

NSW AMS FORUM

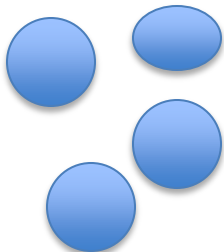
Current and future challenges in
AMS in hospitals

Professor Karin Thursky
Director, National Centre for Antimicrobial Stewardship
RMH at the Doherty

NSW CEC AMR Forum 2017



A reality check



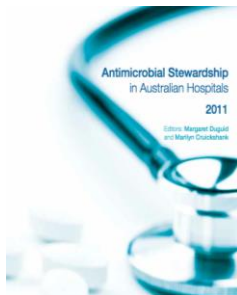
Pre 2008

Few leaders in AMS

RMH – approval system implemented 2005

NAUSP
Adult DDDs

Triggered
formation of
AMS working
party with
ACQSHC



AMS Book
2011
Revised
version 2018
to include
community,
indigenous,
aged care etc.

Antimicrobial stewardship

Safe and appropriate antimicrobial prescribing is a strategic goal of the clinical governance system.

This criterion will be achieved by:

3.14 Developing, implementing and regularly reviewing the effectiveness of the antimicrobial stewardship system

Actions required:

- 3.14.1 An antimicrobial stewardship program is in place
- 3.14.2 The clinical workforce prescribing antimicrobials have access to current endorsed therapeutic guidelines on antibiotic usage¹⁰
- 3.14.3 Monitoring of antimicrobial usage and resistance is undertaken
- 3.14.4 Action is taken to improve the effectiveness of antimicrobial stewardship

Standalone accreditation criteria

2013

Update 2018

NAPS introduced 2013

Web portal 2014

*Appropriateness &
Guidelines concordance*

Adults and paed

Key partner for national
AMR strategy 2015



10 years!

Need for a systems wide approach to AMS



Antimicrobial stewardship =

Strategies to optimize the use of antimicrobials to:

*Improve **patient outcomes** - optimize prevention & treatment infections*

*Minimize impact on local **ecology** - limit antimicrobial resistance*

*Ensure **cost effective healthcare***

Safety and Quality

Individual Patient care

Public Health

Broader issues - AMR, healthcare costs

Health system level

Accreditation

PBS restrictions

Funding models

Community general practice



Residential aged care



Hospitals



Institutional level

Medication and patient safety
- pharmacists, doctors (physicians)



Infection prevention
- ICPs, nurses, cleaners, (surgeons)



Within an institution

Lots of stakeholders with different perspectives, different drivers/priorities

Bed manager

Quality manager

AMS team

Perioperative physician

Charge nurse

ID physician

Ward pharmacist

Surgeon

Registrar

Nurse

Anaesthetist

Covering ward resident



Patient

Patient's family

Patient's workplace/ school

Hospital AMS recommendations are evolving



- Approval process is still important
 - Move to mandatory approvals at many sites
- Post prescription review required
 - Without it, AMS is incomplete (and less effective)
- Evaluating performance of the AMS service
 - Team needs to review activity, interventions
- Providing meaningful feedback – clinicians & management
 - Comparisons valuable
- *Models of AMS in rural/regional hospitals and in private hospital still evolving*
- *Models of AMS in EMM sites evolving (NSW in particular)*

Tamma PD, et al. What Is the More Effective Antibiotic Stewardship Intervention: Preprescription Authorization or Postprescription Review With Feedback? Clin Infect Dis. 2017 Mar

Davey P, et al. Interventions to improve antibiotic prescribing practices for hospital inpatients. Cochrane Database Syst Rev. 2017 Feb

Draft accreditation...



Item	Action required	Link to v1
Antimicrobial stewardship	3.15 The health service organisation has an antimicrobial stewardship program that: <ul style="list-style-type: none">a. includes an antimicrobial stewardship policyb. provides access to, and promotes the use of, current evidence-based Australian therapeutic guidelines and resources on antimicrobial prescribingc. has an antimicrobial formulary that includes restriction rules and approval processesd. incorporates core elements, recommendations and principles from the current Antimicrobial Stewardship Clinical Care Standard²⁵	3.14.1, 3.14.2
	3.16 The antimicrobial stewardship program will: <ul style="list-style-type: none">a. review antimicrobial prescribing and useb. use surveillance data on antimicrobial resistance and use to support appropriate prescribingc. evaluate performance of the program, identify areas for improvement, and take action to improve the appropriateness of antimicrobial prescribing and used. report to clinicians and the governing body in relation to<ul style="list-style-type: none">• compliance with the antimicrobial stewardship policy• antimicrobial use and resistance• appropriateness of prescribing and compliance with current evidence-based Australian therapeutic guidelines or resources on antimicrobial prescribing	3.14.3, 3.14.4

What's new:

- Restriction rules and approval processes
- Included AMS Clinical Care standard
- Compliance with policy
- Compliance with guidelines and appropriateness

Recognition of evolution of AMS services



ELSEVIER

Contents lists available at ScienceDirect

Clinical Microbiology and Infection

journal homepage: www.clinicalmicrobiologyandinfection.com

Commentary

Human resources estimates and funding for antibiotic stewardship teams are urgently needed

C. Pulcini^{1,2,3,*}, C.M. Morel^{4,5}, E. Tacconelli^{6,7}, B. Beovic^{3,8,9}, K. de With¹⁰,
H. Goossens¹¹, S. Harbarth¹², A. Holmes¹³, P. Howard^{3,14}, A.M. Morris¹⁵,
D. Nathwani^{16,17}, M. Sharland¹⁸, J. Schouten^{3,19}, K. Thursky²⁰, R. Laxminarayan²¹,
M. Mendelson²²

