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What is antimicrobial resistance (AMR)

AMR is the ability of a microorganism (like bacteria and viruses) to stop an antimicrobial or antiviral drug from working against it.

What are Antimicrobials used for?

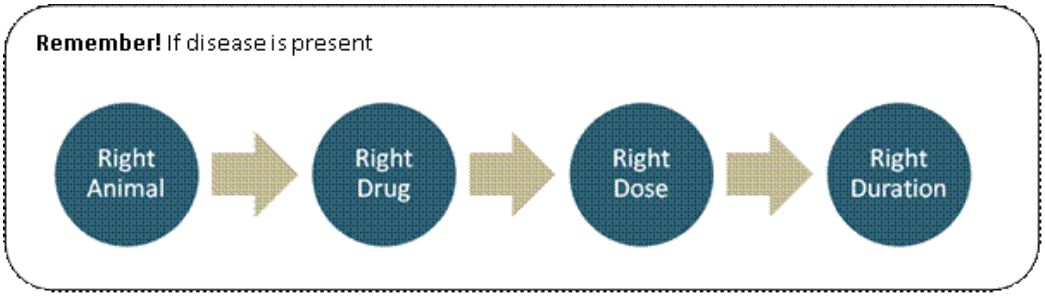
- Medicines that target pathogenic organisms that cause disease (i.e. antimicrobial)
- May kill or stop the growth/spread of a pathogen

What is AMR?

- Microbes develop resistance to antimicrobials and they become ineffective
- Risk to health developing worldwide
- Future risk to current everyday medical procedures

How can we prevent AMR?

- More strategic use of Antimicrobials:
  - Avoid using against viruses
  - Use for Treatment not Prevention
  - Always use as prescribed
  - Important to record Antimicrobial use
  -
- **Focus more on Preventative Strategies:**
  - Enhanced biosecurity
  - More vaccination use
  - Improved husbandry



Other sources of information

https://multimedia.efsa.europa.eu/amr/index.htm
https://www.agriculture.gov.ie/amr/

The World Health Organization (WHO) has classified antimicrobials with respect to importance for human medicine (WHO) Advisory Group on Integrated Surveillance of Antimicrobial Resistance, 2012). Under this system, an antimicrobial that meets both of the following criteria is considered critically important to human health (CIA), or highly important if only one criterion is met: An antimicrobial agent which is the sole, or one of limited available therapy, to treat serious human disease. Antimicrobial agent is used to treat diseases caused by either: (1) organisms that may be transmitted to humans from non-human sources or, (2) human diseases caused by organisms that may acquire resistance genes from non-human sources.

Antibiotics are classified into different categories depending on their active substance. The 'Highest Priority Critically Important Antibiotics' **(HP-CIAs)** are reserved for use in humans. The Department of Agriculture, Food and the Marine (DAFM) published guidelines on the different categories of antibiotics for use in animals (**Table 1**). The **HP-CIA's** are antibiotics of last resort in humans and should not be administered as first-line treatments in animals when other antibiotic categories are more appropriate.

New regulations on veterinary medicines (Regulation (EU) 2019/6) and medicated feed (Regulation (EU) 2019/4) will enter into force within the European Union (EU) from 28 January 2022.

Table 1.

HIGHEST PRIORITY CRITICALLY IMPORTANT ANTIMICROBIALS LICENCED IN IRELAND FOR USE IN ANIMALS			
ANTIMICROBIAL CLASS	**HP-CIA CATEGORY**	**ACTIVE SUBSTANCE**	**EXAMPLES OF PRODUCTS**
3rd & 4th generation cephalosporins	RESTRICT	cefovecin ceftiofur cefquinome	Convenia Alfacef, Cefavex, Cefenil, Cefokel, Ceftiocyl, Cemay, Cevaxel, Curacef, Eficur, Excenel, Naxcel Ceffect, Cefimam, Cefquinome, Cephaguard, Cobactan, Plenix, Qivitan
Fluoroquinolones	RESTRICT	enrofloxacin marbofloxacin pradofloxacin	Baytril, Doraflox,Enrobactin, Enrocare, Enrodexil, Enrotril, Enrotron, Enro-K, Enroxil , Fenoflox, Floxibac, Quinoflox, Roxacin, Unisol, Valemas Aurizon, Boflox, Efex, Forcyl, Kelacyl, Marbim, Marbocare, Marbocyl, Marbonor, Marbosyva , Marbox. Marfloxin. Veraflox
Polymyxin	RESTRICT	colistin	Colfive, Coliscour, Colistin APSA, Hydrocol, Sogecoli
Macrolides	CAUTION	erythromycin gamithromycin tildipirosin tilmicosin tulathromycin tylosin tylvalosin	Erythrocin Zactran Zuprevo Hymatil, Keytil, Micotil, Milbotyl, Pulmotil, Pulmovet, Tilmodil, Tilmovet Draxxin, Tulloxxin, Tulaxa, Bilosin, Bilovet, Pharmasin, Tylan, Tylo, Tylosin, Tylovet, Tylucyl Aivlosin
Product names sourced from Health Products Regulatory Authority and European Medicines Agency websites. Correct as of August 2020.			

Source: DAFM https://www.gov.ie/pdf/?file=https://assets.gov.ie/94002/8e35c890-b6ea-43ec-95ec-a823e18f43c5.pdf#page=1

Take home message

- Only give antibiotics to animals under veterinary supervision.
- Do not use antibiotics for growth promotion or to prevent diseases in healthy animals.
- Vaccinate animals to reduce the need for antibiotics and use alternatives to antibiotics when available.
- Promote and apply good practices at all steps of production and processing of foods from animal and plant sources.
- Improve biosecurity on farms and prevent infections through improved hygiene and animal welfare.