**Staphylococcus aureus: Is It a Pathogen of Acute Bacterial Sinusitis in Children and Adults?**

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*Streptococcus pneumoniae, Haemophilus influenzae, and Moraxella catarrhalis* are the etiologic agents of acute bacterial sinusitis (ABS). *Staphylococcus aureus* has been an uncommon cause of ABS despite its frequent occupancy within the anterior nares. A quantitative culture of a maxillary sinus aspirate is the gold standard for determining etiology of ABS. Cultures of the middle meatus cannot be used as a surrogate for a maxillary sinus aspirate in children with ABS, although they may be used in adults if interpretation is confined to usual sinus pathogens. Recent studies highlighting *S. aureus* as a major pathogen in ABS should be interpreted cautiously. Most isolates in recent pediatric studies were derived from cultures of the middle meatus. The range of reported results for the incidence of *S. aureus* as a cause of ABS in adults is similar to the results reported for staphylococcal colonization of the middle meatus in healthy adults.

Acute bacterial sinusitis is a common and costly clinical problem in both children and adults. Sinusitis affects >15% of the US population annually and results in >$5.8 billion in direct healthcare expenditures, of which $1.8 billion is spent on children <12 years of age [1]. The microbiology of acute bacterial sinusitis has been thoroughly studied in adult patients; however, in children, there has not been a study of the microbiology of acute sinusitis since 1984 [2]. The traditional and well-established pathogens of acute sinusitis are *Streptococcus pneumoniae, Haemophilus influenzae,* and *Moraxella catarrhalis* [2, 3]. The role of *Staphylococcus aureus* as a pathogen in acute bacterial sinusitis in children and adults has been minimal despite the fact that it is a ubiquitous microorganism, occupying the anterior nares of nearly one-third of the human population at any given time [4]. It is precisely this position in the anterior nares that has made interpretation of the recovery of *S. aureus* from patients with uncomplicated sinus disease so difficult. In contrast, there is an established role for *S. aureus* as a pathogen in patients (both children and adults) with chronic sinusitis and those with suppurative intracranial or intraorbital complications of sinusitis [5–7]. The implications of considering *S. aureus* as a likely cause of acute bacterial sinusitis in a child or adult bear directly on selection of empiric antimicrobials for treatment.

**MAXILLARY SINUS ASPIRATION**

The best measure or gold standard for describing the microbiology of acute bacterial sinusitis is performance of a maxillary sinus aspirate [3, 8, 9]. To obtain clinically interpretable results, these samples must be retrieved without contamination from the heavily colonized nasal cavity. Accordingly, the area in the nose beneath the middle turbinate, through which the trocar is passed, must be sterilized topically. A test-of-sterility culture should be performed to certify that effective antisepsis has occurred. To further assure that bacteria recovered from sinus aspirates represent in situ infection rather than contamination arising from the nose, the bacteria should be present in high density, that is, a density of 10^6 colony-forming units (CFU) per milliliter [10]. This requires that quantitative bacteriology be performed.