

PREAMBLE: OUR CONCERN

Antimicrobial therapies, including antibiotics, are powerful medicines that help prevent and treat infections caused by pathogens including bacteria, fungi, viruses, and parasites. As with most medicines, these life-saving agents bring both benefits and risks and must be used carefully, only when needed.

Antimicrobial resistance (AMR) occurs when these pathogens change over time and no longer respond to medicines, making infections harder to treat and increasing the risk of disease spread, severe illness (including sepsis), and death. As a result, the medicines become ineffective and infections persist in the body, increasing the risk of spread to others.¹ AMR is an increasingly serious public health threat, risking the effective prevention and treatment of infections.

AMR is estimated to be responsible for at least 700,000 deaths globally each year.² In the US alone, at least 2.8 million people get an antibiotic-resistant infection and more than 35,000 people die,³ while in Europe, 33,000 people die from AMR each year.⁴ In India, 58,000 neonatal sepsis deaths were attributed to drug resistant infections in 2013,⁵ and in Japan, drug-resistant bacteria killed more than 8,000 people in 2017.⁶ In China, AMR is expected to cause 1 million premature deaths annually by 2050;⁷ across Latin America and Africa, more than 800,000 deaths are expected to be due to AMR by 2050.⁸ OECD estimates that annual costs of AMR could be up to \$3.5 billion per year on average across 33 countries.⁹

AMR has a direct impact on human health and carries a heavy economic burden. For example, minor infections become serious medical emergencies; surgeries and organ transplants become more difficult to perform; the ability to travel is reduced, and costs grow exponentially due to extended hospital stays and complex treatment procedures.

Patients – especially those with chronic conditions – are particularly vulnerable to healthcare-associated infections (HAIs) and drug-resistant bacteria and fungi. Many routine healthcare procedures, such as operations, often require antibiotics to prevent or manage infections. Approximately 75% of AMR cases are due to HAIs, occurring mostly in hospitals or other healthcare settings.¹⁰

Further, the current global COVID-19 pandemic is accelerating the threat of AMR, as widespread antibiotic use to manage secondary bacterial infections in COVID-19 patients highlights the urgent need to better understand co-infections and enable antimicrobial stewardship (ensuring that antimicrobials are used appropriately, only when needed).^{11,12} Various studies from around the world have shown that more than 70% of COVID-19 patients have received antibiotic treatment, even though only 8-15% were shown to have a bacterial infection.^{13,14, 15}

Addressing AMR requires a holistic and multisectoral approach – referred to as One Health – that aims to ensure that antimicrobial medicines continue to be effective and useful in humans, animals, and plants.¹⁶



OUR GOAL

Addressing AMR requires concerted efforts by all stakeholders.

We, as patients, patient caregivers, patient advocates and patient organisations have a goal to preserve the effectiveness of antimicrobial medicines for as long as possible, so that they can be successfully used in treatment of infections, as well as to advocate for rational use and equitable access to existing and new anti-infective medicines and vaccines for everyone, everywhere.

We, as patients, patient caregivers, patient advocates, patient organisations and citizens at large, can contribute to managing and helping to reduce the risk of AMR by raising awareness and educating the patient and public community about AMR risk factors, prevention measures, and appropriate antimicrobials use.

However, we can only be effective through collaboration with other stakeholders. Specifically, we call on governments, the medical community, and private sector to partner with us and take the actions needed to address the urgent fight against AMR.

OUR VIEWS ON KEY ISSUES AND ACTIONS

Through this Consensus Statement, we outline **key AMR issues** that are important to patients and citizens, and areas where action must be taken by all stakeholders, including us as patients, patient caregivers, patient advocates, patient organisations and general public.

1) Need for Increased AMR Awareness and Strengthened Health Literacy

AMR Awareness: Currently, awareness of AMR as an urgent public health crisis remains low among patients, healthcare providers, and the general population. Even when people have heard of AMR, they often do not understand the role antibiotics play in their patient care; for example, they may seek antibiotics for viral infections,¹⁷ which is not an effective treatment strategy. In one US survey, more than half of respondents either held a false belief that antibiotics cure viral infections or did not know enough to respond to the question.¹⁸ Such findings highlight a greater need for targeted education efforts, including efforts to improve health equity and reduce disparities.

