

Antimicrobial resistance

Report by the Director-General

1. In 2019, the Seventy-second World Health Assembly, through resolution WHA72.5, requested the Director-General, *inter alia*, to submit consolidated biennial reports on progress achieved in implementing resolution WHA72.5 and resolution WHA68.7 (2015) to the Seventy-fourth, Seventy-sixth and Seventy-eighth World Health Assemblies, in order to allow Member States to review and evaluate the efforts made.
2. The sections below provide a summary of WHO action at all levels since May 2019.
3. As at September 2020, 138 countries had a national action plan on antimicrobial resistance. To monitor progress, an annual tripartite antimicrobial resistance country self-assessment survey (TrACSS) has been administered since 2016. Over two thirds (136) of 194 WHO Member States responded to the 2019–2020 survey, the results of which have been published in an open-access database¹ and are analysed in an interim report.² A summary report of the action taken at the regional level is also available.³
4. Antimicrobial resistance threatens the achievement of many of the Sustainable Development Goals and of the objectives of the Thirteenth General Programme of Work, 2019–2023. This has prompted WHO to spearhead the global response to antimicrobial resistance in the human health sector and to coordinate the global One Health response, through the newly established Antimicrobial Resistance Division and its two departments (Surveillance, Prevention and Control, and Global Coordination and Partnerships).
5. WHO's work on antimicrobial resistance is cross-cutting in nature and involves other areas, including health systems strengthening, primary health care, communicable diseases, emergency preparedness and response, the environment, water, sanitation and hygiene (WASH) and food safety.
6. The global COVID-19 pandemic has spotlighted the impact of infectious diseases on human health and economic development. Strategies for addressing antimicrobial resistance, including surveillance, infection prevention and control, WASH, antimicrobial stewardship, awareness and multisectoral coordination, have been incorporated into the COVID-19 response and supported by

¹ Global Database for Antimicrobial Resistance: Country Self-Assessment (<https://amrcountryprogress.org>, accessed 6 October 2020).

² Monitoring Global Progress on Antimicrobial Resistance: Tripartite Annual Country Self-Assessment Survey (TrACSS 2019–2020): Interim global analysis report, October 2020 (<https://who.canto.global/b/P3JKP>, accessed 19 October 2020).

³ Implementation of the global action plan on antimicrobial resistance. Interim Summary Report: WHO Regional Offices, September 2020 (<https://who.canto.global/b/IVADA>, accessed 19 October 2020).

relevant staff. A risk assessment conducted by the Secretariat indicates that the pandemic has disrupted planned and ongoing national antimicrobial resistance activities.

PROGRESS IN IMPLEMENTING THE GLOBAL ACTION PLAN ON ANTIMICROBIAL RESISTANCE

Objective 1. Improve awareness and understanding of antimicrobial resistance through effective communication, education and training

7. Over 122 countries participated in World Antibiotic Awareness Week 2019, hosting a total of 720 events. The Awareness Week focused on the actions individuals can take to help slow the spread of resistance, including consulting a qualified health care professional before taking antibiotics, proper handwashing, ensuring vaccinations are up to date and practising safe sex.

8. All WHO regions have made significant contributions to raising awareness and providing training on antimicrobial resistance. Examples include the following: the first joint commemoration of World Antibiotic Awareness Week at continental level, co-organized by the Government of Kenya, FAO, OIE, WHO and the African Union Commission; a comprehensive special issue on antimicrobial resistance published in the Pan American Journal of Public Health; the development of an antimicrobial resistance curriculum module for primary and secondary schools, and of an online course, Antimicrobial Stewardship: A competency-based approach, in which more than 46 000 people enrolled; and the development of an online “Antibiotic Hero” application, videos and social media materials used by social media influencers to raise awareness of the issue.

9. The Organization, in collaboration with FAO and OIE, organized a global consultative meeting in May 2020 to broaden the scope of World Antibiotic Awareness Week from antibiotics to antimicrobials. The newly named World Antimicrobial Awareness Week, which will be held from 18 to 24 November every year, will provide a regular opportunity to link tailored antimicrobial messages and campaigns with World Toilet Day (November 19) and World Children’s Day (November 21).

Objective 2. Strengthen the knowledge and evidence base through surveillance and research

10. As at September 2020, 92 countries had enrolled in the Global Antimicrobial Resistance and Use Surveillance System (GLASS) and 66 were providing data.

