

Otitis Media (OM) refers to inflammation and infection of the middle ear space. It is a complex condition associated with both illness and hearing loss.

## 2020 PRACTICAL MANAGEMENT PLANS

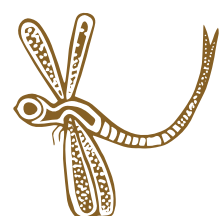
A summary of practical plans for the management of Otitis Media in Aboriginal and Torres Strait Islander children.

It is best to regard OM as a spectrum of disease that ranges from mild (otitis media with effusion, OME) to severe (chronic suppurative otitis media, CSOM). Bilateral OM is generally considered to be more severe than unilateral. In all populations, every child will experience episodic OME (fluid behind the tympanic membrane) at some time. Nearly all children will experience at least one episode of acute otitis media (AOM). All forms of OM are associated with conductive hearing loss with potential impacts on developmental milestones, particularly those related to language and communication. In developed countries, most children will improve spontaneously. Concerns about OM arise in children who suffer frequent episodic AOM or persistent OME. This is usually a problem in the first 6 years of life (with spontaneous resolution more likely in older children). Children who develop CSOM (the most severe form of OM) are most likely to suffer problems as adults. Unfortunately, for some of these affected individuals, OM (and its associated hearing loss) is a lifelong problem.

The target populations for these recommendations are Aboriginal and Torres Strait Islander children. While OM is a common illness in all populations, Aboriginal and Torres Strait Islander children, particularly those living in remote areas, have the earliest age of onset, and the highest rates of severe and persistent OM described in the medical literature. This is quite different from the clinical course described in most well-designed studies involving other children (where spontaneous resolution of disease is common). This high natural cure rate has meant that these intervention studies are limited in their ability to detect sustained clinical improvement over time. Where possible, specific recommendations for low- or high-risk children are made. For children at high risk of clinical failure or CSOM, we recommend interventions where there is strong evidence of short-term benefit even if the long-term benefits were less clear.

DIAGNOSIS	MANAGEMENT
<b>1. Aerated Middle Ear (Normal)</b>	<p><b>1. Family Education:</b> Discuss the importance of ear assessments at routine health checks, even when their child is well.</p> <ul style="list-style-type: none"> <li>• Discuss importance of hearing, impact of hearing loss on language and developmental milestones.</li> <li>• Give suggestions for language stimulation and for monitoring listening behavior for signs of hearing loss.</li> <li>• Discuss the importance of going to the health centre if their child develops ear discharge, pain, or if they have concerns about language development.</li> </ul>
<b>2. Episodic bilateral or unilateral OME</b>  <i>Fluid in middle ear without symptoms.</i>	<p><b>1. Family Education:</b> Advise the family about the likely short-term hearing loss (usually around 20 dB) and the difficulty their child will have hearing speech, speech at a distance, and speech in background noise.</p> <ul style="list-style-type: none"> <li>• Discuss importance of hearing, impact of hearing loss on language and developmental milestones.</li> <li>• Give suggestions for language stimulation and for monitoring listening behavior for signs of hearing loss.</li> <li>• Discuss the importance of going to the health centre if their child develops ear discharge, pain, or if they have concerns about language development.</li> </ul> <p><b>2. Medical:</b> Review monthly. Record date of each OM diagnosis. If OME persists for 3 months or more – Follow persistent OME.</p>
<b>3. Persistent bilateral or unilateral OME</b>  <i>Fluid in the middle ear without any symptoms for greater than 3 months.</i>	<p><b>1. Family Education:</b> Advise the family about the likely hearing loss (usually around 20 dB) and the difficulty their child will have hearing speech, speech at a distance, and speech in background noise. Tell caregivers about the need for a hearing test. Treatment will be determined by the level of hearing loss in the better hearing ear.</p> <ul style="list-style-type: none"> <li>• Discuss importance of hearing, impact of hearing loss on language and developmental milestones.</li> <li>• Give hints on language stimulation and for monitoring listening behavior for signs of hearing loss.</li> <li>• Discuss the importance of going to the health centre if their child develops ear discharge, pain, or if they have concerns about language development.</li> </ul> <p><b>2. Medical:</b> Review monthly to monitor for resolution. Long term antibiotics may be appropriate for some children with risk factors for CSOM. Consider 2 to 4 weeks antibiotics (amoxycillin 50 mg/kg/day in two to three divided doses) if bilateral OME for 3 months.</p> <p><b>3. Surgical:</b> Refer for ENT assessment if OME persistent for 3 months or hearing loss of &gt;20 dB in the better ear. If audiology is not available, assume hearing loss in children with persistent bilateral effusions. Surgery for persistent OME has potential benefits and risks. It is appropriate to have a higher threshold for ENT surgery for the child at increased risk of CSOM. Sometimes after parental discussion with ENT specialist, observation may be considered in place of surgery and this is a reasonable alternative.</p> <p>Refer for ENT assessment if severe retraction of the tympanic membrane is present (i.e., retraction pocket or atelectasis).</p> <p><b>4. Autoinflation:</b> Nasal balloon inflation therapy has shown benefits for some children.</p> <p><b>5. Audiological:</b> Monitor listening behavior for signs of hearing loss. Refer for hearing assessment if OME persistent for 3 months. If hearing loss is &gt;20 dB in the better ear, ensure ongoing audiological, language and educational support. The school-aged child will benefit from classroom sound-field amplification. If hearing loss &gt;30 dB in the better ear, and ENT surgery delayed, also refer for hearing aid consult.</p> <p><b>6. Speech Pathology:</b> Consider referral for speech therapy in children with hearing loss and language delay.</p>





