



# A research roadmap for optimising the use of antibiotics in humans

	Two Years	Five Years	Ten Years
Policy and strategic planning	<p><b>Analyse country-level</b> content of NAPs to consider the pace of development and implementation plans</p> <p><b>Align</b> policy interventions with acceptable, feasible, contextual, economic and sensitive recommendations</p>	<p><b>Identify</b> the role of stakeholders, including patients/public/citizens in strategy and policy</p> <p><b>Coordinate</b> across NAPs targeting public health</p>	<p><b>Evaluate</b> NAPs (through independent inquiry) and accelerate the learning</p>
Medicines management and prescribing systems	<p><b>Investigate</b> effective combinations of approaches to balance timely access with reducing inappropriate antimicrobial use</p> <p><b>Understand</b> effects of acute limited/reduced healthcare access on antimicrobial use and potential knock-on effects on patient safety</p> <p><b>Engage</b> patients, public and citizens in AMR research</p> <p><b>Investigate</b> impact of pandemic on antimicrobial use and AMS</p> <p><b>Investigate</b> effects of deprioritising non-pandemic research on infection-related medication safety and wider medicines optimisation</p>	<p><b>Identify mechanisms to manage</b> demand generation</p> <p><b>Address</b> public misconceptions and realign public health campaign messages with up-to-date evidence</p> <p><b>Incorporate</b> social science to develop effective communication strategies</p> <p><b>Investigate</b> the role of 'nudges' e.g. on drug package redesign, and prescribing architecture to change behaviour</p> <p><b>Understand</b> unintended consequences of reduced travel and socialisation (from external shocks such as a pandemic) on antimicrobial demand and supply</p> <p><b>Accelerate</b> safe and appropriate access of important new antimicrobials in high burden LMICs</p>	<p><b>Enhance</b> methods to increase population health literacy</p> <p>Establish economic evaluation of interventions</p> <p><b>Develop &amp; enhance</b> antimicrobial usage data capture, linkage and analysis for monitoring AMS</p> <p><b>Develop &amp; enhance</b> systematic drug monitoring across primary, secondary and social care sectors (e.g. therapeutic drug monitoring, efficacy and adverse drug events)</p> <p><b>Address</b> the data gaps in Watch and Reserve category antimicrobials which impede therapeutic optimisation</p>
Technological innovation	<p><b>Identify</b> what patient populations would benefit most from technology supporting antimicrobial optimisation</p> <p><b>Build</b> upon the momentum of mHealth and other electronic technologies being readily adopted in LMICs for the purpose of supporting antimicrobial optimisation in parallel to the wider adoption of technology in these settings</p> <p><b>Define</b> appropriate and standardised outcome measures for the assessment of success of technological interventions</p>	<p><b>Investigate</b> how new technologies for targeted and optimised antibiotic use can be implemented with least disruption to existing patient pathways</p> <p><b>Identify</b> mechanisms for the linkage of technology with non-communicable healthcare problems and chronic infections (such as TB and HIV) that can complicate acute infection management</p>	<p><b>Investigate</b> the scaleup and adoption of technology across HIC-LMIC</p> <p><b>Develop</b> and repurpose contextually appropriate, economical innovation and technology to optimise disease management</p>
Context, culture and behavioural research	<p><b>Investigate</b> power dynamics in the context of AMR and infection, to generate the knowledge to promote inclusivity, enable greater participation in health and facilitate capacity</p> <p><b>Develop</b> a better understanding of the extent to which these factors intersect with one another in high, low- and middle-income countries</p> <p><b>Characterise</b> the ways in which relative power and hierarchies across social constructs (e.g. race, gender and class) determine health-seeking and health-provision behaviours</p>	<p><b>Identify</b> contextually and culturally sensitive and responsive interventions that account for inequalities to effectively optimise health-seeking and health-provision behaviours</p> <p><b>Apply</b> pathway approach to research to promote better understanding of individual, teams, organisational, national and global IPC and antibiotic prescribing challenges and potential solutions</p> <p><b>Create structural change</b> in the framework of global health organisations to ensure agency and representation for populations vulnerable to being excluded</p> <p><b>Understand</b> and account for variation in health seeking and health providing behaviours to guide community, public, patient and citizen engagement in AMR</p>	<p><b>Assess</b> the mechanisms for scale-up through analysis of strategic and cultural contexts, improvements in the health and welfare of people in HICs and LMICs</p> <p><b>Take affirmative action</b> in including individuals from minority groups in decision and policy making, as well as disaggregation of key health indicator data by ethnicity</p>