Antibiotic prescribing patterns in the paediatric community

SABRINA YEH

SQYEH1@STUDENT.MONASH.EDU

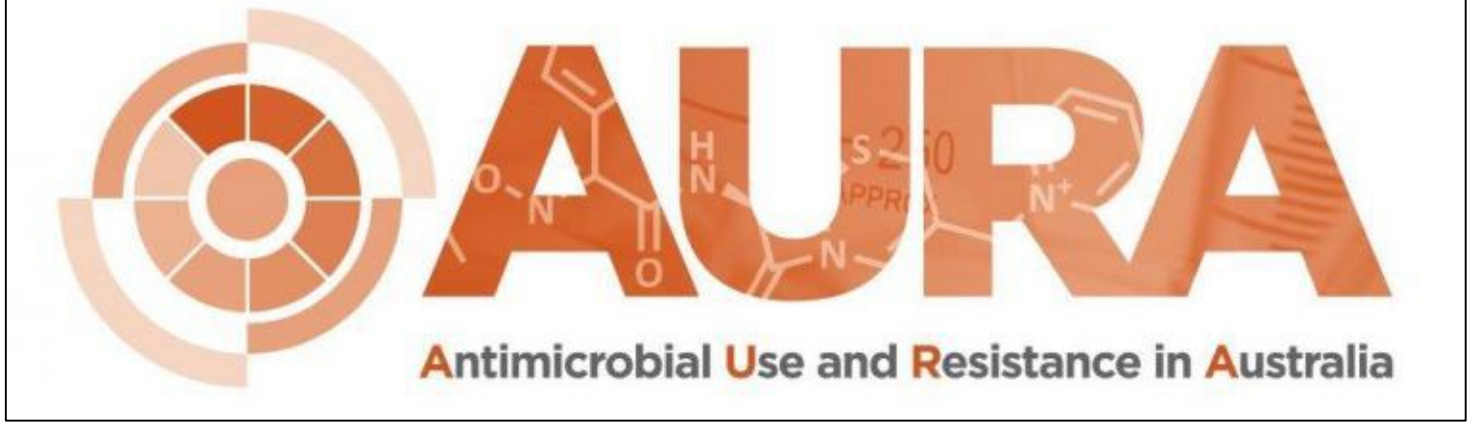
Background

Methods

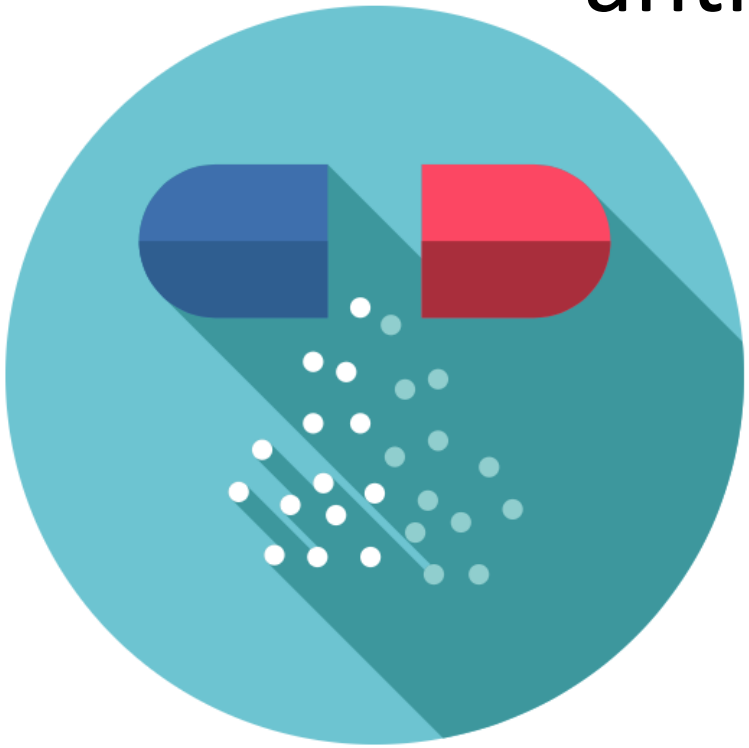
Results

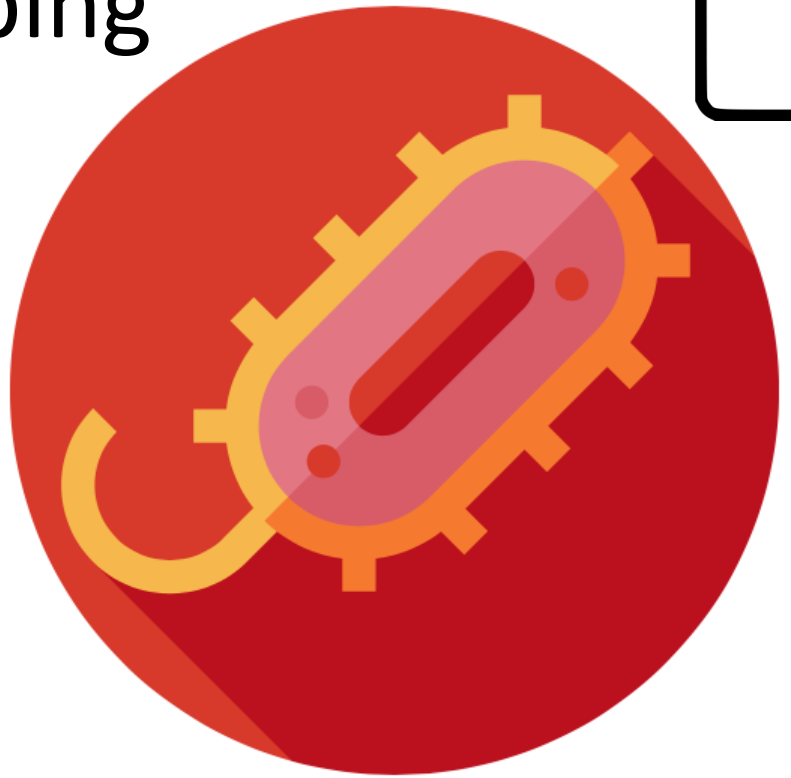
Reflection

GLOBAL ACTION PLAN
ON ANTIMICROBIAL
RESISTANCE


AURA
Antimicrobial Use and Resistance in Australia

Resistance is driven by high rates of antibiotic prescribing





Emerging evidence in gut microbiota

Lower threshold for prescribing

Resistant strains spread in community

Large consumer of antibiotics

Lifetime exposure

Research Question:

What are the antibacterial prescription patterns for the paediatric population within the primary care setting?

Aim 1:
To **describe** antibacterial prescription **patterns** for children in primary care over time

Aim 2:
To **identify** appropriate prescribing **behaviours** and sources for potential **improvement**

