome.

^b Perform tympanocentesis/drainage if skilled in the procedure, or seek a consultation from an otolaryngologist for tympanocentesis/drainage. If the tympanocentesis reveals multidrug-resistant bacteria, seek an infectious disease specialist consultation.



Recurrent acute otitis media



- Statement 5A
 - Clinicians should NOT prescribe prophylactic antibiotics to reduce the frequency of episodes of AOM in children with recurrent AOM.
- Statement 5B
 - Clinicians may offer tympanostomy tubes for recurrent AOM (3 episodes in 6 months or 4 episodes in 1 year, with 1 episode in the preceding 6 months).

Prevention

- Statement 6A
 - Clinicians should recommend pneumococcal conjugate vaccine to all children according to the schedule of the Advisory Committee on Immunization Practices, AAP, and AAFP
- Statement 6B
 - Clinicians should recommend annual influenza vaccine to all children according to the schedule of the Advisory Committee on Immunization Practices, AAP, and AAFP
- Statement 6C
 - Clinicians should encourage exclusive breastfeeding for at least 6 months.

Nose





CLINICAL PRACTICE GUIDELINE

Clinical Practice Guideline for the Diagnosis and Management of Acute Bacterial Sinusitis in Children Aged 1 to 18 Years

Diagnosis

- Key Action Statement 1
 - Clinicians should make a presumptive diagnosis of acute bacterial sinusitis when a child with an acute URI presents with the following:
 - Persistent illness, ie, nasal discharge (of any quality) or daytime cough or both lasting more than 10 days without improvement; OR
 - Worsening course, ie, worsening or new onset of nasal discharge, daytime cough, or fever after initial improvement; OR
 - Severe onset, ie, concurrent fever temperature $\geq 39^{\circ}\text{C}/102.2^{\circ}\text{F}$) and purulent nasal discharge for at least 3 consecutive days

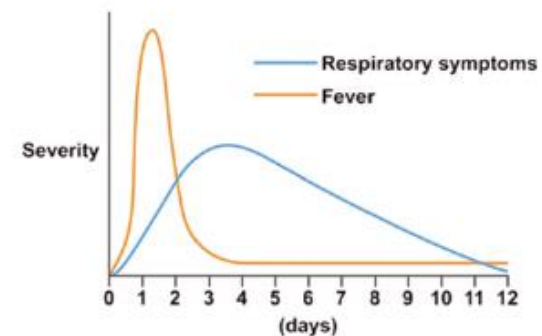
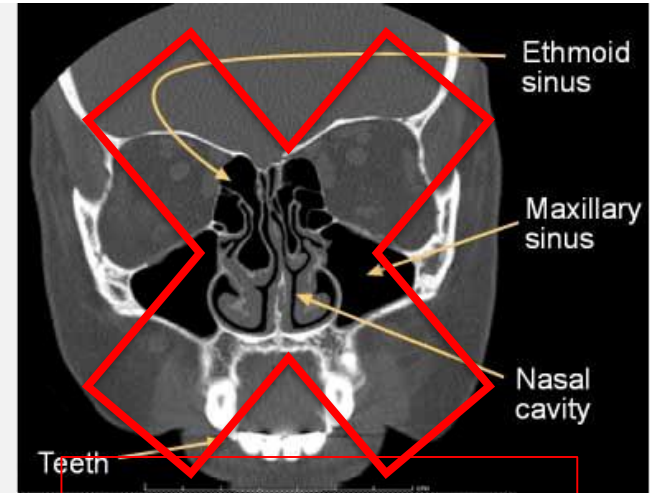


FIGURE 2
Uncomplicated viral URI.

Imaging

- Statement 2A
 - Clinicians should not obtain imaging studies (plain films, contrast-enhanced computed tomography [CT], MRI, or ultrasonography) to distinguish acute bacterial sinusitis from viral URI
- Statement 2B
 - Clinicians should obtain a contrast-enhanced CT scan of the paranasal sinuses and/or an MRI with contrast whenever a child is suspected of having orbital or central nervous system complications of acute bacterial sinusitis



Unless



Antibiotics



- Statement 3A – **Severe onset or worsening course**
 - The clinician should prescribe antibiotic therapy for acute bacterial sinusitis in children with severe onset or worsening course (signs, symptoms, or both)
- Statement 3B – **Persistent symptoms**
 - The clinician should either prescribe antibiotic therapy OR offer additional outpatient observation for 3 days to children with persistent illness (nasal discharge of any quality or cough or both for at least 10 days without evidence of improvement)

