

# THE **NEED** FOR A **MULTIFACETED** **APPROACH TO FIGHT AMR**



## **CONTEXT**

Antimicrobial Resistance (AMR) remains a monumental challenge for health systems, professionals and policymakers all over the world. Like a pandemic, it does not distinguish between borders and income, even though some countries are more affected than others, and reliable data is often hard to come by.

Identified as one of the top 10 global health threats by the World Health Organization (WHO), AMR is major cause of deaths and, with fatalities linked to drug-resistant infections growing every year, it burdens health systems and hurts economic activity.<sup>1</sup>

While health and agriculture are the most affected sectors, AMR is spreading into the environment with dire consequences for animals, humans, and plants.<sup>2</sup> As with other environment-related phenomena, human activity and growing population are major factors of a multi-dimensional conundrum.

## **IMPACT**

It is estimated that, in 2019, 4.95 million lives were lost to AMR, with even higher figures of patients whose diagnosis, treatment and recovery were hindered due to lack of appropriate diagnostics and effective antibiotics, especially at point of care (POC) level.<sup>3</sup>

Prolonged hospital stays and increased health-care costs due to AMR are draining public health systems thus limiting the ability to adequately respond to other health needs. Lack of updated and reliable data compounds the problem.

## **RESPONSE**

AMR has been gaining visibility in global and national health agendas for the last two decades, with the O'Neill Commission<sup>4</sup> seen as a distinct milestone and several WHO-led initiatives focusing on different aspects of AMR following suit in seeking coordination and standardising the collection of data on AMR for planning, prevention and intervention programmes.<sup>5</sup>

Interinstitutional cooperation built upon the One Health approach embodies the necessary collaboration between constituencies and cooperation between stakeholders.<sup>6,7</sup>

The fight against AMR has no boundaries and national action must be framed within regional strategies linked to global interventions. At the European Union level, the European Commission has been coordinating with member states in the design and implementation of guidelines on AMR. These guidelines encompass prevention and treatment, while supporting research and development (R&D) of new and effective antibiotics and adopting measures against antibiotic shortages through the European Health Emergency Preparedness and Response Authority (HERA).<sup>8</sup> The European Parliament, meanwhile, has been exploring the potential of public research and manufacturing of antibiotics, with special emphasis on Tuberculosis treatments, as part of a health-oriented industrial policy.<sup>9</sup>

## WAY FORWARD

The dearth of new and effective antibiotics and affordable and accessible diagnostics has a negative impact on the fight against AMR. While it reflects the unique nature of the products, it also highlights the imbalances and shortcomings of the current R&D model, fuelled by profit rather than medical needs.

There is a growing consensus around the need to support alternative innovation mechanisms<sup>10</sup> that, through prizes and other incentives not based on monopolies or market exclusivities, can deliver adequate means to counter and turn the tide on AMR. Efforts to steward research into development of viable products are being combined with more recent initiatives aimed at gathering knowledge behind publicly supported and/or not-for-profit models and their ability to populate the antibiotic pipeline.<sup>11</sup>

A comprehensive intervention against AMR cannot rely exclusively on antibiotics and must encompass other health technologies, such as vaccines and diagnostics. Even though the

manufacture of these products differs greatly from antibiotics, they face similar hurdles in terms of development and access (especially at POC level).



## OPPORTUNITIES

The fight against AMR should be genuinely transversal and cannot be an isolated effort. Linkages must be sought with established structures, such as WHO, the Joint Programming Initiative on Antimicrobial Resistance (JPIAMR) and the Transatlantic Taskforce on Antimicrobial Resistance (TATFAR). These in turn must contribute to ongoing initiatives, including Universal Health Coverage (UHC), Pandemic Preparedness and Response, and clinical trial transparency, and be taken in consideration in novel ventures involving health technologies, artificial intelligence and technology transfer.

It needs to be an inclusive endeavour that allows for the collaboration between actors, stakeholders and concerned parties around a shared agenda with mid- and long-term commitments and goals (in line with global calls like the Sustainable Development Goals or Eradication of Viral Hepatitis C). It must be comprehensive, harnessing all health technologies and making use of every public policy and legal instrument available to achieve a reduction of AMR in all settings.

