World Health Organization

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Content

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WHO country offices

Bibigul Aubakirova (WHO Kazakhstan), Richard Brown (WHO Thailand), Roderick Salenga (WHO Indonesia), Abzal Zhumagaliuly (WHO Kazakhstan).

WHO regional offices

Yahaya Ali Ahmed (Regional Office for Africa), Hala Amer (Regional Office for the Eastern Mediterranean), Arnoldas Jurgutis (Regional Office for Europe), Ketevan Kandelaki (Regional Office for Europe), Danilo Lo Fo Wong (Regional Office for Europe), Takeshi Nishijima (Regional Office for the Western Pacific), Pilar Ramon-Pardo (Regional Office for the Americas) and Bassim Zayed (Regional Office for South-East Asia).

WHO headquarters

Shamsuzzoha Babar Syed, Silvia Bertagnolio, Chad Centner, Anna Dean, Miranda Deeves, Zlatina Dobreva, Mateusz Hasso-Agopsowicz, Yvan Hutin, Benedikt Huttner, Verica Ivanovska, Daniel Marcano Zamora, Philip Mathew, Raghu Sriram, Erica Stukator Barbazza, Deborah Tong.

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Abbreviations

AMR	antimicrobial resistance
AMS	antimicrobial stewardship
AWaRe	Access, Watch and Reserve (WHO classification of antibiotics)
IPC	infection prevention and control
PCA-AMR	people-centred approach to addressing antimicrobial resistance
PHC	primary health care

1. Introduction

A primary health care (PHC)-oriented health system aims to maximize the level and distribution of health and well-being through three components: (i) primary care and essential public health functions as the core of integrated health services; (ii) multisectoral policy and action; and (iii) empowered people and communities *(1)*.

As part of the PHC-oriented health system, primary care is the service delivery platform with the core function of providing first-contact, accessible, continuous, comprehensive and coordinated patient-focused care. Primary care translates the principles of PHC into practice, making it foundational to a robust PHC-oriented health system essential to realizing universal health coverage *(2)*.

Most patient interactions occur in primary care and in the community, where an estimated 80–90% of antibiotics are prescribed *(3)*. Effective primary care plays a vital role in improving the management of infectious diseases and in reducing overuse and inappropriate use of antibiotics, thus slowing the emergence of antimicrobial resistance (AMR) and ensuring the continued effectiveness of antimicrobials.

What is AMR?

AMR occurs when bacteria, viruses, fungi and parasites no longer respond to antimicrobial medicines. Antibiotics and other antimicrobials therefore lose their effectiveness, and the infections they cause are more difficult or impossible to treat.

What is causing AMR?

AMR is a natural phenomenon that occurs over time through genetic changes in microorganisms. The rate at which this occurs is, however, accelerated by inappropriate use of antimicrobial medicines.

Why is AMR a threat to human health?

Because of increasing resistance and slow development of new antimicrobials, the world is running out of effective antimicrobials to treat infections. Many standard treatments have become ineffective; infections have become more difficult or impossible to treat; and other medical procedures and treatments, such as surgery and cancer chemotherapy, become much riskier. AMR is estimated to be associated with about 5 million deaths every year *(4)*.

AMR was a focus of the global health community in 2024, marked by a World Health Assembly resolution *(5)* and a political declaration adopted at the United Nations General Assembly *(6)*. The political declaration highlights the importance of investing in sustainable, PHC-oriented health systems to ensure universal access to essential health services and promote equitable access to vaccines, diagnostics, and antimicrobials and their appropriate use.

This policy brief is for health policymakers and primary care managers. It focuses on the human health dimensions of the AMR response, while acknowledging that the multisectoral One Health approach is vital for addressing AMR in human health, animal and environmental sectors. Multisectoral stakeholders referred to in this brief are those that play a role in policy design, implementation and related actions across health and other sectors as central to strengthening PHC-oriented health systems. This may include government ministries and agencies covering human health, education, and social welfare, civil society and the private sector (Annex 1).

This policy brief provides guidance for interventions to strengthen PHC-oriented health systems and address AMR simultaneously. It builds on the WHO people-centred approach to addressing AMR (PCA-AMR) and its core package of 13 AMR interventions *(7)*, which promote equitable, affordable access to high-quality health services for the prevention, diagnosis and treatment of infections, including drug-resistant infections. The priority interventions and practical examples noted in this policy brief are aligned with the PCA-AMR and are clustered according to the three PHC components. The interventions described are targeted at strengthening primary care and bolstering community engagement and are based on evidence and lessons learnt from a validation project in four countries. The policy brief does not address interventions in secondary or tertiary care.

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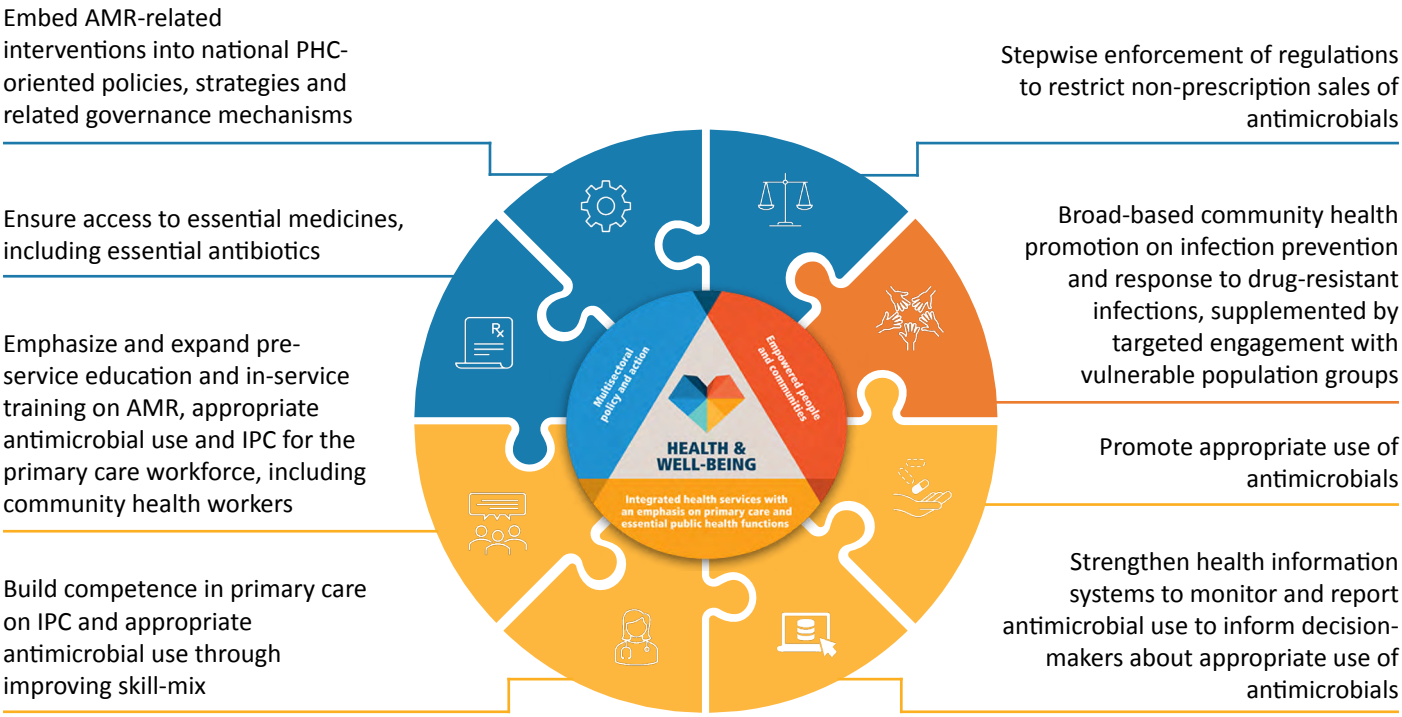
A trained health worker listens to the heartbeat of an infant at
16 Makara hospital in Preah Vihear, Cambodia

