

# Guideline for

## The Diagnosis and Treatment of Acute Otitis Media in Children

*This clinical practice guideline (CPG) was developed by an Alberta Clinical Practice Guideline working group.*

*Note: This guideline does not apply to the following patients:*

- *less than 6 weeks old*
- *premature infants who are hospitalized*
- *craniofacial abnormalities such as cleft palate*
- *immunocompromised or severe underlying systemic disease*
- *complications of AOM (e.g., sepsis, mastoiditis).*

### DEFINITIONS

- ◆ Acute otitis media (AOM): inflammation and pus in the middle ear accompanied by symptoms and signs of ear infection.
- ◆ Myringitis (“red eardrum”): inflammation of the tympanic membrane alone or in association with otitis externa.
- ◆ Otitis media with effusion (OME): also known as Serous Otitis Media: fluid in the middle ear without symptoms or signs of acute inflammation of the ear.
- ◆ Chronic suppurative otitis media - persistent inflammatory process associated with perforated tympanic membrane and draining exudate for more than 6 weeks.

### ISSUES

- ◆ It is critical to differentiate between i) AOM, ii) myringitis, and iii) OME.
- ◆ The overuse of antibiotics in ill defined ear infections has led to increasing antimicrobial resistance.
- ◆ In children aged 2 years or older, the need for antibiotics in AOM is controversial.
- ◆ Antibiotics may reduce the risk of complications in AOM; however, the incidence of these complications is low.
- ◆ Evidence indicates that 5 days of antibiotic therapy is sufficient for first line treatment of uncomplicated AOM in the majority of patients.

### GOALS

- ◆ To increase the accuracy of the diagnosis of acute otitis media.
- ◆ To optimize the management of acute otitis media.
- ◆ To reduce antibiotic use for the treatment of myringitis and OME.

### PREVENTION

- ◆ Handwashing.
- ◆ Breast feeding.
- ◆ Avoidance of environmental tobacco smoke.
- ◆ Avoidance of feeding in a supine, flat position.

### DIAGNOSIS

#### Acute Otitis Media (AOM)

- ◆ Symptoms: pain, fever, irritability.
- ◆ On direct otoscopy the only specific sign of AOM is a bulging, inflamed eardrum.
- ◆ In the absence of bulging, the eardrum must demonstrate acute inflammation **and** decreased mobility on pneumatoscopy.
- ◆ Routine cultures of ear drainage offer no diagnostic advantage in identifying potential pathogens.

### PRACTICE POINT

#### Diagnosis of Myringitis

- ◆ Normal mobility on pneumatoscopy with redness which may be peripheral.
- ◆ Antibiotics are **not** indicated.

*Note: Inflammation only at the superior pole may progress to AOM; consider follow-up.*

#### Diagnosis of Otitis Media with Effusion (OME)

- ◆ Lack of acute inflammation despite visible fluid or reduced mobility on pneumatoscopy.
- ◆ Antibiotics are **not** indicated.

The above recommendations are systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances. They should be used as an adjunct to sound clinical decision making

## MANAGEMENT

### General

- ◆ Pain/fever should be controlled with systemic analgesics (acetaminophen, ibuprofen).
- ◆ Decongestants/antihistamines are not beneficial in the treatment of AOM itself.\*

*\*Note: Some experts believe that antihistamines and/or decongestants may be of benefit when allergies play a role in the etiology.*

- ◆ Topical corticosteroid/antibiotic preparations are **not** recommended.

### Antibiotic Therapy

#### ◆ Myringitis

- Antibiotics are not indicated.

#### ◆ Otitis Media with Effusion

- Antibiotics are not indicated.

#### ◆ Acute Otitis Media

Children less than 24 months old:

- Treat with antibiotics (See Table 1).

Children aged 2 years or older:

- Most cases of AOM resolve with symptomatic treatment alone and do not require antibiotics.
- Treat symptomatically for 48-72 hours from symptom onset if pain/fever is manageable with systemic analgesics, **providing adequate follow-up can be assured.**
- If symptoms worsen or fail to respond to symptomatic treatment with systemic analgesics after 48-72 hours, treat with antibiotics (See Table 1. See Background for further information on dosage and duration.)

## Follow-Up

- ◆ If the patient remains symptomatic at 48 to 72 hours (following treatment with analgesics or first line antibiotics), or is deteriorating, follow-up is recommended.