Antibiotic Stewardship (Appropriate Use): Unjustified use of antimicrobials (e.g., antibiotics for non-bacterial infections, prescription and dispensing of unnecessary antimicrobial combinations and/or self-medication and use of non-prescribed antimicrobials) can increase the risk of AMR. There remains a need to improve optimal use of antimicrobials, including messaging on use and when to appropriately prescribe (e.g., not prescribing or asking for an antibiotic when not needed, using a broad-spectrum antibiotic when a narrow-spectrum one is appropriate, etc.).



2) Need for Improved Diagnostics and Evidence-Based Solutions

Diagnostics: Bacterial and viral infections can easily be confused, as they often present with similar symptoms.¹⁹ This uncertainty coupled with lack of funds or time for diagnostics leads to antibiotics being used, in many instances, when not needed.

Data Registries and Surveillance Systems: Understanding the current prescribing, dispensing, and intake of antibiotics by patients as well as knowing the types and trends of resistant bacteria and fungi helps healthcare providers, public health officials, and others better address the threat of AMR by detecting emerging resistance and trends; links between antimicrobial use and resistance; and where action is needed.

3) Need for a Patient-Centered Approach in Research, Development and Access

Research and Development of New Medicines: Research is essential to discover and develop new antimicrobial therapies and diagnostic technologies.²⁰ However, the development of new antimicrobial therapies faces economic challenges, as these therapies are put in 'reserve' for use in patients who do not respond to existing medicines, needed in order to reduce resistance. As a result, the pipeline of new medicines to treat priority resistant pathogens remains small and includes few novel candidates.^{21, 22} We are committed to supporting economic incentives that are needed to retain biopharmaceutical companies and developers in the business of developing new antimicrobial medicines²³ and stimulate a robust and vibrant research and development ecosystem in order to bring patients the medicines that they need.

Availability and Equitable Access: Availability of existing antimicrobials to vulnerable populations around the world and access to new antimicrobials for all patients who are at risk is a pre-requisite for the universal health coverage, to which all UN Member States have committed in the UN 2030 Sustainable Development Agenda.

4) Need to Strengthen Adherence to Holistic Public Health Measures

Infection Prevention and Control: Preventing infections and controlling the spread of resistant bacteria and fungi is of major importance when tackling antimicrobial resistance. Improving hygiene awareness (e.g., sanitation, hand washing, food and water safety), vaccination as a preventative measure for infectious diseases, and education on risk of sepsis (the body's life-threatening response to an infection) are a few key public health priorities that should be included in AMR public health efforts.

Environmental Impact: Pharmaceutical products can enter the environment at all stages of their life cycle. Discharge of antimicrobial compounds from humans or animals into the environment can drive the development of antimicrobial resistance.²⁴



OUR COMMITMENT TO ACTION AGAINST AMR

We, the patient community, pledge to support actions to address AMR:

- 1) Raise AMR Awareness and Strengthen Health Literacy: Educate people who use antimicrobials and those who use diagnostic tools meant to aid in determining appropriate antimicrobial usage. Support the education of healthcare providers who prescribe and dispense antimicrobials on actions they can take to reduce resistance, such as ensuring the right antimicrobial is prescribed according to clinical guidelines. Facilitate patient-clinical dialogues.
- 2) Advocate for Evidence-Based Solutions: Support the development and implementation of diagnostic tests to guide antimicrobial treatment including determining type of infection: bacterial, viral, fungal, or parasitic. Encourage efforts to guide antibiotic treatment strategies, including de-escalation if indicated by diagnostic information. Support patient registries and surveillance programs to gather antimicrobial usage data, including adding AMR information in existing disease registries (e.g., pharmacology databases, hospital records or electronic health records and surveillance systems.
- **3)** Ensure a Patient-Centered Approach in Antimicrobial Development and Access: Collaborate in efforts to research and develop new antimicrobials, vaccines, technologies, diagnostics²⁵ and sustainable investment in AMR-relevant innovation,²⁶ including promoting clinical trial involvement among a diverse patient and principal investigator community. Support equitable access to new antibiotics across all regions.
- 4) Strengthen Public Health Measures: Add AMR in infection prevention educational programs that include measures such as sanitation, hand washing, vaccination, food and water safety, and antibiotic use in agriculture all of which can decrease the spread of microorganisms resistant to antimicrobial medicines (in schools, healthcare facilities, animal farms, etc.).²⁷ Educate the general public on the proper disposal of antimicrobials to reduce environmental impact and provide a 'patient voice' to the development of consumer-discharge standards.



