CHANGING THE CULTURE 2019-2024: ONE HEALTH

TACKLING ANTIMICROBIAL RESISTANCE IN NORTHERN IRELAND

A FIVE-YEAR ACTION PLAN

Department of
Health
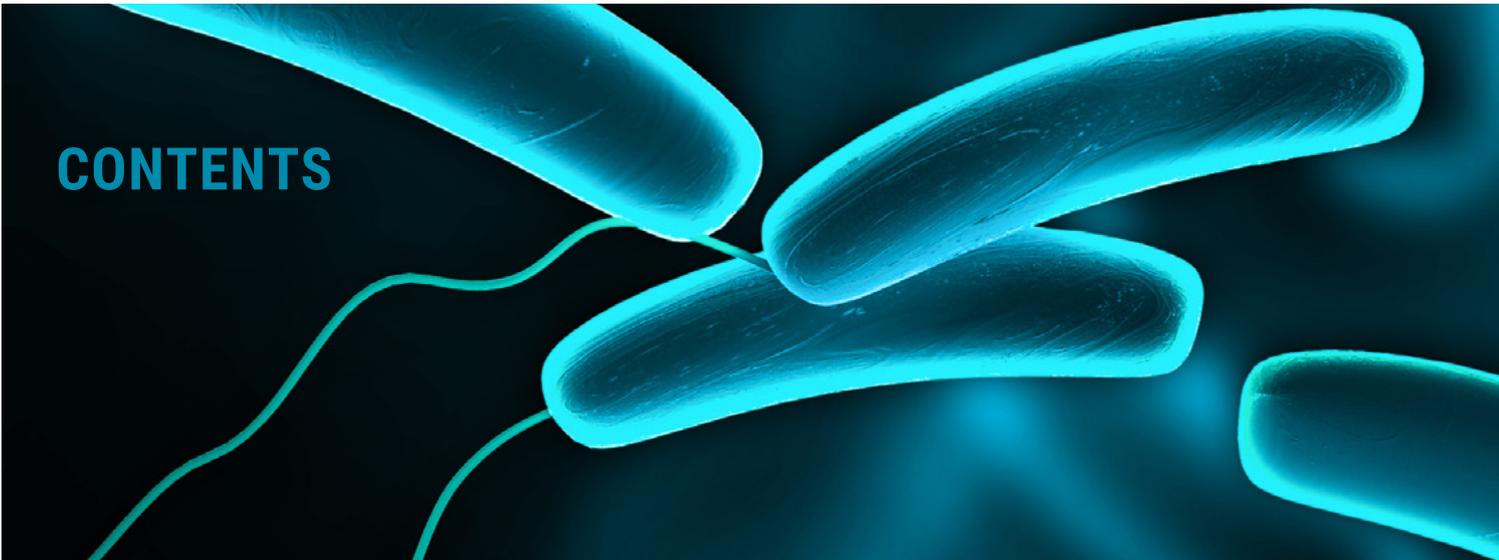An Roinn Sláinte
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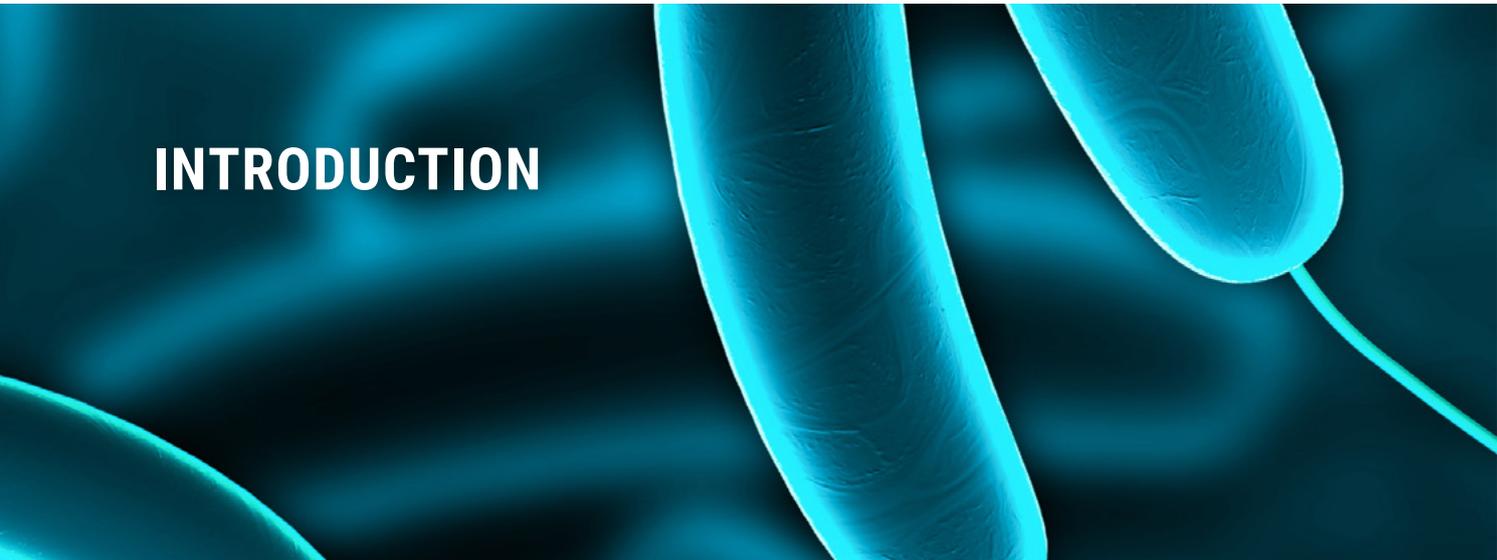Department of Agriculture,
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INTRODUCTION

