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## **Sinusitis and Bacterial Resistance**

Bruce L. Wolf

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## Sinusitis and Bacterial Resistance

To the Editor.—

Sinusitis is pandemic. As antibiotic resistance has gradually increased, guidelines have been developed which ratchet up coverage to overcome resistance. Doses of 80 to 90 mg/kg of amoxicillin for the treatment of acute, subacute, and recurrent bacterial sinusitis are the current recommendations when highly resistant pneumococcal organisms are suspected.<sup>1</sup> However, in practice, very few clinicians may be pushing doses to the proposed levels in all children.

Thirty-six physicians—12 internal medicine/pediatricians, 9 family practitioners, and 15 pediatricians—in a major metropolitan area were surveyed and asked to consider the following hypothetical case study:

A 5-year-old, nonallergic child weighing 30 kg (66 lb) has a history of recurrent sinusitis. Water's view shows bilateral maxillary sinusitis. Child has been on repeated antibiotics, most recently Augmentin (40 mg/kg), for congestion and cough. Pulmonary functions are normal. There are no known drug allergies. Physical examination reveals florid mucopus in both nasal vestibules.

A total of 33/36 respondents (12/12 internal medicine/pediatricians, 6/9 family practitioners, and 15/15 pediatricians) said that they did prescribe high-dose amoxicillin that they most often defined as 80 to 100 mg/kg. When asked specifically, only 4/12 internal medicine/pediatricians, 2/9 family practitioners, and 5/15 pediatricians said they would give 2400 to 2700 mg (high-dose amoxicillin) in this hypothetical case. Three of eleven clinicians who said they would give such a large dose to this patient said that they had never done so in a similar clinical situation.

Where lies the disconnect between the theoretical and what is practiced? Most of the 36 respondents said they would not exceed amoxicillin doses they normally gave to adults, or, in the case of the pediatricians, that they might take themselves (upwards to 875 mg bid). Since the survey, Augmentin XR (4 g/d amoxicillin/250 mg/d clavulanic acid) tablets have been released.<sup>2</sup> Further, the majority expressed concern of an increased incidence of diarrhea with higher dose of amoxicillin and/or clavulanic acid. Surprisingly, incidence of diarrhea reflects a dose response to clavulanic acid, not amoxicillin. A new formulation of amoxicillin/clavulanic acid, Augmentin 600 mg-ES, has provided more amoxicillin with proportionally less clavulanic acid in an oral suspension.<sup>3</sup>

As sinus contents are thought to be heterogenous in regard to strain variation and bacterial resistance, suboptimal treatment with antibiotics may promote recalcitrance of sinusitis. It is incumbent, therefore, that clinicians give high doses of amoxicillin in the setting of sinusitis when the patient 1) has severe symptoms, 2) has been on recent (<90 days) antimicrobial treatment for same, 3) is <2 years of age, 4) is not responding to other antibiotic treatment after 48 to 72 hours, and/or 5) attends day care. Antibiotics should be given for a minimum of 10 days upwards to 4 weeks.<sup>1</sup> Failure to give adequate recommended doses of antibiotics may result in clinical failure and the promotion of bacterial resistance.

BRUCE L. WOLF, MD  
Vanderbilt University  
Department of Medicine  
Nashville, TN 37205

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## Ethylmercury in Vaccines\*

To the Editor.—

In their article, Drs Shete and Daum criticize the AAP and USPHS for recommending suspension of the hepatitis B vaccine birth dose because these organizations “placed the theoretical risk of thimerosal toxicity above the real public health burden of failing to immunize children at risk of hepatitis B . . . beginning at birth.”<sup>1</sup> In defense of their position, the authors comment “. . . at the time of the 1999 recommendation [to delay the birth dose of the hepatitis B vaccine] (and even now, according to the recent Institute of Medicine report) no conclusive evidence existed to show that ethylmercury, at doses administered with vaccines, was toxic.” Although true in a literal sense, the fact is, no preclinical or clinical studies were ever conducted to specifically examine the safety of thimerosal (ethylmercury) at the doses found when used in multiple infant and childhood vaccines. Thus, there was no conclusive evidence because there were no studies. (Filling this void was one of the principal recommendations recently made by the Institute of Medicine’s Immunization Safety Review Committee.<sup>2</sup>)

Faced with the knowledge that some infants, through routine vaccination, might be exposed to unsafe levels of ethylmercury,<sup>3</sup> a potential neurotoxin, particularly to developing brains, the AAP and USPHS made the appropriate decision to recommend suspending the hepatitis B vaccine birth dose until thimerosal-free vaccines were available. By doing so, newborns in this coun-

\* This letter was written in the private capacity of the author. No official support of endorsement by the Food and Drug Administration is intended or should be inferred.

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