2. Priority interventions for strengthening PHC-oriented health systems to combat AMR

Eight priority AMR-related interventions were identified during the validation process. These interventions are implemented through the three PHC components – integrated health services, multisectoral policy and action, and the empowerment of individuals and communities – and, together, contribute to strengthening PHC-oriented health systems (Fig. 1).

Fig. 1. Implementing priority AMR-related interventions in a PHC-oriented health system



AMR: antimicrobial resistance; PHC: primary health care; IPC: infection, prevention and control

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Nurse in Saartuz, Bokthar (southern Tajikistan) in a primary care facility, washing her hands after attending an immunization training

3. Description of priority AMR interventions, with practical examples

3.1 Multisectoral policy and action

i. Embed AMR-related interventions into national PHC-oriented policies, strategies and related governance mechanisms

Embedding AMR-related interventions into national and subnational PHC-oriented policies, strategies and related governance, with links to monitoring frameworks and budgeting, will increase the likelihood of their adoption and continuity. Subnational authorities and other relevant stakeholders, such as local and federal health departments, health-care providers, professional associations and civil society organizations, should be involved in policy development, implementation and monitoring. Annex 1 provides an overview of stakeholder groups that could play roles in mainstreaming AMR-related interventions into PHC-oriented health systems.

Example of intervention: Integration of indicators of appropriate use of antimicrobials or infection prevention and control (IPC) into plans for monitoring and reporting in primary care. For example, an indicator on adherence to treatment guidelines or documented monitoring of compliance to IPC protocols. This incentivizes adoption of practices to prevent AMR and allows monitoring by primary care managers, national and subnational health authorities and the national AMR coordination committee.

ii. Ensure access to essential medicines, including essential antibiotics

Access to affordable, quality-assured, essential antibiotics must be closely monitored and guaranteed for all population groups. When essential narrow-spectrum antibiotics (typically in the WHO AWaRe "Access" category) are widely available, accessible and affordable, prescribers may be less likely to resort to broad-spectrum antibiotics (classified as "Watch" or "Reserve") or alternatives that may be less effective, which result in suboptimal patient outcomes and drive the emergence and spread of AMR *(8)*. Guaranteed access requires inclusion of essential antibiotics in national policy and regulatory frameworks that govern access, such as national essential medicines lists and formularies, national treatment guidelines and health insurance benefits packages. It also requires close management of the supply chain, coordination between national and subnational authorities and a system for reporting and addressing shortages *(9)*.

Example of interventions:

(i) Include a selection of essential antibiotics in public health insurance benefits packages and public primary care facility formularies.

(ii) Regularly monitor the availability of affordable essential medicines, including antibiotics, in primary care facilities.

(iii) Ensure that shortages of essential antibiotics are reported and addressed in a timely manner.

What is antimicrobial stewardship (AMS)?

WHO defines AMS as a coherent set of integrated actions to promote responsible, appropriate use of antimicrobials to improve patient outcomes and minimize emergence of AMR across the continuum of care.

What is the WHO Access, Watch, and Reserve (AWaRe) classification?

AWaRe is the WHO classification of antibiotics, first used for antibiotics on the 2017 WHO Model List of Essential Medicines, to encourage appropriate use and stewardship. Antibiotics are classified into three groups, Access, Watch and Reserve, according to their spectrum of activity and potential for development of resistance. The system emphasizes the importance of appropriate use.

iii. Stepwise enforcement of regulations to restrict non-prescription sales of antimicrobials

Enforcement of government regulations that restrict sales of antimicrobials without a prescription contributes to reducing inappropriate antibiotic use. The regulations should cover separating the roles of prescribing and dispensing antibiotics, removing financial incentives that may drive overprescribing or dispensing and putting in place relevant enforcement mechanisms. Depending on the country context, regulations could be phased in by first prioritizing reduction of inappropriate use of broader spectrum or last resort antibiotics, such as those categorized as Watch or Reserve in the WHO AWaRe classification.

Example of interventions:

(i) Ensure that there is a list of prescription-only medicines, which includes antimicrobials. The WHO AWaRe classification may help to identify which broader spectrum or last resort antibiotics (Watch or Reserve categories) should be prioritized in regulations and for enforcement.

(ii) Involve professional associations, including pharmacist groups, and consumer groups in the enforcement of restrictions and regulations and in encouraging compliance.

3.2 Empowered people and communities

iv. Broad-based community health promotion on infection prevention and response to drug-resistant infections, supplemented by targeted engagement with vulnerable population groups

Managing (drug-resistant) infections involves not only policy and health service delivery, it is also important to educate communities in AMR, the principles of general sanitation and hygiene, infection prevention and appropriate antimicrobial use and to catalyse and sustain behaviour change. Broad community health promotion can be complemented by targeted engagement with population groups who are either more vulnerable to drug-resistant infections, such as caregivers and the elderly, or face higher barriers to accessing high-quality health care, such as refugees and migrants.

