

# CHAPTER 17

## EAR, NOSE AND THROAT DISORDERS

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### 17.1 EPIGLOTTITIS

J05.1

#### DESCRIPTION

Acute epiglottitis can result in severe, sudden or progressive airway obstruction. Acute epiglottitis can be caused by bacteria (e.g. *H. influenzae*), viruses (e.g. herpes simplex) and non-infectious insults (trauma, chemicals, heat).

#### GENERAL MEASURES

Airway management may require urgent specialist advice.  
Adequate hydration.

#### MEDICINE TREATMENT

Humidified oxygen.

##### Antibiotic therapy

Total duration of therapy: 10 days.

- Ceftriaxone, IV, 1 g daily.

Follow with oral therapy as soon as patient can swallow and the temperature is <37.8°C for 24 hours, to complete the 10-day course:

- Amoxicillin/clavulanic acid, oral, 875/125 mg 12 hourly.

Severe penicillin allergy to amoxicillin/clavulanic acid, oral: (Z88.0)

- Macrolide, e.g.:
- Azithromycin, oral, 500mg daily for 3 days.

LoE:III<sup>+</sup>

##### Acute stage

Imminent airway obstruction:

- Hydrocortisone, IV, 100 mg immediately as a single dose.

##### AND

- Adrenaline (epinephrine) 1:1 000, 1 mL nebulised.
  - Dilute to 5 mL with sodium chloride 0.9% and administer 4–6 hourly.

LoE:III<sup>+</sup>

LoE:III<sup>+</sup>

### 17.2 RHINITIS, ALLERGIC, PERSISTENT

J30.1-4

#### DESCRIPTION

Allergic rhinitis is an allergic inflammation of the nasal airways. Signs and symptoms include rhinorrhoea, itching, sneezing, nasal congestion and obstruction, conjunctival swelling and erythema, puffy eyes, swollen nasal turbinates, and middle ear effusion.

## GENERAL MEASURES

Avoid allergens and irritants.

Provide education on the correct technique of administering topical medicines. Incorrect technique is a common cause of treatment failure.

## MEDICINE TREATMENT

- Corticosteroid, topical, nasal spray e.g.:
- Fluticasone topical, aqueous nasal spray, 1 spray of 100 mcg in each nostril daily.
  - Aim the nozzle laterally and upwards (aim for the eye) and not to the back of the throat.
  - Do not sniff vigorously.

LoE:II<sup>v</sup>

### Patients on protease inhibitors:

- Beclomethasone, aqueous nasal solution, 1 spray of 100 mcg in each nostril 12 hourly.
  - Aim the nozzle laterally and upwards (aim for the eye) and not to the back of the throat.
  - Do not sniff vigorously.
  - Review 3 monthly.

LoE:III<sup>v</sup>

If symptoms persist despite an adequate trial of topical corticosteroids administered with the correct technique:

### ADD

- Non-sedating antihistamine, oral e.g.:
- Cetirizine, oral, 10 mg daily.

LoE:I<sup>vi</sup>

For relief of nasal blockage:

- Oxymetazoline 0.05%, intranasal, administered 8 hourly for a maximum of 5 days.

**Note:** Rebound nasal congestion occurs with prolonged use (>5 days) of topical nasal decongestants.

LoE:III<sup>vii</sup>

Failure of the above:

### ADD

- Corticosteroids (intermediate-acting) e.g.:
- Prednisone, oral, 30 mg daily for 5 days whilst continuing the topical steroid.

## 17.3 SINUSITIS, BACTERIAL, COMPLICATED

J01.0-4/J01.8-9

### DESCRIPTION

Acute bacterial sinusitis complicated by extension to the orbit or intracranially.

Extension to the orbit causes orbital cellulitis or orbital periosteal abscess, both of which may present with pain on eye movement, partial or complete visual loss

(which can be irreversible), ophthalmoplegia, and proptosis. Eyelid oedema and erythema is usually present, but external signs of inflammation may be absent. Intracranial extension may cause meningitis, subdural empyema, brain abscess, or thrombosis of cavernous sinus/cortical veins.

In immunosuppressed or diabetic patients presenting with features of sinusitis consider fungal infections such as mucormycosis. Features suggesting mucormycosis include necrosis of the nasal or palatal mucosa, and orbital or cerebral involvement.