- Reassess patient for:
  - acute complications of AOM (e.g., mastoiditis, meningitis, facial paralysis);
  - other diagnoses;
  - compliance with medications.
- Non-responders (See Table 2).

- ◆ A follow-up exam at completion of treatment is not required if the patient is asymptomatic.

*Note: Up to 50% of children will have an effusion 1 month post AOM. Further antibiotic therapy not required.*

- ◆ Follow-up 3 months post AOM episode is recommended to assess for persistent OME, which may lead to hearing loss.

*Note: Up to 10% of children will have an effusion 3 months post AOM.*

- Perform hearing evaluation if effusion present at 3 months post AOM.
- Refer to an ENT specialist if hearing loss.
- ◆ Given the increasing incidence of resistant organisms, diagnostic tympanocentesis should be considered where there has been failure of 2 consecutive courses of antibiotics (first line followed by second line agent) with persistent symptoms.

## RECURRENT AOM

### Management

- ◆ If recurrences are more than 6 weeks apart, treat with first line agents (See Table 1).

*Note: Use high dose amoxicillin (90 mg/kg/day PO divided tid for 10 days)*

- ◆ If recurrences are less than 6 weeks apart, treat with second line agents (See Table 2).

### Frequent Recurrences of AOM

- ◆ Observation over time is reasonable because of a decreasing incidence of AOM with advancing age.
- ◆ Consider ENT referral for tympanostomy tubes if:
  - OME for  $\geq 3$  months with bilateral hearing loss  $\geq 20$  dB.
  - $\geq 3$  episodes in 6 months
  - $\geq 4$  episodes in 12 months
  - Retracted tympanic membrane.

### Antibiotic Prophylaxis

- ◆ With increasing antibiotic resistance, antibiotic prophylaxis is not recommended. On average, antibiotic prophylaxis decreases AOM by ~1 episode per year.

## BACKGROUND

### Introduction

Acute otitis media is the most frequently diagnosed bacterial infection in pediatric patients. It has been suggested that otitis media is overdiagnosed in North America, as it is said that 84% of children have at least 1 episode of AOM by 3 years of age.<sup>4</sup> In the United Kingdom, the incidence is approximately 70%.<sup>5</sup>

## Epidemiology and Risk Factors

Acute otitis media is a disease of infancy and childhood, with a peak incidence between 6 and 9 months.<sup>6</sup> Studies indicate that by 1 year of age, more than 60% of children have had 1 episode of AOM, and 17% of children have had at least 3 episodes of AOM.<sup>6</sup> After the age of 6, less than 40% of children develop AOM and only 30% have 3 or more episodes.<sup>6</sup>

The earlier the age of onset of AOM, the greater the recurrence rates.<sup>4,6</sup> Studies indicate that 60% of children who had their first episode of AOM before the age of 6 months have 2 or more recurrences in 2 years.<sup>6</sup>

Persistent effusion is seen after AOM in 50% of children 1 month post AOM, 20% at 2 months and 10% at 3 months.<sup>6</sup> The earlier the onset of AOM, the greater the likelihood of persistent effusion.<sup>4,6</sup> Persistent fluid in the middle ear is associated with conductive hearing loss, and can hinder language development and school performance.<sup>6</sup>

Environmental tobacco smoke may be an important risk factor for middle ear disease.<sup>7</sup>

Daycare attendance has been associated with an increased incidence of AOM.<sup>4,6</sup> This is likely due to an increased incidence of respiratory tract infections in group daycare settings.<sup>5</sup> The incidence of myringotomy and tympanostomy tubes is also greater in this population of children.<sup>6</sup>

Male sex is associated with an increased incidence of AOM.<sup>4,6</sup> The Boston study<sup>8,9</sup> showed that breastfeeding for a period as short as even 3 months decreased the incidence of AOM in the first year of life.

First nations children appear to be more prone to develop chronic suppurative otitis media which can be very resistant to treatment. It is unclear whether genetic or environmental factors play the most significant role.

There is a seasonal aggregation of AOM with a peak in the fall and winter.<sup>5</sup> The incidence may be related to an increased rate of viral upper respiratory tract infections at those times.

