Acute Otitis Media (AOM)

Clinical Guideline

Primary Care (UC & CMG)

Patient presents with concern for ear infection

Does patient meet criteria for Acute Otitis Media (AOM)?

Review criteria for AOM:

- Moderate to severe bulging of the TM *or*
- New onset of otorrhea not attributable to acute otitis externa *or*
- Mild bulging of TM and recent onset of otalgia *or*
- Mild bulging of TM and recent onset of intense erythema

No

Consider alternative diagnoses

Antibiotic therapy is *not* recommended for Otitis Media with Effusion

- Defined as middle ear fluid without meeting criteria for AOM

Yes

Is patient younger than 2 weeks old, or younger than 2 months with fever or ill appearing??

Yes

- Refer to Emergency Department
- Consider
  - Septic Workup
  - Febrile Neonate Guideline

No

Is there a severe AOM or any contributing factors?

Severe AOM:

- Severe ear pain
- Ear pain > 48 hours
- T > 39°C (102.2° F) within last 48 hours
- Toxic appearing

Contributing factors:

- Otorrhea
- ≥ 3 AOM in last 6 months or ≥ 4 AOM in last 12 months (recurrent AOM)
- Immunodeficiency or craniofacial anomaly
- Uncertain access to follow up

Yes

Treat now,10 days

No

What is their age?

- ≥ 2 months to 6 months
- 6 months to < 24 months
- ≥ 2 years
- ≥ 6 years

≥ 2 months to 6 months → Treat now, 10 days

6 months to < 24 months → Is AOM unilateral?

No → Treat now, 10 days

Yes → Either:

- Provide "Wait and See" Treatment Plan** *or*
- Treat now, **10 days**

≥ 2 years → Either:

- Provide "Wait and See" Treatment Plan** *or*
- Treat now, **7 days**

≥ 6 years → Either:

- Provide "Wait and See" Treatment Plan** *or*
- Treat now, **5 days**

****Wait and See Treatment Plan:**

- Print "wait and see/just in case" prescription
  - 10-day duration
  - Set expiration date for 5 days after visit date
- Discuss pain control in detail, provide clear plan for when to start antibiotics
- Use appropriate AVS wait and see instructions

Counseling for patients and families:

- About 80% of healthy children will improve within 3 days without antibiotic therapy.
- With antibiotic treatment, 92% will improve, but 10% will develop rash and 10% diarrhea.
- Otalgia(most common complaint) can persist for up to 7 days despite antibiotic therapy.

Acute Otitis Media (AOM)

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Does patient have otorrhea? Yes → Does patient have tubes? Yes → See page 3

No / No

Decision to treat AOM with oral antibiotics

Does patient have history of:
- Completed course of Amoxicillin in last 30 days?
- Concomitant conjunctivitis?
- Recurrent AOM unresponsive to amoxicillin?

Penicillin allergy? No → Does patient have history of:

Penicillin allergy? Yes → High risk penicillin allergy***? Yes → Clindamycin

High risk penicillin allergy***? No → 1st line: Cefprozil or Ceftriaxone IM x 1 dose; 2nd line: Cefuroxime or Cefdinir; 3rd line: Clindamycin

Does patient have history of: Yes → Amoxicillin/Clavulanate*

Does patient have history of: No → Amoxicillin

Amoxicillin/Clavulanate* → Improved in 48-72 hours*? Yes → Complete current treatment

Improved in 48-72 hours*? No → Ceftriaxone x 3 doses *or* Clindamycin +/- 3rd Gen Cephalosporin

Amoxicillin → Improved in 48-72 hours*? No → Ceftriaxone x 3 doses *or* Clindamycin +/- 3rd Gen Cephalosporin

Improved in 48-72 hours*? Yes → Complete current treatment

1st line: Cefprozil or Ceftriaxone IM x 1 dose; 2nd line: Cefuroxime or Cefdinir; 3rd line: Clindamycin → Improved in 48-72 hours*? Yes → Complete current treatment

