Antimicrobial Stewardship; incorporating social influence, clinical context and specialty-specific issues

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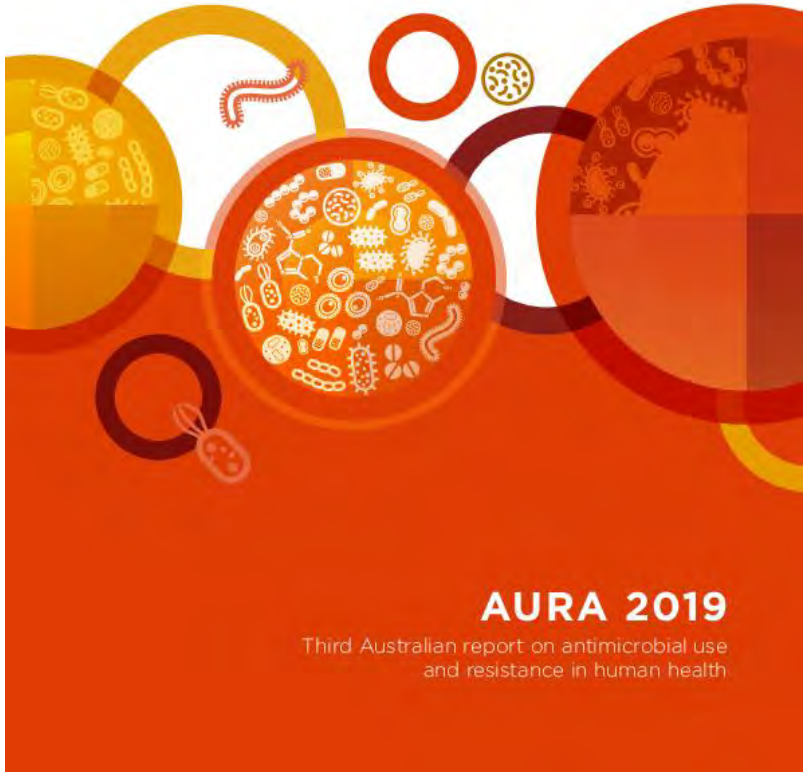
Stating the obvious…

- **Antibiotics are over-prescribed**
- **We all want patients to get better**
- **We all want to feel safe**
  - **Vulnerability and risk are hard**
- **We live in a regulatory society and healthcare system**
  - **Regulation can isolate us from each other**
  - **Regulation can erode trust in ourselves and in each other**
- **We need to imagine better ways to change systems**

Current practice in Australian Hospitals

- In 2017, total antibiotic use in hospitals that participated in the National Antimicrobial Utilisation Surveillance Program (NAUSP) increased for the first time since 2013.
- The usage rate increased from 932.8 defined daily doses (DDDs) per 1,000 occupied bed days in 2016 to 956.8 DDDs per 1,000 OBDs in 2017
- • The overall rate of inappropriate prescribing in hospitals that participated in the National Antimicrobial Prescribing Survey (NAPS) has been static since 2013.
- In 2017, 23.5% of prescriptions assessed were found to be inappropriate
- The most common indications for prescribing antimicrobials in NAPS contributor hospitals were surgical prophylaxis, community-acquired pneumonia, medical prophylaxis, urinary tract infections and sepsis



Evidence that cultural/behavioural factors influence antimicrobial prescribing?

- Qualitative data - Prescribing “etiquette” [1]
- ProHOSP[2] ProREAL[3]
  - significant variation between countries in algorithm uptake
- Uncertainty avoidance associated with prolonged surgical antibiotic prophylaxis[4]
- Significant country level differences in prescribing
- Persistent discordant prescribing in areas with reasonable evidence base
  - community acquired pneumonia, surgical antibiotic prophylaxis

1. Charani CID 2013
2. JAMA 2009
3. Arch Int Med 2012
4. Borg JAC 201

Research

Original Investigation

Effect of Behavioral Interventions on Inappropriate Antibiotic Prescribing Among Primary Care Practices
A Randomized Clinical Trial