Workforce
Capacity

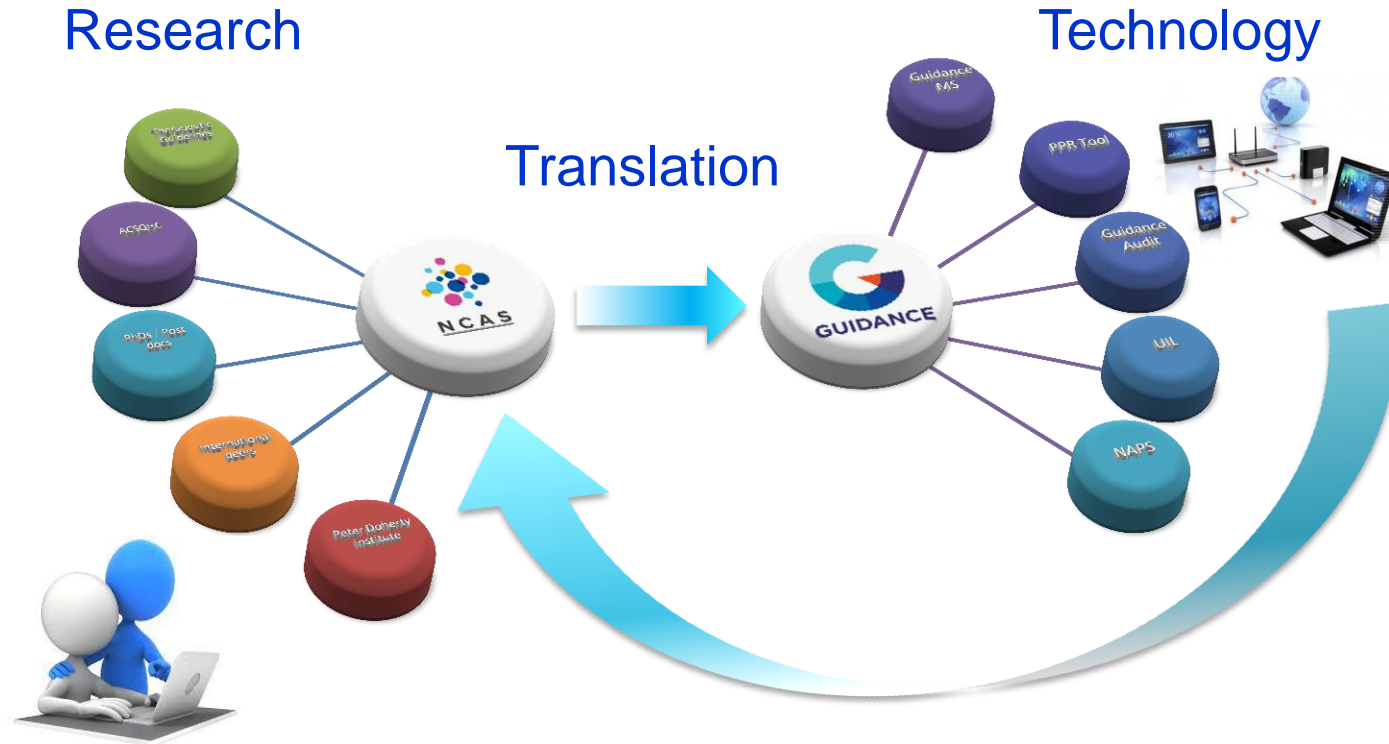
No international standards

Estimates from Australia, Netherlands, Germany, Austria, France guidelines

2-6.7 EFT per 1000 acute bed

Need to understand the full scope of AMS program requirements (esp in low resource settings)

NCAS / Guidance collaboration



Implementation Plan for National AMR Strategy

NCAS/Guidance
: 30 mentions



2.3.4	<u>Implement the Guidance AMS not for profit web-based tool to support AMS workflow in hospitals including an approval system to manage antimicrobial formulary and ward round tool with telehealth capabilities.</u>	Guidance Group at the Royal Melbourne Hospital with the National Centre for Antimicrobial Stewardship
2.3.5	<u>Develop a unique indications database to map to SnoMed CT. The intention is for all eHealth systems to use this infections indication list to support reporting and clinical research.</u>	Guidance Group at the Royal Melbourne Hospital with the National Centre for Antimicrobial Stewardship
2.5.1	<u>Continue to enhance Guidance AMS and National Antimicrobial Prescribing Survey to support and measure efficient and judicious antimicrobial use.</u>	National Centre for Antimicrobial Stewardship*

