Pan American Health Organization
World Health Organization
REGIONAL OFFICE FOR THE Americas

59th DIRECTING COUNCIL

73rd SESSION OF THE REGIONAL COMMITTEE OF WHO FOR THE AMERICAS

Virtual Session, 20-24 September 2021

Provisional Agenda Item 8.7

CD59/INF/7
27 July 2021
Original: English

PLAN OF ACTION ON IMMUNIZATION: FINAL REPORT

Introduction

1. The Plan of Action on Immunization (Document CD54/7, Rev.2) *(1)* was approved by the 54th Directing Council of the Pan American Health Organization (PAHO) in September 2015 through Resolution CD54.R8 *(2)* as the guiding framework for immunization in the Region of the Americas. Its vision was to achieve equitable access to immunization; to promote the right to the enjoyment of the highest attainable standard of health, including from the perspective of the right to health where nationally recognized; and to continue reducing morbidity and mortality from vaccine-preventable diseases. The Plan of Action is aligned with the Global Vaccine Action Plan 2011-2020 of the World Health Organization (WHO) *(3)* and the PAHO Strategic Plan 2014-2019.

2. Two progress reports on the Plan of Action were presented to the Governing Bodies in 2017 and 2019, showing advances in meeting the immunization targets, as well as difficulties in achieving equitable immunization coverage across the Region *(4, 5)*. The present document is intended to inform the Governing Bodies of the results obtained from implementing the Plan of Action and in meeting the 13 objectives (seven general objectives and six strategic objectives) and 29 indicators set forth therein.

Analysis of Progress Achieved

3. The following paragraphs report on the progress in the implementation of the Plan of Action by strategic lines of action. The assessment of the indicators follows the criteria for rating outcome and output indicators at regional level as presented in Annex B of Addendum I to the Report of the End of Biennium Assessment of the PAHO Program and Budget 2018-2019/Final Report on the Implementation of the PAHO Strategic Plan 2014-2019 (Document CD58/5, Add. I) *(6)*. The sources of information for this report were: reports by the Ministries of Health and the PAHO/WHO-UNICEF Joint Reporting Form on Immunization (JRF) with official data as of December 2019. The Pan American Sanitary Bureau (PASB or the Bureau) is currently receiving the joint reporting forms with

data for 2020 *(7)*, information from the surveillance systems, and a compilation of research and available information from other sources.

Strategic Line of Action 1: Sustain the achievements

4. The Region of the Americas has been polio-free for 26 years. The Global Certification Commission declared wild poliovirus type 2 (WPV2) eradicated in 2015, and wild poliovirus type 3 (WPV3), in October 2019 *(8)*. The Regional Polio Eradication Certification Commission (RCC), which performs assessments of risk for importation of poliovirus, whether wild or vaccine derived (VDPV), and the emergence of a VDPV, concluded that Bolivia and Haiti were at very high risk and seven additional countries[1] were considered to be at high risk. To mitigate the risk of a polio event or outbreak, four countries conducted national vaccination campaigns in 2019 and achieved the following levels of coverage: Dominican Republic, 96%; Guatemala, 93%; Haiti, 90%; and Venezuela, 96%. The year 2020 saw an important reduction in the number of reported cases of acute flaccid paralysis (AFP) in the Region compared with the previous three years. In terms of all three main AFP surveillance indicators,[2] Costa Rica, Mexico, Nicaragua, and Paraguay had an adequate level of performance.

5. During the 2016-2020 period, 15 countries in the Region[3] succeeded in stopping measles transmission and avoiding the establishment of endemic transmission. Venezuela managed to control a measles outbreak reported between 2017 and 2019 amid a humanitarian crisis. At the time of preparation of this report, Brazil is the only country that has continued to have ongoing circulation of the measles virus since 2017. In the Region, three of the six international indicators for integrated measles/rubella surveillance[4] failed to be met during the 2016-2020 period. These gaps in the indicators; the low vaccination coverage with the first and second doses of vaccines against measles, mumps, and rubella in many countries and territories; the widespread circulation of viruses in other Regions; and the opening up of borders—all suggest that the occurrence of new outbreaks of varying magnitude in the Americas cannot be ruled out *(9)*.