# Table 1: 1st Line Agents in the Treatment of AOM

Recommended Therapy and Dose* (Maximum dose should not exceed adult dose)	Duration	Comments
<u>Standard Dose</u> <b>Amoxicillin</b> 40 mg/kg/day PO div tid or <u>High Dose</u> <b>Amoxicillin</b> 90 mg/kg/day PO div tid	5 days*	<ul style="list-style-type: none"> <li>◆ Amoxicillin retains best coverage of oral <math>\beta</math>-lactam agents against <i>S.pneumoniae</i> (including intermediate strains).</li> </ul>
	5 days*	<ul style="list-style-type: none"> <li>◆ Higher dose (90 mg/kg/day) recommended if:                             <ul style="list-style-type: none"> <li>• recent (&lt;3 months) antibiotic exposure <b>and</b> daycare centre attendance.</li> </ul> </li> <li><u>or</u></li> <li>• recurrent AOM: 6 weeks to 3 months apart. Note, less than 6 weeks is considered failure of therapy.</li> </ul>
<u><math>\beta</math>-lactam allergy</u> <b>Erythromycin-sulfisoxazole</b> 40 mg/kg/day PO div tid (based on erythromycin) or <b>TMP/SMX (Co-trimoxazole)</b> 6-10mg /kg/day PO div bid (based on TMP concentration)	5 days*	<ul style="list-style-type: none"> <li>◆ Preferred in <math>\beta</math>-lactam allergy</li> </ul>
	5 days*	<ul style="list-style-type: none"> <li>◆ Due to increased resistance, not recommended if both:                             <ul style="list-style-type: none"> <li>• recent (&lt;3 months) antibiotic exposure</li> </ul> </li> <li><u>and</u></li> <li>• daycare centre attendance.</li> </ul>

**\* Note on Duration**

Use 10 days if:

- <24 months old
- perforated eardrum
- recurrent AOM

## Agents Not Routinely Recommended in AOM

- Cephalexin: - poor activity against penicillin intermediate/resistant *S. pneumoniae*  
- no activity against *Haemophilus/Moraxella*
- Cefaclor<sup>1,2</sup>: - no activity against penicillin intermediate/resistant *S. pneumoniae*  
- marginal activity against *Haemophilus*
- Cefixime: - no activity against penicillin intermediate/resistant *S. pneumoniae*.  
- excellent activity against *Haemophilus*.
- Ceftriaxone: - routine use of this agent is not recommended in otitis media due to potential for increased resistance to 3<sup>rd</sup> generation cephalosporins.  
- may be an option in severe cases who have failed therapy. Three days of IM/IV therapy are recommended. (Single dose not as effective in eradicating penicillin resistant *S. pneumoniae*.)
- Erythromycin: - poor activity against *Haemophilus and Moraxella*
- Quinolones: - not recommended in patients <16 years old, broad spectrum, potential to induce resistance.
- Clindamycin: - no activity against *Haemophilus and Moraxella*.

## Table 2: 2nd Line Agents in the Treatment of AOM

Recommended Therapy and Dose	Duration	Comments
<p><u>Failure of Amoxicillin</u>  <b>[Amoxicillin - clavulanate</b>                      40mg/kg/day PO div tid (based on amoxicillin)                      PLUS  <b>Amoxicillin</b>                      40mg/kg/day PO div tid]</p>	<p>10 days</p> <p>10 days</p>	<p><u>Rationale</u></p> <ul style="list-style-type: none"> <li>◆ Adding amoxicillin - clavulanate to amoxicillin is needed to:                             <ul style="list-style-type: none"> <li>• provide coverage for penicillin intermediate <i>S. pneumoniae</i> and <math>\beta</math>-lactamase producing organisms</li> <li>• avoid side effects like diarrhea.</li> </ul> </li> <li>◆ If patient has failed a 5-10 day course of high dose amoxicillin therapy, amoxicillin - clavulanate alone is adequate to cover <math>\beta</math>-lactamase producing organisms which are more of a concern than <i>S.pneumoniae</i>:                             <ul style="list-style-type: none"> <li>• ratio of amoxicillin - clavulanate should be 7:1</li> <li>• due to time dependent killing of amoxicillin, the working group recommends TID dosing.</li> </ul> </li> </ul>
<p><u>OR</u></p>		
<p><b>Cefuroxime axetil</b>                      40mg/kg/day PO div bid</p>	<p>10 days</p>	
		<ul style="list-style-type: none"> <li>◆ Provides best coverage of all oral cephalosporins against penicillin intermediate strains of <i>S. pneumoniae</i> and provides good coverage of <i>Haemophilus/Moraxella/S. aureus</i>.</li> <li>◆ Due to poor taste of suspension recommend tablets if possible:                             <ul style="list-style-type: none"> <li>• can crush tablets and put in palatable fluid.</li> </ul> </li> <li>◆ If cefuroxime suspension/tablets not tolerated, cefprozil (30 mg/kg/day PO div bid can be considered. Compared to cefuroxime, it has a better taste but inferior coverage of <i>Haemophilus</i> and penicillin intermediate <i>S. pneumoniae</i>.</li> </ul>
<p><u><math>\beta</math>-lactam allergy</u>  <b>Erythromycin-sulfisoxazole</b>                      40 mg /kg/day PO div tid (based on erythromycin)</p>	<p>10 days</p>	<ul style="list-style-type: none"> <li>◆ Macrolides have been shown to be less efficacious than amoxicillin-clavulanate.<sup>3</sup></li> </ul>
<p><u>OR</u></p>		
<p><b>Azithromycin</b>                      10 mg/kg PO then                      5 mg/kg PO daily</p>	<p>1st day then                      4 days</p>	
<p><u>OR</u></p>		
<p><b>Clarithromycin</b>                      15 mg/kg/day PO div bid</p>	<p>10 days</p>	