Example of interventions:

(i) Work with communities to co-create, produce and actively disseminate information leaflets on common infections that may not require treatment with antibiotics. The leaflets should be translated into local languages.

(ii) Provide information to parents of newborns and young children on common infections and the importance of vaccination, through trained nurses and community health workers.

(iii) Include information about the development and emergence of AMR in school science curricula, and cover the principles of general sanitation, hygiene and infection prevention in school health programmes.

3.3 Integrated health services

v. Promote appropriate use of antimicrobials

Ensuring that antimicrobials are used appropriately and according to up-to-date, evidence-based treatment guidelines improves the management of infections, patient outcomes and slows the emergence of AMR. Standardised care through AMS, clear national or subnational guidelines for diagnostic stewardship, and better training for primary care workers can improve test selection and prescribing decisions, reducing unnecessary antibiotic use. When available, affordable point-of-care tests can help distinguish bacterial from viral infections, determine whether antibiotics are needed, and guide treatment decisions.

Example of interventions:

(i) Ensure that treatment guidelines are evidence-based, up to date and compliance to the guidelines is monitored *(10)*.

(ii) Promote "no antibiotics", especially for upper respiratory tract infections, for which antibiotics are often over-prescribed in primary care.

(iii) Promote post-prescription reviews at primary care facilities that can be used to provide feedback to prescribing professionals and possibly linked to accreditation of a health-care facility or insurance reimbursement.

(iv) Organize visits by non-commercial clinical educators to prescribing professionals at primary care facilities to encourage evidence-based prescribing.

vi. Strengthen health information systems to monitor and report antimicrobial use to inform appropriate use of antimicrobials

Use of health information systems to monitor and report on antimicrobial use in primary care can ensure informed decision-making and appropriate use of antimicrobials. These systems can be used to track usage patterns, identify areas of over- or inappropriate use and allow monitoring of the impact of targeted interventions to improve antibiotic prescribing practices. As laboratory diagnostics to confirm whether an infection is caused by a resistant pathogen are often not performed (unless a specimen is referred for further antimicrobial susceptibility testing), AMR surveillance data is usually limited or absent in primary care.

Example of intervention:

(i) Use linked data on prescriptions and diagnoses routinely recorded at primary care facilities to monitor antimicrobial use, ensuring that the data and trends are analysed and used in post-prescription review and feedback to prescribers.

vii. Emphasize and expand pre-service education and in-service training on AMR, appropriate antimicrobial use and IPC for the primary care workforce, including community health workers

Identification and inclusion of core competencies for effective practices to address AMR into pre-service and in-service education better equips primary care workers to prevent and manage infections. To ensure continued quality of services, in-service training and support could be systematized and made available to all primary care workers, including community health workers and community pharmacists. This will give primary care workers opportunities to obtain the necessary knowledge, skills and confidence to prevent and manage AMR, for example with effective IPC practices *(11)*, including hygiene and sanitation and promoting appropriate use of antimicrobials.

Example of intervention:

(i) Include AMR, IPC and AMS in curricula for medical doctors, nurses, pharmacists and community health workers. Identify gaps and design modules, using resources such as the *WHO AMR curriculum assessment tool for medical education (12)*, the *WHO Competency Framework for Health Workers' Education and Training on AMR (13)*, and the *WHO Technical Brief on the Inclusion of AMR in Training Programmes for Community Health Workers (14)*.

viii. Build competence in primary care on IPC and appropriate antimicrobial use through improving skill-mix

The capacity of primary care providers to manage infections effectively can be strengthened by integrating competence in IPC and AMS through a skill-mix approach, ensuring appropriate staffing, management and collaboration at primary care facilities. This will also support effective implementation of policies for strengthening AMS practices (priority intervention v), and enhance the provision of patient-centred, integrated care.

Example of interventions:

(i) Establish multidisciplinary teams at larger primary care facilities where there are professionals who fill IPC and AMS functions.

(ii) Train and support primary care professionals at smaller primary care facilities to ensure that they can perform IPC and AMS functions.

3.4 Health system enablers

The priority AMR interventions are premised on an effective, functioning health system with basic sanitation and hygiene infrastructure, recognizing the essential roles of core water, sanitation and hygiene *(15)*, IPC and immunization programmes *(16)* for preventing infection. Some enablers that are the basis of an effective, equitable PHC-oriented health system, and will also sustain implementation of priority AMR interventions, are:

- basic water and sanitation infrastructure;
- adequate hygiene standards and guidelines for health facilities;
- a functioning, trained health workforce;
- a national immunization programme that includes recommended vaccines (depending on the country), particularly for children under five years;
- a functional supply chain and storage for medicines and medical products;
- a referral system to ensure a continuum of care for patients;
- a basic health information system; and
- a health financing system that covers primary care for all towards a goal of universal health coverage.

4. Cross-cutting considerations

Private sector: Consider the role of private sector health-care providers, including private pharmacies, when planning and implementing AMR-related interventions, as these play significant roles in many countries' health systems. AMR-related interventions that overlook private providers may be less effective.

Broad stakeholder engagement: Include non-traditional stakeholders in planning and implementing AMR-related interventions, such as government ministries and agencies responsible for education, social work, water and sanitation, as well as professional associations for health-care workers and standard-setting or accreditation bodies. These stakeholders, although not directly involved in health-care delivery, often influence the determinants of health and the overall quality of health services. Annex 1 includes a list of stakeholder groups to be considered for engagement.

Sustainability: Design and use practices that can be integrated into existing systems, strategies and plans, even when resources are limited. This will increase the likelihood that the practices will be sustained and monitored.

Incentives: Health insurance providers can incentivize AMR-relevant practices, such as linking compensation to performance indicators such as for appropriate prescribing, while ensuring that this does not negatively affect access to essential health care. Regulators and professional associations can minimize the risk of perverse incentives, such as those which drive over- or inappropriate prescribing.