6. Progress has also been made in the elimination of mother-to-child hepatitis B transmission. As of 2019, it was estimated that 17 countries had reached the goal of eliminating mother-to-child transmission *(10)*, which was the result of interprogrammatic work.

[1] Brazil, Dominican Republic, Ecuador, Guatemala, Paraguay, Suriname, and Venezuela.

[2] AFP rate (1AFP case per 100.000 children under 15 years old), percentage of AFP cases investigated within 48 hours (≥ 80%), and percentage of AFP cases with adequate specimen (≥ 80%).

[3] Argentina, Antigua and Barbuda, Bahamas, Canada, Chile, Colombia, Costa Rica, Cuba, Ecuador, Guatemala, Mexico, Peru, Saint Lucia, United States of America, and Uruguay.

[4] Notification rate of suspected cases per 100,000 population, percentage of sites reporting weekly, and percentage of blood samples received by the laboratory within five days.

7. During the 2016-2020 period, three national and one subregional Technical Advisory Groups (TAG) were created. The Caribbean Immunization Technical Advisory Group (CiTAG), created in 2018, advises 20 English- and Dutch-speaking Caribbean countries/territories on immunization *(11)*.

General Objective 1.1: Maintain the Region's status as polio-free	
Indicator, baseline, and target	**Status**
1.1.1 Number of countries and territories reporting cases of paralysis due to wild poliovirus or the circulation of vaccine-derived poliovirus (cVDPV) in the last year Baseline (2013): 0 Target (2020): 0	***Achieved.*** As of 2019, none of the 51 countries and territories in the Region reported cases of paralysis due to wild poliovirus or cVDPV.
General Objective 1.2: Maintain elimination of measles, rubella, and CRS	
Indicator, baseline, and target	**Status**
1.2.1 Number of countries and territories in which endemic transmission of measles or rubella virus has been reestablished Baseline (2013): 1 Target (2020): 0	***Not achieved.*** As of 2019, one country in the Region was reporting endemic cases of the measles or rubella virus. On 13 March 2013, a measles outbreak erupted in Pernambuco, Brazil, and was spreading to Ceará, a neighbor state. Endemic transmission was re-established a year later in Brazil on 14 March 2014.
General Objective 1.3: Maintain achievements reached in vaccine-preventable disease control	
Indicator, baseline, and target	**Status**
1.3.1 Number of countries and territories that meet the indicators for monitoring the quality of epidemiological surveillance of acute flaccid paralysis (AFP) cases Baseline (2013): 2 Target (2020): 13	***Partially achieved.*** As of 2019, five of the 51countries and territories in the Region had met the indicator for monitoring the quality of epidemiological surveillance of AFP cases.
1.3.2 Number of countries and territories that meet the indicators for monitoring the quality of epidemiological surveillance of suspect measles, rubella, and congenital rubella syndrome cases Baseline (2013): 9 Target (2020): 18	***Partially achieved.*** As of 2019, 15 of the 51 countries and territories in the Region had met the indicator for monitoring the quality of epidemiological surveillance of suspect measles, rubella, and congenital rubella syndrome cases. Countries with large measles outbreaks classified cases by epidemiological-link or clinical criteria. As a result, the percentage of suspected cases based on blood sampling decreased, as did the number corresponding to the plan's indicator.