## Etiology

Reliable microbiological diagnosis of AOM requires culture of tympanocentesis fluid through an intact drum.

The major bacterial pathogens causing AOM have not changed significantly over the last 2 decades and are similar for infants, children and adults.<sup>10,11</sup>

The most frequent causative agent of AOM is *Streptococcus pneumoniae* (40%), followed by nontypeable *Haemophilus influenzae* (25%), *Moraxella catarrhalis* (10%), Group A *Streptococcus* (2%) and *Staphylococcus aureus* (2%).<sup>12</sup> Up to 15% of middle ear fluid cultures reveal 2 organisms and findings from the left and right ear may differ. About 20-30% have no bacterial pathogens identified and presumably are viral in etiology.

The emergence of bacterial strains that are increasingly resistant to antimicrobial agents is a growing concern in Canada and worldwide.<sup>13-15</sup> Inappropriate use of antibiotics for viral upper respiratory tract infections has been a major contributor to antimicrobial resistance.<sup>16</sup> Currently, 25% of *Haemophilus influenzae* and 90% of *Moraxella catarrhalis* produce  $\beta$ -lactamase enzymes which will inactivate penicillin and amino penicillins. Recently, there has been a dramatic increase of multiple antibiotic resistant *Streptococcus pneumoniae*. Currently, 15 - 20% of *Streptococcus pneumoniae* isolates in Alberta demonstrate in-vitro resistance to penicillin, with approximately 5% of these isolates exhibiting high level resistance (MIC  $\geq$  2  $\mu$ g/mL). In Alberta, resistance to macrolides for *S.pneumoniae* is greater than 10%.

## Diagnosis

The diagnosis of AOM requires the presence of inflammation and pus in the middle ear, and acute onset of symptoms and signs of ear infection, i.e., earache, fever, irritability, poor feeding or vomiting, often associated with cough and rhinitis. This differentiates AOM from:

- ◆ Myringitis - inflammation of the tympanic membrane. This is usually associated with viral infections of the upper respiratory tract and may also be seen temporarily in the crying child.
- ◆ OME - fluid in the middle ear without signs or symptoms of acute inflammation of the eardrum.
- ◆ Chronic suppurative otitis media - persistent inflammatory process associated with

perforated tympanic membrane and draining exudate for more than 6 weeks. Many cases actually represent Otitis Externa that has been inappropriately treated. It is difficult to see a perforation in a chronically draining ear, especially if the external canals are inflamed. In these cases, mastoid x-rays and perhaps even a CT scan of the external canal, middle ear, and mastoid cells, becomes quite important for diagnosis.

## PRACTICE POINT

Bullous myringitis (rare) - bullae or tympanic membrane may be hemorrhagic. Caused by *Mycoplasma pneumoniae* and has a 90% spontaneous resolution rate.

Earache is a significant symptom predicting AOM but may also be a symptom of teething, wax in the ear canal, and migraine. A small number of children will have AOM without earache, but will generally have purulent rhinitis, irritability, night restlessness and sometimes fever.<sup>17,18</sup>

The diagnosis of AOM is made by history and direct visualization of the tympanic membrane (the wax may have to be removed). On direct otoscopy, the only specific sign is a bulging eardrum. In the absence of a bulging eardrum but with clinical suspicion of AOM, pneumatic otoscopy is necessary to differentiate AOM from myringitis. In children where this is difficult, corroboration with clinical symptoms is essential.<sup>19</sup> Younger children usually need to be restrained. Visualization of the tympanic membrane may still be difficult because of the narrow diameter of the ear canal which may also be tortuous.

