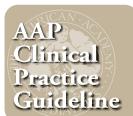


Sinusitis guideline includes several significant changes in treatment

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The revised *Clinical Practice Guideline for the Diagnosis and Management of Acute Bacterial Sinusitis in Children 1-18* updates AAP recommendations issued in 2001.



Published in the July issue of *Pediatrics* (2013; 132:e262-e280; <http://pediatrics.aappublications.org/cgi/doi/10.1542/peds.2013-1071>), the evidence-based recommendations are intended for use in a variety of clinical settings, including pediatric offices, emergency departments and hospitals.

The most significant areas of change from the 2001 guideline are the addition of a clinical presentation designated as “worsening course,” inclusion of new data on the effectiveness of antibiotics in children with acute sinusitis, an option to observe for three days before initiating treatment in children presenting with “persistent” infection, and a review of evidence indicating that imaging is not necessary to identify children who will benefit from antimicrobial therapy.

This revision does not apply to children with subacute or chronic sinusitis. Similar to the previous guideline, the document also does not consider neonates and children younger than 1 year or children with anatomic abnormalities of the sinuses, immunodeficiencies, cystic fibrosis or primary ciliary dyskinesia.

The recommendations were developed by the AAP Subcommittee on Acute Sinusitis based on data in a companion technical report, *Evidence for the Diagnosis and Treatment of Acute Uncomplicated Sinusitis in Children: A Systematic Review* (*Pediatrics*. 2013;132:e284-e296; <http://pediatrics.aappublications.org/cgi/doi/10.1542/peds.2013-1072>).



Recommendations

Acute bacterial sinusitis is a common complication of viral upper respiratory infection (URI) or allergic inflammation. Using stringent criteria to define acute sinusitis, it has been observed that about 7% of children seeking care for respiratory symptoms have an illness consistent with this definition. Sinusitis is the fifth most common indication for antimicrobials in children.

The clinical practice guideline includes the following recommendations, which are based on studies of pediatric acute sinusitis from the last decade.

The diagnosis of acute bacterial sinusitis is made when a child with an acute upper respiratory tract infection presents with 1)



persistent illness (nasal discharge of any quality) or daytime cough or both, lasting more than 10 days without improvement; 2) a worsening course (worsening or new onset of nasal discharge, daytime cough or fever after initial improvement); or 3) severe onset (concurrent fever [temperature of 102.2 degrees Fahrenheit or greater]) and purulent nasal discharge for at least three consecutive days.

These three clinical presentations can be differentiated from an uncomplicated viral URI according to duration of illness or pattern of signs and symptoms.

Clinicians should not obtain imaging studies to distinguish acute bacterial sinusitis from viral URI.

Although imaging has been used as a confirmatory test in children suspected to have acute bacterial sinusitis, it no longer is recommended. When the paranasal sinuses are imaged with plain radiographs, contrast-enhanced computed tomography (CT) or magnetic resonance imaging (MRI) in children with uncomplicated URI, the majority of studies will be significantly abnormal with the same kind of findings that are associated with bacterial infection of the sinuses. Accordingly, an abnormal image cannot confirm the diagnosis of acute bacterial sinusitis.

A contrast-enhanced CT scan of the paranasal sinuses should be obtained whenever a child is suspected of having orbital or

central nervous system complications of acute bacterial sinusitis.

A CT or MRI will identify the lesion and help determine progression and the need for surgical intervention.

The clinician should prescribe antibiotic therapy for acute bacterial sinusitis in children with severe onset or worsening course. The clinician should either prescribe antibiotic therapy OR offer additional observation for three days to children with persistent illness.

The purpose of this latter point is to offer guidance on initial management of persistent illness sinusitis by helping clinicians choose between the following two strategies: (a) *antibiotic therapy*, defined as initial treatment of acute bacterial sinusitis with antibiotics, with the intent of starting that therapy as soon as possible after the encounter, or (b) *additional outpatient observation*, defined as initial management of acute bacterial sinusitis limited to continued observation for three days, with initiation of antibiotic therapy if the child does not improve clinically within several days of diagnosis or if there is clinical worsening of the child's condition at any time.

Clinicians should prescribe amoxicillin with or without clavulanate as first-line treatment when a decision has been made to initiate antibiotic treatment for acute bacterial sinusitis.

Amoxicillin remains the antimicrobial of choice for first-line treatment of uncomplicated acute bacterial sinusitis in situations in which antimicrobial resistance is not suspected. Patients presenting with moderate to severe illness as well as those younger than 2 years, attend-

ing child care or who have been treated recently with an antimicrobial may receive high-dose amoxicillin clavulanate (80-90 mg/kg/day of the amoxicillin component with 6.4 mg/kg/day of clavulanate in two divided doses with a maximum of 2 grams per dose).

This high-dose amoxicillin component is likely to achieve sinus fluid concentrations adequate to overcome the resistance of *Streptococcus pneumoniae*, which is attributable to alteration in penicillin-binding proteins. The potassium clavulanate levels are adequate to inhibit all beta-lactamase-positive *Haemophilus influenzae* and *Moraxella catarrhalis*.

Reassess initial management if a caregiver reports worsening (progression of initial signs/symptoms or appearance of new signs/symptoms) or the child fails to improve within 72 hours of initial management. If the diagnosis of acute bacterial sinusitis is confirmed in a child with worsening symptoms or failure to improve, then clinicians should change the antibiotic therapy for the child initially managed with antibiotics or initiate antibiotic treatment for the child initially managed with observation.



Dr. Wald is the lead author of the guideline and chair of the AAP Subcommittee on Acute Sinusitis.