

AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE

Comprehensive report on antibiotic resistance identifies new challenges

A comprehensive national report on the spread of antimicrobial resistance in Australia has highlighted a number of specific types of bacteria as major emerging healthcare problems, with one type in particular causing resistance to last-resort antibiotics in just over half of hospital samples.

Despite some recent gains in efforts to encourage more careful use of antibiotics, the new report finds as much as 56% of samples of enterococci can be resistant to the antibiotic vancomycin – a level higher than in any European country.

The report, called *Antimicrobial Use and Resistance in Australia 2017: Second Australian report on antimicrobial use and resistance in human health*, also finds that a strain of methicillin-resistant *Staphylococcus aureus* (MRSA) has become the most common type of MRSA infection in the community, and is now a more common cause of bloodstream infections than hospital-associated strains of MRSA.

The report will be launched at an event at Sydney's St Vincent's Hospital today by the Australian Commission on Safety and Quality in Health Care. *AURA 2017* provides a more comprehensive picture of antimicrobial resistance, which is a critical challenge to health systems in Australia and around the world.

The report contains valuable data on antimicrobial use in the community and hospitals, identifies key emerging issues for antimicrobial resistance, and gives a detailed overview of Australia's first National Alert System for Critical Antimicrobial Resistances (CARAlert). It finds that antibiotic use has been falling in Australian hospitals, a shift that will help to slow the spread of resistance. However, there are still concerning levels of inappropriate prescribing of antibiotics in hospitals and the community.

The report also highlights a number of areas for action to help reduce antimicrobial resistance. These include continued monitoring of the spread of resistant strains of *Neisseria gonorrhoeae*, the bacterium that causes gonorrhoea, to inform treatment guidelines for the condition. In the case of vancomycin-resistant enterococci, the report calls for strict adherence to infection control guidelines and effective cleaning and sterilisation in healthcare facilities.

Commission Senior Medical Advisor Professor John Turnidge said antimicrobial resistance was 'one of the most significant challenges for the delivery of safe, high-quality health services, and has a direct impact on patient care and patient outcomes'.

'*AURA 2017* provides clinicians and health policy makers across Australia with the data and information needed to develop and better target strategies which will prevent and contain resistance, ultimately benefiting patients in our hospitals, and residents in the community and aged care homes,' Professor Turnidge said.

'Antibiotic resistance is greatly exacerbated through the overuse and misuse of antibiotics. Bacterial infections that were once able to be cured with antibiotics are becoming much harder to treat. In 2015, over 30 million prescriptions for antimicrobials were dispensed in the Australian community.'

The Australian Government Chief Medical Officer, Professor Brendan Murphy, highlighted the importance of the work of the Commission in establishing the AURA Surveillance System as an important element in support of Australia's First National Antimicrobial Resistance Strategy.

'The development of nationally coordinated surveillance of antimicrobial resistance and antimicrobial usage is a key objective of the strategy,' Professor Murphy said.

'AURA 2017 and the Commission's complementary range of reports on antimicrobial use and resistance are all providing valuable data to help clinicians and others to tackle this issue, and to help them and others see which strategies to combat antimicrobial resistance are working best.'

[You can access the AURA 2017 report in full here.](#)

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Key findings on antimicrobial use from AURA 2017:

- In 2015, around half of the Australian population (10.7 million people) had at least one antimicrobial dispensed – 44.7% of the population.
- Antimicrobial resistances are having a major impact on seriously ill patients in hospitals and require major efforts in hospitals to control their spread.
- On any given day in an Australian hospital in 2015, 40.5% of patients were being administered an antimicrobial. Of these, 23.3% of antimicrobial prescriptions were noncompliant with guidelines, and 21.9% were considered inappropriate.
- Antibiotics used in surgery (surgical prophylaxis) are often not required and are given for too long. In 2015, 40.5% of surgical prophylaxis was inappropriate, mainly because of incorrect duration (29.9%); incorrect dose or frequency (27.6%); or they were given for a procedure not requiring antibiotics (22%).
- Almost 40% of cefalexin prescriptions in hospital are inappropriate, and in 2015 most inappropriate use of cefalexin was for surgical prophylaxis, urinary tract infections and pneumonia.
- Data on antimicrobial prescriptions show strong seasonal variation, with some antimicrobials being prescribed more in winter for common respiratory infections. Colds and flu are viral respiratory infections; antibiotics do not help treat viruses and only expose patients to the risk of unwanted side effects.