OUR CALL TO ACTION FOR OTHER STAKEHOLDERS

1) Governments and Policy Decision Makers

- Commit to a national AMR Action Plan
- Engage policymakers at all levels of government, including those responsible for implementing policy at both executive and legislative levels
- Harmonize regulatory guidance on development of new antimicrobial therapies and diagnostic tests across countries and regions.
- Create patient registries and strengthen AMR surveillance systems; share data across countries and regions.
- Continue to implement 'push' incentives such as research grants to develop new antimicrobial medicines.²⁸
- Implement 'pull' incentives for new antimicrobial development that support a vibrant and robust pipeline and ensures the sustainable supply of new, quality-assured antimicrobials.²⁹
- Remove access barriers to appropriate antimicrobial treatment, vaccine, or diagnostic.³⁰
- Address appropriate use of antimicrobials in food production (animal and plant agriculture).
- Provide adequate funding for public education on AMR.

2) Biopharmaceutical and Technology Companies

- Work with governments to incentivize antimicrobial development to address urgent threat priority pathogens.
- Invest in research and development for innovative antimicrobials and new dosage forms, vaccines, technologies, and diagnostics that meet the needs of patients.³¹
- Collaborate and share relevant non-proprietary data with different stakeholders (e.g., academia, consortia, small or medium-sized enterprises, public researchers, and industry) to help address key scientific, public health, and health equity challenges.³²
- Produce new antimicrobial medicines in sufficient volumes, ensure reliable supplies of medicines and diagnostic tools,³³ prioritize filing for registration in countries with the highest burden of relevant infectious diseases,³⁴ and ensure access.
- Minimize the environmental impact from the production and discharge of antimicrobials by meeting responsible manufacturing and supply chain standards.³⁵
- Invest in hygiene and sanitation systems that improve patient safety, reduce healthcare acquired infections, and reduce AMR.
- Commit to working with patients to meet their needs and help address disparities.



3) Physicians, Healthcare Providers, and the Healthcare Community (e.g., Pharmacists, Hygienists, etc.)

- Support surveillance systems to track the spread of AMR
- Educate the patient community about ways to reduce risks of AMR (e.g. not to use or borrow/lend leftover antibiotics). Empower patients and their caregivers by improving/strengthening communications on AMR.
- Use diagnostic tools to help guide antimicrobial treatment, select narrowspectrum antibiotic when possible, and de-escalate antibiotic treatment to a more narrow spectrum antibiotic as soon as indicated.
- Practice appropriate prescribing and use of antimicrobials (e.g. the correct therapeutic at the right time, for the right infection, in the appropriate patient population).
- Practice appropriate dispensing of antimicrobials (e.g. avoid dispensing non-prescribed antibiotics).
- Promote vaccinations as a means of helping to prevent the spread of infectious diseases.
- Support efforts to respond to new or unusual infectious diseases rapidly when they first appear to help keep new threats from spreading.³⁶
- Add formal AMR education in medical school curriculums.



OUR PLEDGE FOR INTERNATIONAL ENGAGEMENT AND COLLABORATION

The signatories of this Consensus Statement believe in the need for urgent global action and coordination to address AMR, building on the priorities and measures outlined in the World Health Organisation's <u>AMR Action Plan</u> (2015), the European Commission's <u>One Health</u> <u>Action Plan against AMR</u> (2017), individual countries' AMR national strategies and plans and other ongoing AMR efforts.

