

# Otitis Media

## Beyond the Examining Room



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### KEYWORDS

- Conductive hearing loss • IDEA Part C • Medical model • Mixed hearing loss
- Educational model • Chronic Otitis media • Sensorineural hearing loss
- Special education

### KEY POINTS

- The stages of otitis media are connected with various degrees and types of hearing loss.
- Hearing loss secondary to otitis media can have far-reaching effects on receptive and expressive language development.
- A collaborative approach to early intervention can significantly improve treatment outcomes.
- The educational impact of hearing loss on school-aged children includes auditory deprivation, psychosocial implications, and overall academic success.
- The team of professionals available to assist medical providers in the management of sequelae of otitis media includes clinical audiologists, educational audiologists, speech-language pathologists, and skilled professionals in the educational setting.

### INTRODUCTION

According to the 2016 guidelines codeveloped by the American Academy of Otolaryngology–Head and Neck Surgery Foundation (AAO-HNSF), the American Academy of Pediatrics (AAP), and the American Academy of Family Physicians (AAFP),<sup>1</sup> otitis media with effusion (OME) is a term used to describe the presence of fluid in the middle ear without signs or symptoms of acute infection, whereas acute otitis media (OM) indicates the rapid onset of signs and symptoms associated with inflammation, often including pain and a bulging eardrum. Numerous additional terms further define and describe the condition. For example, the time course of the disease may be chronic or acute, and the effusion may vary from serous (thin) to purulent (puslike), or a combination.<sup>2</sup> The focus of this article is not to address the varying forms and stages of OM nor the associated medical treatments. This article discusses the concomitant hearing loss and its resulting nonmedical impact.

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Although the specific prevalence and incidence data depend on the specific source and population they reference, OM is extremely common, particularly in the pediatric population. In the same 2016 clinical practice guidelines, OME is described as an occupational hazard of childhood, with about 90% of children experiencing OME before school age.<sup>1</sup> In addition, according to the AAP, OM is the most common condition for which antibacterial agents are prescribed.<sup>3</sup> Clearly, medical management of this condition is critically important.

However, OM and its concomitant hearing loss further affect other areas, such as speech-language development, academic achievement, and psychosocial skills. Moreover, a review of the abundant literature on this topic shows not only the variety of developmental and functional areas potentially affected but also the extreme variability in severity and the temporary or permanent nature of the condition. Therefore, there can be no one-size-fits-all intervention strategy and a collaborative effort among professionals (physician, audiologist, speech-language pathologist, teacher, and others) will be essential if clinicians are to achieve best outcomes for patients.

### ***Connecting Disorder to Sensory Deprivation***

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Middle ear disorder requires a unique focus of treatment in its varying stages, and hearing loss is the most common complication.<sup>4</sup> Therefore, the view of OM cannot be a single continuum of disorder-treatment-resolution but must be one of addressing the impact that the resulting hearing loss will have on the patient's activities of daily living. Speech and language development, academic achievement, psychosocial impact and overall communication abilities must be considered as part of the treatment plan. The authors therefore revise the model from disorder-treatment-resolution to disorder-treatment-rehabilitation-educational/vocational planning-resolution-continuation of follow-up services and monitoring. It is encouraging to note that this multidisciplinary collaborative perspective is also reflected in the 2016 codeveloped practice guidelines.<sup>1</sup>

Hearing loss associated with OM can vary from slight/minimal to moderately severe, can be unilateral or bilateral, is predominantly conductive (conductive hearing loss), and the severity of the disorder has been found to correspond significantly with the severity of the resulting hearing loss.<sup>5</sup> Notwithstanding, patients with preexisting sensorineural hearing loss can also have middle ear disorders resulting in a mixed hearing loss of both sensorineural and conductive components. Although less commonly highlighted, there is the risk for developing sensorineural hearing loss as a complication of the chronic form of the disease.<sup>6–8</sup> It is therefore imperative to actively treat pediatric patients diagnosed with chronic OM, with the aim of preventing this from occurring.<sup>6</sup>

Regardless of the type and degree of the resulting hearing loss (**Table 1**), the periods of sensory deprivation do not always fit into stereotypical scenarios. With regard to hearing loss of minimal degree (16–25 decibels hearing level [dB HL]), evidence exists indicating that although some individuals may appear to have no observable speech-language or academic difficulties, others experience considerable difficulties. In addition, even though children with minimal hearing loss may appear to catch up in some areas, difficulties in select domains continue into adulthood.<sup>9</sup> In cases in which the resulting sensory deficit is more severe, the manifestation of hearing loss can take on many different forms, seemingly varying from child to child. It is important therefore to understand that these periods of auditory deprivation, slight to severe, and temporary to permanent, have negative consequences on speech and language development and the like.

Hearing loss secondary to OM has been documented as a risk factor for auditory processing difficulties<sup>10–12</sup> as well as having an impact on educational access and achievement, and psychosocial development. Nevertheless, the behavioral symptoms are subjective and usually ignored by teachers and parents.<sup>13</sup> Studies have shown that

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