Daniella Meeker, PhD; Jeffrey A. Linder, MD, MPH; Craig R. Fox, PhD; Mark W. Friedberg, MD, MPP; Stephen D. Persell, MD, MPH; Noah J. Goldstein, PhD; Tara K. Knight, PhD; Joel W. Hay, PhD; Jason N. Doctor, PhD

JAMA 2016

Provision of social norm feedback to high prescribers of antibiotics in general practice: a pragmatic national randomised controlled trial

Michael Hallsworth, Tim Chadborn, Anna Sallis, Michael Sanders, Daniel Berry, Felix Greaves, Lara Clements, Sally C Davies

oa OPEN ACCESS

Summary

Background Unnecessary antibiotic prescribing contributes to antimicrobial resistance. In this trial, we aimed to

Lancet 2016; 387: 1743–52

Lancet 2016

Cultural Contexts of Health and Well-being

Policy brief, No. 2

Antibiotic resistance: using a cultural contexts of health approach to address a global health challenge

Principal author
Katie Ledingham

Co-authors
Steve Hinchliffe, Mark Jackson, Felicity Thomas, Göran Tomson

World Health Organization
REGIONAL OFFICE FOR Europe

- Participating hospitals
  - 7 hospitals
  - Metro, regional, remote
  - QLD and NSW
- Individual interviews
  - >100 doctors
  - >100 nurses
  - >50 pharmacists
  - >20 managers
- focus groups
  - ICU,
  - Inter professional,
  - junior doctors,
  - surgeons,
  - pharmacists

J Antimicrob Chemother
doi:10.1093/jac/dkz233

Journal of Antimicrobial Chemotherapy

The drivers of antimicrobial use across institutions, stakeholders and economic settings: a paradigm shift is required for effective optimization

J. Broom [1,2]*, A. Broom[3] and E. Kirby[3]

- multilevel influences.
- individual 'behaviour improvement' alone won't solve the AMR crisis
- Antimicrobial use is multidimensional incorporating
  - personal,
  - interpersonal
  - institutional variables
- How do 'we' – the health system, health services, hospitals, specialties, teams and individuals construct environments that lead to antimicrobial overuse
- How do we need to change?

AHPRA

Society

AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE

eTG complete by Therapeutic Guidelines

Health systems

NSQHS STANDARDS

Queensland Government
Queensland Health

Journal of Hospital Infection 94 (2016) 230–235

Available online at www.sciencedirect.com

Journal of Hospital Infection

journal homepage: www.elsevierhealth.com/journals/jhin

Optimizing antibiotic usage in hospitals: a qualitative study of the perspectives of hospital managers

A. Broom [a,*], A.F. Gibson [a], J. Broom [b,c], E. Kirby [a], T. Yarwood [c,d,e], J.J. Post [f,g]

- *'I think the problem is it's [antimicrobial stewardship (AMS)] in a competitive market. Are the waiting lists more newsworthy than antibiotic prescribing? Absolutely. You get more adverse events happening because of the waiting lists. So, of course it's not going to be the [antibiotic] prescribing that comes up to the top of that.' [Departmental Director]*
- *'It depends on where the service is focused, isn't it? So if the boss says, 'You must address your four hour [emergency access] target'. It makes you suddenly forget about antimicrobial stewardship until we kill somebody and then we go, 'No, we're going to do antimicrobial stewardship.'' [Executive]*

Lip-service to AMR

- *P: I honestly believe lip service is paid to it [antimicrobial mis-use]. You could go start preaching from the mountaintops telling people how much we're spending [on antibiotics], what it's [antibiotic resistance] costing us […] It's just as I said […] there's no measureable in it so therefore it doesn't matter.* [Divisional Director]

