

Policy

# Clinical Guideline

## South Australian Paediatric Practice Guidelines – Acute Otitis Media in Children

**Policy developed by:** SA Child Health Clinical Network

**Approved SA Health Safety & Quality Strategic Governance Committee on:**  
11 February 2014

**Next review due:** 28 February 2017

**Summary** Clinical Practice Guideline for the management of Otitis Media in children.

**Keywords** otitis media, oam, mastoiditis, middle ear infection, ear infection, eustachian tube, ear drum, tympanic membrane, tympanic membrane rupture, serous otitis media, glue ear, ear effusion, bullous myringitis, myringotomy tubes, grommets, otorrhoea, Paediatric Practice Guidelines, Acute Otitis Media in Children, clinical guideline

**Policy history** Is this a new policy? **Y**  
Does this policy amend or update an existing policy? **N**  
Does this policy replace an existing policy? **N**  
If so, which policies?

**Applies to** All SA Health Portfolio  
All Department for Health and Ageing Divisions  
All Health Networks  
CALHN, SALHN, NALHN, CHSALHN, WCHN, SAAS  
Other

**Staff impact** All Clinical, Medical, Nursing, Allied Health, Emergency, Dental, Mental Health, Pathology

**PDS reference** CG132

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### Version control and change history

Version	Date from	Date to	Amendment
1.0	04/09/2013	Current	Original version

# South Australian Paediatric Practice Guidelines

## acute otitis media in children

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### Note

This guideline provides advice of a general nature. This statewide guideline has been prepared to promote and facilitate standardisation and consistency of practice, using a multidisciplinary approach. The guideline is based on a review of published evidence and expert opinion.

Information in this statewide guideline is current at the time of publication.

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Health practitioners in the South Australian public health sector are expected to review specific details of each patient and professionally assess the applicability of the relevant guideline to that clinical situation.

If for good clinical reasons, a decision is made to depart from the guideline, the responsible clinician must document in the patient's medical record, the decision made, by whom, and detailed reasons for the departure from the guideline.

This statewide guideline does not address all the elements of clinical practice and assumes that the individual clinicians are responsible for discussing care with consumers in an environment that is culturally appropriate and which enables respectful confidential discussion.

This includes:

- The use of interpreter services where necessary,
- Advising consumers of their choice and ensuring informed consent is obtained,
- Providing care within scope of practice, meeting all legislative requirements and maintaining standards of professional conduct, and
- Documenting all care in accordance with mandatory and local requirements

