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# Let's Reexamine the Treatment of URIs

The data from three recent studies should prompt us to reexamine our approach to the management of upper respiratory infections in children.

Guidelines from the American Academy of Pediatrics recommend antimicrobial

treatment for children with upper respiratory symptoms lasting longer than 10-14 days or for those with severe symptoms, including a high fever and toxicity (Pediatrics 2001;108:798-808). The Sinus and Allergy Health Partnership Guidelines—to which I contributed—also advised antimicrobial treatment for children with signs and symptoms of viral upper respiratory infection (URI) for more than 10 days or worsening symptoms after 5-7 days (Int. J. Pediatr. Otorhinolaryngol. 2002;63:1-13).

Now data suggest that we perhaps should consider antibiotic treatment only for children whose symptoms are worsening after 10 days.

The recommendation to treat rhinorrhea beyond 10 days with antibiotics as presumptive bacterial sinusitis requires a subjective judgment, and is based on small data sets.

This is problematic in an era in which we're trying to limit antimicrobial use to times when there is definite benefit. It's also been difficult to follow in practice, because parents often bring a child in who has had symptoms for fewer than 10 days. We're not supposed to treat at that point unless they have acute toxicity, but there can be a lot of real or perceived pressure to prescribe.

In fact, the 10-day rule appears to derive from a 40-year-old study on rhinovirus in adults (JAMA 1967;202:494-500). Surprisingly, it wasn't until earlier this year that good data became available regarding the symptom profile of colds in otherwise healthy school-aged children. In that study, which utilized nasopharyngeal aspirates and symptom diaries, 73% of 81 children with colds continued to be symptomatic 10 days after onset (Pediatr. Infect. Dis. J. 2008;27:8-11).

These new findings suggest we've probably been overtreating a proportion of school-aged children—for bacterial sinusitis—when they actually have had mild to moderate upper respiratory symptoms. Further, these

data should provide reassurance that we're not putting such patients at risk for invasive complications if we don't treat before 10 days of illness, as long as they do not fit the acute severe criteria or the symptoms aren't getting rapidly worse.

Data from another recent study suggest that children with acute sinusitis who are destined to develop subperiosteal orbital abscess (SPA) typically do so well before 10 days of rhinorrhea. In this 10-year retrospective chart review from a tertiary pediatric center, 39 children required operative drainage for SPA, with only a mean of 1.6 days of antibiotics prediagnosis in just 10 (26%). Of the 28 children presenting with fever, the mean duration was 2.5 days. Only 28 had rhinorrhea/mucoid discharge, and that for a mean duration of 3.9 days (Int. J. Pediatr. Otorhinolaryngol. 2007;71:1003-6). Thus, complications arose in the first days of symptoms, even among those children on antibiotics.

Since it's not feasible—or wise—to give antibiotics to every child with cold symptoms in order to prevent SPA, the authors concluded that “SPA may not be a preventable complication of acute sinusitis in children” using standard oral antibiotics. Indeed, this paper suggests that children destined to develop complications are by and large not the ones who appear in your office with mild symptoms at days 4 to 7.

If the child has high fever and facial pain or swelling, there's little question you're going to treat. But for those without clear signs of toxicity or rapidly progressing disease, complications seem unlikely after 4 days.

A third study, of pneumococcal mastoiditis complicating acute otitis media (AOM), suggests that severe complications of URIs in children are becoming more difficult to treat with our usual oral drugs because of the emergence of multidrug-resistant pneumococcal serotype 19A, a strain that is not included in the 7-valent pneumococcal conjugate vaccine (PCV7).

Among 41 children with pneumococcal mastoiditis (mean age 23 months, range 3 months-12 years) who were seen at Texas Children's Hospital, Houston, between January 2005 and June 2007, 19 cases were caused by 19A. That strain was responsible for all cases of pneumococcal mastoiditis seen in 2006 and 2007, compared with just three of six seen between 2004 and 2005, and just one of two in 2003 (Pediatrics 2008;122:34-9).

Even more worrisome, all of the children with 19A mastoiditis had SPA, compared with only 2 of the 22 children with non-19A mastoiditis. Mastoidectomy was required in 17 of the 19A group (89%) compared with just 10 (45%) of those with non-19A strains. Thirteen of the 19A isolates (68%) were resistant to all antibiotics tested routinely.

