

Confused about what to do with ear pus?

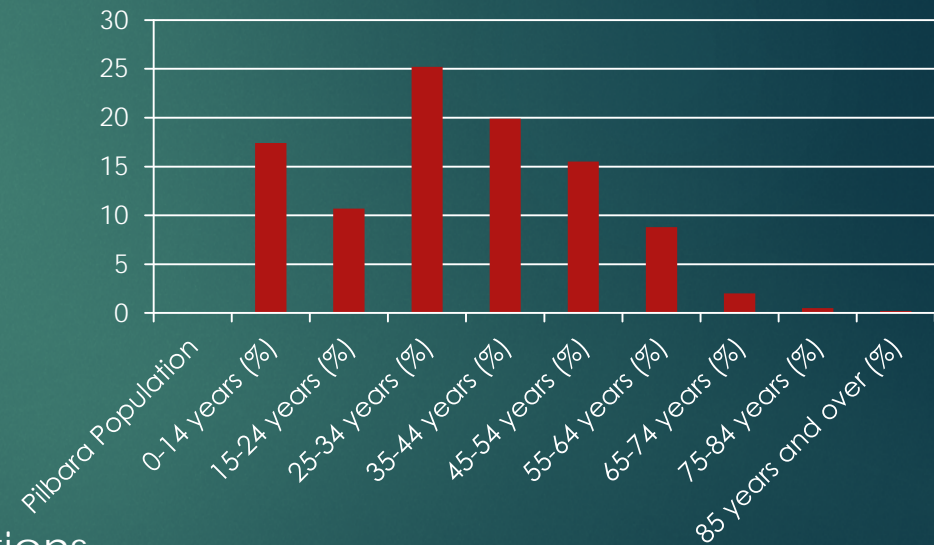
-Let's discuss the evidence
and our otitis externa study.

Introduction

- ▶ Objectives
- ▶ Authors
 - ▶ Dr Caitlin Chidlow
 - ▶ Dr John van Bockxmeer, FACRRM/DEM, DMO
Hedland Health Campus
- ▶ No conflicts of interest to disclose, no funding for project

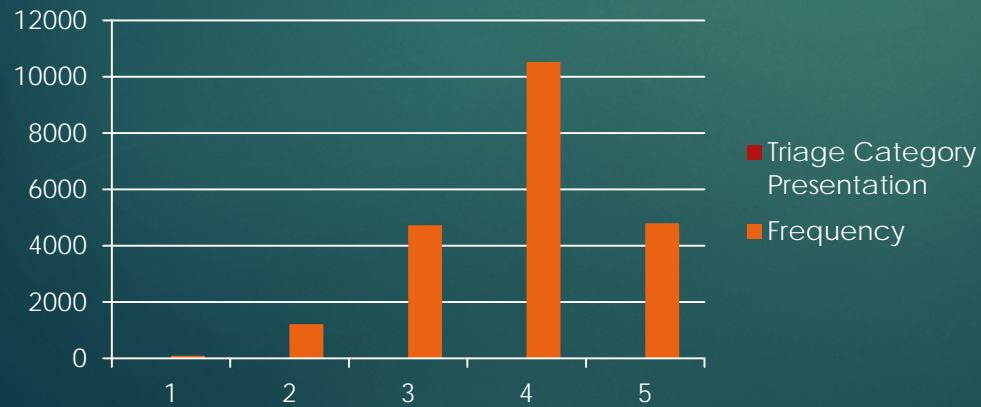
Research Setting

- ▶ Pilbara remote Western Australia
- ▶ 1,640km from Perth/ 2,410km to Darwin/ 1,382km to Bali
- ▶ Region:
 - ▶ 65,859 pop'n
 - ▶ 50,587,994ha (6.6% Aus)
 - ▶ 12% ATSI
 - ▶ 38.3% born o/s
 - ▶ 2.5% unemployment
 - ▶ 66.8% post school qualifications
 - ▶ Construction, mining, agriculture, transport



Hedland Health Campus

- ▶ Regional resource centre for Pilbara, 77 bed
- ▶ Pop'n 16k between South & Port
 - ▶ 15% ATSI
- ▶ ED, gen surg, physician, anaesthetist, paed, OGBYN
 - ▶ 22,000 ED px/yr
 - ▶ 25.2% paediatric



Otitis Externa

What is it?