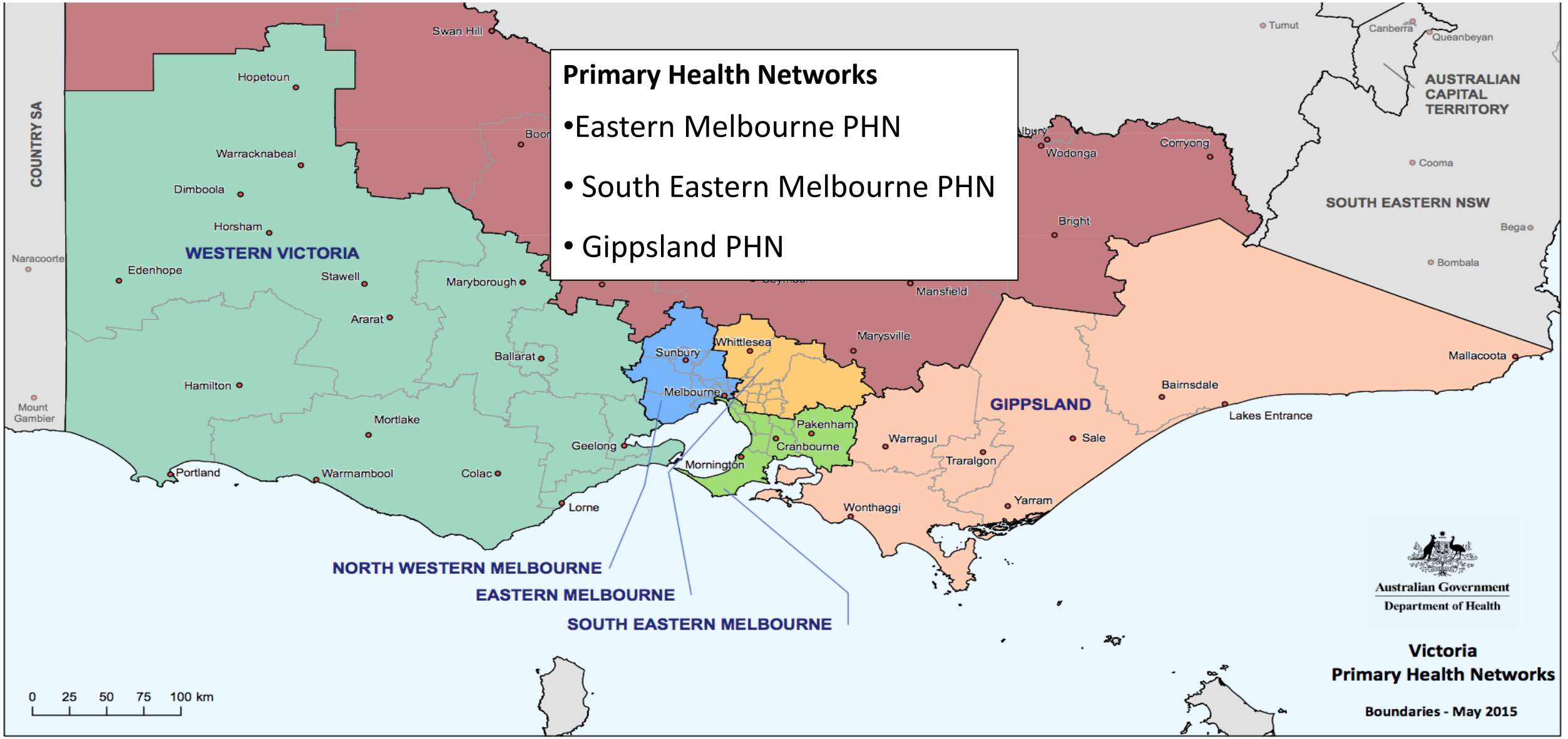
AIMS

Background

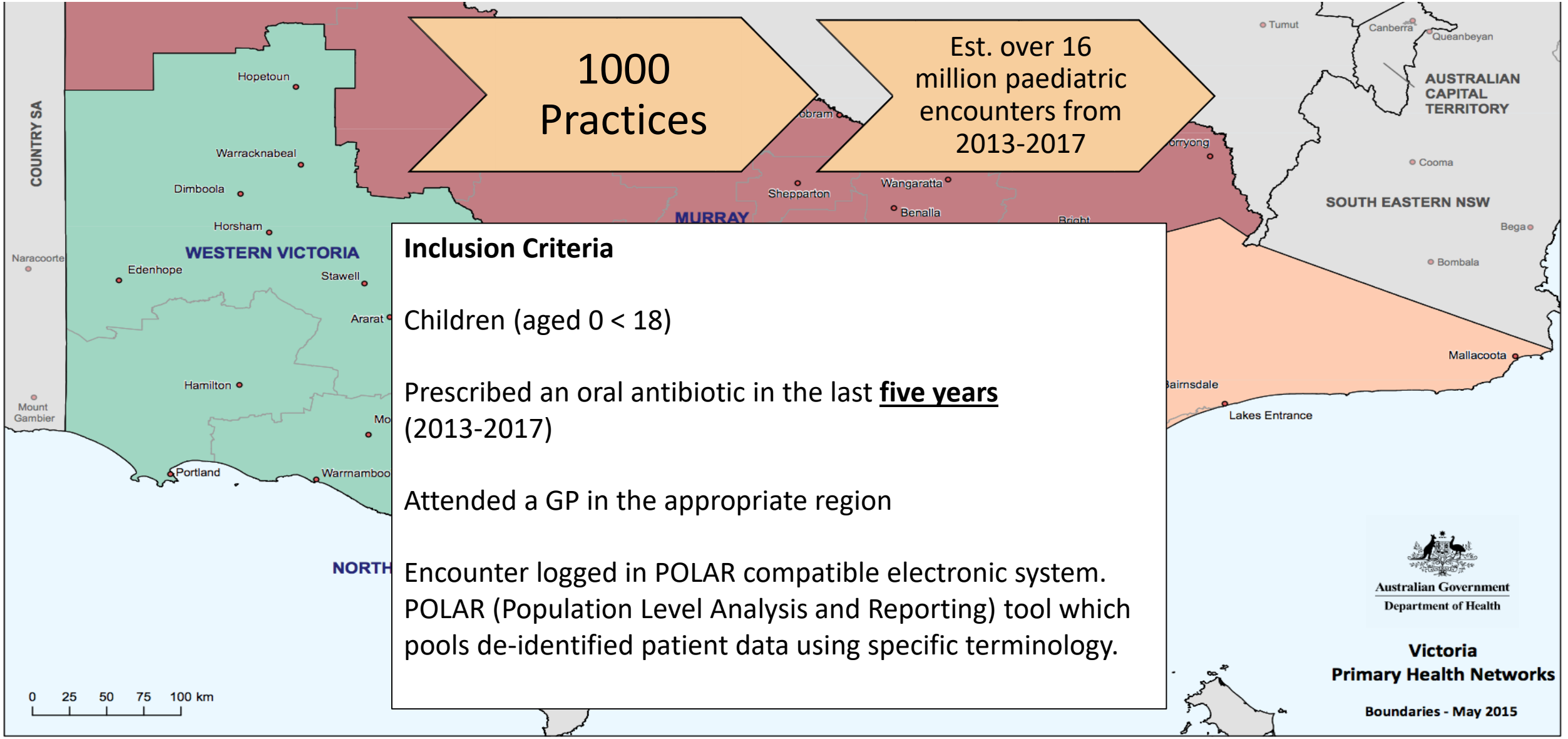
Methods

Results

Reflection



1. Department of Health, Australian Government. www.health.gov.au/internet/main/publishing.nsf/content/phn-maps-vic



Inclusion Criteria

Children (aged 0 < 18)

Prescribed an oral antibiotic in the last **five years** (2013-2017)

Attended a GP in the appropriate region

Encounter logged in POLAR compatible electronic system. POLAR (Population Level Analysis and Reporting) tool which pools de-identified patient data using specific terminology.

