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### PLAN OF ACTION ON ANTIMICROBIAL RESISTANCE

#### Introduction

1. Antimicrobial resistance increases mortality, morbidity, and health expenditures. It is a global phenomenon that has worsened in recent decades through the inappropriate use of antimicrobial drugs in human and veterinary medicine, through the lack of preventive and control measures for health-care-associated infections, and through the failure to develop new antimicrobial drugs. Its indirect consequences cause sizeable financial losses.
2. This Plan of Action on Antimicrobial Resistance is associated with other already existing plans of action on infectious diseases such as HIV infection, malaria, and tuberculosis.
3. For more than two decades the Region of the Americas has been a pioneer in confronting this problem from a public health perspective but, despite the proposals, initiatives, and efforts made, work still needs to be stepped up to make an impact on the containment of antimicrobial resistance and to quantify this impact.
4. The purpose of this five-year Plan of Action (2015-2020) is to provide guidelines to contain and reduce the impact of antimicrobial resistance and, insofar as possible, to ensure continuation of the treatment and prevention of infectious diseases with safe and effective quality drugs, responsibly used and accessible to those who need them. This objective is in the framework of universal health coverage, specifically with regard to timely access to quality drugs.
5. This Plan is based on the following elements and experiences: a) the draft global action plan on antimicrobial resistance drawn up by WHO, presented at the 68th World Health Assembly;<sup>1</sup> b) the work done in the Region during almost two decades; c) contributions from the Expert Group, both within and outside the Organization; d) the results of consultation and intersectoral dialogue; and e) contributions received from various ministries of health in the Region.

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<sup>1</sup> Documents [A68/20](#) and [A68/20 Corr. 1](#).

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## Background

6. In the roundtable debate on antimicrobial resistance (1), held on World Health Day 2011, the Member States requested that the Pan American Sanitary Bureau (PASB) prepare, and present to the Governing Bodies, a regional strategy and plan of action to contain antimicrobial resistance that would serve as guidance for national policies and operating plans.

7. In December 2013, PAHO's Technical Advisory Group on Antimicrobial Resistance reported to PASB's Director on the importance of developing national plans and priority activities to contain antimicrobial resistance (2). These national plans would have to be based on a plan of action.

8. In May 2014, the World Health Assembly requested, in Resolution WHA67.25, that the World Health Organization prepare a draft global action plan (3). The proposal presented during the 68th World Health Assembly in May 2015 was prepared through a consultative process with the United Nations Food and Agriculture Organization (FAO), the International Office of Epizootics (OIE), the Member States, intergovernmental agencies, civil society organizations, regulatory and public health agencies, industry associations, professional organizations, and patient groups.

## Situation Analysis

9. Antimicrobial resistance has been documented since the discovery of antibiotics and has increased considerably in recent decades, leading to the appearance of pathogens for which effective antibiotic treatment is not at present available.<sup>2</sup> In terms of magnitude and trends, antimicrobial resistance can be determined only by qualified microbiology laboratories. Accordingly, since the mid-1990s, the Region has made an effort in this regard, with the support of high-quality external programs. Laboratory networks have also been established, such as the Latin American Network for Antimicrobial Resistance Surveillance (RELAVRA) and the Surveillance System for the Bacterial Agents Responsible for Pneumonia and Meningitis (SIREVA Laboratory Network) (4, 5, 6). Currently, 21 countries participate in RELAVRA and report annually on more than 250,000 bacterial isolations. Data from this network contributed to the Global Report on Surveillance (7).

10. With a view to monitoring the development of antimicrobial resistance and proposing measures that would limit its spread, some countries in the Region, with support from RELAVRA, the Global Foodborne Infections Network (WHO-GFN), and PulseNet Latin America & Caribbean, are organizing integrated surveillance of antimicrobial resistance. The objective of these programs is to provide descriptive data and trends in the patterns of susceptibility or resistance in zoonotic and foodborne

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<sup>2</sup> "It is not difficult to make microbes resistant to penicillin in the laboratory by exposing them to concentrations not sufficient to kill them, and the same thing has occasionally happened in the body". Available from: Alexander Fleming. Nobel Price Lecture. December 11, 1945.

pathogens, and to create a select group of collegial bodies to identify unusual or high levels of resistance to antimicrobial drugs in humans, animals, and foods containing antimicrobial drugs (8-10).