- ▶ Inflammatory condition of external ear
- ▶ Characterised by pain. Patients may also have itch, discharge, a feeling of fullness or hearing loss
- ▶ Acute diffuse otitis externa generally presents as a superficial bacterial infection of the canal
- ▶ May also be fungal

Risk Factors

- ▶ Also known as “Swimmer’s Ear” due to association with water activities
- ▶ Common in warmer climates
- ▶ Increased in areas with higher humidity and more water exposure from swimming
- ▶ Compromised skin barrier and changes to pH also increases risk

Significance and Diagnostic Issues

- ▶ Swabs may take several days to show result, longer if taken outside of hospital with micro facilities
- ▶ Around 1% of presentations to ED each year
- ▶ Mobile population, many FIFO workers, people visiting from remote communities, tourists passing through
- ▶ Lots of differing guidelines

Research

- ▶ Stimulus for research, cases & disease burden
 - ▶ 'What to do with ear pus??'
- ▶ Objectives:
 - ▶ Demographic data & representation
 - ▶ Overview of current practices and alignment with guidelines
 - ▶ Microbiology
 - ▶ Investigate seasonal trends

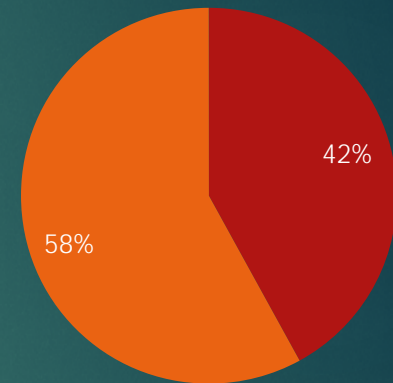
Research Method

- ▶ 15 month retrospective audit extract by Dx
 - ▶ All patients px to HHC ED 1/12/15 through 1/4/17
 - ▶ Routine clinical care and data
 - ▶ Extracted from webPAS/ultra
 - ▶ Excel analysis
- ▶ Ethics approval WACHS & WAAHEC

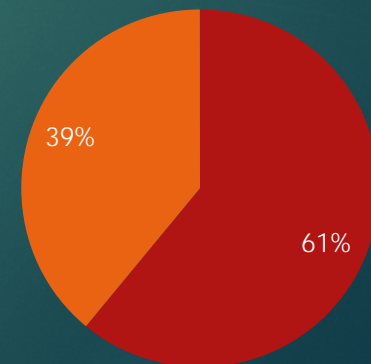
Results- Demographics

- ▶ 236 cases of otitis externa (1% Px to ED)
301 cases otitis media
- ▶ Higher proportional ATSI disease burden
- ▶ Marked male predominance
- ▶ Bimodal peak aged 5-10 & 45-50 years