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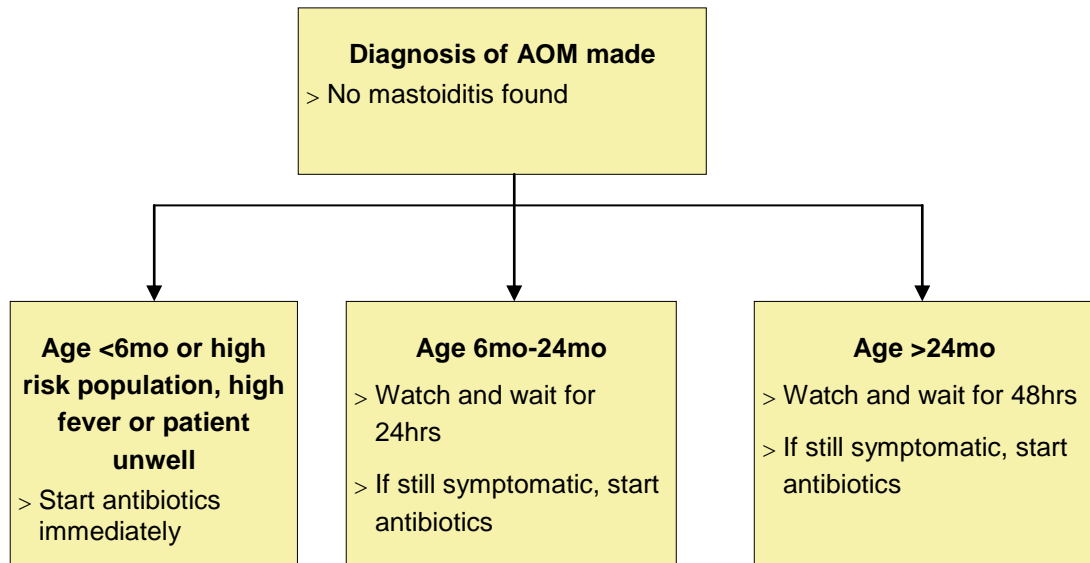
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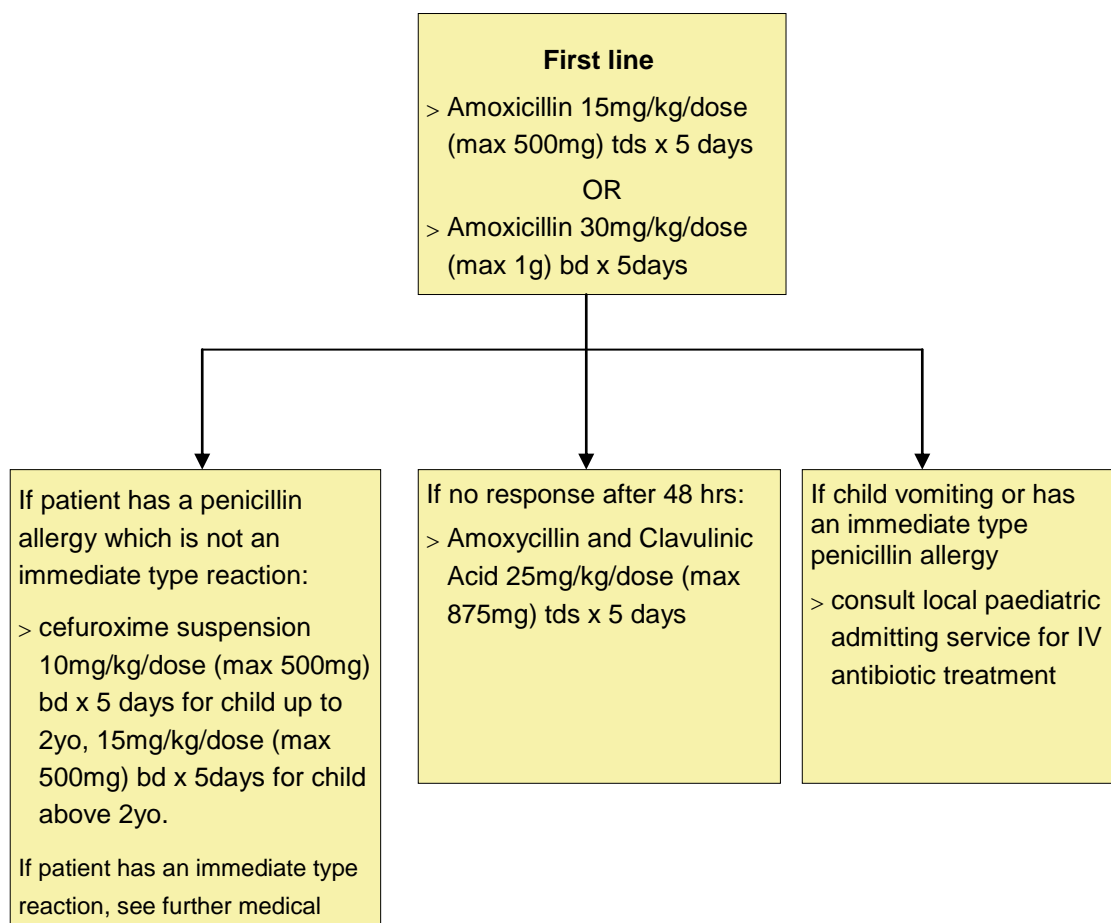
# acute otitis media in children

