AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE

AURA
Antimicrobial Use and Resistance in Australia

AURA: A resource for pharmacists

The World Health Organization has described antimicrobial resistance (AMR) as one of the greatest threats to human and animal health, as well as food safety and agriculture. It threatens the ability to provide safe healthcare in the future. AMR can develop through the use of antimicrobials or exposure to AMR organisms in the environment. Unlike other medications, antibiotics can affect not only your patient but other people and the wider community. Antibiotic use inevitably leads to resistance, but overuse of antibiotics has accelerated this process.

A case study: community onset UTI and empiric oral antibiotic therapy

Patient case scenario: A 75 year old woman has a history of frequent urinary tract infections (UTIs) and is usually prescribed cefalexin. She has no allergies or contraindications for trimethoprim. She presents with a private prescription for ciprofloxacin, no urine sample has been taken.

AURA 2019 data relevant to the case study

Cefalexin is frequently prescribed for UTIs
UTIs were the second most common indication for cefalexin (21.5%).[1]

Trimethoprim is underutilised as a first line agent for UTIs
In 2017, only 44.9% of females aged more than 18 years were prescribed trimethoprim for UTIs (which is the recommended treatment by the *Therapeutic Guidelines: Antibiotic*).[2]

Ciprofloxacin resistance in *Escherichia coli* from urine specimens was higher than other oral agents
Fluoroquinolones such as ciprofloxacin are associated with the development of AMR. They should be reserved for UTIs where resistance is confirmed and the urinary isolate is susceptible. Fluoroquinolone resistance in urinary isolates of *E.coli* increased from 8.5% in 2016 to 10% in 2017.[3] Rising resistance to fluoroquinolones is a major concern as there are limited oral options for the treatment of UTIs. Fluoroquinolone resistance in urinary isolates was 10% in 2017 compared to proportions as low as 1.1% for nitrofurantoin.[3] *E.coli* UTIs are a common cause of bloodstream infections where multidrug resistance (non-susceptible to at least one agent in three or more antimicrobial categories) is very high at over 25%.[4] Optimising community use of fluoroquinolones and other broad spectrum antibiotics is imperative to contain this resistance.

1 – NPS MedicineWise MedicineInsight Data – Chapter 3; AURA 2019
2 – NPS MedicineWise MedicineInsight – Chapter 3; AURA 2019
3,4 – Chapter 4; AURA 2019

What is the AURA Surveillance System and why is it important?

The Antimicrobial Use and Resistance in Australia (AURA) Surveillance System monitors and reports on Australia's antimicrobial usage and resistance patterns to inform clinical and public health policy and practice. The AURA National Coordination Unit (NCU) works with stakeholders to inform action at the local, state and territory, and national levels to prevent and contain the spread of AMR.

The Third Australian report on antimicrobial use and resistance in human health (AURA 2019) gives the most current and comprehensive picture of AMR in Australia.

Pharmacists have an important role containing AMR. This factsheet describes components of the AURA Surveillance System that monitor antimicrobial use and resistance, and inform actions and response.

Antimicrobials are overused for UTIs in the aged care setting

Only 5.3% of antimicrobial prescriptions for UTIs were for residents with signs and/or symptoms of infection that met internationally accepted surveillance criteria (McGeer et al definitions).[5]

Areas of interest for Pharmacists in AURA 2019

Chapter 3 (*Antimicrobial use and appropriateness*) outlines antimicrobial use and appropriateness in the acute, primary care and aged care settings.