Antibiotic choice

- Statement 4
 - Clinicians should prescribe amoxicillin with or without clavulanate as first-line treatment when a decision has been made to initiate antibiotic treatment of acute bacterial sinusitis

Reassess symptoms

- Statement 5A
 - Clinicians should reassess initial management if there is either a caregiver report of worsening (progression of initial signs/symptoms or appearance of new signs/symptoms) OR failure to improve (lack of reduction in all presenting signs/symptoms) **within 72 hours** of initial management
- Statement 5B
 - If the diagnosis of acute bacterial sinusitis is confirmed in a child with worsening symptoms or failure to improve in 72 hours, then clinicians may change the antibiotic therapy for the child initially managed with antibiotic OR initiate antibiotic treatment of the child initially managed with observation

Therapy escalation

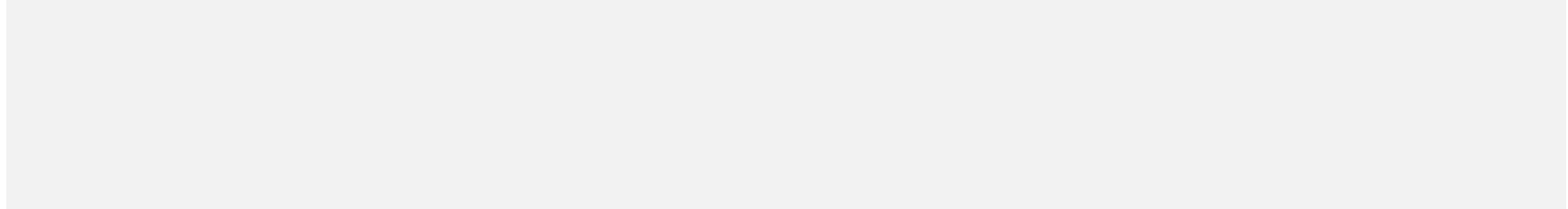
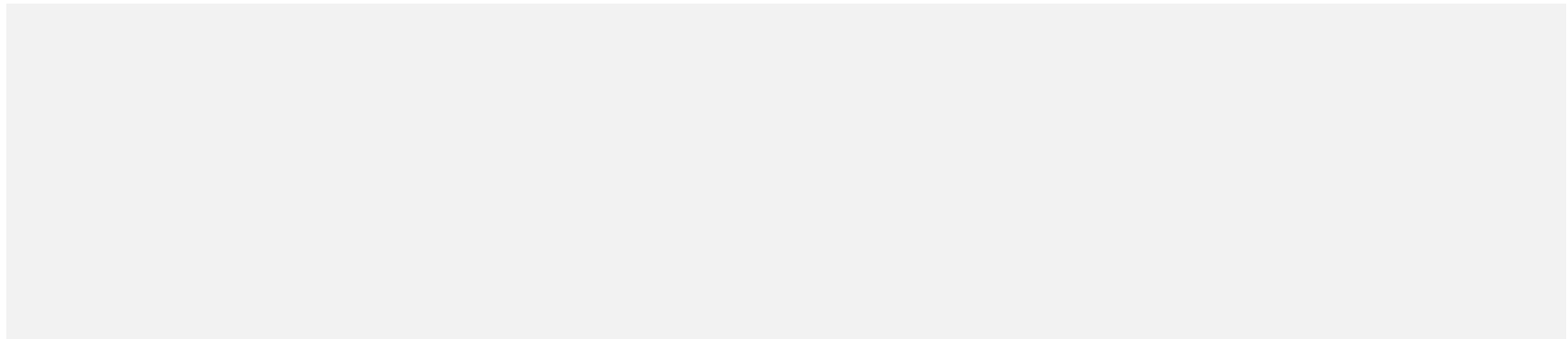


TABLE 4 Management of Worsening or Lack of Improvement at 72 Hours

Initial Management	Worse in 72 Hours	Lack of Improvement in 72 Hours
Observation	Initiate amoxicillin with or without clavulanate	Additional observation or initiate antibiotic based on shared decision-making
Amoxicillin	High-dose amoxicillin-clavulanate	Additional observation or high-dose amoxicillin-clavulanate based on shared decision-making
High-dose amoxicillin-clavulanate	Clindamycin ^a and cefixime OR linezolid and cefixime OR levofloxacin	Continued high-dose amoxicillin-clavulanate OR clindamycin ^a and cefixime OR linezolid and cefixime OR levofloxacin

^a Clindamycin is recommended to cover penicillin-resistant *S pneumoniae*. Some communities have high levels of clindamycin-resistant *S pneumoniae*. In these communities, linezolid is preferred.



