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One Health

Prof. Dearbháile Morris

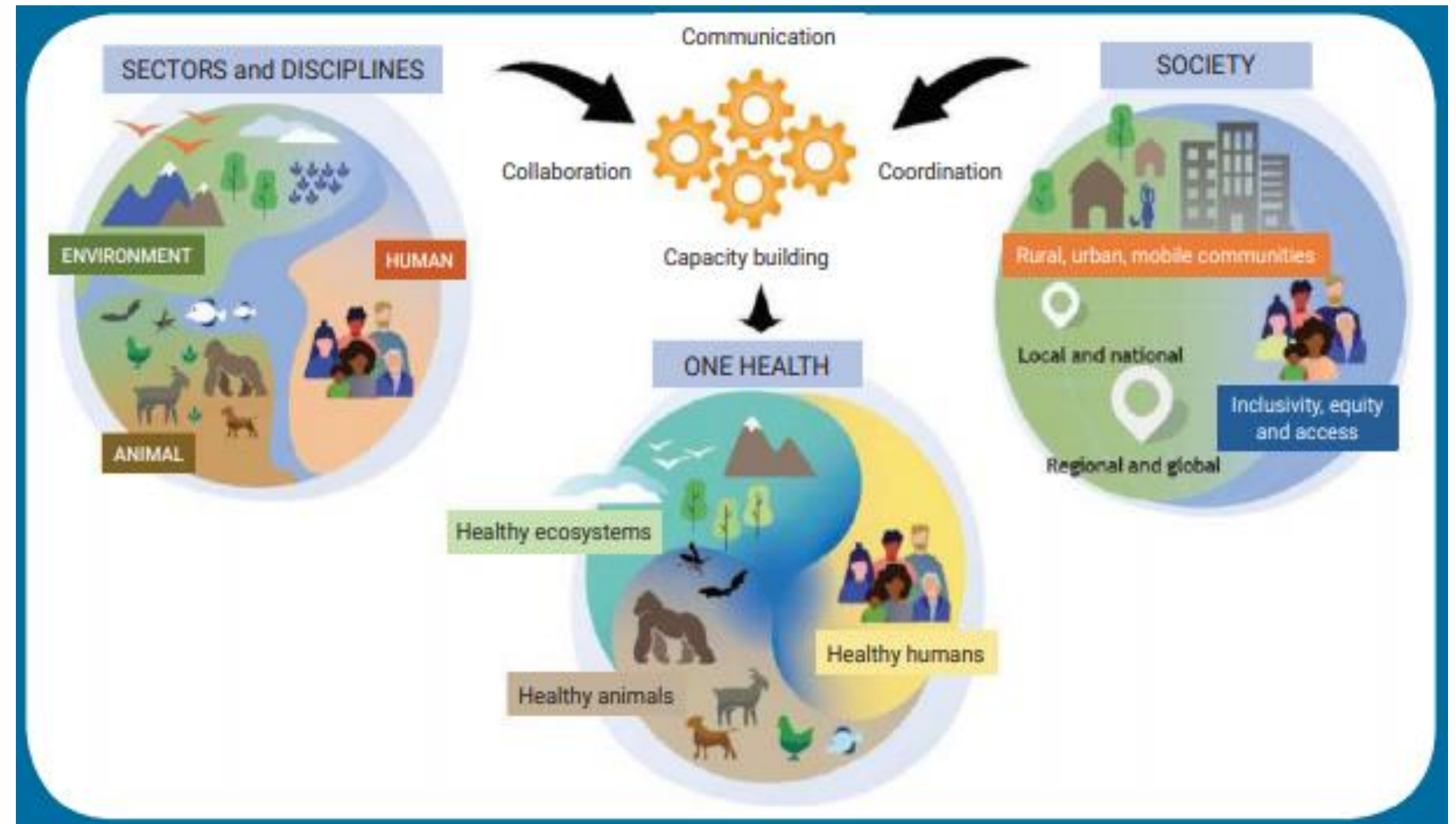
Antimicrobial Resistance and Microbial Ecology Group, School of Medicine,
Centre for One Health, Ryan Institute,
University of Galway.

University
ofGalway.ie



What is One Health?

“The ‘One Health’ approach recognizes the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and inter-dependent”



One Health definition developed by the One Health High-Level Expert Panel



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Source: United Nations Environment Programme (2023). Bracing for Superbugs: Strengthening environmental action in the One Health response to antimicrobial resistance. Geneva. <https://www.unep.org/resources/superbugs/environmental-action>

One Health...not a new concept!

Hippocrates
(460BC – 367BC):
“On Air, Waters and Places” - identified the interdependence of public health and a clean environment.



Aristotle
(384BC – 322BC):
studied common characteristics among species including humans and other mammals : “Hisoria Animalium”

1654 – 1720:
Giovanni Maria Lancisi wrote of the role the environment plays in the spread of diseases to humans and animals

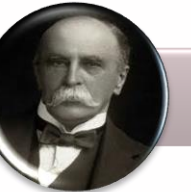


1712-1779:
Claude Bourgelat established formal education in animal health and in its interactions with human health.

1782 – 1863:
Louis-René Villermé and Alexandre Parent-Duchatelet’s work led to the development of the veterinary specialty field of public hygiene



1821 – 1902:
Rudolf Virchow recognizes the link between human and animal health and coined the term **“Zoonoses”**



1849–1919:
Sir William Osler further promoted the concepts of comparative medicine and comparative biology and the integration of human and animal health



1947:
James Steele established the veterinary public health unit in what has become the Centre for Disease Control and Prevention. His warnings about the socio-economic consequences of zoonotic diseases led to the establishment of a veterinary public health unit by the WHO

1964:
Calvin Schwabe published “Veterinary Medicine Human Health” - called for integration among animal, human and environmental health in the management of veterinary and public health issues. Referred to the importance of **“One medicine”**



2004:
The Wildlife Conservation Society hosted a conference of international experts in multiple disciplines to discuss and respond to the reported and potential movements of diseases among human, domestic animal and wildlife populations. The symposium resulted in the publication of the ‘Manhattan Principles on One World – One Health’ whose title led to the coining of the term **“One Health”**



WORLD ORGANISATION FOR ANIMAL HEALTH



2008

2012



THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP



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Why One Health is Important

Our connection with animals and the environment has changed



People live closer together



Changes in climate
and land use



Animals are more
than just food



More global travel
and trade



Global recognition of importance of One Health



Quadripartite Memorandum of Understanding (MoU) signed for a new era of One Health collaboration

- Prioritize One Health in the international political agenda, increase understanding and advocate for the adoption and promotion of the enhanced intersectoral health governance;
- Strengthen national One Health policies, strategies and plans;
- Accelerate the implementation of One Health plans;
- Build intersectoral One Health workforces;
- Strengthen and sustain prevention of pandemics and health threats at source;
- Encourage and strengthen One Health scientific knowledge and evidence creation and exchange; and
- Increase investment and financing of One Health strategies and plans.

ONE HEALTH JOINT PLAN OF ACTION (2022-2026)

WORKING TOGETHER FOR
THE HEALTH OF HUMANS, ANIMALS,
PLANTS AND THE ENVIRONMENT

A guide to implementing the One Health Joint Plan of Action at national level



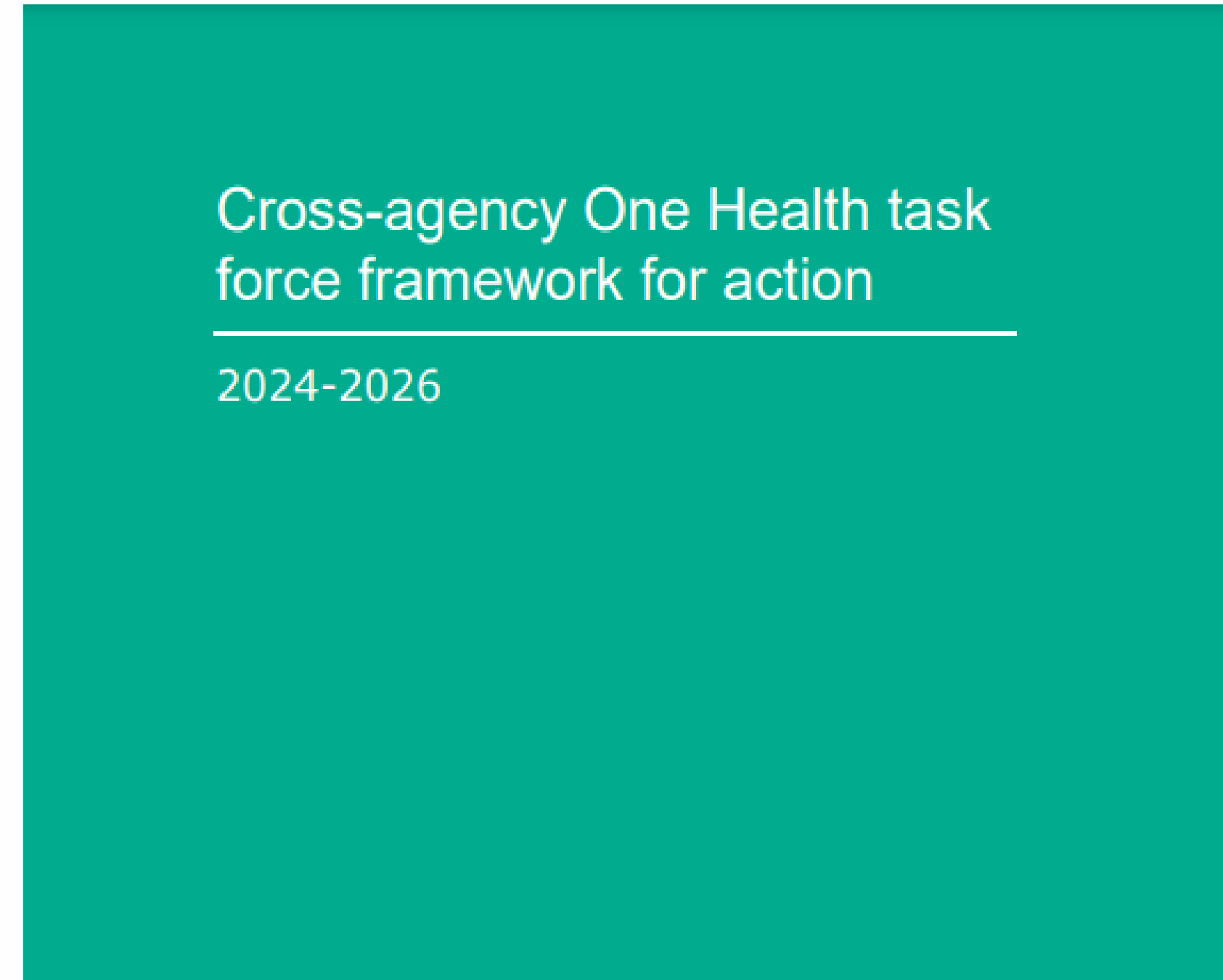
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Global recognition of importance of One Health



The screenshot shows the ECDC website header with the logo and name 'European Centre for Disease Prevention and Control'. Below the header is a search bar and a navigation menu with categories like 'Infectious disease topics', 'Publications and data', 'Training and tools', and 'About ECDC'. The breadcrumb trail reads 'Home > About ECDC > Media centre > One Health: a joint framework for action published by five EU agencies'. A green button labeled 'Media centre' is visible. The main article title is 'One Health: a joint framework for action published by five EU agencies', dated '7 May 2024'. Social media icons for X, Facebook, LinkedIn, and Email are present, along with a 'Translate this page' button. The article text states: 'Today, the European Centre for Disease Prevention and Control (ECDC), the European Chemicals Agency (ECHA), the European Environment Agency (EEA), the European Food Safety Authority (EFSA), and the European Medicines Agency (EMA) published a joint framework for action to strengthen cooperation to support the implementation of the One Health agenda in the European Union (EU).'



Cross-agency One Health task force framework for action
2024-2026



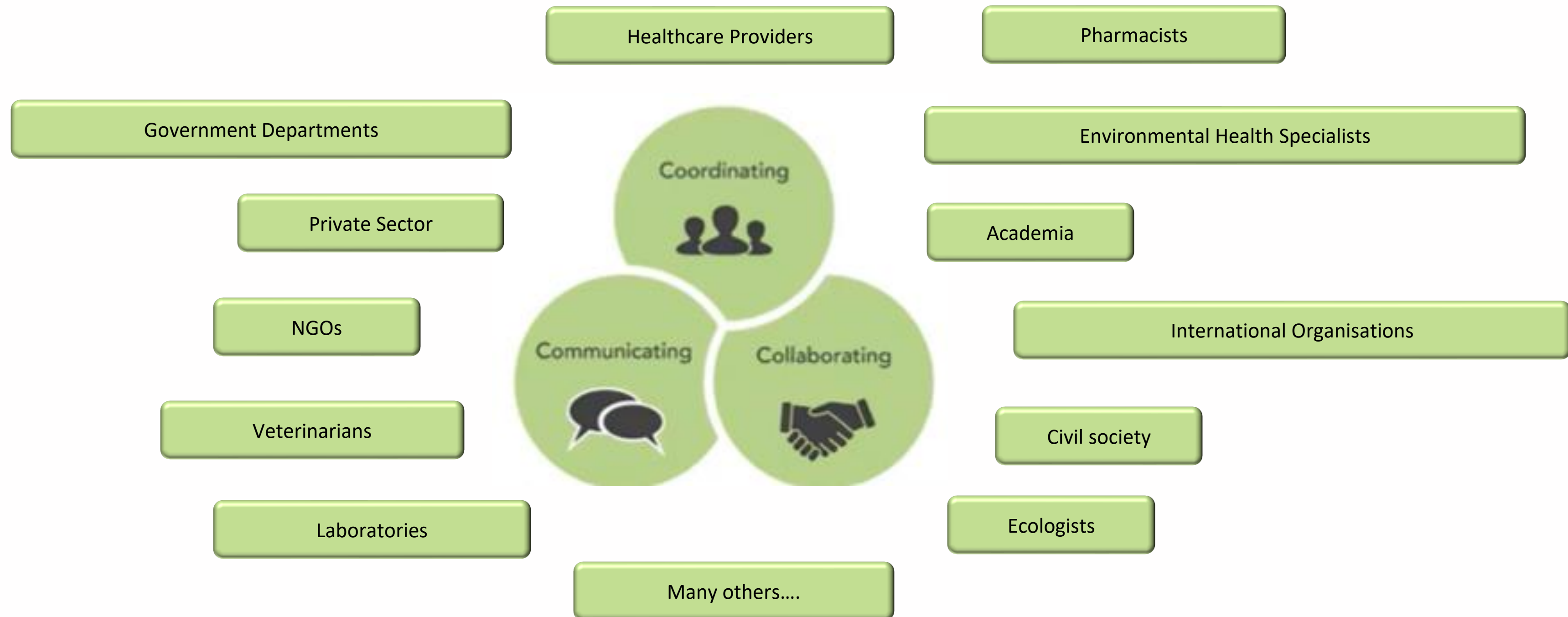
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Joint publication by the European Union agencies:



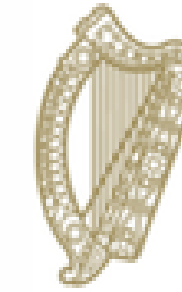
One Health is a Team Sport

No single person, agency or sector can alone address shared health threats



One Health Oversight Committee

- Officially established in July 2025.
- All island, cross government, interagency group - advises government on best policy and strategic direction with regard to active and emerging threats to humans, animals and the environment.
- Co-Chaired by the Chief Medical Officer, the Chief Veterinary Officer and the Assistant Secretary General for the Department of Climate, Energy and the Environment, and includes senior leaders from the HSE, EPA, Food Safety Authority of Ireland, Safefood, Uisce Éireann, National Parks & Wildlife Service, academic representatives, and Northern Ireland's Chief Medical and Veterinary Officers.
- Supported by the One Health Scientific Advisory Board which provides evidence-based recommendations.



An Roinn Sláinte
Department of Health



**An Roinn Talmhaíochta,
Bia agus Mara**
Department of Agriculture,
Food and the Marine



**An Roinn Aeráide,
Fuinnimh agus Comhshaoil**
Department of Climate,
Energy and the Environment



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Antimicrobial Resistance is a One Health Challenge



“Antimicrobial resistance is one of the most urgent health risks of our time and threatens to undo a century of medical progress.”