11. The inappropriate use of antimicrobial drugs, both in humans and in animal health, is one of the determinants of antimicrobial resistance. Worldwide, more than 50% of these drugs are prescribed, dispensed, or sold inappropriately. This inappropriate use occurs at all levels of the health system, both in the public and private sectors. Taking action in different areas, such as educational, management, diagnosis, regulation, and economy, can improve the use of antimicrobial drugs by 63% and decrease the number of prescriptions by 23% (11). For some types of antimicrobial drugs, such as first-line tuberculosis drugs, these measures have been implemented consistently and there are few countries in the Region where these drugs can be obtained without a prescription. Regulations and the strict enforcement of standards for dispensation and sales have been initially effective, but a sustainable and coordinated approach needs to be encouraged in order to maintain this change (12). In addition, regulatory measures are needed to guarantee the quality of antimicrobial drugs, as well as sustained strategies and interventions to ensure evidence-based selection and rational use in accordance with clinical practice guidelines. The impact of policies and interventions can be evaluated by monitoring data on prescriptions and sales and, in general, through studies of drug use.

12. It is estimated that 10% of all patients who receive hospital care develop a health-care-associated infection (13, 14). In recent years, the Region experienced a series of outbreaks caused by multidrug-resistant bacteria, impacting lives and hospital costs (15). Not all countries have functioning national programs in place for the prevention of hospital infections, nor do they all monitor or control the profiles of multidrug-resistant bacteria in hospitals. The presence of multidrug-resistant bacteria in the environment, the lack of programs for rational use of antimicrobial drugs, inadequate hospital infrastructure that fails to control aerosol-transmitted infections like tuberculosis, and the lack of timely, high-quality microbiological diagnosis lead to the prescription of wide-spectrum antibiotics that induce resistance to microorganisms (16, 17).

13. In 2013 in Latin America and the Caribbean, 44% of the people estimated to be HIV-infected had access to antiretroviral therapy (ART); this represents the highest coverage level in the world among low- and middle-income countries. In recent years, the Latin America and the Caribbean region has shown great advances in the responsible and optimized use of ART, and in 2013, 77% of people in treatment presented a suppressed viral load. However, about 7.7% of people with HIV show transmitted or primary resistance before beginning ART, which may compromise the effectiveness and ability of countries to meet the universal access targets (the “90-90-90” targets) by 2020. PAHO is coordinating a regional initiative called the HIV Drug Resistance Technical Cooperation Network, the main objective being to support the implementation of drug resistance monitoring and the strategic use of data for public health policies and actions in Latin America and the Caribbean (18, 19, 20).

14. Drug-resistant tuberculosis is the result of poor management of the disease. Resistant strains develop in response to a poor treatment regimen, poor administration, or poor adherence to treatment. The prevalence of multidrug resistance<sup>3</sup> in the Region, including new and previously treated cases, was 2.2% in 1994 and 13.2% in 2007. In 2013, while resistance had increased throughout the world, prevalence rates in the Americas remained unchanged. Various initiatives were implemented to strengthen prevention measures and the programmatic treatment of resistance: the Expansion Plan for the Programmatic Management of Multidrug-resistant Tuberculosis (2010) was prepared and implemented; the Regional Green Light Committee (2011) was established to strengthen technical assistance for the proper management of drug resistance and rational use of second-line tuberculosis drugs acquired at accessible prices through the PAHO Strategic Fund; laboratory networks were strengthened for monitoring this; and new technologies were introduced for the diagnosis and detection of drug resistance. Currently, the countries of the Region offer diagnosis, treatment, and monitoring of drug-resistant tuberculosis free of charge for everyone affected (21-27).