Microsoft® SQL Server®

POLAR

SNOMED CT

The global language of healthcare

Background

Methods

Results

Reflection

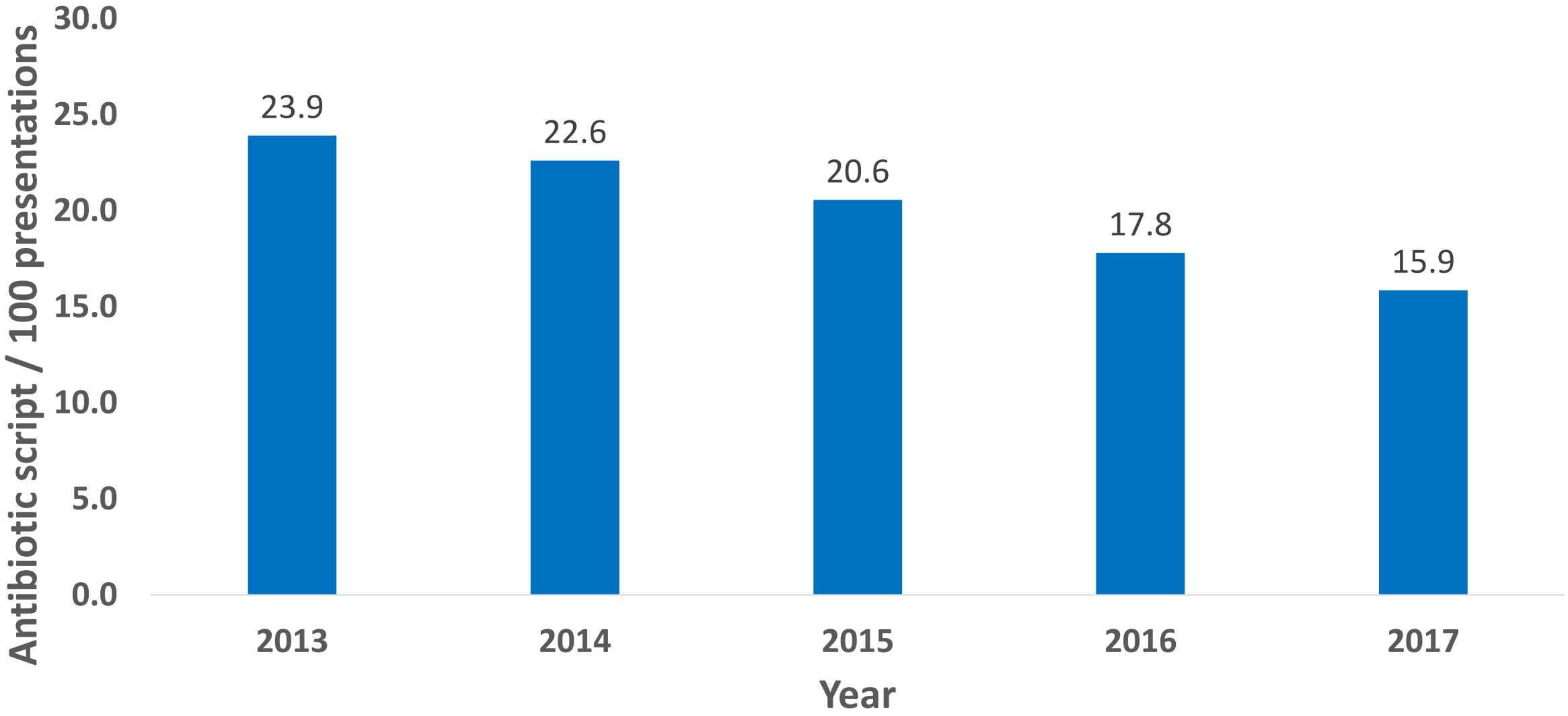
225 Clinics

Total Paediatric Overview (0-18 years) from 2013-2017	
Clinical encounters	4,004,364
Patients	981,975
Diagnoses	896,055
Medications	1,881,007