Dr Tedros Adhanom Ghebreyesus
WHO Director-General

THE LANCET

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Global burden of bacterial antimicrobial resistance 1990–2021: a systematic analysis with forecasts to 2050

[GBD 2021 Antimicrobial Resistance Collaborators](#)[†]

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[https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(24\)01867-1/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(24)01867-1/fulltext)

By 2050:

- 8.2 million deaths associated with bacterial AMR
- 1.91 million deaths attributable to bacterial AMR

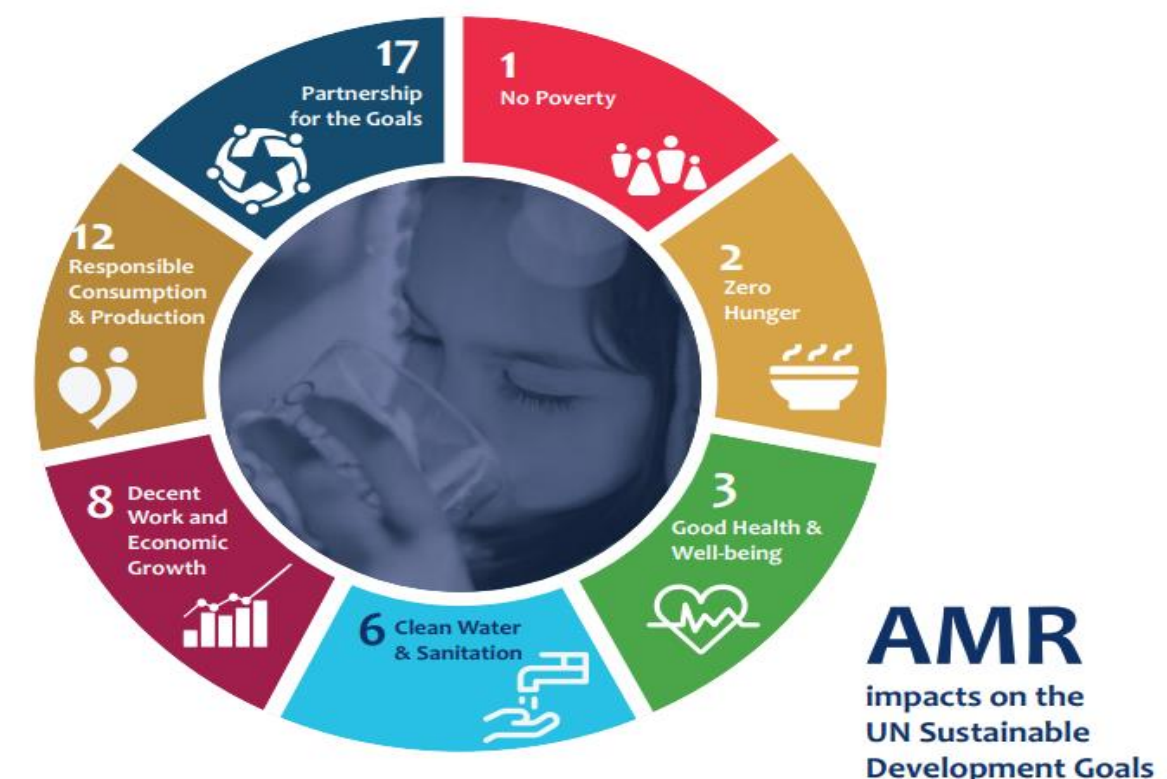


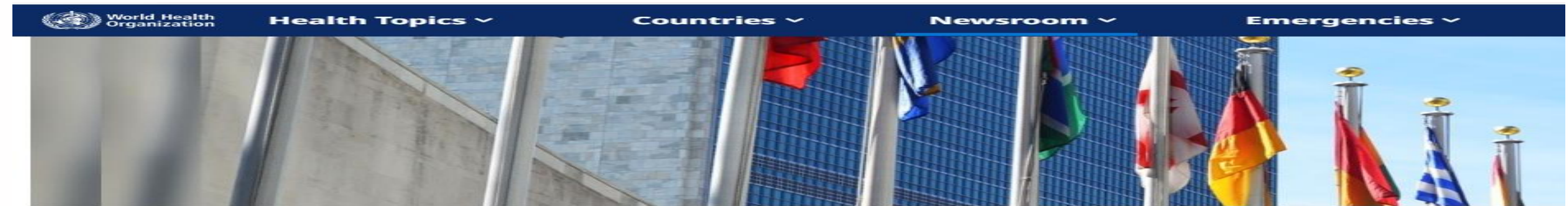
Figure 7: AMR Impacts on the UN Sustainable Development Goals (SDGs)

Source: <https://www.gov.ie/en/publication/d72f1-joint-action-on-antimicrobial-resistance/#irelands-second-one-health-action-plan-on-antimicrobial-resistance-2021-2025-inap2>



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Antimicrobial Resistance is a One Health Challenge



UN General Assembly High-Level Meeting on antimicrobial resistance 2024

Roadmap on antimicrobial resistance for the WHO European Region 2023–2030

Working document

Building on the Global Action Plan on Antimicrobial Resistance, the overall purpose of the proposed new roadmap on antimicrobial resistance for the WHO European Region 2023–2030 is to support countries to identify, prioritize, implement and monitor high-impact interventions to tackle antimicrobial resistance (AMR). The roadmap sets the direction of travel until 2030 and reflects innovations in AMR, including a greater focus on the environmental and social determinants, digital transformation and people-centredness. Its implementation is crucial not only to AMR but also to achieving universal health coverage, working towards the Sustainable Development Goals, strengthening primary health care and ensuring adequate pandemic preparedness and response.

The roadmap is organized around an AMR Compass that identifies five action areas and six enablers based on a combination of the best available evidence and expert opinion, for countries to adapt to their own national contexts. Each action area and enabler has a set of high-impact interventions and is intended as a practical and adaptable tool for countries to convene all relevant national AMR stakeholders, reach consensus on their priorities and inform the investment cases for action on AMR.

This working document, together with a supporting information document, and a draft decision are submitted to the WHO Regional Committee for Europe for endorsement at its 73rd session in October 2023.

A European One Health Action Plan against Antimicrobial Resistance (AMR)



GLOBAL ACTION PLAN ON ANTIMICROBIAL RESISTANCE



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Antimicrobial Resistance is a One Health Challenge

Available languages: English

Press release | 13 June 2023 | Luxembourg

European Health Union: EU steps up the fight against antimicrobial resistance

Page contents

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- Quote(s)
- Print friendly pdf
- Contacts for media

The Commission welcomes today's [adoption](#) by the Council of the European Union of the Commission's proposal to strengthen EU action against antimicrobial resistance (AMR).

Announced together with the Commission's [revision of the pharmaceutical legislation](#) on 26 April, the AMR Recommendation helps combat AMR in the fields of human, animal and environmental health, following the so-called One Health approach.

The Recommendation focusses on **infection prevention and control, surveillance and monitoring, innovation and availability of efficient antimicrobials, prudent use and cooperation among Member States and globally.**



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One Health
Priority Research
Agenda for AMR



Top 10 Overall Priority Research Areas across pillars

These 10 research areas represent the highest-ranked areas from the five pillars of the agenda and can be considered the most important, having the greatest potential for strengthening research capacity and being the most actionable, inclusive and impactful in the field of One Health AMR. They require contextualization at the regional and country level and the development of specific research questions relevant to the needs of different countries and One Health settings.

Transmission	To what extent do various IPC practices in One Health settings impact the development and circulation of AMR in One Health sectors?	What impacts the transmission of resistant microorganisms between humans, animals, plants and the environment, with a focus on conditions relevant to LMICs ?
Integrated surveillance	What are the optimum strategies and minimum standards (and resources) for adequate laboratory and human resource capacity to establish and maintain quality integrated AMR surveillance systems at scale?	How can existing AMR and AMU surveillance data from humans, animals, plants and the environment be meaningfully triangulated and/or integrated to allow early identification of the development, escalation or circulation of resistance across One Health sectors?
Interventions	How can One Health interventions that have proven impactful for AMR control and mitigation most effectively be translated and scaled up in different contexts or differently resourced settings ?	What challenges exist to the systematic collection and analysis of data for risk assessment and intervention impact assessment (epidemiological, economic, social) in LMICs?
Behavioural insights and change	How can structural challenges and barriers to behaviours related to AMR be identified, characterized and assessed in different sociocultural contexts ?	What strategies can be used to adapt effective behavioural interventions (e.g. immunization) from one context to another (e.g. Africa to Asia / rural to urban / human prescribers to veterinarians)?
Economics and policy	What would a One Health AMR socioeconomic impact assessment based on accurate and cost-effectively collected data (e.g. harmonized methodology and indicators) in low-resource settings optimally look like?	How can governments identify, prioritize and institutionalize the most relevant cross-cutting, sector-specific AMR policy options and regulatory frameworks, and financing strategies to sustainably tackle AMR across One Health sectors, given their different implementation challenges?



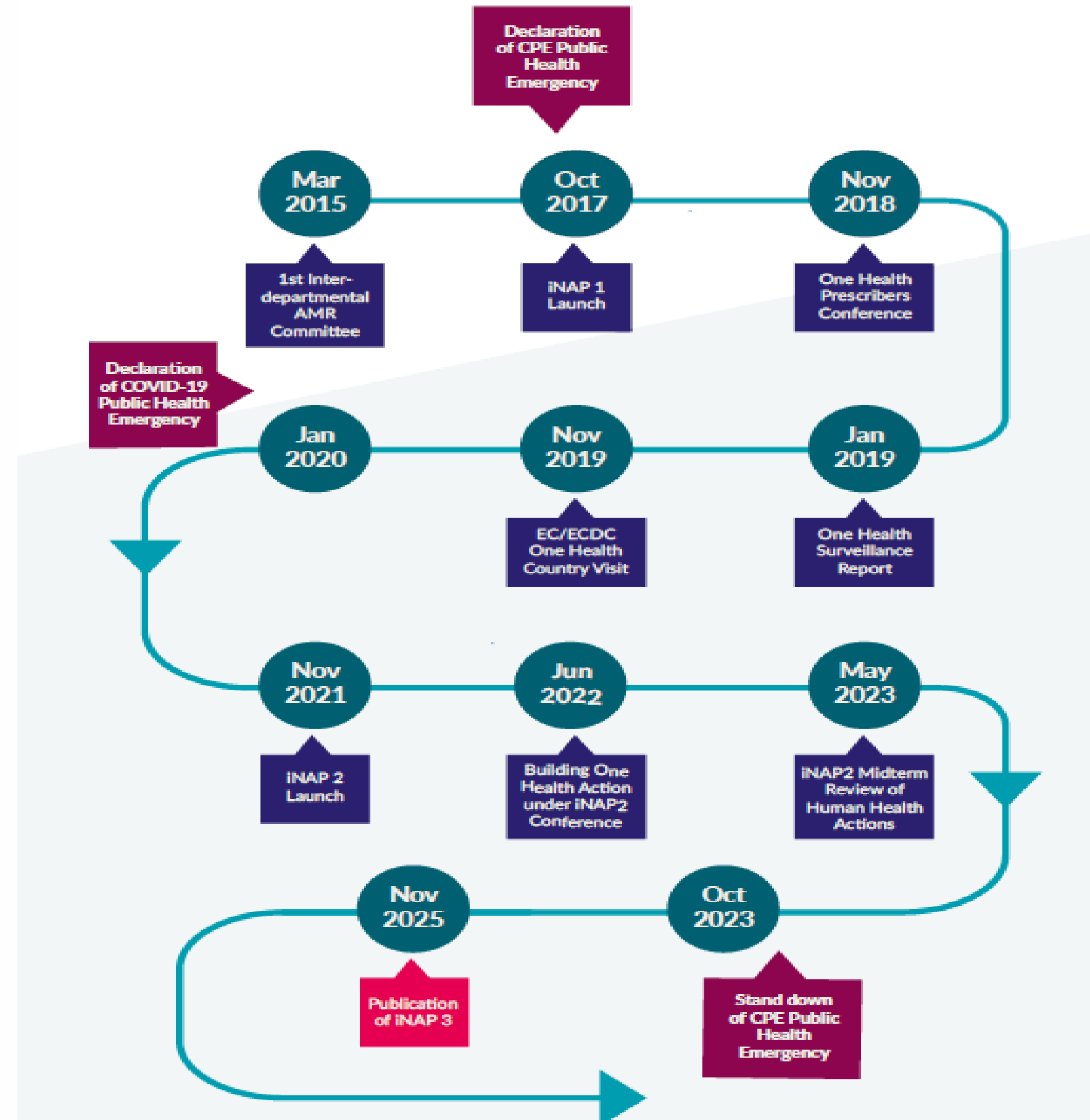
Antimicrobial Resistance is a One Health Challenge

Ireland's Third One Health National
Action Plan on Antimicrobial
Resistance (iNAP3)
2026-2030



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Ireland's One Health AMR Journey





AMR and One Health – Ireland

- National Interdepartmental Antimicrobial Resistance (AMR) Consultative Committee is an Irish cross-sectoral body established in 2014 by the DoH and DAFM.
- Stakeholder integration and oversees delivery of iNAP.
- AMR Thematic Network - established by DAFM in November 2022 with representatives (researchers, funding organisations, key stakeholders) from across the One Health sectors.
- To promote a strong One Health approach to research in AMR.



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Gap Analysis of Research needs in relation to Antimicrobial Resistance in an Irish Context



Antimicrobial Resistance is a One Health Challenge

Tackling antimicrobial resistance 2019–2024

Review on Antimicrobial

3.6

CLOSE KNOWLEDGE GAPS ON AMR IN THE ENVIRONMENT AND ON HOW TO PREVENT TRANSMISSION

AMR is a good example of a One Health matter in which human health is connected to that of animals and the environment. Only a multidisciplinary effort can provide an adequate response. There is a major lack of knowledge about the release and spread of resistant organisms in the environment and the threats and risks this poses to human and animal health. For example, the release of antimicrobials into the environment through human, animal and manufacturing waste streams should be assessed and new technologies developed to enable efficient and rapid degradation of antimicrobials in wastewater treatment plants, organic waste streams or the environment.

The feasibility and implementation of monitoring programmes need to be further studied, including the development of harmonised monitoring of antimicrobials and microorganisms resistant against antimicrobials in the environment. Using harmonised monitoring and research data, risk assessment methodologies should be developed to evaluate risks to human and animal health. In the agri-food sector, the links between farming practices, animal health and AMR development and spread need to be further investigated.

The Commission will:

- ▶ support research into knowledge gaps on the release of resistant microorganisms and antimicrobials into the environment and their spread;
- ▶ explore risk assessment methodologies, with the support of scientific agencies and bodies, and use them to evaluate the risks to human and animal health from the presence of antimicrobials in the environment;
- ▶ support research into and the development of new tools for monitoring antimicrobials and microorganisms resistant against antimicrobials in the environment;
- ▶ support the development of technologies that enable efficient and rapid degradation of antimicrobials in wastewater and the environment and reduce the spread of AMR.

2.4. Minimise spread of AMR through the environment

Ambition 1:
Continue to be a good global partner



Ambition 6:
Minimise environmental spread



Ambition 3:
Minimise infection



AMR exists in natural environments around the world. But a broad range of human, animal and agricultural activities increase its prevalence, posing a potential health risk to people, animals, food sustainability and ecosystems.

Researchers suspect that heavy metals and other biocides in the environment may also promote AMR through a process known as co-selection, although this remains an evolving area of research that requires further study. Either way, it is clear that reducing antimicrobial contamination is an important consideration in tackling the spread of AMR.

There is, however, still a lot that we do not know about AMR in the environment, including the relative importance of different sources, how it spreads (transmission pathways), what the implications are for people, animals, food and ecosystems (risks and impacts); and what the options are to reduce risks (effective interventions).

ANTIMICROBIALS IN AGRICULTURE AND THE ENVIRONMENT: REDUCING UNNECESSARY USE AND WASTE

THE REVIEW ON ANTIMICROBIAL RESISTANCE

CHAIRIED BY JIM O'NEILL

DECEMBER 2015



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CAUSES OF ANTIBIOTIC RESISTANCE



Antibiotic resistance happens when bacteria change and become resistant to the antibiotics used to treat the infections they cause.