■ ATSI ■ Non- ATSI

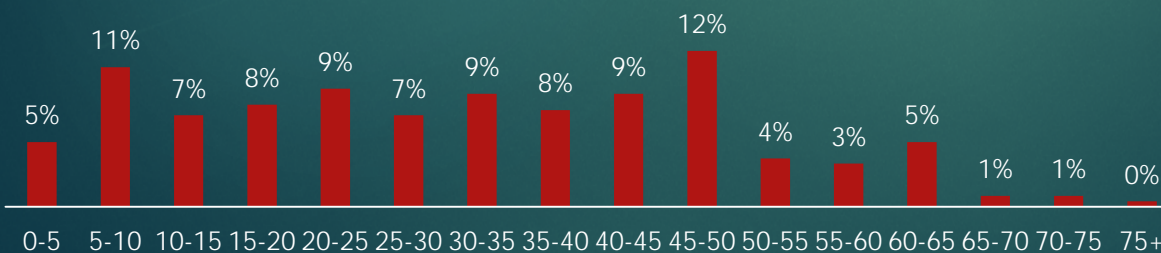


■ Male ■ Female



Age Distribution

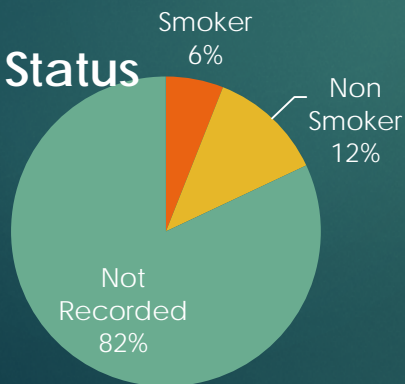
■ % Cases



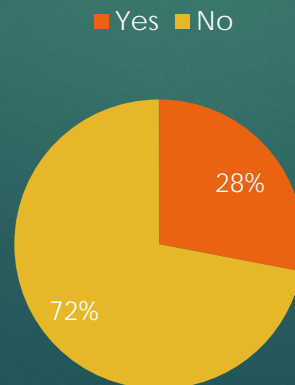
Results- Management & Confounders

- ▶ 13% referred to ENT
- ▶ 11% swab rate
- ▶ 17% representation, of which 50% due to pseudomonas
- ▶ 17% wick insertion

