

Media Release

Antibiotic resistance – the most significant global health issue of 21st century

21 September 2016

New Zealand can no longer rely on its geographic isolation to prevent the impacts of increasing rates of antimicrobial resistance (AMR) globally, according to The Royal Australasian College of Physicians (the RACP).

As people travel nationally and internationally with greater frequency, visiting multiple countries and staying in countries for extended periods of time, drug-resistant strains of different pathogens will be introduced into New Zealand at an increasing rate.

AMR develops when infection-causing organisms survive exposure to medicines (such as antibiotics) that would eradicate or inhibit its growth, allowing it to spread.

The RACP argues the evidence for action is clear, with urgency required to prevent and reverse AMR trends in New Zealand.

“Increasing use and misuse of antimicrobials is out of control.” Dr Jonathan Christiansen, the RACP New Zealand President, said.

“Infection controls, prescribing guidelines and research to develop new antimicrobials are required to treat a growing number of infections that are resistant to antibiotics.”

Common infections are becoming resistant to all available medicines and there are delays in new antimicrobials being discovered. Three common pathogens of concern are showing increased resistance to antibiotics, posing a major risk to the health of New Zealanders: *Staphylococcus aureus*, *Enterobacteriaceae* (including *E. coli* and *K. pneumoniae*), and *Neisseria gonorrhoeae*.

With significant public health implications, particularly for disease control and treatment, increasing AMR has the potential to undermine the viability of interventions such as common surgical procedures, organ transplantation, chemotherapy and neonatal care. Antibiotics can no longer be considered the ‘magic bullet’.

According to the World Health Organization, without urgent action many of the medical breakthroughs of the last century could be lost through the spread of antimicrobial resistance. Global leaders will meet at the United Nations General Assembly on 21 September to discuss the seriousness of the situation and agree comprehensive, multi sector approaches to fighting AMR together.

The RACP recommends New Zealand develops a comprehensive, financed national response to AMR. International best practice AMR programs include antimicrobial stewardship (AMS) building on evidence, policy, organisational support, multidisciplinary teams, and patient experience.

“A centrally driven, nationwide AMR programme is essential for New Zealand to achieve a collaborative, whole of sector response to the most significant global health issue of the 21st century.” said Dr Christiansen.

“The Ministry of Health AMR Action Plan, due out in May 2017, is an important step forward in containing and controlling AMR in New Zealand.”

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About The Royal Australasian College of Physicians (RACP): The RACP trains, educates and advocates on behalf of more than 15,000 physicians and 7,500 trainee physicians across Australia and New Zealand. The College represents a broad range of medical specialties including general medicine, paediatrics and child health, cardiology, respiratory medicine, neurology, oncology, public health medicine, occupational and environmental medicine, palliative medicine, sexual health medicine, rehabilitation medicine, geriatric medicine and addiction medicine. Beyond the drive for medical excellence, the RACP is committed to developing health and social policies which bring vital improvements to the wellbeing of patients. www.racp.org.nz

Key Facts – AMR

What is antimicrobial resistance (AMR)?

Resistance of a microorganism to an antimicrobial drug that had previously been effective for treatment of infections. Resistant microorganisms including bacteria, fungi, viruses and parasites are able to withstand attack by antibacterial drugs (such as antibiotics), antifungals, antivirals, and antimalarials.

Standard treatments are now becoming ineffective and infections persist, which increases the risk of adverse outcomes, including death, and the spread of the infection to others.

What is the projected effect of AMR?

The projected effects on people and economies show spiralling costs. Without action, AMR could be attributed to 10 million deaths each and cost 100 trillion USD to the global economy by 2050.

What causes AMR?

While developing resistance to antimicrobials is an expected evolutionary response for a microorganism, resistance is accelerated by widespread use of antimicrobials (including overprescribing) in both human and food-producing animal populations. Resistant strains of a virus or bacteria can propagate and spread through populations in countries where infection prevention and control is poor, for example where humans and animals are in close contact or there are poor sanitary conditions. Other contributing factors are unrestricted purchasing of antimicrobials over the counter without a prescription, and poor information about appropriate uses.

Pathogens of concern for the New Zealand population

Staphylococcus aureus (*S. aureus*):

- An important bacterium that can be a part of the normal bacterial flora in humans, commonly found on the skin and in the nose.
- Causes a wide variety of infections, notably skin and soft tissue infections and bone and bloodstream infections. Some strains produce toxic factors that can cause a variety of specific symptoms, including toxic shock syndrome (associated with feminine hygiene products) and food poisoning. *S. aureus* bacteria are the most common cause of postoperative wound infections.
- Strains that have developed resistance to penicillin-based antibacterial drugs are termed methicillin-resistant *S. aureus* (MRSA).

Enterobacteriaceae (including *Escherichia coli* and *Klebsiella pneumoniae*):

- While part of the normal intestinal bacteria in humans and animals, *Escherichia coli* (*E. coli*) and *Klebsiella pneumoniae* (*K. pneumoniae*) are a common cause of urinary tract infections.
- *E. coli* is the most frequent cause of bloodstream infections in people of all ages. In newborn babies, *E. coli* is a cause of meningitis; and *K. pneumoniae* is linked to bloodstream infections.
- *E. coli* is one of the leading causes of food-borne infections worldwide.
- While *E. coli* and bacteria within the *Klebsiella* genus often originate from the person affected (auto-infection), it can be transmitted through the food chain or between people.

Neisseria gonorrhoeae (*N. gonorrhoeae*):

- *N. gonorrhoeae* is the causal bacterium of gonorrhoea, the acute, sexually-transmitted infection of the reproductive tract, though it can also be transmitted sexually to infect other anatomic sites such as the pharynx and the rectum.
- If untreated or inappropriately treated, gonorrhoea can result in severe complications, including genital and reproductive tract inflammation and damage, and infertility.
- Infections in pregnant women can be passed to newborns, including eye infections that can lead to blindness.

What is the best response to AMR?

Coordinated interventions designed to improve the appropriate use of antimicrobials are known to work. Antimicrobial stewardship (AMS) promotes the optimal use of antimicrobials through selecting the appropriate agent, dose, therapy duration, and administration route. The major objectives of antimicrobial stewardship are to achieve best clinical outcomes related to antimicrobial use while minimising toxicity and other adverse events, and to limit the selective pressure on bacterial populations that drives the emergence of antimicrobial-resistant strains.

Further information:

- The RACP New Zealand: Antimicrobial resistance in New Zealand <https://www.racp.edu.au/fellows/resources/new-zealand-resources>
- New Zealand College of Public Health Medicine: Antimicrobial Resistance Policy Statement http://www.nzcphm.org.nz/media/97734/2016_08_24_nzcphm_antimicrobial_resistance_policy_statement.pdf
- The Royal Australasian College of Physicians and Australasian Society for Infectious Diseases: The Australasian Society for Infectious Diseases EVOLVE Top 5 Low-value practices and interventions <http://evolve.edu.au/published-lists/asid>
- World Health Organization www.who.int/topics/antimicrobial_resistance/en/

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