Over-prescribing of antibiotics



Patients not finishing their treatment



Over-use of antibiotics in livestock and fish farming



Poor infection control in hospitals and clinics



Lack of hygiene and poor sanitation



Lack of new antibiotics being developed

www.who.int/drugresistance

[#AntibioticResistance](https://twitter.com/AntibioticResistance)



World Health Organization

Antimicrobial Use and Resistance in Humans

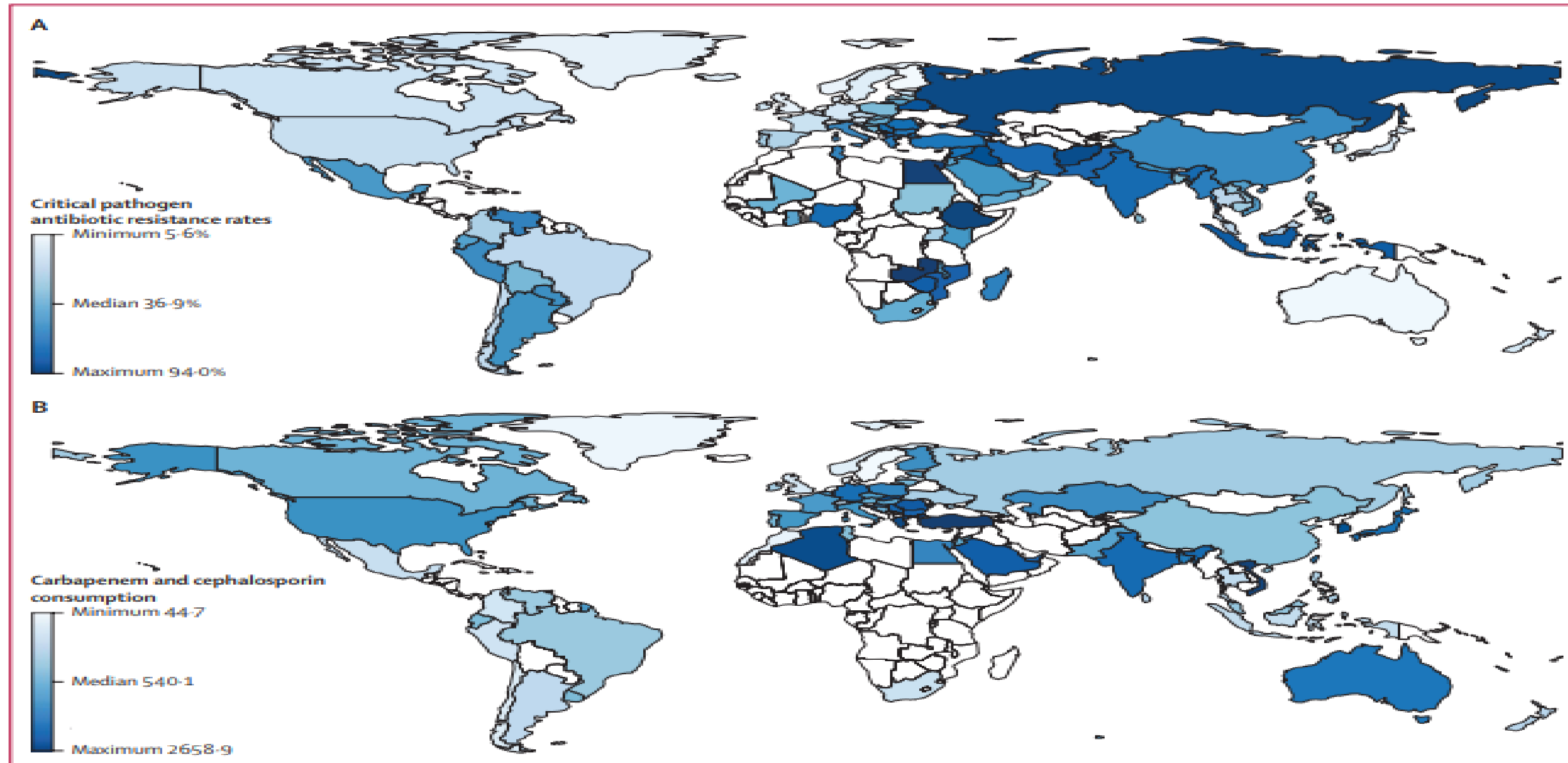


Figure 1: Critical pathogen antibiotic resistance rates and carbapenem and cephalosporin consumption by country
(A) Antibiotic-resistance rate in humans for the critical pathogens in humans (96 observations). (B) Antibiotic consumption (in DDDs) in humans for carbapenems and cephalosporins (73 observations). Countries in white represent those with missing data. Pearson's correlation between antibiotic resistance and consumption in humans was 0.30 ($p=0.021$). DDD=defined daily doses per 1000 individuals.



Antimicrobial Use and Resistance in Animals

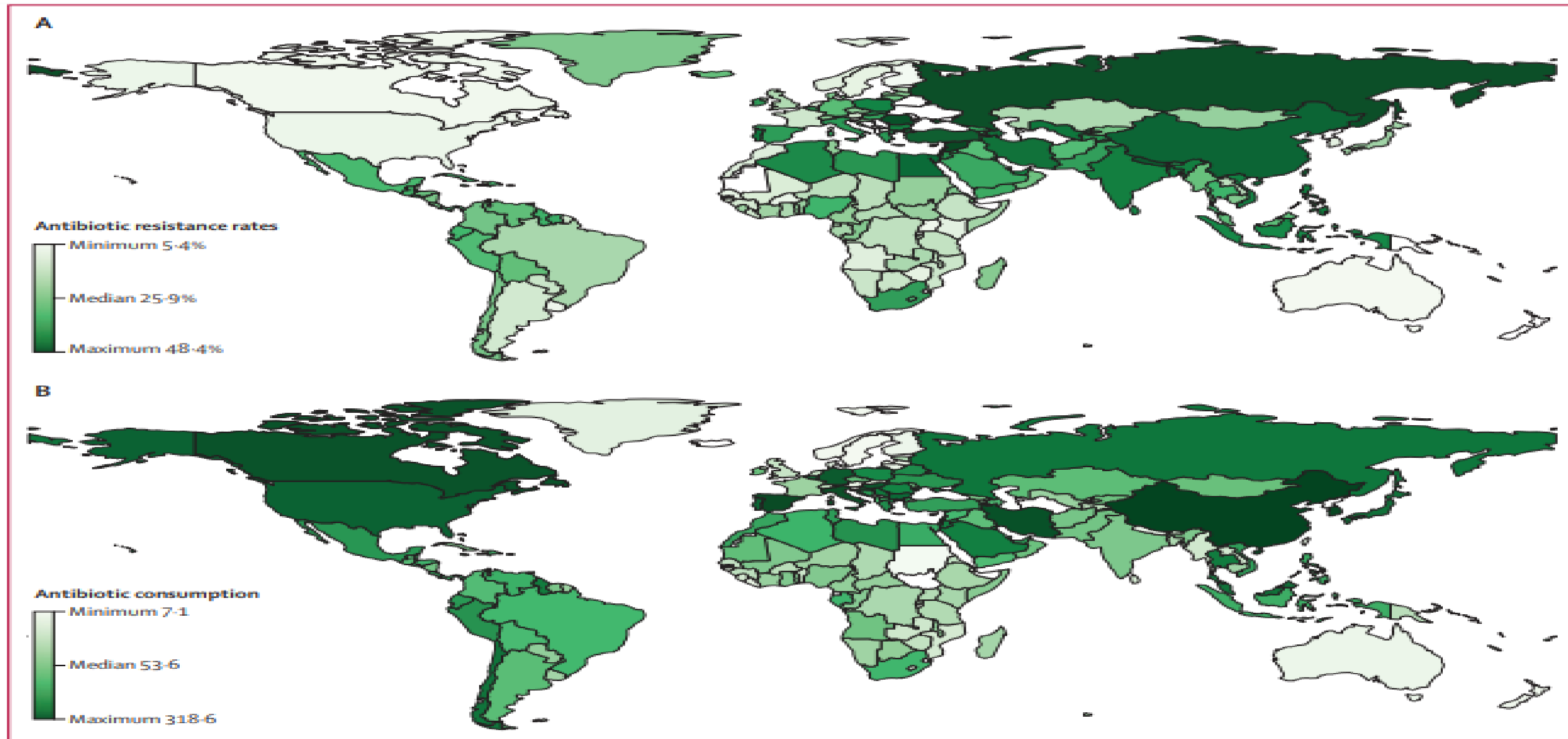
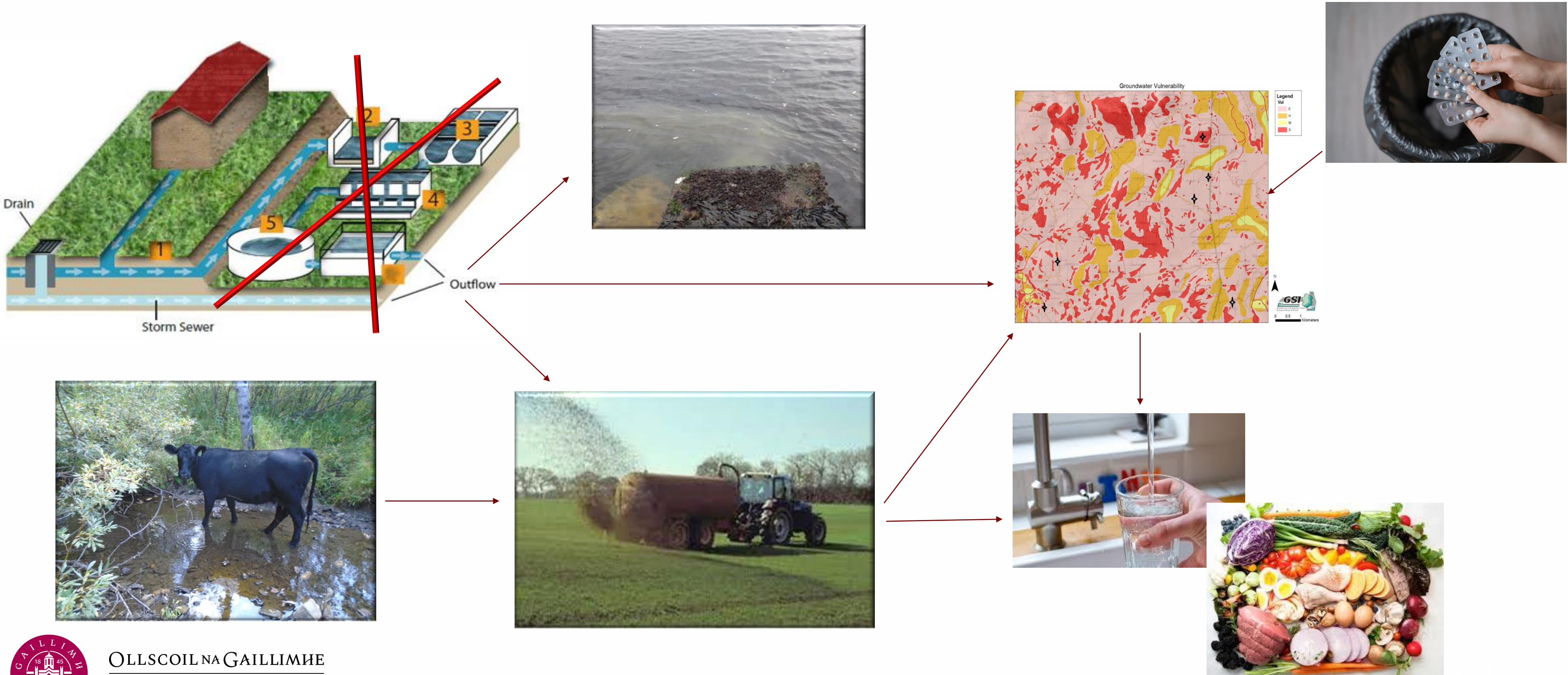


Figure 2: Antibiotic resistance rates and antibiotic consumption in food-producing animals by country
(A) Antibiotic resistance rate in animals (166 observations). (B) Estimated antibiotic consumption (mg per PCU) in animals (164 observations). Countries in white represent those with missing data. Pearson's correlation between antibiotic resistance and consumption in food-producing animals was 0.28 ($p < 0.0001$). PCU=population correction unit.



Where Antimicrobials and Antimicrobial Resistant Bacteria Go



What we are doing.....



OH-ALLIES: 2024 - 2026

One Health: All Ireland for European Surveillance



EU-JAMRAI2: 2024-2028

Joint Action on Antimicrobial Resistance and Healthcare-Associated Infections



BlueAdapt: 2022-2026

Reducing climate based health risks in blue environments: Adapting to the climate change impacts on coastal pathogens



AREST: 2018-2023

Antimicrobial Resistance and the Environment – Sources, persistence, Transmission and risk management



PIER: 2019-2024

Public health Impact of Exposure to antibiotic Resistance in recreational waters



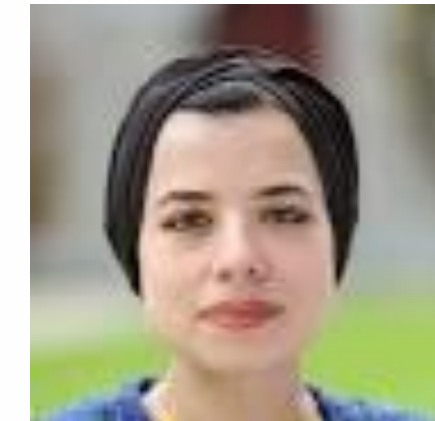
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- Building on success of EU-JAMRAI 1 (2017 to 2021).
- One Health work programme that brings together 120 organisations from 30 countries across Europe, along with Iceland, Norway and Ukraine.
- Monitor, prevent and tackle antimicrobial resistance across human, animal and environmental health domains and strengthen national action plans.
- Antimicrobial Stewardship, Infection Prevention and Control, Surveillance – Human Health and Environment

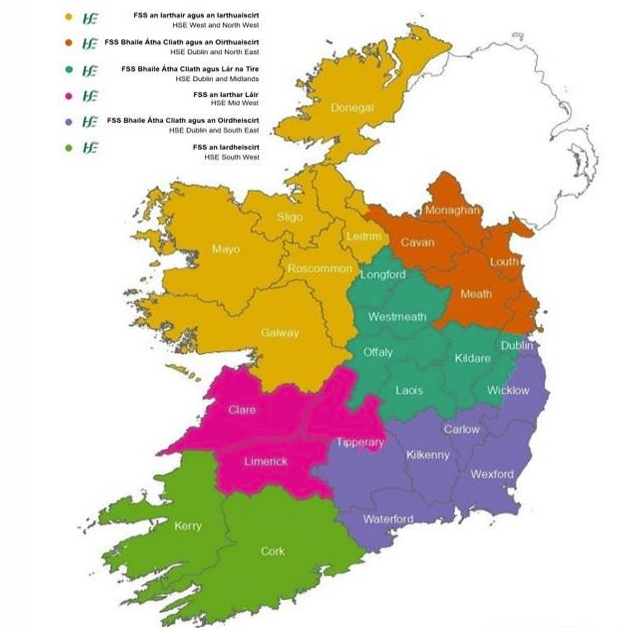


Human Health

- In collaboration with AMRIC, compared hospital antimicrobial prescribing guidelines in Ireland for community acquired pneumonia and infective exacerbations of Chronic Obstructive Pulmonary Disorder.
- 33 hospitals (30 public, 3 private)
- Key Findings:
 - High concordance among Irish hospitals
 - Good alignment with HSE national community and UK NICE guidance
 - Strong foundation for developing harmonised consensus hospital guidelines at National level.



Dr. Zina Alfahl



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An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine



AGRICULTURE AND FOOD DEVELOPMENT AUTHORITY



IRISH EQUINE CENTRE



Maynooth
University
National University
of Ireland Maynooth

Applying a One Health Approach...