Early AOM may be diagnosed by inflammation which is seen along the handle of malleus, and in the superior pole of the tympanic membrane. At this stage, the rest of the tympanic membrane usually still has good mobility with insufflation by the pneumatic otoscope. With these findings, the child should be followed closely.<sup>20</sup>

Other less common diagnostic methods include tympanometry and acoustic reflectometry. These methods must still be used in conjunction with compatible history.<sup>21</sup>

Diagnosis may be difficult in a younger child but it is important to accurately do so. A first episode of AOM before 6 months of age is likely to lead to recurrence of AOM, and subsequently, significant periods of OME with diminished hearing, leading to delayed speech development and impaired cognitive functioning.<sup>22</sup>

In the child who is younger than 2 months of age, there is a significant risk of bacteremia associated with AOM.<sup>20</sup>

## Management of AOM

Antibiotic therapy is recommended for AOM in children under 24 months.<sup>23</sup> Some studies have suggested that routine use of antibiotics, especially in children 2 years and older, is not indicated because of the high rate of spontaneous resolution.<sup>24-26</sup> A meta-analysis of 5400 children with AOM indicated that antibiotic therapy enhanced acute symptom relief by 13.7% despite a spontaneous recovery in 81% of cases.<sup>26</sup> Spontaneous resolution is organism specific: *S. pneumoniae* 10%; *H. influenzae* 50%; *M. catarrhalis* 75%.<sup>28,29</sup> Some experts recommend watchful waiting for 48 to 72 hours before initiating antibiotic therapy if symptoms are manageable with analgesics. This approach may be appropriate in patients over 2 years of age if good follow-up can be assured.

The goals of antibiotic treatment of AOM are to:

- ◆ Produce a clinical cure.
- ◆ Prevent complications.
- ◆ Eradicate bacteria from the middle ear.

All of these goals can be achieved in most children. The most important factor is not to prescribe antibiotics for inappropriate diagnosis of AOM. Since *S. pneumoniae* has the lowest spontaneous resolution rate and is associated with more serious complications, it is essential to ensure optimal coverage for this organism.

Amoxicillin at doses of 40 mg/kg/day given TID should be considered as the first line oral therapy for low risk children (no previous exposure to antibiotics in the last 3 months and not attending daycare centres).<sup>30</sup>

Amoxicillin at doses of 90 mg/kg/day given TID should be considered as the first line oral therapy for AOM in high risk children (those who have received antibiotics in the past 3 months and who are attending daycare centres).

Amoxicillin is the current antibiotic of choice for AOM<sup>31</sup> for the following reasons:

- ◆ Adequate coverage for organisms involved in AOM.
- ◆ Best activity of all oral  $\beta$ -lactam agents against penicillin intermediate *S. pneumoniae*.
- ◆ Excellent middle ear concentrations.
- ◆ Relatively few adverse effects.
- ◆ Lower potential to induce resistance.
- ◆ No other antibiotic agent has been proven superior to amoxicillin in clinical trials.

The choice of an agent remains uncertain in cases where amoxicillin treatment fails. There are many reasons why treatment appears to fail. These include incorrect diagnosis, poor compliance, inadequate antibiotic dosage or frequency, persistence of pus in an undrained middle ear, viral infection or presence of resistant bacteria. If the patient fails standard dose amoxicillin therapy, potential pathogens include viruses,  $\beta$ -lactamase producing organisms (*Haemophilus*, *Moraxella*) or penicillin resistant *S. pneumoniae*. In these cases it is recommended to use amoxicillin plus amoxicillin-clavulanate to provide coverage for these bacterial pathogens. Achieving a high dose of amoxicillin (90 mg/kg/day) using the amoxicillin-clavulanate preparation would be ideal, however, the resulting amount of clavulanate would result in unacceptably high rates of GI side-effects. The combination of amoxicillin plus amoxicillin-clavulanate has been studied and has not been shown to result in higher rates of diarrhea.<sup>32</sup> If the patient fails high dose amoxicillin therapy,  $\beta$ -lactamase producing organisms are more likely pathogens and amoxicillin-clavulanate alone is recommended (see Table 2). If the child is not responding or is deteriorating on the above regimens, consultation with a specialist and consideration of tympanocentesis for culture and susceptibility is recommended to rule out high level resistant *S. pneumoniae*.