The role of NAPS



HOSPITAL
NAPS National Antimicrobial
Prescribing Survey

2013 - 2017

AGED CARE
NAPS National Antimicrobial
Prescribing Survey

2015 - 2017

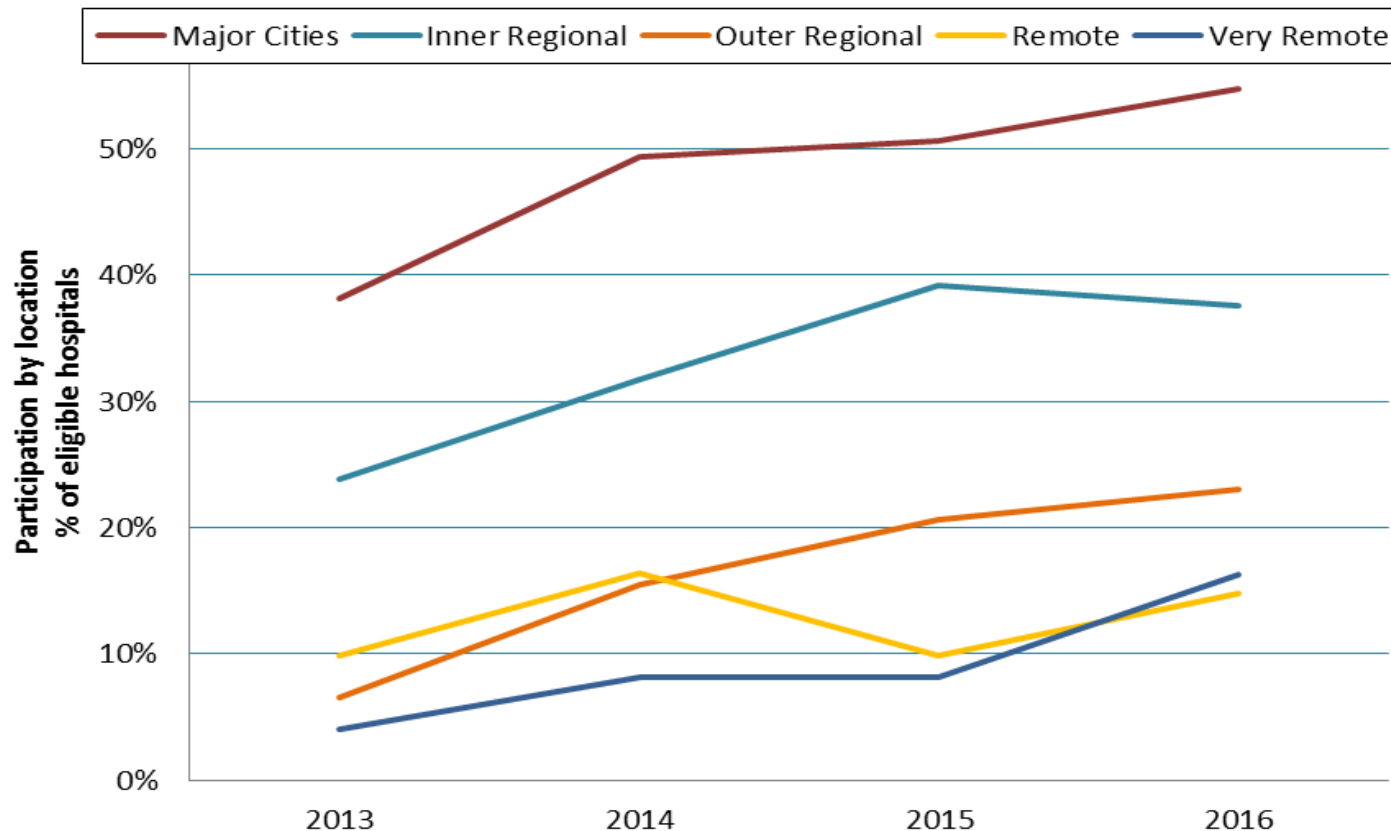
QI Quality Improvement
NAPS National Antimicrobial
Prescribing Survey

