

Diagnostics to Address Antimicrobial Resistance

Antimicrobial resistance (AMR) is recognised as a major global threat to human health. The World Health Organization has declared AMR as “[one of the top 10](#) global public health threats facing humanity”. The misuse and overuse of antimicrobials are the key drivers in the development of resistance.

When managing patients with an infection, clinicians need to determine what is causing their illness so that they can safely prescribe the most appropriate therapy. Their decisions over which tests to perform and what treatments to prescribe will be influenced by a variety of factors. These include patient symptoms; type of infection; risk of severe patient illness; risks to others from pathogen transmission; stage of the disease; and availability of diagnostic tests. Currently, treatment decisions are often made without diagnostic tests, increasing the chance that an ineffective therapy could be prescribed, for example, an antibiotic to treat a viral infection, or a bacterial infection resistant to that drug.

Better availability and uptake of appropriate diagnostics, particularly those that are rapid and/or point of care, could support antimicrobial prescribing and stewardship. These will also contribute to efforts to manage and mitigate the challenges posed by AMR, including preserving the future effectiveness of antimicrobials. Antimicrobial stewardship requires an organisation and healthcare-system wide approach to promoting and monitoring judicious use of antimicrobials to preserve their future effectiveness.

This [report](#) by Health Action International and the [PHG Foundation](#) focuses on the use of diagnostic tests that can be used to characterise a patient’s infection to inform antimicrobial prescribing and support the reduction in unnecessary and/or ineffective use of antimicrobials, which in turn can help reduce the burden of antimicrobial resistance.

In it, we make a number of recommendations:

Investment: Support for diagnostic test development and validation. In particular, there is a need to bridge the gap between research and developing the evidence for implementation into clinical practice.

Access: Measures are required to improve access to testing addressing existing diagnostic laboratory (or other) infrastructure. A focus on flexible point of care technologies will improve access in areas of health systems with limited or no access to laboratory services.

Implementation: The COVID-19 pandemic has raised awareness of the clinical utility of rapid and easy to use diagnostics and created familiarity with their regular use. This increased awareness of and familiarity with rapid diagnostics could boost adoption of these tests to support prescribing. Novel test funding structures could incentivise implementation

as well as support for healthcare providers to use diagnostic tests for example appropriate professional guidance for the use of diagnostics for prescribing specific antimicrobials.

Awareness: Increasing knowledge and understanding of AMR in patients and healthcare providers, and how diagnostics could help to ensure that patients receive the optimal drug for their illness, will support antimicrobial stewardship.

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