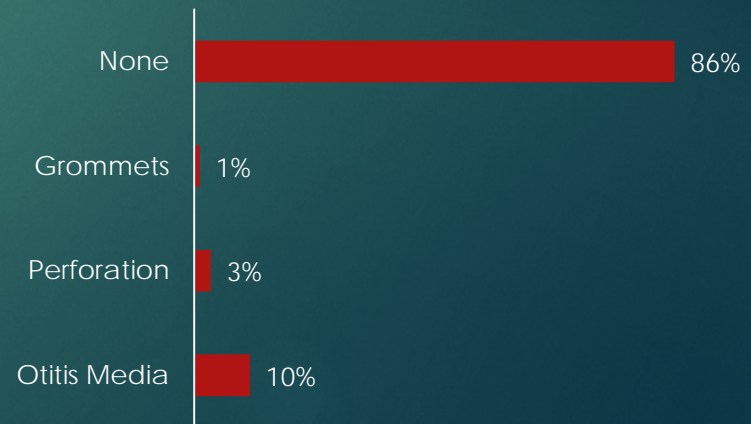
Smoking Status



Recent Swimming

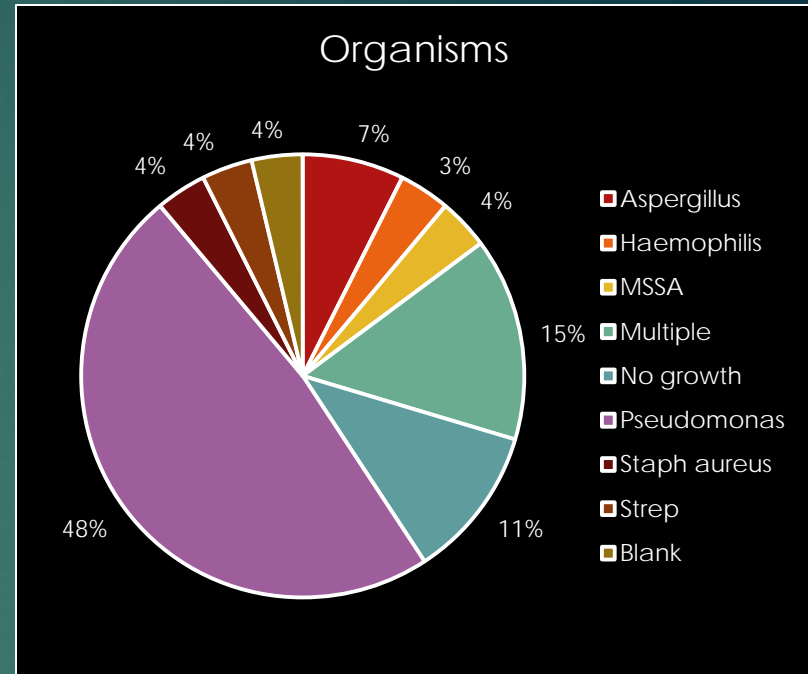


Concurrent Ear Pathology

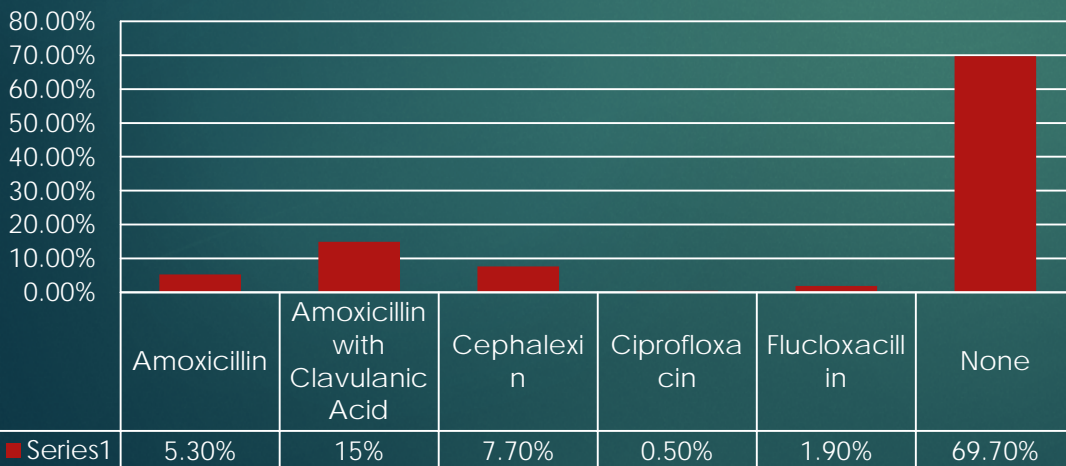


Results- Microbiology

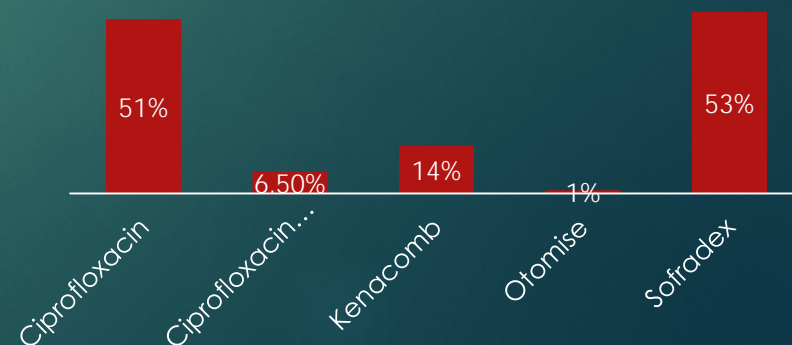
- ▶ Small sample size n=26
- ▶ Bacterial infections treated correctly 34% of the time