Antimicrobial resistance (AMR) is one of the most serious threats to health across the world. As microbes evolve, there emerge new strains that cannot be killed by particular antibiotics. If we cannot develop new drugs that can treat the infections caused by resistant organisms, by the year 2050 we can expect about 10 million deaths per year, worldwide, from drug-resistant infections.

One of the main drivers of the emergence and spread of drug-resistant organisms is the over-use and inappropriate use of antibiotics in both humans and animals.

We are seeing cases of tuberculosis that are incurable because they are resistant to every antibiotic that we have. Antibiotics are used in surgery to prevent infection. As the drugs lose their power, procedures that are routine now will no longer be safe, for example caesarean sections or removing an appendix.

Partly through market failure, new antibiotics are not being developed quickly enough. There has not been a truly new class of antibiotic for decades.

This is not just about human health and healthcare: it is also about animal health; the environment, and the food chain. These domains are inherently interdependent. Wherever we make an environment favourable for infectious organisms to adapt to antibiotics and then multiply, they take full advantage. Highly resistant bacteria and antibiotic residues are being found in bathing water, streams and slurry.

That is why we must work together across government, public bodies, professionals, the research community, businesses and each of us as citizens, to tackle antimicrobial resistance. This integrated, coordinated approach is known as **One Health**.

AMR is not new, neither is action to address it. Alexander Fleming predicted AMR very soon after he developed penicillin. In the UK, government departments, public bodies, professionals and researchers in many fields have been working for many years to address the different aspects of AMR.

There has been significant progress in moving AMR up the political agendas, internationally, at state level and regionally. Following the *Review on Antimicrobial Resistance*, led by Lord Jim O'Neill and completed in May 2016, the UN General Assembly adopted a political declaration on AMR and called for action. In 2017 the UN convened the first meeting of the Interagency Coordination Group on AMR (IACG) to provide practical guidance for approaches needed to ensure sustained effective global action to address AMR.

The IACG AMR Framework for Action proposes tackling AMR by:

- reducing infections and unintentional exposure;

- optimising use of medicines, and

- investing in innovation, supply and access.

http://www.who.int/antimicrobial-resistance/interagency-coordination-group/20170818_AMR_FfA_v01.pdf

The IACG Framework has been adopted by the UK.