2015 - 2017

Deep dive audit

SURGICAL
NAPS National Antimicrobial
Prescribing Survey

2016 - 2017



22%
growth per
year

Median hospitals participation 2.4 years

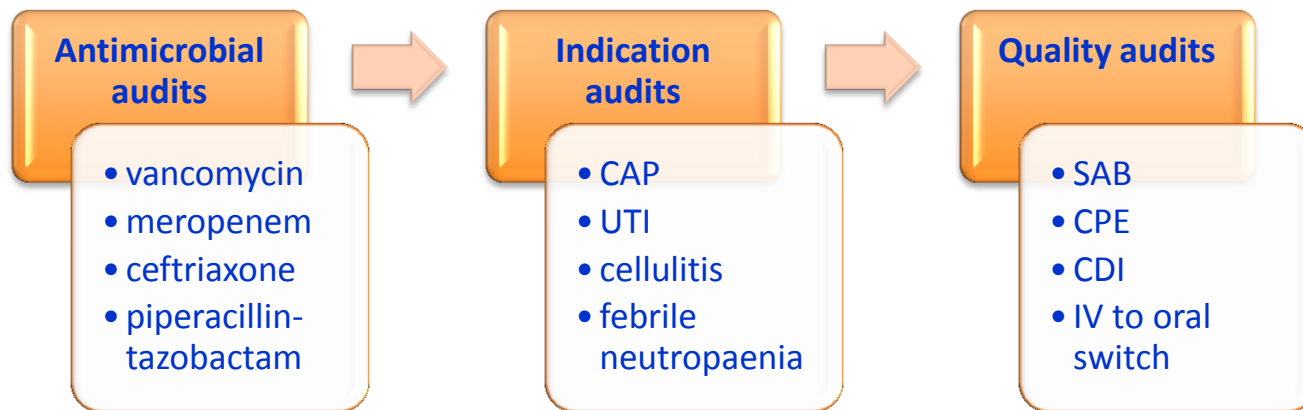
Development of dedicated audits

More detail to tease out reasons for errors

Value = consistent definitions, comparisons

UIL to be used across all tools

Interface with NAPS

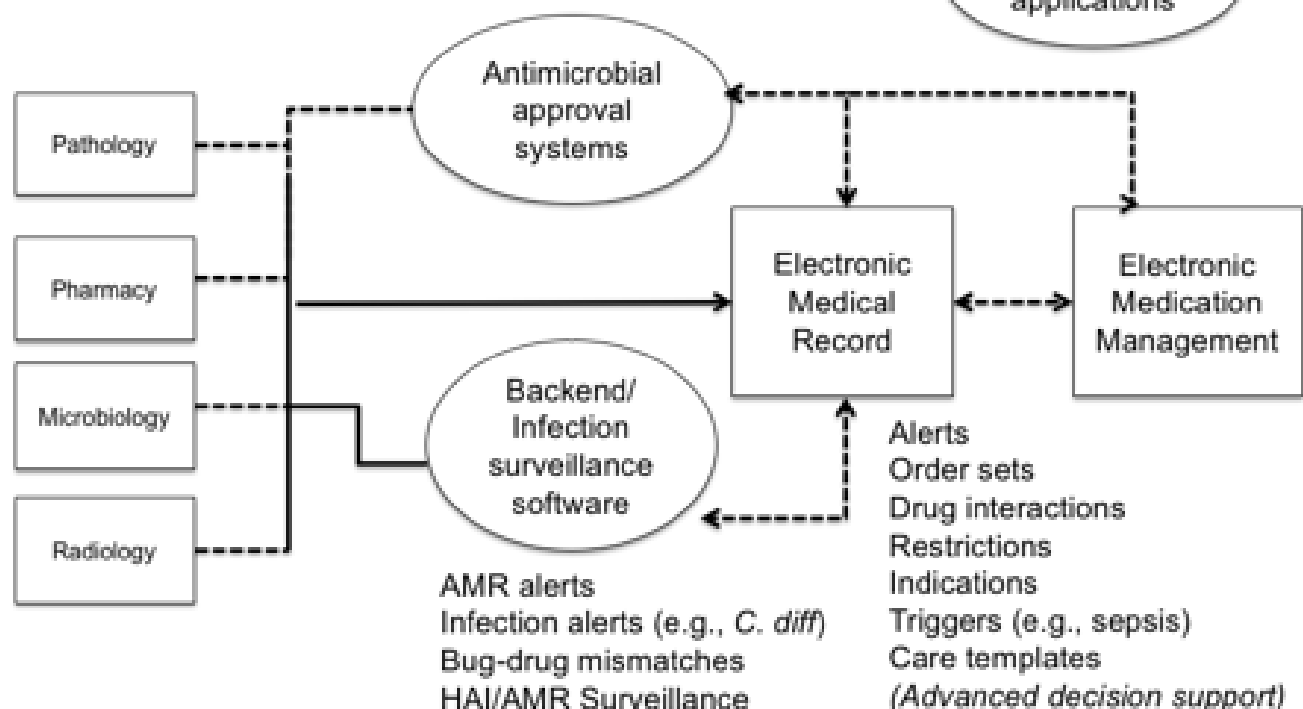


The challenge of AMS and IT



- A systems driven approach
- Interoperability/Data definitions
- Solutions for resource poor/non EMM-EMR
- Simplifying audit and feedback
- National data for surveillance and benchmarking
- *Supports health services research*

Legacy data sources

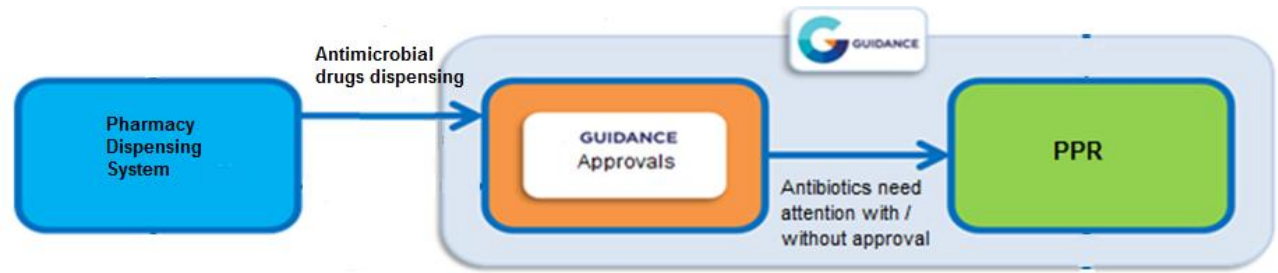


Post Prescription Review

DRUGS approved name only		DAY 1 2	
Flucloxacillin			
Date	Route	Time	
19	IV	08	X
Start date	Valid period	Time	
28/6/13	RV 48h	12	
Signature		Time	
		18	
Indication/Instructions		Time	
CELLULITIS		22	
Pharmacy			

- Most time consuming role
- Ward round preparation/triaging pts
- Patient level feedback – manual in notes, electronic note/template/form
- Measure /report process measures of AMS (real time)
- Monitor:
 - AMS activity and workload
 - acceptance of interventions
 - significance of interventions
 - appropriateness of drug use
- Minimise audit time
- Benchmarking

Epworth Hospital (Private)



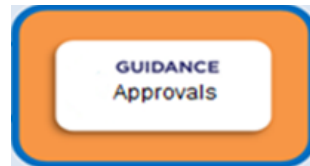
Captures all dispensed drugs as pharmacy alerts in Guidance
Target PPR (includes unrestricted)