Antibiotic prescriptions	788,711

225 Clinics

Total Paediatric Overview (0-18 years) from 2013-2017	
Clinical encounters	4,004,364
Patients	981,975
Diagnoses	896,055
Medications	1,881,007
Antibiotic prescriptions	788,711

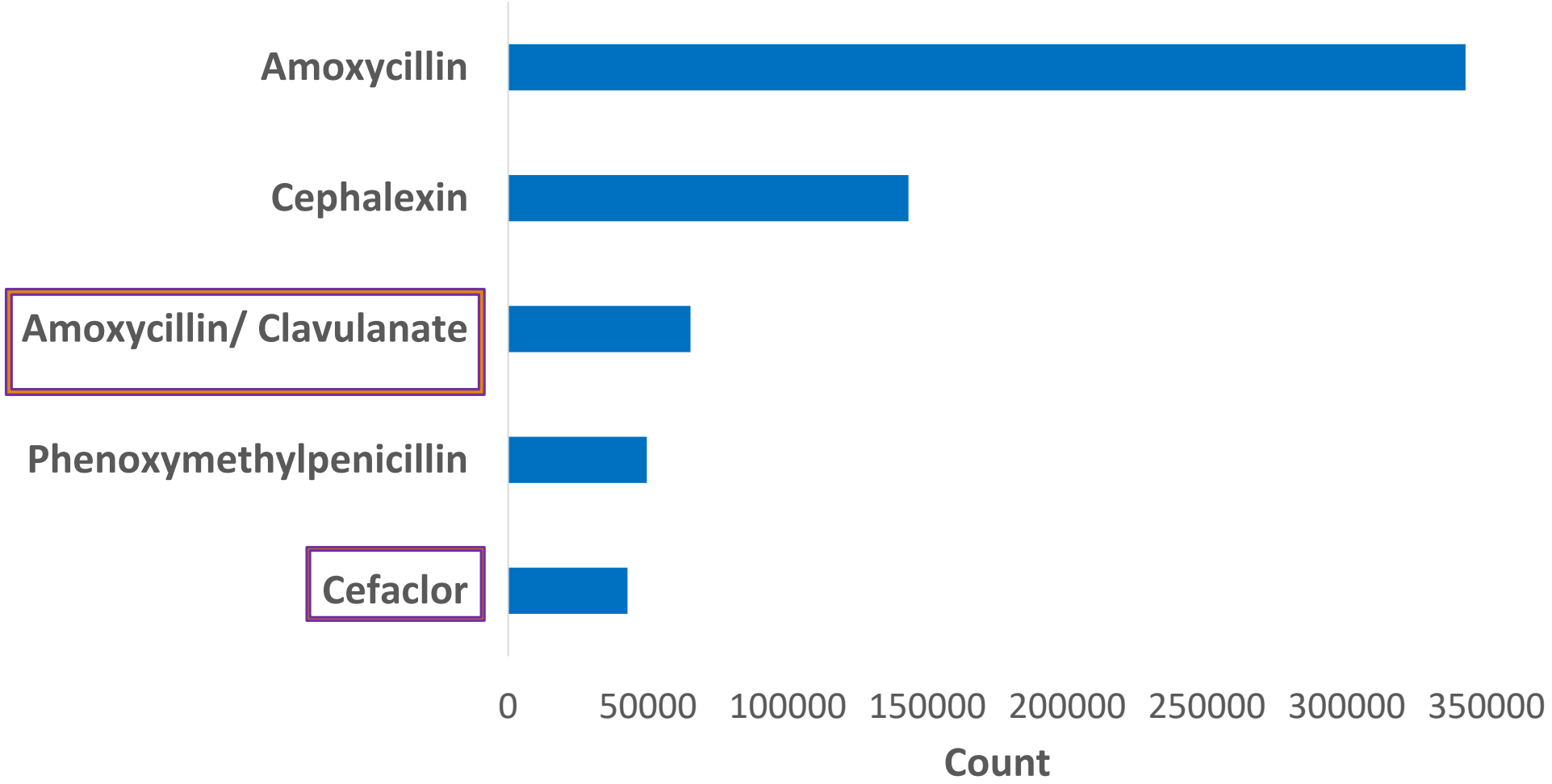
Rate of antibiotic prescribing per 100 presentation from 2013-2017



