Care and Treatment Plan: Acute Otitis Media – *Adult and Pediatric*

Definition

Acute inflammation or infection of the middle ear, often preceded by a viral upper respiratory tract infection (URTI). It is less common in adults than in children.

Registered Nurses with **Remote Nursing** or **RN First Call** Certified Practice designation (RN(C)) are authorized to manage, diagnose, and treat adults and children with acute otitis media who are **6 months of age and older**.

Note: In BC, the term pediatrics is often defined as an individual under the age of 19.[1] For the purposes of certified practice DSTs, pediatrics refers to individuals under the age of 19 unless otherwise specified.

Note: A *consultation* refers to the RN(C) collaborating with members of the care team, such as a physician, nurse practitioner, or pharmacist, to support decision-making processes related to the diagnosis, treatment, and management of the diseases, disorders, and conditions that the RN(C) are authorized to diagnose, treat, and manage. A *referral* is when an RN(C) refers a patient to a medical care provider for further treatment, care, or management. This occurs when patients are presenting with symptoms outside of what is provided in this document, including symptoms that require urgent referral.

Management and Intervention

Goals of Treatment[2,3]

- Effectively manage infection
- Relieve pain
- Prevent complications

Non-Pharmacologic Interventions

None.[4]

Note: Clients may inquire about complementary and alternative medical (CAM) treatments. However, CAM treatments may not be supported by empirical evidence and may cause harm. Client education regarding recommended treatment options is important.[4,5]

Pharmacologic Interventions: Adults[π]

To relieve pain and fever:[2]

- Acetaminophen 325mg, 1-2 tabs orally q4-6h PRN[6]
- Ibuprofen 200mg, 1-2 tabs orally q4-6h PRN[7]

Preferred oral antibiotic therapy:[2,8]

Mild to moderate infections: 5 to 7 days.
Severe infections: 10 days.

- Amoxicillin-Clavulanate 875mg/125mg orally twice daily (preferred therapy), **OR**
- Amoxicillin 1000mg orally three times daily

Alternative antibiotic therapy for patients WITH penicillin allergy, and NO cephalosporin allergy:[2]

Mild to moderate infections: 5 to 7 days.
Severe infections: 10 days.

- Cefuroxime 500mg PO twice daily

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Alternative antibiotic therapy for patients with SEVERE penicillin allergy AND cephalosporin allergy:[2]

Mild to moderate infections: 5 to 7 days.
Severe infections: 10 days.

Note: Levofloxacin and Moxifloxacin (fluoroquinolones) should be reserved for those with severe illness due to increased risk of side effects including tendinitis, tendon rupture, peripheral neuropathy and central nervous system effects.[π]

- Doxycycline 100mg orally twice daily, **OR**
- Levofloxacin 500mg to 750mg orally once daily, **OR**
- Moxifloxacin 400mg orally once daily

In case of allergies to the above antibiotics, recurrent infection, or unavailability of the previously listed antibiotics, consult with or refer to a physician or nurse practitioner.

Pregnant and Breastfeeding Clients[9,10]

When administering, dispensing, or prescribing a medication to an individual who is pregnant or breastfeeding, RN(C)s are encouraged to consult with interdisciplinary team members such as a pharmacist, physician, or nurse practitioner, as risks and benefits of medication use may vary depending on patient-specific considerations.

The considerations noted here are restricted to medications that are directly contraindicated.

- Acetaminophen, Amoxicillin-Clavulanate, and Amoxicillin may be used as listed above
- Ibuprofen is not recommended for pregnancy, particularly after 20 weeks gestation[7]
- Doxycycline is contraindicated in **pregnant** and **breastfeeding** clients

Pharmacological Interventions: Pediatric

Note: Weight-based pediatric doses should not exceed recommended adult doses.

To relieve pain and fever:

For all pediatric patients 6 months of age and over:

- **Acetaminophen:**[11]
  Max from all sources: Acetaminophen 75mg/kg/**day** or 4,000mg total in 24 hours - whichever is less.
  - Oral Acetaminophen: calculate 10-15mg/kg/**dose** q4-6h PRN
  - Rectal Acetaminophen: calculate 15-20mg/kg/**dose** q4-6h PRN
- **Ibuprofen:**[12]
  Max from all sources: Ibuprofen 40mg/kg/**day** or 2,400mg total in 24 hours - whichever is less
  - Oral Ibuprofen: calculate 5-10 mg/kg/**dose** q6-8h PRN; max 400 mg/**dose**

Antibiotic therapy:

Acute otitis media cases must be differentiated between those with a significant risk of severe infection or complications and those that are likely to resolve with supportive care only.

