



## Audiologic Guidelines for the Diagnosis and Treatment of Otitis Media in Children

We are convinced, from careful analysis of the voluminous research available, that a causal relationship does exist between communication disorders and early, recurrent, episodes of otitis media in infants and young children. Accordingly, we feel it is important to participate in this public meeting regarding the development of clinical practice guidelines for the diagnosis and treatment of this pathology and hearing disorder. Our Academy believes that while the disease process itself must be medically and surgically managed by physicians, the identification, assessment and management of any concomitant hearing loss falls within the scope of audiologic practice.

The American Academy of Audiology considers that developmental deficits in communication and behavioral/attention problems experienced by some children with recurrent otitis media are, for the most part, auditory-based. There is increasing evidence that the age of onset, as well as the nature, degree, and configuration of the peripheral conductive hearing loss which occurs secondary to otitis media, are critical components that place children at risk for developing communication and learning disorders. Early identification and management of hearing loss associated with otitis media is important for optimum developmental outcome. Thus, any Clinical Practice Guidelines developed for the diagnosis and treatment of otitis media in children, must specifically include audiologic assessment and management as integral components.

It is not the degree of hearing loss alone that is an issue, but the intrinsic nature of the conductive hearing loss associated with otitis media and middle ear effusion particularly when it occurs in early life. The hearing deficit is characterized as fluctuant; that is, existing only during the duration of the otitis media episode. At resolution, or between otitis media episodes, hearing presumably returns to the "normal" range. Therefore, hearing sensitivity may vary within the same episode of otitis media, as well as between episodes within the same child; the actual number of episodes the child experiences within a particular time period is an additional consideration. Finally, asymmetries in hearing sensitivity may exist between the child's two ears, thereby potentially disrupting critical binaural auditory processing skills.

The Academy believes that there is sufficient evidence to suggest that the auditory deficits associated with otitis media are far more than what is often termed a "simple problem of attenuation."

Indeed, it is these fluctuations of hearing during sensitive developmental periods which are considered by some to be the root of an insidious process: the lack of development of a stable auditory base which normally serves as the very foundation of communication and attention behaviors.



Furthermore, we believe that some children with early language delay may not "catch up" with their non-otitis media peers as they mature. We recognize the controversy over the research on language sequelae of otitis media in the child whose potentially best language function may not be just "normal," but should actually be superior. It is possible that if we ignore the potential language sequelae of otitis media in this population, we are condemning to mediocrity a population of children who should be most promising of high attainment.

Through otoscopic inspection alone, or even when otoscopy is supported by tympanometry, it is not possible to ascertain the degree of hearing deficit associated with any given episode of otitis media. Thus, audiometric evaluation is the only means of determining hearing sensitivity. Because hearing sensitivity is directly related to communication ability, routine audiometric assessment is necessary to identify children who require aggressive management to maintain their hearing within normal limits.

## Recommended Audiologic Guidelines

Therefore, the American Academy of Audiology recommends the inclusion of the following principles in the Clinical Practice Guidelines:

That the identification process include screening of hearing, middle ear function, and communication development, particularly in "at-risk" populations. Such groups would include infants who develop otitis media at or before the age of six months, infants and young children care for in multi-child day care settings, and infants and children with known risk factors such as those with cleft lip or palate, native Americans, or those with Down Syndrome.

Children who have had middle ear effusion which persists for three months despite medical treatment, should be given monitoring hearing screenings, routine tympanometry, and language and speech screenings. Those children who fail any of these screening procedures should be referred for complete assessment with in-depth testing. Those children for whom communication skills are found to be delayed or abnormal, may need more assertive medical attention, and possibly appropriate communication therapy from a certified/licensed speech-language pathologist.

The assessment process should include complete audiologic evaluation to characterize the audiometric profile including the configuration and degree of hearing loss for each ear independently using air and bone-conduction testing. In addition, it would be appropriate to include speech audiometry tests of speech thresholds and word recognition abilities (including higher-order auditory processing capabilities when indicated), acoustic immittance assessment, and a formal language screening of the child's receptive and expressive language abilities. Children failing this screen should be referred to a certified/licensed speech-language pathologist for a formal comprehensive evaluation and for the determination of the need for therapeutic intervention.



Audiometric monitoring of hearing sensitivity should be a routine component of the management process. Children having documented histories of otitis media and accompanying hearing loss should receive periodic hearing evaluations by a certified/licensed audiologist even when they appear to be symptom-free. In particular, hearing assessment should be completed at the onset of the school year in pre-school and elementary students, and at least once during the winter months.

The management of infants and young children with otitis media and must further include parent/caregiver and teacher awareness of the implications of hearing loss on the communication process. We concur with the 1984 American Academy of Pediatrics position statement that parents should be informed that a child with otitis media may not hear normally. We also agree with the American Academy of Pediatrics statement that any child whose parent expresses concern about whether the child hears, should be referred for behavioral audiometry without delay.

Additional management considerations might include (a) the provision of information on optimizing auditory-based communication strategies during bouts of otitis media when hearing sensitivity might be compromised; (b) the monitoring of auditory behaviors which might signal subsequent episodes of otitis media; and (c) suggestions for optimizing the classroom environment for all children who might experience "minimal fluctuant hearing loss" through the reduction of classroom noise and/or the provision of soundfield amplification systems.

## Summary

In summary, the American Academy of Audiology recognizes that there are children who do not function to their full communicative and developmental potential because of hearing loss associated with early, recurrent episodes of otitis media with effusion. To be sure, not all children are affected, but through the development of well-founded Clinical Practice Guidelines, that include our suggested audiological screening, assessment and management procedures, we can substantially decrease the number of children who will be burdened with persistent communicative and learning deficits related to undetected and/or untreated otitis media.

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