## Suggested antibiotic usage flowchart for acute otitis media

**Diagram 1: Commencing antibiotics**



**Diagram 2: Antibiotic choice**



# acute otitis media in children

## Abbreviations

AOM	Acute otitis media
bd	Twice daily
ENT	Ear, nose and throat
hrs	Hours
IV	Intravenous
kg	Kilogram(s)
mg	Milligrams
mL	Millilitre(s)
mo	Months
tds	Three times a day

## Exclusions

- > **This guideline does not deal specifically with the management of acute otitis media or its complications in Aboriginal and Torres Strait Islander Populations.** For clinical care guidelines on the “Management of Otitis Media in Aboriginal and Torres Strait Islander Populations” follow link to the [Department of Health and Ageing website](#)
- > <http://www.health.gov.au/internet/main/publishing.nsf/Content/health-oatsih-pubs-omp.htm>
- > This guideline will not discuss the management of complications of acute otitis media; however it will refer to how to diagnose them, as well as appropriate referral and disposition of such patients

## Important points

- > Acute otitis media (AOM), a common condition in children, is a closed space inflammatory process in the middle ear. It is more frequent in the first 2 years of life, due to the immaturity of immunologic defences and to the Eustachian tube’s function and structure
- > Diagnosis is based on the presence of a triad of clinical signs
- > Management includes analgesia as well as possible antibiotic use
- > Age is important in determining whether a child can have delayed antibiotic management
- > First line antibiotic therapy is Amoxicillin. Poor response to amoxicillin may occur due to increasing resistance of causative bacteria. Amoxicillin with clavulanic acid (Augmentin Duo<sup>®</sup>) provides better coverage of *Haemophilus influenzae* and *Moraxella catarrhalis* and additionally, a three times daily (tds) dosing instead of the standard twice daily (bd) dosing increases antibiotic activity, which is required in children

## Causes

- > Viral (25%)
- > *Streptococcus pneumoniae* (35%)
- > Non-typable strains of *Haemophilus influenzae* (25%)
- > *Moraxella catarrhalis* (15%)

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## Assessment

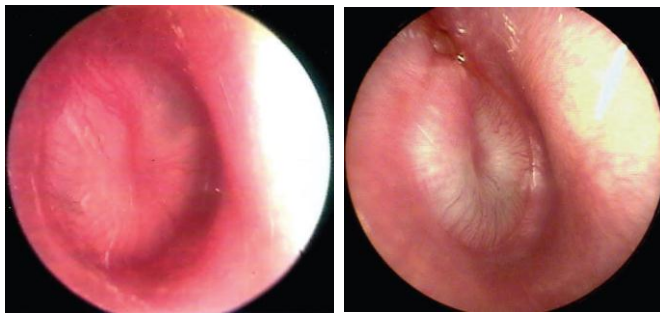
### Clinical signs and symptoms

- > AOM diagnosis requires the following triad of symptoms:
- > Rapid onset of symptoms e.g. earache, ear tugging, irritability
- > Middle ear effusion as evidenced by a bulging immobile tympanic membrane or fluid behind the tympanic membrane
- > Acute inflammation, as evidenced by erythema of the tympanic membrane

The presence of a bulging, immobile red ear drum has a positive predictive value of 83-99%.

Assessment often finds the child presenting with other viral URTI signs. Thus, a diagnosis of AOM can only be made after actively looking for signs of this disease.

### Otitis Media



## Management

- > There is no evidence that antihistamines, decongestants, or corticosteroids have any place in AOM management.