11. In 2019, as part of the 2020 comprehensive review of the Sustainable Development Goals, WHO advocated the addition of an indicator to monitor antimicrobial resistance globally: “Percentage of bloodstream infections due to selected antimicrobial-resistant organisms”. Following an expert review and public consultations, the additional indicator (3.d.2) was approved in 2020.

12. All WHO regions provided technical support to strengthen national systems for the surveillance of antimicrobial resistance, consumption and use. Examples include the following: support from the WHO Regional Office for Africa to help strengthen antimicrobial susceptibility testing in 28 countries; the integration of antifungal and antibacterial resistance data into the Health Information Platform for the Americas (PLISA) by the Regional Office for the Americas; support for proof-of-principle projects in Central Asian countries, to strengthen their surveillance and diagnostic capacity, and participation in the Central Asian and European Surveillance of Antimicrobial Resistance network (CAESAR) by the WHO Regional Office for Europe; support for 20 countries enrolled in GLASS and for the implementation of integrated antimicrobial resistance surveillance in five countries by the WHO

Regional Office for the Eastern Mediterranean; and the establishment of a regional antimicrobial consumption surveillance system by the WHO Regional Office for the Western Pacific.

13. According to data from the recently issued third GLASS report,¹ growing antimicrobial resistance is a global threat; there are significantly higher rates of resistance in low- and lower-middle-income countries; and critically important antimicrobial drugs used to treat common infections are becoming ineffective all over the world.

14. The GLASS team recently developed and published key normative products, including the following: a method for estimating the attributable mortality of antimicrobial resistant bloodstream infections; guidance for national reference laboratories; and a technical note on whole-genome sequencing for surveillance of antimicrobial resistance. The team provides expert technical assistance to regions and countries on all aspects of GLASS implementation and on all GLASS modules.

15. The monitoring of global antimicrobial consumption and use has been incorporated into the GLASS platform. The first GLASS antimicrobial consumption data call was launched in September 2020. Training in the conduct of point prevalence surveys to assess antimicrobial use has been conducted or planned in more than 32 countries across four regions. Monitoring of consumption will provide information about the prescription, dispensing and clinical use of antimicrobials at patient level.

16. The GLASS – One Health surveillance model has been successfully implemented in nine countries. The aim is to detect the presence of extended spectrum beta-lactamase *Escherichia coli* in animal, human and environmental ecosystems as a first step in the development of a standardized method for integrated antimicrobial resistance surveillance in the context of the One Health approach.

17. The Structured Operational Research and Training Initiative (SORT IT), on tackling antimicrobial resistance, provided support for 36 research studies in six countries in 2019, and established communities of practice with 24 partner institutions and six WHO country offices.

Objective 3. Reduce the incidence of infection through effective sanitation, hygiene and infection prevention measures

18. Reducing the incidence of infection in health care facilities is a key driver for controlling the emergence and spread of antimicrobial resistance. To meet this objective, WHO issued three publications.

(a) In November 2019, it published the Minimum Requirements for infection prevention and control programmes, which describe the standards that should be in place at the national and facility level to provide minimum protection and safety to patients, health care workers and visitors, and are based on the WHO core components for infection prevention and control (IPC) programmes.

(b) Also in 2019, it published the Implementation manual to prevent and control the spread of carbapenem-resistant organisms at the national and health care facility level. The manual provides practical advice on the prevention and control of health care-associated infections caused by

¹ Global Antimicrobial Resistance and Use Surveillance System (GLASS) Report. Early implementation 2020. Geneva: World Health Organization; 2020 (<https://www.who.int/glass/resources/publications/early-implementation-report-2020/en/>, accessed 6 October 2020).

carbapenem-resistant Enterobacteriaceae, *Acinetobacter baumannii* and *Pseudomonas aeruginosa*.

(c) In September 2020, the WHO IPC Hub, in collaboration with the Antimicrobial Resistance Division, published the Core competencies for infection prevention and control professionals.

19. WHO regional offices provided technical support to reduce the incidence of infections. For example, the Regional Office for the Western Pacific leveraged the Asia Pacific Strategy for Emerging Diseases and Public Health Emergencies to support infection prevention and control, and strengthened clinical management; the Regional Office for Europe conducted WASH policy reviews and assessments in health care facilities; the Regional Office for the Eastern Mediterranean conducted a baseline assessment of national infection prevention and control programmes; the Regional Office for Africa disseminated guidance on the links between infection prevention and control and antimicrobial resistance to all Member States in the Region; and the Regional Office for the Americas conducted workshops on investigating and containing multidrug-resistant organisms in health care settings.

