

Lack of Diagnostics continues to Limit Progress on Mitigating Antimicrobial Resistance



[READ THE PUBLICATION](#)

Ferreira C, Gleeson B, Kapona O, Mendelson M.
[Diagnostic tests to mitigate the antimicrobial resistance pandemic—Still the problem child.](#)
 PLOS Global Public Health. 2022;2(6):e0000710. doi:10.1371/journal.pgph.0000710

Antimicrobial resistance is a major public health threat with a death toll reaching 4.95 million in 2019. Lack of diagnostics challenges the understanding of AMR and its true global burden. Indeed, diagnostics developments to date have focused on increasing laboratory surveillance capacity but improving data availability may not aid in appropriate prescribing at the front line.

To have an impact on antibiotic misuse, an urgent need exists for point-of-care diagnostics in regions where most prescribing is empiric. These diagnostics are fundamental to differentiate the cause of fever in children living in regions with low-resources and where bacterial, viral, and malarial infections predominate. **“Current commercially available diagnostics are not fit-for-purpose in low-resource settings, where diagnostics to drive antimicrobial stewardship is most needed,”** wrote the study authors.

Despite recent developments, low-resource regions still need access to an accurate, rapid, affordable, and easy to use point-of-care diagnostic test. Programs similar to the access to COVID-19 Tools (ACT)-Accelerator are required to reduce the costs of rapid diagnostic tests and provide funding for procurement in order to effectively combat antimicrobial resistance in low-resource settings.

Antimicrobial stewardship practices require distinguishing between bacterial and viral infections and identifying the causative pathogen, while understanding its resistance profile. Nucleic acid-based tests and next-generation sequencing have the potential to fulfill these needs, but limitations exist. For example, next-generation sequencing requires obtaining a bacterial culture, which is not feasible in low-resource settings. In addition, interpretation of resistance mutations needs to be simplified, with more progress made in automated phenotyping and microfluidics.

More work is needed to simplify the use and interpretation of rapid diagnostic tests to better adapt them to clinical settings, particularly in LMICs, in order to facilitate the implementation of antimicrobial stewardship programs.



“The same impetus and enthusiasm for investment and prioritization of diagnostics to help end the COVID-19 pandemic needs to be applied to AMR,” concluded the study authors.

“Without this, Jim O’Neill’s ambition of using diagnostics to direct all antimicrobial therapy will remain merely an aspiration, and we will still be counting the cost of the lack of diagnostics at the point-of-care and escalating deaths from AMR into the next decade.”