Children **more** likely to have a severe infection requiring immediate antibiotics:[3]

- <2 years of age
- Temperature ≥39 degrees Celsius
- Severe pain not improved with analgesia
- Marked bulging of the tympanic membrane (more likely to be bacterial etiology)

[π] *Interdisciplinary Consultation*

- Otorrhea (with or without effusion)
- Bilateral AOM
- Symptoms for >72 hours at presentation

Children **less** likely to have a severe infection requiring immediate antibiotics:[3]

- ≥2 years of age
- Temperature <39 degrees Celsius
- Mild-moderate pain improved with analgesia
- Unilateral infections
- Absence of marked bulging of the TM
- Symptoms for <72 hours at presentation

For those not at risk of severe infection and/or in the absence of complications, initial observation is recommended for the first 72 hours of illness, sometimes referred to as "watchful waiting." If no improvement is observed after 72 hours of illness, antibiotics should be initiated.[3]

Note: Family-centered education, which includes consideration of caregiver preferences and values, is important, particularly in relation to the risks and benefits of initiating antibiotic therapy when delayed antibiotic treatment is recommended.[3]

Preferred antibiotic selection for pediatric patients over 6 months:[3,13π]

6 months to 2 years of age: 10-day course of treatment.
≥2 years of age: 5-day course of treatment.

- Amoxicillin – 15mg/kg/**dose** three times per day as capsules or suspension (maximum 3000mg/**day** as per standard adult dosing), **OR**
- Amoxicillin – 45mg/kg/**dose** twice per day as capsules or suspension (maximum 3000mg/**day** as per standard adult dosing)

Note: Due to the higher average serum concentration of antibiotic in three times daily dosing, a lower dose can be used with similar efficacy. Ability of the clients/caregivers to take the dose q8h or q12h should be considered when deciding dosing schedule.

Alternative antibiotic selection for pediatric patients over 6 months with penicillin allergy:[3,13]

6 months to 2 years of age: 10-day course of treatment.
≥2 years of age: 5-day course of treatment.

- Cefuroxime – 30 mg/kg/**day** divided twice or three times per day as tablets or suspension (max 500mg/**dose**), **OR**
- Ceftriaxone – 50 mg/kg intramuscularly (or intravenously) daily for three days (max 2000mg/**day**)

In case of allergies to the above antibiotics, recurrent infections, or if the previously listed antibiotics are not available, consult with or refer to a physician or nurse practitioner.

Potential Complications of Acute Otitis Media[2,3]

- Otitis media with tympanic membrane effusion (OME) or chronic tympanic membrane perforation
- Chronic otitis media (COM) or chronic suppurative otitis media (CSOM)
- Hearing loss
- Facial paralysis or facial nerve palsy
- Mastoiditis (rare)

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- Cholesteatoma (rare)
- Epidural, subdural and brain abscesses (rare)
- Labyrinthitis
- Petrositis
- Otitic hydrocephalus and otitic meningitis
- Septic lateral sinus thrombosis

Client Education/Discharge Information[2,13,14]

- Educate clients regarding antihistamines and decongestants
  - No proven efficacy in the treatment of acute otitis media, and they are not recommended
- Counsel clients about appropriate use of medication (dosage compliance and follow-up)
- Explain disease course and expected outcome (illness should begin improving within 72 hours)
- Counsel clients that smoking increases the risk of URTI and subsequent AOM risk

Monitoring and Follow-up[2,3,13]

- Re-examine patients with persistent pain, fever, or no response to treatment, within 24-48 hours
- If antibiotic treatment is not initiated after the initial assessment, return to the clinic if no improvement after 72 hours of illness

Additional pediatric considerations[2,13]

- Follow up within 24-48 hours after diagnosis if antibiotic treatment is initiated
- If using a "watchful waiting" approach, provide clear instructions regarding the importance of follow-up within 48 hours or if the illness is worsening
- Depending on the severity, risk factors, and availability, follow-up plans should be clearly communicated and achievable for the caregivers
- Counsel parent(s) or caregiver(s) about appropriate use of medications (dosage, compliance, follow-up)

Consultation and/or Referral[2,3,13]