Point-of-care diagnostics: When low-cost or reimbursable point-of-care diagnostics that differentiate bacterial from non-bacterial infections or detect AMR organisms are available and accessible, their use could reduce misdiagnosis and inappropriate treatment in primary care. However, such tests are still not widely available in many countries. Affordability, suitability, validation across settings and supply chain are significant barriers.

Gender and equity: Consider gender and other inequities when planning and implementing AMR-related interventions, as such inequities influence exposure and susceptibility to infection, health-seeking behaviour, patterns of antimicrobial use and access to high-quality, appropriate care *(17)*.

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A woman collects vitamins from a pharmacist at a medical centre in Islamabad, Pakistan

5. Methods for conducting the validation project

The guidance provided in this policy brief is based on evidence and lessons from a multi-country validation project conducted during 2023 and 2024 to test application of WHO's PCA-AMR in four countries in Asia and Europe: Indonesia, Kazakhstan, Sweden and Thailand. At the outset of the project, an AMR-PHC scoping tool (Annex 2) was developed based on the PCA-AMR core package of interventions and the WHO Operational Framework for primary health care and its core strategic and operational levers. In each country, WHO analysed selected parts of the PHC-oriented health system into which AMR-related interventions might be mainstreamed. The areas were chosen in consultation with national stakeholders, usually the ministry of health or focal points nominated by the ministry. Information about the areas were collected in an evidence review conducted using the AMR-PHC scoping tool, limited site visits to primary care facilities and through a national workshop in each country. This project was conducted by collaboration among the three levels of WHO (headquarters, regional offices and country offices) and WHO Collaborating Centres in Japan (National Centre for Global Health and Medicine) and Sweden (Public Health Agency of Sweden). A report was prepared for each country as a separate publication (*18–20*). A multi-country meeting was organized in March 2025, concluding the validation project, to disseminate the lessons learnt and to promote actions to address AMR in PHC-oriented health systems.

Limitations. As the project was conducted in selected middle- and high-income countries in Asia and Europe, the results may not fully represent the challenges or concerns in lower-income countries. Not all the technical areas included in the scoping tool and WHO's PCA-AMR could be tested in the four countries, potentially limiting the applicability of the tool.

Primary health care professional interpreting medical imaging at the Republican Centre for Primary Health Care in Astana, Kazakhstan

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Annex 1. Stakeholder considerations for strengthening PHC-oriented health systems to address antimicrobial resistance (AMR)

Stakeholder groups that may be considered for inclusion in AMR-related actions are shown in Fig. A1.1. Explanations and examples relating to the role they may play are provided in Table A1.1.