15. With respect to surveillance of antimalarial efficacy and drug resistance, a surveillance network has been in place since 2001, called the Amazon Network for the Surveillance of Antimalarial Drug Resistance (RAVREDA). Through this network and with the support of the Amazon Malaria Initiative, surveillance of antimalarial efficacy and drug resistance was conducted. Work was undertaken to review and adapt WHO protocols to the realities of the Region in order to conduct studies to monitor the efficacy of the antimalarials in use. The results of these studies, carried out from 2002 to 2008, showed that *Plasmodium falciparum* was resistant to chloroquine in the Amazon basin countries, leading those countries to modify their treatment regimens and initiate combined treatments with artemisinin derivatives (28). Due to reports of artemisinin-resistant malaria in the Mekong area (29), new strategies have been implemented (30), for example, monitoring of *Plasmodium falciparum* cases on the third day of treatment, and analysis of possible molecular markers. However, this type of resistance has not been detected to date in the Region. Other key lines of work for preventing antimalarial drug resistance are the improvement of diagnostic quality through the Program for External Performance Evaluation in Microscopic Diagnosis of Malaria (31), and support to the countries for quality control of antimalarials. The Region of the Americas should be vigilant so as to prevent and eliminate any case resistant to artemisinin derivatives that may be introduced.

16. In the field of animal husbandry, more antimicrobial drugs are used in healthy animals for human consumption than are used in the treatment of human patients. In animal husbandry, antimicrobial drugs are used to prevent disease and stimulate growth, and are administered to many animals simultaneously and en masse. Some of these antimicrobial drugs are the same as those used in human medicine, which implies the risk of resistant bacteria emerging and spreading. The spread of resistant bacteria through food and direct contact is well documented in the literature. Another potential risk is the

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<sup>3</sup> Multidrug resistance is defined as resistance to isoniazid and rifampicin, whether or not it is accompanied by resistance to other drugs.

spread of resistant genes through food. Problems associated with the use of antibiotics in animal husbandry, including cattle, birds, and farmed fish, are increasing regionally and worldwide, leading to a growing awareness of the urgent need to take action (8, 9, 10).

17. The World Economic Forum has stated that the dissemination of antimicrobial-resistant bacteria has had an impact on the entire world, although its impact is likely greater in countries with fewer economic resources, since pathogens are spread by poor hygiene, polluted water sources, overpopulation in urban areas, and civil conflict (32). It is estimated that in the United States of America, 100,000 lives are lost each year to resistant infections that cost the health system US\$ 21-34 billion<sup>4</sup> a year. In Brazil, Bolivia, and Peru, more than half of hospital infections are caused by resistant pathogens. Gross domestic product losses have been estimated at 0.4% to 1.6% (33). Antimicrobial resistance affects the world economy, which means that solid economic arguments must be prepared and disseminated in defense of long-term sustainable investment to address the problem and, in particular, to ensure access to financial and technical support. The economic impact of the direct and indirect costs of multidrug resistance is huge. Whereas drugs to treat non-resistant TB cost \$25 over six months, the drug costs of treating multidrug-resistant TB are approximately \$5,000 over 24 months.

### **Plan of Action (2015-2020)**

#### **Goal**

18. The general goal of the Plan of Action is for Member States to take all possible necessary action to ensure that they can treat and prevent infectious diseases with safe, effective, and quality-assured drugs, used responsibly and accessible to everyone who needs them.

#### **Strategic Lines of Action**

##### ***Strategic Line of Action 1: Improve awareness and understanding of antimicrobial resistance through effective communication, education, and training***

19. Measures that raise awareness of antimicrobial resistance, such as public communication programs for professionals in human health, animal health, and agriculture, and for consumers, help promote changes in conduct. An introduction to antimicrobial resistance should be promoted as a basic subject in professional education, training, certification, and development in the health, agriculture, and livestock sectors.

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<sup>4</sup> Unless otherwise indicated, all monetary figures in this document are expressed in United States dollars.

Objective	Indicator	Baseline (2015)	Target (2020)
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	9	20
	1.1.2 Number of countries that carry out intersectoral activities to contain antimicrobial resistance, including professional training activities	5	10

***Strategic Line of Action 2: Strengthen knowledge and scientific grounding through surveillance and research***

20. The magnitude and trend of resistance is established through laboratory monitoring. High-quality routine laboratory data are the basis for initiating monitoring. This must be complemented by clinical data to help determine the public health impact, to estimate the burden of disease, and to quantify the economic consequences.