Improved in 48-72 hours*? No → Ceftriaxone x 3 doses or Clindamycin x 10 days

Clindamycin → Improved in 48-72 hours*? Yes → Complete current treatment

Improved in 48-72 hours*? No → **Urgent** referral to ENT & **Consider** consulting infectious disease

Ceftriaxone x 3 doses *or* Clindamycin x 10 days +/- 3rd Gen Cephalosporin → Improved in 48-72 hours*? Yes → Complete current treatment

Improved in 48-72 hours*? No → **Urgent** referral to ENT & **Consider** consulting infectious disease

Antibiotic Dosing Guide

Amoxicillin
- 90 mg/kg/day divided BID; max dose 1000 mg

Amoxicillin/Clavulanate CW ID Guide to Augmentin Dosing
- 90 mg/kg/day divided BID
- Use 600 mg/5 ml suspension, max dose 960mg-68.6mg
- Use 875 mg capsule, max dose 875 mg

Ceprozil (see annotation A)
- 30 mg/kg/day divided BID, max dose 500 mg

Ceftriaxone
- 50 mg/kg/dose IM Q24 hours, max dose 1000 mg
- First line: administer for 1 dose
- Treatment failure: administer once Q24 hours for 3 days in a row

Cefuroxime – tablets only
- 30 mg/kg/day divided BID; max dose 500 mg

Cefdinir
- 14 mg/kg/day divided BID; max dose 300 mg
- Local ID experts do not recommend use of cefdinir in the treatment of AOM Why not cedinir?

Cefpodoxime
- 30 mg/kg/day divided BID; max dose 200 mg

Clindamycin
- 30-40 mg/kg/day divided TID; max dose 600 mg

Antibiotic Duration Recommendations:
- Severe AOM at any age or with contributing factors as defined above
  - 10 days
- Non-severe AOM by age
  - < 2 years: 10 days
  - ≥ 2 -5 years: 7 days
  - ≥ 6 years: 5 days
  - Note: shorter duration is acceptable for otitis/conjunctivitis, recent amoxicillin within 30 days, or Hx of AOM unresponsive to amoxicillin

***Penicillin allergy (updated 7/2025)**

High-risk: anaphylaxis; swelling (face, lips, throat); difficulty breathing; wheezing; skin peeling; mouth blisters; drop in blood pressure; syncope; seizures; serum sickness; fever; within one hour of medication: abdominal pain, rash, itching, multiple episodes of vomiting

Low-risk: rash or itching >1 hour from med administration, single episode of vomiting, dizziness, nausea, cough

Non-allergic symptoms (amoxicillin would be appropriate in these cases): runny nose, diarrhea, headache, vomiting with med administration, family history

Antibiotics to Avoid

These antibiotics are not recommended as suitable therapy due to increased resistance.
- Azithromycin
- Sulfamethoxazole-trimethoprim

* If failure to improve within 48-72 hours on current antibiotic, change antibiotic and treat for 10 days (see annotation B on page 3).

Treatment for patients ***with*** **otorrhea**

Patients without tympanostomy tubes, suspected perforation
- Refer to page 2 for oral therapy as prescribed.
- No otic drops needed unless concomitant signs and symptoms of otitis externa.

Patients with tympanostomy tubes present
- Topical antibiotic ONLY: Dosing BID for 7-10 days: Preferred Ofloxacin (recommend using eye drops as typically less expensive and easier to find, can use ear drops, based on cost and availability)
  Alternatives options:
  - Ciprofloxacin without dexamethasone
  - Ciprofloxacin with dexamethasone only for bloody otorrhea. ENT assumes bloody discharge is from granulation until proven otherwise.

