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D. PLAN OF ACTION ON ANTIMICROBIAL RESISTANCE: MIDTERM REVIEW

Background

1. The purpose of this document is to report to the Governing Bodies of the Pan American Health Organization (PAHO) on progress in implementation of the Plan of Action on Antimicrobial Resistance (AMR), approved in October 2015 (Document CD54/12, Rev. 1 and Resolution CD54.R15) *(1)*. The goal of the Plan of Action is for Member States to take all necessary action possible, in accordance with their context, needs, and priorities, to ensure their capacity to treat and prevent infectious diseases through the responsible and rational use of safe, effective, accessible, and affordable quality-assured medicines and other health technologies. The Plan fits within the framework of universal health coverage, specifically with regard to timely access to quality medicines, and is in line with the Global Action Plan on Antimicrobial Resistance adopted by the 68th World Health Assembly in May 2015 *(2)*.

2. Recognizing the solid evidence on the estimated burden of disease and economic impact of AMR *(3, 4)* and understanding that the situation is a global crisis that endangers sustainable development, the United Nations General Assembly (UNGA) adopted a political declaration on antimicrobial resistance in 2016 *(5)*.

Analysis of Progress Achieved

3. An increasing number of countries recognize AMR as a priority intersectoral area of action in the health, agriculture, and livestock sectors. The Pan American Sanitary Bureau (PASB) is supporting countries to develop multisectoral approaches by providing multicountry workshops, tools, and consultations. In total, 30 countries have completed or are in the process of developing national action plans. Continued support will be needed to finalize these national action plans and ensure human and financial resources for their implementation and monitoring. Successful and sustainable implementation of the national action plans will go hand in hand with reaching the targets of this Plan of Action.

4. Progress has been made in all five of the strategic lines of action described in the Plan of Action. The specific steps taken toward each of the objectives and indicators are summarized in the tables below.

Strategic Line of Action 1: Improve awareness and understanding of antimicrobial resistance through effective communication, education, and training		
Objective	**Indicator, baseline and target**	**Status**
1.1 Promote the need for recognition of antimicrobial resistance as a priority intersectoral action	**1.1.1** Number of countries that have campaigns on antimicrobial resistance and rational use aimed at the general public and professional sectors Baseline: 9 in 2015 Target: 20 in 2020	In 2017, 31 countries worked to raise awareness and understanding of AMR risks for human health through participation in World Antibiotic Awareness Week, training activities, or national campaigns *(6, 7)*. It is important for countries to continue and expand nationwide awareness-raising activities and measure the impact of their efforts.
	1.1.2 Number of countries that carry out intersectoral activities to contain antimicrobial resistance, including professional training activities Baseline: 5 in 2015 Target: 10 in 2020	By 2017, 11 countries were carrying out training and educational activities from a One Health perspective as part of integrated surveillance activities.

Strategic Line of Action 2: Strengthen knowledge and scientific grounding through surveillance and research		
Objectives	**Indicator, baseline and target**	**Status**
2.1 Maintain and improve national resistance surveillance systems to monitor the impact of resistance on public health	**2.1.1** Number of countries that annually provide laboratory-based data on antimicrobial resistance Baseline: 20 in 2015 Target: 35 in 2020	As of 2017, 19 Latin-American countries were participating in the ReLAVRA[1] network *(8, 9)* and providing AMR data to PAHO on an annual basis. In addition, data from Canada and United States of America are publicly available. Additional technical collaboration is urgently needed to support the Caribbean countries and territories, 10 of which are already in the process of strengthening their laboratory capacity toward developing national AMR surveillance systems.

[1] Latin American Surveillance Network of Antimicrobial Resistance (ReLAVRA).

Objectives	Indicator, baseline and target	Status
	2.1.2 Number of countries in patient-centered antimicrobial drug resistance surveillance networks Baseline: 0 in 2015 Target: 10 in 2020	Four countries have joined the Global AMR Surveillance System (GLASS) *(10)*, which collects patient-centered AMR data. The ReLAVRA network is aligning to the GLASS methodology to support countries that have made the national decision to adopt it.
	2.1.3 Number of countries that report and analyze the use of antimicrobial drugs in humans and animal Baseline: 2 in 2015 Target: 5 in 2020	As of 2017, 4 countries were reporting and analyzing the use of antimicrobial drugs in both humans and animals *(6, 7)*. In all, 11 countries had a system in place for monitoring antimicrobial use in human health *(6, 7)* and 19 countries reported data on antimicrobial use in animals to the World Organisation for Animal Health (OIE) *(11)*.
2.2 Develop a national resistance surveillance system that includes data on zoonotic pathogens transmitted through food and through direct contact	**2.2.1** Number of countries and territories with multisectoral collaboration mechanisms to implement integrated antimicrobial resistance surveillance programs Baseline: 3 in 2015 Target: 11 in 2020	In 2017, 10 countries had implemented an integrated AMR surveillance program or had started to develop one with multisectoral collaboration.
2.3 Promote the monitoring of HIV resistance to antiretrovirals in the countries of the Region	**2.3.1** Number of countries that monitor HIV antiretroviral resistance in accordance with PAHO/WHO recommendations Baseline: 3 in 2015 Target: 15 in 2020	In 2017, 6 countries were monitoring HIV antiretroviral resistance in line with WHO-recommended HIV drug resistance surveillance guidelines *(12, 13)*. In addition, implementation was ongoing in 11 countries and in different stages of planning in 9 countries.
2.4 Have up-to-date information on the magnitude and trend of multidrug-resistant TB, to help strengthen the prevention of resistance	**2.4.1** Number of countries that perform susceptibility testing on 100% of previously treated TB cases Baseline: 3 in 2015 Target: 12 in 2020	As of 2016, 3 countries were performing drug susceptibility testing (DST) on 100% of previously treated TB cases *(14)*. With the progressive implementation of molecular diagnostic methods in a number of countries, the percentage of previously treated patients with drug susceptibility testing (DST) is increasing but has not yet reached 100% in most countries.