21. It is vital to work toward ensuring that antimicrobial drugs used in human medicine are gradually eliminated in animals destined for human consumption, and to improve their use in this sector through regulations, education, guidelines, and monitoring of both use and resistance. This requires integrated surveillance systems that provide continuously updated information on foodborne pathogens, their spread, and the state of antimicrobial resistance, in order to create risk profiles, evaluate and manage this risk, and measure the impact of interventions.

22. It is critical to facilitate the development of adequately financed regional and national research agendas on antimicrobial resistance, as well as establishing research mechanisms to generate evidence on which to base and evaluate policies in this field. In this context, epidemiological surveillance is indispensable for monitoring the effectiveness of public health actions.

Objectives	Indicator	Baseline (2015)	Target (2020)
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	20	35
	2.1.2 Number of countries in patient-centered antimicrobial drug surveillance networks	0	10
	2.1.3 Number of countries that report and analyze the use of antimicrobial drugs in humans and animals	2	5

Objectives	Indicator	Baseline (2015)	Target (2020)
<b>2.2.</b> Develop a national resistance surveillance system that includes data on zoonotic pathogens transmitted through food and through direct contact	<b>2.2.1</b> Number of countries and territories with multisectoral collaboration mechanisms to implement integrated antimicrobial resistance surveillance programs	3	11
<b>2.3</b> Promote the monitoring of HIV resistance to antiretrovirals in the countries of the Region	<b>2.3.1</b> Number of countries that monitor HIV antiretroviral resistance in accordance with PAHO/WHO recommendations	3	15
<b>2.4</b> Have up-to-date information on the magnitude and trend of multidrug-resistant TB, to help strengthen the prevention of resistance.	<b>2.4.1</b> Number of countries that perform susceptibility testing on 100% of previously treated TB cases	3	12
	<b>2.4.2</b> Number of countries that diagnose more than 85% of estimated cases of multidrug-resistant TB among reported tuberculosis cases	6	16
<b>2.5</b> Have evidence obtained through studies that monitor antimalarial drug efficacy and resistance, to help improve treatment quality	<b>2.5.1</b> Number of countries that conduct periodic studies that monitor antimalarial drug efficacy and drug resistance	6	11
<b>2.6</b> Have a regional research agenda that can generate evidence applicable to public health on effective mechanisms for containing antimicrobial resistance	<b>2.6.1</b> Preparation of a regional research agenda on public health actions to contain antimicrobial resistance	0	1

***Strategic Line of Action 3: Reduce the incidence of infections through effective sanitation, hygiene, and preventive measures***

23. Preventive measures can often be easily implemented as a cost-effective strategy to reduce health-care-associated infections without a large financial investment. National and hospital programs for infection prevention and control, which monitor the appearance of infections, prevent their dissemination, and contain outbreaks in health facilities, can reduce health-care-associated infections in general and infections caused by multidrug-resistant microorganisms in particular.

Objective	Indicator	Baseline (2015)	Target (2020)
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 national infection prevention and control programs that include national data on health-care-associated infections	9	18
	3.1.2 Number of countries in which national and local infection prevention and control capacities are evaluated	13	18
	3.1.3 Number of countries that have an evaluation of their health infrastructure with regard to the control of aerosol-transmitted infections	0	10

***Strategic Line of Action 4: Optimize the use of antimicrobial drugs in human and animal health***

24. This strategic line will be undertaken in conjunction with the Strategy for Universal Access to Health and Universal Health Coverage (34), given that rational use is a component of access to medicines. This means establishing strategies at the national level to mitigate resistance, including monitoring the use of antimicrobial drugs and strengthening antibiotics committees. Monitoring the degree of progress of these national strategies will help determine how antibiotics are being used in human beings and in animal husbandry, and will validate regulations on the prescription and sale of antimicrobial drugs.

Objective	Indicator	Baseline (2015)	Target (2020)
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 national strategy for containing antimicrobial resistance (year of latest update), with a plan to measure results	3	14
	4.1.2 Number of countries with a special, funded, national, intersectoral group that has produced reports and recommendations in the last two years to promote the appropriate use of antimicrobial drugs and prevent the spread of infections	5	15
	4.1.3 Number of countries that declare that—in practice, though contrary to regulations—non-prescription antibiotics are occasionally sold there	15	11



***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***

25. Economic arguments should reflect the need for capacity-building and, in particular, for training in environments with limited resources, as well as the need for new and accessible interventions, including medicines, diagnostic tests, and vaccines. Economic impact should be evaluated in terms of the health burden and the broader socioeconomic burden of antimicrobial resistance; and the cost of doing nothing should be compared with the cost and advantages of taking action.