AIM 1

RESULTS

Top 5 prescribed antibiotics from 2013-2017

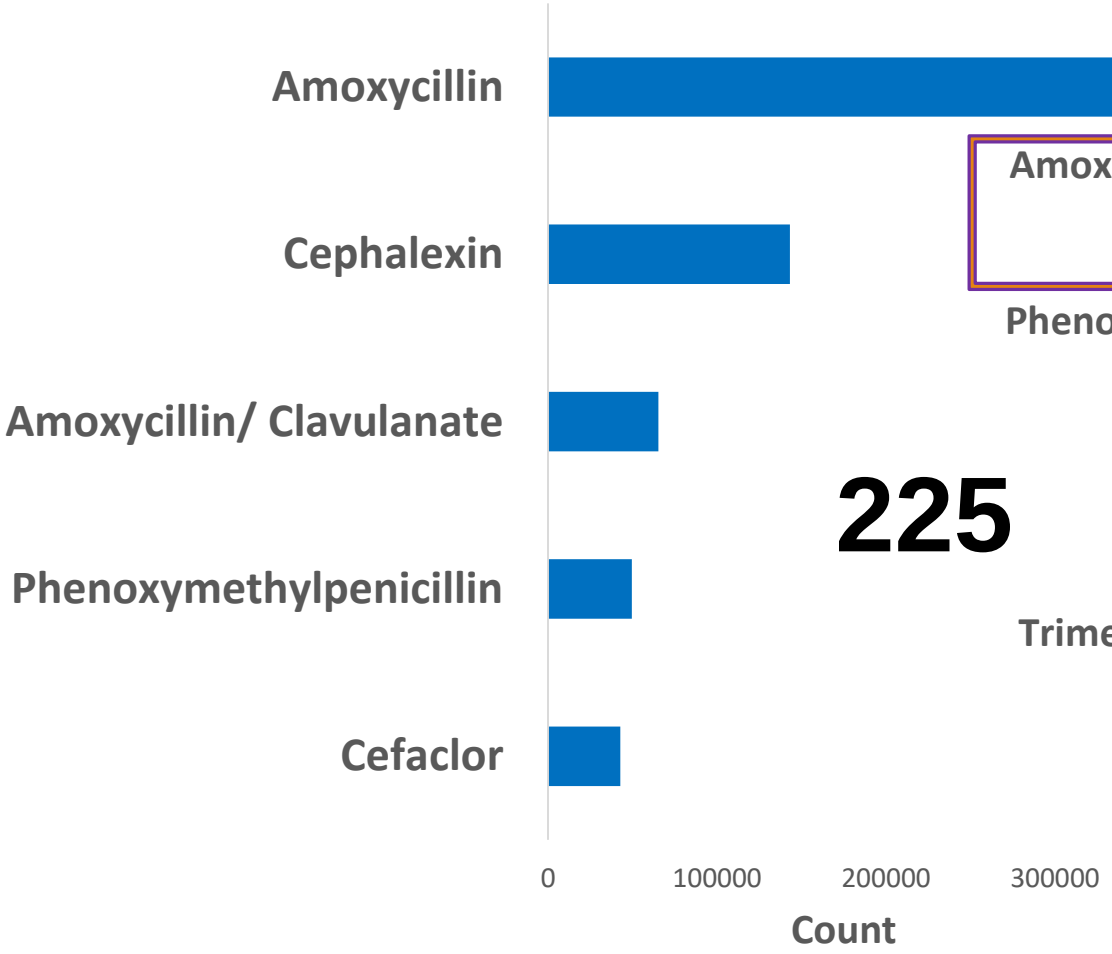


AIM 1

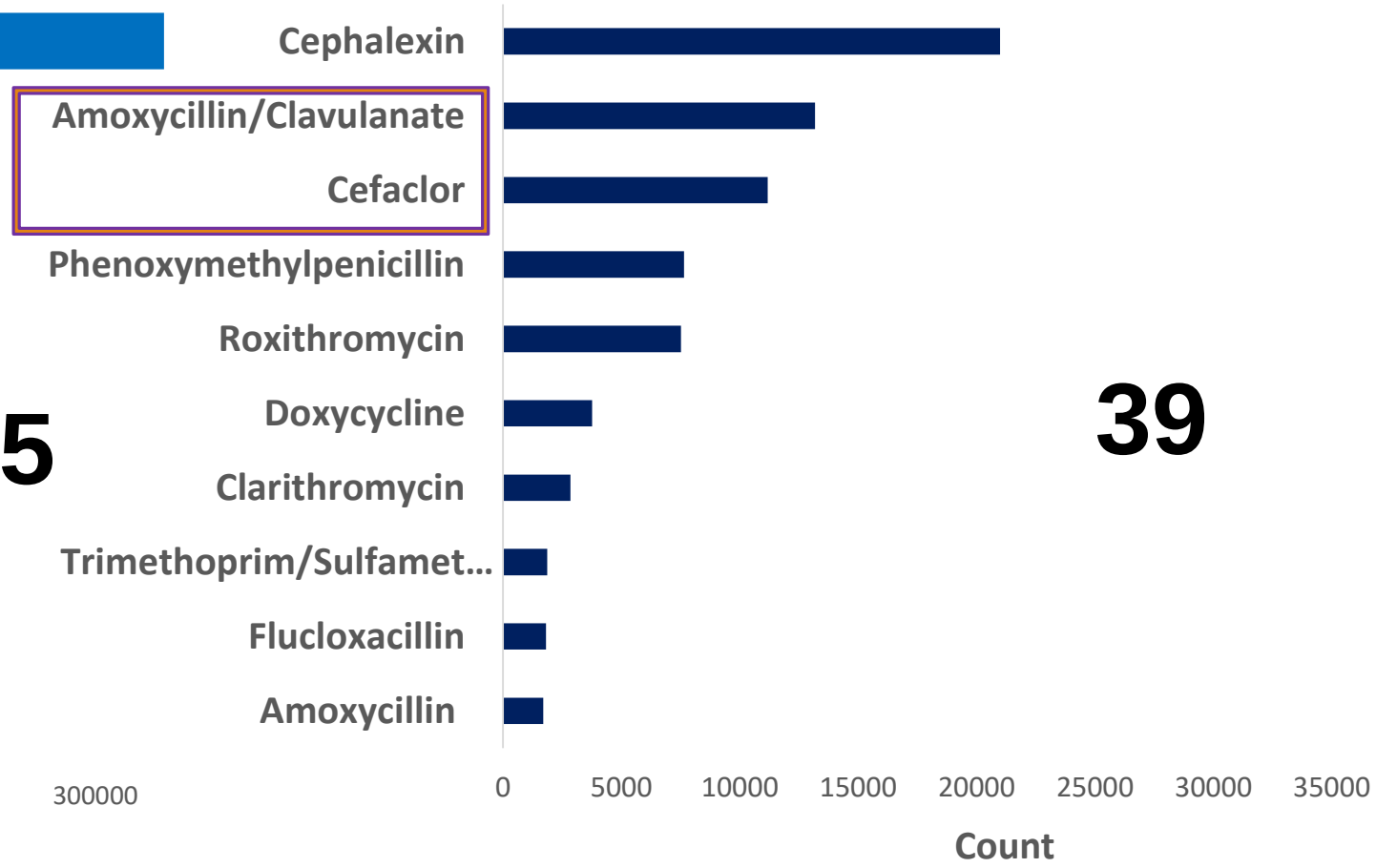
RESULTS