Oral treatment in addition to otic drops if:
- Symptoms persist > than 7 days despite topical treatment
  - Consult ENT
- Obstruction of external canal
- Uncooperative child
- Concern for more severe disease including: fever, severe otalgia, signs of cellulitis, concurrent sinusitis or pharyngitis

Follow Up
- Children with persistent, significant AOM symptoms after 2-3 days of antibiotic therapy should be re-evaluated for potential change to second-line agent
- Children with OME should follow up with PMD in one month, sooner if concerns or recurrent AOM symptoms
  - Prolonged OME can lead to transient hearing loss potentially associated with language delay and chronic anatomic injury to the TM requiring reconstructive surgery

CW ENT referral considerations
- If unable to see PCP in a timely manner, discuss referral
  - Persistent otorrhea for 7 days without improvement
  - 3 episodes of AOM in 6 months plus abnormal ear exam
  - 4 episodes of AOM in 1 year plus abnormal ear exam
  - Middle ear effusion for ≥ 3 months
- If **Urgent** referral is needed based on treatment failures, please place ENT referral with comments as "fast track" and indicate to family this is a "fast track" referral. When speaking with central scheduling family should state "fast track".

Annotations

A. Pharmacy
1. Pharmacy consideration for availability of cephalosporins, see table A below
2. Cefprozil is covered by Medicaid, is typically most cost-effective, and has better pharmacokinetic than other cephalosporins so is preferred if available. It shares a side change with amoxicillin so is not appropriate alternative for high-risk penicillin allergy.

B. Treatment failure
1. If there is failure to improve within 48-72 hours on current antibiotic, change antibiotic (per algorithm) and treat for 10 days regardless of age.
2. Refractory AOM or alternative therapies for failure to improve
   a) Ceftriaxone (Rocephin) IM 50 mg/kg (max 1gram / day) Q 24 hours for 3 consecutive days (3 total doses)
   b) AAP guideline recommends dosing for 3 consecutive days when Ceftriaxone is used for treatment failure/refractory AOM
   c) If a single dose of ceftriaxone was used for initial treatment, and patient has treatment failure 48-72 hours later, then re-treat and give 3 additional consecutive days of ceftriaxone Q 24 hours (so patient receives a total of four doses in this situation)
   d) Clindamycin 30-40 mg/kg/day TID (max 600mg/dose) for 10 days, with or without 3rd generation cephalosporin

Table A: Pharmacy Considerations

Skywalk Pharmacy frequently carries the enteral medications recommended in this pathway. Skywalk Pharmacy is open Monday-Friday 8am-11pm and Saturday/Sunday/holidays 8am-6pm.
Antimicrobial Stewardship is partnering with Walgreens to support stocking cefprozil suspension/ tablets at the following locations. While this does not guarantee the medication is available, these may be good locations to try if difficulty obtaining this medication.