“The greatest challenge for science is to think globally, think simply and act accordingly. One part of the world affects another part. We have a moral obligation to look after each other”

Walter C. Campbell, winner of the Nobel Prize in Medicine, 2015



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Thank you



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iNAP 3

A human health perspective



Marie Philbin,
Chief Pharmacist,
HSE Antimicrobial Resistance & Infection Control Team
24 June 2026



Antimicrobial Resistance &
Infection Control Programme



HSE AMRIC action plan



Strategic objective 4:

- Optimise antimicrobial prescribing
- Support antimicrobial stewardship interventions
- Contribute to audit and feedback

Other objectives

- Improving awareness and empowering patients
- Reduce the spread of infection



HSE

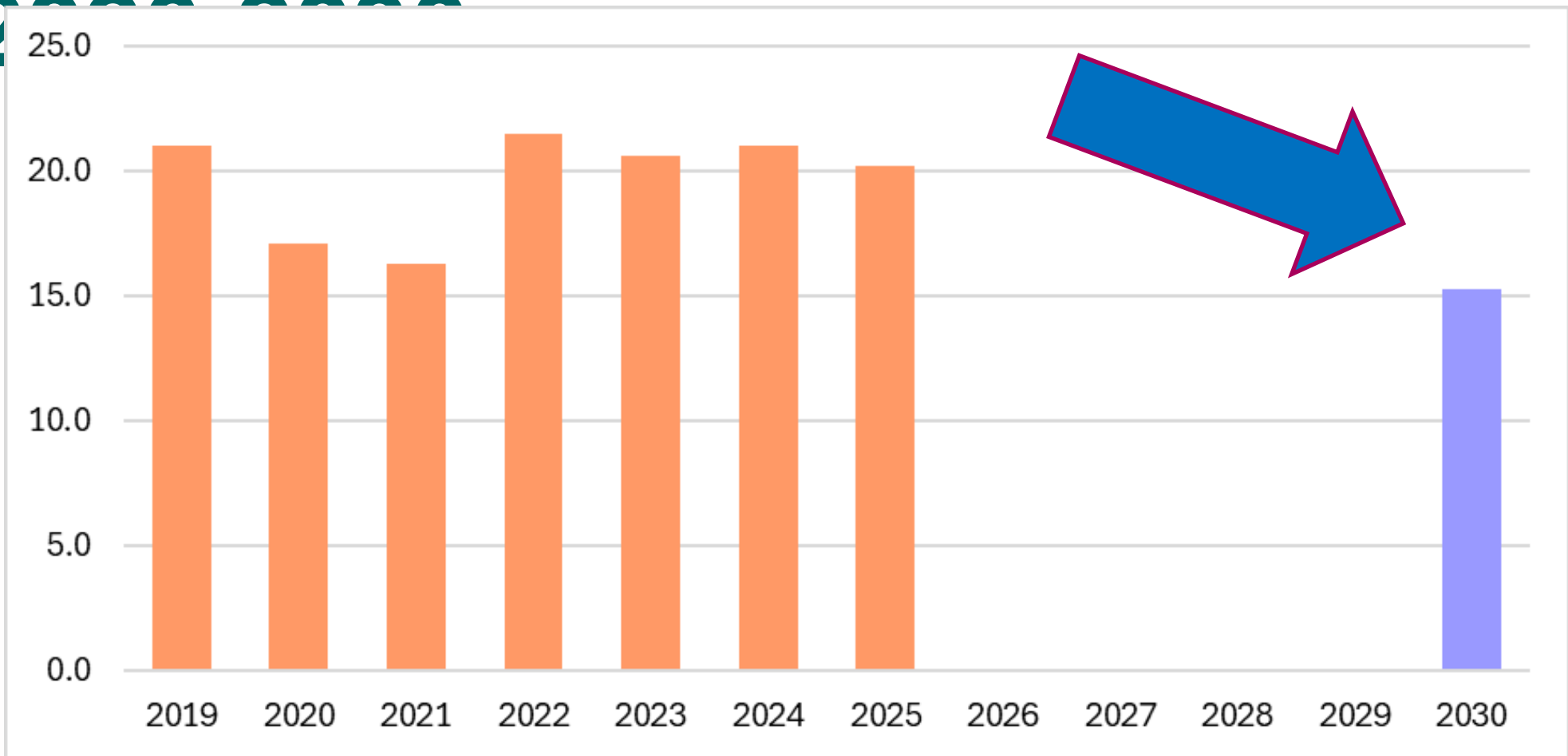
Appendix 6 - Measures

Measure	Unit of measurement	2025 Projected Out-Turn	2026 Target	2030 Target
Hospital-associated <i>Clostridioides difficile</i> infection: Rate of new cases of hospital-associated <i>C. difficile</i> infection	Number of new cases per 10,000 bed days used	2.4	<2.0	<1.9
Hospital-acquired <i>Staphylococcus aureus</i> bloodstream infection: Rate of new cases of hospital-acquired. <i>S. aureus</i> bloodstream infection	Number of new cases per 10,000 bed days used	0.7	<0.7	<0.6
Community consumption of antibiotics*: Consumption of antibiotics in community settings based on wholesaler to community pharmacy sales – not prescription level data (defined daily doses per 1,000 population per day)	Defined daily doses per 1,000 population per day	21.0	<20.0	<14.9
Acute consumption of antibiotics*: Consumption of antibiotics in acute settings based on hospital submitted consumption data (defined daily doses per 100 bed days used)	Defined daily doses per 100 bed days used	78.4 (2024 data)	<77.0	<70.0
Compliance with surgical antibiotic prophylaxis duration position statement (as per the annual antimicrobial point prevalence study)	% surgical antibiotic prophylaxis with duration >24 hours	26% (2024 data)	25%	21%
General Practice prescription of antibiotics: Proportion of antibiotics prescribed (and paid for by PCRS) in general practice that were "red" antibiotics	% of prescriptions that were "red" antibiotics	30%	29%	25%
General Practice prescription of antibiotics: Consumption rate of antibiotics in general practice (paid for by PCRS)	Number of antibiotic prescriptions per 100 GMS patients	154	145	109
WHO Access group of antibiotics*: Proportion of total antibiotic consumption in humans that belongs to the Access group of antibiotics (as defined in the AWaRe classification of the WHO)	% of total antibiotic consumption that was from Access group	75.1% (2023 ECDC data)	At least 65%	At least 65%

*Measures related to EU Council 2030 targets:

EU council target: Ireland to reduce antimicrobial use by 27% by 2030

Figure 1: Annual community consumption of antibiotics in Ireland – wholesaler to pharmacy data



HE Patient perspective on importance of AMR



“I’m now maybe a lot more cognisant of how quickly antimicrobial resistance can occur or how quickly you run out of options, or options that fit into your day-to-day life maybe...And I can see how that can happen for people now a lot more simply than I would have thought before.”

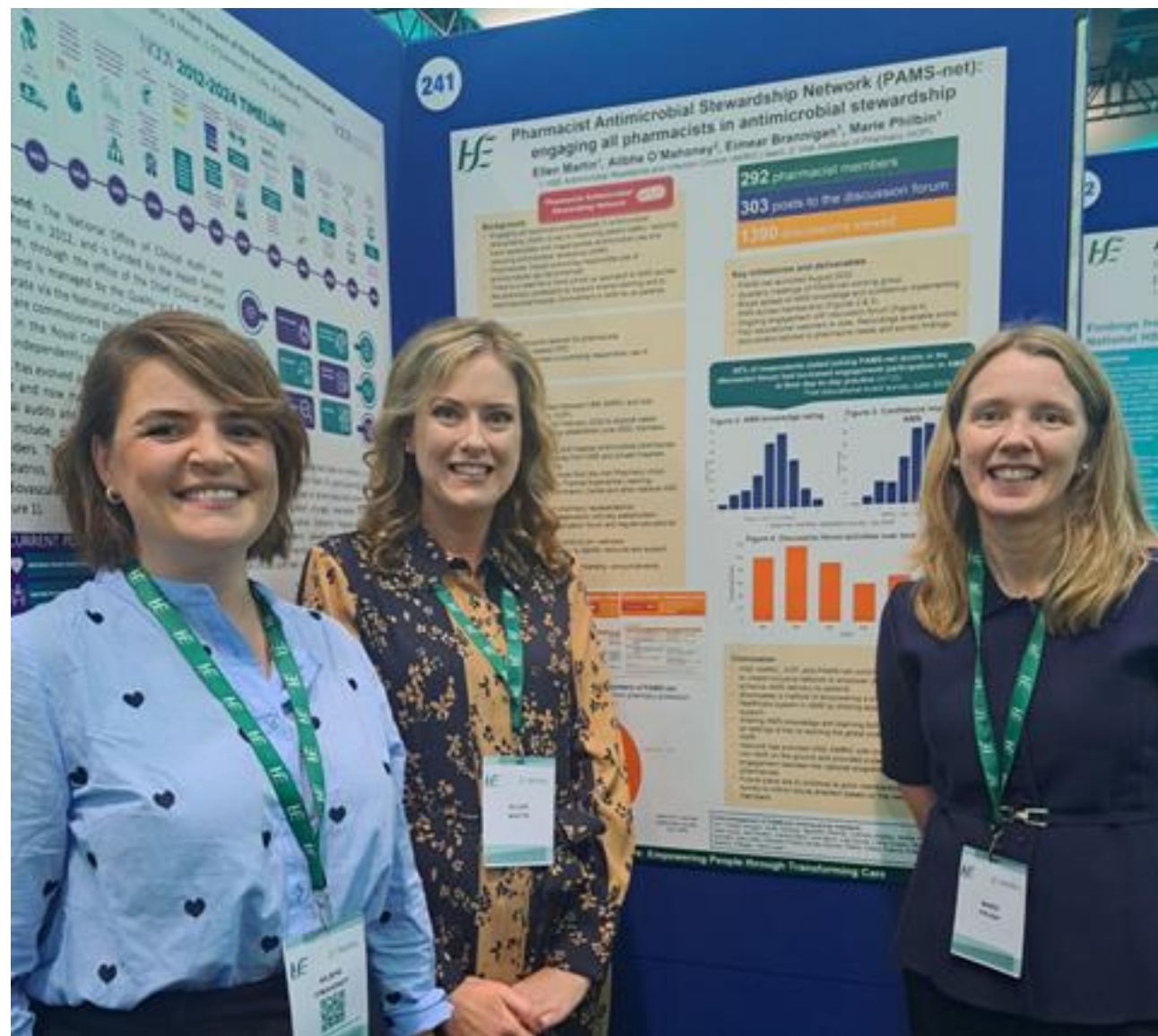
RESIST



PAMS-net

- AMRIC/IIOP joint collaboration

Mission statement: To support pharmacists across all sectors to work towards the common goal of promoting responsible use of antimicrobials in all patients and limiting the emergence of antimicrobial resistance.



Educational Events



Discussion Forum



Updates





PAMS-net

- AMRIC/IIOP joint collaboration

Empowering pharmacists in antimicrobial stewardship

Joining the network is simple and open to all pharmacists

Scan the QR code



[CLICK HERE TO JOIN PAMS-net](#)



Lara Marin (Irish Pharmacy Union Professional Services Pharmacist), Ellen Martin (AMRIC Senior Pharmacist) at IPU National Pharmacy Conference, 9 May 2026.

Antimicrobial stewardship and the common conditions service

1. Recognise clinical evidence of infection

- Making the correct diagnosis is a critical AMS intervention

2. Avoid unnecessary antimicrobial use

- Only prescribe antimicrobials for infections that are likely to benefit from antimicrobial treatment
- Advise patients on self care measures

3. If antimicrobial is necessary – prescribe in line with the CCS protocol

- Right agent, dose and duration
- Consider factors such drug allergy, medical conditions, pregnancy, age, previous adverse effects.

4. Prevent infection

- Promote vaccination
- Use appropriate infection prevention and control precautions and hand hygiene

5. Communicate effectively about antimicrobials

HSE AMRIC intravenous to oral switch toolkit

Toolkit

Aims to provide local AMS teams with supports to implement a local intravenous to oral switch (IVOS) initiative

- Guidance
- Implementation tool
- Generic teaching presentation
- Metronidazole factsheet
- Poster
- *Coming soon: IVOS audit tool*

Go to: antibioticprescribing.ie > acute hospital guidelines > intravenous to oral switch

HSE RESIST We're taking climate action

Reduce the risk of bloodstream infections, save nursing time, improve patient mobility

Stop, or Go PO

Reduce Plastic Waste

1 day of IV metronidazole

Give metronidazole orally if clinically suitable (100% orally absorbed)

REMEMBER Double anaerobic cover is rarely indicated!

February 2025 Version 1

RESIST

HF Skip the Dip for UTI in over 65s



AMRIC national position statement:

Dipstick urinalysis is not recommended for assessment of evidence of UTI in persons aged 65 years and over, and in those with a urinary catheter.

Focus on clinical signs and symptoms of infection.

Bacteria can live in the urinary tract and not cause infection.

Up to half of elderly patients with no symptoms will have a positive dipstick urinalysis and urine culture, without a UTI

Box A: Signs and Symptoms of UTI

- Acute dysuria
- New/worsening frequency
- New/worsening urgency
- New onset incontinence
- Fever
- Suprapubic or costovertebral angle pain or tenderness
- Haematuria

Supporting resources

- A decision aid for management of suspected UTI in older persons
- Skip the Dip staff handbook
- *Coming soon:* UTI patient information leaflet



AMRIC PCRS Antibiotic Quality Improvement Initiative for Community Prescribers – new prescriber report

3 key areas of focus in Table 1

1. Reduce antibiotic prescribing rates
2. Reduce % Red antibiotics
3. Reduce prescriptions for RTI with duration >5 days

National targets:

1. Have you met the national target?
2. What action can you take to achieve it next quarter?

How does my prescribing compare to that of my peers?

- **Lower:** Among the lowest 25% of prescribers.
- **Average:** Within the middle 50% of prescribers.
- **Higher:** Among the highest 25% of prescribers.

Table 1: Your Quality Report Q3, 2025 data

AMRIC Focus area for reduction	Your data (Q3 2025)	National target	Target achieved (Q3 2025)	Comparison to peers**
Antibiotic prescribing rate	38 prescriptions per 100 GMS patients per quarter	36 or less prescriptions per 100 GMS patients per quarter	No 8 fewer prescriptions in the quarter would have achieved target***	Average Your percentile=75 th
Percentage red antibiotics	13%	29% or less	Yes Target achieved	Lower Your percentile=2 nd
Percentage antibiotic prescriptions for RTIs* with duration greater than 5 days	77%	10% or less	No Opportunity to strive for 5 days for RTIs	Higher Your percentile=85 th

* Based on quantity of amoxicillin 500mg capsules used as a marker of duration for RTI

** Higher: at or above the 75th percentile, average: between 25th to 75th percentiles, lower: at or below the 25th percentile
*** Based on applying national target to your average panel number for past 3 months

The estimated number of antibiotic prescriptions you would need to reduce by in a quarter to meet the national prescribing rate target.





Can you identify an action in your setting where you can help promote better use of antibiotics?

AMS microlearning videos for community pharmacists:

- [Viral and self limiting RTI](#)
- [GREEN and RED antibiotics](#)
- [Safety profile of fluoroquinolones](#)
- [Recurrent urinary tract infection](#)
- [Childhood infections](#)

Pharmacist Antimicrobial Stewardship Network



HSeLanD AMRIC eLearning Training Modules

Registration is free and open to all users.

