

# Editorials: *Controversies in Family Medicine*

## Should Children with Acute Otitis Media Routinely Be Treated with Antibiotics?

### No: Most Children Older Than Two Years Do Not Require Antibiotics

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There is substantial debate regarding antibiotic use for the treatment of acute otitis media (AOM) in children. The reason for this is simple: there is evidence both for and against antibiotic use in children with this common illness. The evidence supports the use of antibiotics only in certain clinical situations and avoidance of antibiotics in certain children with AOM.

More than 80% of children in the United States have had at least one episode of AOM by three years of age.<sup>1</sup> In 2000, there were 16 million visits to physicians for AOM in children. In 1995, these visits resulted in 760 antibiotic prescriptions per 1,000 children diagnosed with AOM. By 2004, this number had decreased to 484 per 1,000 children diagnosed with AOM.<sup>2</sup>

There are many issues with the overuse of antibiotics in AOM, beginning with the difficulty of diagnosing AOM. Multiple criteria must be met for AOM to be accurately diagnosed, including acute onset, middle ear effusion, and signs and symptoms of middle ear inflammation. The diagnosis is commonly made even if these criteria are not met,<sup>2</sup> contributing to excess antibiotic use.

Often, AOM is caused by a viral infection and does not require antibiotics. A significant amount of data confirms that, in appropriate children, observation without the use of antibacterial agents is an option. An American Academy of Pediatrics (AAP) practice guideline recommends that antibiotics be used for all children younger than six months with AOM and for all children six months



This is one in a series of pro/con editorials discussing controversial issues in family medicine.

► See related editorial at <http://www.aafp.org/afp/2013/1001/od1.html>.

to two years of age with otorrhea and AOM; unilateral and bilateral AOM with severe symptoms; and bilateral AOM without otorrhea.<sup>2</sup> For older children, the guideline and a Cochrane review support observation rather than antibiotics in children with bilateral or unilateral AOM without otorrhea.<sup>2,3</sup>

Spontaneous resolution often occurs within four days of symptom onset in children older than two years. Placebo-controlled trials have confirmed this, and have confirmed that most children do well, without adverse sequelae, with observation only.<sup>4</sup> In fact, 20 children need to be treated with antibiotics to prevent one child from having ear pain at two to seven days,<sup>3</sup> whereas 61% of children experience improvement in symptoms within 24 hours, regardless of antibiotic use.<sup>4</sup> An important drawback of antibiotics is that one out of 14 children treated will have an adverse effect (e.g., rash, diarrhea).<sup>3</sup> Ultimately, this means that one child is harmed for every one or two that benefit from the use of antibiotics. Antibiotics work best in children younger than two years with bilateral AOM, or with both AOM and otorrhea. Most children with mild disease will benefit from an expectant observational approach.<sup>2,3</sup> Tables 2 and 3 in the article, "Otitis Media: Diagnosis and Treatment," which appears in this issue of *American Family Physician* (page 435), provide additional information on treatment of acute otitis media based on the AAP guideline.

There is also growing evidence of bacterial

resistance with increased antibiotic use. An Agency for Healthcare Research and Quality evidence report on AOM concluded that the incidence of mastoiditis and meningitis is not increased with a strategy of initial observation, and indicated that children should be followed closely, with antibacterial therapy initiated in those who do not improve.<sup>4</sup> Follow-up is recommended for all children diagnosed with AOM, regardless of antibiotic use. Antibiotics should be reserved for children younger than two years with bilateral otitis media or with both otitis media and otorrhea.<sup>3</sup>

In the past, clinicians have too often seen a red eardrum, diagnosed otitis media, and then prescribed antibiotics. However, it is important to have an accurate diagnosis of AOM. This is based in part on evaluating how quickly the signs and symptoms began, and carefully assessing whether signs of middle ear effusion and signs and symptoms of middle ear inflammation are present.<sup>2</sup> The AAP guideline can then be used, which is a more structured approach that will lead to appropriate treatment.<sup>2</sup> This approach will not increase the rate of meningitis and mastoiditis, but will decrease the total amount of antibiotics prescribed, the potential for adverse effects, and resistance because of antibiotic overuse.

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