- Atypical presentation for acute otitis media must be referred to a physician or nurse practitioner
- RN(C)s should consider consultation or referral when they are unable to meet the BCCNM RN(C) practice standard: *Acting within Autonomous Scope of Practice.*[15]
- For clients with chronic or complex otitis media, further specialist follow-up may be required; these clients require a referral to a physician or nurse practitioner for a specialist referral
- No consult or referral is needed if acute otitis media is uncomplicated and responds to treatment
- Consult with a physician or nurse practitioner if there is no improvement in symptoms or the condition worsens within 24-48 hours of treatment
- If a perforation or other complications develop after initial assessment and treatment, refer the client to a physician or nurse practitioner

Documentation

According to agency policy and BCCNM standards.

References

1. Coughlin KW. Medical decision-making in paediatrics: Infancy to adolescence. Canadian Paediatric Society. January 24, 2024. Accessed June 27, 2025. https://cps.ca/en/documents/position/medical-decision-making-in-paediatrics-infancy-to-adolescence

2. Limb C, Lustig L, Durand M. Acute otitis media in adults. UpToDate. November 15, 2024. Accessed February 23, 2025. https://www.uptodate.com/contents/acute-otitis-media-in-adults?search=otitis%20media&source=search_result&selectedTitle=4%7E150&usage_type=default&display_rank=4

3. Tahtinen P, Frost H. Acute otitis media in children: Treatment. UpToDate. November 4, 2024. Accessed February 23, 2025. https://www.uptodate.com/contents/acute-otitis-media-in-children-treatment?sectionName=CONFIRM%20DIAGNOSIS%20BEFORE%20TREATING&topicRef=146864&anchor=H1031762288&source=bqp#H2878956120

4. Tahtinen P, Frost H. Patient education: Ear infections (otitis media) in children (Beyond the Basics). UpToDate. November 4, 2024. Accessed August 17, 2025. https://www.uptodate.com/contents/ear-infections-otitis-media-in-children-beyond-the-basics

5. British Columbia College of Nurses & Midwives. Nurse Practitioners and Registered Nurses Professional Standards. BCCNM. November 2020. Accessed February 25, 2025. https://www.bccnm.ca/Documents/standards_practice/rn/RN_NP_Professional_Standards.pdf

6. UpToDate Lexidrug. Acetaminophen (paracetamol): Drug information. *UpToDate*. Published online 2025. Accessed February 25, 2025. https://www.uptodate.com/contents/acetaminophen-paracetamol-drug-information

7. UpToDate Lexidrug. Ibuprofen: Drug Information. UpToDate Lexidrug. Accessed February 24, 2025. https://www.uptodate.com/contents/ibuprofen-drug-information

8. Alberta Health Services. Bugs and Drugs. Bugs&Drugs. 2025. Accessed April 13, 2025. https://www.bugsanddrugs.org/74793912-2732-475F-B43E-F3A0A9F386BB

9. Hazard Vallerand A, Sanoski C. *Davis Drug Guide for Nurses*. 19th ed. Unbound Medicine, Inc; 2025.

10. Briggs G, Freeman R, Towers C, Forinash A. *Briggs Drugs in Pregnancy and Lactation*. 12th ed. Wolters Kluwer Health; 2021.

11. Lexidrug. Acetaminophen (paracetamol): Pediatric drug information. UpToDate. 2025. Accessed February 25, 2025. https://www.uptodate.com/contents/acetaminophen-paracetamol-pediatric-drug-information

12. Lexidrug. Ibuprofen: Pediatric drug information. UpToDate. 2025. Accessed February 25, 2025. https://www.uptodate.com/contents/ibuprofen-pediatric-drug-information

13. Le Saux N, Robinson J. Management of acute otitis media in children six months of age and older. Canadian Paediatric Society. November 21, 2024. Accessed February 23, 2025. https://cps.ca/documents/position/acute-otitis-media

14. Wald E. Acute otitis media in children: Clinical manifestations and diagnosis. UpToDate. June 25, 2024. Accessed February 23, 2025. https://www.uptodate.com/contents/acute-otitis-media-in-children-clinical-manifestations-and-diagnosis?search=otitis%20media&topicRef=6872&source=see_link

15. BCCNM. Acting Within Autonomous Scope of Practice (Certified Practice). BCCNM. Accessed June 28, 2025. https://www.bccnm.ca/RN/PracticeStandards/Pages/CPAutonomousSoP.aspx