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AAO-HNSF Clinical Practice Guideline: Tympanostomy Tubes in Children

“Ear tubes are the #1 reason children get surgery or anesthesia in the United States. The tympanostomy tube guideline not only helps doctors and parents identify children likely to benefit most from surgery, but importantly identifies those for whom watchful waiting may be a better option.”

—Richard M. Rosenfeld, MD, MPH, chair of the guideline panel

What are tympanostomy tubes and why are they important?

- Insertion of tympanostomy tubes is the *most common outpatient surgery* performed on children in the United States, with *667,000 annual procedures performed on children under the age of 15*. By age 3, nearly 1 in 15 children have tubes.
- Tympanostomy tubes are only about 1/20th of an inch wide and are placed in the eardrum to treat persistent middle ear fluid (effusion), frequent ear infections, or ear infections that persist despite antibiotic therapy.
- Synonyms for tympanostomy tubes include: ventilating tubes, pressure-equalizing tubes, and grommets. Once in place they allow air to circulate in the middle ear and usually fall out on their own after one or two years.
- Despite the frequency of tympanostomy tube surgery, until now there was no evidence-based guideline in the United States to assist doctors in identifying the best surgical candidates and optimizing subsequent care.

Why is the Tympanostomy Tube Guideline important?

- *First – and only – evidence-based guideline in the U.S. on tympanostomy tubes.*
- First guideline to offer clear recommendations on identifying children most likely to benefit from surgery.
- Created by a multidisciplinary panel, including a pediatric and adult otolaryngologist, otologist/neurotologist, anesthesiologist, audiologist, family physician, behavioral pediatrician, pediatrician, speech/language pathologist, advanced nurse practitioner, physician assistant, resident physician, and consumer advocates.
- Developed using a planned protocol to ensure valid, actionable, and trustworthy recommendations.

What is the purpose of the guideline?

- To help clinicians identify children most likely to benefit from tympanostomy tubes.
- To optimize the before-and-after care of children undergoing tube insertion.
- To improve counseling and education of families considering tubes for their child.

What are significant points made in the guideline?

1. Many children with a fluid build-up (otitis media with effusion, or OME) in the middle ear (behind the eardrum) get better on their own, especially when the fluid is present for less than three months.
2. Children with persistent OME for three months or longer should get an age-appropriate hearing test.
3. Tympanostomy tubes should be offered to children with hearing difficulties and OME in both ears for at least three months, because the fluid usually persists and inserting tubes will improve hearing and quality of life.
4. Tympanostomy tubes may be offered to children with OME, lasting at least three months in one or both ears, and symptoms that are likely attributable to OME—including: balance (vestibular) problems, poor school performance, behavioral problems, ear discomfort, or reduced quality of life.

5. Tympanostomy tubes *should not* be performed in children with recurrent (frequent) ear infections (AOM) who *do not* have middle-ear effusion (fluid behind the eardrum). In contrast, tubes *should be offered* when middle-ear effusion *is present* because the tubes will prevent most future AOM episodes and will allow episodes that do occur to be treated more safely, with ear drops instead of oral antibiotics.
6. Tympanostomy tubes may be offered to children who are at-risk for developmental difficulties when OME is present in one or both ears and is unlikely to resolve quickly. This includes children with permanent hearing loss, speech/language delays or disorders, autism-spectrum disorder, Down syndrome, craniofacial disorders, cleft palate, and/or developmental delay.
7. Ear infections that occur in children with tympanostomy tubes should be treated with topical antibiotic ear drops only, not with oral (systemic) antibiotics, since drops are more effective and have fewer side effects.
8. Children with tubes can usually swim or bathe without earplugs, headbands, or other precautions.

About the AAO-HNS

The American Academy of Otolaryngology—Head and Neck Surgery (www.entnet.org), one of the oldest medical associations in the nation, represents approximately 12,000 physicians and allied health professionals who specialize in the diagnosis and treatment of disorders of the ears, nose, throat, and related structures of the head and neck. The Academy serves its members by facilitating the advancement of the science and art of medicine related to otolaryngology and by representing the specialty in governmental and socioeconomic issues. The organization's vision: "Empowering otolaryngologist-head and neck surgeons to deliver the best patient care." The AAO-HNS Foundation works to advance the art, science, and ethical practice of otolaryngology-head and neck surgery through education, research, and lifelong learning.