

Australian Government Department of Agriculture and Water Resources

#### Antimicrobial Resistance: A global public health threat



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# A very quick introduction

#### What is AMR?

- When micro-organisms evolve resistance to antimicrobial substances, like antibiotics.
   Why is AMR important?
- AMR threatens the effective prevention and treatment of an ever-increasing range of infections.
- An increasingly serious threat to global public health that requires action across all government sectors and society.

# Nature of the problem

- AMR is an increasing health concern in Australia and around the world.
- If not addressed, simple infections could cause significant harm.
- It is estimated that by 2050, ten million people will die every year as a result of AMR.
  - Even today, 700,000 people die of resistant infections every year.



#### Why do we have a problem?



# Why is a vet speaking to us?

- Most antibiotics are used in animal industries
- AMR may be transmitted through food
- A One Health issue
  - One Health recognises the interconnectedness of human, animal and environmental health.



https://www.canada.ca/en/health-canada/services/ publications/drugs-health-products/tacklingantimicrobial-resistance-use-pan-canadianframework-action.html

#### Antimicrobial use in Australia



Reference adapted from:

http://amr-review.org/sites/default/files/Antimicrobials%20in%20agriculture%20and%20the%20environment%20-%20Reducing%20unnecessary%20use%20and%20waste.pdf



Sources: Pharmaceutical Benefits Scheme (Australia); European Surveillance of Antimicrobial Consumption Network (Europe)

#### Reference:

http://www.safetyandquality.gov.au/wp-content/uploads/2016/06/AURA-2016-First-Australian-Report-on-Antimicroibal-use-and-resistance-in-human-health.pdf

#### Antibiotic use in Australia



- Australians are over-using antibiotics in human health.
- Australia is the 11<sup>th</sup> highest user of antibiotics out of 31 OECD countries.
- In 2015, more than 30 million antibiotic scripts were provided through the Pharmaceutical Benefits Scheme.

# What is being done?

#### National AMR Strategy

Key objectives :

- 1. Communication, education and training
- 2. Antimicrobial Stewardship
- 3. Surveillance
- 4. Infection prevention and control
- 5. Research and development
- 6. International engagement
- 7. Governance



#### Animal health key initiatives

- Best practice antibiotic prescribing guidelines pigs
- Veterinary antimicrobial stewardship online training program
- Antimicrobial growth promotants (AGPs) no label claims
- OIE antimicrobial usage (AMU) annual questionnaire
- Antibiotic Awareness Week
- ASTAG Antibacterial list working group



- Compendium report on antimicrobial stewardship efforts livestock industries
- Antimicrobial Stewardship Guidelines for the Australian Cattle Feedlot Industry
- Factsheets on responsible antibiotic use **companion animals**, livestock and horses
- There are currently only three antibiotics registered with growth promotant claims, none of which are currently important for human medicine

# How are things in Australia?

- An excellent animal health status
  A best practice animal identification and traceability system
- We have good partnerships between industry and government
- Our systems are flexible and responsive
- We have good agricultural practices including on-farm hygiene and biosecurity
- Many of our industries implement biosecurity manuals and QA systems
- Australian veterinarians have been proactively mitigating AMR for some time.

 Australia already has a regulatory system working to minimise AMR

- Australia has been very conservative in registering antibiotics for use in food animals.
- Nearly all antimicrobials used in animals are Schedule 4 medicines.
- Our feedlot industry are the first anywhere in the world to implement a stewardship program, and how to use antimicrobials appropriately.
   Opportunities for Australia

# Is food a risk?

In Australia we have surveyed animals:

- Cattle (2013) (Note: beef cattle, dairy cattle and veal calf)
- Pigs (2018)
- Chicken meat (2018)
- Chicken Eggs (2018)
- Salmon
- Barramundi
- Chicken Egg further work
- **?** Others

(Note: This relates to samples from healthy animals.)

#### What about imported food?

Sourcing Certification Testing Disease status Cooked Processed Genetic material Residue testing



Reference: https://www.spok.com/blog/ swiss-cheese-model-patientsafety-errors-closing-holesmessage-accountability

#### **Future Vision**

Coordination – government/industry, One Health, internationally

- Surveillance human/animal/food/environment, use, resistance
- Key data systems Antimicrobials used, laboratory results, standardised, integrated
- Resourced community awareness, research, preventive



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# Summary

A time for action

- Opportunities for the future
- More work needed



Reference: http://www.oie.int/en/for-the-media/amr/ waaw2015/