26. It is necessary to invest urgently in the development of new drugs, diagnostic tools, and vaccines. The lack of investment in new antibiotics partly reflects the fear that resistance is rapidly spreading and that returns on investment will be limited by restricted use. Currently, most of the main pharmaceutical companies have stopped or slowed the pace of research in this area (35). There is a need for new processes that facilitate renewed investment in research and development of new antibiotics and that guarantee that the use of new products will be governed by a public health framework that maintains the effectiveness and longevity of the products, while ensuring their availability and access for the people who need them.

Objectives	Indicator	Baseline (2015)	Target (2020)
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 at the national level	To be determined	10
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 include the development, introduction, regulation, and use of new antimicrobials, diagnoses, and vaccines in their health agendas	To be determined	To be determined

### **Monitoring and Evaluation**

27. This Plan of Action helps achieve the objectives of category 5 of the Strategic Plan of the Pan American Health Organization 2014-2019<sup>5</sup> and is directly related to program area 5.2 and outcomes 5.2.1 and 5.2.2. Synergistically, this Plan helps

<sup>5</sup> The Strategic Plan of the Pan American Health Organization 2014-2019 is available from: [http://www.paho.org/hq/index.php?option=com\\_docman&task=doc\\_download&gid=27015&Itemid=270&lang=en](http://www.paho.org/hq/index.php?option=com_docman&task=doc_download&gid=27015&Itemid=270&lang=en)

implement program areas 5.3, 5.4, and 5.5. It is expected to have an impact on category 1, particular, program areas 1.1, 1.2, and 1.3, and on category 4, program area 4.3. Annex B lists other expected results of the Organization, to which this Plan contributes.

28. This Plan of Action helps achieve the objectives of the Global Action Plan on Antimicrobial Resistance presented at the 68th World Health Assembly.

29. Monitoring and evaluation of this Plan will comply with the Organization's results-based management framework, and with its performance, monitoring, and evaluation processes. As a result, PAHO is planning a mid-term evaluation (2017) and a final evaluation (2020), with contributions from the annual reports prepared by the countries, in order to document the progress made in achieving the indicators.

### **Financial Implications**

30. Implementation of the proposal includes expenditures for technical and administrative personnel and for cooperation activities over five years. It is estimated that a total of \$6,000,000 will be required. This amount does not include programmatic contributions for the prevention and control of specific diseases, such as tuberculosis, malaria, and HIV infection.

31. To achieve the objectives and goal of the proposed Plan of Action, the commitment of member countries, collaborating centers, and other partners in the field of antimicrobial resistance is essential. The Plan cannot involve the Bureau alone, but requires investments by the Member States in the preparation and implementation of national plans to contain antimicrobial resistance. Admittedly, national procedures are diverse in nature, but efforts must focus on improving laboratory quality, meeting regulatory requirements, and prioritizing actions in accordance with an analysis of the five strategic lines.

32. The Bureau will facilitate this work and support the countries in preparing, implementing, and supervising their national plans; directing and coordinating support to evaluate and meet the countries' funding needs; and publishing biennial progress reports that will include an evaluation of the countries and organizations that have plans in place, their progress in implementing the plans, and the effectiveness of the measures included in regional plans and the global plan. The reports will also include the progress made by the FAO, OIE, and WHO in implementing measures undertaken in tripartite collaboration.

33. With regard to the budgetary implications of interventions, it is essential that partners in the financial and economic sectors be involved; they must propose the economic arguments for national and international funding of the fight against antimicrobial resistance, and must evaluate the cost of implementing this Plan of Action and the cost of not adopting any plan. The World Bank or the Inter-American Development Bank could coordinate and lead this task.

**Action by the Executive Committee**

34. The Executive Committee is requested to review this Plan of Action on Antimicrobial Resistance and consider the possibility of approving the draft resolution presented in Annex A.

