

Hospital Peer Review

August 2009

Hospital Peer Review is a monthly newsletter sponsored by the Rural Healthcare Quality Network to alert Critical Access Hospitals regarding findings from the Peer Review Program. Summarized are a few of the key findings and best practices that would be helpful for other critical access hospitals to be knowledgeable about. This newsletter is edited by Myron Bloom, Medical Director and he can be reached at drmbloom@msn.com.

Doctor, I Want Some Antibiotics...For My Child's Earache

But "Sometime you find you get what you need" — R. Stones

The first three recommendations of the American Academy of Pediatrics and American Academy of Family Physicians evidence-based clinical practice guideline for the management of uncomplicated acute otitis media (AOM) address diagnosis, pain, and consideration of prescribing (or withholding) antibiotics:

- 1) To diagnose AOM, the clinician should confirm a history of acute onset, identify signs of middle-ear effusion (MEE), and evaluate for the presence of signs and symptoms of middle-ear inflammation.
- 2) The management of AOM should include an assessment of pain. If pain is present, the clinician should recommend treatment to reduce pain.
- 3) Observation without use of antibacterial agents in a child with uncomplicated AOM is an option for selected children based on diagnostic certainty, age, illness severity, and assurance of follow-up.

“This option should be limited to otherwise healthy children 6 months to 2 years of age with non-severe illness at presentation *and* an uncertain diagnosis; *and/or* to children 2 years of age and older without severe symptoms at presentation *or* with an uncertain diagnosis. In these situations, observation provides an opportunity for the patient to improve without antibacterial treatment. The association of age younger than 2 years with increased risk of failure of watchful waiting and the concern for serious infection among children younger than 6 months influence the decision for immediate antibacterial therapy. Consequently, the panel recommends an age-stratified approach that incorporates these clinical considerations along with the certainty of diagnosis’

Placebo-controlled trials of AOM over the past 30 years have shown consistently that most children do well, without adverse sequelae, even without antibacterial therapy. Between 7 and 20 children must be treated with antibacterial agents for 1 child to derive benefit. By 24 hours, 61% of children have decreased symptoms whether they receive placebo or antibacterial agents. By 7 days, approximately 75% of children have resolution of symptoms. The AHRQ evidence-report meta-analysis showed a 12.3% reduction in the clinical failure

rate within 2 to 7 days of diagnosis when ampicillin or amoxicillin was prescribed, compared with initial use of placebo or observation (number needed to treat: 8).”

Source: <http://aappolicy.aappublications.org/cgi/content/full/pediatrics;113/5/1451>

Let’s look at some of the recent evidence supporting watchful waiting as well as parental satisfaction with avoiding immediate antibiotic prescribing.

Spiro DM, Tay KY, Arnold DH, et al. Wait-and-see prescription for the treatment of acute otitis media: a randomized controlled trial. *JAMA*. September 13, 2006;296(10):1235-41.

Investigators randomized 283 children (aged 6 months to 12 years) with AOM seen in an ED to receive an antibiotic prescription either to be filled immediately or to be held for 2 days to assess whether the child improved spontaneously. Children with complications (e.g., considered "toxic" by clinicians) were excluded, but otherwise children with severe AOM were included. All subjects received ibuprofen and otic analgesic drops.

Intention-to-treat analyses revealed no differences between the groups in any clinical outcomes (e.g., otalgia, fever, unscheduled follow-up visits). Based on three blinded telephone interviews with parents or guardians, prescriptions were not filled for 13% of the fill-immediately group and 62% of the wait-and-see group. Roughly two thirds of parents in the wait-and-see group who did not fill their children’s prescriptions would be willing to use the same approach during a future episode.

Chao JH, Kunkov S, Reyes LB, et al. Comparison of two approaches to observation therapy for acute otitis media in the Emergency Department. *Pediatrics*. May 2008;121(5):e1353-e1356.

In another study from Albert Einstein College of Medicine, 232 children aged 2-12 years presenting to this inner city ED with uncomplicated AOM were randomized to discharge with a prescription for antibiotics, or a prescription with instructions to begin treatment only if symptoms had not resolved after two to three days, or discharge without a prescription but with instructions to return to the ED or to the primary care provider if symptoms did not resolve in two to three days. Oral analgesics and anesthetic ear drops were provided at no charge. Telephone follow-up after seven to ten days was available for 89% of the children finding that more than 90% of parents in both groups were very or extremely satisfied with the visit. The “observation only” group were more likely than those in the “observation plus prescription” group to have avoided giving their child an antibiotic (81% vs. 53%) or see another physician during the observation period (87% vs. 62%).

Rovers MM, Glasziou P, Appelman CL, et al. Antibiotics for acute otitis media: a meta-analysis with individual patient data. *The Lancet*. October 21, 2006;368(9545):1429-1435.

Researchers analyzed data from six randomized trials of 1,643 patients aged 6 months to 12 years old defining the treatment outcome goal as preventing an extended course of acute otitis media, consisting of pain, fever, or both at 3-7 days. They identified no significant differences for age alone. They found a 25% clinical improvement difference in children younger than 2 years of age with bilateral AOM (55% of controls and 30% on antibiotics still had pain, fever, or both at 3-7 days) resulting in a number-needed-to-treat (NNT) of 4

children. In children with otorrhea, the difference in improvement rates and NNT were respectively 36% (53% dropping to 19%) and 3, whereas in children without otorrhea, the difference in rates and NNT were 14% (23% to 5%) and 8; and with unilateral AOM alone, the NNT was 20. They concluded that antibiotic treatment of AOM is most beneficial for children under 2 with bilateral disease and/or children with both otitis and otorrhea; while most others can be managed with watchful waiting.

Withholding antibiotics in children with AOM for 2 to 3 days to allow the possibility of spontaneous resolution has been shown to markedly reduce the use of antibiotics; but could reduced use of antibiotics for AOM increase the incidence of mastoiditis? What is the likely protective benefit? (Not much!)

Thompson PL, Gilbert RE, Long PF, et al. Effect of antibiotics for otitis media on mastoiditis in children: a retrospective cohort study using the United Kingdom General Practice Research Database. *Pediatrics*. February 2009;123(2):424-430.

To find out, investigators reviewed the longitudinal computerized records for children aged 3 months to 15 years treated by primary care physicians in the U.K. General Practice Research Database between 1990 and 2006 (totaling 7,119,677 child-years of data!). They identified children with mastoiditis and examined the records of these children for antecedent OM diagnoses and antibiotic prescriptions, as well as for other predisposing risk factors.

Among 2.6 million children from 423 general practices, 854 cases of mastoiditis were identified (median age at diagnosis, 9.7 years). During the preceding 3 months, only 36% of children with mastoiditis had been diagnosed with OM; and of these 305 children, 48% had been prescribed antibiotics. During the study period, the annual incidence of mastoiditis remained essentially unchanged, but the antibiotic prescribing for OM declined by 50%. Among children with OM, the risk for developing mastoiditis within 3 months was significantly lower in those who were prescribed antibiotics (written but not necessarily taken?) than in those who were not (odds ratio of 0.56). However, **4,831 antibiotic prescriptions for OM were calculated to be written to prevent one additional case of mastoiditis.**

Most clinicians, while understanding concerns about the overuse of antibiotics, lack effective strategies for outpatient management of common infections. Several small studies have shown that offering an antibiotic prescription to use later if symptoms do not improve (delayed therapy) can decrease antibiotic use without apparent adverse effects.