To protect our defences we need to take care of our antibiotics and other antimicrobials. There has been progress in recent years in improving antimicrobial stewardship and reducing certain infections, for example every GP practice in Northern Ireland now has access to a practice-based pharmacist who can advise on antimicrobial prescribing. There has been an overall reduction in the food-producing animal sector of 40% between 2013 and 2017. In the pig and poultry sectors we have seen dramatic reductions in the routine prescribing of antibiotics: a 79% reduction in the poultry industry between 2012 and 2016 and a 53% reduction in the pig industry between 2015 and 2017. However we have a steep hill to climb. Within total antibiotic prescribing, 1.8 million prescriptions are written by GPs and dentists for antibiotics in Northern Ireland every year. Many of these are unneeded and can cause us a lot more harm than good. While this figure is down from an all-time high of over 2 million in 2012/13, our current antibiotic prescribing rate is significantly higher than in the rest of the UK.

This five-year action plan has been developed by three government departments in Northern Ireland working together – the Department of Health; the Department of Agriculture, Environment and Rural Affairs, and the Food Standards Agency – and professionals in associated agencies. It has been prepared in conjunction with a new UK 20-year Vision and five-year National Action Plan (NAP), and it provides actions under these national documents specific to Northern Ireland. Like the UK Vision and NAP, its structure reflects UN IACG Framework for Action.

It is a living document: it will be reviewed annually, and added to as priorities evolve and opportunities present themselves. It will be supported by detailed annual work-plans across the One Health field.

In Northern Ireland we have particular challenges but we also have considerable strengths, not least our overlapping communities of professionals and researchers who are focused on making change happen. We can, and will, do more to strengthen cooperation on AMR between the Republic of Ireland and Northern Ireland, and strengthen the links between research, policy and professional practice.

We are grateful to everyone who made the time to contribute to a workshop that we held in November 2017, and who commented on drafts of the action plan.

Nature itself is of course fabulously interdependent and complex. That is why we must, and will, continue to work together, across the boundaries between disciplines and organisations of work, to slow down the emergence and the spread of antimicrobial resistance.

Michael McBride
Chief Medical Officer

Robert Huey
Chief Veterinary Officer

Maria Jennings
Director, FSA in Northern Ireland

March 2019

1 REDUCING NEED FOR ANTIMICROBIALS AND UNINTENTIONAL EXPOSURE

1.1   Lower burden of human infection

To strengthen the prevention and control of priority infections, we will:

- reduce the incidence of specific drug-resistant infections in people by 10% by 2023/24[1];

- designate carbapenemase-producing organisms (CPOs) and glycopeptide-resistant enterococci (GREs) as alert-organisms, with effect from 1 April 2019, and put in place protocols for responding to confirmed colonisations and infections;

- continue work to halve healthcare-associated Gram-negative bloodstream infections by adopting a systematic approach to preventing infections and delivering a 25% reduction by 2021/22, with the full 50% by 2023/24;

- work to improve vaccination uptake in order to reduce the need for antibiotic prescriptions, and

- strengthen the role of commissioners and regulators to drive improvements.

To improve the professional capacity and capability for infection prevention and control (IPC), we will:

- ensure board level leadership and accountability with a combined IPC and antimicrobial stewardship role for all health and social care providers;

- assess current and future workforce needs for strong IPC and antimicrobial stewardship across all health and social care settings, and develop future workforce targets;

- promote a learning culture within healthcare settings on AMR, supporting the dissemination and implementation of learning strategies that are most likely to bring about behavioural change;

- promote the integration of appropriate IPC education across all health and social care learning and development programmes;

- continue to update the NI Regional IPC Manual, and promote its use in all healthcare settings, including independent sector care homes, and

- consider the recommendations of the planned review in England of optimal facilities and infrastructure required to reduce transmission and enhance IPC in hospital and community care settings, and the implications for NI.

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1   See Appendix 1 for the list of specific drug resistant infections with a 10% reduction target by 2023/24.