Fig. A1.1. Stakeholder groups involved in AMR-related interventions

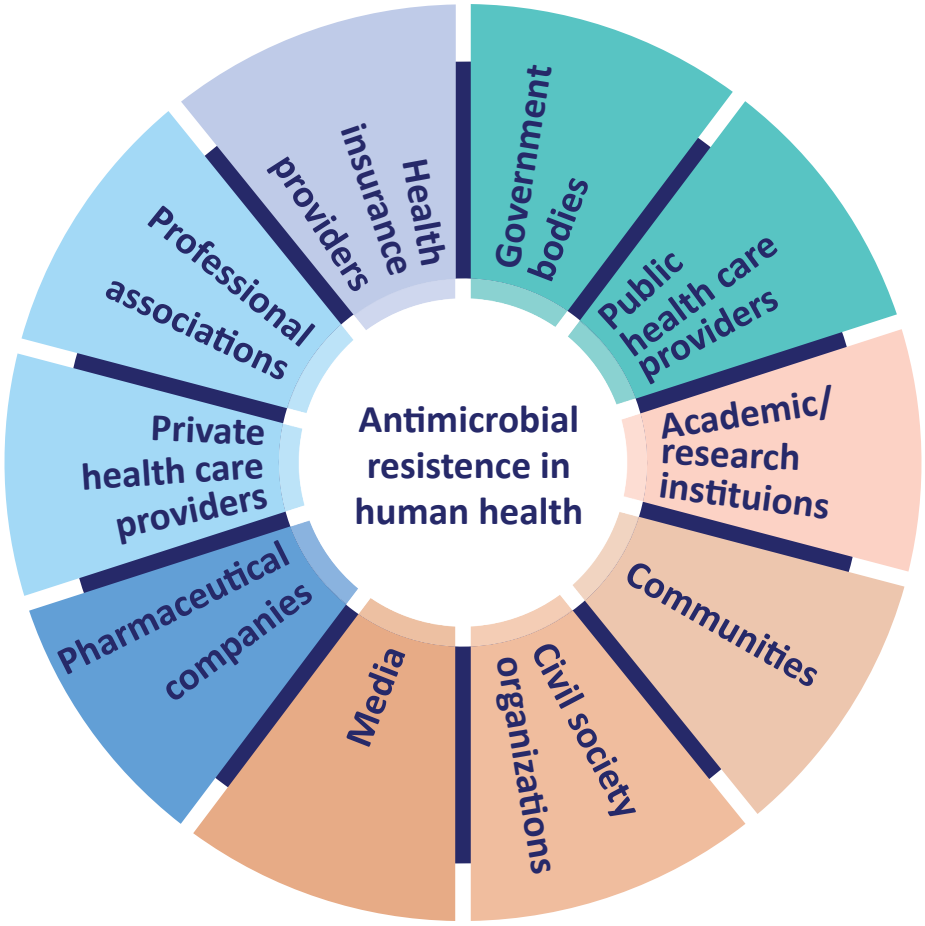


Table A1.1. Stakeholder groups and their roles in a PHC-oriented health system

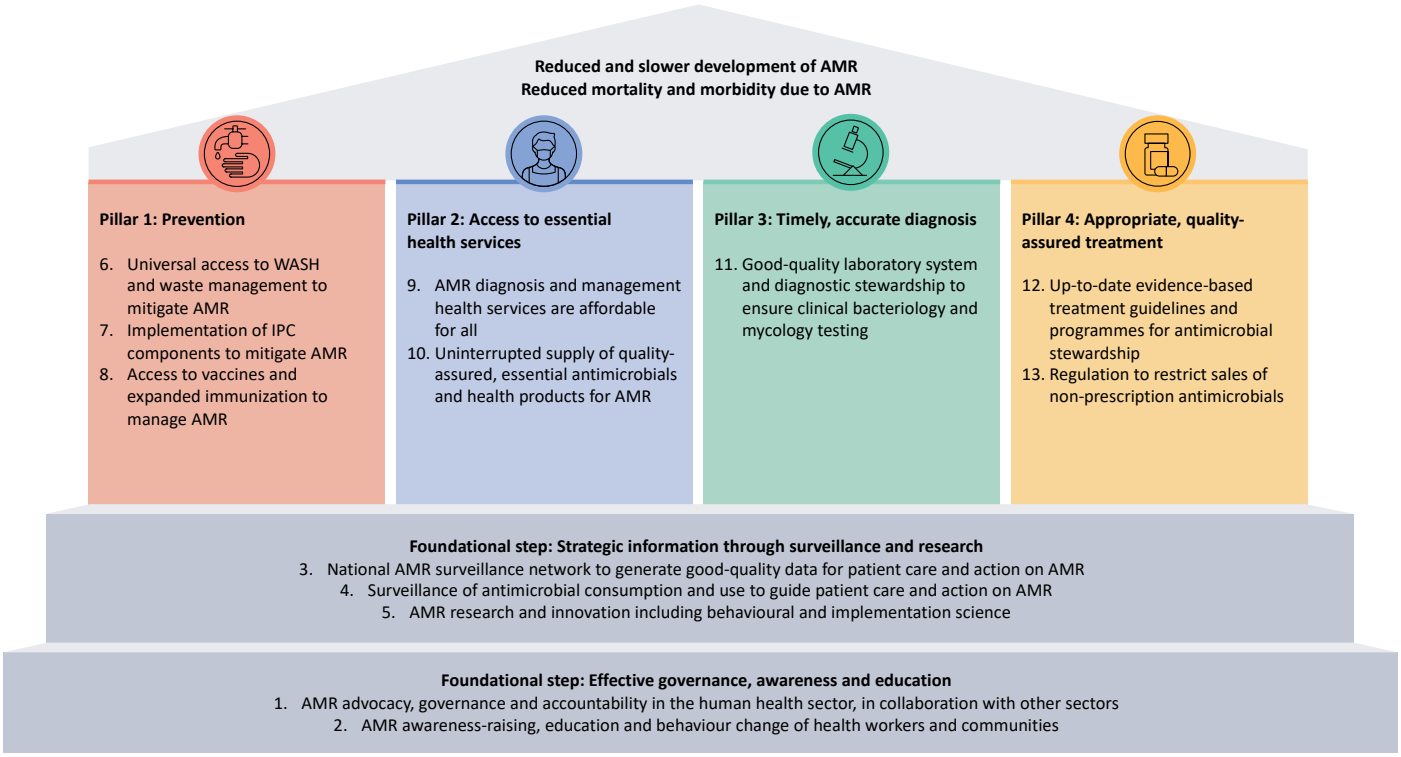
Stakeholder group	Role in a PHC-oriented health system
Government bodies	Government bodies are official organizations, institutions and agencies that are responsible for creating, implementing and regulating laws, policies and public services. They are national or subnational (e.g. regional or local). They are responsible for the legal and regulatory framework of sectors. Relevant government bodies that are active in an AMR response include ministries of health, education, social works, water supply and sanitation, as well as regulatory bodies such as food and drug authorities and licensing bodies, and local governments responsible for health care in their regions.
Public health-care providers	Public health-care providers are organizations or bodies that provide health care and services to the public on behalf of the government or local authorities. They are accountable and report to the government. Public health-care providers are usually funded by taxes and usually include primary health-care facilities and hospitals that provide secondary and tertiary care. Community health workers who are accountable to and paid by local authorities or public health care facilities are included.

Private health-care providers	Private health-care providers are businesses owned by an individual or a company that provide health care and services for profit. Private providers operate independently from the government, although they may be regulated by relevant laws and regulations. Examples include private hospitals, private clinics and private (retail) pharmacies. Note: Some private service providers also provide services that are publicly compensated through public health insurance schemes.
Health insurance providers	Health insurance providers are organizations that offer insurance plans to individuals or groups to cover the cost of health-care services and treatment. They are important stakeholders in health-care financing and in the UHC agenda. Health insurance providers are either public (funded by the government) or private. The types of insurance plans and benefit packages available may differ, for example in coverage, according to premiums and deductibles.
Pharmaceutical companies	Pharmaceutical companies are often privately owned and operated. They develop, manufacture, market and distribute drugs and medical treatments. They may be large multinational corporations or smaller domestic companies. They may be state-owned, or the government may maintain a share of investment, which can ensure the availability of drugs that might otherwise be financially unattractive to manufacture and market. Their products are usually subject to regulatory approval by health authorities.
Professional associations	These organizations bring together individuals working in the same profession or industry to advance the interests of their members through networking, education and advocacy. Professional associations in the health sector that may be involved in AMR include medical associations, nurses' and midwives' associations and pharmacists' associations.
Academic and research institutions	Universities, colleges and research organizations engage in education, scientific research and innovation and may develop new technologies or treatments, including new drugs. Some of these institutions conduct studies in fields relevant to AMR. They may also provide pre-service education and continuing education for health-care workers and contribute to the development of evidence-based standards and guidelines.
Media	The media include organizations and individuals that create and distribute content to inform, entertain and influence the public, on platforms ranging from print (newspapers and magazines) and broadcast (radio and television) to digital (websites and social media). The media play a significant role in disseminating information to the public and shaping perceptions and opinions about critical issues. The media can support awareness-raising (e.g. on AMR) and play a critical role in reporting and advocacy (e.g. by reporting on the price of medicines or the availability of health services).
Civil society organizations	Civil society organizations are nongovernmental organizations that may provide services to the community or advocate for specific causes. In some countries, civil society organizations provide crucial services that might otherwise be underprovided by the government, such as basic health services for remote and underserved populations. They may also play a role as a watchdog, represent the interests of the community and ensure the accountability of public authorities, e.g. patient and consumer groups.
Communities	Communities are local, regional or national groups of people who represent a broad, diverse range of interests. They are affected, directly or indirectly, by the policies and actions of the government and other stakeholders.

Annex 2. AMR and PHC scoping tool

This scoping tool can be used to integrate AMR interventions into primary health care (PHC)-oriented health systems. It provides a "menu" of AMR interventions, indicators and considerations for a review of a country's current work and opportunities to introduce AMR interventions into primary care settings by strengthening PHC-oriented health systems, including maternal and child health (MCH) and integrated management of childhood illnesses (IMCI). The interventions are derived from the People-centred approach (PCA) to addressing AMR in human health: WHO core package of interventions for national action plans on AMR *(1)* (Fig. A2.1), for use in primary care and communities.