## MEDICINE TREATMENT

- Ceftriaxone, IV, 2 g 12 hourly and **refer**.

### Pain:

- Paracetamol, oral, 500 mg to 1 g, 4 to 6 hourly as required (to a maximum of 4 g in 24 hours).
  - Maximum dose: 15 mg/kg/dose.

LoE:III
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## REFERRAL

### **Urgent**

- » Proptosis.
- » Ophthalmoplegia.
- » Suspected mucormycosis, especially in immunocompromised patients.

### **Non-urgent**

- » After initiating antimicrobial therapy, refer for a CT scan, to a centre where an appropriate surgical specialist, i.e. ophthalmologist, ENT specialist or neurosurgeon, is available.
- » Suspected fungal sinusitis (other than mucormycosis).

## 17.4 OTITIS MEDIA, ACUTE

H66.9

## DESCRIPTION

Inflammation of the middle ear of rapid onset.

## MEDICINE TREATMENT

### In previously untreated patients:

- Amoxicillin, oral, 1000 mg 8 hourly for 5 days.

LoE:III <sup>viii</sup>
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### Patients not responding to amoxicillin:

- Amoxicillin/clavulanic acid, oral, 875/125 mg 12 hourly for 5 days.

### Severe penicillin allergy: (Z88.0)

LoE:III <sup>ix</sup>
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- Macrolide, e.g.:
  - Azithromycin, oral, 500 mg daily for 3 days.

For patients with upper respiratory tract congestion, secondary to allergy: (T78.4)

- Non-sedating antihistamine, oral, e.g.:
- Cetirizine, oral, 10 mg daily for 10 days.

LoE:II<sup>a</sup>

For management of allergic rhinitis, see Section 17.2: Rhinitis, allergic, persistent.

For pain:

- Paracetamol, oral, 500 mg to 1 g, 4 to 6 hourly as required (to a maximum of 4 g in 24 hours).
  - Maximum dose: 15 mg/kg/dose.

If pain is not controlled, see chapter 26: Pain.

LoE:III<sup>pd</sup>

## REFERRAL

- » No response to amoxicillin/clavulanic acid.
- » No pain relief despite treatment.
- » Bulging eardrum, not responding to treatment after 24 hours.
- » Swelling and pain on palpation of the mastoid process.
- » Recurrent otitis media.

## 17.5 OTITIS MEDIA, CHRONIC, SUPPURATIVE

H66.1-3

### DESCRIPTION

A purulent discharge from the ear for more than 2 weeks.

If the eardrum has been ruptured for 2 weeks or longer, a secondary infection with multiple organisms usually occurs. Multiple organism infection often makes oral antibiotic treatment ineffective and patients may need to be referred.

TB is an important cause of a chronically discharging ear in South Africa.

If pain is present, suspect another condition or complications.

#### Note:

- » A chronically draining ear can only heal if it is dry.
- » Drying the ear is time consuming but is the most effective treatment.
- » HIV status should be established in chronic otitis media.

### GENERAL MEASURES

Dry mopping is the most important part of the treatment. It should be demonstrated to the patient.

- » Roll a piece of clean absorbent cloth into a wick.
- » Carefully insert the wick into the ear with twisting action.
- » Remove the wick and replace with a clean dry wick.
- » Repeat this until the wick is dry when removed.

Do not leave anything in the ear.

Avoid getting the inside of the ear wet while swimming and bathing.

Exclude TB as a cause.

**MEDICINE TREATMENT**

After cleaning and drying the ear:

- Acetic acid 2% in alcohol, topical, 3–4 drops instilled into the ear every 6 hours for 5 days.
- Ciprofloxacin, drops, 3 mg/mL, 3–4 drops instilled into the ear every 8 hours for 7 days after mopping.

For pain:

LoE: I<sup>xii</sup>

- Paracetamol, oral, 500 mg to 1 g, 4 to 6 hourly as required (to a maximum of 4 g in 24 hours).
  - Maximum dose: 15 mg/kg/dose.

If pain is not controlled, see chapter 26: Pain.

LoE: III<sup>xiii</sup>

**REFERRAL**

- » Focal neurological signs such as facial nerve palsy.
- » Vomiting or drowsiness.
- » Swelling and pain on palpation of the mastoid process.
- » No improvement after 4 weeks.
- » Any attic perforation.
- » Any perforation not progressively improving after 3 months or closed by 6 months, even if dry.
- » Moderate or severe hearing loss.
- » Effusion.