Key findings on antimicrobial resistance from *AURA 2017*:

- Compared with 2014, there were increases in rates of fluoroquinolone resistance in *Escherichia coli* from blood cultures (+2.5%) and *Shigella sonnei* (+10.9%).
- Among gram-negative bacteria, rates of resistance in the community remain relatively stable compared with 2014, and are low by world standards.
- The IMP-type carbapenemase is now endemic on the Australian eastern seaboard in multiple species of Enterobacteriaceae, but there is no evidence that other carbapenemases have become established in Australia – this is an infection control challenge.
- Vancomycin-resistant enterococci (VRE) have emerged as a major healthcare problem in Australia. When enterococci are resistant to vancomycin, only two or three reserved antimicrobials can be used to treat serious infections.
- The proportion of vancomycin-resistant *Enterococcus faecium* isolates in Australia increased rapidly from 2005, and is now higher than that in any European country. Reversing the incidence of VRE in Australia will be extremely challenging.
- The Queensland clone of methicillin-resistant *Staphylococcus aureus* (MRSA) has become the dominant community-associated MRSA (CA-MRSA) clone in Australia. CA-MRSA is now a more common cause of bloodstream infection than healthcare-associated MRSA.
- A challenge for health care is that, so far, no country has found effective interventions to control the spread of CA-MRSA; effort in this area is a priority.

Areas for action

- Intensify efforts to reduce unnecessary prescribing in the community – the Commission will work with the Australian Government Department of Health to develop benchmarks for best-practice prescribing of antimicrobials, and with the Pharmaceutical Benefits Advisory Committee to examine appropriate access to amoxicillin–clavulanate on the Pharmaceutical Benefits Schedule (PBS) and the Repatriation PBS
- Implement actions to control carbapenemase-producing Enterobacteriaceae – the Commission recently published [Recommendations for the control of carbapenemase-producing Enterobacteriaceae \(CPE\): A guide for acute care health facilities](#) and will work with health service organisations to support timely implementation of these recommendations
- Monitor resistant gonococcal infections to inform treatment guidelines – the Commission will work with states and territories to provide regular updates on azithromycin non-susceptible *Neisseria gonorrhoeae* through CARAlert, to inform national and local treatment guidelines
- Strengthen infection-control practices to minimise the spread of vancomycin-resistant enterococci (VRE) – the Commission will promote strict adherence to infection control guidelines in healthcare facilities
- Improve the appropriateness of antimicrobial use for surgical prophylaxis – the Commission will work with the Royal Australasian College of Surgeons to progress guidance on antimicrobial use for surgical prophylaxis.

Notes to editors

AURA 2017 complements three other more detailed reports about antimicrobial resistance recently published by the Commission. These are:

- *CARAlert First Annual Report March 2016–March 2017* which reports on analyses of data collected during the first 12 months of the operation of CARAlert <https://www.safetyandquality.gov.au/publications/caralert-annual-report-2016-2017/>
- *Antimicrobial use in Australian hospitals: 2015 annual report of the National Antimicrobial Utilisation Surveillance Program*, which reports on antimicrobial use in Australian public and private hospitals in 2015 <https://www.safetyandquality.gov.au/publications/antimicrobial-use-in-australian-hospitals-results-of-the-2015-national-antimicrobial-prescribing-survey/>
- *Antimicrobial prescribing practice in Australian hospitals: Results of the 2015 National Antimicrobial Prescribing Survey*, which reports on appropriateness of antimicrobial prescribing in Australian public and private hospitals in 2015 <https://www.safetyandquality.gov.au/wp-content/uploads/2017/01/Antimicrobial-prescribing-practice-in-Australian-hospitals-Results-of-the-2015-National-Antimicrobial-Prescribing-Survey.pdf>

About the Commission

The Australian Commission on Safety and Quality in Health Care is an Australian Government agency that leads and coordinates national improvements in the safety and quality of health care based on the best available evidence. By working in partnership with patients, consumers, clinicians, managers, policy makers and healthcare organisations, the Commission aims to ensure that the health system is better informed, supported and organised to deliver safe and high-quality care.

About AURA

The Commission's Antimicrobial Use and Resistance in Australia (AURA) Surveillance System has been funded by the Australian Government Department of Health and supports the National Antimicrobial Resistance Strategy 2015–19. To develop AURA, the Commission worked collaboratively with established programs and key stakeholders across settings to improve the coverage, capture and quality of existing surveillance programs and data collections, and to identify gaps. These partner programs include: the National Antimicrobial Utilisation Surveillance Program (NAUSP), the National Antimicrobial Prescribing Survey (NAPS), the Australian Group on Antimicrobial Resistance (AGAR); and, Queensland Health OrgTRx. Additional data sources include, but are not limited to, the Pharmaceutical Benefits Scheme (PBS), the Repatriation PBS and NPS MedicineWise. AURA 2017 integrates data from AURA's partner programs and organisations, and includes participation from all states and territories, and the private sector.