Annexes

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## 156th SESSION OF THE EXECUTIVE COMMITTEE

Washington, D.C., USA, 22-26 June 2015

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CE156/17  
Annex A  
Original: Spanish

### ***PROPOSED RESOLUTION***

#### **PLAN OF ACTION ON ANTIMICROBIAL RESISTANCE**

##### ***THE 156th SESSION OF THE EXECUTIVE COMMITTEE,***

Having reviewed the *Plan of Action on Antimicrobial Resistance* (Document CE156/17),

#### ***RESOLVES:***

To recommend that the 54th Directing Council adopt a resolution in the following terms:

#### **PLAN OF ACTION ON ANTIMICROBIAL RESISTANCE**

##### ***THE 54th DIRECTING COUNCIL,***

(PP1) Taking into account Resolution CD41.R14 (1999) on emerging and reemerging infectious diseases and antimicrobial resistance, and Document CD51/15, Rev. 1, Add. I (2011) on the containment of antimicrobial resistance;

(PP2) Aware of the importance of maintaining antibiotics as essential drugs that significantly help reduce morbidity and mortality from infectious diseases, particularly in persons in conditions of vulnerability, such as immunocompromised patients, cancer patients, transplanted patients, patients admitted to intensive care units, and, in general, anyone suffering from an infectious disease;

(PP3) Keeping in mind regional achievements and challenges in the surveillance and containment of antimicrobial resistance, which serve as a starting point for preparing the Plan of Action on Antimicrobial Resistance for 2015-2020;

(PP4) Recognizing that antimicrobial resistance is a health threat that requires a multisectoral response, and that the government's steering role is, consequently, fundamental for success;

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(PP5) Recognizing that, to achieve timely access to effective, quality antimicrobial drugs and ensure their proper use in human health, current national approaches must be reviewed;

(PP6) Based on the spirit of Pan-Americanism, the Millennium Development Goals, universally and regionally binding human rights instruments, and with a view to reducing the impact of infectious diseases and successfully maintaining the effectiveness of antimicrobial drugs, including antiviral, antifungal, antibacterial, and antiparasitic drugs,

**RESOLVES:**

(OP)1. To approve the *Plan of Action on Antimicrobial Resistance* and its implementation in the context of the conditions of each country.

(OP)2. To urge Member States, considering their own context and national priorities, to:

- a) renew their commitment to support the establishment of national action plans that consolidate national achievements and make it possible to design and implement concrete actions to contain antimicrobial resistance;
- b) allocate the resources needed to adequately operate, develop, and implement their national action plans:
  - i. available, trained human resources to support surveillance and monitoring of the proper use of antimicrobial drugs, stimulate intersectoral dialogue, and promote citizen and community participation, as well as collaboration within and outside the health sector;
  - ii. financial resources that ensure the sustainability of the Plan of Action and that enhance the capacities of national public health laboratories, access to and adequate use of antimicrobial drugs, and intersectoral collaboration;
- c) establish platforms for dialogue and multisectoral action to address the integrated monitoring of resistance, regulated use of antimicrobial drugs, and promotion of research and development; and to promote intersectoral participation (public and private sectors, other ministries—in particular agriculture—and civil society, among others) in order to make the most of resources and achieve synergies supporting the containment of resistance;
- d) take urgent action to promote the appropriate use of antimicrobial drugs, considering a comprehensive approach to the process of using education and communication to promote the responsible use of antimicrobial drugs by individuals and consumers;
- e) establish systems for the detection and monitoring of antimicrobial resistance, with quality management that ensures the suitability of laboratory data, as well as

- the integration of information from other sectors and information on the use of antimicrobial drugs;
- f) stimulate and support research and development to combat antimicrobial resistance, including academia and the private sector, in order to develop new, practical ideas that extend the shelf life of antimicrobials and stimulate the development of new diagnostic tools and antimicrobial drugs;
  - g) appropriately allocate and use resources to achieve the objectives of the Plan of Action on Antimicrobial Resistance for 2015-2020;
  - h) establish mechanisms to monitor and evaluate the implementation of the Plan.

