

## What is antimicrobial resistance and use?

Antimicrobial resistance (AMR) is a serious safety and quality concern for the health system. As organisms increasingly develop resistance to the antimicrobials that are available to us, our access to timely and effective medicine decreases, this compromises health care and treatment, increases the length of time people need to be treated, and contributes to patient illness and death.

It affects our health, the health system and the community at large.

The World Health Organization has identified AMR as critical health issue for the global community.

## What is an antimicrobial?

An antimicrobial is medicine that has been designed to kill or slow the growth of a particular organism, like bacteria, fungi, viruses and parasites. The term antimicrobial includes antibiotics, antifungals, antivirals and antiparasitics.

## What is AMR?

AMR occurs when an organism evolves and develops resistance to an antimicrobial that should be effective.

When AMR occurs, standard medical treatments lose their effectiveness, infections may persist, patient health is compromised and the organisms causing the problem may spread more easily to others.

Although AMR is a normal part of bacterial evolution, using antimicrobials in the wrong way (including underusing, overusing and using them when you shouldn't) has increased the development of antibiotic resistant bacteria in human health, animal health and in agriculture.

## What is AU?

Antimicrobial usage (AU) is the delivery of medicine that inhibits or destroys bacteria, viruses or fungi. The word antimicrobial includes antibiotics, antivirals and antifungals.

The discovery and use of antimicrobials has been one of the most important steps forward in human health. However, the effectiveness of these medicines is diminishing as a result of the emergence of resistant organisms.

## What can we do to stop the threat of AMR?

Around the world researchers, clinicians and policy makers are looking at ways to stop the threat of AMR. Some of the things being explored include finding ways of lowering levels of AU, supporting the development of new medicines, improving infection prevention and control, and developing comprehensive and coordinated national surveillance systems.

In 2013 the Department of Health funded the Australian Commission on Safety and Quality in Health Care to develop a national surveillance system for AU and AMR, called AURA. The AURA project is bringing together a wide range of passive and targeted surveillance of AMR and AU in hospitals and the community to help inform how we address the threat of AMR in Australia.

In July 2015 Australia released the *First National Antimicrobial Resistance Strategy*, which describes a OneHealth approach to reducing the threat of AMR in Australia. This involves looking at a range of strategies across human health, animal health and agriculture to mitigate the risk of AMR to the Australian community.

## What is AURA and why do we need it?

Accurate and comprehensive surveillance gives us the information we need to make important health and policy decisions about preventing the emergence and containing the spread of AMR nationally and globally. If we can understand how resistance emerges then we have a better chance of preventing it happening again at a different time and place.

Surveillance data helps us understand when and where there are outbreaks of resistant organisms, where resistance is newly emerging, which antibiotics are losing their impact and how we can use antimicrobials more effectively to prevent increasing AMR.

Creating a national surveillance system allows different pieces of data to be brought together to help us form a picture of what is happening locally, at a state level and nationally. It also helps us work with our international neighbours, by letting us compare trends and patterns to identify opportunities to address AMR globally.

## Further information

### **AURA Project:**

<http://www.safetyandquality.gov.au/national-priorities/amr-and-au-surveillance-project/>

### **Australia's First National Antimicrobial Resistance Strategy:**

[http://www.health.gov.au/internet/main/publishing.nsf/Content/1803C433C71415CACA257C8400121B1F/\\$File/amr-strategy-2015-2019.pdf](http://www.health.gov.au/internet/main/publishing.nsf/Content/1803C433C71415CACA257C8400121B1F/$File/amr-strategy-2015-2019.pdf)

### **World Health Organization:**

<http://www.who.int/mediacentre/factsheets/fs194/en/>