We, patients, patient caregivers, patient advocates and patient organisations can help raise the 'patient voice' on AMR-related programs and policies at international and national levels. We can help healthcare stakeholders ensure that their concerns are addressed at the global level and ensure that they make informed decisions at local levels.³⁷ Lastly, we can also signal to the general public that appropriate use of antimicrobial medicines is not a cost-cutting effort but one that will save lives.

We believe that our patient community representing patients, patient caregivers, patient advocates and patient organisations will be stronger in unity through initiating a global movement of patient engagement and empowerment in helping to curb the spread of AMR.

While this document outlines the actions that we as patient representatives endorse to collectively address AMR worldwide, we cannot do it alone. An understanding of the key issues and international collaboration among all stakeholders is crucial in developing and implementing tangible actions to address the challenges posed by AMR.

We, patient representatives across diseases and regions, stand ready to support the global healthcare and medical community in addressing AMR.

Supporting Organisations















Authors

- **Daniel Gallego**, President, La Federación Nacional De Asociaciones ALCER (Spain) and President, European Kidney Patients Federation (EU)
- **Thomas Heymann**, President and Executive Director, Sepsis Alliance (US)
- Ilona Köster-Steinebach, Patient Safety Advocate, Aktionsbündnis Patientensicherheit [German Coalition for Patient Safety], (Germany)
- **Dr Neda Milevska Kostova**, Board Vice Chair, International Alliance of Patients' Organizations (IAPO) and IAPO Patients for Patient Safety Observatory (Global)
- **Sabrina Nardi**, Patient Manager, Associazione Italiana contro le leucemie, linfomi e myeloma (Italy)
- Christine Verini, COO, CancerCare (US)
- Mariano Votta, Director, Cittadinanza attiva (Italy)

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resistance#: ": text=AMR%20occurs%20when%20bacteria%2C%20viruses, spread%2C%20severe%20illness%20and%20death

² World Health Organisation, <u>https://www.who.int/antimicrobial-resistance/interagency-coordination-</u>

¹ World Health Organisation, https://www.who.int/health-topics/antimicrobial-

³ US Centers for Disease Control, <u>https://www.cdc.gov/drugresistance/index.html</u>