Objectives	Indicator, baseline and target	Status
	2.4.2 Number of countries that diagnose more than 85% of estimated cases of multidrug-resistant TB among reported tuberculosis cases Baseline: 6 in 2015 Target: 16 in 2020	As of 2017, only 1country was diagnosing more than 85% of estimated cases of MDR-TB, including rifampicin-resistant TB (RR-TB), among reported TB cases, in accordance with the current WHO classification of drug-resistant TB *(14).* There have been changes to the WHO definition of MDR-TB, which currently includes RR-TB, thereby superseding the criteria used to establish the 2013 baseline and target values. This indicator should be updated to reflect the current classification by WHO of drug-resistant TB and rephrased as "Number of countries that diagnose over 85% of estimated cases of MDR/RR-TB among reported tuberculosis cases." Accordingly, the baseline and target could be modified more realistically to 1 and 10 countries, respectively.
2.5 Have evidence obtained through studies that monitor antimalarial drug efficacy and resistance, to help improve treatment quality	**2.5.1** Number of countries that conduct periodic studies that monitor antimalarial drug efficacy and drug resistance Baseline: 6 in 2015 Target: 11 in 2020	Therapeutic efficacy studies and/or surveillance with molecular markers have been implemented in 8 countries to monitor drug efficacy and resistance, pursuant to PAHO/WHO guidelines *(15).*
2.6 Have a regional research agenda that can generate evidence applicable to public health on effective mechanisms for containing antimicrobial resistance	**2.6.1** Preparation of a regional research agenda on public health actions to contain antimicrobial resistance Baseline: 0 in 2015 Target: 1 in 2020	By the first semester of 2019, a consultation of Member States and other relevant stakeholders will be held to formulate the research agenda on public health actions for containing antimicrobial resistance.

Strategic Line of Action 3: Reduce the incidence of infections through effective sanitation, hygiene, and preventive measures		
Objective	**Indicator, baseline and target**	**Status**
3.1 Establish strategies to boost national capacities to contain, treat, prevent, monitor, and communicate the risk of diseases caused by multidrug-resistant organisms	**3.1.1** Number of countries with infection prevention and control programs that include national data on health care-associated infections Baseline: 9 in 2015 Target: 18 in 2020	As of 2017, 10 countries had an infection prevention and control (IPC) program in place that included mandatory surveillance for health care-associated infections (HAIs).
	3.1.2 Number of countries in which infection prevention and control capacities are evaluated Baseline: 13 in 2015 Target: 18 in 2020	As of 2017, 18 countries had been evaluated for infection prevention and control capacities using a standardized guide *(17)*. Of these 18 countries, 13 had a national IPC program in place.
	3.1.3 Number of countries that have an evaluation of their health infrastructure with regard to the control of aerosol-transmitted infections Baseline: 0 in 2015 Target: 10 in 2020	By 2017, 18 countries had made an evaluation of their health infrastructure with regard to the control of aerosol-transmitted infections *(17)*.

Strategic Line of Action 4: Optimize the use of antimicrobial drugs in human and animal health		
Objective	**Indicator, baseline and target**	**Status**
4.1 Establish national strategies to mitigate antimicrobial resistance and monitor the rational use of antibiotics, including strengthening the role of antibiotics committees	**4.1.1** Number of countries that have a written strategy for containing antimicrobial resistance (year of latest update), with a plan to measure results Baseline: 3 in 2015 Target: 14 in 2020	In 2017, according to the Global Monitoring of Country Progress on AMR self-assessment *(6-7)*, 14 countries had a national action plan in place and an additional 16 countries were developing such plans.