These data correspond to what I've been seeing at my institution. We're seeing less otitis and sinusitis overall since the introduction of PCV7 in 2000. A concern in the last 2-3 years is that the incidence of difficult-to-treat pneumococcal mastoiditis—nearly all due to 19A—has risen among the difficult-to-treat AOM that does occur. In fact, I'm now seeing as much serious invasive pneumococcal disease as before PCV7 was licensed, nearly half due to 19A.

I believe there are two messages here. First, if you withhold antibiotics for 10 days in a nontoxic child with rhinorrhea, according to the guidelines, you probably aren't putting him or her at any greater risk for complicated sinus disease; even treating then is likely to overtreat a proportion of children. Second, we may need a new strategy for persistent or complicated AOM when 19A is the pathogen. These cases may not even respond to clindamycin or three doses of ceftriaxone and may require linezolid or a quinolone (JAMA 2007;298:1772-8) despite the new Food and Drug Administration black box warning on quinolones, usually along with a subspecialty consultation.

But there is hope on the horizon. Wyeth Pharmaceuticals, which partially funded the Texas mastoiditis study, announced at the end of May that the FDA has granted fast-track designation to the company's investigational 13-valent pneumococcal conjugate vaccine for infants and toddlers. That vaccine contains 19A as well as serotypes 1 and 3, the most common causes of empyema.

It's becoming obvious that we will need to stay ahead of the game from now on. Ongoing surveillance will be critical as we move forward.

I have no current disclosures for any products mentioned in this article. ■

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## HIV Rates Are Low in High-Risk Adolescent Group Studied

BY MARY ELLEN SCHNEIDER  
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NEW YORK — HIV infection may not be a significant risk even among adolescent populations with a high prevalence of other sexually transmitted infections, according to a study of adolescents at a juvenile detention center in Houston.

Although chlamydia and gonorrhea were relatively common among this group of incarcerated teens—28% among girls and 9% among boys—the prevalence of HIV was low

among those tested, with only two cases among boys and no cases among girls.

Researchers at the University of Texas evaluated 6,805 sexually active boys and 1,425 sexually active girls who were incarcerated at the Harris County Juvenile Detention Center in 2006 and 2007. The mean

age of the population was 15 years old (range 13-16 years) and all identified themselves as heterosexual. Dr. William Risser said at a joint conference sponsored by the American Sexually Transmitted Diseases Association and the British Association for Sexual Health and HIV.

All of the detainees received a physical examination and health history, and a first-catch urine screening for chlamydia and gonorrhea. They also received an HIV and rapid plasma reagin (RPR) test for syphilis if they had suspicious symptoms, had not been tested for more than 1 year, had another sexually transmitted infection, had sold sex, or requested testing.

Among the 6,805 boys evaluated, 78% were sexually active in the month before admission to the facility, 69% had used a condom at last intercourse, and 29% reported that they had a new partner in the

previous month. Nearly 8% of the boys tested positive for chlamydia, 0.68% tested positive for gonorrhea, and 1% tested positive for both organisms. Of the 2,524 boys who were tested for HIV, only 2 tested positive (0.08%). Of those who tested positive for HIV, their only admitted risk behavior was heterosexual intercourse, said Dr. Risser, director of the division of adolescent medicine at the university in Houston.

Among the 1,425 girls evaluated in the study, the rates of chlamydia and gonorrhea were higher, but there were no cases of HIV. About 74% reported that they were sexually active in the month before they were admitted to the facility, 49% said they had used a condom at last intercourse, 19% had a new partner in the previous month, and 9% said they had traded sex for drugs or money.

Overall, 17% of the girls tested positive for chlamydia, 5% tested positive for gonorrhea, and 6% were positive for both organisms. Of the 807 who underwent HIV testing, no one tested positive.

One of the factors in the low rates of

HIV infection might have been the small amount of high-risk drug use. Other studies on the same population show that almost none used drugs other than marijuana. “I really believe that's true because culturally these kids don't use IV drugs,” Dr. Risser said. ■

## Antibiotics-vs.-VUR Study Seeks Patients

The Randomized Intervention for Children with Vesicoureteral Reflux (RIVUR) study seeks to enroll infants and children between the ages of 2 months and 6 years who have had a first or second VUR infection within 112 days of study enrollment. Participants receive a daily dose of an antibiotic or a placebo for up to 2 years. For more information, go to [www.clinicaltrials.gov/ct2/show/NCT00405704?term=RIVUR&rank=1](http://www.clinicaltrials.gov/ct2/show/NCT00405704?term=RIVUR&rank=1). ■