

KNOCKING OUT ANTIMICROBIAL RESISTANCE

KNOCKING OUT AMR

The Microbiology Society is a membership charity for scientists interested in microbes. With over 7,000 expert members across the globe, we have access to a wide range of expertise and are well placed to provide support, evidence and advice to policymakers working to tackle the grand challenges. Perhaps one of the most pressing challenges we face is that of Antimicrobial Resistance (AMR). The Microbiology Society's new project, 'Knocking Out AMR', seeks to bring together experts working internationally on AMR across academia, industry, healthcare, and policy to support the development of solutions to this global health threat.

Antimicrobial Resistance (AMR) is one of the most urgent and devastating global health threats. AMR refers to disease-causing microbes evolving and gaining resistance to drugs and substances that were once effective treatments (antimicrobials). When microbes are exposed to antimicrobials they are put under a selective pressure that forces them to develop mechanisms to resist the antimicrobials to survive. Resistant microbes can then multiply and share their defence mechanisms with other microbes. Therefore, overuse and inappropriate use of antimicrobials increases the prevalence of AMR as the greater the use of antimicrobials,

the greater the chance of resistance developing.¹

While often referred to as the silent pandemic, recent estimates from the Global Research on Antimicrobial resistance (GRAM) study outline between 1.27 million deaths were attributable to, and 4.95 million deaths were associated with, AMR globally in 2019², making it one of the most urgent threats to public health today.

We are already witnessing the devastating consequences of AMR to healthcare systems, economies, the environment, and animal health. The World Bank estimates the global costs associated with AMR might exceed \$1 trillion USD annually by 2030³, and AMR will kill 10 million people per year by 2050⁴; more than cancer and diabetes combined.

We need to develop innovative solutions to minimise the growing global existential threat of AMR and we need to act now. Microbiologists in academia, industry and clinical settings are at the forefront of the fight against this threat both in the UK and internationally. However, to harness the power of these possible solutions, it's essential that the microbiology global community work collaboratively with decision-makers to raise the profile of AMR and to step-up a mandate for policy action to reduce and control its spread.

AMR is a truly cross-sectoral issue – it can spread between humans, between animals, and through the environment – so it is crucial that we focus on an interdisciplinary, solutions-driven approach within a 'One Health' context. To this end, the Microbiology Society has launched the 'Knocking Out

AMR' project – an ambitious, bold and extensive scheme of work aiming to promote feasible and effective solutions to AMR through cross-disciplinary and multi-sector collaboration worldwide. This project will be spearheaded by Dr Tina Joshi (University of Plymouth) and Dr Catrin Moore (St Georges, University of London).

The 'Knocking Out AMR' project will focus on:

1: Therapeutics and Vaccines

Using the Society's cross disciplinary expertise, the 'Knocking Out AMR' project will support activities in key areas such as research and development of preventative measures and alternative therapeutics; interdisciplinary co-working in the antimicrobial pipeline; and the reduction of inappropriate antimicrobial exposure.

2: Diagnostics and Surveillance

Through effective knowledge sharing in the UK and internationally, the 'Knocking Out AMR' project will act as a conduit between the Society's expert membership and external stakeholders in order to integrate efforts of those across different sectors working on diagnostics and surveillance.

3: Policy engagement

The 'Knocking Out AMR' project aims to drive knowledge exchange between AMR experts and policymakers in order to increase our collective voices and drive policy discourse around AMR in the UK and worldwide. We aim to ensure the full diversity of voices of microbiologists working on AMR are heard.

The 'Knocking Out AMR' project represents a unique opportunity to capitalise on our members' expertise and influence to shape the response to AMR. While addressing AMR is a monumental challenge, we believe that by working together we can bridge the gap between research and policy to develop and implement bold, innovative solutions to this pressing global health crisis.

We are keen to collaborate with those working across academia, industry, clinics and policy. To find out more about opportunities to get involved in 'Knocking Out AMR', please email knockingoutamr@microbiologysociety.org

References

- 1 **Microbiology Society.** Antimicrobial Resistance in the UK: Diagnostics and Surveillance. Available at: <https://microbiologysociety.org/publication/policy-briefings/antimicrobial-resistance-in-the-uk-diagnostics-and-surveillance.html>
- 2 **Antimicrobial Resistance Collaborators.** Global burden of bacterial antimicrobial resistance in 2019: a systematic analysis. *Lancet* 2022; 399:629.
- 3 **World Bank Group.** Drug-resistant infections: a threat to our economic future; 2017. <https://documents.worldbank.org/en/publication/documentsreports/documentdetail/323311493396993758/final-report> (accessed 15 December 2023).
- 4 **Review on Antimicrobial Resistance.** Tracking drug resistant infections globally: final report and recommendations; 2016. https://amr-review.org/sites/default/files/160525_Final%20paper_with%20cover.pdf (accessed 15 December 2023). ■