



What is AMR?

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Antimicrobial Resistance (AMR) occurs when an antimicrobial that was previously effective to treat a bacterial infection or disease is no longer effective. AMR has emerged because of increasing antimicrobial use (AMU), and is internationally recognised as a major challenge for society and one of the most serious problems facing modern healthcare. *One Health* is a concept promoting a 'whole of society' approach recognising that the health of people is connected to the health of animals and the environment. It embraces the idea that we all potentially share the same environment, bacteria, diseases, and antimicrobials. To treat diseases in animals and humans we know that in certain cases we need to use antimicrobials, which include antibiotics, but these must be used in a responsible way. The human health, agricultural and environmental sectors must work together, otherwise we will not be able to effectively treat diseases in the future.

There are different factors related to antibiotic use that can affect the occurrence of AMR. These include: the type and formulation of the antibiotic agent; the dose; the total animal biomass treated; the microbiota or microorganisms exposed to the antibiotic (i.e. individual treatment versus mass medication); the length of time between treatments and the treatment length. Oral administration of antimicrobials in livestock is of particular concern, the high exposure of gastrointestinal commensal bacteria to antibiotics in the gut, and the sometimes prolonged duration of treatment, especially for products administered in feed, can promote the development of AMR.

Responsible use of antibiotics means using 'as little as possible and as much as necessary'. The 6 rights (Rs) outlined below should be applied to ensure responsible use of antibiotics.

1. Right diagnosis - only bacterial infections need antibiotic treatment.
2. Right animal - only animals that are showing clinical signs should be treated.
3. Right veterinary medicine - correct medicine prescribed by a veterinary practitioner.
4. Right dose - based on an accurate body weight estimate.
5. Right duration - complete the recommended course of antibiotics, giving the full course.
6. Right disposal - if medicines are not disposed of properly it will encourage the development of resistant bacteria in the environment.

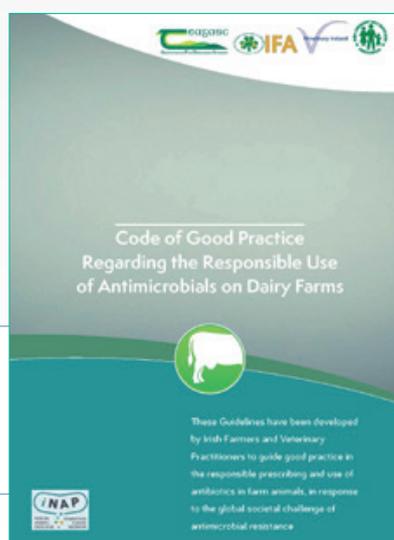
Consideration should be given to the administration route/formulation used. Under the new Regulation (EU) 2019/6 on veterinary medicinal products, which becomes effective in January 2022, antimicrobial products for metaphylaxis (mass medication of a group of animals, in advance of an expected outbreak of disease) and prophylaxis (treatment to prevent a disease) may be prescribed only in exceptional circumstances, and for a limited duration to cover the period of risk. Group treatments with oral antibiotics should be restricted to situations where individual treatments are not feasible. In addition, when the antibiotic medicinal products are used for prophylaxis, the regulation also states that this is limited to use in individual animals only. It will also affect how farmers use dry cow therapy. They will need to move away from 'blanket dry cow' therapy and where possible adopt 'selective dry cow strategies' at drying off.

The highest priority critically important antimicrobials (HP-CIAs) refers to antibiotics of last resort for treatment of human infection. Some of these are also used on farm animals but they should only be used in exceptional circumstances. Since 2005, the World Health Organisation (WHO) has produced a regular updated list of all antibiotics currently used for human medicine (many of which are also used in veterinary medicine). The list is intended to assist in managing AMR, ensuring that all antibiotics, especially HP-CIAs, are used prudently both in human and veterinary medicine.

Ensuring prudent use of antibiotics in animals includes focussing on preventive measures. Improved colostrum management, attention to hygiene, biosecurity, optimal housing, and implementation of vaccination programmes can all minimise the occurrence of disease in animals, eliminating the need for antibiotic treatments and the potential for AMR development.

One Health is a concept promoting a 'whole of society' approach recognising that the health of people is connected to the health of animals and the environment.

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For more information on responsible antibiotic use, see the 'Code of Good Practice' ([click here](#)) developed jointly by Irish farmers and veterinary practitioners as part of the Irish National Action Plan on AMR.

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