DIAGNOSIS	MANAGEMENT
<p><b>4. AOM without perforation (AOMwoP)</b></p> <p><i>Bulging of the tympanic membrane with or without symptoms (e.g., ear pain), plus fluid in the middle ear.</i></p>	<p><b>1. Family Education:</b> Emphasise the need for adherence to antibiotics to prevent AOMwiP and CSOM particularly if the child is at high risk or has a high-risk episode. Advise the family about the likelihood of temporary hearing loss (usually around 20 dB) and the difficulty their child will have hearing speech, speech at a distance, and speech in background noise.</p> <ul style="list-style-type: none"> <li>• Discuss importance of hearing, impact of hearing loss on language and developmental milestones.</li> <li>• Give suggestions for language stimulation and for monitoring listening behavior for signs of hearing loss.</li> <li>• Discuss the importance of going to the health centre if their child develops ear discharge, pain, or if they have concerns about language development.</li> </ul> <p><b>2. Medical:</b> Adopt a watchful waiting strategy and treat with oral analgesics if the child is not at high risk and does not have a high-risk episode. If child meets criteria for high risk, treat with amoxycillin 50 mg/kg/day in two to three divided doses for 7 days. Tell caregivers to re-present if worse or no improvement in 2 to 3 days. Review all children after 4-7 days.</p> <p>If no clinical improvement:</p> <ul style="list-style-type: none"> <li>• For children initially managed symptomatically and who have not improved, start amoxycillin 50mg/kg/day in two to three divided doses for 7 days</li> <li>• For children initially managed with standard dose amoxycillin and who have not improved, increase dose to 90mg/kg/day in two to three divided doses for 7 days</li> <li>• For children initially managed with high dose amoxycillin and who have not improved, or who live in regions with known penicillin resistance, change to amoxycillin + clavulanic acid, 90 mg/kg/day amoxycillin component in two to three divided doses for 7 days. Augmentin Duo preparations (7:1 ratio amoxycillin:clavulanate) are appropriate.</li> <li>• In children where adherence to antibiotics is likely to be poor or whose families do not have refrigeration, give a single dose of 30 mg/kg azithromycin; if not improved at day 7, give a second dose.</li> <li>• Continue to review weekly and at 3 months after completion of treatment. Follow “Recurrent AOM” if 3 or more episodes in 6 months or 4 or more episodes in 12 months. Follow “Persistent OME” if effusions persist at 3 months.</li> </ul>