Throat



Clinical Practice Guideline: Tonsillectomy in Children

**Reginald F. Baugh, MD¹, Sanford M. Archer, MD²,
Ron B. Mitchell, MD³, Richard M. Rosenfeld, MD, MPH⁴,
Raouf Amin, MD⁵, James J. Burns, MD⁶, David H. Darrow, MD, DDS⁷,
Terri Giordano, MSN, CRNP, CORLN⁸, Ronald S. Litman, DO⁹,
Kasey K. Li, MD, DDS¹⁰, Mary Ellen Mannix, MRPE¹¹,
Richard H. Schwartz, MD¹², Gavin Setzen, MD¹³,
Ellen R. Wald, MD¹⁴, Eric Wall, MD, MPH¹⁵,
Gemma Sandberg, MA¹⁶, and Miles M. Patel, MS¹⁷**



AMERICAN ACADEMY OF
OTOLARYNGOLOGY—
HEAD AND NECK SURGERY

F O U N D A T I O N

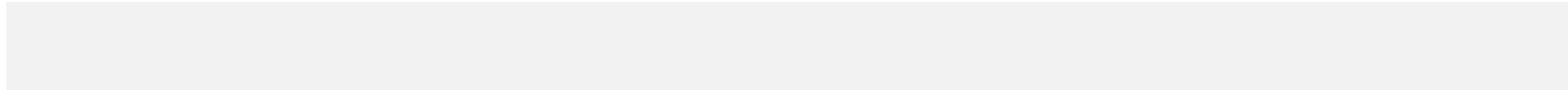
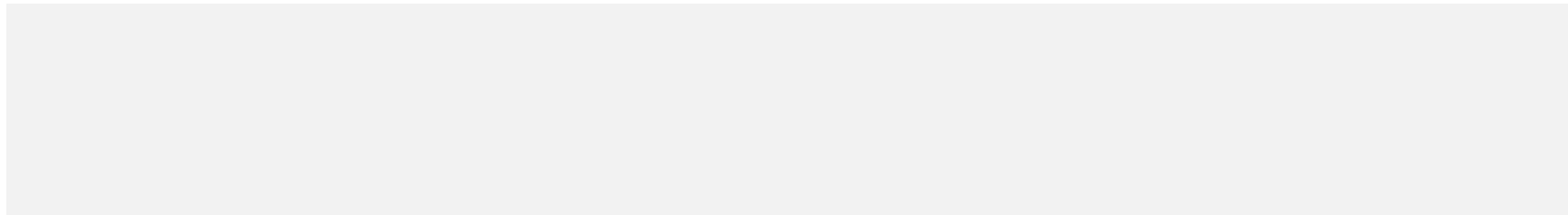


Table 4. Summary of Evidence-Based Statements

Point of Care (Evidence-Based Statement)	Statement Strength
Surgical indications and planning	
Watchful waiting (Statement 1)	Recommendation
Recurrent throat infection with documentation (Statement 2)	Option
Tonsillectomy for recurrent infection with modifying factors (Statement 3)	Recommendation
Tonsillectomy for sleep-disordered breathing (Statement 4)	Recommendation
Tonsillectomy and polysomnography (Statement 5)	Recommendation
Outcome assessment for sleep-disordered breathing (Statement 6)	Recommendation
Perioperative care	
Steroids (Statement 7)	Strong recommendation
Antibiotics (Statement 8)	Strong recommendation against
Postoperative care	
Pain control (Statement 9)	Recommendation
Posttonsillectomy hemorrhage (Statement 10)	Recommendation



Background

- Recurrent tonsillitis
 - Throat infections are a common reason to see a primary care physician and often result in antibiotic treatment

Background

- Sleep disordered breathing
 - Children with SDB, compared with controls, have a significantly higher rate of antibiotic use, 40% more hospital visits, and an overall elevation of 215% in healthcare usage
 - SDB represents a spectrum of disorders ranging in severity from primary snoring to OSA.
 - The prevalence of OSA in the pediatric population is 1% to 4%; as many as 10% of children have primary snoring.
 - Up to 30% to 40% of children with clinically diagnosed SDB exhibit behavioral problems that include enuresis, hyperactivity, aggression, anxiety, depression, and somatization.²⁹ OSA is also associated with poor school performance and a decrease in QoL
 - QoL of children with OSA is similar to children with chronic conditions such as asthma and juvenile rheumatoid arthritis

