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POLICY BRIEF

Human, Public Health and Antimicrobial Resistance

Governance, Clinical Stewardship, Community Engagement & One Health Action Against AMR

Based on the ONE-Bridge Workshop · ISGlobal, Palau Macaya, Barcelona · 11–12 November 2025

Executive Summary

Antimicrobial resistance (AMR) is one of the most important health problems worldwide, declared as such by the World Health Organization. It is not a future threat: it is already causing treatment failures, prolonged illness, higher mortality, and unsustainable healthcare costs across Europe and globally. Addressing it requires action simultaneously at community, primary care, hospital, and intermediate care levels — and it requires doing so through a One Health lens, because resistance emerges in humans, animals, and the environment and can disseminate freely between these three niches.

The ONE-Bridge Workshop held in Barcelona identified six domains where action is most urgently needed: antibiotic consumption surveillance, optimising use through stewardship, rapid microbiological diagnosis, access to and research into new antibiotics, infection prevention and control, and resistance surveillance. None of these can succeed in isolation. All require governance, funding, multidisciplinary collaboration, and a population that understands why antibiotic stewardship is everyone's responsibility.

80–90% Of all antibiotic prescriptions in human health are issued in primary care	**3 niches** AMR emerges and disseminates across humans, animals, and the environment — One Health is not optional	**6 domains** Surveillance · Stewardship · Diagnosis · New antibiotics · IPC · Resistance monitoring	**NAPs** National Action Plans must be built on One Health, measurable objectives, and stakeholder representation from the outset

1. AMR Is a One Health Problem — and Must Be Addressed as One

AMR is one of the most important health problems worldwide declared by the World Health Organization. This problem has to be addressed from a One Health perspective, because AMR emerges in humans, animals and environment and can disseminate between these three niches.

The solution to the AMR crisis needs to be addressed in different aspects: antibiotic consumption surveillance, optimizing antibiotic use and AMS, rapid microbiological diagnosis, access to new antibiotics, research in new antibiotics, resistant transmission prevention (IPC), and resistance surveillance.

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CORE PRINCIPLE	*Treating AMR as a clinical problem alone — to be addressed hospital by hospital, prescription by prescription — is insufficient. The emergence of resistance in agricultural settings, its dissemination through the food chain and environment, and its global spread through travel and trade mean that any strategy confined to a single sector will fail.*

2. Community-Level Drivers and Mitigation

At community level, several factors favor the emergence of resistance, including: i) the circulation of resistant strains originated in the hospital; ii) international trips that allow the dissemination of resistant bacteria worldwide in a short period of time; iii) contaminated food; iv) poor sanitary and hygienic conditions; v) inadequate water treatment; and vi) antibiotics abuse.

To mitigate the emergence of resistance, several measures should to be taken into account: i) strict adherence to prescribed treatment; ii) respect the duration of treatment; iii) avoid self-medication with antibiotics; iv) cook and handle food appropriately; and to perform an appropriate hand washing.

POLICY IMPLICATION	*Community-level AMR drivers are not exclusively clinical — they include water infrastructure, food safety systems, travel health, and public literacy on antibiotic use. Effective AMR policy must therefore reach beyond the health sector into environmental management, food regulation, and public education.*

3. Hospital-Level Measures: IPC and AMS

At hospital level, Infection Control and Prevention (IPC) and Antimicrobial Stewardship (AMS) measures are key to avoid the emergence and dissemination of AMR.

Infection Control Committee

In each hospital, it is needed an Infection Control Committee which goal is to prevent the incidence and spread of hospital associated infections (HIAs) within the healthcare facilities. This committee should be formed by the Infection Control team members and professionals from ICU, traumatology, pharmacy, general surgery, catering, engineering, and hospital administration, being the responsible person a specialist physician in infectious diseases or epidemiology.

Its functions should be: obtain and manage critical microbiological data and information, including surveillance data; develop and recommend policies and procedures pertaining to infection control; recognize and investigate outbreaks of infections in the hospital and community; intervene directly to prevent infections, educating and training health care workers, patients, and non-medical caregivers; and address food handling, laundry handling, cleaning procedures, visitation policies, and direct patient care practices.

Antimicrobial Stewardship (AMS) Programmes

AMS programs are institutional multidisciplinary programs that intend to improve clinical responses through an appropriate use of antimicrobials. Their objectives are directed to reduce the selection

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and transmission of resistant pathogens, to reduce of adverse effects, and to ensure cost-effectiveness of the measures taken.