To promote better IPC practices and appropriate use of antibiotics among the public, we will:

- raise awareness of AMR through public information campaigns and local awareness-raising activities;

- support education providers to teach school pupils how to wash their hands, prevent infections and use antimicrobials appropriately, and to take the messages home to share with their communities, and

- continue to survey public attitudes to and awareness of AMR.

1.2   Lower burden of animal infection

To promote animal husbandry and disease control measures to support best practice amongst animal keepers, we will:

- provide guidance and training, and develop a communication plan to inform vets and animal keepers on best practice;

- work with the farming industry to support initiatives aimed at reducing the use of antimicrobials in farmed animals in line with the Responsible Use of Medicines in Agriculture Alliance (RUMA) targets, as a mechanism to increase adherence to best husbandry whilst ensuring animal health and welfare;

- collaborate with stakeholders to run effective UK and local campaigns targeting the general public and pet owners to promote good animal health;

- encourage greater uptake of available vaccines;

- support the preparation of case studies of farms that have been successful at reducing the need for antibiotics, and share these with other animal keepers;

- support studies in relation to methods that have been deployed in EU Member States and elsewhere to reduce the need for antibiotics on farms, and disseminate best practice, and

- continue to support, promote and regulate disease eradication programmes (e.g. Bovine Viral Diarrhoea).

1.3   Minimising spread of AMR through the environment

To deepen understanding about AMR in the environment we will:

- keep apprised of emerging evidence on AMR and the environment, and consider implications for NI;

- identify risk of human exposure to, and infection by, antibiotic-resistant bacteria in natural aquatic environments;

- engage with stakeholders to discuss the implications of emerging evidence, and

- liaise with and share information with relevant parties within the UK, in RoI and further afield.

To minimise antimicrobial pollution we will:

- continue to monitor antibiotics as outlined in the EU Watch List under the requirements of the Water Framework Directive Priority Substances Regulations, and expand the baseline monitoring programme, subject to resource availability.

1.4   Better food safety

Actions for food safety have been agreed at a UK level and are set out in the UK 5-year AMR National Action Plan: https://www.gov.uk/government/publications/uk-5-year-action-plan-for-antimicrobial-resistance-2019-to-2024.

1.5 Clean water and sanitation

Actions for clean water and sanitation have been agreed at a UK level and are set out in the UK 5 year AMR National Action Plan: https://www.gov.uk/government/publications/uk-5-year-action-plan-for-antimicrobial-resistance-2019-to-2024.

2 OPTIMISING USE OF ANTIMICROBIALS

2.1 Optimal use of antimicrobials in humans

Measuring success

Target: to reduce antimicrobial use in humans by 15% by 2023/24.

To strengthen AMR stewardship we will:

- raise public awareness to encourage self-care and reduce expectations of antibiotics;

- in primary care, enhance the role of practice-based pharmacists to review the dose and duration of antimicrobial prescriptions (especially long-term or repeat ones), and work with prescribers to review those that are inappropriate through evidence-based, system-wide interventions;

- display antimicrobial consumption, HCAI and AMR rates on a public-facing online dashboard;

- work with the Regulation and Quality Improvement Authority (RQIA) to optimise use of inspections to drive improvements in antimicrobial stewardship;

- develop a patient-level prescribing and resistance data source, with timely access at point of care to support clinical decision-making, along with access to NICE guidance, and

- set targets in the annual Commissioning Plan Direction for reducing antibiotic prescribing in the community and in hospitals.

To improve data management, we will:

- develop and implement a regional Laboratory Information Management System, to include resistance data;

- use the development of electronic prescribing to support and drive good antimicrobial stewardship by coding, auditing and providing feedback for surveillance;

- use prescribing data to give healthcare providers feedback on guidance, compliance and prescribing rates;

- require all infection consultations to record an appropriate diagnostic code, and be subject to audit, and

- update guidance for doctors on the completion of Medical Certificate of Cause of Death to include AMR.

To promote evidence-based guidance and interventions, we will:

- support multidisciplinary research to identify which AMR interventions work to reduce antimicrobial use;

- develop and implement behaviour change interventions to nudge improved antibiotic prescribing and consumption using behavioural science, and

- continue to update antimicrobial prescribing guidance for primary and secondary care.