Shepparton Base (Public, regional)



Onsite pharmacist, weekly AMS rounds via Telehealth, monthly visits

Ramsay Albury (Private, regional)

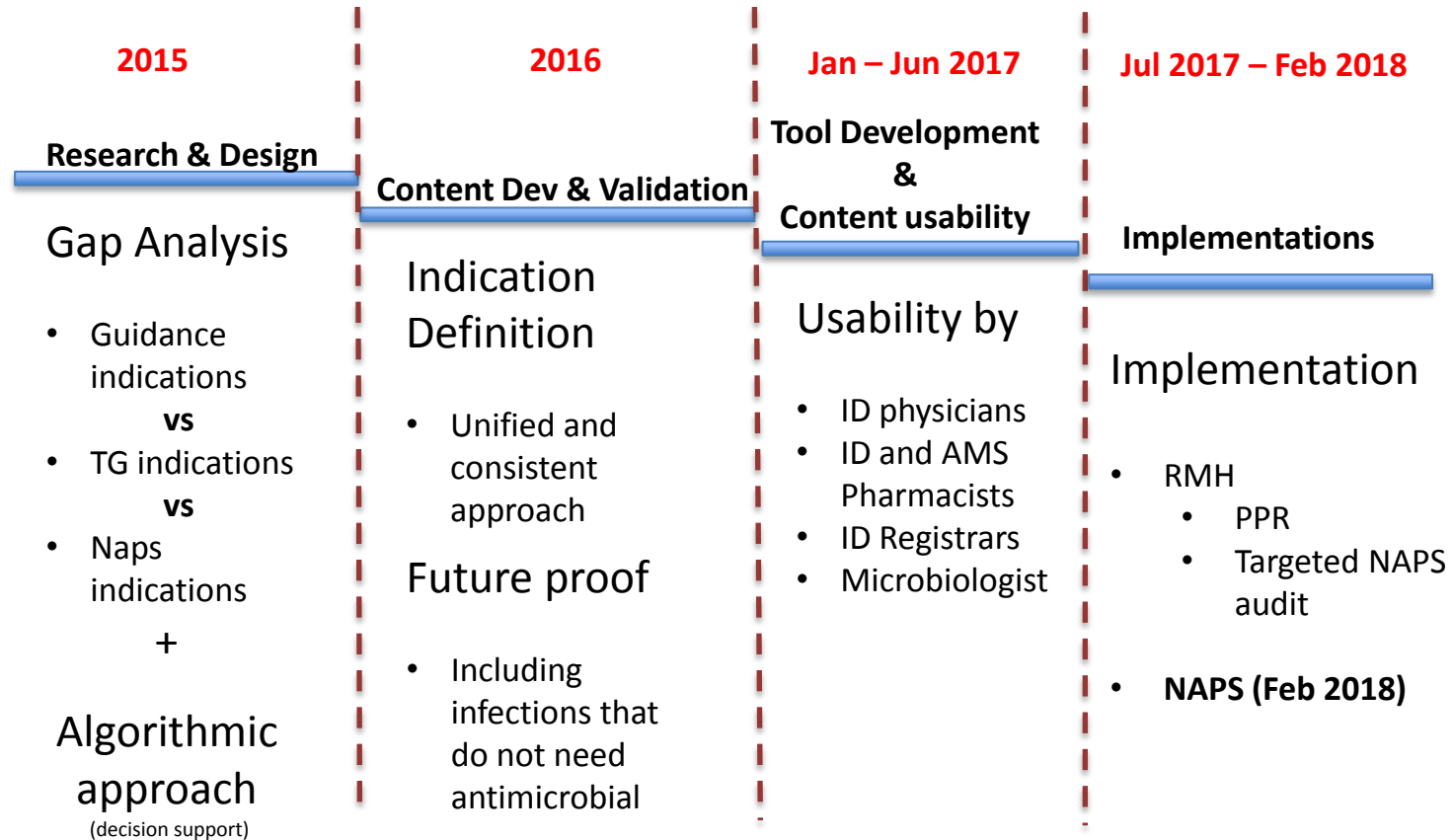


Onsite AMS pharmacist
Nurse led approvals “feel empowered”
Escalate to AMS clinician (non-ID)
** Need programmatic support from experts

UIL Universal Indications List

- Consistent use of antimicrobial indications across the healthcare sector
- Will support clinical research and surveillance
- For infections & antimicrobials
- SNOMED coded
 - internationally recognised dataset for clinical terminology
 - provided and managed by Australian Digital Health Agency (Australian & International versions)
- Cloud hosted & managed by experts
- Available to other clinical systems to adopt
- Enables systems interoperability

UIL Journey...