Comparison of top prescribed antibiotics

Top prescribed antibiotics from 2013-2017



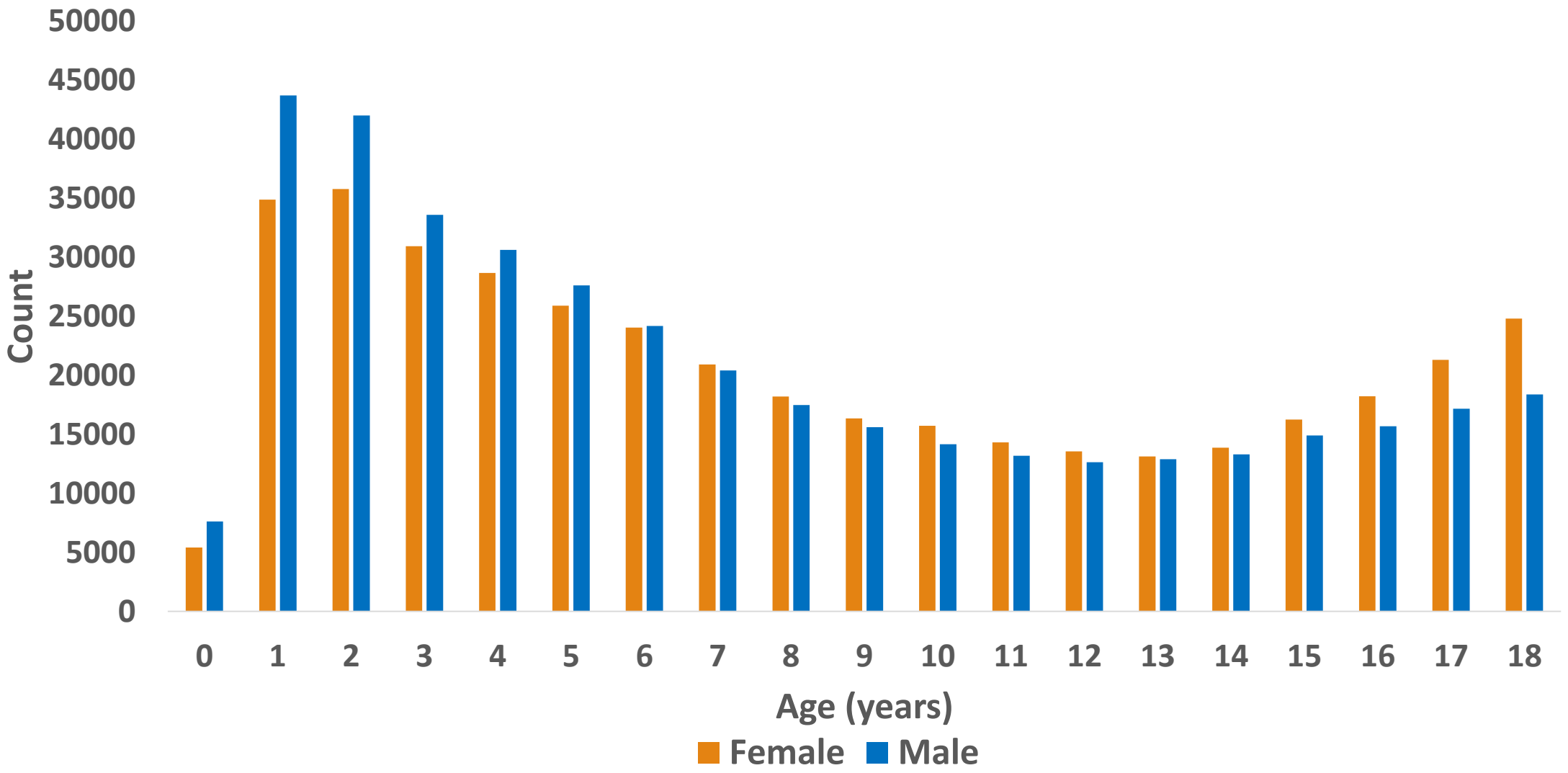
Top prescribed antibiotics from 2009-2013[2.]