**17.6 MASTOIDITIS**

H70.0/H70.9

**DESCRIPTION**

Infection of the mastoid air cells, usually complicating otitis media. Most patients have tenderness, erythema, and/or swelling over the mastoid bone. Diagnosis should be confirmed radiographically, preferably by CT scan.

**MEDICINE TREATMENT**

- Ceftriaxone, IV, 2 g 12 hourly.

**REFERRAL**

After initiating antimicrobial therapy, refer to a centre for s mastoidectomy.

## 17.7 OTITIS EXTERNA

### 17.7.1 OTITIS EXTERNA, NECROTISING

H60.2

#### DESCRIPTION

Invasive infection of the external auditory canal, which can extend to involve the base of the skull with cranial nerve palsies and the temporomandibular joint. Presents with severe otalgia and otorrhoea, which is unresponsive to topical therapy for otitis externa. Most common pathogen: *P. aeruginosa*.

Necrotising otitis externa typically occurs in elderly diabetics or other immunocompromised patients.

#### GENERAL MEASURES

Debridement as indicated.

Insert a dry wick such as a dried sponge, into the canal under direct vision. Remove the wick 2 days later, and replace if necessary.

#### MEDICINE TREATMENT

- Ciprofloxacin, oral, 750 mg 12 hourly, and refer.

LoE:III
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#### REFERRAL

- » For surgical debridement of necrotic bone in non-responders.
- » All cases to a centre where CT scan of the affected area can be done to assess the extent of the disease.
- » Cranial nerve palsies.

## 17.8 ABSCESS, PERITONSILLAR

J36

#### DESCRIPTION

Peritonsillar abscess or quinsy is a collection of pus lateral to the tonsil, i.e. underneath it pushing it toward the midline. Infections are often polymicrobial. It typically presents with trismus and sore throat. Other features include:

- » unilateral throat pain
- » dysphagia
- » drooling
- » muffled voice
- » fever

#### SURGICAL MEASURES

Drainage of pus is the most important intervention.

There are 3 main methods:

- » needle aspiration of pus
- » incision and drainage
- » abscess tonsillectomy, either unilateral or bilateral.

## MEDICINE TREATMENT

### Antibiotic therapy

Total duration of therapy: 10 days.

- Amoxicillin/clavulanic acid, IV, 1.2 g 8 hourly.  
Follow with oral therapy as soon as patient can swallow and the temperature is  $<37.8^{\circ}\text{C}$  for 24 hours:
- Amoxicillin/clavulanic acid, oral, 875/125 mg 12 hourly.

Severe penicillin allergy: (Z88.0)

- Clindamycin, IV, 600 mg 8 hourly.  
Follow with oral therapy as soon as patient can swallow and the temperature is  $<37.8^{\circ}\text{C}$  for 24 hours:
- Clindamycin, oral, 450 mg 8 hourly.

For pain:

- NSAID, oral: e.g.
- Ibuprofen, oral, 400 mg 8 hourly with or after a meal.

## REFERRAL

Refer all for ENT and/or anaesthetic review.

### Urgent

- » Signs of airway compromise (e.g. stridor)).
- » Suspicion of infective spread beyond the peritonsillar space.

## 17.9 VERTIGO, ACUTE

R42/H81.1

### DESCRIPTION

An acute syndrome, consisting of vertigo, nystagmus, nausea, vomiting and postural instability. It is important to differentiate between peripheral and central causes of vestibular dysfunction.

#### Peripheral causes

Patients frequently present with vertigo, which is most often rotational, with nystagmus. The onset is usually sudden and often intermittent. Associated abnormalities of hearing may be present. Aetiology includes benign paroxysmal positional vertigo (confirm with a positive Dix-Hallpike test, <https://www.youtube.com/watch?v=8RYB2QIO1N4>), aminoglycoside vestibular toxicity, and vestibular neuritis.

#### Central causes

It is essential to conduct a thorough neurological examination in patients with vertigo, looking specifically for signs of brainstem or cerebellar dysfunction.

Aetiology includes cerebellar stroke and space occupying lesions of the posterior cranial fossa.

## GENERAL MEASURES

It is essential to find the cause and treat appropriately. Patients with suspected central causes should be referred for neuro-imaging and possible neurosurgical management.