UIL portal



UIL Universal
Indications List

Admin, UIL
Licensed User

Antimicrobial Stewardship

Australia ▼

Version 1.4 ▼

Default View ▼

Accept

Release Notes

Groups (17)

All

Bone and Joint

Cardiovascular system

Central nervous system

Ear nose and throat

Eye

Gastrointestinal

Genital

Intraabdominal

Oral and Dental

Other

Prophylaxis - medical

Indications (515)

Indication (Alias)	Groups	Tags	My Tags	Alias	
Acne	1			Acne updated	***
Actinomyces infection	1			Actinomyces infection	***
Acute Chlamydial conjunctivitis	1			Acute Chlamydial conjunctivitis	***
Acute cholecystitis	1			Acute cholecystitis	***
Acute cystitis, Enterococcus species	1			Acute cystitis, Enterococcus species	***
Acute cystitis, Escherichia coli	1			Acute cystitis, Escherichia coli	***
Acute cystitis, Klebsiella pneumoniae	1			Acute cystitis, Klebsiella pneumoniae	***
Acute cystitis, other pathogen	1			Acute cystitis, other pathogen	***
Acute cystitis, pathogen unknown	1			Acute cystitis, pathogen unknown	***
Acute cystitis, Proteus mirabilis	1			Acute cystitis, Proteus mirabilis	***
Acute cystitis, Pseudomonas aeruginosa	1			Acute cystitis, Pseudomonas aeruginosa	***
Acute epiglottitis	1			Acute epiglottitis	***
Acute gastroenteritis	1			Acute gastroenteritis	***
Acute hepatic encephalopathy	1			Acute hepatic encephalopathy	***
Acute necrotising pancreatitis	1			Acute necrotising pancreatitis	***
Acute otitis externa, diffuse	1			Acute otitis externa, diffuse	***

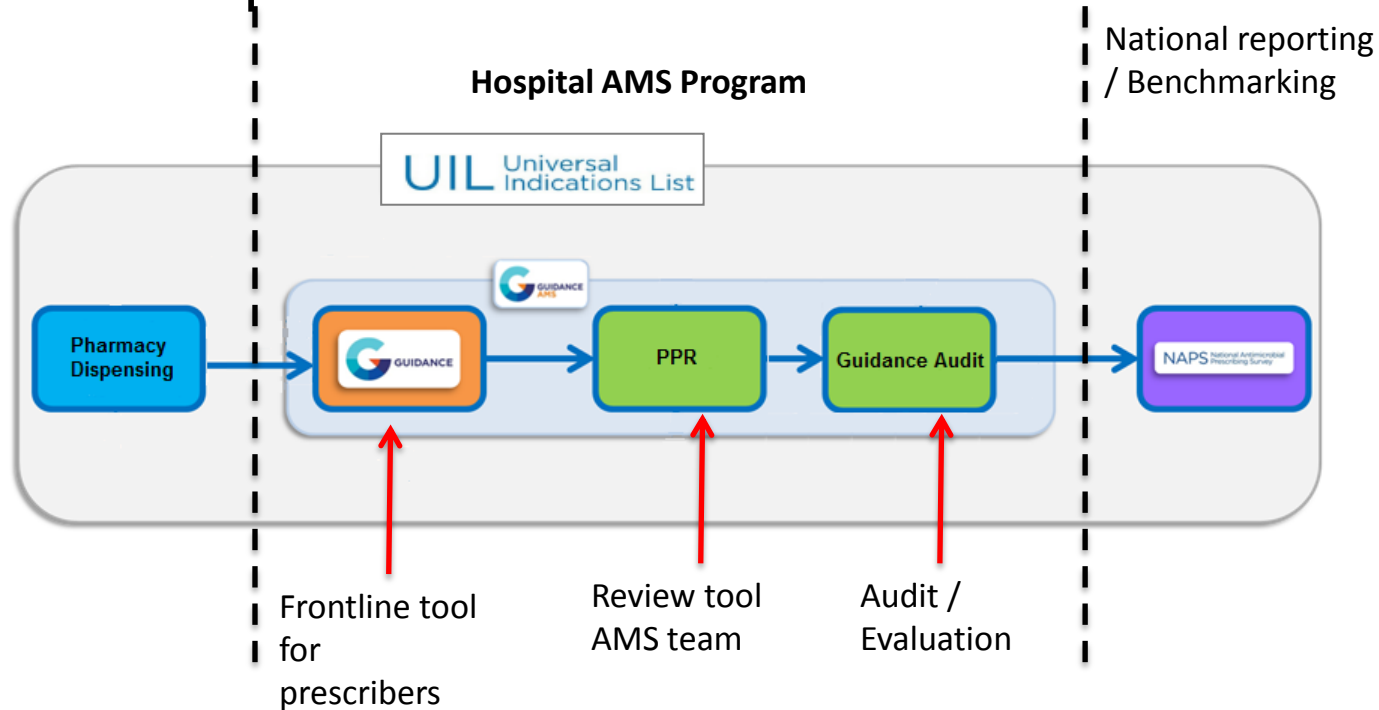
Content Management Committee (CMC)



- Team of experts - maintain indications code set
 - ID physicians, microbiologists, and pharmacists at NCAS
- Change request process in place for continuous improvement
- Terms of reference:
 - Review all requests for changes to the UIL
 - Meetings to make decisions on changes
 - Strict criteria for inclusion in the list
 - Will communicate changes to licensed users

