

Consultation document: WHO strategic and operational priorities to address drug-resistant bacterial infections, 2025 – 2035

Note: This document is for consultation with Member States and other stakeholders ahead of the 154th meeting of WHO's Executive Board in January 2024. The WHO Director-General will submit a similar document as a report to the Executive Board. Key comments and feedback from the consultation will be referred to during Executive Board discussions.

I. INTRODUCTION

1. Antimicrobial resistance (AMR) is an urgent global health and socioeconomic crisis. Drug-resistant bacterial infections are estimated to cause 1.27 million global deaths per year¹. AMR threatens all age groups in all regions, with low- and middle-income countries most affected. AMR has significant impact on human and animal health, food production and the environment, and threatens the achievement of multiple Sustainable Development Goals. The World Bank estimates that, if not controlled, AMR will cause USD 1 trillion to 3.4 trillion annual losses to Gross Domestic Product by 2030 and an additional USD 1 trillion healthcare costs by 2050.²
2. The development and spread of AMR increases risks that common infections become impossible to treat and routine medical procedures become unsafe, including surgery and cancer treatment. This will reverse the gains made in modern medicine. In addition to the deaths attributable to drug-resistant infections AMR causes significant morbidity and disability. AMR places a heavy burden on health systems and complicates the response to health emergencies.
3. AMR is driven by mis- and overuse of antimicrobials. Many antimicrobials, especially antibiotics, are losing their effectiveness – and there is a critical (research and development) pipeline and access crisis for antibiotics, partly due to market failures.
4. AMR affects countries in all regions and at all income levels. Its drivers and consequences are exacerbated by poverty and inequality – via, for example, unhealthy environments that enable the spread of infections; lack of (access to) water, sanitation and hygiene and safe, good quality and affordable health services; and limited opportunities to make informed choices about behaviours to prevent and manage infections, especially appropriate use of antibiotics.
5. In 2015 the World Health Assembly adopted the Global Action Plan (GAP) on AMR (WHA68.7) and urged Member States to develop and implement national action plans on AMR, adapted to local contexts. Since AMR requires a comprehensive One Health response, the other Quadripartite organizations – namely the Food and Agriculture Organization, the United Nations Environment Program and the World Organisation for Animal Health – collaborate with WHO on multi-sectoral actions and endorsed the GAP.

¹ Antimicrobial Resistance Collaborators. Global Burden of bacterial antimicrobial resistance in 2019: a systematic analysis. Lancet. 2022; 399: 629–55. doi: [https://doi.org/10.1016/S0140-6736\(21\)02724-0](https://doi.org/10.1016/S0140-6736(21)02724-0).

² Jonas, Olga B et al. Drug-resistant infections : a threat to our economic future (Vol. 2) : final report (English). HNP/Agriculture Global Antimicrobial Resistance Initiative Washington, D.C. : World Bank Group. <http://documents.worldbank.org/curated/en/323311493396993758/final-report>