Statements 1 + 2



- Watchful waiting for recurrent throat infection

Table 5. Paradise Criteria for Tonsillectomy³¹

Criterion	Definition
Minimum frequency of sore throat episodes	7 or more episodes in the preceding year, OR 5 or more episodes in each of the preceding 2 y, OR 3 or more episodes in each of the preceding 3 y
Clinical features (sore throat plus the presence of one or more qualifies as a counting episode)	Temperature > 38.3°C, OR Cervical lymphadenopathy (tender lymph nodes or >2 cm), OR Tonsillar exudate, OR Positive culture for group A β -hemolytic streptococcus
Treatment	Antibiotics had been administered in conventional dosage for proved or suspected streptococcal episodes
Documentation	Each episode and its qualifying features had been substantiated by contemporaneous notation in a clinical record, OR <i>If not fully documented</i> , subsequent observance by the clinician of 2 episodes of throat infection with patterns of frequency and clinical features consistent with the initial history ^a

+ 1 of

^aThis last statement allows children who meet all other criteria for tonsillectomy except documentation to nonetheless qualify for surgery if the same pattern of reported illness is observed and documented by the clinician in 2 subsequent episodes. Because of this tendency to improve with time, a 12-month period of observation is usually recommended prior to consideration of tonsillectomy as an intervention.

Statement 3

STATEMENT 3. TONSILLECTOMY FOR RECURRENT INFECTION WITH MODIFYING FACTORS: Clinicians should assess the child with recurrent throat infection who does not meet criteria in Statement 2 for modifying factors that may nonetheless favor tonsillectomy, which may include but are not limited to multiple antibiotic allergy/intolerance, PFAPA (periodic fever, aphthous stomatitis, pharyngitis, and adenitis), or history of peritonsillar abscess. *Recommendation based on randomized controlled trials and observational studies with a preponderance of benefit over harm.*

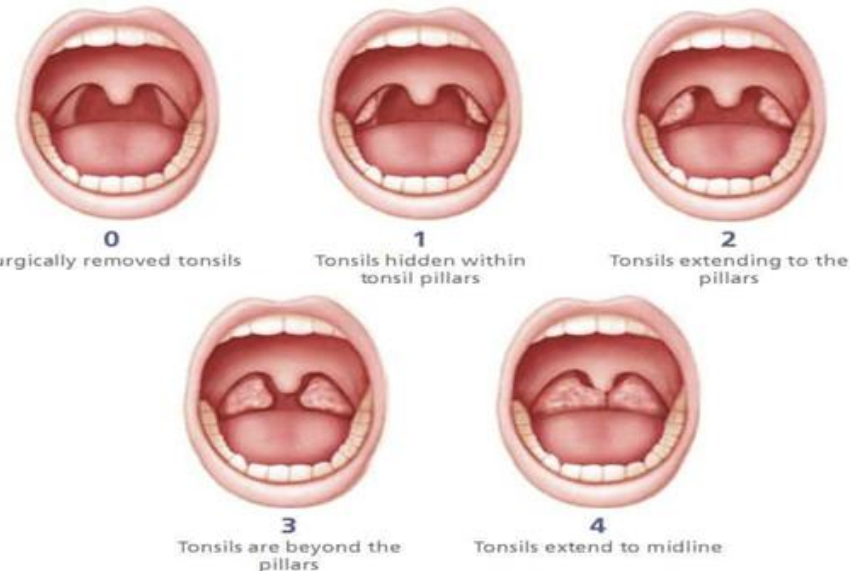
Statement 4

STATEMENT 4. TONSILLECTOMY FOR SLEEP-DISORDERED BREATHING: Clinicians should ask caregivers of children with sleep-disordered breathing and tonsil hypertrophy about comorbid conditions that might improve after tonsillectomy, including growth retardation, poor school performance, enuresis, and behavioral problems. *Recommendation based on observational before-and-after studies with a preponderance of benefit over harm.*

Tonsil grading

Table 6. Gradation of Tonsillar Enlargement⁹⁰

Grade	Definition	Description
0	Not visible	Tonsils do not reach tonsillar pillars
1+	Less than 25%	Tonsils fill less than 25% of the transverse oropharyngeal space measured between the anterior tonsillar pillars
2+	25% to 49%	Tonsils fill less than 50% of the transverse oropharyngeal space
3+	50%-74%	Tonsils fill less than 75% of the transverse oropharyngeal space
4+	75% or more	Tonsils fill 75% or more than the transverse oropharyngeal space