### Analgesia:

- > Pain relief is essential for AOM. The following analgesics can be utilised:
  - First line: Paracetamol 15mg/kg/dose
  - If unsuccessful, change to ibuprofen 10mg/kg/dose

**If still unsuccessful, add topical anaesthetic if available, e.g. benzocaine (Auralgan OTIC®) Otherwise, seek further advice.**

### Antibiotics:

#### Commencing antibiotics

##### Start immediately

- > All symptomatic children aged <6 months
- > Symptomatic high risk groups e.g. aboriginal population
- > Symptoms such as fever or vomiting or child is unwell, whilst looking for other causes of illness

##### Well children 6-24 months

- > Give pain relief and observe for 24 hours from time of symptom onset. Watch and Wait for 24 hours before starting antibiotics

##### Well children aged >24 months

- > Give pain relief and observe for 48 hours from time of symptom onset. Watch and Wait for 48

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hours before starting antibiotics

It is recommended that, when compared with an immediate antibiotic prescribing strategy, a watchful waiting approach (delayed strategy) for acute otitis media reduces consumption of antibiotics, the intention being to consult a doctor for future episodes and the likelihood of adverse effects (mainly diarrhoea). It does not appear to increase the long term risks of mastoiditis, recurrent earache, or hearing problems. The cost however is a delay in recovery of symptoms by an average of one day, increased analgesic requirements and a small reduction in parental satisfaction with treatment. (NHS evidence. Clinical knowledge summaries-otitis media-acute-evidence).

The practice of providing a prescription for delayed dispensing of antibiotics following parent observation is not recommended.

## Oral antibiotic choices:

### First line therapy:

- > Amoxicillin 15mg/kg/dose (up to 500mg) tds **OR** 30mg/kg/dose (up to 1g) bd (if compliance concerns) orally for 5 days. For suspension formulation, always round up the dose to the nearest ml increment.

### Penicillin hypersensitivity (excluding immediate hypersensitivity):

- > Cefuroxime suspension 10mg/kg/dose (up to 500mg bd) orally for 5 days for a child up to 2yo, 15mg/kg/dose for a child above 2yo. The suspension comes in 25mg/ml, so when administering, round up dose to the nearest ml increment.
- > NB, the recent change from cefaclor is due to the higher incidence of serum sickness with cefaclor. Cefuroxime is now available in suspension form in South Australia on the PBS.

### Penicillin immediate hypersensitivity (anaphylaxis, airway compromise)

Alternative antibiotics for patients with a history of immediate reaction to penicillin include:

- > Azithromycin - daily dose 10mg/kg (max 500mg) on day 1, followed by daily dose 5mg/kg (max 500mg) for 4 days
- > Clarithromycin – 7.5-15mg/kg/dose (max 250-500mg) bd for 10 days

NB: Macrolide antibiotics have a higher rate of treatment failure, particularly for azithromycin, and are more expensive

Clinicians are advised to refer to the ASCIA website for more information about immediate hypersensitivity reactions and management:

<http://www.allergy.org.au/health-professionals/anaphylaxis-resources>

### Poor response to therapy:

- > If at 48 hours following first antibiotic dose, the patient is still symptomatic, change to amoxicillin with clavulanic acid (Augmentin Duo<sup>®</sup>), 25mg/kg/dose orally tds for 5 days

**NB:** Warn the parent that there is a high incidence of concomitant diarrhoea, which is not an allergy.

- > If the patient cannot tolerate oral antibiotics (persistent vomiting) → consider referral to local admitting paediatric service for IV antibiotics e.g. Ceftriaxone.

## Ongoing management

- > The criteria for referral to an ENT specialist (as an outpatient) depends on the age of the child and the severity of each acute otitis media episode (e.g. more than 6 episodes in a 12 month period).

## Complications

### Tympanic membrane rupture

- > Due to the pressure in the middle ear increasing to the point where the bulging tympanic

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membrane perforates

- > Clinically the child has a sudden loss of otalgia, but now has bloody discharge from the ear.
- > Treatment is the same as for standard AOM.
- > Should the discharge not resolve within 7 days, an ENT surgeon's opinion should be sought