Fig. A2.1. WHO package of 13 core AMR interventions



AMR: antimicrobial resistance; IPC: infection, prevention and control; WASH: water, sanitation and hygiene

Source: World Health Organization *(1)*.

The interventions in this tool are grouped according to the three components of a PHC-oriented health system: (i) multisectoral policy and action, (ii) empowered people and communities and (iii) primary care and essential public health functions, with the foundation or pillar of PCA to which it relates between brackets (Fig. A2.2).

Information collected with this tool can provide a snapshot of the current status, gaps and opportunities for integrating AMR-related interventions into PHC-oriented health systems (including MCH and IMCI programmes). The information can also be reflected in the national action plan on AMR and national work on universal health coverage and health systems strengthening. Not all interventions or indicators will be relevant for all countries, which are encouraged to identify a subset of interventions that they consider as priorities to fill gaps. The indicators might also have to be adapted to the country's context.

Fig. A2.2. Overview of PHC-oriented AMR interventions

Multisectoral policy and action

1. Integration of AMR into national PHC policies and strategies (foundation of PCA)

2. Mechanisms for governance of AMR, PHC and universal health coverage (UHC) (foundation of PCA)

3. Inclusion of civil society and professional associations in defining the AMR response (foundation of PCA)

4. Engagement of the private sector in the AMR response (foundation of PCA)

5. Policies integrating appropriate antimicrobial use (AMU) and antimicrobial stewardship (AMS) principles and activities in primary care (pillar 4 of PCA)

6. Regulations to restrict non-prescription sales of antimicrobials (pillar 4 of PCA)

Empowered people and communities

7. Community health promotion on AMR (foundation of PCA)

8. Community-based systems for the return of unused antimicrobials (pillar 1 of PCA)

9. Community engagement in access to high-quality AMR-related health products, antibiotics, and services (pillar 2 of PCA)

Primary care and essential public health functions at the core of integrated health services

10. Pre-service education on AMR for primary care workers, including community health workers (CHWs) and community pharmacists (foundation of PCA)

11. In-service training and support on AMR for primary care workers, including CHWs and community pharmacists (foundation of PCA)

12. Primary care facilities that contribute data to AMR surveillance systems (foundation of PCA)

13. Surveillance of AMU in primary care facilities and community pharmacies (foundation of PCA)

14. Water, sanitation and hygiene (WASH) in primary care facilities (pillar 1 of PCA)

15. Infection prevention and control (IPC) in primary care facilities (pillar 1 of PCA)

16. Immunization (pillar 1 of PCA)

17. Affordability of essential medicines and health products, including vaccines, diagnostics and antibiotics (pillar 2 of PCA)

18. Availability of essential medicines, including essential Access antibiotics, in primary care facilities (pillar 2 of PCA)

19. Availability of essential diagnostics for pathogen identification and antimicrobial susceptibility testing (AST) in primary care facilities (pillar 3 of PCA)

20. Appropriate treatment ensured by AMS in primary care facilities (pillar 4 of PCA)

21. Adoption of the WHO AWaRe antibiotic book to guide appropriate treatment in primary care facilities (pillar 4 of PCA)

AMR: antimicrobial resistance; AMS: antimicrobial stewardship; AMU: antimicrobial use; AST: antimicrobial susceptibility testing; CHW: community health workers; PCA: people-centred approach; PHC: primary health care; WASH: water, sanitation and hygiene

Note: "Primary care facilities" in this tool include any public or private facility that provides primary care. The indicators can be adapted to the primary care setting that is most relevant for the country.

2.1 Multisectoral policy and action

Foundation of PCA: Effective governance, awareness and education

1. Integration of AMR into national PHC policies and strategies

Indicator 1.1: AMR included in national policies and strategies on PHC and UHC Yes | Partially | No

Considerations:

- Which of the components below are covered in national PHC, UHC and MCH plans and strategies?
  - → Awareness and education on AMR
  - → IPC
  - → WASH
  - → Immunization
  - → Supply of diagnostics; laboratory reagents and antibiotics
  - → Point-of-care diagnostics
  - → Surveillance of AMR and AMU
  - → Appropriate use of antibiotics (e.g. AMS and use of the AWaRe antibiotic classification)
  - → Regulations on over-the-counter sales of antibiotics
  - → Other (please specify)
- Are PHC policymakers aware of AMR and the importance of linking AMR activities to PHC and UHC policies and plans?
- Is AMR part of health communication strategies for PHC policymakers?

Indicator 1.2: AMR components of the national PHC plans and strategies are monitored and adequately funded. Yes | Partially | No

Considerations:

- Does the health system monitoring framework include appropriate indicators for monitoring and receiving feedback on the national AMR response?
- Is funding available for the AMR components of national health and PHC plans?

2. Mechanisms for governance of AMR, PHC and UHC

Indicator 2: Link established between national and subnational AMR governance and UHC and PHC governance Yes | Partially | No

Considerations:

- Is there a national or subnational mechanism for AMR governance and coordination?
- Is the governance and coordination mechanism linked to governance of UHC and PHC or other national health governance?
- Are subnational governments represented in the governance of AMR, UHC or PHC?

3. Inclusion of civil society and professional associations in defining the AMR response

Indicator 3.1: Civil society organizations (CSOs) participate in multisectoral AMR coordination and the national and subnational AMR responses.

Yes | Partially | No

Considerations:

- Do CSOs regularly participate in national or subnational AMR coordination meetings?
- Do CSOs participate in policy development or strategic reviews related to the national AMR action plan?

Indicator 3.2: Professional associations participate in the AMR response at national and subnational level and/or are involved in the multisectoral AMR coordination mechanism.

Yes | Partially | No

Considerations:

- Are relevant professional associations involved in AMR coordination?
- Are AMR-relevant topics included in PHC networks, activities of professional associations and support?

4. Engagement of the private sector in the AMR response

Indicator 4: Private health service providers, including community pharmacists, are involved or represented in national and subnational AMR governance.

Yes | Partially | No

Considerations:

- Are private health service providers included or represented in national or subnational meetings on AMR?