Objective	Indicator, baseline and target	Status
	4.1.2 Number of countries that have created and funded a special national, intersectoral group to promote the appropriate use of antimicrobial drugs and prevent the spread of infections Baseline: 5 in 2015 Target: 15 in 2020	By 2017, 8 countries had created a national intersectoral group to promote the appropriate use of antimicrobial drugs and prevent the spread of infections.
	4.1.3 Number of countries that have produced, through a funded national intersectoral group, reports and recommendations to promote the appropriate use of antimicrobial drugs and prevent the spread of infections Baseline: 5 in 2015 Target: 15 in 2020	The same 8 countries from the previous indicator (4.1.2) have produced reports and recommendations to promote the rational use of antimicrobials and prevent the spread of infection.
	4.1.4 Number of countries where nonprescription antibiotics are sold, despite regulations to the contrary Baseline: 15 in 2015 Target: 11 in 2020	As of 2017, 5 countries had regulations to ensure that antibiotics are sold and acquired only by prescription. To complement this indicator the Bureau is also collecting the information on the number of countries with regulations in place to ensure that antibiotics are sold and acquired only by prescription. As of 2017, 5 countries had regulations to ensure that antibiotics are sold and acquired only by prescription, while in 2015, 3 had such regulations and at the end of the implementation of this plan 10 countries should have them.

Strategic Line of Action 5: Prepare economic arguments for sustainable investment that takes into account the needs of all countries, and increase investment in new drugs, diagnostic tools, vaccines, and other actions.		
Objective	**Indicator, baseline and target**	**Status**
5.1 Generate and systematize evidence to document the economic impact of antimicrobial resistance	**5.1.1** Number of countries that produce studies that quantify the economic impact of antimicrobial resistance Baseline: 11 in 2015 Target: 20 in 2020	A literature search showed that 13 countries produce studies that quantify the economic impact of antimicrobial resistance.
5.2 Promote intersectoral cooperation for greater efficiency in the development, introduction, regulation, and use of new antimicrobial drugs, diagnoses, and vaccines	**5.2.1** Number of countries that are advancing in the development of agreements or new regulatory measures to evaluate new vaccines, diagnostic methods, and antimicrobial drugs, and that have included these in their health agendas Baseline: 6 in 2015 Target: 11 in 2020	In 2017, 8 countries were working on agreements or new regulatory measures to evaluate new vaccines, diagnostic methods, and antimicrobial drugs and had included these measures on their health agendas.
5.3 Develop a mechanism for exchanging information and experts among government, private sector, academia, and industry	**5.3.1** Available mechanism for the exchange of information and experiences between different sectors Baseline: 0 in 2015 Target: 1 in 2020	By the first semester of 2019, an expert consultation on AMR will be organized to get expert advice on the best mechanism for exchanging information and experts between the government, the private sector, academia, and industry.

Action Needed to Improve the Situation

5. In order to reach the targets for 2020, it will be important for PAHO to convene multicountry workshops on AMR topics, with emphasis on a multisectoral One Health approach, while also providing countries with tailor-made consultations in order to ensure the completion and sustainable implementation of national action plans. Detailed implementation, budget plans, and specific working groups are needed at the country level to ensure implementation of the strategic objectives for surveillance, infection prevention and control, and appropriate use of antibiotics in all sectors. The availability of financial and human resources at the country level is crucial and therefore Ministries of Finance should be actively involved.

6. AMR surveillance has been conducted in many countries for decades, but there is now a need to expand this surveillance to include antimicrobial use and to integrate the agricultural sector *(18, 19)*. At the same time, it is important to work on further improvement of existing surveillance systems in line with GLASS, with special emphasis on those areas in which surveillance is still in its early development.

7. Member States have regulations in place and are urged to enforce them, in particular with regard to the dispensing of antibiotics only by prescription. They are also urged to implement antimicrobial stewardship programs in hospitals and at the first level of care, as well as to monitor and evaluate national sales and the rational use of antimicrobials in humans and animals as part of their national plans.

8. Member States should pay urgent attention to the implementation of intervention strategies to improve the prevention and control of health care-associated infections, which is also essential to limiting the development and spread of multidrug-resistant bacteria.

9. With support from PAHO, Member States should make investments to ensure universal access to new diagnostic methods for testing drug susceptibility, including molecular techniques. Regarding tuberculosis, Member States should work on testing and improving routine surveillance for drug-resistant cases. In the area of HIV/AIDS, Member States should urgently address the emergence of resistance to antiretroviral medicines and align the HIV component of national AMR action plans with the new WHO Global Action Plan on HIV Drug Resistance *(21)*. In malaria, the decline in cases has made it more difficult to carry out therapeutic efficacy studies (TESs), the gold standard methodology for evaluating the efficacy of antimalarial drugs. In light of this situation, Member States are urged to continue monitoring the efficacy and resistance of antimalarials using molecular markers and TESs where possible *(15)*.

Action by the Directing Council

10. The Directing Council is invited to take note of this report and formulate the recommendations it deems pertinent.

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