- Antimicrobial stewardship in practice
- Prevention & Management of Urinary Tract Infections
- *Clostridioides difficile* infection: IPC and AMS Principles, Prevention and Management



Antibiotic prescribing guidance for healthcare professionals

www.antibioticprescribing.ie





An Roinn Talmhaíochta,
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Department of Agriculture,
Food and the Marine



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A CHOSAINT DON TODHCHAÍ

WORKING TOGETHER TO
PROTECT ANTIMICROBIALS
FOR THE FUTURE

Ireland's One Health National Action Plan on Antimicrobial Resistance (AMR)

Rebecca Fitzpatrick

One Health, Vet Meds and AMR Division

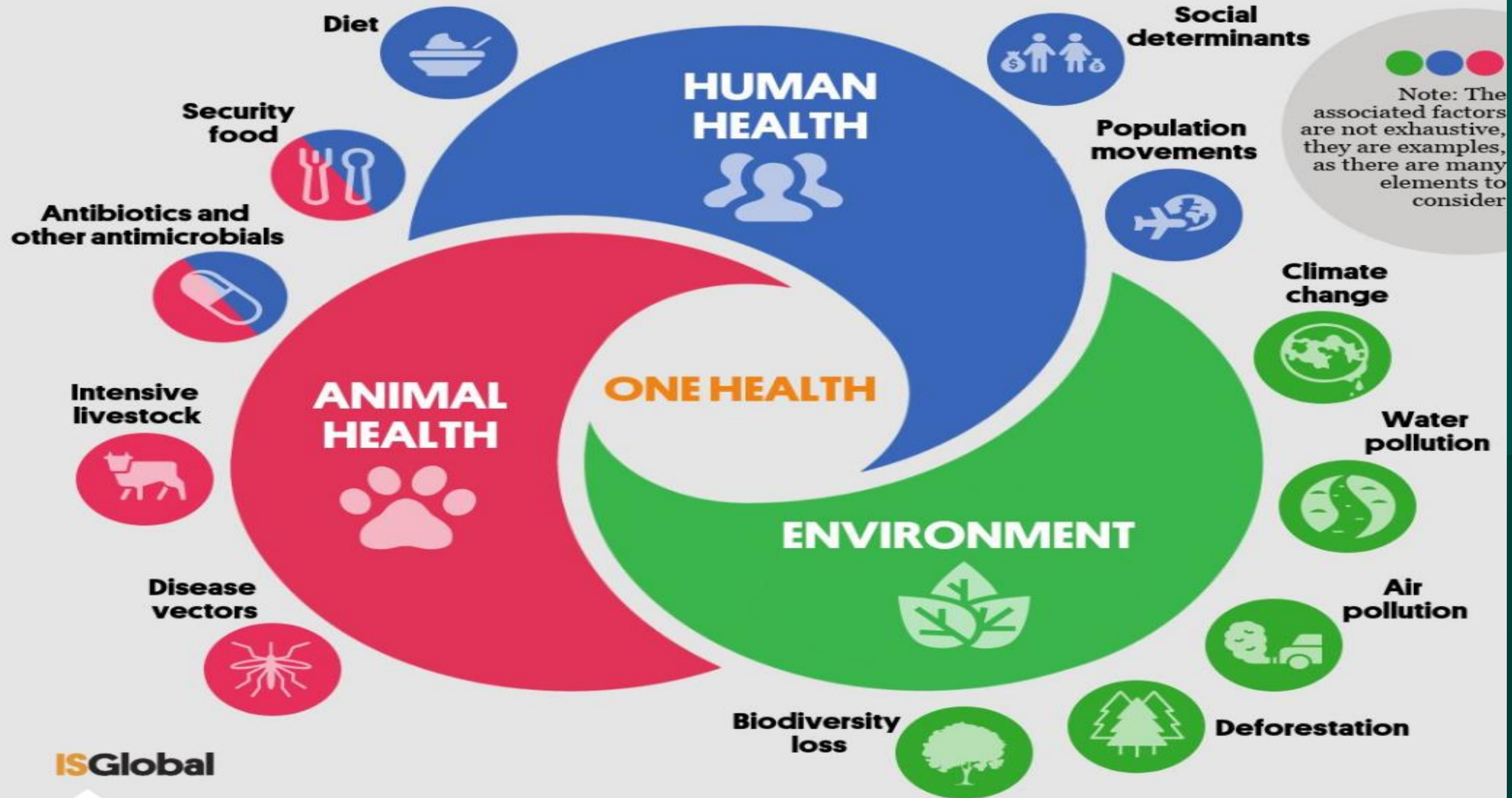
Department of Agriculture, Food and the Marine





ONE HEALTH

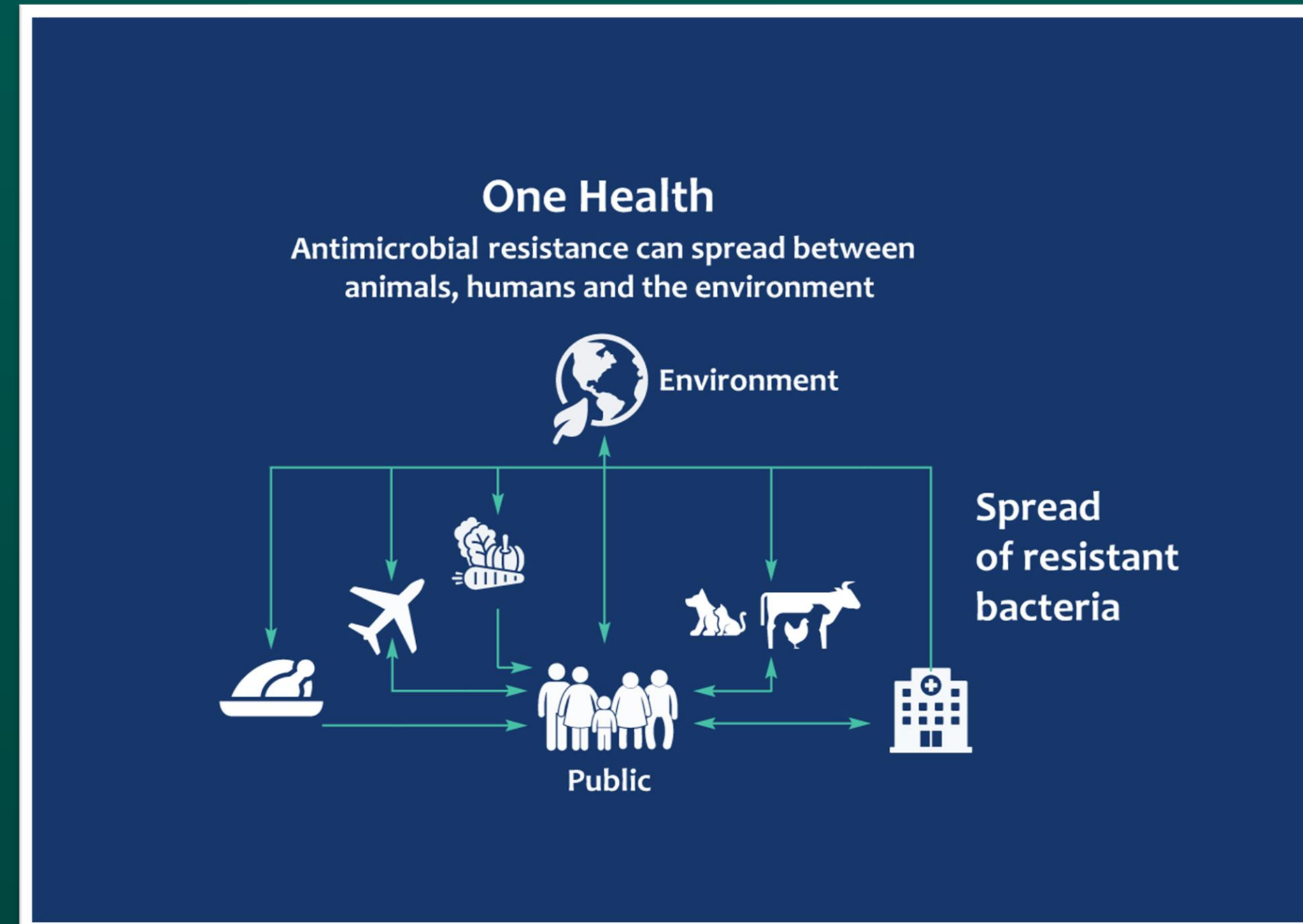
Human health and animal health are interdependent.
At the same time, both depend on the environment.



AMR – A One Health Approach



- Human, animal, plant and environmental health are all interconnected.
- 75% new human pathogens last 25 years are zoonoses.
- Humans and animals are treated with many of the same antimicrobials.
- Prudent and responsible use of antibiotics in both animals and humans can lower the risk of bacteria becoming resistant.



AMR- Global Health and Development Threat



AMR is one of the top 10 global public health threats facing humanity (WHO).

Threatens the success of modern medicine in treating infections, including during major surgery and cancer chemotherapy.

AMR leads to:

- Increased health care costs
- Increased hospital admissions
- Treatment failure
- Severe Illness
- Death



1987

The year a new class of antibiotic last came onto the market



zero

new classes of antibiotics in clinical development to treat the world's most dangerous antimicrobial resistant bacteria

Why is Antimicrobial Resistance (AMR) a threat?

AMR can spread from animals to people and vice versa.



When microorganisms like bacteria become resistant to antimicrobials, we increase the risk of running out of options to treat dangerous infections.

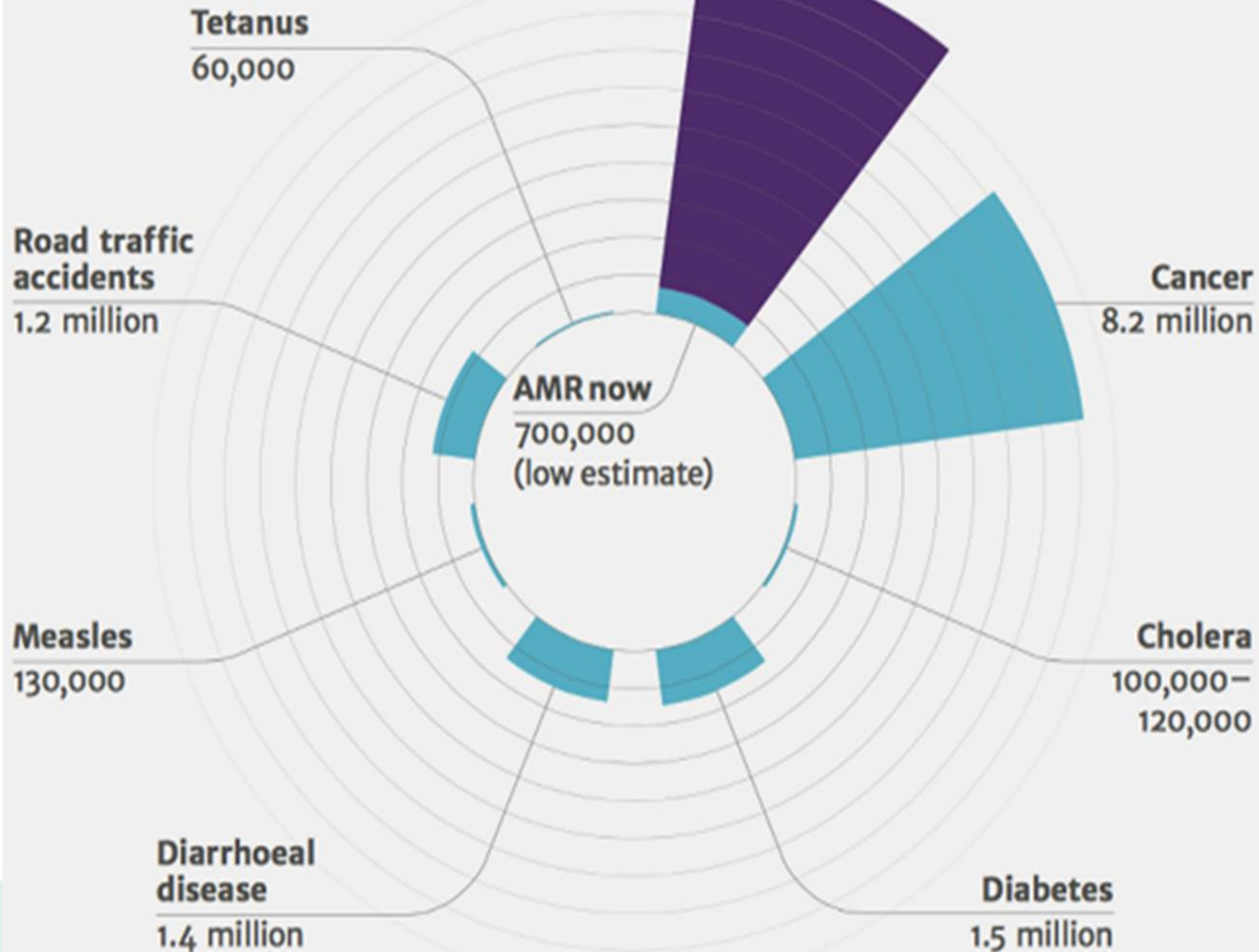


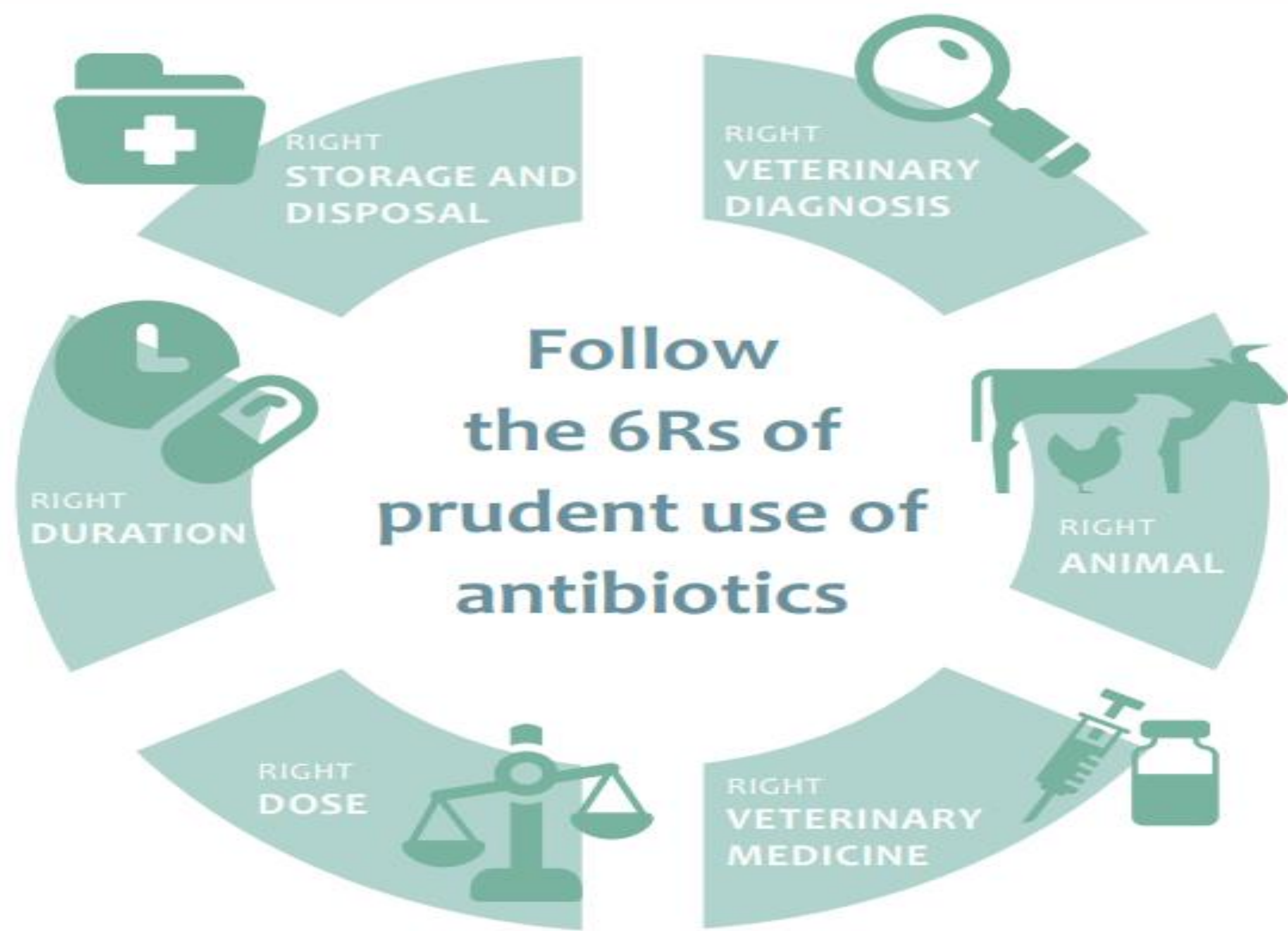
estimated cost of AMR in EU/EEA

€1.1 billion per year

estimated AMR-related deaths in Europe

35,000 per year





Challenges ..