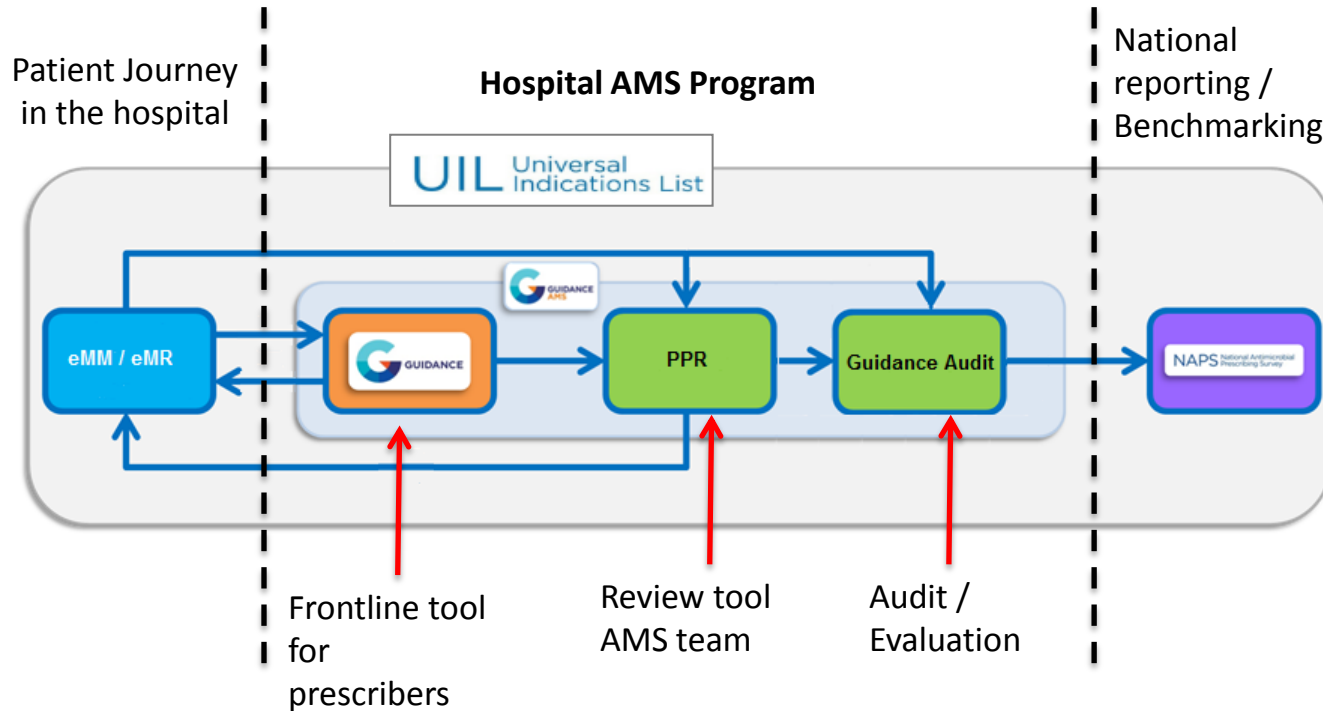
Without eMM...

Fully comprehensive electronic antimicrobial stewardship solution



With eMM...

Fully comprehensive electronic antimicrobial stewardship solution



Lack of data linkages



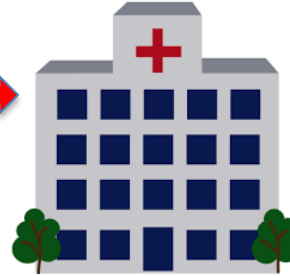
Antimicrobial Use in the Community
PBS, NPS Medicines Insight

Antimicrobial Use in Hospitals
NAPS, SNAPS, NAUSP

Imported AMR

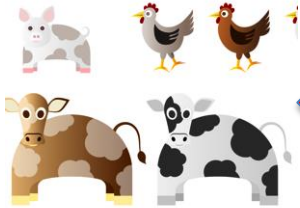


AMR Surveillance
AGAR
OrgTrx

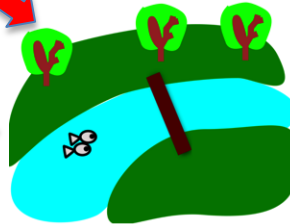


HAI Surveillance
Hand Hygiene
Patient outcomes
from hospital admissions databases