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<p><b>5. Recurrent AOM (rAOM)</b></p> <p><i>Three or more episodes of AOM in the previous 6 months or four or more episodes in the last 12 months.</i></p>	<p><b>1. Family Education:</b> Emphasise the need to take medications as prescribed to prevent AOMwiP and CSOM. Advise the family about the likely temporary hearing loss (usually 20 dB) and the difficulty their child will have hearing speech, speech at a distance, and speech in background noise. Children who have had AOM are more likely to have further episodes. Record dates of each AOM episode.</p> <ul style="list-style-type: none"> <li>• Discuss importance of hearing, impact of hearing loss on language and developmental milestones.</li> <li>• Give suggestions for language stimulation and for monitoring listening behavior for signs of hearing loss.</li> <li>• Discuss the importance of going to the health centre if their child develops ear discharge, pain, or if they have concerns about language development.</li> </ul> <p><b>2. Medical:</b> Prophylactic antibiotics are not routinely recommended. Give prophylactic antibiotics (amoxycillin 50 mg/kg/day one time per day for 3-6 months) if child is &lt;2 years old with rAOM, particularly if the child is at risk of AOMwiP or CSOM.</p> <p>In children where adherence to antibiotics is likely to be poor or for families who do not have refrigeration, give a single dose of 30 mg/kg azithromycin. If not improved at day 7, give a second dose.</p> <p>Probiotics (<i>Lactobacillus rhamnosus</i> GG) may reduce the incidence of acute otitis media. Other probiotics are not recommended.</p> <p><b>3. Surgical:</b> Refer for ENT assessment when rAOM fails to improve despite a trial of antibiotic prophylaxis</p> <p><b>4. Audiological:</b> Refer for a hearing test if child with rAOM also experiences persistent OME between AOM episodes. Monitor hearing impairment and delay in language development. If hearing loss &gt;30 dB in the better ear, and ENT surgery delayed, also refer for hearing aid consult.</p>



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<p><b>6. AOM with perforation (AOMwIP)</b></p> <p><i>Discharge through a perforation of less than 2 weeks duration or through a very small (difficult to see) perforation (&lt; 2%).</i></p>	<p><b>1. Family Education:</b> Emphasise the need for adherence to antibiotics to prevent CSOM. Emphasise the need to clean all discharging ears with tissue spears or washing (syringing) twice a day, including ‘tragal pumping’, and to take medications as prescribed to prevent CSOM. Advise the family about the likelihood of temporary hearing loss (usually at least 20 dB) and difficulty their child will have hearing speech, speech at a distance, and speech in background noise.</p> <ul style="list-style-type: none"> <li>• Discuss importance of hearing, impact of hearing loss on language and developmental milestones.</li> <li>• Give suggestions for language stimulation and for monitoring listening behavior for signs of hearing loss.</li> <li>• Discuss the importance of going to the health centre if they have concerns about language development.</li> </ul> <p><b>2. Medical:</b></p> <ul style="list-style-type: none"> <li>• Give amoxycillin 50-90 mg/kg/day in two to three divided doses for at least 14 days or a single dose azithromycin 30 mg/kg if adherence difficult or no refrigeration. Continue for at least 3 days after ear becomes dry. Review at 7 days, or earlier if no better.</li> <li>• If persistent discharge at 7 days, change to amoxycillin 90 mg/kg/day in two to three divided doses or second dose azithromycin or combination therapies amoxycillin + clavulanic acid (90 mg/kg/day amoxycillin component in two to three divided doses) for 7 days. Augmentin Duo preparations (7:1 ratio amoxycillin:clavulanate) are appropriate. Continue to review weekly.</li> <li>• Record position and size of perforation as well as duration of dry perforation. Add ciprofloxacin (2 to 5 drops 2 to 4 times per day after dry mopping with tissues spears or syringing) if perforation becomes large enough (bigger than 2% pars tensa and readily seen).</li> </ul> <p>Follow “CSOM” if discharge through a persistent and easily visible perforation (&gt;2%) present for &gt; 2 weeks despite appropriate treatment for AOM.</p> <div>     </div> <div> <p><b>Small</b> &lt; 2%</p> <p><b>Medium</b> 2% to 30%</p> <p><b>Large hole</b> &gt; 30%</p> <p><b>Subtotal</b></p> </div>