AIM 1 RESULTS

2. Yan J, Hawes L, Turner L, Mazza D, Pearce C, Buttery J. Antimicrobial prescribing for children in primary care. J Paediatr Child Health. 2018

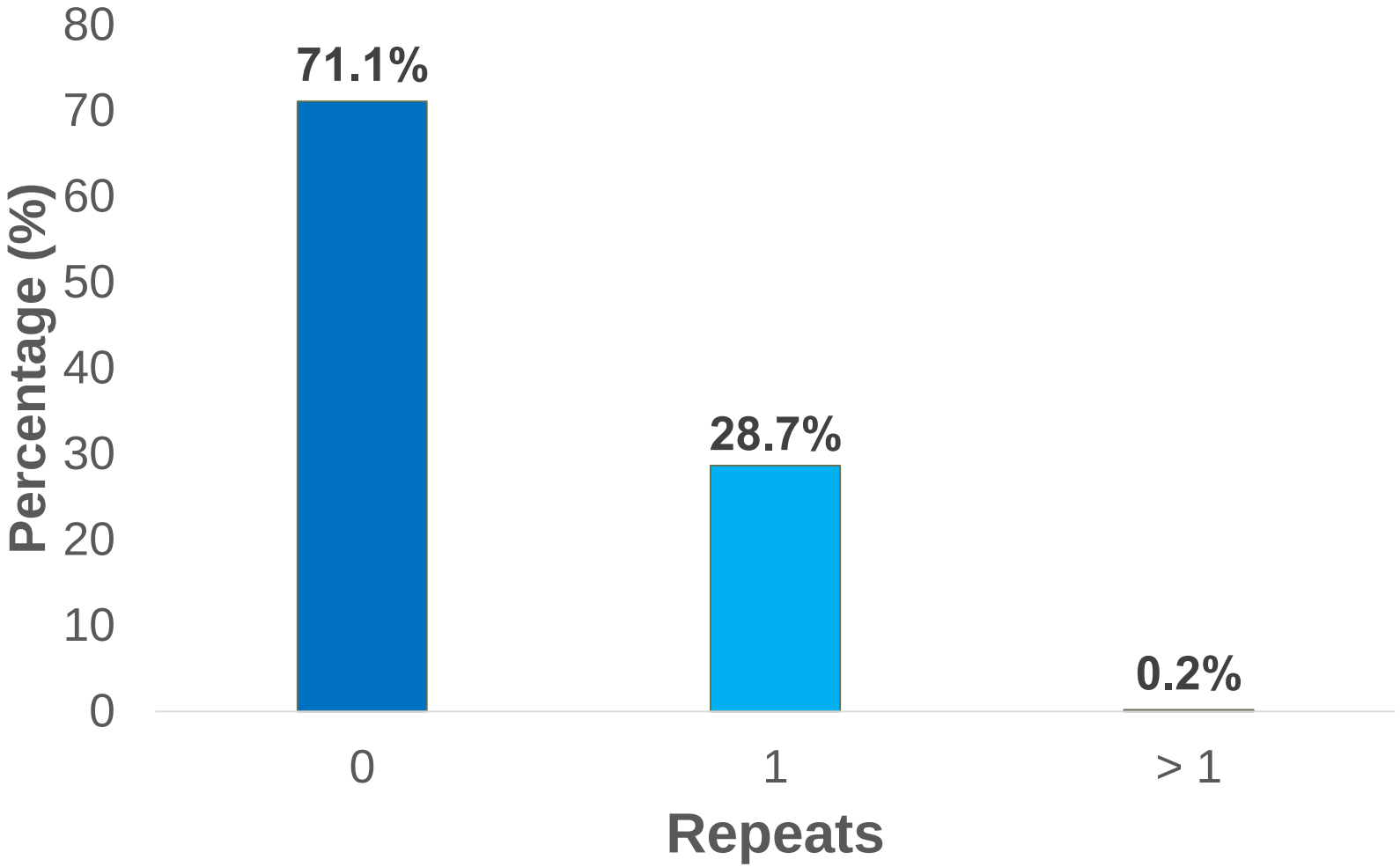
Antibiotic prescription by age and gender



AIM 1

RESULTS

Percentage of Scripts with repeats



AIM 2

RESULTS

AIM 2

RESULTS

Children with systemic features

For children with systemic features (high fever, vomiting or lethargy), use:

amoxycillin 15 mg/kg up to 500 mg orally, 8-hourly for 5 days

OR (for patients suspected to be nonadherent)

amoxycillin 30 mg/kg up to 1 g orally, 12-hourly for 5 days.