20. In June 2020, WHO, FAO and OIE published the Technical brief on water, sanitation, hygiene and wastewater management to prevent infections and reduce the spread of antimicrobial resistance, which summarizes evidence from all sectors to guide antimicrobial resistance-sensitive action under WASH and wastewater sector policy. WHO continues to mainstream antimicrobial resistance in the WASH in Health Care Facilities initiative and the new Hand Hygiene for All Global Initiative.

Objective 4. Optimize the use of antimicrobial medicines in human and animal health

21. The 2019–2020 TrACSS results indicate that 34 countries have adopted the AWaRe¹ classification of antibiotics in their national essential medicines list.

22. The WHO regional offices are working to establish and strengthen antimicrobial stewardship programmes. This includes antimicrobial stewardship training-of-trainers workshops and webinars; support for the adoption of the AWaRe classification in national essential medicines lists and/or national formulary; implementing and promoting programmes on antimicrobial stewardship in hospital and community settings; webinars and advocacy on food safety and its links to antimicrobial resistance; and a pooled procurement mechanism in small island developing States and the Southern African Development Community, to ensure that first-line antibiotics are available and affordable.

23. WHO published Antimicrobial stewardship programmes in health care facilities in low- and middle-income countries: A practical toolkit, to guide country implementation of antimicrobial stewardship at national and facility level. The toolkit is available in multiple languages. It is also developing new policy guidance for national authorities on establishing integrated antimicrobial stewardship activities.

24. Given the risk of resistance emerging as a result of irrational use of antimicrobials during the COVID-19 pandemic, the Secretariat reacted quickly and drew up evidence-based recommendations² on optimized antibiotic use for COVID-19 patients. Seven webinars held in five WHO regions to disseminate the published interim guidance document over 1500 participants.

¹ See <https://adoptaware.org> (accessed 6 October 2020).

² See Clinical management of COVID-19: interim guidance. World Health Organization, 2020 (<https://www.who.int/publications/i/item/clinical-management-of-covid-19>, accessed 6 October 2020).

25. Poor-quality antimicrobials are particularly widespread in low- and middle-income countries, jeopardizing patient safety and leading to treatment failures and to the development of drug resistance. To address this issue, WHO helps countries to assess their regulatory systems with a view to their “maturity level”, and to develop and implement institutional development plans. National regulatory systems for medicines and other health technologies have been assessed using the WHO Global Benchmarking Tool.¹

26. Further to the request formulated in resolution WHA72.5 to adjust the process and scope of the global development and stewardship framework to combat antimicrobial resistance in order to ensure a unified and non-duplicative effort, the Tripartite Joint Secretariat is producing a compilation of existing international instruments, including relevant environmental instruments, on the appropriate and prudent use of antimicrobials across the human, animal and plant sectors. The compilation will provide an overview of existing international standards, identifying gaps and potential areas for action.

Objective 5. Develop the economic case for sustainable investment that takes account of the needs of all countries, and increase investment in new medicines, diagnostic tools, vaccines and other interventions

27. Since 2017, WHO has conducted three consecutive annual analyses of all antibacterial treatments that are in clinical development. In 2019, it carried out the first preclinical antibacterial pipeline review and established an open-access database, which will be updated on a regular basis.

28. In May 2020, WHO published target product profiles to guide the development of antibacterial agents to treat four diseases of public health importance: enteric fever, gonorrhea, neonatal sepsis and urinary tract infections. It also published two target product profiles for antibacterial resistance diagnostic tools, following a landscape analysis of relevant gaps and priorities.

29. To increase investment in the clinical development of antibacterial treatments and diagnostic tools, WHO partnered with the European Investment Bank to develop a concept for an impact investment fund. Based on this work, WHO supported the creation of the recently launched AMR Action Fund, which is expected to inject around one billion US dollars in the development of novel antibacterial treatments. WHO continues to support the Global Antibiotic Research and Development Partnership.

30. WHO is expanding the scope of research and development coordination and priority-setting to include fungal infections of public health importance. It plans to publish a priority list of fungal pathogens of public health importance and a review of the clinical antifungal pipeline in 2021. The expert group established for this purpose held its first meeting in April 2020.

31. WHO has developed an action framework to leverage vaccines so as to reduce antibiotic use and prevent antimicrobial resistance. The framework will be launched in the fourth quarter of 2020.

