Antimicrobial resistance (AMR)

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 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. If you are committed to reducing the

harm caused by antimicrobial-resistant infections, sign up to be an Antibiotic Guardian and pledge to help prevent antibiotics from becoming obsolete.

Healthcare-associated infections (HAI)

HAIs are infections that develop while receiving medical care in hospitals, care homes, or other health settings. These can include C.difficile, MRSA, and bloodstream infections.

Although the real global burden of healthcare-associated infections (HCAIs) is unknown because of the difficulty in gathering surveillance data, according to the recent WHO Report, it is estimated that on average, out of every 100 patients in acute-care hospitals, 7 patients in high-income countries and 15 patients in low—and middle-income countries will acquire at least one HCAI during their hospital stay.[1] Each year, 4.3 million patients in hospitals in the EU/EEA acquire at least one HCAI during their stay, leading to more than 90,000 deaths. According to the third point prevalence survey of HCAIs and antimicrobial use in acute care hospitals, HCAIs constitute 71% of infections with antibiotic-resistant bacteria, including bacteria resistant to last-resort antibiotics, such as carbapenem-resistant Enterobacterales.

The PHA and Strategic planning and performance group (SPPG) in collaboration with colleagues in wider HSCNI have been working to act against antimicrobial resistance in Northern Ireland and a number of key groups have been established. As a part of the UK AMR National Action Plan, the Human Health Antimicrobial Resistance Strategy Implementation Group has established 5 key workstreams which are working towards a series of initiatives to improve and reduce unnecessary antibiotic use and antimicrobial resistance. Examples of recent steps taken by Health and Social Care Northern Ireland (HSCNI) to reduce antimicrobial resistance include:

- The PHA undertook a point prevalence survey of hospital-acquired infections and antimicrobial use in all Northern Ireland acute hospitals in 2017.

- The PHA organised a regional symposium on antimicrobial resistance and the built environment on 5 March 2025. These events raise the profile of HCAI and AMR among health professionals and allow networking among HSCNI and wider stakeholders interested in antimicrobial resistance, antimicrobial stewardship, and infection prevention & control.
- The PHA organised an Improvement Projects Workshop to enable shared learning across HSCNI.
- The Northern Ireland Regional Infection Prevention and Control Manual has been revised and updated to provide up-to-date information for reducing HCAI and AMR. The Deputy CMO launched the manual on 11th April 2024. The manual is regularly updated.
- e-Bug was launched within Northern Ireland on 12th March 2025. e-Bug is a free, online educational science resource covering the topics of microbiology, hygiene and health. It teaches children and young adults in Key Stage 1 to Key Stage 5 about microorganisms and the spread, prevention and treatment of infection.

Many new resources to help prescribers and inform the public have been developed and can be accessed freely online:

- The Northern Ireland Formulary self-care resources
- e-Bug resources for children and young people
- TARGET (Treat Antibiotics Responsibly, Guidance, Education, Tools) resources for GPs
- Start Smart Then Focus guidance for treating sepsis and reviewing antibiotic treatment
- British Society for Antimicrobial Chemotherapy resources

Further information in relation to surveillance is available here: Surveillance data | HSC Public Health Agency

---

[1] World Health Organisation Global report on infection prevention and control 2024

Print