6. As of September 2023, 171 countries had developed multi-sectoral National Action Plans (NAPs) on AMR. However, in 2023 only 25% of countries reported implementing their NAPs effectively and only 10% had allocated national budgets to do so.
7. NAP implementation in the human health sector is often fragmented and limited to hospitals, despite most antibiotic use being outside hospitals (e.g. 91% in European Union and European Economic Area countries³ and a global median of 95% oral use antibiotics, a reasonable proxy for outpatient use⁴). Capacity to prevent, diagnose and treat bacterial infections and drug-resistance, and the evidence base for policy development, are very limited in LMICs. Inter-dependencies and integration of AMR interventions in health systems are often not recognized or realized in strategies for universal health coverage or health emergencies.
8. The Director-General reported to WHA76 (per WHA72.5) the need to accelerate the implementation of NAPs and proposed the development of a WHO strategic and operational framework to address drug-resistant bacterial infections in the human health sector. The other Quadripartite organizations each already have a sector-specific AMR strategy or flagship report^{5,6,7}, but the human health sector does not. Ahead of the United Nations High-level Meeting on AMR in 2024, there is urgent need to articulate sector-specific priorities and actions, including to inform global and country-level discussions on targets, financing, multisectoral collaboration, governance and accountability.
9. This document therefore presents urgent strategic and operational priorities for an accelerated programmatic response in the human health sector. It is fully aligned with, and will contribute to realization of, all the “three Ps” (Promote; Provide; Protect) strategic objectives in WHO’s draft fourteenth General Programme of Work, which explicitly recognizes addressing antimicrobial resistance as a cross-cutting priority. It complements and is informed by strategies developed by WHO regional offices⁸.
10. The proposed **Vision** is to control and reverse the urgent public health and socioeconomic crisis due to drug-resistant infections in humans. The **Aim** is to slow the emergence and spread of drug-resistant (bacterial) infections and preserve effective antibiotics for future generations.
11. WHO proposes three urgent strategic priorities for a comprehensive public health response to AMR in the human health sector. First, the **prevention** of all infections that provoke use of antibiotics, noting that viral and other infections contribute to inappropriate antibiotic use. Second, **universal access** to quality diagnosis and appropriate treatment of infections. Third, **strategic information and innovation** – notably surveillance of both AMR and antimicrobial consumption/use; the development of new vaccines, diagnostics and antimicrobial agents; and measures to make these accessible and affordable. The following sections elaborate i) these three strategic priorities; ii) related operational priorities based on a *people-centred approach* and core package of interventions⁹; and, iii) enabling actions to support

³ European Centre for Disease Prevention and Control. Antimicrobial consumption in the EU/EEA (ESAC-Net) - Annual Epidemiological Report 2021. Stockholm: ECDC; 2022.

⁴ WHO (2022). Global antimicrobial resistance and use surveillance system (GLASS) report: 2022

⁵ FAO (2021). The FAO Action Plan on Antimicrobial Resistance 2021–2025

⁶ WOAHA (2016). WOAHA Strategy on Antimicrobial Resistance and the Prudent Use of Antimicrobials.

⁷ UNEP (2023). Bracing for Superbugs: Strengthening environmental action in the One Health response to antimicrobial resistance.

⁸ See for example AFR/RC73/6, EUR/RC73/7

⁹ WHO. (2023). People-centred approach to addressing antimicrobial resistance in human health: WHO core package of interventions to support national action plans.

Member States.

II. SCOPE AND GUIDING PRINCIPLES

12. This document addresses **the causes and consequences of drug-resistant infections for people, communities and health systems**. This is a shift from focusing on pathogens to health systems solutions.
13. It focuses on **drug-resistant bacterial infections** and the specific threat of **resistance to antibiotics**. Other infections, such as viral and fungal infections, may provoke inappropriate use of antibiotics, so are also considered. For example, the COVID-19 pandemic contributed to AMR. As further evidence emerges on the magnitude and public health impact of drug-resistant fungal infections, the scope of priorities may be updated.
14. Since AMR requires a cross-cutting public health approach, this document has critical linkages to, and does not supersede, World Health Assembly resolutions and global strategies and plans for, *inter alia*, infection prevention and control (IPC); water, sanitation and hygiene (WASH); immunization; maternal and child health; diagnostics and laboratory strengthening; primary health care; universal health coverage; health emergency preparedness and response; the health workforce; and disease-specific strategies (HIV, TB, malaria, sexually-transmitted infections, etc.).
15. The strategic and operational priorities have been developed by the Secretariat, with global consultations of Member States and other stakeholders.
16. The country-level operational priorities comprise the *people-centred approach for AMR* (PCA-AMR) and its accompanying package of essential interventions. This is informed by extensive review of evidence, results of annual Tracking AMR Country Self-assessment Surveys (TrACSS) in over 170 countries, and the Global Antimicrobial resistance and use Surveillance System (GLASS). **The PCA-AMR underwent a global consultation including Member States and other stakeholders, and expert advisory input including from WHO's Strategic and Technical Advisory Group on AMR.**
17. Guiding principles include, but are not limited to: access, equity, efficiency, scalability, sustainability, accountability; addressing common and specific needs for all income settings; integration of priority actions in all levels of health systems; and solidarity to address a global threat, including the role more affluent countries must play.