CW Milwaukee Campus	Nearest pharmacy Walgreens
Childrens Wisconsin Milwaukee Campus 8915 W. Connell Ct., Milwaukee, WI 53226	Skywalk Pharmacy: 8915 W. Connell Ct. Milwaukee, WI 53226 Walgreens: 2275 N Mayfair Rd, Wauwatosa, WI 53226
CW Urgent Care	**Nearest Walgreens**
Kenosha UC 6809 122 Ave, Kenosha, WI 53142	7520 118th Ave, Pleasant Prairie, WI 53158
Forest Home UC 1432 W Forest Home Ave, Milwaukee, WI 53204	1433 W Burnham St, Milwaukee, WI 53204
Mayfair UC 3040 N 117th St #200, Wauwatosa, WI 53222	2275 N Mayfair Rd, Wauwatosa, WI 53226
Delafield UC 3195 Hillside Dr, Delafield, WI 53018	2901 Golf Rd, Delafield, WI 53018
Mequon UC 1655 W Mequon Rd, Mequon, WI 53092	11270 N Port Washington Rd, Mequon, WI 53092
New Berlin UC 4855 S Moorland Rd, New Berlin, WI 53151	3855 S Moorland Rd, New Berlin, WI 53151
CW Primary Care	**Nearest Walgreens**
Bayshore Pediatrics (Fox Point) 7950 N Port Washington Rd, Fox Point, WI 53217	8615 N Port Washington Rd, Fox Point, WI 53217
Cedarburg Pediatrics 7861 WI-60 Trunk, Cedarburg, WI 53012	W62n190 Washington Ave, Cedarburg, WI 53012 1915 Wisconsin Ave, Grafton, WI 53024
North Shore Pediatrics (Mequon) 1655 W Mequon Rd, Mequon, WI 53092	
River Glen Pediatrics (Glendale) 4655 N Port Washington Rd, Glendale, WI 53212	5400 N Port Washington Rd, Glendale, WI 53217 320 E Capitol Dr, Milwaukee, WI 53212
West Bend Pediatrics 611 Veterans Ave #106, West Bend, WI 53090	1720 W Washington St, West Bend, WI 53095
Forest Home Pediatrics	
Forest View Pediatrics (New Berlin) 4855 S Moorland Rd, New Berlin, WI 53151	3855 S Moorland Rd, New Berlin, WI 53151
Franklin Pediatrics 7322 W Rawson Ave, Franklin, WI 53132	7130 S 76th St, Franklin, WI 53132
Kenosha Pediatrics	
Lakeside Pediatrics (Kenosha) 8600 75th St, Kenosha, WI 53142	7520 118th Ave, Pleasant Prairie, WI 53158 7535 Green Bay Rd, Kenosha, WI 53142
Oak Creek Pediatrics 8375 S Howell Ave, Oak Creek, WI 53154	9449 S Howell Ave, Oak Creek, WI 53154
Greenfield Pediatrics 3365 S 103rd St, Milwaukee, WI 53227	2677 S 108th St, West Allis, WI 53227 9100 Beloit Rd, Milwaukee, WI 53227
Southwest Pediatrics (New Berlin)	
Good Hope Pediatrics 7720 Good Hope Rd, Milwaukee, WI 53223	9040 Good Hope Rd, Milwaukee, WI 53224 6442 N 76th St, Milwaukee, WI 53223
Mayfair Pediatrics (Wauwatosa) 3040 N 117th St, Wauwatosa, WI 53222	2275 N Mayfair Rd, Wauwatosa, WI 53226 10800 W Capitol Dr, Wauwatosa, WI 53222
Midtown Pediatrics 5433 W Fond du Lac Ave, Milwaukee, WI 53216	5115 W Capitol Dr, Milwaukee, WI 53216
Bluemound Pediatrics (Brookfield) 12635 W Bluemound Rd, Brookfield, WI 53005	15350 W Bluemound Rd, Elm Grove, WI 53122
Delafield Pediatrics	
Pewaukee Pediatrics 1215 George Towne Dr, Pewaukee, WI 53072	1441 Capitol Dr, Pewaukee, WI 53072
Westbrook Pediatrics (Brookfield) 14755 W Capitol Dr #100, Brookfield, WI 53005	15640 W Capitol Dr, Brookfield, WI 53005

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Please contact clinicalguidelines@childrenswi.org for questions or comments.

Original: 7/2019

Revision Date: 12/17/2025 – Formatting was updated to new guideline template, antibiotic stewardship committee revised antibiotics preferences for AOM. Inclusion of different antibiotic durations based on severity of AOM and age. Verification of criteria for referral to ENT completed.

Approved by: Amy Romashko, MD date 12/17/2025

Guideline history:
Original: UC Clinical Practice Council and Medical Director 4/2022
Revision dates: [revision included:]
- 11/2025 – update to treatment durations to include 5-day option for ages 6 and older with non-severe AOM, antibiotic updates to include specifics to cephalosporin use and dosing, formatting change
- Previous versions 4/2022, 8/2021, 2/2020, 7/2019

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Medical Disclaimer

This Clinical Guideline (CG) is designed to provide a framework for evaluation and treatment. It is not intended to establish a protocol for all patients with this condition, nor is it intended to replace a clinician's judgement. Adherence to this CG is voluntary. Decisions to adopt recommendations from this CG must be made by the clinician in light of available resources and the individual circumstances of the patient. Medicine is a dynamic science; as research and clinical experience enhance and inform the practice of medicine, changes in treatment protocols and drug therapies are required. The authors have checked with sources believed to be reliable in their effort to provide information that is complete and generally in accord with standards accepted at the time of publication. However, because of the possibility of human error and changes in medical science, neither the authors nor Children's Hospital and Health System, Inc., nor any other party involved in the preparation of this work warrant that the information contained in this work is in every respect accurate or complete, and they are not responsible for any errors in, omissions from, or results obtained from the use of this information.