### Benign positional vertigo

H81.1

Good results may be achieved with particle relocation manoeuvres, such as the Epley manoeuvre. <https://www.youtube.com/watch?v=jBzID5nVQjk>

In a third of patients, symptoms recur after 1 year and repeat manoeuvres may be required.

## MEDICINE TREATMENT

This is only for symptomatic relief and is determined by the aetiology.

Discontinue all medication as soon as symptoms subside as the medicine itself may cause vertigo due to involvement of the unaffected side.

- Promethazine, oral, 10 mg 8 hourly.
  - May be increased to 20 mg 8 hourly if necessary.

**Note:** This is sedating and patients should not drive or operate heavy machinery.

LoE: <sup>xiv</sup>
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## REFERRAL

- » If there is no peripheral cause, suspect intracranial mass lesions or cerebellar stroke.
- » Patients not responding to therapy for exclusion of alternative aetiology.



## References:

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**SOUTH AFRICAN ADULT HOSPITAL LEVEL ESSENTIAL MEDICINES LIST  
CHAPTER 17: EAR, NOSE AND THROAT CONDITIONS  
NEMLC RECOMMENDATIONS FOR MEDICINE AMENDMENTS (2017 -2019)**

Medicine amendment recommendations, with supporting evidence and rationale are listed below. Kindly review the medicine amendments in the context of the dental and oral conditions chapter.

SECTION	MEDICINE	ADDED/DELETED/AMENDED
<b>17.2 Rhinitis, allergic, persistent</b>		
<i>-Intranasal corticosteroids (general population)</i>	Corticosteroids, nasal spray	Retained as a therapeutic class
	Fluticasone aqueous nasal spray	Added as example of class (listed in the STG)
	Beclomethasone aqueous nasal spray	Deleted as example of class in the STG (added to therapeutic interchange database)
	Budesonide aqueous nasal spray	Added as therapeutic alternative
	Mometasone aqueous nasal spray	Added as therapeutic alternative
	Triamcinolone aqueous nasal spray	Added as therapeutic alternative
<i>- Patients on protease inhibitors (&gt; 6 years of age)</i>	Beclomethasone, topical nasal solution	Added
<i>- Persistent symptoms</i>	Non-sedating anti-histamines	Recommended as a therapeutic class
	Cetirizine, oral	Amended as an example of therapeutic class (listed in STG)
	Fexofenadine, oral	Added as a therapeutic alternative
<i>- Nasal blockage</i>	Topical nasal decongestants	Caution added
<b>17.3 Sinusitis, bacterial, complicated</b>	Paracetamol, oral	Added
<b>17.4 Otitis media, acute (AOM)</b>		
<i>- In previously untreated patients</i>	Amoxicillin, oral	Dosing amended
<i>- For patients with upper respiratory tract congestion (for 10 days)</i>	Non-sedating anti-histamines	Recommended as a therapeutic class
	Cetirizine, oral	Amended as an example of therapeutic class (listed in STG)
	Fexofenadine, oral	Added as a therapeutic alternative
<i>- Pain</i>	NSAIDs, oral	Deleted
	Paracetamol, oral	Added
<i>- For patients with upper respiratory tract congestion (for 10 days)</i>	Non-sedating anti-histamines	Recommended as a therapeutic class
	Cetirizine, oral	Amended as an example of therapeutic class (listed in STG)
	Fexofenadine, oral	Added as a therapeutic alternative
<b>17.5 Otitis media, chronic, suppurative</b>	Acetic acid 2% in alcohol	Retained
	Ciprofloxacin, topical	Added
	Ciprofloxacin, oral	Deleted
	Paracetamol, oral	Added
<b>17.7.1 Otitis externa, necrotising</b>	Ciprofloxacin, topical	Not added
	Betamethasone/cloquinol/tolnaftate/gentamicin, topical	Not added
	Ciprofloxacin, oral (750 mg 12 hourly)	Retained
<b>17.8 Abscess, Peritonsillar</b>	Benzylpenicillin, IV	Deleted
	Metronidazole, IV	Deleted
	Amoxicillin/clavulanate, IV	Added
<i>- De-escalation</i>	Amoxicillin/clavulanate, oral	Retained
<b>17.9 Vertigo, acute</b>	Cinnarizine, oral	Not added
	Promethazine, oral	Retained