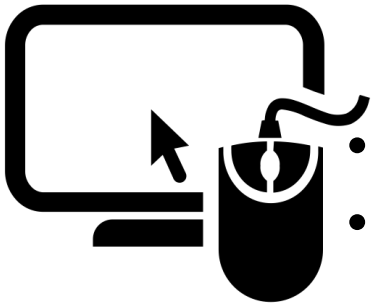
Patients who have an inadequate response to amoxycillin therapy withi 48 to 72 hours ay have infection caused by a beta-lactamase–producing strain of *H. influenzae* or *M. catarrhalis*; adding clavulanate provides increased activity against these pathogens. Use:

amoxycillin+clavulanate 22.5+3.2 mg/kg up to 500+125 mg orally, 8-hourly for 5 to 7 days.

AIM 2 RESULTS

Take home messages

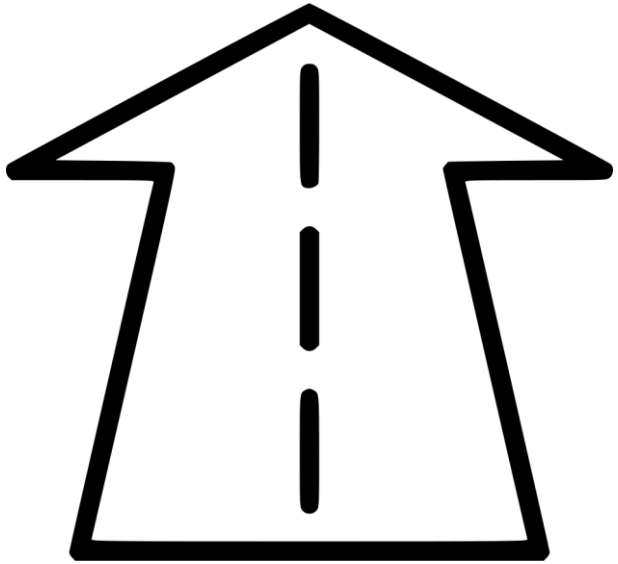
- Antibiotic prescribing rates are decreasing
- Broad spectrum usage is decreasing



- Scope for interventions in prescribing software
- Default settings
- Stewardship strategies

Future Directions

- Largest antibiotic prescribing study performed on Australian children in the community to date
- Data linkage with hospital discharge data



Background

Methods

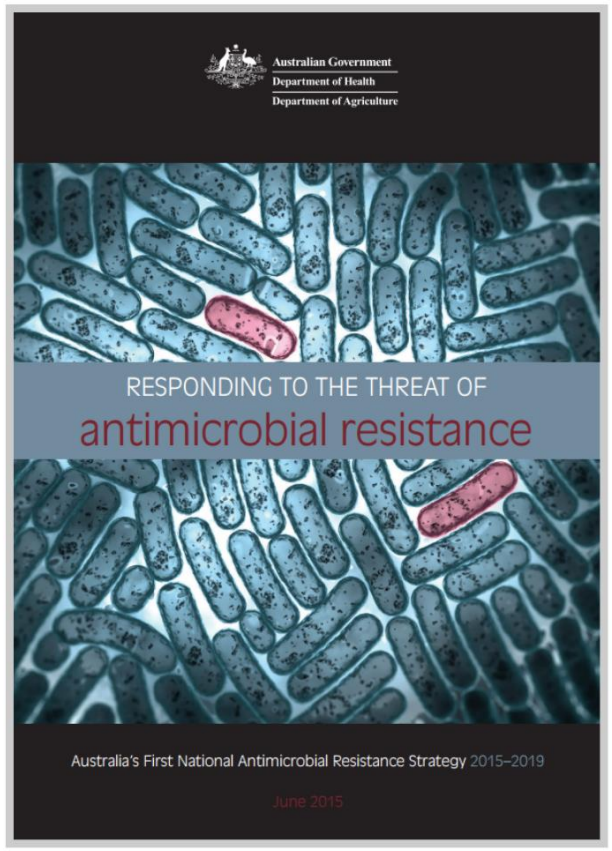
Results

Reflection

AFPHM Competency

DOMAIN 3	INFORMATION, RESEARCH AND EVALUATION	
Theme 3.1	Public Health Information and Critical Appraisal	
Learning Objective 3.1.6	Use suitable information sources to describe the health of populations	Level 2
Elements of competence		
• access and use information sources, such as census and other demographic information, health sector data (including morbidity and mortality data), survey data, measures of health status and measures of socioeconomic and health inequality • use descriptive epidemiological analysis (time, place, person) • use suitable statistical techniques and appropriate spreadsheet, database and analysis software.		

AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE



Australian Atlas of Healthcare Variation Series

Choosing Wisely Australia

An initiative of NPS MedicineWise

Learning Objective 3.1.8	Advise on health and public health information systems	Level 2
Elements of competence		
• advise on role of health information systems, registers, electronic patient records, disease coding, information quality, information privacy, information security, informatics and information and communications technology (ICT) developments.		

DOMAIN 3	INFORMATION, RESEARCH AND EVALUATION	
Theme 3.3	Health Care and Public Health Program Evaluation	
Learning Objective 3.3.2	Implement results of evaluations to improve health services and public health programs	Level 1
Elements of competence		
• utilise research evidence on factors which produce changes in clinical behaviour, public health and managerial practice • identify potential barriers and implement strategies to address these • work with others to implement evaluation results.		

Acknowledgements

Thank you to all participating PHNs, general practitioners, patients and families

Professor Jim Buttery

A/Professor Chris Pearce

Natalie Rinehart

Ivan De La Cruz

Jason Ferrigi

Adam McLeod

Dr Jock Lawrie