Institutions

A Remote Australian Hospital: The influence of the institutional environment

- **Socioeconomic disadvantage**
  - perceived as associated with increased infection risk
  - reduced ability to engage in health management strategies
- **Geographically remote settings**
  - challenges with follow-up
  - impact patient compliance
  - increased acuity of patients presenting with infections
- **Risk perception**
  - above issues combine to escalate the clinician's perception of risk
- **Perceptions of resistance**
  - Influence of country of training
  - Perceptions of local patterns of resistance impact on perceived relevance of guidelines
- **Inter-professional relationships**
  - consultant hierarchy,
  - lack of consultant leadership on AMS committee
  - pharmacy and nursing inability to impact medical decision-making
- **Process issues –**
  - locum workforce
  - restricted drugs on imprest due to after hours needs

- *“We have overcrowding, we have poor living conditions, we have transient populations. So you can have a household and it might already have 10 people living in that household, but there’s another 10 people who are transient around that household who come and go depending on what else is going on in their lives. So our population tends to be trapped in this cycle of poverty, poor health outcomes, non- compliance. I believe we have a health system here that doesn’t articulate well with that population and that set of social circumstances.”* (Nurse)

Conclusions from a remote setting…

- Infection risk perceived high
  - Social disadvantage
  - Resistance patterns
- Transient workforce
- Transient patient population
- Lack of local engagement and leadership

= AMS disengagement

Contents lists available at ScienceDirect

Health & Place

journal homepage: www.elsevier.com/locate/healthplace

Antibiotic optimisation in 'the bush': Local know-how and core-periphery relations

Alexander Broom[a], Jennifer Broom[b], Emma Kirby[a,*], Alexandra Gibson[c], Mark Davis[d]

Available online at www.sciencedirect.com

Journal of Hospital Infection

journal homepage: www.elsevier.com/locate/jhin

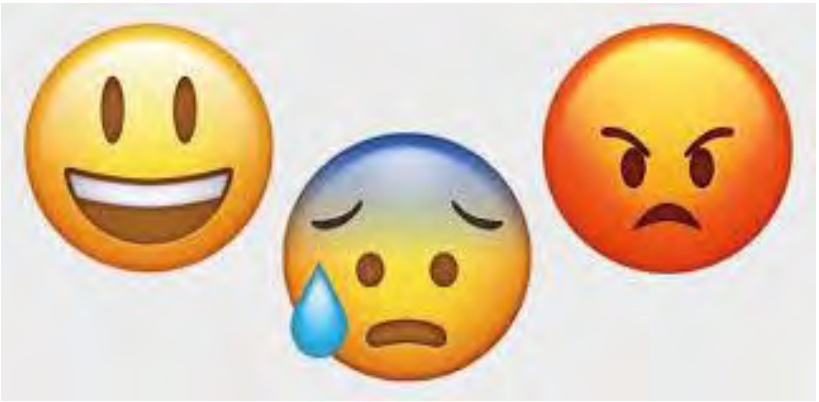
Context-sensitive antibiotic optimization: a qualitative interviews study of a remote Australian hospital setting

J. Broom [a,*], A. Broom [b], E. Kirby [b]

[a] *Sunshine Coast Hospital and Health Service, University of Queensland, 6 Doherty Street, Birtinya, Australia*
[b] *Centre for Social Research in Health, University of New South Wales, Sydney, NSW, Australia*