**DIAGNOSIS****MANAGEMENT****7. Chronic Suppurative OM (CSOM)**

*Persistent discharge through a visible tympanic membrane perforation (>2%) lasting at least 2 weeks or with a TM perforation large enough to allow drops to be pumped into the middle ear.*

**1. Family Education:** Advise the family about the likely hearing loss (usually >30 dB, which the World Health Organization define as disabling for children) and that their child may have difficulty hearing speech, even at close distances. Emphasise the need to adhere to twice daily ear cleaning with tissue spears or syringing, and to take medications as prescribed and that treatment may need to continue for a long time. Explain that only profuse discharge will be readily visible outside of the ear canal and that health staff need to assess the ear discharge regularly. Recognise that AOMwiP and CSOM are a continuum and that effective treatment of AOMwiP will reduce progression to CSOM. Assessing hearing is important.

- Discuss importance of hearing, impact of hearing loss on language and developmental milestones.
- Give suggestions for language stimulation and for monitoring listening behavior for signs of hearing loss.
- Discuss the importance of going to the health centre if the ear discharge gets worse or if they have concerns about language development.

**2. Medical:** Clean pus from the ear canal with dry mopping, syringing or suction. Record the position and size of perforation as well as duration of ear discharge.



**Small**  
**< 2%**



**Medium**  
**2% to 30%**



**Large hole**  
**> 30%**




**Subtotal**

Instill ciprofloxacin eardrops 5 drops two times per day after cleaning and tragal pumping. Add amoxycillin 50 to 90 mg/kg/day in two to three divided doses if the perforation is not readily visible or smaller than a pinhole (< 2% TM surface area). Continue for at least 3 days after ear becomes dry.

Review weekly until discharge has resolved, and again 4 weeks after resolution of symptoms. Prolonged periods of the treatment may be necessary.

**3. Surgical:** Refer children with unilateral or bilateral CSOM for ENT assessment or at any time when families or others are concerned about a child's hearing or language development.

**4. Audiological:** Refer children with unilateral or bilateral CSOM for audiological assessment, or at any time when families or others are concerned about a child's hearing or language development. If hearing loss >30 dB in the better ear, and ENT surgery delayed, also refer for hearing aid consult.