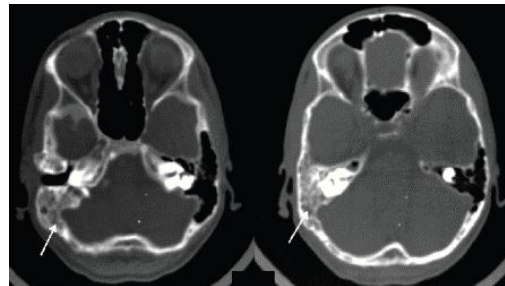
Tympanic membrane rupture



## Acute mastoiditis

- > The most serious, albeit rare complication of acute otitis media.
- > Patients present with otalgia, periauricular swelling and erythema, particularly post auricular which causes the pinna of the ear to be pushed forward.
- > The infection spreads to cause purulent destruction of the mastoid bone.
- > All patients presenting with this need an urgent ENT consult for advice on imaging and further management.

Acute mastoiditis



## Serous otitis media

- > Also known as 'glue ear'.
- > Diagnosis is the persistence of ear effusion for over 3 months.
- > The causes are multifactorial, and may include infection, persistent use of a baby pacifier and parental smoking
- > Referral to an ENT surgeon is recommended if the following are present:
  - effusion lasting less than 3 months in the setting of speech delay or educational handicap.
  - effusion lasting more than 3 months and audiometry showing bilateral hearing loss.
  - structural damage to the tympanic membrane (significant retraction, cholesteatoma).

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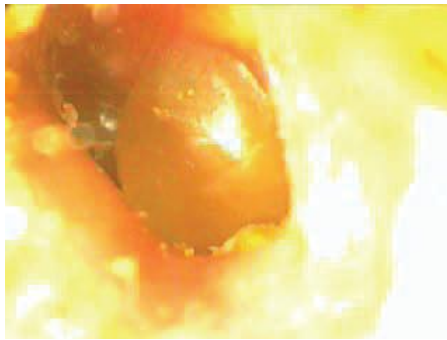
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## Serous otitis media



## Bullous myringitis



### Cause

- > Believed to be primarily viral, however *Mycoplasma* has been identified in some cases.

### Physical examination

- > Auriscope examination reveals bulla(e) on the tympanic membrane that is(are) filled with serous or serosanguineous fluid. The ear canal may be affected as well.
- > Risk of spontaneous rupture

### Treatment

- > Analgesics
- > Oral roxithromycin 4mg/kg bd (max 150mg) for 5 days to cover *Mycoplasma*.

### Infected myringotomy tubes (grommets)

- > Children will have a history of myringotomy tube insertion (grommets) and a discharging ear (otorrhea)

Before tube insertion

After tube insertion

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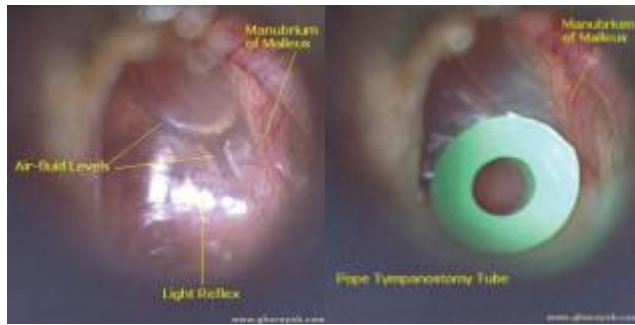


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## Cause

- > The most common associated pathogens are *Streptococcus pneumoniae* and *Haemophilus influenzae*.
- > In cases where the discharge is smelly or green, *Pseudomonas* infection is more likely.

## Treatment

- > Oral Amoxicillin with Dexamethasone 0.05% + Framycetin 0.5% + Gramicidin 0.005% (Sofradex® Otodex®) ear drops
- > Studies have shown that use of Aminoglycoside ear drops does not produce ototoxicity if courses are less than 7 days.
- > Should the infection not resolve in 3 days, consider swabbing and changing to Ciprofloxacin ear drops with steroid.

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## Information for parents

Parenting and Child Health. Women's and Children's Health Network. Available at URL:

<http://www.cyh.com/HealthTopics/HealthTopicDetails.aspx?p=114&np=304&id=1855>

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