III. STRATEGIC PRIORITIES

18. The three strategic priorities – **prevention** of infections, **universal access** to quality diagnosis and appropriate treatment, and **strategic information and innovation** – represent inter-dependent elements of a comprehensive public health approach for sustained impact and achievement of the Aim and Vision (paragraph 10). Cross-cutting and enabling functions embedded across the three strategic priorities include leadership; governance; financing; regulation; accountability; advocacy; and education,

awareness-raising and behaviour change among both health professionals and communities.

19. **PREVENTION OF INFECTIONS.** The objective for this priority is to *reduce all infections which may result in antibiotic use*. This has a direct public health impact on morbidity and mortality and will reduce the emergence and spread of AMR. It requires accelerated implementation of water, sanitation and hygiene measures both in health facilities and communities; infection prevention and control and patient safety; and immunization.

20. **UNIVERSAL ACCESS to affordable, quality diagnosis and appropriate treatment of infections.** *To reduce morbidity and mortality caused by infections while reducing the inappropriate use of antibiotics*, people need access to quality diagnosis and appropriate treatment of both susceptible and drug-resistant infections at all levels of the health system. In the context of overall efforts to strengthen health systems and expand access to health services through the primary health care approach, while reducing financial hardship, this priority requires integration of specific interventions – notably for diagnostic and antibiotic stewardship based on WHO’s AWaRe (Access, Watch, Reserve) classification and WHO AWaRe Antibiotic Handbook. It includes ensuring gender-equitable access and addressing the specific needs of vulnerable groups including migrants and refugees.

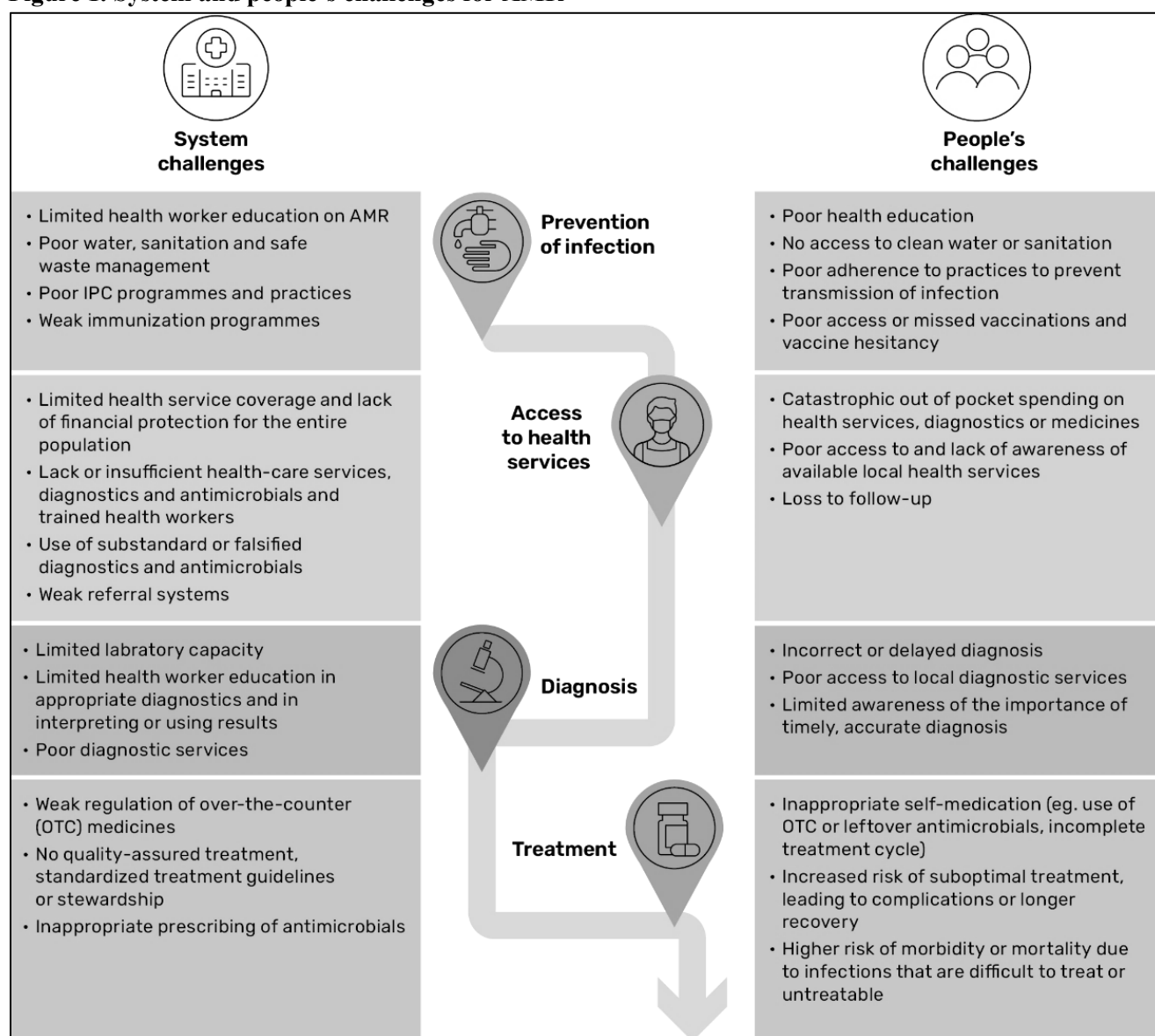
21. **STRATEGIC INFORMATION AND INNOVATION.** *To guide and support the response to AMR by ensuring the availability of key evidence, policies and products*, crucial information and evidence gaps must be filled, especially in LMICs, and measures taken to address critical gaps in research and development and access for antibiotics, diagnostics and vaccines. This priority therefore includes strengthening and improving the surveillance of antimicrobial consumption and AMR, including through national AMR prevalence surveys; promoting evidence generation at country level to inform policy development; comprehensive measures to promote increased research and development targeted to greatest public health needs; the introduction of programmatic innovations such as genomic surveillance, point-of-care diagnostics and digital health solutions; and regional and global mechanisms to overcome pipeline, production, distribution and access bottlenecks.