DIAGNOSIS	MANAGEMENT
<p><b>8. Dry Perforation (DP)</b></p> <p><i>Perforation without discharge.</i></p>	<p><b>1. Family Education:</b> Advise the family about the likely hearing loss (varies from normal if perforation small to &gt;40 dB (disabling HL) if very large) and that their child may have difficulty hearing speech, even at close distances. Emphasise the need to re-examine the child in 3 months. Advise water precautions if previously associated with discharge.</p> <ul style="list-style-type: none"> <li>• Discuss importance of hearing, impact of hearing loss on language and developmental milestones.</li> <li>• Give suggestions for language stimulation and for monitoring listening behavior for signs of hearing loss.</li> <li>• Discuss the importance of going to the health centre if their child develops ear discharge, pain, or if they have concerns about language development.</li> </ul> <div data-bbox="564 642 1347 838">  <div> <p><b>Small</b> &lt; 2%</p> <p><b>Medium</b> 2% to 30%</p> <p><b>Large hole</b> &gt; 30%</p> <p><b>Subtotal</b></p> </div> </div> <p><b>2. Medical:</b> Record position and size of perforation as well as duration of dry perforation.</p> <p><b>3. Surgical:</b> Refer for ENT assessment and consideration of myringoplasty if hearing loss &gt;30 dB in the better ear, or if there is concern about a child's hearing or language development.</p> <p><b>4. Audiological:</b> Refer for audiological assessment when there is concern about a child's hearing or language development. If hearing loss &gt;30 dB in the better ear, and ENT surgery delayed, also refer for hearing aid consult.</p>
<p><b>9. Tympanostomy Tube Otorrhoea (TTO)</b></p> <p><i>Middle ear discharge through TTs.</i></p>	<p><b>1. Family Education:</b> Emphasise the need for adherence to medications. TTO is common, occurring at least once in approximately 50% of children with TTs (though rates vary widely). Most episodes are sporadic, brief and not usually painful. Advise water precautions if previously associated with TTO.</p> <ul style="list-style-type: none"> <li>• Discuss importance of hearing, impact of hearing loss on language and developmental milestones.</li> <li>• Give suggestions for language stimulation and for monitoring listening behavior for signs of hearing loss.</li> <li>• Discuss the importance of going to the health centre if their child develops ear discharge, pain, or if they have concerns about language development.</li> </ul> <p><b>2. Medical:</b> Clean pus from the ear canal with tissue spears or syringing at least twice daily. Instill ciprofloxacin eardrops 5 drops two times per day for one week, after cleaning and tragal pumping.</p> <p>Review weekly until resolved and monthly after resolution.</p> <p><b>3. Surgical:</b> Refer to treating ENT specialist when continuous TTO for 4 weeks despite treatment, or intermittent TTO for 3 months.</p>

# PRIORITISATION OF PRIMARY HEALTH CARE SERVICES IN DIFFERENT SETTINGS

*When resources are limited, focus on those most likely to benefit from the recommendations contained within the 2020 OM Guidelines. Develop a health care strategy for your organisation. The strategy should cover prevention, diagnosis and management.*

## **PRIORITY 1:** Children <3 years old with discharging ears

(These children will have either AOMwIP or early onset CSOM)

The aim of the program is to identify children early, provide appropriate antibiotic treatment, organise weekly follow ups and optimise adherence strategies. This all needs to continue until resolution of discharge is achieved.

Appropriate antibiotic treatment is the key to a better health outcome. Treatment may need to be continued for many months. ENT referral is recommended if discharge persists for longer than 2 weeks or where perforation size is >2%.

## **PRIORITY 2:** Children <10 years old who have hearing loss of >30 dB (in the better ear) plus speech/language/communication problems

(These children may have any form of OM)

The aim of the program is to ensure that speech therapy and audiological management occur while medical treatment is optimised.

Appropriate medical treatment requires an accurate diagnosis and regular long-term follow up. A multidisciplinary approach adapted to meet the needs of the child is the key to a better health outcome. These children are likely to need ongoing ear health and hearing monitoring and hearing support throughout childhood.

## **PRIORITY 3:** Children aged 3-10 years old who have discharging ears

(These children will generally have CSOM)

Once established, CSOM can be extremely difficult to treat (this is why the Priority-1 is so important).

The aim of the program is to support long-term topical antibiotic treatment combined with appropriate audiological management.

Adherence to the treatment and regular follow up every 1-2 weeks is the key to a better health outcome. ENT referral is recommended if discharge persists for longer than 2 weeks or where perforation size is > 2%.

## **PRIORITY 4:** Other children aged <10 years old with persistent OM or tympanic abnormality and hearing loss >30 dB in the better hearing ear

(These children will generally have persistent OME or a badly scarred eardrum)

The aim of the program is to provide audiological management for all children and identify those children who will benefit from surgery.

Enhanced communication strategy and appropriate use of hearing aids is the key to a better health outcome.

## **PRIORITY 5:** For children 0-16 years old who are at risk of chronic ear health problems or who reside in a high-risk population and have not had a documented ear assessment in the previous 12 months or who have missed a scheduled ear health check

The aim of the program is for a regular ear and hearing health surveillance system for at-risk children who have a history of any ear discharge or OM or hearing difficulty, or who live in a high-risk population, and including older children.