

# REACH Notes

## Recent Developments to Promote Judicious Antibiotic Prescribing

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### Reminder....

Visit [www.reachmass.org/access](http://www.reachmass.org/access) to link up with the webcast on *Challenges in the Diagnosis and Treatment of Acute Otitis Media: The Practitioner's Perspective* and receive **one free CME credit**. This webcast is available **24 hours a day** through **Friday, February 7, 2003 so don't delay!** Contact Judith Chevarley at 617-509-9882.

### Is all acute otitis media alike? Probably not...

Bacterial causes of acute otitis media (AOM) include *S. pneumoniae* (38%), *H. flu* (non-typable) (27%), and *M. catarrhalis* (10%). Group A strep is an important but relatively unusual pathogen (3%) as is *S. aureus* (2%). In the remaining 28% of cases, no bacterial pathogen is isolated.<sup>1</sup>

The causative organism in acute otitis media is of more than academic interest. It affects both the natural history of the disease and antibiotic effectiveness. *S. pneumoniae* is the most likely organism to cause severe AOM in terms of tympanic membrane findings and systemic reactions such as fever, white blood cell count, and serum cytokine release.<sup>2</sup> It is also the most common pathogen in mastoiditis and related infections, which are generally not caused by *M. catarrhalis* (0%) or *H. flu* (5%).<sup>3</sup> Pneumococcal conjugate vaccine (PCV7) decreases invasive pneumococcal disease dramatically, but its impact on AOM is more modest<sup>4</sup> and its ability to decrease the risk of mastoiditis and related complications is not yet known.

Experts differ on whether initial treatment for AOM should include coverage of beta-lactamase producing organisms (like *M. cat* and *H. flu*). Some recommend treatment directed toward all of the likely pathogens.<sup>2</sup> CDC guidelines published in 1997,<sup>5</sup> as well as a recent panel of local experts convened by Children's Hospital recommend that initial treatment of uncomplicated AOM be directed primarily at *S. pneumoniae*, making amoxicillin the first-line antibiotic of choice. Especially if used at high doses (80-90 mg/kg/d), amox covers all susceptible and intermediate *S. pneumoniae*, and (even at usual doses) all Group A strep. Bacterial pathogens not covered (e.g. *M. catarrhalis*) are more likely to resolve spontaneously.

Prolonged symptoms of fever, irritability, and other symptoms may signify treatment failure, but may also be caused by co-existent viral infection (especially with RSV).<sup>6</sup> But, if treatment with amoxicillin fails, a second line agent that covers resistant *S. pneumoniae* as well as *M. cat* and *H. flu* is indicated. Choices include high dose amoxicillin/clavulanate, clindamycin, and ceftriaxone (given daily for 3 days for infections failing initial treatment). Second generation cephalosporins have variable activity against *S. pneumoniae* (and all have less than amox), although the CDC lists cefuroxime as a second line alternative.

### Remember:

- The majority of cases of AOM in children over 2 years resolve with or without antibiotic treatment. Watchful waiting may be a reasonable approach in selected cases.
- Cases with severe symptoms and signs are more likely to be caused by *S. pneumoniae*.
- All but the most resistant pneumococci will be effectively treated with high-dose amoxicillin.

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2. Mu□

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4. Eskola J, Kilpi T, Palmu A, Jokinen J, Haapakoski J, Herva E, et al. Efficacy of a pneumococcal conjugate vaccine against acute otitis media. N Engl J Med 2001; 344:403-409.

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