(OP)3. To request the Director to:

- a) ensure that all the corresponding entities in the Bureau and the country offices provide committed and coordinated support to the countries' efforts to contain antimicrobial resistance;
- b) collaborate with the Member States in the implementation of this Plan for 2015-2020, in accordance with their needs, by taking a multidisciplinary and intersectoral approach and taking into consideration health promotion, human rights, gender equality, and universal health coverage;
- c) promote the implementation of this Plan of Action and ensure its transversality across the Organization's departments and the different subregional and national contexts and priorities, and through collaboration with and among the countries in the design of strategies and the exchange of capacities and resources;
- d) allocate sufficient resources for the Pan American Sanitary Bureau's work, in line with the Organization's budget planning; and continue advocating for the active mobilization of resources and promoting partnerships to support the implementation of this Resolution;
- e) consolidate and expand collaboration with the United Nations Food and Agriculture Organization (FAO) and the International Office of Epizootics (OIE) to combat antimicrobial resistance, in accordance with the "One Health" initiative;
- f) monitor and evaluate the implementation of this Plan of Action and submit a periodic progress report to the Governing Bodies on any limitations in the implementation of the Plan and any necessary adaptations to new contexts and needs.

## Report on the Financial and Administrative Implications of the Proposed Resolution for PASB

**1. Agenda item:** 4.8 - Plan of Action on Antimicrobial Resistance

**2. Linkage to Program and Budget 2014-2015:**

**a) Categories:**

This Plan of Action helps achieve category 5 (Preparedness, Surveillance, and Response) of the Program and Budget 2014-2015. It is also expected have an impact on categories 1 (Communicable Diseases) and 4 (Health Systems).

**b) Program areas and outcomes:**

This Plan of Action is directly related to program area 5.2 (Epidemic and Pandemic Diseases) and outcome 5.2. (“All countries are able to build resilience and adequate preparedness to mount a rapid, predictable, and effective response to major epidemics and pandemics”). For the 2016-2017 biennium, a new output for antimicrobial resistance will be created, in line with the global program. This output corresponds specifically to the implementation of the Global Action Plan on Antimicrobial Resistance.

Synergistically, this Plan helps achieve program areas 5.3 (Emergency, Risk, and Crisis Management), 5.4 (Food Safety), and 5.5 (Outbreak and Crisis Response). An impact is expected on category 1 (Communicable Diseases), particularly in program areas 1.1 (HIV/AIDS and STIs), 1.2 (Tuberculosis), and 1.3 (Malaria and other Vector-borne Diseases), and in category 4 (Health Systems), program area 4.3 (Access to Medical Products and Strengthening of Regulatory Capacity).

**3. Financial implications:**

**a) Total estimated cost for implementation over the lifecycle of the resolution (including staff and activities):**

US\$6,000,000<sup>1</sup> over five years. This amount does not include program activities for the prevention and control of specific diseases, such as tuberculosis, malaria, and HIV.

**b) Estimated cost for the 2016-2017 biennium (including staff and activities):**

\$2,350,000 is budgeted for the 2016-2017 biennium, including \$1,040,000 for staffing costs and \$1,300,000 for activities.

<sup>1</sup> Unless otherwise indicated, all monetary figures in this document are expressed in United States dollars.

**c) Of the estimated cost noted in (b), what can be subsumed under existing programmed activities?**

In the 2014-2015 biennium, activities related to antimicrobial resistance were split between two products/services (P/S) and two outputs (5.2.1 and 5.2.2). Of the \$830,000 planned for these P/S, \$210,000 was programmed (25%). It is possible that more resources will be programmed in the remaining months of 2015, but it is not expected that 50% of the planned amount will be reached. For the 2016-2017 biennium, it is assumed that resources for activities and staff will be increased, given the increased need for resources to implement the global action plan.

Accordingly, there is a need to increase the staff working on this issue: in addition to the advisor on antimicrobial resistance, part-time dedication is required of the advisor on food safety, and a specialist in antimicrobial resistance (already requested) is also needed.

**4. Administrative implications:**

**a) Indicate the levels of the Organization at which the work will be undertaken:**

The Department of Communicable Diseases and Health Analysis (CHA), specifically the IHR, Epidemic Alert and Response and Water-borne Diseases unit (CHA/IR) will be responsible for the Plan of Action, together with a cross-cutting operational group made up of professionals from other CHA units, as well as the departments of Health Systems and Services (HSS) and Communications (CMU) and the Knowledge Management, Bioethics, and Research office (KBR). The Technical Advisory Group on Antimicrobial Resistance will provide strategic advisory services.