- Optimising Animal Health
- Reducing Usage



2030 Targets for sustainable food production

PESTICIDES



Reduce the overall use and risk of chemical and hazardous pesticides

NUTRIENT LOSSES



Reduce nutrient losses by 50% whilst retaining soil fertility, resulting in 20% less fertilisers

ANTIMICROBIALS



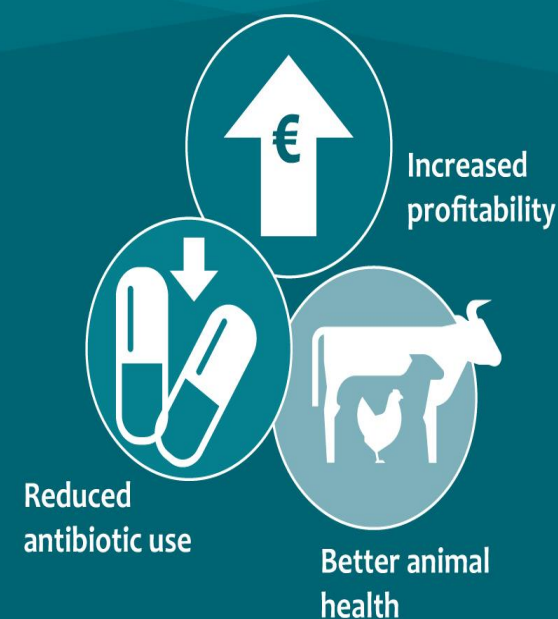
Reduce sales of antimicrobials for farmed animals and aquaculture

ORGANIC FARMING



Increase the percentage of organically farmed land in the EU

Disease prevention means:



Good Biosecurity reduces the risk of introducing disease or disease spread within farms



Mandatory AMR surveillance



- harmonized EU- wide monitoring since 2014
- Healthy animals sampled at slaughter
- Randomised sampling- proportionate to slaughterhouse throughput, sampling throughout the year
- 2026- poultry
- AMR in commensal and zoonotic bacteria monitored
- Pigs sampled every second year (poultry alternate years)- batches of pigs at slaughter
- Border Control Post monitoring- non- EU meat

COMMISSION IMPLEMENTING DECISION (EU) 2020/1729
of 17 November 2020
on the monitoring and reporting of antimicrobial resistance in zoonotic and commensal bacteria and
repealing Implementing Decision 2013/652/EU



efsa JOURNAL OPEN ACCESS

SCIENTIFIC REPORT | Open Access | CC BY ND

The European Union summary report on antimicrobial resistance in zoonotic and indicator bacteria from humans, animals and food in 2021–2022

European Food Safety Authority (EFSA) | European Centre for Disease Prevention and Control (ECDC)

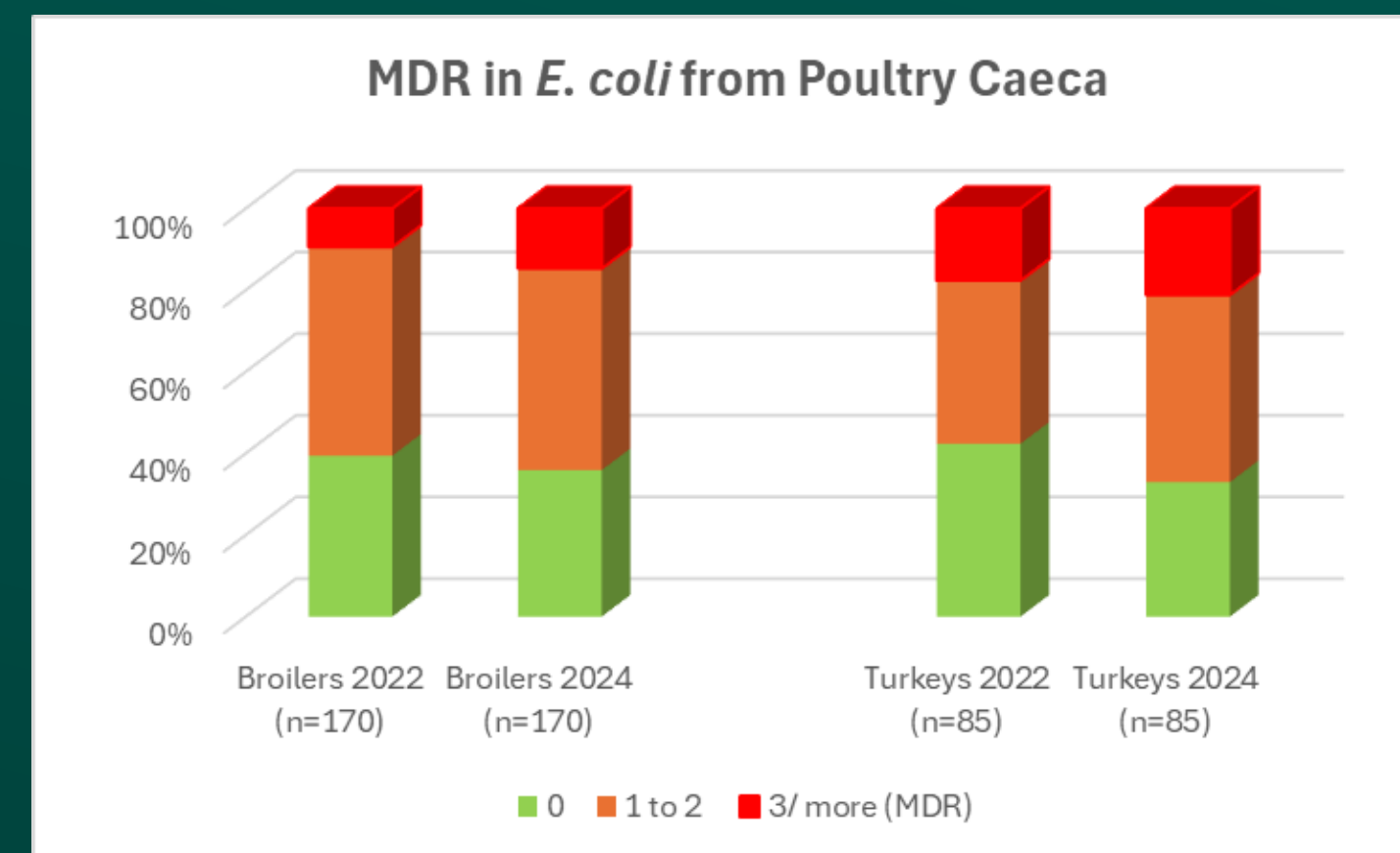
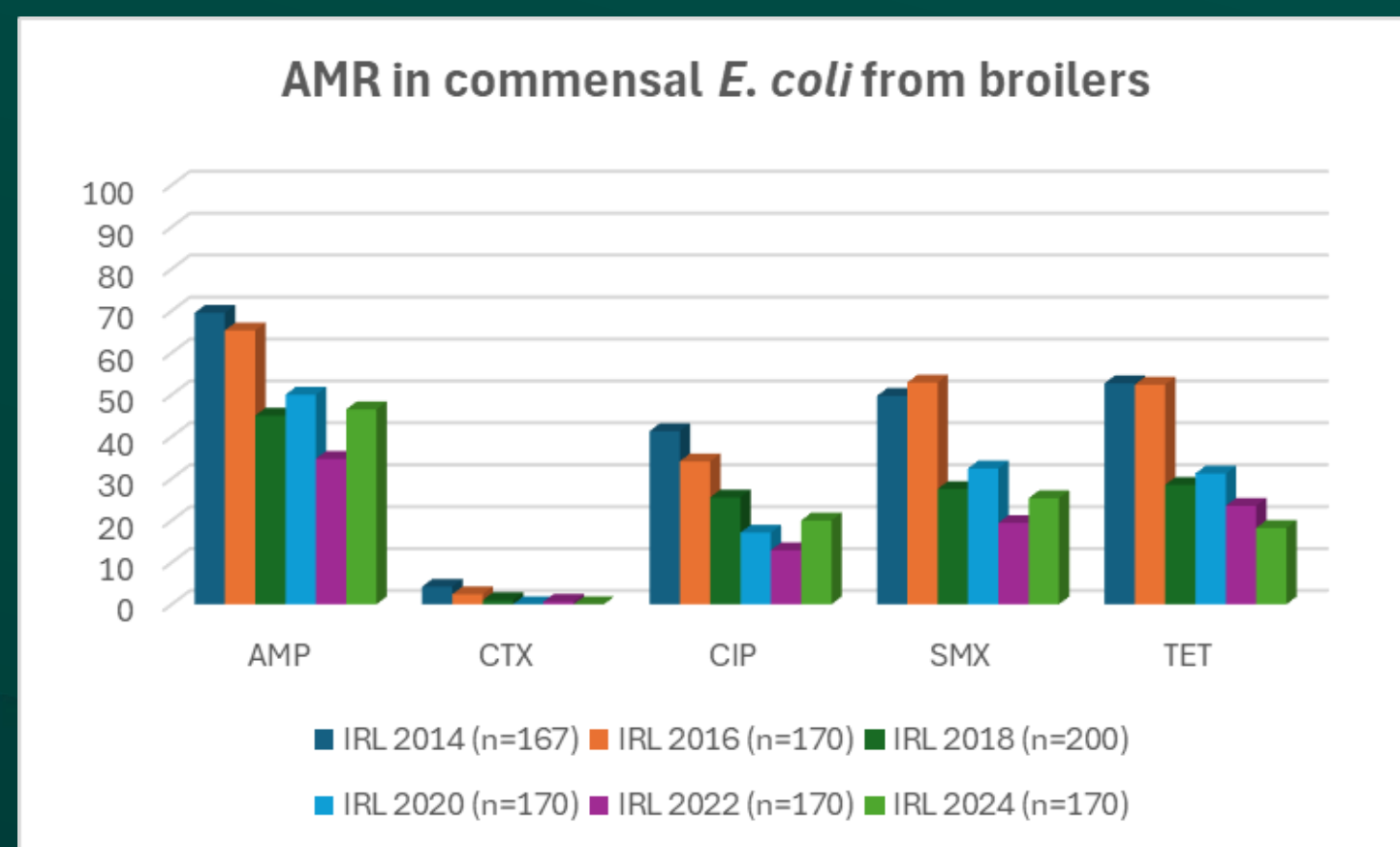
First published: 28 February 2024 | <https://doi.org/10.2903/j.efsa.2024.8583>

AMR in Commensal *E. coli*- poultry



- ↑ levels of Ampicillin (12% ↑), Ciprofloxacin (7%↑) and Sulphamethoxazole (6↑) resistance compared to 2022
- Tetracycline resistance ↓ 6%

- 60 % of *E. coli* from turkeys- TET-R
- MDR in both turkeys and broilers increased by approx. 5% between 2022 and 2024

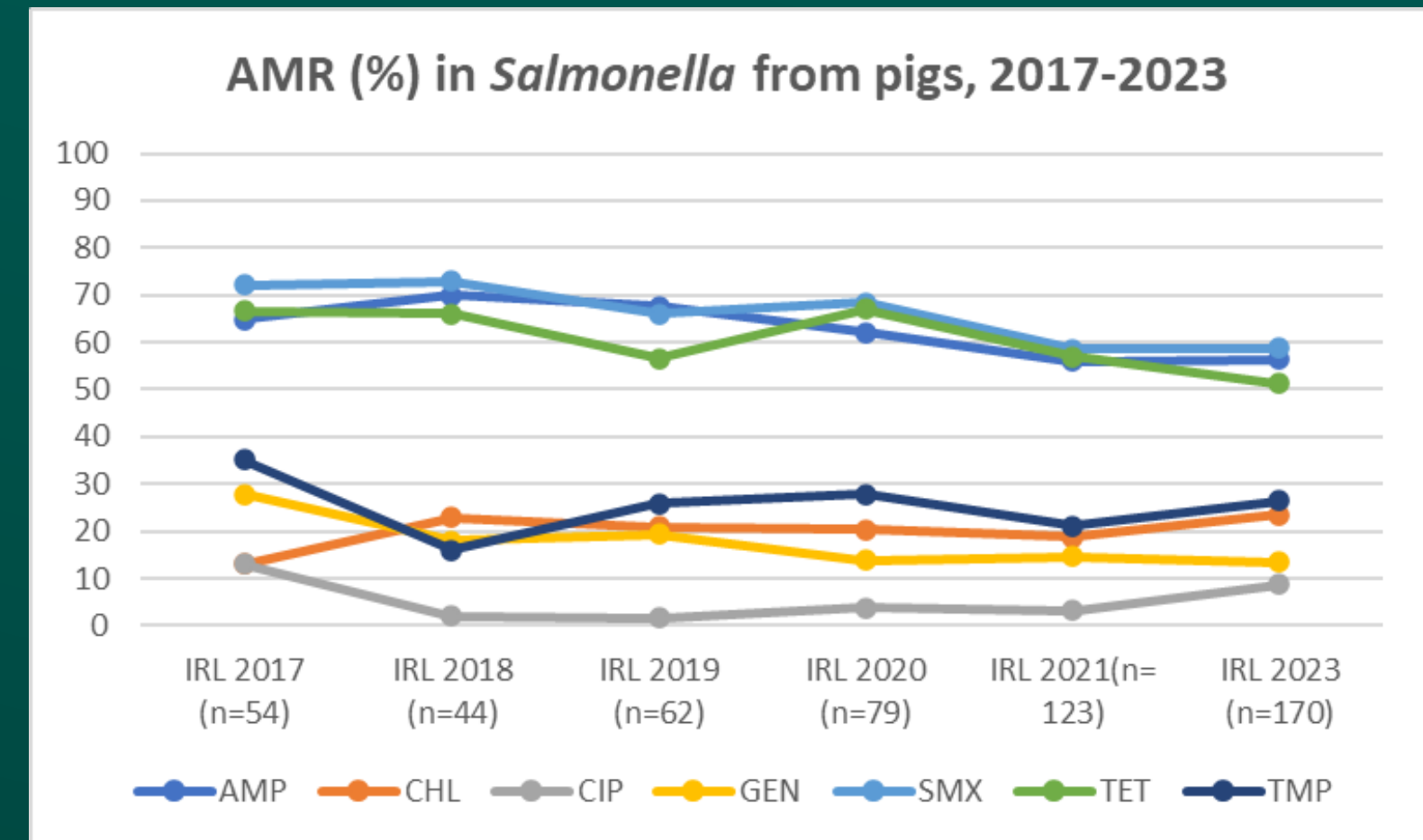


AMP- Ampicillin, CHL- Chloramphenicol, CIP-Ciprofloxacin, GEN- Gentamicin, SMX- Sulfamethoxazole, TMP- Trimethoprim

Antimicrobial Susceptibility Testing results – Salmonella - Pigs



- resistance most frequent- sulfamethoxazole (58.8%), ampicillin,(56.5%), tetracycline (51.2%)
- Slight increases (~ 5%) in chloramphenicol, ciprofloxacin and trimethoprim resistance, compared to 2021
- tetracycline resistance decreased by 5.7%
- no cefotaxime, meropenem resistance
- Relatively stable resistance over the past 6 years

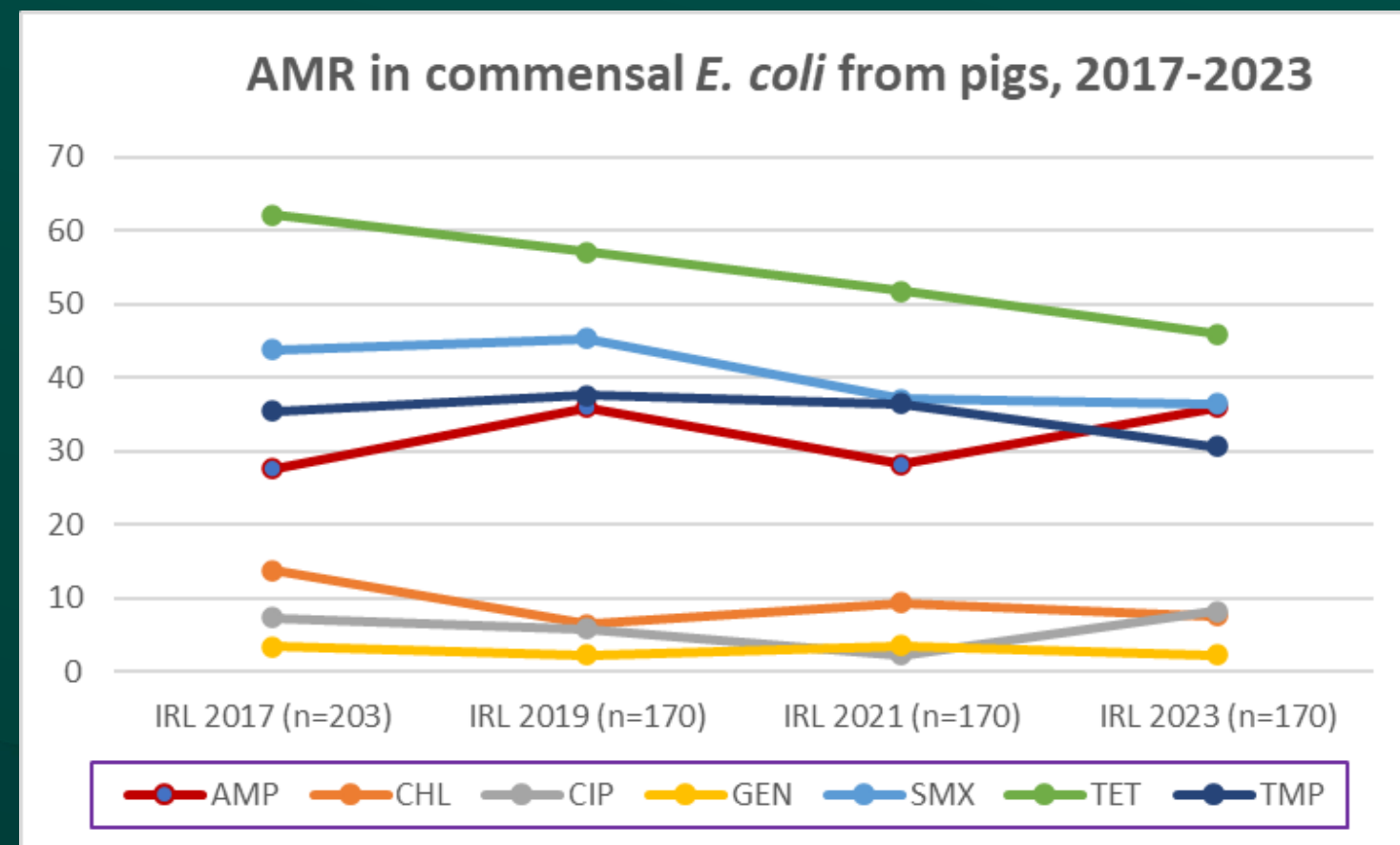


AMP- Ampicillin, CHL- Chloramphenicol, CIP-Ciprofloxacin, GEN- Gentamicin, SMX- Sulfamethoxazole, TMP- Trimethoprim