Bureau of Statistics
Medicare data

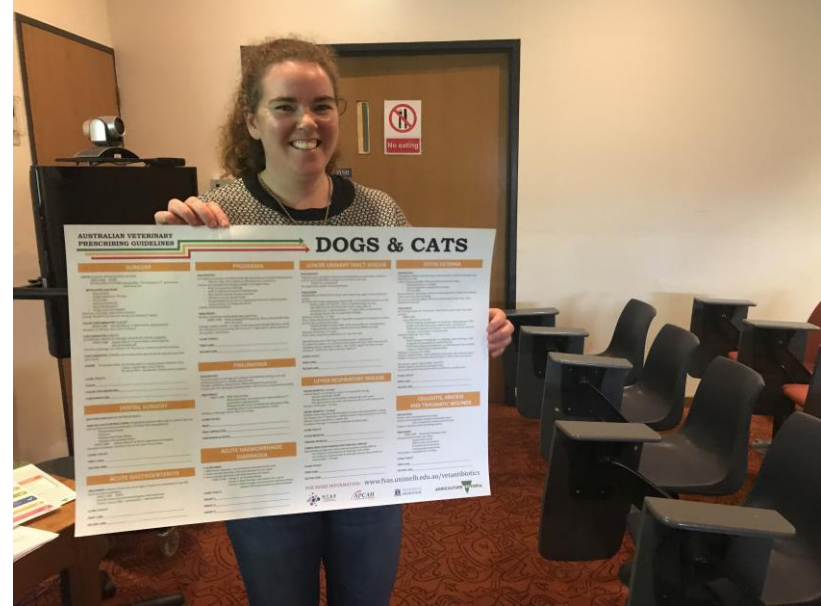
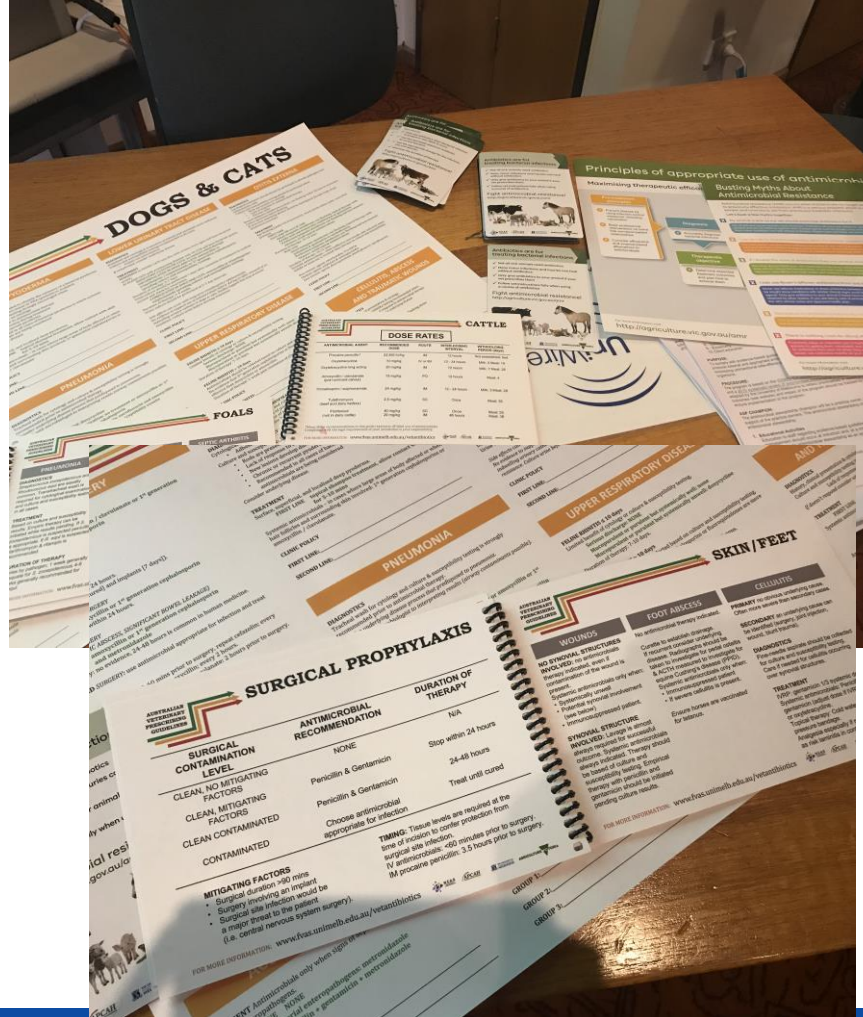


Antimicrobial use in companion
Antimicrobial use in livestock
AMR Surveillance in animals



Antimicrobial/AMR residues in crops, water

Complex relationships
How to measure impact?



Veterinary Microbiology

Volume 203, May 2017, Pages 301-307



Antimicrobials used for surgical prophylaxis by companion animal veterinarians in Australia

Laura Y. Hardefeldt ^a ✉, Glenn F. Browning ^a, Karin Thursky ^b, James R. Gilkerson ^a, Helen Billman-Jacobe ^a, Mark A. Stevenson ^a, Kirsten E. Bailey ^a

Chief Investigators

- Prof Karin Thursky – Director
- A/Prof Kirsty Buising – Deputy Director
- Prof Glenn Browning (Animal Lead)
- Prof Danielle Mazza (GP lead) (Monash)
- Dr Trisha Peel (Tertiary Lead)
- Prof Michael Richards (VIDS/VICNISS)
- A/Prof Rhonda Stuart (Aged Care Lead)
- A/Prof David Kong (Monash)
- A/Prof Caroline Marshall (VIDS)

Associate Investigators

- Dr N. Deborah Friedman (Barwon Health)
- Dr Helen Billman-Jacobe (Animal)
- Dr Tom Schulz (VIDS)
- Ms Evette Buono (NSW CEC)
- Dr Noleen Bennett (VICNISS/Guidance)
- Prof Frank Dunshea (Animal)
- A/Prof Leon Worth (VICNISS)

Paediatric advisors

- Dr Brendan McMullan (NSW)
- Dr Celia Cooper (SA)

VICNISS

- Dr Ann Bull
- Ms Sandra Johnson

Guidance (NAPS)

- Ms Susan Luu – Clinical Operations
- Ms Caroline Chen/Robyn Ingram – NAPS Project Manager
- Ms Sonia Koning – Project Officer
- Dr Rodney James –Research Fellow
- Ms Ngan-Ha Tran- Implementation
- Ms Renukadevi Padhamanaban –Director IT
- Dr Steve Christov- Business operations

PhDs & Post Docs

- Dr Laura Hardefeldt (PhD) - Animal
- Ms Leslie Dowson (PhD) – Aged Care
- Ms Jaclyn Baker (PhD) – Rural
- Ms Courtney Ierano (PhD) - Tertiary
- Dr Kirsten Bailey (Post doc) - Animal
- Ms Lesley Hawes– General Practice
- **Ms Fiona Gotterson – Nursing**
- **Ms Helen Crabb (Post doc)- Livestock**
- **Karen Urbancic – Antifungal stewardship**

Australian Commission on Safety and Quality in Health Care (AURA/NAPS/AMS)

- Kathy Meleady
- Prof John Turnidge
- Prof Marilyn Cruikshank