**b) Additional staffing requirements (indicate additional required staff full-time equivalents, noting necessary skills profile):**

CHA/IR has requested the creation of a P3 post for a specialist in antimicrobial resistance, with a budget of \$372,000 for two years; and a request will be made to create P1 and P2 short-term professional posts. All the posts will be 100% devoted to the antimicrobial drugs project.

**c) Time frames (indicate broad time frames for the implementation and evaluation):**

The Resolution will have a five-year time frame, with a mid-term evaluation (2017) and a final evaluation (2020), to be complemented by the Organization's results-based management framework.

## ANALYTICAL FORM TO LINK AGENDA ITEM WITH ORGANIZATIONAL MANDATES

**1. Agenda item:** 4.8 - Plan of Action on Antimicrobial Resistance

**2. Responsible unit:** Communicable Diseases and Health Analysis/IHR, Epidemic Alert and Response, and Water-borne Diseases (CHA/IR)

**3. Preparing officer:** Pilar Ramón-Pardo

**4. Link between Agenda item and Health Agenda for the Americas 2008-2017:**

Antimicrobial resistance is directly linked with certain trends identified in the Situation Analysis, such as the spread of overcrowded urban areas, poor health conditions that facilitate the transmission of communicable diseases, and poor environmental conditions that favor the spread of resistant pathogens. It is expected that the implementation of the Plan of Action will help contain the increase in mortality, morbidity, and health costs related to infectious diseases, which are most frequent in the most vulnerable people and those with the most limited access to health services. Accordingly, the Plan of Action will promote health equity, one of the key principles of the Health Agenda.

Implementation of the Plan of Action will help strengthen the national health authorities in terms of: *a)* regulating the quality and rational use of antimicrobial drugs; *b)* addressing the determinants of health, especially hygiene and exposure to risks; and *c)* increasing social protection and access to quality health services aimed at reducing the risk of contracting multidrug-resistant, health-care-associated infections, and facilitating access to quality antimicrobial drugs when necessary.

**5. Link between Agenda item and the amended [PAHO Strategic Plan 2014-2019](#):**

This Plan of Action helps achieve category 5 (Preparedness, Surveillance, and Response). It is also expected have an impact on categories 1 (Communicable Diseases) and 4 (Health Systems).

**6. List of collaborating centers and national institutions linked to this Agenda item:**

WHO Collaborating Centers on antimicrobial resistance:

- Microbiology Laboratory, Division of Infectious Diseases, Department of Medicine, Brigham & Women's Hospital, Boston.
- National Center for Emerging and Zoonotic Infectious Diseases, Division of Healthcare Quality Promotion, Centers for Disease Control and Prevention (CDC), Atlanta.

Linked national institutions:

- Public Health Agency of Canada (PHAC) INEI ANLIS, Dr. Carlos G. Malbrán, Buenos Aires, Argentina

Linked multinational institutions:

- Caribbean Public Health Agency (CARPHA)

**7. Best practices in this area and examples from countries within the Region of the Americas:**

- The countries of the Americas (Argentina, Brazil, Chile, Ecuador, and Guatemala, among others) have identified emerging resistance mechanisms early on, and have used the International Health Regulations to evaluate and report this international health risk.
- The countries regularly provide PAHO with antimicrobial resistance data from microbiology laboratories, within the framework of a quality control system coordinated by INEI ANLIS (Dr. Carlos G. Malbrán, Buenos Aires, Argentina).
- Brazil, Chile, Costa Rica, Mexico, and other countries have rigorously implemented measures to ban the purchase of antimicrobial drugs without a medical prescription.
- The United States, Chile, and Canada have national plans for the containment of antimicrobial resistance, at different stages of development and implementation.
- Brazil hosted the global meeting on innovation and development to contain antimicrobial resistance, whose conclusions contributed to the Global Action Plan.
- Colombia has made an effort to undertake antimicrobial surveillance, and to design a national program for resistance surveillance that also includes the health-care-associated infections.

**8. Financial implications of this Agenda item:**

US\$6,000,000 over five years. This amount does not include program activities for the prevention and control of specific diseases, such as tuberculosis, malaria, and HIV.

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