Pillar 4 of PCA: Appropriate, quality-assured treatment

5. Policies integrating appropriate AMU and AMS principles and activities in primary care

Indicator 5: Integration of principles and activities of appropriate AMU and AMS into relevant PHC plans, policies, guidelines and tools.

Yes | Partially | No

Considerations:

- Do the national PHC and UHC plans, policies or standards include AMS programmes or activities to promote appropriate use of antibiotics?
- Do national or subnational MCH or IMCI plans, policies, programmes and guidelines include the principles and activities for appropriate treatment with antibiotics?
- Do policies and guidelines on the appropriate use of antibiotics include consideration of facilities for elder care?

6. Regulations to restrict non-prescription sales of antimicrobials

Indicator 6: Legislation and regulatory policies for appropriate prescription and use of antibiotics are enforced at PHC level, including in the private sector.

Yes | Partially | No

Considerations:

- Are there laws, regulations or policies to restrict the sale of antibiotics without a prescription? Which antibiotics do these cover (e.g. Watch and Reserve antibiotics from the AWaRe classification)?
- Is there a list of medicines to be sold by prescription only that includes antimicrobials (including antibiotics)? Do the regulations apply to the private sector?
- Are the regulations enforced?

2.2 Empowered people and communities

Foundation of PCA: Effective governance, awareness and education

7. Community health promotion on AMR

Indicator 7.1: AMR is included in community health promotion and education activities, particularly for children, caregivers and vulnerable populations (e.g. the elderly, disabled people, ethnic minorities, mobile populations).

Yes | Partially | No

Considerations:

- Which of the topics listed below are included in community health promotion and education?
  - Awareness, knowledge and understanding of AMR
  - Hand hygiene and sanitation
  - Prevention of sexually transmitted infections, including services available for screening, treatment and follow up
  - Immunization
  - Food safety
  - Diagnosis of infection
  - Appropriate use of antibiotics
  - Safe return or disposal of unused antimicrobials

Indicator 7.2: Age-appropriate AMR topics are included in primary and secondary school curricula.

Yes | Partially | No

Considerations:

- Do school children receive age-appropriate education on AMR-related topics, for example as part of biology or science curricula in high school, or general education and awareness about hand hygiene from preschool onwards?

Pillar 1 of PCA: Prevention

8. Community-based systems for the return of unused antimicrobials

Indicator 8: Existence of community-based systems to facilitate or encourage households to return unused medicines, including antimicrobials, for safe disposal (e.g. accessible drop-off points at pharmacies or primary care facilities).

Yes | Partially | No

Considerations:

- Is there a system for households to return unused medicines, including antimicrobials, for safe disposal?
- If yes, how are households informed of the system?

Pillar 2 of PCA: Access to essential health services

9. Community engagement in access to high-quality AMR-related health products, antibiotics, and services

Indicator 9: Communities can monitor and report on access to (including in health benefits packages), price, availability, safety and quality of AMR diagnostics and antibiotics and other health products.

Yes | Partially | No

Considerations:

- Is there a mechanism for communities and patients to monitor and report on the price, availability, safety and quality of AMR diagnostics and antibiotics in primary care, including coverage in health benefits packages and health insurance schemes? (This consideration may be adapted for each country.)
- Is there a formal or informal way for patients and visitors to primary care facilities to report on facility standards and services related to the prevention, diagnosis and treatment of (drug-resistant) infections (e.g. sanitation standards, infection prevention measures)?
- Do laws and regulations on sales of antibiotics ensure that access is not unduly restricted?

2.3 Primary care and essential public health functions at the core of integrated health services

Foundation of PCA: Effective governance, awareness and education

10. Pre-service education on AMR for primary care workers, including CHWs and community pharmacists

Indicator 10: AMR topics and education are included in pre-service educational curricula for primary care workers, including CHWs and community pharmacists.

Yes | Partially | No

Considerations:

- Which of the topics listed below are included in pre-service education for health workers, including CHWs and community pharmacists?
  - AMR
  - Prevention, diagnosis and treatment of (drug-resistant) infections
  - Immunization
  - IPC SOPs/guidelines in facilities
  - Monitoring and reporting of substandard and falsified medical products
  - Diagnostic stewardship
  - AMS
  - Communication with consumers and patients about AMR and risks, benefits and alternatives to antimicrobials for specific conditions.

11. In-service training and support on AMR for primary care workers, including CHWs and community pharmacists

Indicator 11: Primary care workers, including CHWs and community pharmacists, receive in-service training and support on AMR-related topics.

Yes | Partially | No

Considerations:

- Which of the topics listed below are covered in in-service training and support for the primary care workforce?
  - Prevention, diagnosis and treatment of (drug-resistant) infections
  - IPC SOPs/guidelines on IPC in facilities
  - Monitoring and reporting of substandard and falsified medical products
  - Diagnostic stewardship
  - AMS
  - Other (please explain)

Foundation of PCA: Strategic information obtained by surveillance and research

12. Primary care facilities that contribute data to AMR surveillance systems

Indicator 12: Data on infections in primary care are represented in AMR surveillance systems.

Yes | Partially | No

Considerations:

- Are there specimen referral mechanisms for use by primary care facilities*?
- Are suspected drug-resistant infections being confirmed by microbiology testing in external laboratories, including antimicrobial susceptibility testing (AST)?
- Are data on infections in primary care facilities collected and reported, for purposes such as outbreak investigation, reporting of notifiable diseases, or to support national and/or global surveillance?
- Are data collected in digitalized systems and/or linked to the routine health information system?
- What type of data are collected: syndromic, species identification, AST?
- For primary care providers: how are data on infections (including AMR) used in your facility?

** For this indicator, it is assumed that primary care facilities often do not have microbiology testing facilities and that if needed specimens are sent to external laboratory facilities for testing.*

13. Surveillance of AMU in primary care facilities and community pharmacies

Indicator 13: AMU data are published and shared with primary care providers.

Yes | Partially | No

Considerations:

- Are data on AMU in primary care facilities routinely collected from datasets aggregated according to medicines (e.g. records of sales, distribution or reimbursement in primary care)?
- Are the AMU data linked to information on diagnoses?
- Has a point prevalence survey of AMU been conducted in primary care facilities? When was one last conducted?
- Do primary care facilities report data on AMU? Are these maintained on paper or in electronic records? Where are the data reported, and how are they used?
- Do community pharmacies report data on AMU? On paper or electronically? Where are the data reported, and how are they used?
- How are AMU data used in primary care facilities and community pharmacies?
- Are private primary care facilities and pharmacies included in AMU surveillance?