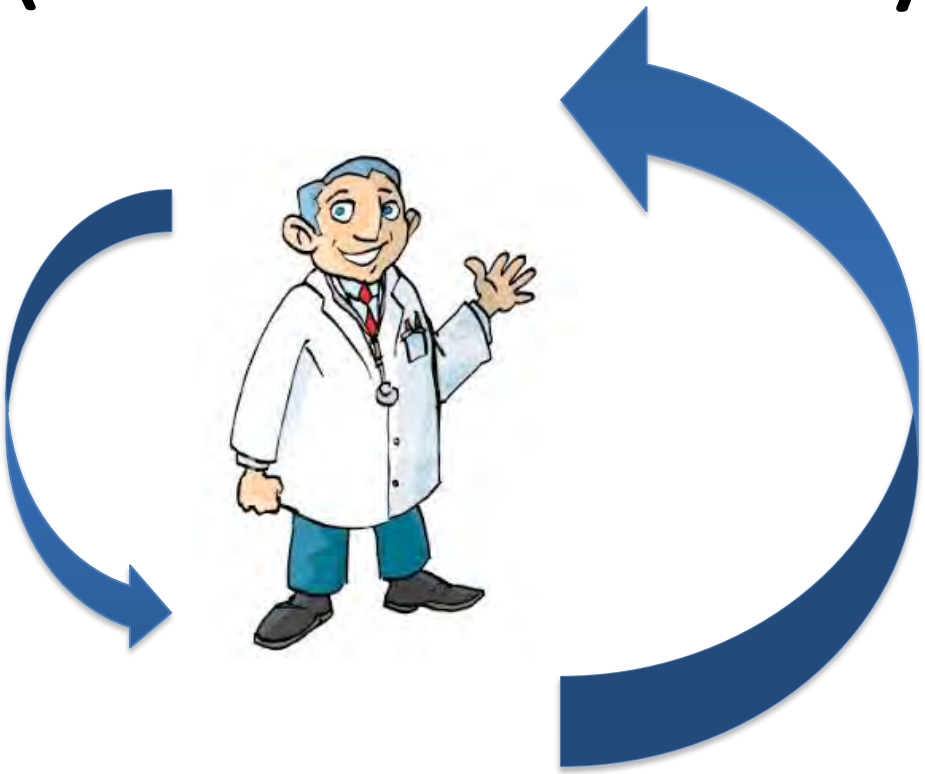
Specialties, professional streams, services

Individuals



Relative influences: Values in the social world of the hospital (and more broadly)

Evidence
Best practice
Long-term epidem
AMS programs
ID advice



Immediate risk
Medical identity
Habit
Peer pressure
Reputation
(In)significance of AB choices
Lack of Knowledge

Social Science & Medicine 110 (2014) 81–88

Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

Cultures of resistance? A Bourdieusian analysis of doctors' antibiotic prescribing

Alex Broom [a,*], Jennifer Broom [b], Emma Kirby [a]

[a] School of Social Science, University of Queensland, St Lucia, QLD 4072, Australia
[b] Department of Medicine, Nambour Hospital, QLD, Australia

- *"I don't want to prescribe the wrong thing and I'll look stupid, and I don't want to prescribe something that might have bad interactions and look dangerous. Every decision being plagued with this possibility that you're being dangerous. We err between kind of passive stupidity and dangerous. Passive and stupid when we're not making any decisions and dangerous when we do."* [Non-consultant, Surgery, Male]

What do antimicrobial stewardship services target?

- Individual prescribing
  - Knowledge
  - regulation
- Institutional guidelines

What do people think about antimicrobial stewardship?

- Doesn’t respect clinician autonomy
- Doesn’t consider the individual patient
- Concerned with antibiotic risk, not immediate patient risk
- Not always associated with a detailed patient assessment
- Delivered by junior doctors at times (doesn’t respect professional hierarchy)
- Don’t agree with guidelines

Views on AMS

- *“Okay. I don’t think it’s [AMS] appropriate. I find that sometimes I’m being told to do things that I know are incorrect from a respiratory point of view by somebody who has very little experience in the field. So it is usually a person who has just passed their FRACP, they’ve just started doing infectious diseases, and they are trying to tell me how to manage somebody with a complex problem like bronchiectasis, cystic fibrosis, or somebody with an unusual pneumonia or a lung abscess or an empyema.”* Senior physician

Futility

Infection, Disease & Health (2017) 22, 97–104

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: http://www.journals.elsevier.com/infection-disease-and-health/

ELSEVIER

Research paper

Individual care versus broader public health: A qualitative study of hospital doctors' antibiotic decisions