Chapter 6 (*Focus areas*) draws out focus areas from AURA; amoxicillin-clavulanic acid and cefalexin prescribing is of particular interest.
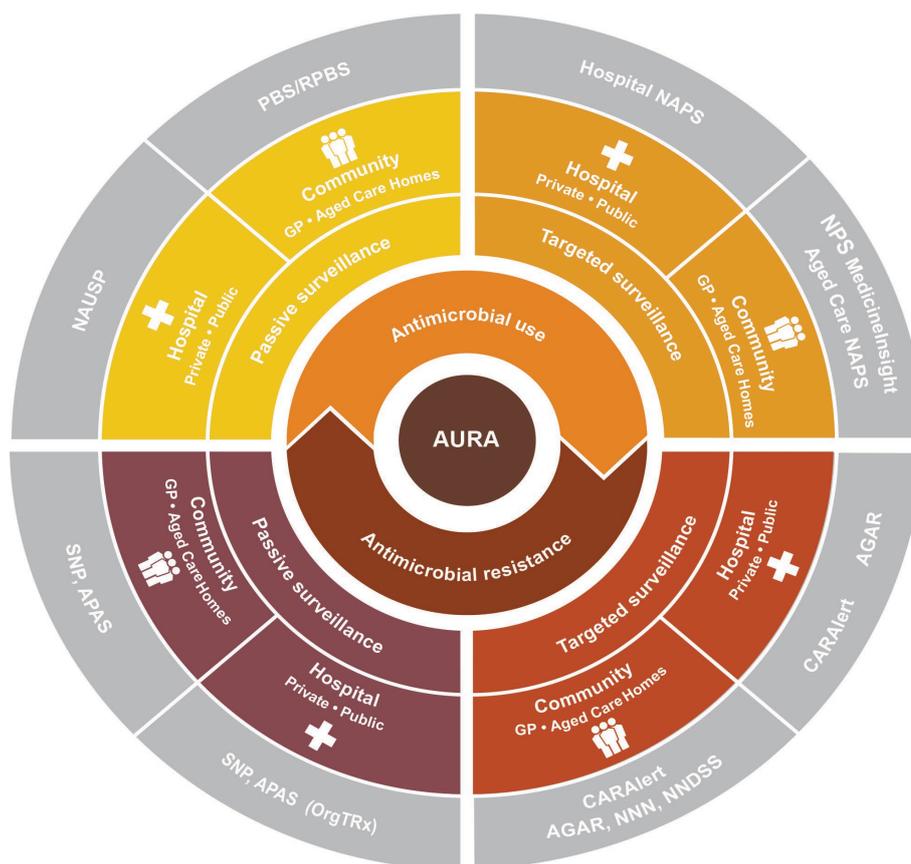
Community pharmacy - How can AURA support clinical practice?

- Use dispensing software to see how many antimicrobials are dispensed on a weekly/annual basis
  - Get to know and understand antimicrobial use patterns for consumers in your pharmacy.
- Are your top 5 antimicrobials the same as those seen nationally (AURA 2019 Chapter 3)?
  - Can you identify any reasons for variation?
- Take advantage of opportunities to discuss variation with local prescribers
  - Is trimethoprim being underutilised in UTI management? Discuss why this might be the case
- When conducting a MedsCheck, clarify the indication and intended duration of any antimicrobial. If your patient has been on an antibiotic for an extended duration, have you discussed this with the patient and/or prescriber?
- If a patient has a prescription for an antibiotic from many months prior, do you engage in a discussion with the patient about whether it is appropriate to take now?
- When counselling patients receiving antibiotics for UTIs, engage them in discussions about preventing future UTIs and that mild UTI symptoms may not require antibiotics.

5 – AC NAPS Data – Chapter 3; AURA 2019

- Can local antimicrobial usage data be used for local awareness initiatives such as during Antibiotic Awareness Week?
  - Display posters in your pharmacy with deidentified statistics or patient care information such as "how to prevent UTIs"
  - Highlight your pharmacy's vaccination service during cold and flu season with reminders about why antimicrobials should not be used for viral infections.

Hospital pharmacy - How can AURA support clinical practice?

- Be familiar with the National Safety and Quality Health Service (NSQHS) Standards. Antimicrobial usage, appropriateness and Antimicrobial Stewardship (AMS) are outlined in the Preventing and Controlling Healthcare-Associated Infection Standard
- Does your hospital participate in the National Antimicrobial Prescribing Survey (NAPS) and National Antimicrobial Utilisation Surveillance Program (NAUSP)?
  - NAUSP collects antimicrobial usage data for acute hospital inpatients
  - NAPS is a point prevalence survey that provides an overview of the appropriateness of antimicrobial prescribing
  - What is the most common antimicrobial prescribed for UTIs? Can you develop a Quality Improvement project to address this inappropriate use?
- Can you identify target areas and develop Quality Improvement strategies?
  - Monitoring the quantity and quality of antimicrobial use can identify target areas to inform AMS programs.
- Are you familiar with the local epidemiology of AMR? Do your hospital antimicrobial guidelines reflect it?
  - AURA can assist in developing a picture of local AMR patterns which can inform local antimicrobial prescribing guidelines.
- Do the antimicrobial prescriptions you see follow guidelines?
  - Engage in discussions with prescribers when you see patients being treating for asymptomatic bacteriuria with antibiotics
  - Clarify the indication and intended duration for all antimicrobials that you review and ensure both are documented in the patient's medical record.

Further Information

AURA Surveillance System https://www.safetyandquality.gov.au/AURA

NAPS - National Antimicrobial Prescribing Survey https://www.safetyandquality.gov.au/AURA/naps/

NAUSP -National Antimicrobial Utilisation Surveillance Program
https://www.safetyandquality.gov.au/AURA/nausp

AMS - Antimicrobial Stewardship https://www.safetyandquality.gov.au/HAI/AMS

Preventing and Controlling Healthcare-Associated Infection Standard
https://www.nationalstandards.safetyandquality.gov.au/3.-healthcare-associated-infection/antimicrobial-stewardship

Contact AURA@safetyandquality.gov.au with enquiries.