## 17.2 RHINITIS, ALLERGIC, PERSISTENT

### Intranasal corticosteroids:

Corticosteroids, nasal spray: retained as a therapeutic class

Fluticasone aqueous nasal spray: added as example of class (listed in the STG)

Beclomethasone aqueous nasal spray: deleted as example of class in the STG (added to therapeutic interchange database)

Budesonide aqueous nasal spray: added as therapeutic alternative

Mometasone aqueous nasal spray: added as therapeutic alternative

Triamcinolone aqueous nasal spray: added as therapeutic alternative

Cochrane<sup>1</sup> reviewers concluded that there is currently "no evidence that one type of intranasal steroid is more effective than another in patients with chronic rhinosinusitis, nor that higher doses are better than lower, nor that the effectiveness of a spray differs from an aerosol"; and there were "no studies that compared nasal drops with spray". There is "moderate quality evidence of an increased risk of epistaxis (nosebleed) as an adverse effect of treatment when higher doses were used".

The following table lists comparative doses for the various agents (derived from SAMF, 2016 and MCC registered package inserts):

Corticosteroid	Dose	Contract circular price (daily dose)*
Beclomethasone dipropionate (50mcg/spray)	100mcg into each nostril twice daily	R 0.57
Budesonide (100mcg/spray)	200mcg into each nostril daily	n/a
Fluticasone propionate (50mcg/spray)	100mcg into each nostril daily	R 0.34
Mometasone furoate (50mcg/spray)	100mcg into each nostril daily	n/a
Triamcinolone acetonide (55mcg/spray)	110mcg into each nostril daily	n/a

\*Contract circular HP07-2017DAI, accessed 11 December 2019: Beclomethasone dipropionate 50 mcg, 150 doses = R 21.41; Fluticasone propionate 50mcg, 120 doses = R 20.622 (weighted average price)

Fluticasone aqueous nasal spray is currently cheaper than beclomethasone aqueous nasal spray when approximate therapeutic comparable doses are compared (see table above); and is thus listed as the example of class in the STG.

**Level of Evidence: I Systematic review, Expert opinion**

### Patients on protease inhibitors (> 6 years of age):

Beclomethasone, topical nasal solution: added

Beclomethasone aqueous nasal spray is the recommended nasal corticosteroid for patients on protease inhibitors.

**Rationale:** Case reports of drug-drug interaction of protease inhibitors with inhaled corticosteroids (budesonide, fluticasone, mometasone and ciclesonide), except beclomethasone resulting in iatrogenic Cushing's syndrome and adrenal insufficiency.

**Level of Evidence: III Case reports<sup>2 3 4 5</sup>**

The evidence for the drug-drug interaction of corticosteroids with protease inhibitors was initially reviewed by the PHC Expert Review Committee (ERC). However, at the NEMLC meeting of the 12 April 2018<sup>6</sup>, the NEMLC recommended that patients on protease inhibitors requiring nasal corticosteroids rather be referred to higher level of care for further management.

<sup>1</sup> Chong LY, Head K, Hopkins C, Philpott C, Burton MJ, Schilder AG. Different types of intranasal steroids for chronic rhinosinusitis. Cochrane Database Syst Rev. 2016 Apr 26;4:CD011993. <https://www.ncbi.nlm.nih.gov/pubmed/27115215>

<sup>2</sup> Foisy MM, Yakiwchuk EM, Chiu I, Singh AE. Adrenal suppression and Cushing's syndrome secondary to an interaction between ritonavir and fluticasone: a review of the literature. HIV Med. 2008 Jul;9(6):389-96. <https://www.ncbi.nlm.nih.gov/pubmed/18459946>

<sup>3</sup> University of Liverpool. HIV drug interaction database. <https://www.hiv-druginteractions.org/>

<sup>4</sup> Frankel JK, Packer CD. Cushing's syndrome due to antiretroviral-budesonide interaction. Ann Pharmacother. 2011 Jun;45(6):823-4. <https://www.ncbi.nlm.nih.gov/pubmed/21558486>

<sup>5</sup> Yoganathan K, David L, Williams C, Jones K. Cushing's syndrome with adrenal suppression induced by inhaled budesonide due to a ritonavir drug interaction in a woman with HIV infection. Int J STD AIDS. 2012 Jul;23(7):520-1. <https://www.ncbi.nlm.nih.gov/pubmed/22844010>