GLOBAL COORDINATION AND TRIPARTITE PARTNERSHIP

32. The Tripartite Joint Secretariat on antimicrobial resistance was established in late 2019 to consolidate cooperation between WHO, FAO and OIE, and to support the global response to antimicrobial resistance across the One Health spectrum through global advocacy and political

¹ See https://www.who.int/medicines/regulation/benchmarking_tool/en (accessed 7 October 2020).

engagement. The Tripartite Joint Secretariat provides services for global governance structures recommended in the report of the ad hoc inter-agency coordination group on antimicrobial resistance to the United Nations Secretary-General.¹

33. WHO has been coordinating implementation of the group's recommendations, including those that will strengthen accountability and global governance structures. The latter include the following:

(a) **One Health Global Leaders Group on Antimicrobial Resistance (Global Leaders Group):** The Group's terms of reference were developed and finalized through a consultative process in collaboration with the Office of the United Nations Secretary-General. The process formally to establish the Group began in July 2020. Members representing Member States, civil society and the private sector will be appointed by the Tripartite Directors-General on behalf of the United Nations Secretary-General.

(b) **Independent Panel on Evidence for Action against Antimicrobial Resistance:** An advisory group was convened to help develop the Panel's draft terms of reference, which have since been published for public discussion. The draft terms of reference will be revised in the light of the feedback received and submitted to the United Nations Secretary-General for consideration and action.

34. The tripartite Antimicrobial Resistance Multi-Partner Trust Fund was launched in June 2019 in the Netherlands at the Second Ministerial Conference on Antimicrobial Resistance. The Fund's main aim is to support One Health action in low- and lower-middle-income countries, and investment in targeted global joint activities. As at September 2020, the Fund had raised nearly US\$ 13 million. Funds have been earmarked for nine country-level proposals.

35. The Ad hoc Codex Intergovernmental Task Force on Antimicrobial Resistance is revising the Code of Practice to Minimize and Contain Foodborne Antimicrobial Resistance. It has made substantial progress on key provisions and sent them to the CODEX Alimentarius Commission for further discussion.

CHALLENGES AND WAY FORWARD

36. The paragraphs below describe some of the key country-level and global challenges to the effective implementation of global and national action plans to combat antimicrobial resistance.

(a) **Prioritization in the context of COVID-19:** In low- and middle-income countries, implementation of national plans remains a challenge. It is essential for each country to cost and prioritize activities and integrate modes of service delivery aligned with the COVID-19 response (e.g. enhancing infection prevention and control, antimicrobial stewardship, WASH, supply chain management).

(b) **Multisectoral work and the One Health approach:** While many countries have established a multisectoral antimicrobial resistance working group, many of these groups are not functional. Multisectoral coordination requires additional resources and the integration of

¹ No Time to Wait: Securing the Future from Drug-Resistant Infections. Report to the Secretary-General of the United Nations, April 2019 (https://www.who.int/antimicrobial-resistance/interagency-coordination-group/IACG_final_report_EN.pdf?ua=1, accessed 7 October 2020).

antimicrobial resistance into each country's United Nations Sustainable Development Cooperation Framework.

(c) **Access to quality diagnostics and antimicrobials:** Health facility surveys conducted since 2010 and data on Sustainable Development Goal indicator 3.b.3 show that ensuring the availability of affordable antibiotic susceptibility testing and antimicrobials, especially antibiotics from the “access” and “watch” groups, remains a challenge in countries of all income levels. Even where diagnostics and antibiotics are available, they may not be affordable.

(d) **Sustaining political commitment:** Reliable and representative data are needed on the emergence, spread and burden of antimicrobial resistance. They will drive the development of an economic case for tackling antimicrobial resistance and the prioritization of action at country level.

(e) **Lack of financial and technical resources:** There is a critical need for additional financing to strengthen country and regional office technical capacities to control the emergence and spread of antimicrobial resistance, and to invest in global research and development.

ACTION BY THE EXECUTIVE BOARD

37. The Board is invited to note the report; in its discussions it is further invited to provide guidance on:

(a) accelerating Member State implementation of national action plans for combating antimicrobial resistance, including through linkages with plans and financing for universal health coverage and primary health care, and addressing health security challenges, including the COVID-19 response;

(b) enhancing feedback from health ministries on the process to review the Codex Code of Practice to Minimize and Contain Foodborne Antimicrobial Resistance, so that the Code reflects public health values.

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