



Glossary and abbreviations:

Antimicrobials: a range of natural and synthetic compounds (including antibiotics, antivirals, antifungals and antiparasitics) which are used to prevent and treat infections in humans, animals and plants. The antimicrobials target microbes (e.g. bacteria, fungi, and parasites) to reduce their viability, and can be derived from a wide range of sources, including peptides from eukaryotic hosts (e.g. defensins), chemicals (e.g. heavy metals), or synthetic compounds (e.g. medicines, some fungicides).

Antimicrobial resistance (AMR): the ability/evolution of microbes to resist the action of antimicrobial compounds. The microbes no longer respond to antimicrobial treatment, medicines become ineffective, this can result in infections that persist and can spread. AMR is a natural biological phenomenon, but it is affected by factors such as the overuse of medicines (animals and humans) or poor infection control. In particular, antibiotic resistance has become an increasing global concern.

Antibiotics: a range of natural & synthetic compounds generated by a wide range of microbes, both bacteria and fungi, which specifically target bacteria to reduce their viability. They act in a variety of ways including disrupting microbe cell walls, preventing fundamental cellular processes like protein translation, or interfering with DNA function. Intentional use occurs in veterinary, clinical and in some countries, arable settings. Their occurrence in natural settings (e.g. in the wider environment, and within the host microbial community), is part of normal microbial ecology functions.

Antibiotic resistance (ABR): the ability of bacteria to resist the action of clinical and veterinary antibiotics. ABR occurs via a range of mechanisms; including efflux (pumping) the drugs outside the cell, degradation, or inactivation of the antibiotic within the cell.

Antimicrobial usage (AMU): the intentional application of AMR compounds. Antimicrobials need to be used appropriately and with due consideration of the unintended consequences, such as the risk of increasing AMR. This is known as the concept of 'antimicrobial stewardship' to govern appropriate use and consideration of unintended consequences AMU.

Antimicrobial genetic determinants: intrinsic resistance elements in microbes encoded in the genome, such as genes that encode functional proteins, which may target antimicrobials directly or function as efflux pumps. Some elements may be regulatory untranslated regions that influence expression of resistance genes.

A recommended read for further background on Antimicrobial Resistance is:

<https://www.who.int/news-room/fact-sheets/detail/antimicrobial-resistance>