IV. OPERATIONAL PRIORITIES (1): THE PEOPLE-CENTRED APPROACH AND CORE PACKAGE OF COUNTRY-LEVEL INTERVENTIONS

22. The people-centred approach to AMR (PCA-AMR) summarizes **country-level actions to operationalize the three strategic priorities**. It emphasizes an integrated programmatic approach, aligned with strategies for primary health care, universal health coverage and health emergency preparedness and response, which covers all levels of the health system.

23. The PCA-AMR provides greater specificity for health systems functions and puts people at the centre of AMR interventions, based on a root-cause analysis of both “system challenges” and “people’s challenges” (figure 1). It also emphasizes engagement of communities, civil society, academia and the private sector.

Figure 1. System and people's challenges for AMR



24. The PCA-AMR and its package of core interventions includes four programmatic pillars plus strategic information and governance as essential foundations (Table 1). When developing or revising their national action plans on AMR, countries can use the interventions package to identify gaps, inform prioritization at different levels of the health system, and guide integration of interventions in national health sector plans and strategies.

25. **The pillars and core interventions in the PCA-AMR constitute the proposed operational priorities for addressing drug-resistant bacterial infections in countries.** Full implementation of the PCA-AMR will slow the emergence and spread of AMR and reduce the associated morbidity, mortality and wider socioeconomic impact.

Table 1. Strategic priorities and the PCA-AMR

Strategic priorities	PCA-AMR pillars / foundations	Core interventions
Prevention	Prevention	• Universal access to WASH and waste management • Implementation of core IPC components • Access to vaccines and expanded immunization
Universal access	Access to essential health services	• AMR diagnosis and management health services made available and affordable for all • Uninterrupted supply of quality-assured, essential antimicrobials and health products for AMR
	Timely, accurate diagnosis	• Good quality laboratory system and diagnostic stewardship to ensure clinical bacteriology (and mycology) testing
	Appropriate, quality-assured treatment	• Up-to-date evidence-based treatment guidelines and programmes for antimicrobial stewardship • Regulation to restrict sales of non-prescription antimicrobials
Strategic information and innovation	Strategic information foundation	• National AMR surveillance network to generate good quality data for patient care and action on AMR • Surveillance of antimicrobial consumption and use to guide patient care and action on AMR • AMR research and innovation including behaviour and implementation science
(Cross-cutting)	Effective governance foundation	• AMR advocacy, governance and accountability in the human health sector, in collaboration with other sectors • AMR awareness-raising, education and behaviour change of health workers and communities