<sup>6</sup> Minutes of the NECML meeting of 12 April 2018

**Extract from the minutes of the NEMLC meeting of the 12 April 2018 (PHC referral):**

- **19.1 ALLERGIC RHINITIS:** Previously the NEMLC (29 June 2017) recommended that the PHC Committee critically appraise the evidence for a drug-drug interaction between inhaled corticosteroids and protease inhibitors. The PHC Committee recommended that beclomethasone inhaled corticosteroid be recommended in patients on protease inhibitors as case reports of drug-drug interaction of protease inhibitors with most inhaled corticosteroids (budesonide, fluticasone, mometasone and ciclesonide), except beclomethasone were reported in the literature, resulting in iatrogenic Cushing's syndrome and adrenal insufficiency. However, the NEMLC deliberated the need to have both beclomethasone and another corticosteroid metered dose inhaler (MDI) (fluticasone/budesonide, etc.) at every primary level clinic. Stocking beclomethasone inhalers for a small patient cohort was not considered pragmatic.

**NEMLC Recommendation:** The NEMLC recommended that patients on protease inhibitors requiring nasal corticosteroids be referred to higher level of care for management.

See the consolidated PHC NEMLC report for the PHC ENT chapter (2016-2018 review cycle)



PHC\_EarNoseThroat  
\_NEMLC report\_2016

<http://www.health.gov.za/index.php/standard-treatment-guidelines-and-essential-medicines-list/category/285-phc>

**Symptoms persist despite adequate trial of topical corticosteroids administered with correct technique**

Non-sedating antihistamines, oral: recommended as therapeutic class

Cetirizine, oral: retained as example of class (listed in STG)

Fexofenadine, oral: added as therapeutic alternative

Refer to the medicine review, non-sedating antihistamines for persistent allergic rhinitis (November 2017):



Non-sedating  
Antihistamines for A

<http://www.health.gov.za/index.php/standard-treatment-guidelines-and-essential-medicines-list/category/286-hospital-level-adults>

**Recommendation:** Fexofenadine and cetirizine appear to be statistically and clinically similar in regards to SAR symptom reduction. Fexofenadine has less drowsiness, but this is not statistically significant. Based on the medicine review, recommendations were guided by availability of agents based on price.

**Prices**

Medicine	Source	Price
Cetirizine 10 mg tablets (28)	Contract circular RT289-2019, accessed 11/12/2019	R 3.08
Fexofenadine 120 mg tablets (30)	SEP database (60% of cheapest generic) <sup>7</sup>	R 71.98

**Level of Evidence: I RCT, Expert opinion**

**For relief of nasal blockage**

Topical nasal decongestants: caution added

The following caution was added, aligned with SAMF, 2016:

**Note:** Rebound nasal congestion occurs with prolonged use (>5 days) of topical nasal decongestants.

**Level of Evidence: III Guidelines**

<sup>7</sup> SEP database, accessed 11 December 2019. Available at: <https://mpr.code4sa.org/>

### 17.3 SINUSITIS, BACTERIAL, COMPLICATED

Paracetamol, oral: *added*

Paracetamol, oral was added for pain management in this clinical setting.

**Level of Evidence: III Expert opinion**

### 17.4 OTITIS MEDIA, ACUTE (AOM)

**In previously untreated patients:**

Amoxicillin, oral: *dosing amended*

There is limited available RCT data for amoxicillin to treat AOM in adults. However, based on the most recent local guideline recommendations<sup>8</sup>, the dosing of amoxicillin was amended from "500 mg 8 hourly" to "1 g 8 hourly".

**Level of Evidence: III Guidelines**

**Patients with upper respiratory tract congestion, secondary to allergy:**

Non-sedating antihistamines, oral: *recommended as therapeutic class*

Cetirizine, oral: *retained as example of class (listed in STG)*

Fexofenadine, oral: *added as therapeutic alternative*

Refer to the evidence summary, above in section 17.2: Rhinitis, allergic, persistent.

There is no clear RCT evidence<sup>9</sup> that antihistamines have any benefit in AOM, especially in children; and the side effect profiles supersedes any clinical benefit. No available published RCTs could be sourced for adults. The indication for antihistamines was strengthened for use only when there is upper respiratory tract congestion.