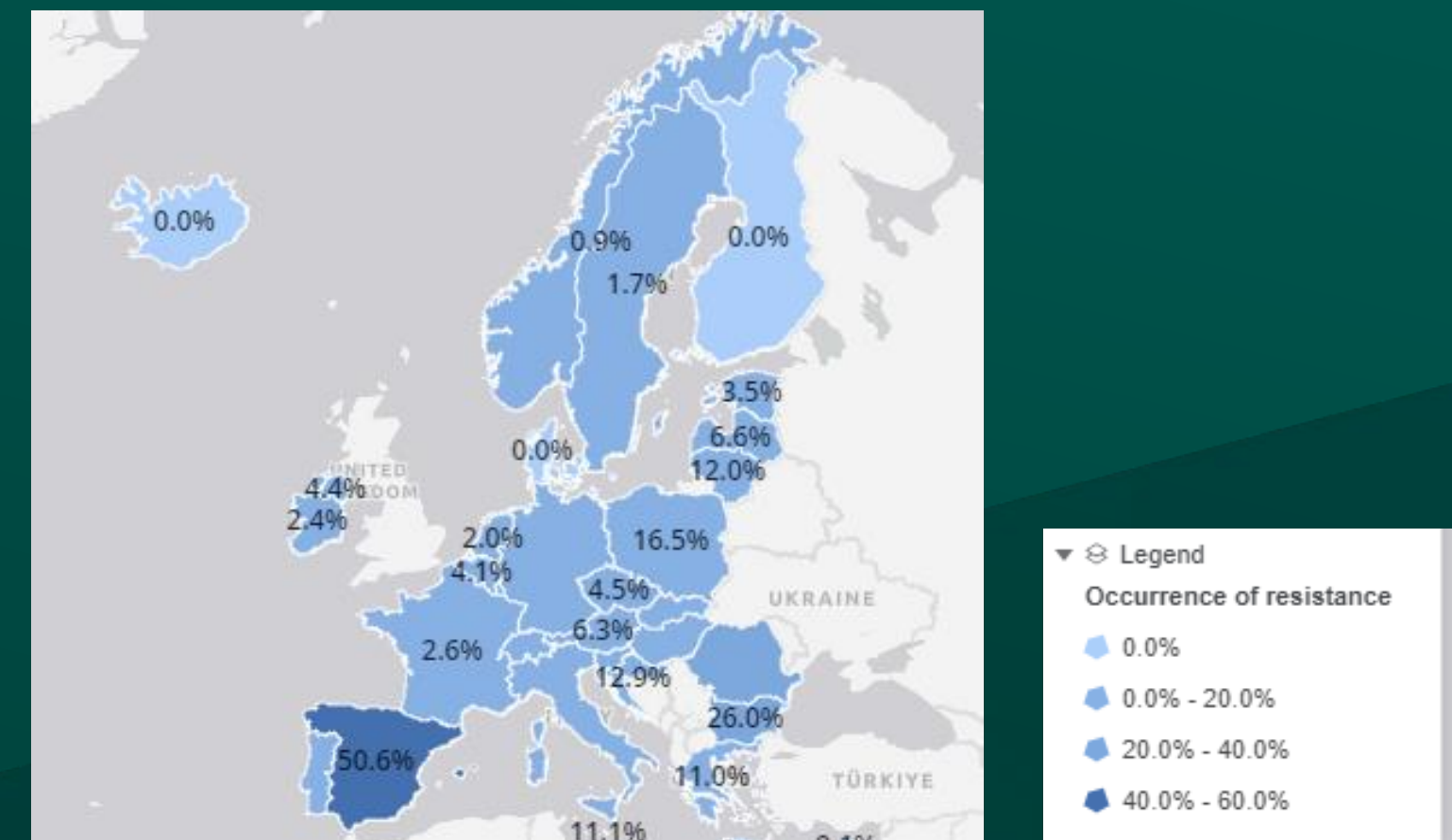
Antimicrobial Susceptibility Testing results –commensal *E. coli*- Pigs



- resistance most frequent- tetracycline(45.9%), sulfamethoxazole(36.5%) ,ampicillin,(35.9%) and trimethoprim (30.6%)
- ampicillin resistance increased from 28% in 2021 to 36% in 2023
- tetracycline resistance decreased from 62.1% in 2017 to 45.9% last year.



AMP- Ampicillin, CHL- Chloramphenicol, CIP-Ciprofloxacin, GEN- Gentamicin, SMX- Sulfamethoxazole, TMP- Trimethoprim



Ciprofloxacin Resistance in commensal *E. coli* from pigs, 2021

iNAP – Ireland’s National Action Plans on AMR



2017 – 2020

iNAP1



PROTECTING
ANTIBIOTICS
FOR THE FUTURE



ANTAIBHEATHAIGH
A CHOSAINT
DON TODHCHAÍ



2021 – 2025

iNAP 2



OBAIR LE CHÉILE CHUN ÁBHAIR
FHRITHMHIOCRÓBACHA
A CHOSAINT DON TODHCHAÍ



WORKING TOGETHER TO
PROTECT ANTIMICROBIALS
FOR THE FUTURE



2026 – 2030

iNAP3



OBAIR LE CHÉILE CHUN ÁBHAIR
FHRITHMHIOCRÓBACHA
A CHOSAINT DON TODHCHAÍ



WORKING TOGETHER TO
PROTECT ANTIMICROBIALS
FOR THE FUTURE

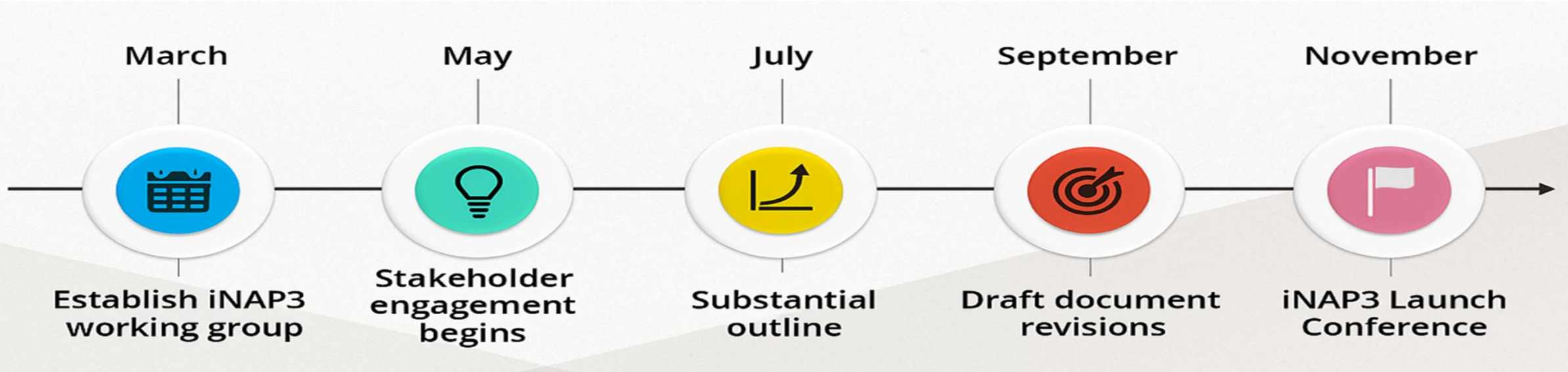
Aim of Ireland’s National Action Plan on AMR

The overall goal of iNAP is to ensure, for as long as possible, the availability of effective antibiotic treatment options for both human and animal populations, with safe medicines that are quality assured, used in a responsible way, and accessible to all who need them.

Background



- Collaboration between Department of Health (DoH), Department of Agriculture, Food and the Marine (DAFM) and the Environmental Protection Agency (EPA).
- Extensive stakeholder engagement.
- Public consultation on AMR.



Purpose of consultation

The Department of Health and the Department of Agriculture, Food and the Marine are seeking views from the public to inform the development of a new action plan on antimicrobial resistance (AMR) for Ireland.

Food and the Marine

Working in Partnership

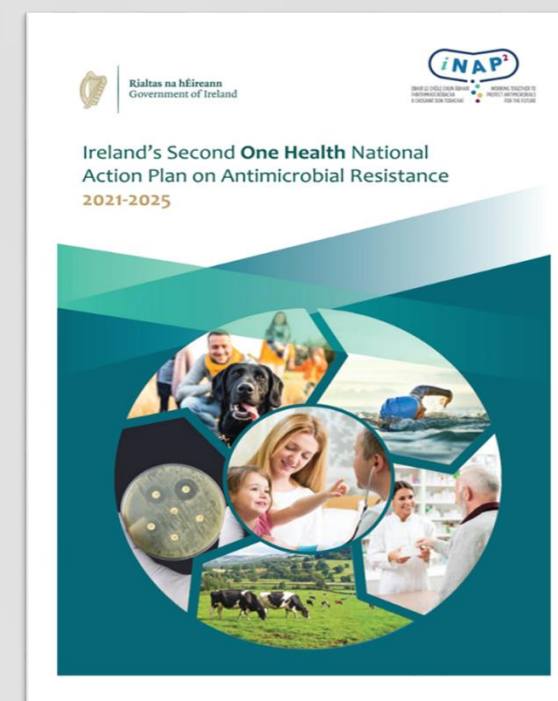
A collection of logos for various partner organizations, arranged in a grid. The logos include:

- DAFM (An Roinn Talmhaíochta, Bia agus Mara)
- EPA (Environmental Protection Agency)
- AHI (Animal Health Ireland)
- APHA (Animal and Plant Health Inspection Service)
- Bord Bia (Irish Food Board)
- Food Safety (Authority of Ireland)
- ICMSA (Irish Cattle Marketing Society)
- igfa (Irish Food and Food Association)
- MI (Meat Industry Ireland)
- Teagasc (Teagasc Food Research Centre)
- UCD (University College Dublin)
- safefood (The Food Safety and Food Protection Authority)
- Veterinary Ireland
- An Roinn Sláinte (Department of Health)

Achievements in iNAP2



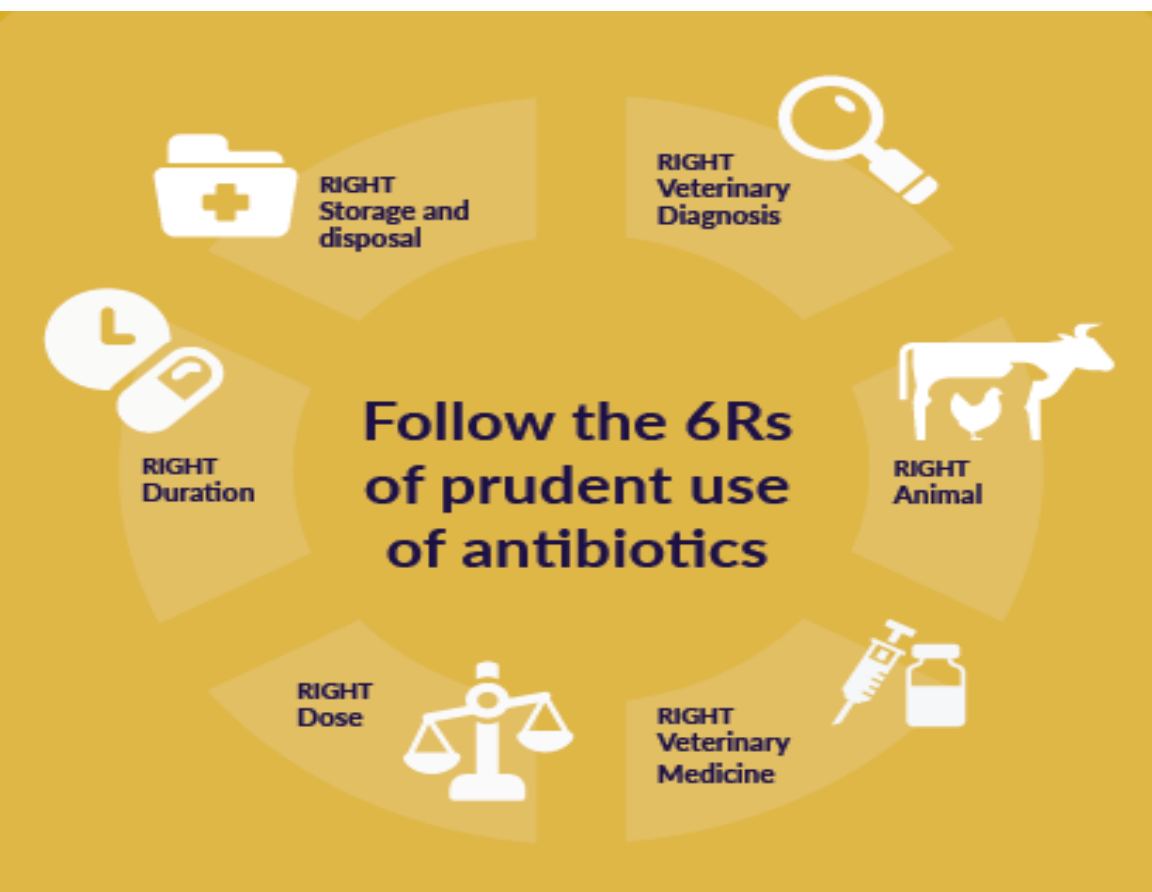
- 50% reduction in the sales of highest priority critically important antimicrobials (HPCIAAs) for use in food producing animals between 2018 and 2023.
- 25% overall reduction in antimicrobial sales for food producing animals.
- The development and implementation of the National Veterinary Prescription System (NVPS).
- Progress continued through the antimicrobial use pig database. Data from this, along with HPRA sales data, show a strong reduction in group treatments with in-feed premixes, with sales between 2021 and 2022 falling 43%, before a small increase in 2023.



What's new in iNAP3?