## CONCLUSIONS

- An effective fight against AMR needs to be sustained (and sustainable) and incorporate experiences and knowledge from an array of fields.
- Access policies should be tailored and take account of specificities for vaccines, therapeutics and diagnostics in order to ensure a comprehensive and effective response.
- While public health authorities must play a leading role, collaboration of other actors (public and private) is critical.
- A common long- / mid-term agenda with clearly defined goals, discussed, agreed and endorsed by relevant actors is needed.
- Use of health-sensitive intellectual property management tools, as well as promotion and enhancement technology transfer, are fundamental steps for a successful fulfilment of objectives.
- The fight against AMR and the development of new and effective antibiotics needs to be linked to other global initiatives/challenges, especially pandemic response, SDGs and UHC.

## RECOMMENDATIONS

- Governments' public support for early research on antimicrobials and related technologies, through public research institutions or in partnership with private actors, should be acknowledged with accessibility clauses and guarantees of public return on public investment. Priority should be given to the development of affordable and accessible diagnostics.
- Intergovernmental Organisations Initiatives, such as the Quadripartite, should continue and the Antimicrobial Resistance Multi-Stakeholder Partnership Platform be consolidated as a mechanism to exchange and share information; other organs like WHO R&D observatory or FAO AMR Working Group should engage bilaterally and coordinate interactions with Member States. Closer synergies, shared priorities, should be sought with the Global Leaders Group on Anti-Microbial Resistance.
- Pharmaceutical industry must collaborate with governments and international organisations in assessing the pipeline for effective antibiotics and diagnostics; this would require disclosing research data, including clinical trials and compounds libraries.
- Civil society must keep AMR on the public agenda at national, regional and global levels, with special emphasis to the plight of the health systems in low- and middle-income countries, the consequences of increasing AMR rates in environmental settings, and the lack of sustained investment in the development and delivery of affordable and accessible diagnostics.