Oral Antibiotic Use



Topical Therapy Used

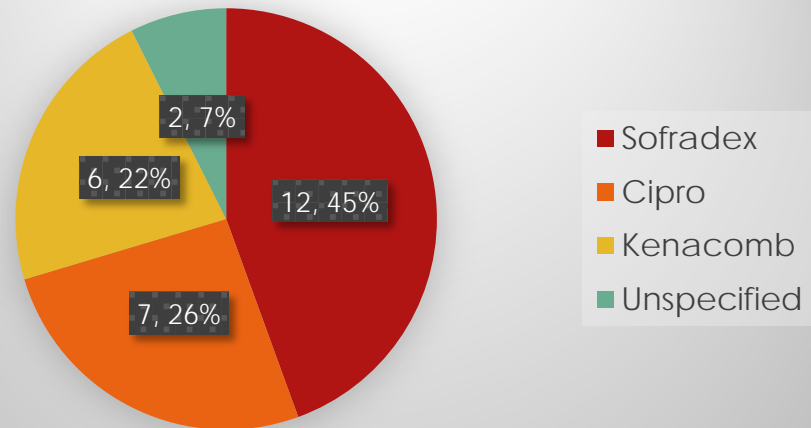


Results - Representations

- ▶ Representations

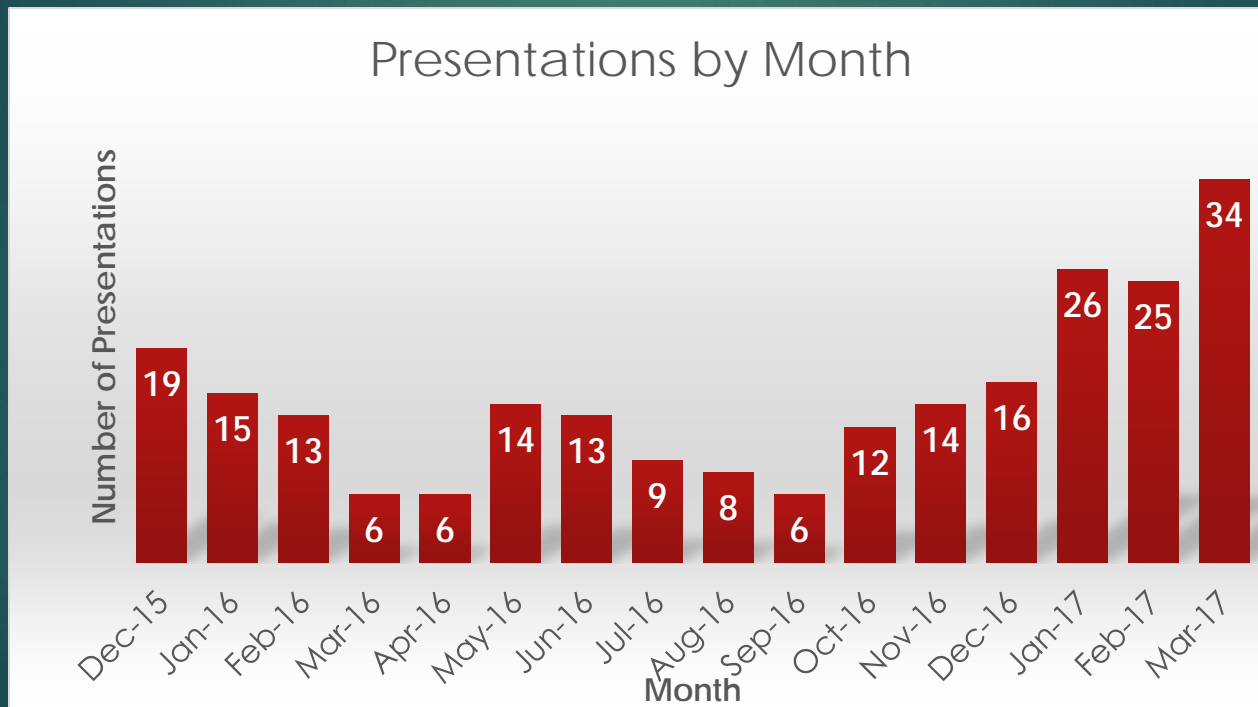
- 28 patients represented a total of 38 times
- 13 initially given Dex/Framycetin/Gramicidin
- 7 Ciprofloxacin
- 6 Kenacomb
- 2 Unspecified