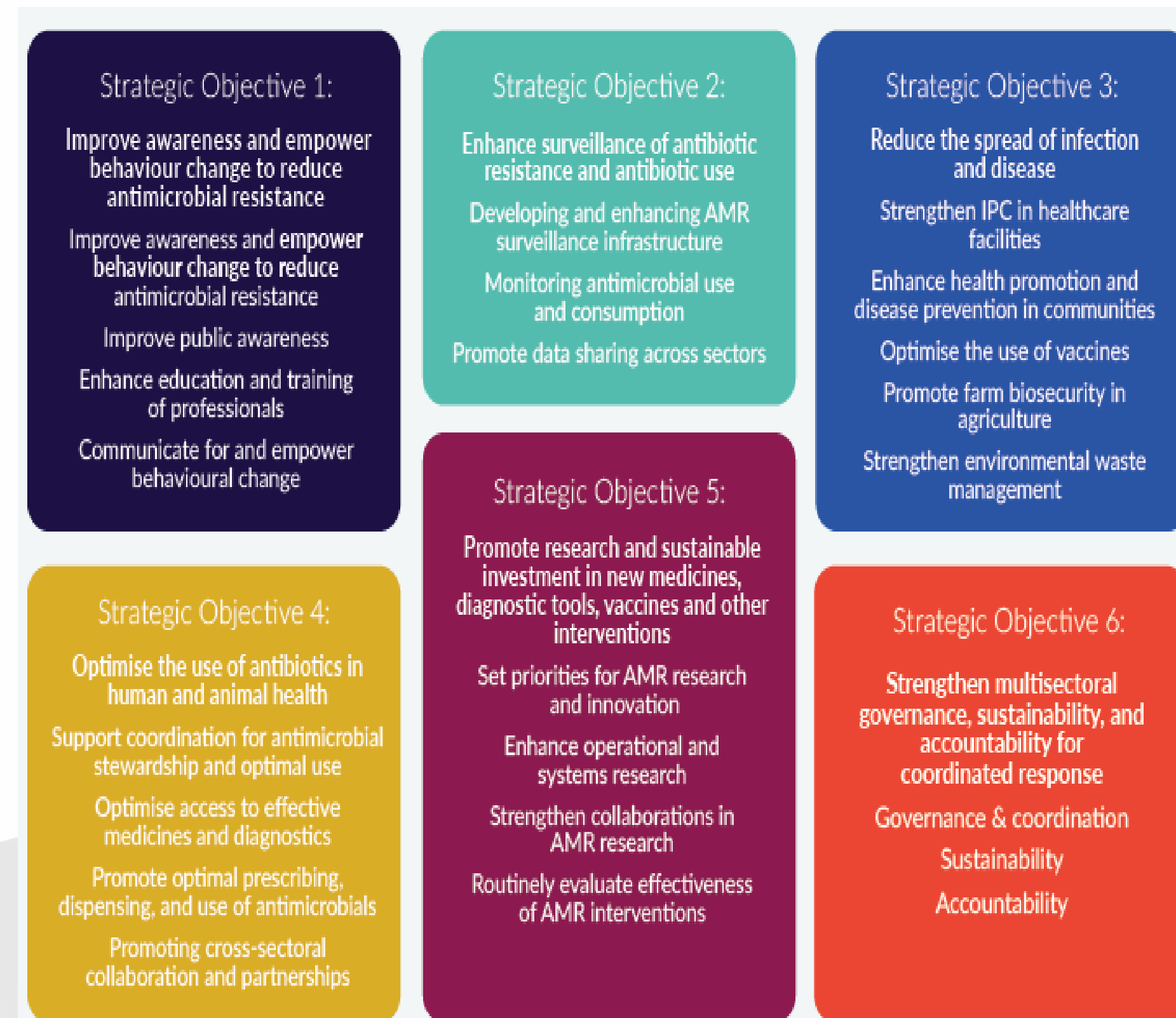
- Launched 17th November 2025.
- New 6th strategic objective- focusing on strengthening multisectoral governance, sustainability and accountability.
- Increased emphasis on communication, behaviour change and education in tackling AMR.
- Renewed focus on biosecurity and infection.
- Shorter, public facing document.



6 Strategic Objectives



1. Increase Knowledge and awareness
2. Enhanced Surveillance
3. Reduce spread of infection and disease
4. Optimise Use of Antibiotics
5. Research & Innovation
6. Strengthening multisectoral governance, sustainability and accountability for a coordinated response.

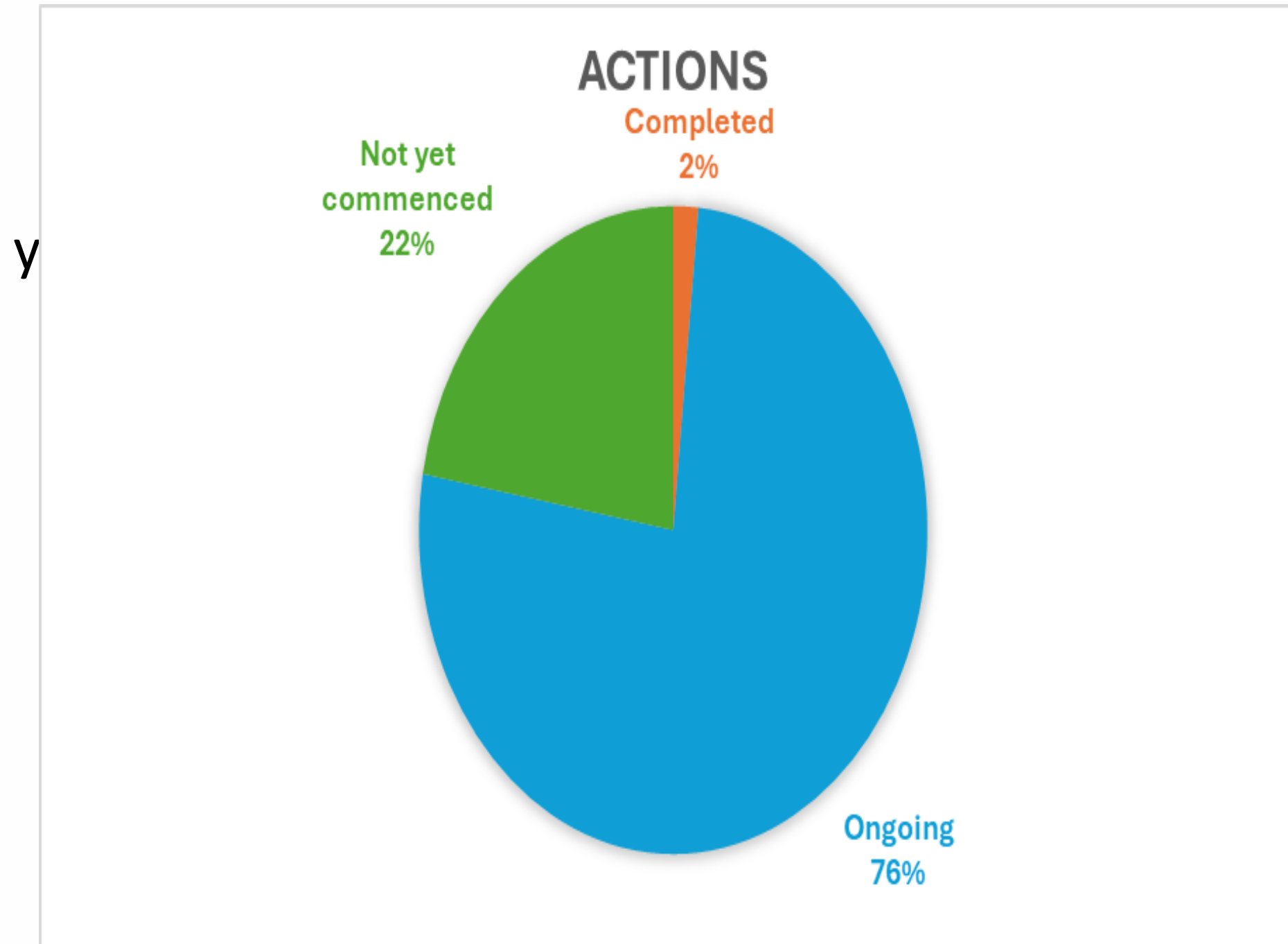


iNAP3 Actions



62 actions in total

- 47 actions ongoing
- 14 action



leted

Working in Partnership

An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture, Food and the Marine

ahi Animal Health Ireland
APHA
Bord Bia Irish Food Board
epa Environmental Protection Agency
Food Safety AUTHORITY OF IRELAND
ICMSA
icos Irish Cooperative Organisation Society
IFA
igfa Feeding the Food Chain
MI Meat Industry Ireland
Teagasc
UCD
safefood
Veterinary Ireland
An Roinn Sláinte Department of Health



An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine

Animal health, AMR and the NVPS

Darran Smyth, HEO NVPS

24th June 2026



**An Roinn Talmhaíochta,
Bia agus Mara**
Department of Agriculture,
Food and the Marine

One Health

One Health World



Animal health and human health are interlinked and interdependent.

Protecting the health of animals protects human health.

Protecting human health protects animal health.

One Health World



Microbes can spread between animal and human populations.

Antimicrobial resistance requires a co-ordinated One Health approach.



AMR in food-producing animals

Food-producing animals infected with resistant bacteria and superbugs may:

- experience increased suffering.
- have longer healing times.
- need more expensive treatments.
- have reduced productivity.



AMR in food-producing animals

Consequences for humans:

- Increased losses for farmers.
- Impact on food security.
- Increased microbial resistance to key medicines.
- Transmission of resistant bacteria and microbes to animal keepers.



AMR in companion animals

Cats, dogs and other companion animals infected with resistant bacteria and superbugs can:

- have compromised health.
- require stronger or longer treatments.

Resistant microbes can pass between pets and humans.



**An Roinn Talmhaíochta,
Bia agus Mara**
Department of Agriculture,
Food and the Marine

National Veterinary Prescription System



What is the NVPS?

The National Veterinary Prescription System (NVPS) is a secure electronic prescription system developed by the Department of Agriculture, Food and the Marine (DAFM).

The NVPS allows for the digital generation of prescriptions for food-producing animals and equines.

Non-dispensed prescriptions are available for dispensing to all licensed outlets nationwide.

The NVPS collects prescription-level usage-data electronically.

This assists DAFM meet Ireland's EU commitment to submit annual veterinary medicinal usage in the global battle against antimicrobial resistance.

NVPS and AMR



With stakeholder engagement and agreement, data from the NVPS can:

- Provide a deeper understanding of the current processes being used to prescribe, dispense and treat food producing animals.
- Assist evidence-informed policy development to address antimicrobial and antiparasitic resistance issues.
- Enhance other national policy development with relevant data.

NVPS in numbers



Number of uploads

- 762,289 individual prescriptions
- 1,381,997 line items

Usage

- 1366 vets in 414 practices have prescribed.
- 218 Licenced Retail premises have dispensed.
- 23 pharmacies have dispensed.

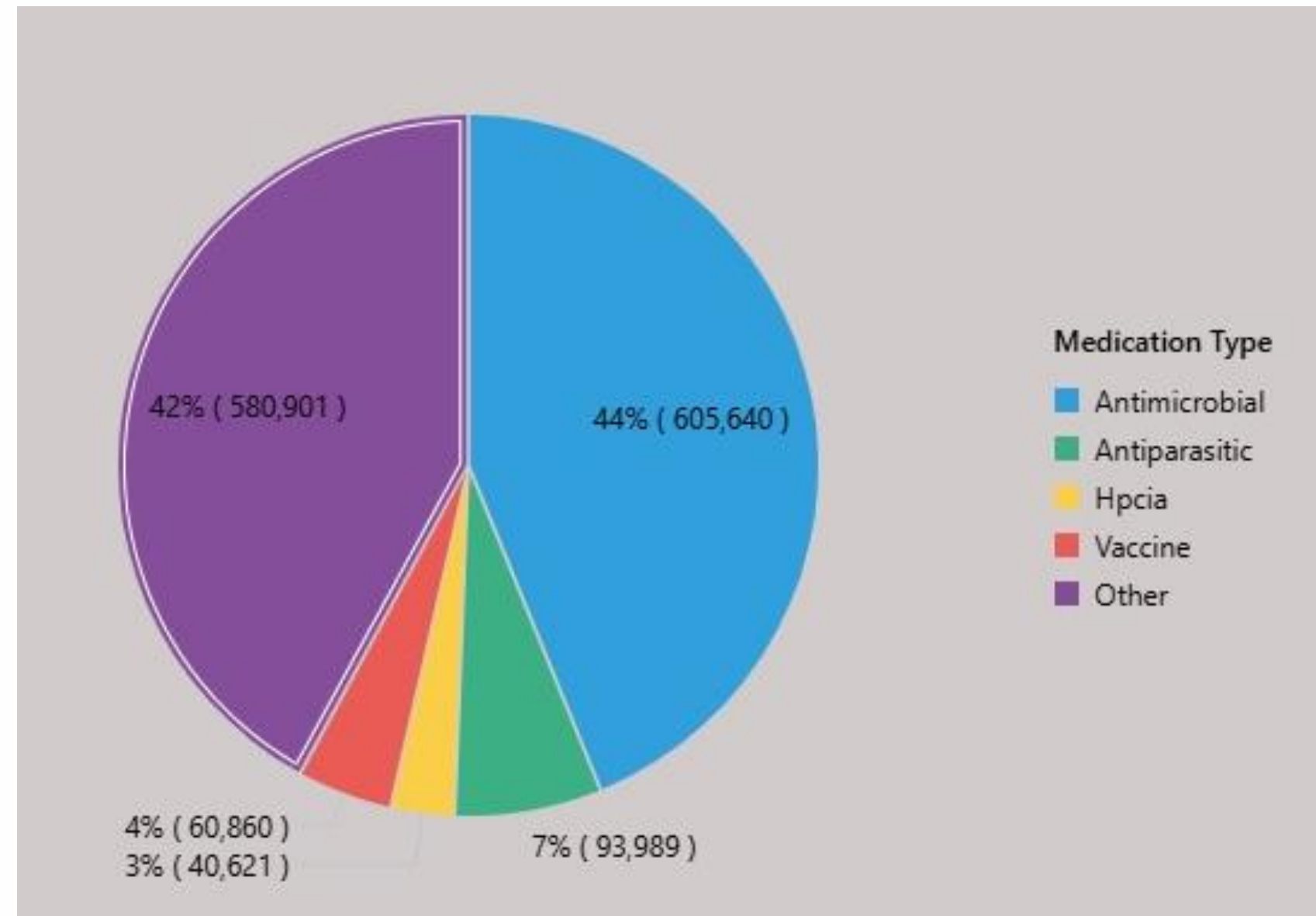
13 Jan 2025 – 1 June 2026



NVPS in numbers

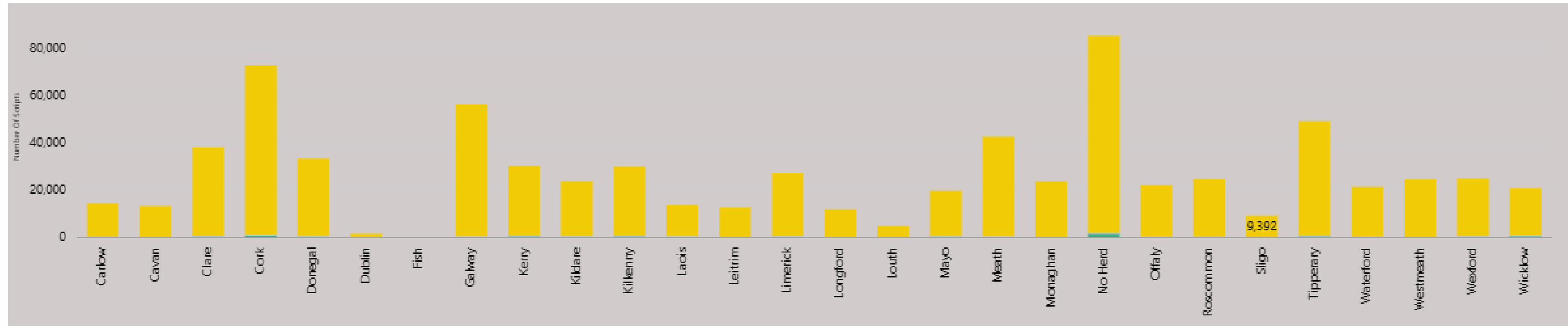
Line items by Medication Type

- 605,640 Antimicrobial
- 93,989 Antiparasitic
- 60,860 Vaccine
- 40,621 HPCIA
- 580,901 Other



13 Jan 2025 – 1 June 2026

NVPS dispensing by location



13 Jan 2025 – 1 June 2026



NVPS Pharmacy Dispensing

Over 2762 line items were dispensed by 23 pharmacies since 13 Jan 2025. Dispensing of NVPS prescriptions through pharmacies has increased since the up-regulation of anti-parasitics on 1 Dec 2025.

Medicine Type	2025	2026
Antimicrobial	28	401
Antiparasitic	8	1131
Vaccine	29	65
HPCIA	0	16
Anti-Inflammatory	17	243
Steroid	3	46
Hormones	6	232
Antiprotozoal	1	177

13 Jan 2025 – 1 June 2026



**An Roinn Talmhaíochta,
Bia agus Mara**
Department of Agriculture,
Food and the Marine

Animal health and pharmacies

Pharmacies, AMR and animal health



Animal health is linked to human health.

Antimicrobial residues and resistant microbes can enter the environment through human activities.

Superbugs can move through ecosystems.

Resistant bacteria and other microbes have been found in birds, fish and wild mammals in remote areas.

AMR Stewardship protects our pets, our livestock and wild animals.



What can I do?

Direct Action

Register to dispense medications for food-producing animals through the NVPS.

Ensure animal keepers understand the importance of finishing courses of medication and safe disposal of unused medications.

Indirect Action

Reducing anti-microbial use in humans will benefit animals.

Contacting the NVPS



NVPS Helpdesk: 01 505 8832

Open 9am – 5pm, Monday to Friday

Email: nvps@agriculture.gov.ie

Guides & Forms: www.gov.ie/nvps

*This link will bring you directly to the NVPS page. Guides can be found under **Training** and registration forms under **Registration Process**.*