2.2 Optimal use of antimicrobials in animals and agriculture

To strengthen stewardship for responsible use, we will:

- develop a targeted programme and increase access to relevant training for animal keepers through promotion of attendance at the Farm Family Key Skills programme on Antimicrobial Resistance;

- increase knowledge and promote positive practices in relation to AMR for animal keepers;

- expand activities aimed at raising awareness and encouraging behaviour change by veterinary practitioners and animal keepers through the use of farming sector events and trade publications to disseminate responsible use messages;

- establish and maintain a NI AMR Animal Health stakeholder group to facilitate regular engagement with industry and private veterinary practitioners and identify actions required in NI to address issues relevant to AMR;

- promote and support the introduction of Farm Herd Health Plans in NI in conjunction with farmers, Animal Health and Welfare Northern Ireland (AHWNI) and private veterinary practices;

- encourage the development of best treatment guidance and codes of good practice by the veterinary profession for specific diseases, and promote the recommendations in the context of the Farm Herd Health Plan;

- continue regular meetings of the AMR subgroup on veterinary stewardship to work with and support private veterinary practitioners in NI on improvements, and

- pursue the development of a One Island Animal Health AMR communications group to establish stronger links between Northern Ireland and Republic of Ireland AMR policy, research and animal welfare professionals.

To improve data and control, we will:

- lead and collaborate on scientific projects with other organisations and stakeholders to work towards the establishment of the baseline antimicrobial use and AMR in each of the sectors in NI;

- monitor, refine and implement sector-specific targets for antimicrobial use, pending implementation of recently approved legislation on Veterinary Medicinal Products (VMP) and medicated feed;

- use the results of scientific studies to consider innovative actions to improve antimicrobial stewardship and stakeholders' knowledge on antimicrobials and AMR;

- facilitate communication and training led by Veterinary Medicines Directorate (VMD) and veterinary associations, to comply with veterinary medicines legislation in NI, and also in relation to medicated feed, and

- work toward implementation of new European legislation on VMP and medicated feed, and implement it in NI by the target date.

2.3 Stronger laboratory capacity and surveillance of AMR in humans

To strengthen laboratory capacity in humans, we will:

- ensure that necessary developments required for improved AMR surveillance are taken forward, and

- explore options for including new diagnostic tools, such as pathogen genome sequencing and other molecular-based methods, to improve and add value to our surveillance data.

To harmonise data collection and use, we will:

- further develop standard, evidence-based laboratory testing practice and reporting guidelines, mandating their use where appropriate.

To enhance data and guidelines, we will:

- promote adherence to existing guidelines through accrediting and professional bodies and commissioning processes, within a strengthened regulatory framework;

- maximise use of existing datasets to understand resistance hotspots by further developing surveillance infrastructure and methods to detect emerging drug resistance;

- develop and implement a regional integrated surveillance system, including automated monitoring of antibiotic use and integrated surveillance of antimicrobial use with resistance and patient outcomes, and

- seek to develop data linkages to optimise surveillance of community and healthcare-associated infection surveillance (including surgical site infection).

2.4 Stronger laboratory capacity and surveillance of AMR in animals

To strengthen laboratory capacity and surveillance of AMR in animals, we will:

- improve effectiveness of current passive surveillance for AMR and monitor trends;

- further contribute to existing surveillance systems for the monitoring of antibiotic residues in food of animal origin;

- seek to enhance surveillance of significant AMR occurrences through increased linkages of data from veterinary, medical and environment domains;

- continue to implement the requirements of Commission Implementing Decision 2013/652/EU on AMR monitoring and reporting for zoonotic and commensal bacteria in NI, and

- work closely with experts to support the control of zoonotic pathogens and to prioritise the study and monitoring of AMR higher-risk pathogens.