Initial Topical Therapy



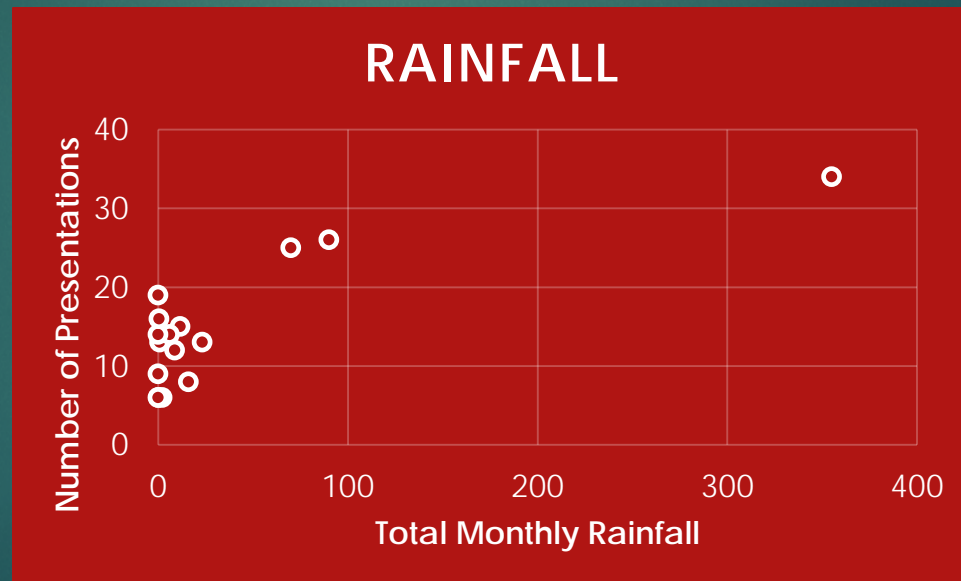
Results - Climate

- ▶ Large variation in number of presentations each month



Results- Climate

- ▶ Strong positive correlation (0.790, $p < 0.01$) between monthly rainfall and monthly otitis externa presentations to ED.



Results - Climate

- ▶ Moderate association (0.54, $p < 0.05$) with higher minimum temperatures and increased otitis externa presentation rates.
- ▶ Association between maximum temperature and presentation rate not significant (0.200, p-value 0.457)

Guidelines & Adherence

We reviewed the most recent guidelines and systematic reviews on management of otitis externa including;

- ▶ Cochrane Collaboration 2010 review
- ▶ BMJ Best Practice Guidelines (UK) 2017
- ▶ SAGE Clinical Practice Guidelines (USA) 2014 (American Academy of Otolaryngology)
- ▶ Australian Doctor 2007
- ▶ Kids Health WA Guidelines 2013
- ▶ Royal Children's Hospital Guidelines 2009
- ▶ Therapeutic Guidelines Australia 2014
- ▶ Kimberley Aboriginal Medical Services 2014

Consensus Guidelines

- ▶ Consensus no role for oral antibiotics in first-line management of uncomplicated AOE in immune competent patients
- ▶ Avoid ototoxic drops in patients with perforations
- ▶ Simple oral analgesics first line for pain management
- ▶ Fungal infections should be cleaned
- ▶ Both children's hospitals recommend keeping ears dry by avoiding swimming, ear plugs when showering to prevent further infections

Conflicting Guidelines

Antimicrobials

- ▶ SAGE and BMJ recommend quinolones over other drops
- ▶ KAMS recommended Cipro
- ▶ Therapeutic guidelines, RCH and Kids Health WA recommended Dexamethasone/Framycetin/Gramicidin first-line
- ▶ Cipro HC only available on PBS for selected groups