**Recommendation:** The indication for antihistamine use in AOM was amended from, "For *patients with upper respiratory tract congestion*", to "For *patients with upper respiratory tract congestion, secondary to allergy*".

**Rationale:** Cochrane review indicated that antihistamines do not have clinical benefit and that the side effect profiles supersede any clinical benefit in management of acute otitis media.

**Level of Evidence: II Systematic review extrapolated from children**

NEMLC recommended a further evidence search for oral antihistamine versus nasal corticosteroid in this clinical setting i.e.: patients with acute otitis media *and upper respiratory tract congestion, secondary to allergy*. However, no available RCT evidence could be sourced in the published literature for nasal corticosteroids in this clinical setting. There is no clear RCT evidence that antihistamines have any benefit in AOM, especially in children; and the side effect profiles supersedes any clinical benefit. No available published RCTs could be sourced for adults. The indication for antihistamines was strengthened for use *only* when there is upper respiratory tract congestion, as shown in the Cochrane review<sup>10</sup>.

**Pain**

NSAIDs, oral: *deleted*

Paracetamol, oral: *added*

NEMLC recommended that the Adult ERC review the evidence for changing pain management treatment from NSAIDs to paracetamol, despite this being a PHC STG and EML recommendation. However, the PHC ERC had recommended that paracetamol be retained and ibuprofen not be added, which was accepted by the NEMLC; and the Adult Hospital Level recommendation was aligned, accordingly (although the systematic review reviewed the evidence for pain relief in acute otitis media in children).

<sup>8</sup> Brink AJ, Cotton M, Feldman C, Finlayson H, Friedman R, Green R, Hendson W, Hockman M, Maartens G, Madhi S, Reubenson G, Silverbauer E, Zietsman I. Updated recommendations for the management of upper respiratory tract infections in South Africa. S Afr Med J. 2015 Apr 6;105(5):344-52. <https://www.ncbi.nlm.nih.gov/pubmed/26242659>

<sup>9</sup> Griffin G, Flynn CA. Antihistamines and/or decongestants for otitis media with effusion (OME) in children. Cochrane Database Syst Rev. 2011 Sep 7;(9):CD003423. <https://www.ncbi.nlm.nih.gov/pubmed/21901683>

<sup>10</sup> Griffin G, Flynn CA. Antihistamines and/or decongestants for otitis media with effusion (OME) in children. Cochrane Database Syst Rev. 2011 Sep 7;(9):CD003423. <https://www.ncbi.nlm.nih.gov/pubmed/21901683>

Authors of a Cochrane review<sup>11</sup> concluded that there is limited evidence for paracetamol or ibuprofen, alone or combined, in relieving pain in children with acute otitis media and that both paracetamol or ibuprofen are more effective than placebo in relieving short-term pain. However, NSAIDs should essentially not be used in viral infections.

The Adult Hospital Level Guidelines were aligned with the PHC and Paediatric Hospital level STGs, for consistency with a cross reference to the pain chapter, if additional pain control is required.

**Level of Evidence: III Guidelines**

## 17.5 OTITIS MEDIA, CHRONIC, SUPPURATIVE

Acetic acid 2% in alcohol: retained

Ciprofloxacin, oral: deleted

Ciprofloxacin, topical: added

**Background:** During the review of the 2012 Adult Hospital Level Standard Treatment Guidelines a Cochrane Review<sup>12</sup> on the benefits of topical over oral treatment for chronic otitis media was reviewed - three underpowered industry-sponsored trials showed a benefit of topical over oral ciprofloxacin. However, the evidence reviewed was not sufficiently robust to formulate a recommendation to support topical ciprofloxacin.

The current Adult Hospital Level Expert Review Committee upheld the previous recommendation. Only one additional recent RCT<sup>13</sup> (n=100) published in 2018 and not sponsored by industry, showed that topical ciprofloxacin drops was as effective as combined oral and topical ciprofloxacin; and oral ciprofloxacin did not provide any additional benefit, merely added to the cost of treatment.

However, in light of recent concerns with the use of fluoroquinolones the use of topical ciprofloxacin is probably recommended. Safety data is limited.

**Recommendation:** The Adult Hospital Level Committee recommended ciprofloxacin, topical for CSOM instead of oral formulation.