V. OPERATIONAL PRIORITIES (2): ENABLING ACTIONS TO SUPPORT MEMBER STATES

26. Member States have the primary responsibility to develop, cost, finance, implement and monitor their AMR national action plans. The Secretariat supports countries on all aspects of the AMR response, through country-level technical assistance tailored to local context including for fragile, conflict-affected and vulnerable settings, and coordination of global or regional action and partnerships.
27. Noting Member States' increased demands for technical assistance, the Secretariat is developing a global AMR Technical Assistance Mechanism (AMR-TeAM); initiatives to address specific needs, for example the AMR Diagnostic Initiative; and targeted guidance and educational materials.
28. The Secretariat also supports countries to identify and mobilise domestic and external financing, such as through the Global Fund and Pandemic Fund, and supports development of global and country-specific AMR investment cases.

29. The AMR evidence base is very weak in most countries. The Secretariat supports generation and use of surveillance and research data, aligned with country-specific priorities and WHO's Global research agenda for antimicrobial resistance in human health¹⁰.
30. Specific efforts are needed to address the antibiotic pipeline and access crisis. With industry and relevant partner organizations, the Secretariat will monitor, inform and promote global research and development efforts, and develop mechanisms to support equitable, sustainable access to new and existing antibiotics alongside other needed health products such as vaccines, diagnostics and reagents. Examples of the diverse and tailored solutions needed include coordinated/pooled procurement, strategic stockpiling, improved forecasting and quantification, regulatory streamlining, expanded manufacturing, etc.
31. To enhance commitment, action, and resource mobilization for AMR, and drawing on behavioural insights and other relevant evidence, the Secretariat will coordinate international advocacy, education and awareness-raising with key partners and networks – for example with policy-makers, legislators, healthcare providers, and civil society including youth and AMR survivors.

VI. ACCOUNTABILITY AND TARGETS

32. To monitor implementation and progress towards global targets the Secretariat will develop an accountability framework in consultation with all relevant stakeholders.
33. The Secretariat has developed potential indicators for the strategic and operational priorities. The potential indicators for the strategic priorities are listed in Table 2.
34. Relevant outputs and indicators will be included in the measurement framework for WHO's fourteenth General Program of Work.
35. The priorities and accountability framework will inform Member States deliberations, and potential development of global targets, for the UNGA High-level Meeting on AMR in September 2024 and the Fourth High-level Ministerial Meeting on AMR which the Kingdom of Saudi Arabia will host in November 2024.
36. The accountability framework can be used to inform context-specific target-setting by countries, informed by both quantitative and qualitative strategic information.

¹⁰ WHO. (2023). Global research agenda for antimicrobial resistance in human health: Policy brief.

Table 2. Potential indicators for the strategic priorities

Strategic priorities	Potential indicators
PREVENTION OF INFECTIONS	• Aggregate burden of disease for a set of tracer infections that may result in antibiotic use (GBD data)
UNIVERSAL ACCESS to affordable, quality diagnosis and appropriate treatment of infections	• Coverage of essential health services (SDG 3.8.1) • Financial protection (SDG 3.8.2) • Proportion of population seeking care in healthcare facilities with access to quality-assured bacteriology diagnosis • Antibiotic consumption in defined daily dose per 1000 population per day; overall and by AWaRe classification. [Note: this indicator is influenced by both access and appropriate use, so cannot be interpreted in isolation.]
STRATEGIC INFORMATION AND INNOVATION	• Number/proportion of countries with, and proportion of world's population covered by, nationally representative quality-assured AMR data from surveillance and/or surveys • Number of new i) medicines, and ii) diagnostics in R&D pipeline aligned with WHO target product profiles and <i>Bacterial Priority Pathogens List</i> • IHR/JEE indicators for country capacities to manage AMR