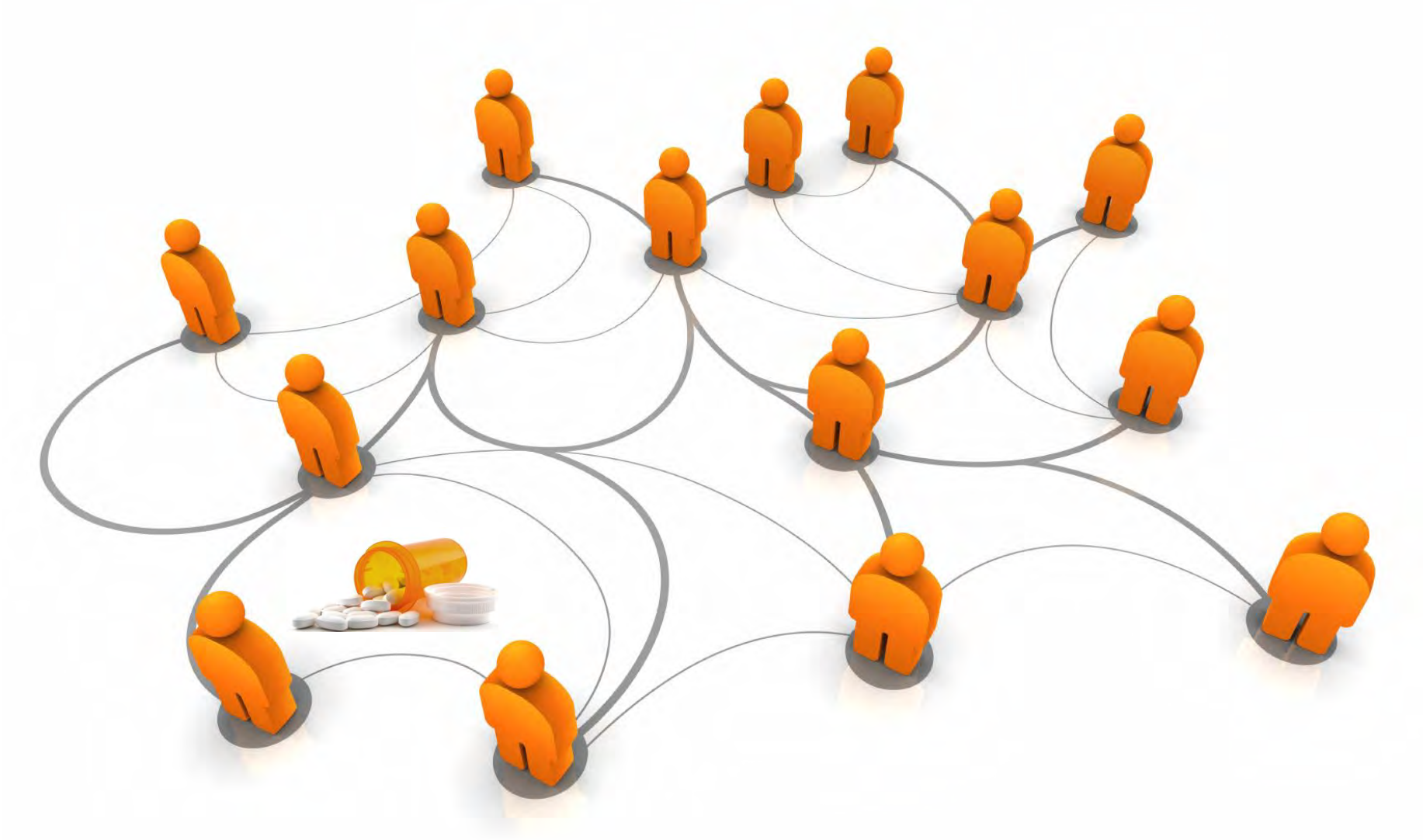
J. Broom [a,b,*], A. Broom [c], E. Kirby [c], A.F. Gibson [c], J.J. Post [d]

- *"The fact that they pump livestock full of antibiotics and stuff, or you know, the fact that you don't need a prescription in a lot of countries for antibiotics. I mean even if we clean up our act in terms of absolute best practice within the hospitals, the resistant bugs aren't going to come from here. Like it might delay the time that they end up here, but it's still going to, until all those other areas are cleaned up the same way. "* Junior doctor