**Rationale:** The Cochrane review<sup>14</sup> suggests that topical ciprofloxacin drops were as effective as systemic ciprofloxacin oral treatment for the management of chronic otitis media in adults (though evidence was from three small industry-sponsored RCTs). However, with the recent safety concerns with systemic fluoroquinolones<sup>15</sup>, ciprofloxacin topical is preferred.

**Level of Evidence: I Systematic review, RCT, Expert opinion**

### Pain

Paracetamol, oral: added

This was aligned with the PHC and Paediatric Hospital level STGs, for consistency with a cross reference to the pain chapter, if additional pain control is required.

**Level of Evidence: III Guidelines**

## 17.7.1 OTITIS EXTERNA, NECROTISING

Ciprofloxacin, topical: not added

<sup>11</sup> Sjoukes A, Venekamp RP, van de Pol AC, Hay AD, Little P, Schilder AGM, Damoiseaux RAMJ. Paracetamol (acetaminophen) or nonsteroidal anti-inflammatory drugs, alone or combined, for pain relief in acute otitis media in children. Cochrane Database of Systematic Reviews 2016, Issue 12. Art. No.: CD011534.

<sup>12</sup> Macfadyen CA, Acuin JM, Gamble C. Systemic antibiotics versus topical treatments for chronically discharging ears with underlying eardrum perforations. *Cochrane Database Syst Rev.* 2006 Jan 25;(1):CD005608.

<sup>13</sup> Onali MA, Bareeqa SB, Zia S, Ahmed SI, Owais A, Ahmad AN. Efficacy of Empirical Therapy With Combined Ciprofloxacin Versus Topical Drops Alone in Patients With Tubotympanic Chronic Suppurative Otitis Media: A Randomized Double-Blind Controlled Trial. *Clin Med Insights Ear Nose Throat.* 2018 Jan 11;11:1179550617751907. <https://www.ncbi.nlm.nih.gov/pubmed/29348711>

<sup>14</sup> Macfadyen CA, Acuin JM, Gamble C. Systemic antibiotics versus topical treatments for chronically discharging ears with underlying eardrum perforations. *Cochrane Database Syst Rev.* 2006 Jan 25;(1):CD005608.

<sup>15</sup> European Medicines Agency: Disabling and potentially permanent side effects lead to suspension or restrictions of quinolone and fluoroquinolone antibiotics, 16 Nov 2018. [https://www.ema.europa.eu/documents/press-release/disabling-potentially-permanent-side-effects-lead-suspension-restrictions-quinolone-fluoroquinolone\\_en.pdf](https://www.ema.europa.eu/documents/press-release/disabling-potentially-permanent-side-effects-lead-suspension-restrictions-quinolone-fluoroquinolone_en.pdf)

Betamethasone/clioquinol/tolnaftate/gentamicin, topical: not added  
Ciprofloxacin, oral (750 mg 12 hourly): retained

High dose oral ciprofloxacin was considered more appropriate than topical ciprofloxacin for necrotising otitis externa as topical treatment (acetic acid or antibiotic) would probably not influence the outcome.

There is also a paucity of evidence for use of betamethasone/clioquinol/tolnaftate/gentamicin, topical in this clinical setting. Steroids could be considered for cases not responding to antibiotics, but this would probably be managed at tertiary level of care. Guidance is provided in the STG for referral of non-responders.

**Level of Evidence: III Expert opinion**

#### **17.8 ABSCESS, PERITONSILLAR**

Benzylpenicillin, IV: deleted

Metronidazole, IV: deleted

Amoxicillin/clavulanate, IV: added

Empiric parenteral antibiotic therapy updated to provide cover for common pathogen, *Staphylococcus aureus*, and anaerobic bacteria associated with peritonsillar abscess.

**De-escalation from parenteral therapy, once patient is afebrile for 24 hours:**

Amoxicillin/clavulanate, IV: retained

#### **17.9 VERTIGO, ACUTE**

Cinnarizine, oral: not added

Promethazine, oral: retained

An external comment was received to add cinnarizine, oral to the EML for vertigo. However, no supporting evidence was submitted. The STG currently recommend promethazine, oral and the Committee was of the opinion that this would suffice.

**Level of Evidence: III Expert opinion**

*Report prepared by TD Leong: Secretariat to the Adult Hospital Level Committee (2017-2020)*

- **Note:** Information was sourced from NEMLC ratified minutes and NEMLC-approved documents.