An AMS team should be formed by an infectious disease specialist, an antimicrobial expert pharmacist, a microbiology expert in AMR, and an intensive care physician. Its functions involve the monitoring of antimicrobial use and expenses, prescription quality and results (indicators and resistances), to develop antimicrobial therapy guidelines; perform audits and the corresponding advice, and to facilitate education and communication among the health professionals.

POLICY IMPLICATION	*IPC and AMS are not optional quality improvements — they are the structural mechanisms through which hospital-level AMR is contained. Every hospital must have both a functioning Infection Control Committee and a dedicated AMS team with clear mandates, sufficient staffing, and institutional authority to act.*

4. Intermediate Care Facilities: A Critical and Underfunded Gap

Intermediate Care Facilities (ICFs) provide extended care for individuals with complex medical needs and extended stays, where multi-drug resistant organisms infections are even more challenging due to patient vulnerability and resource constraints. An ageing population, and a change in the way we treat certain conditions, has increased the flow of patients from hospitals to Intermediate Care settings.

The creation of multidisciplinary groups to facilitate the joint management of infections in ICF is just the starting point. International cooperation is necessary to share actions and design collaboration programmes.

Although there is evidence that Antimicrobial Stewardship programmes in Intermediate care settings improve patient clinical outcomes, there is still a lack of high-level support and sustained funding for interventions on IPC, antimicrobial stewardship and surveillance.

CRITICAL GAP	*Evidence supports AMS in intermediate care — but political and financial commitment has not followed the evidence. As patient flow from hospitals to ICFs increases with population ageing, this gap is becoming a systemic vulnerability in the AMR response chain. Sustained funding and governance for IPC and stewardship in ICFs is not a discretionary investment — it is a patient safety necessity.*

5. Primary Care: The Frontline of the AMR Challenge

Primary care covers 80-90% of all antibiotic prescriptions in human health. In primary care, the patient flow between healthcare services increasing the antibiotic resistance in the community.

For tackle against AMR in primary care, it is needed more institutional support (governance and financial), to increase the territorial antimicrobial stewardship teams; to increase the knowledge among clinical staff on antibiotic prescribing associated with each pathology and about the antibiotic susceptibility of the main microorganisms causing each pathology; training and ensure proper

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dissemination of information professionals and general public to promote behaviour change regarding antimicrobial use.

POLICY IMPLICATION	*If 80–90% of antibiotic prescriptions are issued in primary care, then 80–90% of the AMR stewardship challenge is a primary care challenge. Territorial AMS teams, prescriber education, and public-facing behaviour change campaigns are not peripheral activities — they are the core of an effective AMR response. Governance structures and funding must reflect this reality.*

6. One Health Networks: Connecting the Response

As commented previously, it is needed to address AMR from a One Health point of view. To achieve that, we need One Health networks in AMR to act as a central node, to facilitate collaboration and communication among stakeholders, including academic institutions, industry partners, government agencies, and non-governmental organizations. These networks will also be useful to promote awareness, exchange of ideas, support transdisciplinary projects, resources, best practices and enhancing the collective capacity to address global health challenges. And, finally, to offer industry services to boost Biotech and Pharmacy industry to find AMR alternatives/solutions.

The benefits that offer a One Health network are:

- To join efforts and sharing information on AMR worldwide
- To have a holistic understanding of health across humans, animals, plants and ecosystems
- To facilitate an early detection and prevention of zoonotic and environmental diseases integrated responses
- To improve coordination across disciplines and sectors
- To promote coherent policies for the rational use of antimicrobials

7. National Action Plans: What Makes Them Work

In addition, to the One Health networks and at national level, European countries have developed their own National Action Plans against Antimicrobial resistance (NAP). To be successful, these plans have to consider a One Health Approach, covering human, animal and environmental compartments. It is important to have a data-collection system data for appropriate AMR surveillance. The Action Plans have to include stakeholder representation from the beginning and be involved in EU/global initiatives. In addition, they have to be built over measurable and achievable objectives, and consider communication and training as tools to reinforce for improving the actions against AMR.

WHAT SUCCESSFUL NAPs REQUIRE	*A One Health approach covering human, animal, and environmental compartments; a functioning data-collection system for AMR surveillance; stakeholder representation from the outset; alignment with EU and global initiatives; measurable and achievable objectives; and communication and training as structural tools — not afterthoughts.*

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8. Policy Recommendations

8.1 Governance and Funding

1. **REC 1:** Establish mandatory IPC Committees and AMS programmes in all hospitals, with defined multidisciplinary composition, clear mandates, and protected resources.