3 INVESTING IN INNOVATION, SUPPLY AND ACCESS TO TACKLE AMR

3.1   AMR and IPC research

To promote relevant research, and to ensure that policy and practice are informed by this research, we will:

- strengthen links between practitioners, policy makers and the research community.

To provide strategic leadership in AMR research, we will:

- identify priorities for future research;
- identify opportunities to partner-fund research on UK and RoI priorities, and
- support local researchers to participate in and lead NI-relevant research studies.

To strengthen our insight and capacity for doing high-quality research, we will:

- develop an animal health scientific group on AMR to consider innovative projects to effectively tackle AMR in NI and consolidate communications between scientists and government;

- continue to develop the scientific capacity needed to support and deliver ongoing high-quality research in infectious disease; disease-prevention and microbiology-related disciplines;

- further develop multidisciplinary networks to better inform interventions across all sectors;

- research the knowledge and attitudes of the main target audiences (animal keepers, veterinarians) to antibiotic use, AMR and vaccinations, with a particular focus on changing behaviours; understanding decisional processes when using antimicrobials, and implementing and monitoring preventative actions where appropriate;

- put in place surveys to assess changes in awareness and understanding of AMR by animal keepers over time, and

- use current survey samples on wildlife as a proxy for AMR in the environment in NI, and to develop hypotheses and identify research gaps.

3.2   Development of new therapeutics

To develop new therapeutics, we will:

- assess the impact of various rapid diagnostics on infection management, and

- support novel research into AMR which aims to encourage correct and sustainable antimicrobial use in the agriculture sector whilst enhancing livestock health and productivity.

3.3   Wider access to therapeutics and vaccinations for those who need them

To increase access to antimicrobials and vaccines for all who need them, we will:

- design accessible services and promote initiatives to actively engage with people who are marginalised or hard to reach from the mainstream healthcare services.

3.4   Development of, and access to, diagnostics

To support access to rapid diagnostics, we will:

- promote uptake of point-of-care testing in order to optimise antimicrobial prescribing, and

- support research on rapid diagnostic tools.

APPENDICES

Appendix i

List of specific drug resistant infections with a 10% reduction target by 2023/24

Colistin-resistant Acinetobacter spp

Carbapenem-resistant Acinetobacter spp. (excluding those resistant to colistin)

Aminoglycosides- and fluoroquinolones-resistant Acinetobacter spp. (excluding those resistant to colistin and/or carbapenem)

Vancomycin-resistant Enterococci (E. faecalis and E. faecium)

Colistin-resistant Escherichia coli

Carbapenem-resistant Escherichia coli (excluding those resistant to colistin)

Third-generation cephalosporin-resistant Escherichia coli (excluding those resistant to colistin and/or carbapenem)

Colistin-resistant Klebsiella pneumoniae

Carbapenem-resistant Klebsiella pneumoniae (excluding those resistant to colistin)

Third-generation cephalosporin-resistant Klebsiella pneumoniae (excluding those resistant to colistin and/or carbapenem)

Colistin-resistant Pseudomonas aeruginosa

Carbapenem-resistant Pseudomonas aeruginosa (excluding those resistant to colistin)

Pseudomonas aeruginosa resistant to three or more antimicrobial groups (excluding those resistant to colistin and/or carbapenem)

Methicillin-resistant Staphylococcus aureus

Penicillin- and macrolides-resistant Streptococcus pneumoniae (excluding those only resistant to penicillin)

Penicillin-resistant Streptococcus pneumoniae (excluding those resistant to macrolides)

Appendix ii
Glossary of Terms

AHWNI	Animal Health and Welfare Northern Ireland
AMR	Antimicrobial resistance
DARC	DEFRA Antimicrobial Resistance Co-ordination Group
HCAI	Healthcare-associated infection
IACG	(UN / World Health Organisation) Inter-Agency Coordination Group (on AMR)
IPC	Infection prevention and control
NAP	National Action Plan
RQIA	Regulation and Quality Improvement Authority
RUMA	Responsible Use of Medicines in Agriculture Alliance
VMD	DEFRA Veterinary Medicines Directorate
VMP	Veterinary Medicinal Products