Aural Toilet

- ▶ KAMS recommended betadine irrigation and tissue spears
- ▶ Therapeutic guidelines recommended suction but said to avoid water
- ▶ RCH recommended ear toilet
- ▶ Kids Health WA recommended saline irrigation if no perforation present

Conflicting Guidelines

Fungal Infections

- ▶ Australian guidelines recommended anti-fungal therapy first line whereas several international guidelines recommended acetic acid first line
- ▶ Cochrane review showed acetic acid slightly less effective compared with other topical treatments for both bacterial and fungal infections

Topical Analgesics

- ▶ SAGE and Kids Health WA recommended the use of topical analgesia if no perforation
- ▶ Other guidelines recommended avoiding topical analgesics as they may limit effectiveness of antimicrobials

Conflicting Guidelines

Swabs

- ▶ Kids Health WA said swabs unhelpful
- ▶ RCH said swab everyone with discharge
- ▶ KAMS recommended taking both bacterial and fungal swabs for everyone

Wicks

- ▶ Nearly all guidelines recommended insertion of ear wicks if canal obstructed or oedematous
- ▶ 2010 Cochrane review showed poor evidence regarding benefit of ear wicks

How Do We Compare?

- ▶ Dexamethasone/Framycetin/Gramicidin used in 45% of patients, Cipro or Cipro HC in 28%, Kenacomb in 12%
- ▶ Kenacomb used for all fungal infections, no asetic acid used.
- ▶ 11% of patients swabbed.
- ▶ Ear wicks documented in 16% of presentations.

Conclusions & Recommendations

- ▶ No clear consensus guidelines
 - ▶ Need for more region specific guidelines?
 - ▶ Larger study to determine benefits of swabs to guide therapy?
- ▶ Further research
 - ▶ Why is rainfall associated with more frequent otitis externa presentations - ? More places to swim after heavy rainfall?
 - ▶ Further data needed to examine relationship between smoking status and otitis externa
 - ▶ Need to examine hearing protection as a cause of otitis externa

Recommendations

- ▶ No need to swab patients
- ▶ If represent then treat for pseudomonas and take fungal and bacterial swabs
- ▶ As a first line follow eTG guidelines and use Dexamethasone/Framycetin/Gramicidin
- ▶ Only use wicks if canals are really narrow and you are comfortable inserting them

Recommendations

- ▶ In areas with high minimum temperatures and rainfall educate patients on risks of otitis externa and ear hygiene
- ▶ Ciprofloxacin drops first line in Aboriginal children
- ▶ Reinforce the need for OTC analgesia
- ▶ Reinforce ear hygiene to patients, especially if fungal infections



Questions ?

Acknowledgements



- ▶ We would like to formally acknowledge the Kariyarra People, traditional owners of the Port Hedland area, Hedland Health Campus Emergency Department, Wirraka Maya Health Service, WA Country Health Service and the WA Aboriginal Health Ethics Committee .
- ▶ We would like to thank David Bath for his contribution to statistics and Dr Sarah Prunty for her guidance regarding current guidelines.

References

1. Rosenfeld RM, Schwartz SR, Cannon CR, Roland PS, Simon GR, Kumar KA, et al. Clinical Practice Guideline. Otolaryngology–Head and Neck Surgery. 2014;150(2):161-8.
2. Kaushik V, Malik T, Saeed SR. Interventions for acute otitis externa. Cochrane Database of Systematic Reviews. 2010(1).
3. Taplin MA. External Ear Conditions. Australian Doctor. 2007 April:25-32.
4. Cheffins T, Heal C, Rudolphy S, Evans R, Vietch C. Acute Otitis Externa – Management by GPs in North Queensland. Australian Family Physician. 2009 April: 262-266
5. Otitis Externa. Therapeutic Guidelines. 2014
6. Acute Otitis Externa. BMJ Best Practice. 2017
7. Coates H. Ear drops and ototoxicity. Australian Prescriber. Issues. 2008:1.