IPC Committees and AMS teams must be required by law, not left to institutional discretion. Their composition — infectious disease specialists, pharmacists, microbiologists, ICU physicians, and others — should be standardised. Their findings must feed into national AMR surveillance systems.

2. **REC 2:** Extend AMS governance and funding explicitly to Intermediate Care Facilities.

ICFs represent a growing and currently under-protected link in the AMR chain. National health ministries must provide dedicated governance frameworks and sustained funding for IPC and stewardship in ICFs, commensurate with the increasing patient flow from hospitals into these settings.

3. **REC 3:** Expand territorial AMS teams in primary care to reach all prescribers.

Given that primary care accounts for 80–90% of antibiotic prescriptions, territorial stewardship teams must be scaled to match the challenge. Every primary care clinician should have access to specialist AMS guidance, updated prescribing protocols, and pathogen-specific susceptibility data for their region.

8.2 Surveillance and Data

4. **REC 4:** Implement integrated One Health AMR data systems linking human, veterinary, and environmental surveillance.

National AMR surveillance systems must connect clinical, veterinary, and environmental data streams. Resistance patterns in agriculture, livestock, water systems, and food chains must be visible alongside clinical data in a single actionable platform. Data without integration is noise.

5. **REC 5:** Ensure National Action Plans are built on measurable objectives with defined timelines and accountability mechanisms.

NAPs that lack measurable targets, independent evaluation mechanisms, and political accountability structures will not deliver. EU-level peer review of NAP implementation progress should be formalised as a condition of EU4Health and Horizon Europe AMR-related funding.

8.3 Education, Behaviour Change, and Public Engagement

6. **REC 6:** Invest in sustained public education campaigns on appropriate antibiotic use, targeting both behaviour change and health literacy.

Self-medication with antibiotics, non-completion of courses, and inappropriate demand pressure on prescribers are community-level drivers of resistance that require sustained, evidence-based communication campaigns. These must be part of every NAP, with dedicated funding independent of clinical programme budgets.

7. **REC 7:** Embed AMR literacy into the professional training of all healthcare workers — not only specialists.

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General practitioners, nurses, pharmacists, dentists, and veterinarians are all frontline AMR actors. Their training must include antibiotic stewardship principles, pathogen-specific prescribing guidance, and communication skills for managing patient expectation and demand.

8.4 One Health Networks and International Cooperation

8. **REC 8:** Establish and fund national One Health AMR networks as permanent coordination infrastructure — not time-limited projects.

One Health AMR networks connecting academic institutions, government agencies, NGOs, and industry must be institutionalised with stable funding. Their role as central nodes for stakeholder coordination, awareness promotion, and transdisciplinary research support is too important to depend on project cycles.

9. **REC 9:** Ensure full stakeholder representation — including civil society and patient organisations — in NAP design and revision from the outset.

Action Plans designed without the people they affect are less likely to be trusted, adopted, or effective. Stakeholder engagement is not a consultation exercise at the end of a drafting process — it is a structural requirement for legitimate and workable policy.

9. Conclusion

AMR is not waiting for political consensus. It is already reshaping clinical practice, increasing treatment costs, and claiming lives preventable with appropriate governance. The Barcelona workshop made clear that the tools to address it exist across every level of the health system — from the community measures that reduce inappropriate antibiotic use, to the hospital structures that contain resistant organisms, to the national plans and international networks that coordinate the response.

What is consistently missing is not knowledge or technology — it is institutional commitment, sustained funding, and the political will to treat AMR with the urgency it demands. The One Health framework provides the integrating logic. The recommendations in this brief provide the specific actions. The question is whether health systems and governments will act before the resistance crisis deepens further.

FINAL MESSAGE	*AMR emerges across humans, animals, and the environment. It can only be contained across all three. One Health networks, National Action Plans built on measurable objectives, and governance structures that reach from community pharmacies to ICF wards are not aspirational. They are the minimum functional architecture of a serious AMR response.*

Source

This policy brief is based on the ONE-Bridge Workshop 'Human, Public Health and Antimicrobial Resistance: What We Have to Know?', organized by ISGlobal (Barcelona Institute for Global Health) on 11–12 November 2025 at Palau Macaya, Barcelona, as part of the ONE-Bridge in Health project. ONE-Bridge consortium: University of Patras, Technical University Dresden, CNRS France, ISGlobal Spain, EMVIO.

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