

DECEMBER 2016

Antimicrobial Use and AURA 2016

Information Series

The AURA Program have prepared this document on behalf of the Australian Commission on Safety and Quality in Health Care

Use of this publication is welcomed, enquires can be sent to AURA@safetyandquality.gov.au.

ANTIMICROBIAL USE AND AURA 2016

This information is drawn from [AURA 2016: first Australian report on antimicrobial use and resistance in human health \(AURA 2016\)](#), and provides a general summary of the report's information on antimicrobial use in hospitals and in the community from this report.

What is an antimicrobial?

The term 'antimicrobial' refers to all medicines designed to slow the growth or kill infection-causing bacteria, fungi, viruses and parasites. Antibiotics, which are used to treat infections caused by bacteria, are the most commonly prescribed form of antimicrobial.

What is 'antimicrobial use' and how does it contribute to 'antimicrobial resistance'?

Antimicrobial resistance occurs when bacteria change to protect themselves from the effects of antibiotics. After such a change these antibiotics are no longer effective in treating infections caused by particular bacteria. As a result, infections that could once be treated with, or prevented by, antibiotics are becoming life-threatening once more.

There is overwhelming evidence that the inappropriate use, and overuse, of antimicrobials (especially antibiotics) has been a powerful driver in the development of antimicrobial resistance, including in Australia.

It is important to understand that it is not you, as an individual, that becomes resistant to antibiotics – it is the bacteria that cause the infection that can become resistant.

What is AURA?

If Australia is to reduce the impact of antimicrobial resistance, it is vital to understand which bacteria are becoming resistant to the antibiotics designed to treat them, and how fast this resistance is happening. This means that surveillance (or systematic monitoring) is essential to track the spread of resistant organisms between hospitals and in the community.

The Australian Commission on Safety and Quality in Health Care (the Commission) has established a national Antimicrobial Use and Resistance in Australia (AURA) surveillance system to provide this data and information about antimicrobial resistance and use. This information will support the development of effective strategies to fight antimicrobial resistance in Australia.

In June 2016, the Commission released its first AURA report. The information in this report show which antimicrobials are being prescribed unnecessarily; which antimicrobials may be at risk of becoming less effective or ineffective; and, which bacteria are particularly impacting on the healthcare for Australians. Its key findings on antimicrobial use across all healthcare settings are summarised in this paper.

Antimicrobial use in Australia

Antimicrobial use in Australia is high with nearly half (46%) of Australians in the community taking at least one course of antimicrobials during 2014. Resistance to antibiotics is commonly found in Australian hospitals and increasingly in the community.

Antimicrobial use in hospitals

Information has been collected on prescribing practices in Australian hospitals from two national surveys undertaken in 2014. This information shows that:

- across Australia, antimicrobial use in hospitals has slowly decreased since 2010
- on any day, around 38% of patients in a hospital are prescribed an antimicrobial

- the most commonly used antimicrobials in hospitals are from the two classes (groups) of antibiotics which cover a broad range of bacteria, called cephalosporins and β -lactamase inhibitor combinations; these antimicrobials treat conditions such as surgical wound infection
- approximately 23% of prescriptions in hospitals are judged to be inappropriate; these are mostly related to prescriptions for lower respiratory tract infections, and for preventing and reducing the risk of infection after surgery

Note: Defined daily dose per 1000 occupied-bed days (the number of patients in hospitals overnight) is used in AURA 2016 as an approximate measure of how many people are taking an antibiotic on any given day.

Tasmania had the highest rate of antibiotic use, with 1228 defined daily doses per 1000 occupied-bed days. This is a difference of more than 400 defined daily doses per 1000 occupied-bed days compared with Queensland which had the lowest rate of 819 defined daily doses per 1000 occupied-bed days. However, there is insufficient evidence to identify factors which drive variation in volume and patterns of antimicrobial use in Australian hospitals.

Antimicrobial use in community

Information about the use of antimicrobials in the Australian community comes from a 2014 analysis of data collected on prescribing in general practice, and records of prescriptions dispensed under the Pharmaceutical Benefits Scheme and Repatriation Pharmaceutical Benefits Scheme. This data highlights that:

- Australians had more than 30 million prescriptions for antibiotics filled in 2014, with approximately 46% of people having at least one prescription filled. When compared to 28 European countries, Australia was between the fifth and sixth highest for community prescribing
- more than 50% of people with colds and upper respiratory tract infections were prescribed antibiotics when they are not recommended within current prescribing guidelines
- some antibiotics were prescribed much more in winter, which suggests that they are being used to treat colds and flu, for which they have no benefit
- antibiotics of the penicillin and cephalosporin classes (groups) were the most commonly prescribed antimicrobials in the community setting
- the use of antimicrobials varies from state to state across Australia, and between local areas; the reasons for these differences are being investigated.

Females and older people were more likely to receive a prescription in the primary care sector (this includes GPs, specialists, dentists and others). New South Wales had higher prescribing rates (33.8 scripts per 100 patients) than other states (26.3–30.1 scripts per 100 patients), and people living in major cities had higher rates of systemic antimicrobials prescribed than residents of other regions. However, the overall rate of antimicrobial prescriptions (originals) per 100 GP consultations has remained constant between 2009 and 2014.

Antimicrobials were most often dispensed for very young people and older people. In 2014, 57% of those aged 0–4 years, 60% of those aged 65 years and over, and 74% of people aged 85 years and over were supplied at least one antimicrobial. This pattern of dispensing has been consistent over several years.

Antimicrobial use in residential aged-care facilities

Information about antimicrobial use in Australian residential aged-care facilities has recently become available through the National Centre for Antimicrobial Stewardship's 2015 Aged Care National Antimicrobial Prescribing Survey pilot, as part of the AURA Surveillance System.

The results of this pilot provided insights into antimicrobial use and infections in 186 residential aged-care facilities, including that:

- both antibiotics and antifungals are widely used in residential aged-care facilities
- a total of 975 antimicrobial prescriptions were prescribed for 824 residents
- antimicrobials were being used for conditions where they were not required, such as urinary tract, soft tissue and skin infections
- for the period of the survey, only 4.5% of residents had a suspected or confirmed infection, but more than 11% of residents were prescribed an antimicrobial
- 22% of antimicrobial prescriptions were written for residents who had no signs and symptoms of infection in the week before starting the course of antimicrobials
- of the residents who did have signs and symptoms of an infection, only 33% of the prescriptions issued were for infections that required treatment with an antimicrobial
- topical antimicrobials accounted for 37% of all antimicrobial prescriptions
- the top five most common indications (for both prophylaxis and treatment combined) were unspecified skin, soft tissue or mucosal infection (17.5%); urinary tract infection: cystitis (16.7%); lower respiratory tract infection (11.8%); tinea (8.4%) and conjunctivitis (5.2%).

Where next?

Information and data from the AURA Surveillance System will continue to be used to support 'calls to action' to better understand the risk of antimicrobial resistance and develop response strategies. Part of the national response is to build awareness and understanding of the link between antimicrobial use and antimicrobial resistance with healthcare consumers.

All antibiotic use will create some resistance, but inappropriate use and overuse of antibiotics makes antibiotic resistance of greater impact. Using antibiotics when we don't need them may mean that they won't work when we do need them in the future.

Information on what action you can take to reduce antimicrobial resistance in the [AURA 2016 Consumer Summary](#).