group/IACG final summary EN.pdf?ua=1

³⁵ Access to Medicine Foundation,

⁴ European Commission, <u>https://ec.europa.eu/health/amr/antimicrobial-resistance_en</u> ⁵ CDDEP, https://www.cddep.org/wp-content/uploads/2017/06/swa edits 9.16.pdf ⁶ Japan Times, https://www.japantimes.co.jp/news/2019/12/05/national/science-health/drug-resistant-bacteria-8000-deaths-related-todrug-resistant-bacteria-killed-8000-in-japan/#:~:text=National%20%2F%20Science%20%26%20Health-,Drug%2Dresistant%20bacteria%20killed%20over%208%2C000,Japan%20in%202017%2C%20researchers%20estimate&text=Amid%20gro wing%20concern%20worldwide%20over,drug%2Dresistant%20bacteria%20in%202017. ⁷ Science, <u>https://www.sciencemag.org/news/2016/08/china-tackles-antimicrobial-resistance</u>. ⁸ O'Neill, J. Antimicrobial Resistance: Tackling a crisis for the health and wealth of nations. 2014. https://amrreview.org/sites/default/files/AMR%20Review%20Paper%20-%20Tackling%20a%20crisis%20for%20the%20health%20and%20wealth%20of%20nations 1.pdf ⁹ OECD, <u>https://read.oecd-ilibrary.org/social-issues-migration-health/stemming-the-superbug-tide_9789264307599-en#page17</u> ¹⁰ OECD, https://www.oecd.org/health/health-systems/AMR-Tackling-the-Burden-in-the-EU-OECD-ECDC-Briefing-Note-2019.pdf ¹¹ Nature Microbiology, May 2020, <u>https://www.nature.com/articles/s41564-020-0739-4</u> ¹² World Health Organisation, <u>https://www.who.int/bulletin/volumes/98/7/20-268573.pdf</u> ¹³ Huttner et al. COVID-19: don't neglect antimicrobial stewardship principles! Clinical Microbiology and Infection. 2020. https://www.clinicalmicrobiologyandinfection.com/article/S1198-743X(20)30232-9/pdf ¹⁴ Rawsom et al. Bacterial and Fungal Coinfection in Individuals With Coronavirus: A Rapid Review To Support COVID-19 Antimicrobial Prescribing. Cliinical Infectious Diseases. 02 May 2020. https://academic.oup.com/cid/article/doi/10.1093/cid/ciaa530/5828058 ¹⁵ Zhou et al. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. The Lancet. 2020. https://www.thelancet.com/action/showPdf?pii=S0140-6736%2820%2930566-3. ¹⁶ World Health Organization, <u>https://www.euro.who.int/en/health-topics/disease-prevention/antimicrobial-resistance/policy/one-health</u> ¹⁷ Kaiser Family Foundation, https://www.kff.org/other/issue-brief/data-note-public-awareness-antibiotic-resistance/ ¹⁸ Kaiser Family Foundation, <u>https://www.kff.org/other/issue-brief/data-note-public-awareness-antibiotic-resistance/</u> ¹⁹ AMR Control, <u>http://resistancecontrol.info/2016/diagnostics/diagnostic-innovation-for-antimicrobial-resistance/</u> ²⁰ World Health Organisation, https://www.who.int/antimicrobial-resistance/global-action-plan/research-development/en/ ²¹ World Health Organisation, <u>https://www.who.int/antimicrobial-resistance/interagency-coordination-</u> group/IACG Surveillance and Monitoring for AMU and AMR 110618.pdf?ua=1 ²² Access to Medicine Foundation, https://accesstomedicinefoundation.org/media/uploads/downloads/5e270aa36821a Antimicrobial Resistance Benchmark 2020.pdf ²³ McKenna, M. The antibiotic paradox: why companies can't afford to create life-saving drugs. Nature. 19 Aug 2020. https://www.nature.com/articles/d41586-020-02418-x ²⁴ European Public Health Alliance, https://epha.org/wp-content/uploads/2019/11/amr-roadmap-amr-stakeholder-network.pdf ²⁵ AMR Industry Alliance, https://www.amrindustryalliance.org/shared-goals/ ²⁶ AMR Industry Alliance, <u>https://www.amrindustryalliance.org/shared-goals/</u> ²⁷ World Health Organisation, <u>https://www.who.int/antimicrobial-resistance/global-action-plan/infection-prevention-control/en/</u> ²⁸ Access to Medicine Foundation, https://accesstomedicinefoundation.org/media/uploads/downloads/5e270aa36821a Antimicrobial Resistance Benchmark 2020.pdf ²⁹ AMR Industry Alliance, <u>https://www.amrindustryalliance.org/shared-goals/</u> ³⁰ AMR Industry Alliance, <u>https://www.amrindustryalliance.org/shared-goals/</u> ³¹ AMR Industry Alliance, <u>https://www.amrindustryalliance.org/shared-goals/</u> ³² AMR Industry Alliance, <u>https://www.amrindustryalliance.org/shared-goals/</u> ³³ Access to Medicine Foundation.

https://accesstomedicinefoundation.org/media/uploads/downloads/5e270aa36821a Antimicrobial Resistance Benchmark 2020.pdf ³⁴ AMR Industry Alliance, https://www.amrindustryalliance.org/shared-goals/

https://accesstomedicinefoundation.org/media/uploads/downloads/5e270aa36821a Antimicrobial Resistance Benchmark 2020.pdf ³⁶ CDC, https://www.cdc.gov/drugresistance/pdf/threats-report/2019-ar-threats-report-508.pdf

³⁷ Government of Australia, <u>https://www.amr.gov.au/australias-response/objective-1-communication-education-and-training</u>