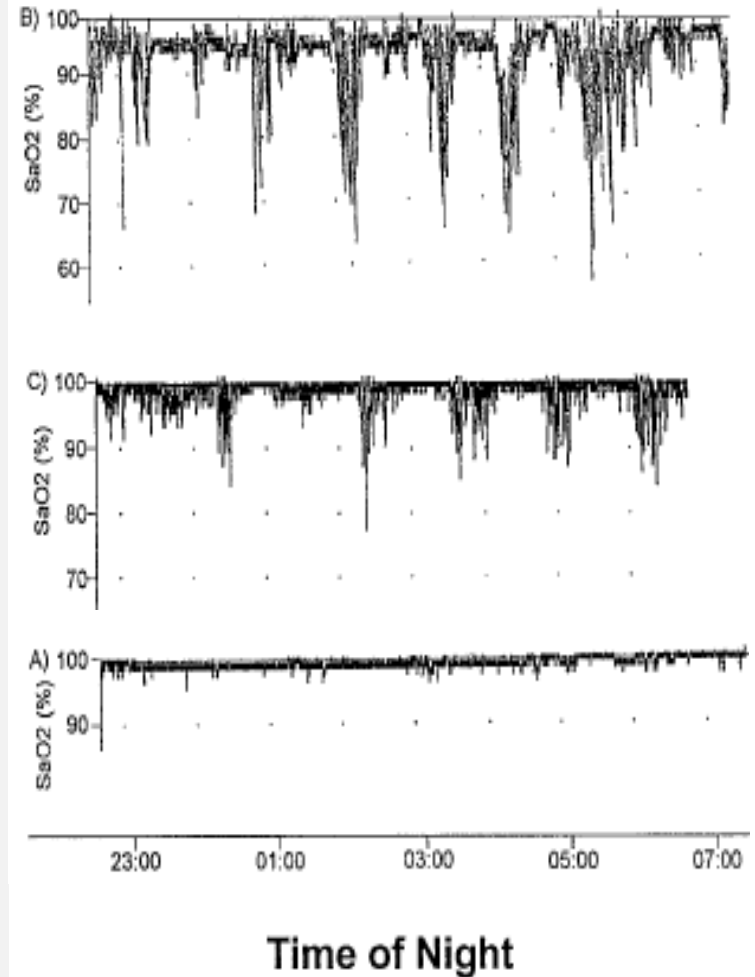


Statement 5

STATEMENT 5. TONSILLECTOMY AND POLYSOMNOGRAPHY: Clinicians should counsel caregivers about tonsillectomy as a means to improve health in children with abnormal polysomnography who also have tonsil hypertrophy and sleep-disordered breathing. *Recommendation based on observational before-and-after studies with a preponderance of benefit over harm.*

Overnight oximetry

- Restricted access to PSG
- Indications for oximetry
 - SEVERE symptoms – triage
 - Obese/syndromic/craniofacial
 - Symptoms out of proportion to physical examination
 - (rule out OSA)



Statement 6

STATEMENT 6. OUTCOME ASSESSMENT FOR SLEEP-DISORDERED BREATHING: Clinicians should counsel caregivers and explain that SDB may persist or recur after tonsillectomy and may require further management. *Recommendation based on observational studies, case-control and cohort design, with a preponderance of benefit over harm.*

Caregiver counseling

Table 7. Tonsillectomy and Sleep-Disordered Breathing (SDB)
Caregiver Counseling Summary

1. Hypertrophic tonsils may contribute to SDB in children.
2. SDB often is multifactorial.
3. Obesity plays a key role in SDB in some children.
4. PSG is considered the best test for diagnosing and measuring outcomes in children, but it is not necessary in all cases and access may be limited by availability of sleep laboratories and willingness of insurers and third-party payers to cover the cost of testing.
5. Tonsillectomy is effective for control of SDB in 60%-70% of children with significant tonsillar hypertrophy.
6. Tonsillectomy produces resolution of SDB in only 10%-25% of obese children.
7. Caregivers need to be counseled that tonsillectomy is not curative in all cases of SDB in children, especially in children with obesity.



Nasal steroids

- Not discussed in guideline BUT
- Can be extremely effective
- Use for at least 2-3 months consecutively
- Avamys approved in children 2 and older



Key points - ears



- Offer newborn hearing screening to every patient
- If you note OME, repeat exam in 3 months and if persistent order audiology testing
- Antibiotics for AOM if severe symptoms, otorrhea, or bilateral less than 2yr
- No role for prophylactic antibiotics
- 3 episodes of AOM in 6 months or 4 in 1 year with 1 in the previous 6 months → Tubes

Key points – Nose



- Antibiotics for acute sinusitis if severe onset, worsening symptoms, or persistent course
- Refer immediately if suspect complication

Key points - throat



- Tonsillectomy indicated if > 7 infections in 1 year, 5 infections per year for 2 years, or 3 infections per year for 3 years
- Trial of nasal steroids
- Overnight oximetry helpful when indicated

Resources

- AAO-HNS website: www.entnet.org



Thank you