BOTTOM LINE RECOMMENDATIONS

Acute Otitis Media

* in children over 3 months of age

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Acute Otitis Media (AOM) is common in children under 5 years of age and is often a self-limited illness lasting several days. The mainstay of AOM management is symptom/pain control. In some cases, AOM can be more prolonged or severe and requires antibiotic treatment.

Diagnosis

» Most common over 6 months of age but can occur in infants 3-6 months.

» Symptoms are **acute** in onset. These include ear pain and non-specific symptoms such as fever, crying, irritability, and/or sleep disturbance.

» **Otoscopic criteria for AOM are:**

Presence of a middle ear effusion AND inflammation (bulging, red or yellow tympanic membrane with loss of bony landmarks or presence of an air-fluid level).

-OR-

Acute perforation of TM (may see perforation or pus in the external canal).

» **Distinguish AOM from:**

- **Chronic Suppurative Otitis Media**: painless otorrhoea from a previously ruptured TM or myringotomy tube **without** acute or systemic symptoms
- **Otitis externa:** otorrhoea with pain on movement of the pinna/tragus, without systemic symptoms
- **Chronic effusion:** TM usually retracted, dull or amber-coloured and no new ear pain

» Tympanic membrane (TM) erythema can be seen with fever or a viral illness but the TM will not be bulging.

» **CAUTION:** Patients with **cochlear implants** who are diagnosed with AOM should be discussed with an ENT specialist. Patients who are **immunocompromised** should be followed carefully for appropriate clinical resolution.

Management of patients meeting diagnostic criteria for AOM

MILD OR MODERATE SYMPTOMS

» AOM associated with mild symptoms will often resolve spontaneously (80%) over 24-72 hours and should not be treated routinely with antibiotics (since these are likely viral).

» Use oral ibuprofen and/or acetaminophen as needed. Refer to TREKK Recommendations for Pain Treatment for dosing. Counsel that the need for analgesia/antipyretics should decrease over the subsequent 24-48 hours if improving.

» **Observe without antibiotics for 24-48 hours if:**

Mildly ill (e.g., alert, responsive, pain and/or fever responding well to analgesia/antipyretics)

-AND-

Symptomatic for **less than 48 hours**

-AND-

6 months of age or older

» Assure access to follow-up with a healthcare provider if symptoms persist, worsen, or child becomes systemically unwell.

» Alternatively, a back-up antibiotic prescription can be given with instructions to start treatment if pain does not improve in 24-48 hours but child remains systemically well.

SEVERE SYMPTOMS

» **Provide antibiotic prescription at diagnosis if ANY of the following:**

Young infant 3 to <6 months of age

Significant symptoms (high fever, difficulty sleeping, severe pain, poor feeding) despite regular analgesia/antipyretics

Symptomatic for **greater than 48 hours**

Acutely perforated TM

Bilateral AOM in children **under** the age of 2 years

Treatment of AOM

» Shared decision-making with caregiver should include discussion of severity of illness, risks of antibiotics, and access to medical follow-up.

» Manage the child's pain while treatment with antibiotics is underway using oral ibuprofen and/or acetaminophen. Most children will not need analgesia after 48 hours of effective treatment.

» Treat initially with Amoxicillin as most cases of AOM are due to *S. pneumoniae*.

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Clinical Scenario	Antibiotic	Notes
Uncomplicated AOM	Amoxicillin 80-90 mg/kg/day PO divided BID (MAX 4 g/day) **-OR-** Amoxicillin 45-60 mg/kg/day PO divided TID (MAX 4 g/day)	» Treat children 3 months to ≤ 2 years for 10 days. » Treat children over 2 years for 5 days.
AOM with acute perforation*	Amoxicillin 45-60 mg/kg/day PO divided TID (MAX 4 g/day) **-OR-** Amoxicillin 80-90 mg/kg/day PO divided BID (MAX 4 g/day)	» Treat all ages for 10 days. » No evidence for addition of topical antibiotics.[1, 2] * **Culture discharge in ear canal.**
AOM with known penicillin allergy (rare in children)	Cefuroxime-axetil suspension 30 mg/kg/day PO divided BID (MAX 1 g/day) **-OR-** Cefuroxime tablet (if patient able to swallow tablets whole) 250 mg PO BID (Take Cefuroxime with food to enhance bioavailability) **-OR-** If prior life-threatening allergy: Clarithromycin 15 mg/kg/day PO divided BID (MAX 1 g/day)	» Duration of treatment as per uncomplicated AOM or AOM with acute perforation above. » Verify if history is consistent with anaphylaxis (e.g., difficulty breathing, hypotension) or a severe cutaneous reaction (e.g., Stevens Johnson syndrome). » Patients with "penicillin allergy" but low risk for IgE-mediated reaction (e.g., prior non-severe rash or gastrointestinal side effects) should receive an oral challenge with Amoxicillin. » More treatment failures are seen with Clarithromycin.
AOM with treatment failure or recurrence (persistent pain and/or fever after 48 hours or AOM in past 30 days)	Amoxicillin-clavulanate 45-60 mg/kg/day PO divided BID or TID (MAX 2625 mg/day or 875 mg/dose) **-OR-** Ceftriaxone 50 mg/kg/day IV/IM Q24H (MAX 1 g/dose)	» If using Amoxicillin-clavulanate, treat all ages for 10 days. » If using Ceftriaxone, treat all ages for 3 days. » Dosing based on Amoxicillin component only; 7:1 formulation is preferred product.
Chronic Suppurative Otitis Media or Otitis Externa	Ciprofloxacin 0.3%/dexamethasone 0.1% otic drops, 4 drops to affected ear(s) BID	» Treat for 7 days. » Unusual in infants under 6 months of age. Ciprofloxacin 0.3%/dexamethasone 0.1% otic drops not recommended under 6 months of age. » If symptoms persist, consider referral to ENT for possible debridement.
Note: Refer to local formulary for more specific dosing information		

Known Complications of AOM

» Acute mastoiditis presents with pain and/or swelling over the mastoid bone, often with outward deviation of pinna. Petrous bone inflammation presents with unilateral facial palsy (CN VII) and/or diplopia on lateral gaze (CN VI).

» Venous sinus thrombosis or meningitis presents with lethargy, irritability, persistent or severe headache and/or cranial nerve palsies.

These conditions require additional investigations (e.g., advanced imaging and lumbar puncture), IV antibiotics, subspecialty consultation (e.g., ENT), admission and if required, Pediatric Referral Site consultation/transfer.

1. Le Saux N, Robinson JL. Management of acute otitis media in children six months of age and older. *Paediatr Child Health* 2016; 21:39-50.
2. Liberthal A et al. & American Academy of Pediatrics. The diagnosis and management of acute otitis media. *Pediatrics* 2013;131 (3).
3. Hoberman A, et al. Treatment of acute otitis media in children under 2 years of age. *N Engl J Med* 2011; 364:105-15.
4. Shaikh N, Hoberman A, Kaleida P, Ploof D, Paradise J. Diagnosing Otitis Media – Otoscopy and Cerumen Removal (Video). *N Engl J Med* 2010; 362:e62.
5. Venekamp RP, Sanders SL, Glasziou PP, Del Mar CB, Rovers MM. Antibiotics for acute otitis media in children. *Cochrane Database Syst Rev* 2015;2015(6):CD000219. Published 2015 Jun 23.
6. National Institute for Health and Care Excellence. Otitis media (acute): antimicrobial prescribing. Published March 28, 2018. Accessed August 30, 2022.

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