Perceptions of antimicrobial resistance

- It’s all the chickens in China
- It’s not my prescribing
- AMR is not a risk in Australia
- AMR is imported from overseas
- It’s the GPs
- It’s the surgeons
- It’s the farmers
- Even if I change my prescribing, it won’t make a different = FUTILITY

The complicated social world of antibiotic 'prescribing'



The success of antibiotic optmisation is significantly impacted upon by relationships and social factors

- People don’t respond positively to being told they are bad/wrong
- We need to understand another person’s perspective to understand their prescribing
- How do we create relationships?
  - With different specialties
  - With different professional streams
  - Remote/regional contexts
  - Transient workforce
  - Resource limitations

Consider context when designing AMS strategies

Without local engagement effect is minimal (or possibly detrimental) - consultant engagement essential

Fear, hierarchy and risk are everywhere – and need to be addressed

Is the eTG relevant in all contexts?

Consider broader influences on decision-making than the bug and the guidelines

Specialty specific issues exist and need to be considered in the design of AMS interventions

Respect risk perception at different institutions and advocate for change of the factors that increase risk.

ORIGINAL ARTICLE

ANZJSurg.com

Addressing social influences reduces antibiotic duration in complicated abdominal infection: a mixed methods study

Jennifer Broom, Chin Li Tee, Alex Broom, Mark D. Kelly, Tahira Scott and David A. Grieve
Department of Surgery, Nambour General Hospital, Sunshine Coast Hospital and Health Service, Queensland, Australia

- Collaborative meetings
- Hierarchical engagement
- Leadership within the surgical team
- Posters and education sessions

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Trial of Short-Course Antimicrobial Therapy for Intraabdominal Infection

R.G. Sawyer, J.A. Claridge, A.B. Nathens, O.D. Rotstein, T.M. Duane, H.L. Evans, C.H. Cook, P.J. O'Neill, J.E. Mazuski, R. Askari, M.A. Wilson, L.M. Napolitano, N. Namias, P.R. Miller, E.P. Dellinger, C.M. Watson, R. Coimbra, D.L. Dent, S.F. Lowry,* C.S. Cocanour, M.A. West, K.L. Banton, W.G. Cheadle, P.A. Lipsett, C.A. Guidry, and K. Popovsky

Key themes

- **1. Consultant leadership and specialty ownership was perceived as critical to intervention uptake and multi-level team engagement in education sessions was described as highly effective.**
- **2. The influence of the antimicrobial stewardship team (AMS) was significant in initiating the change process, but once the project was owned by the surgical team, the most significant influences were intra-specialty dynamics rather than driven by AMS.**
- **3. Variable role for nursing and pharmacy in the change process**
- **4. No one notice the posters!**

Conclusion

- The AMR crisis requires urgent action
- We need to understand our society, our health systems, and our individuals, to imagine better ways to optimise antimicrobial prescribing
- When people react badly to AMS, it is worth listening to…

Research team

- **Researchers**
  - Professor Alex Broom (UNSW)
  - Dr Emma Kirby (UNSW)
  - Dr Katie Kenny (UNSW)
  - Professor Marianne Wallis (USC)
- **Hospitals involved**
  - Sunshine Coast University Hospital
  - Prince of Wales Hospital, Sydney
  - Cairns Hospital
  - Mt Isa Hospital
  - Sunshine Coast Private Hospital
- **Funding**
  - Australian Research Council Linkage Grant
  - Advance QLD Senior Research Fellowship
  - Sunshine Coast Wishlist Foundation
- **Partner organisations**
  - ASID
  - ACSQHC
  - ASA
  - Queensland Health Statewide AMS service

Queensland Government
Queensland Health

Sunshine Coast
Hospital and Health Service
Exceptional people. Exceptional healthcare.

ASID
Australasian Society for Infectious Diseases

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