

Future Diagnostic Tests Should Allow for Personalized Antibiotic Therapies to Reduce Antimicrobial Resistance



This UK article states the case that optimizing antibiotic prescribing in the General Practitioner (GP) and community settings should be a priority for reducing antimicrobial resistance, since 80% of all antibiotics in the UK are prescribed in these settings.

The goal of antibiotic therapy should be to shorten the duration of symptoms or to avoid complications, but decisions regarding whether to prescribe antibiotics can be complex.

Diagnostic testing plays an important role in deciding whether to prescribe antibiotics and is a critical component of antimicrobial stewardship practices. However, limitations of diagnostic testing exist and include scope, speed, and accuracy. Tests are largely focused on distinguishing between bacterial and viral causes of infections, but cannot inform decisions about which antibiotic to prescribe or whether the bacteria present are disease causing or resident bacteria (commensal). A lack of funding incentives for GPs to implement new diagnostics also challenges the use of rapid diagnostic testing.

Future diagnostic tests should be cheaper and test results obtained quickly enough to help GPs make appropriate prescribing decisions. They should also distinguish between harmful bacteria and less threatening ones that may not require antibiotics. Finally, they should be used in combination with the overall assessment of the patient to help predict prognosis.

The ultimate goal is to achieve a personalized approach to prescribing, whereby antibiotics are only prescribed to those patients who really need them, in order to preserve antibiotic efficacy for future generations.



According to the study authors, “There is now a high probability that in the coming years we will have tests available that can tell us whether bacteria are present, what kind they are and which antibiotics will successfully treat the infection before we need to make a prescribing decision. Technology development is most successful when it is done in partnership with clinicians and researchers who are expert in the field, so that from the early stages of development the product evolves to be truly fit for purpose.”

REFERENCE

[Hayward G, Turner P. BSAC Vanguard Series: Antimicrobial resistance and the future of diagnostic testing. J Antimicrob Chemother. 2021;dkab418. doi:10.1093/jac/dkab418](#)