Antibiotics have been one of the most important life-saving medical developments of the last century.

However, they are not effective against all types of bacteria (so-called intrinsic resistance). In addition, some bacteria can develop tolerance to certain antibiotics or develop ways to break them down (so-called extrinsic resistance). In either case, if these resistant bacteria go on to cause an infection it can be much more difficult to treat.

If the use of antibiotics remains unchecked, common infections will become more dangerous, and surgical procedures where antibiotics are used such as routine hip replacements and caesarean sections will become more difficult to perform safely.

Antimicrobial-resistant infections already cause illness and death in patients, and also disrupt care in hospitals.

AMR occurs when bacteria and other microbes become resistant to the antibiotics and treatments used to kill them. This makes infections harder to treat and increases the risk of spread, severe illness, and death.

The use of antibiotics (and other antimicrobial agents) can lead to the development of antibiotic-resistant microorganisms. The spread of these resistant organisms from one person to another can lead to serious infections, making it more challenging to treat these infections.

Therefore, it is essential to reduce inappropriate antibiotic use to prevent the development of antimicrobial-resistant (AMR) bacteria. Using infection prevention and control measures in all healthcare facilities stops the spread of infections, and stops patients getting preventable healthcare-associated infections, especially due to antibiotic-resistant bacteria. Getting the correct diagnosis early and only taking antibiotics when necessary will help reduce antibiotic resistant infections.

Antibiotics are used in humans, agriculture, and animals. **This is why the World Health Organization has adopted the 'One Health' approach to address the issue. Within Northern Ireland, we are working together with the animal and agriculture industry to reduce antibiotic use, and to reduce the impact of AMR.**

In 2016, Lord Jim O'Neill published a major review of the harms associated with AMR. The O'Neil report highlighted increasing cost to human life and increasing financial costs. In response, the UK government committed to two major aims relating to human health.

A UK 5-year action plan for antimicrobial resistance 2024-29

A UK 5-year action plan for antimicrobial resistance 2024 to 2029 has been developed and implemented across the UK. This is the "UK's second 5-year national action plan (NAP) setting out ambitions and actions in support of the 20-year vision for antimicrobial resistance (AMR)". To deliver against this Northern Ireland has developed a 5-year implementation plan with regional initiatives to achieve the commitments and outcomes within the 5-year national action plan.

The PHA is working with stakeholders across the HSC to help create the conditions for prescribers to reduce their antibiotic use and, therefore, reduce the amount of antibiotic-associated harm caused to patients.

Key resources:

- Become Antibiotic Guardian help reduce the harm caused by antimicrobial-resistant infections and pledge to help prevent antibiotics from becoming obsolete.
- Antibiotics resistance | HSC Public Health Agency.
- Antibiotic resistance | nidirect
- The most recent PHA Surveillance AMR in Northern Ireland annual report and an archive

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