## ENDNOTES

1. See WORLD HEALTH ORGANISATION (WHO), 10 global health issues to track in 2021, 24 December 2020. Available at <https://www.who.int/news-room/spotlight/10-global-health-issues-to-track-in-2021>. Consulted 14.04.2023 and on the economic impact of AMR see JONAS, O.B.; IRWIN, A.; BERTHE, F.C.J.; LE GALL, F. G.; MARQUEZ, P.V. Drug-resistant infections : a threat to our economic future (Vol. 2) : final report (English). HNP/Agriculture Global Antimicrobial Resistance Initiative Washington, D.C.: World Bank Group. Available at <http://documents.worldbank.org/curated/en/323311493396993758/final-report>. Consulted 14.04. 2022.
2. LARSSON, D.G.J., FLACH, C.F. Antibiotic resistance in the environment. *Nat Rev Microbiol* 20, 257–269 (2022). Available at <https://doi.org/10.1038/s41579-021-00649-x>. Consulted 15.04.2023.
3. ANTIMICROBIAL RESISTANCE COLLABORATORS Global burden of bacterial antimicrobial resistance in 2019: a systematic analysis, *The Lancet* Volume 399, ISSUE 10325, P629-655, February 12, 2022. Available at [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(21\)02724-0/fulltext#%20](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)02724-0/fulltext#%20). Consulted 15.04.2023.
4. O'NEILL, J. (chair) Tackling drug-resistant Infections globally: Final report and Recommendations The review on Antimicrobial resistance. May 2016 Of special interest recommended intervention 5 "Promote new, rapid diagnostics to reduce Unnecessary use of antimicrobials", pp. 35-40. Available at [https://amr-review.org/sites/default/files/160525\\_Final%20paper\\_with%20cover.pdf](https://amr-review.org/sites/default/files/160525_Final%20paper_with%20cover.pdf). Consulted 8.03.2023.
5. Such as the Global Action Plan on Antimicrobial Resistance (GAP) and The Global Antimicrobial Resistance and Use Surveillance System (GLASS). Of special interest is a review of available methods and how they could be used in national surveillance contained in Molecular methods for antimicrobial resistance (AMR) diagnostics to enhance the Global Antimicrobial Resistance Surveillance System, WHO, September 2021. Available at <https://www.who.int/publications/i/item/WHO-WSI-AMR-2019.1>. Consulted 15.04.2023.
6. Best exemplified by the ongoing cooperation between the Food and Agriculture Organisation (FAO), the World Health Organization (WHO), the United Nations Environment Program (UNEP) and World Organisation for Animal Health (WOAH).
7. WHO Quadripartite launches a new platform to tackle antimicrobial resistance threat to human and animal health and ecosystems, 18.11.2022. Available at <https://www.who.int/news/item/18-11-2022-quadripartite-launches-a-new-platform-to-tackle-antimicrobial-resistance-threat-to-human-and-animal-health-and-ecosystems>. Consulted 8.03.2023.
8. As an example of cooperation between EU institutions, one must highlight the EU One Health Action plan initiated in 2017 and assessed twice a year. See EUROPEAN COMMISSION EU Action on Antimicrobial Resistance. Available at [https://health.ec.europa.eu/antimicrobial-resistance/eu-action-antimicrobial-resistance\\_en](https://health.ec.europa.eu/antimicrobial-resistance/eu-action-antimicrobial-resistance_en). Consulted 15.04.2023. On the growing role of HERA and articulation with other EU funding programmes see the European Commission, European Health and Digital Executive Agency, HERA AMR feasibility study on stockpiling : D1-D5 Final report, Publications Office of the European Union, 2022, <https://data.europa.eu/doi/10.2925/217655>. Consulted 15.04.2023. On collaboration with other bodies see WORLD HEALTH ORGANIZATION (WHO), The European Union and WHO further enhance their partnership for stronger pandemic preparedness and response, 8.12.22. Available at <https://www.who.int/news/item/08-12-2022-the-european-union-and-who-further-enhance-their-partnership-for-stronger-pandemic-preparedness-and-response>. Consulted 4.04.2023.
9. ANTUNES, L. Brief Tackling antimicrobial resistance: From science to pharmaceuticals policy, Panel for the Future of Science and Technology (STOA) European Parliament Research Service, 28.3.2023. Available at [https://www.europarl.europa.eu/stoa/en/document/EPRS\\_BRI\(2023\)740238](https://www.europarl.europa.eu/stoa/en/document/EPRS_BRI(2023)740238). Consulted 15.04.2023.
10. WHO, Lack of innovation set to undermine antibiotic performance and health gains, 22.6.22. Available at <https://www.who.int/news/item/22-06-2022-22-06-2022-lack-of-innovation-set-to-undermine-antibiotic-performance-and-health-gains>. Consulted 8.03.2023. GLOVER, R., SINGER, A.C., ROBERTS, A.P, KIRCHHELLE, C. Nimble innovation—a networked model for public antibiotic trials, *The Lancet* Volume 2, ISSUE 11, e637-e644, November 2021. Available at [https://www.thelancet.com/journals/lanmic/article/PIIS2666-5247\(21\)00182-8/fulltext](https://www.thelancet.com/journals/lanmic/article/PIIS2666-5247(21)00182-8/fulltext). Consulted 14.03.2023.
11. Endeavours like the Global Antibiotic Research and Development Partnership (GARDP) and Combating Antibiotic-Resistant Bacteria Biopharmaceutical Accelerator (CARB-X) React's Revisiting Effective Models to Advance the Antibiotic Pipeline (REMAAP). See ÅKERFELDT K. and CAPUTO SVENSSON A. Brief Identifying key bottlenecks in the early stages of antibiotic R&D and exploring public and not-for-profit solutions, React Europe, 12.04.2023. Available at <https://www.reactgroup.org/wp-content/uploads/2023/03/ReAct-Expert-Policy-Brief-bottlenecks-early-stages-antibiotic-RD-and-public-not-for-profit-solutions-ReAct-Europe-13-March-2023-webb.pdf>. Consulted 14.04.23.

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