Pillar 1 of PCA: Prevention

14. WASH in primary care facilities

Indicator 14.1: Adequate WASH infrastructure is available in primary care facilities to prevent the emergence and spread of (drug-resistant) infections.

Yes | Partially | No

Considerations:

- Is WASH infrastructure available in primary care facilities adequate to prevent the emergence and spread of (drug-resistant) infections?
  - → handwashing facilities, including soap and clean water;
  - → basic sanitation facilities;

- clean, safe drinking-water; and
- systems for safe disposal of health-care waste.

Indicator 14.2: Primary care facilities and community pharmacies have a plan and budget for safe disposal of unused and expired antimicrobials. Yes | Partially | No

Considerations:

- Do primary care facilities and community pharmacies have a strategy or plan for safe disposal of unused and expired antimicrobials?

15. IPC in primary care facilities

Indicator 15: Guidelines or SOPs for IPC in primary care facilities are available and implemented, and compliance is routinely monitored. Yes | Partially | No

Considerations:

- Are SOPs or guidelines of IPC available in primary care facilities?
- Is implementation of the SOPs or guidelines in primary care facilities monitored routinely? How often?
- Do new cleaning staff receive training in SOPs and guidelines on IPC upon employment?
- How often is refresher training on IPC SOPs and guidelines conducted for primary care workers?

16. Immunization

Indicator 16: The routine immunization programme includes vaccines related to AMR (e.g. diphtheria, tetanus toxoid and pertussis (DTP); measles-containing vaccine (MCV); and pneumococcal conjugate vaccine (PCV). Yes | Partially | No

Considerations:

- Does the routine immunization programme include vaccines related to AMR (e.g. DTP, MCV, PCV), and are these provided at primary care and community levels?
- What is the national coverage rate of DTP, MCV and PCV?

Pillar 2 of PCA: Access to essential health services

17. Affordability of essential medicines and health products, including vaccines, diagnostics, and antibiotics

Indicator 17: Access to essential vaccines, AMR diagnostics and medicines, including antibiotics, in primary care facilities is covered under health insurance payment schemes and/or in health benefits packages. Yes | Partially | No

Considerations:

- Are primary care services included in health benefits packages/universal health coverage schemes?
- Do these benefits include AMR-related prevention, diagnosis and treatment (e.g., vaccines, AMR diagnostics, antibiotics)?
- Does this include services and medicines obtained through private sector health providers?

18. Availability of essential medicines, including essential Access antibiotics, in primary care facilities

Indicator 18: Essential antibiotics are available at primary care level, and primary care facilities have adequate financial resources to obtain the necessary antibiotics.

Yes | Partially | No

Considerations:

- Is there a national list of essential medicines, and does it include the WHO AWaRe classification?
- Is there a national formulary or list of essential medicines for use in primary care that includes appropriate essential Access (narrow spectrum) antibiotics? Does the list also apply to the private sector?
- Do primary care facilities have adequate financial resources to procure essential Access antibiotics on the list?
- Are antibiotic shortages reported, and how are they managed?

Pillar 3 of PCA: Timely, accurate diagnosis

19. Availability of essential diagnostics for pathogen identification and AST in primary care facilities

Indicator 19: Affordable and quality-assured essential diagnostics are available for primary care facilities to diagnose (drug-resistant) infections.

Yes | Partially | No

Considerations:

- Is there a national list of essential diagnostics, and does it also apply to private sector providers? Some examples of essential diagnostics for primary care are:
  - → syphilis serological test;
  - → urine dipstick test for urinary tract infections;
  - → rapid diagnostic test for *Vibrio cholerae*;
  - → rapid Group A streptococcus antigen test.
- Are there reliable supply chains, including for essential diagnostics?
- Do patients presenting at primary care facilities have access to essential diagnostic tests?
- Are point-of-care diagnostics affordable, and/or are they covered in health benefits packages or universal health coverage schemes?
- Are primary care professionals trained in specimen collection, test procedures, and result interpretation for essential diagnostic tests?
- Are essential diagnostic tests incorporated into clinical algorithms?
- Are results documented, for example in patient information systems or logbooks?
- Are there specimen referral mechanisms for use by primary care facilities?
- Are there clinical guidelines or protocols that provide guidance on when to refer patients to higher levels of care for bacterial and fungal infections?
- Are there protocols to guide patient referrals for counselling and testing for sexually transmitted infections?

Pillar 4 of PCA: Appropriate, quality-assured treatment

20. Appropriate treatment ensured by AMS in primary care facilities

Indicator 20: An AMS programme or activities exists in primary care facilities, including a system to monitor compliance to treatment guidelines and plans, such as processes for post-prescription audit and feedback.

Yes | Partially | No

Considerations:

- Do primary care facilities have AMS programmes or activities to promote appropriate use of antimicrobials?
- Do primary care facilities have an AMS focal point or ensure collaboration between clinicians and pharmacists to promote appropriate antibiotic use? (For providers: does your facility have an AMS focal point and is he or she part of a primary care multidisciplinary team?)
- Is there a system to assess compliance of antibiotic prescribing and use with treatment guidelines? Is there a mechanism for providing feedback to primary care providers?

21. Up-to-date and evidence-based treatment guidelines to guide appropriate treatment in primary care facilities

Indicator 21: Evidence-based treatment guidelines (e.g. based on the WHO AWaRe antibiotic book) are available to guide appropriate treatment with antibiotics in primary care facilities.

Yes | Partially | No

Considerations:

- Are there national or local treatment guidelines for treating infections commonly seen in primary care?
- Are the treatment guidelines based on the best evidence (or the WHO AWaRe antibiotic book) and AMS principles?
- When were the treatment guidelines last updated?

References

1. People-centred approach to addressing antimicrobial resistance in human health: WHO core package of interventions to support national action plans. Geneva: World Health Organization; 2023 (https://iris.who.int/handle/10665/373458, accessed 1 February 2025).

World Health Organization
Antimicrobial Resistance Division
20 Avenue Appia
1211 Geneva 27
Switzerland

www.who.int