

Acute and Chronic Otitis Media

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KEYWORDS

- Upper respiratory tract infection • Chronic otitis media
- Randomized controlled trials • Acute otitis media

Upper respiratory tract infections (including otitis media) are the most common illnesses affecting children.¹ The term “otitis media” (OM) covers a wide spectrum of disease, and is used to describe illnesses with predominantly middle ear symptoms (including acute otitis media, otitis media with effusion, and chronic suppurative otitis media). Children can expect to experience around 6 to 8 upper respiratory infections (URTIs) each year.² Nearly all children will experience at least one episode of OM during childhood. On average, they experience around one episode of acute otitis media (AOM) per year in the first 3 years of life.³

The initial cause of respiratory mucosal infections (including OM) is most commonly a viral infection but can be bacterial (**Table 1**).⁴ Of importance is that many infections involve both viruses and bacteria.⁵ Most commonly, an initial viral infection is complicated by a secondary bacterial infection. In developed countries, both viral and bacterial infections are likely to be self-limited. Persistent symptomatic disease is an indication that the child has an ongoing bacterial infection.

By understanding the evidence available from high quality studies, the clinician is in a position to advise the families on appropriate action.⁶ Well designed randomized controlled trials (RCTs) provide the most reliable evidence of effect (**Table 2**).⁷ The aim of this article is to support clinicians in answering the following questions:

- (i) What happens to children with these conditions when no additional treatment is provided?
- (ii) Which interventions have been assessed in well-designed studies?
- (iii) Which interventions have been shown to improve outcomes?
- (iv) If an intervention is considered appropriate, how large is the overall benefit?

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Table 1
Spectrum of disease, accepted terminology, and etiology of the common upper respiratory tract infections in children

Condition	Related Diagnoses	Etiology
Otitis media	Otitis media with effusion, acute otitis media without perforation, acute otitis media with perforation, chronic suppurative otitis media	Viral: respiratory syncytial virus, influenza, adenovirus, rhinovirus, coronavirus, enterovirus, parainfluenza, metapneumovirus Bacterial: <i>Streptococcus pneumoniae</i> , <i>Haemophilus influenzae</i> , <i>Moraxella catarrhalis</i> , <i>Streptococcus pyogenes</i>

THE APPROACH TO EVIDENCE USED IN THIS ARTICLE

There is a long list of potential interventions for the different forms of OM. Many families have strong personal preferences about their treatment options. The challenge for the clinician is to make an accurate diagnosis and then to match the effective treatment options to the preferences of the family.

In this article, the authors have initially considered the effects of an intervention compared with no intervention. Their focus on trial evidence means that the authors may not review all the relevant information to an individual decision. The overall effects of an intervention may need to be adjusted with this in mind. It is hoped that clinicians using this article should be able to determine which interventions have been rigorously assessed and the overall findings of these assessments.

The GRADE Working Group has described the steps required to review evidence.^{8–10} The GRADE Working Group proposes that a recommendation should indicate a decision that the majority of well-informed individuals would make. For self-limited conditions with low risk of complications, even well-informed individuals may reach different conclusions. Therefore, the authors have tried to provide an evidence summary that will assist discussions with families (Table 3). The authors' own approach (informed by the best available evidence) is described in Box 1.

IMPORTANT HEALTH OUTCOMES AND TREATMENT EFFECTS

The self-limiting nature of modern OM in developed countries is of the utmost importance in determining which treatments are indicated. In this article, groups of children

Table 2
Typical clinical features of the common upper respiratory infections in children that have been assessed in randomized controlled trials

Condition	Typical Clinical Features
Otitis media with effusion	Asymptomatic persistent middle ear effusion confirmed by tympanometry
Acute otitis media	Recurrent clinical diagnosis of AOM (≥ 3 in 6 mo) with red tympanic membrane and ear pain
Recurrent acute otitis media	Clinical diagnosis of AOM with red tympanic membrane and ear pain
Chronic suppurative otitis media	Discharge through a perforated tympanic membrane for 2–6 wk

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