In penicillin allergic patients, trimethoprim/sulfamethoxazole (TMP/SMX) has been recommended as a first line agent. However, because of increased resistance, erythromycin-sulfisoxazole may be preferred over TMP/SMX especially in children who attend daycare and have received antibiotics in the last 3 months. Note that erythromycin alone is not adequate for the management of AOM. Resistance to macrolides continues to increase and the routine use of these agents for this condition is not recommended.<sup>2,3</sup>

The standard duration of antibiotic therapy for AOM has been 10 days. A number of well designed, randomized studies have compared shorter courses of antibiotic therapy (3 to 7 days) with traditional 10 day courses. Based on these studies,<sup>29</sup> reduced duration of therapy from 10 days to 5 days appears to have equivalent efficacy for uncomplicated AOM. Reduced duration of therapy has several advantages including reduced potential to promote antibacterial resistance, reduced adverse effects, increased compliance, and reduced cost. Longer courses of antibiotics have been associated with resistant *S. pneumoniae*.<sup>33</sup> Children less than 2 years of age or those who present with perforation of the tympanic membrane should receive 10 days of antibiotic therapy.

Steroids are not recommended for the treatment of otitis media with effusion because of limited scientific evidence that this treatment is effective. Tonsillectomy has not been found to be effective in the management of otitis media with effusion. Adenoidectomy, however, may be useful in chronic/recurrent otitis media.

### Follow-up

Normally the symptoms of AOM should resolve within 72 hours of initiating antibiotic treatment. However, middle ear effusion may persist for up to 1 month in 50% of patients and up to 3 months in 10% of patients despite bacteriological cure. **Therefore, persistence of middle ear fluid after a full course of antibiotic therapy for AOM is not an indication for continued therapy or institution of treatment with a second line antibiotic.**

### Recurrence

Recurrent otitis media is defined as 3 or more episodes of acute otitis media over the preceding 6 months, or four or more episodes in the last year. Under these circumstances, prevention of further attacks is desirable. Modification of risk factors, when possible, may be of benefit.

Elimination of smoking from the environment and avoidance of pacifiers have been shown to help reduce recurrence of otitis media. As the child grows older, the incidence of recurrence declines. If recurrences persist, consultation with a specialist is recommended.

### Antibiotic Prophylaxis

Antibiotic prophylaxis has only minimal effects on recurrent otitis media, decreasing recurrences by approximately one episode per year.<sup>34</sup> Given the high risk of developing antibiotic resistance associated with prolonged use of antibiotics, antibiotic prophylaxis is no longer recommended in the management of recurrent otitis media.

### Referral

Referral to ENT for consideration of myringotomy and tympanostomy tubes is recommended if:

- OME for  $\geq 3$  months with bilateral hearing loss  $\geq 20$  dB.
- $\geq 3$  episodes in 6 months
- $\geq 4$  episodes in 12 months
- Retracted tympanic membrane (need to rule out significant pathology such as cholesteatoma)<sup>35</sup>.

## FUTURE DIRECTIONS

Vaccines have been highly successful in preventing many childhood diseases but until now have not been helpful in preventing AOM. The currently licensed 23 valent polysaccharide pneumococcal vaccine is not immunogenic in young children. A new conjugated pneumococcal vaccine is undergoing clinical trials in younger children and may have a role in the prevention of AOM in the future.

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## THE ALBERTA CLINICAL PRACTICE GUIDELINES PROGRAM

The Alberta Clinical Practice Guidelines Program promotes appropriate, effective and quality medical care in Alberta by supporting the use of clinical practice guidelines. The program is administered by the Alberta Medical Association under the direction of a multi-stakeholder steering committee.

### Alberta Clinical Practice Guidelines Steering Committee

Alberta Health and Wellness  
 Alberta Medical Association  
 College of Family Physicians of Canada, Alberta Chapter  
 College of Physicians and Surgeons of Alberta  
 Physicians at Large  
 Public Representative  
 Regional Health Authorities  
 University of Alberta  
 University of Calgary

### TO PROVIDE FEEDBACK

The Alberta CPG Working Group for Antibiotics is a multi-disciplinary team composed of family physicians, infectious diseases specialists, pediatricians, microbiologist, hospital and community pharmacists, epidemiologist, consumers, Alberta Blue Cross and Alberta Health and Wellness representative. The team encourages your feedback. If you have difficulty applying this guideline, if you find the recommendations problematic, or if you need more information on this guideline, please contact:

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# ALGORITHM: TREATMENT OF AOM IN CHILDREN