General Objective 1.3: Maintain achievements reached in vaccine-preventable disease control	
Indicator, baseline, and target	**Status**
1.3.3 Number of countries and territories that administer hepatitis B vaccine to newborns during the first 24 hours Baseline (2013): 18 Target (2020): 25	***Exceeded.*** As of 2019, 31 countries and territories had adopted the universal birth dose vaccination policy.
Strategic Objective 1.1: All countries make a commitment to vaccination as a priority for health and development	
Indicator, baseline, and target	**Status**
1.1.1 Number of countries and territories that have a legislative or regulatory basis for their immunization program Baseline (2013): 28 Target (2020): 32	***Not achieved.*** As of 2019, no additional country or territory had approved legislation for their immunization programs.
1.1.2 Number of countries and territories having an immunization technical advisory committee that meets WHO's criteria for good operation Baseline (2013): 15 Target (2020): 18	***Exceeded.*** As of 2019, 38 countries and territories reported having the support of a well-functioning National Immunization Technical Advisory Group (NITAG).
1.1.3 Number of countries and territories that have a current annual immunization plan of action that includes operational and financial plans Baseline (2013): 25 Target (2020): 35	***Achieved.*** As of 2019, 32 countries and territories had an up-to-date annual immunization plan of action that includes operational and financial plans. Although the indicator was met by 39 countries and territories by 2018 *(5)*, there was a decrease afterwards in the number of countries with funded plans of action due to the emergence of other priorities.
Strategic Objective 1.2: Individuals and communities understand the value of the vaccines	
Indicator, baseline, and target	**Status**
1.2.1 Number of countries and territories that report having monitored public satisfaction with vaccination during Vaccination Week in the Americas or other activities Baseline (2013): 0 Target (2020): 15	***Partially achieved.*** As of 2019, 10 countries and territories reported having used Vaccination Week in the Americas (VWA) as a platform for monitoring public awareness, acceptance, and satisfaction during VWA 2018.

Strategic Line of Action 2: Complete the unfinished agenda in order to prevent and control vaccine-preventable diseases

8. In Haiti, neonatal tetanus was declared eliminated in 2017 based on the results of a desk review, field visits, household surveys, and analysis of live births. Data collected from vaccination cards and patient histories showed that maternal coverage with the second dose of the tetanus and diphtheria (Td2) vaccine was 53%; the proportion of deliveries in a health facility was 45%; and no cases of tetanus were identified in the 44 neonatal deaths recorded in a survey. However, maintaining neonatal tetanus elimination, especially in hard-to-reach areas, is a challenge for all countries *(12).*

9. Regarding vaccination coverage targets, coverage with the third dose of the diphtheria, tetanus and pertussis (DPT3) vaccine saw a decline in infants under the age of one year, from 91% in 2015 to 84% in 2019. This trend was largely due to reductions in coverage in countries with large child cohorts (Argentina, Brazil, Haiti, Mexico, and Venezuela), which affected the average for the Region. In addition to operational challenges, the immunization program has faced political and structural difficulties, among them health system reforms and decentralization processes, as well sociopolitical situations. A major objective is to achieve high coverage at national levels, as well as homogeneous coverage at subnational and local levels. According to 2019 data, 53% of children under 1 year of age in Latin America and the Caribbean live in municipalities in which DPT3 coverage is below 80%.

General Objective 2.1: Eliminate neonatal tetanus as a public health problem in all countries	
Indicator, baseline, and target	**Status**
2.1.1 Number of countries and territories with municipalities reporting rates of neonatal tetanus (NTT) above 1/1,000 live births Baseline (2013): 1 Target (2020): 0	***Achieved.*** As of 2019, none of the 51 countries and territories had reported municipalities with rates of neonatal tetanus above 1/1000 live births.
General Objective 2.2: Meet DPT vaccination coverage targets at all levels	
Indicator, baseline, and target	**Status**
2.2.1 Number of countries and territories reporting national average coverage of at least 95% with three doses of DPT vaccine in children under 1 year Baseline (2013): 19 Target (2020): 35	***Not Achieved.*** As of 2019, 13 countries had reached at least 95% coverage with DPT3. Reasons for the decline included vaccine stock-outs for DPT, physical barriers to access, and limited resources for operational activities, among others.
2.2.2 Number of countries and territories reporting coverage of at least 80% in each district or equivalent with three doses of DPT vaccine in children under 1 year Baseline (2013): 12 in 2013 Target (2020) 35 in 2020	***Partially achieved.*** As of 2019, 15 countries reported at least 80% DPT3 coverage in each district.

Strategic Objective 2.1: Immunization benefits extend equitably to all people and social groups	
Indicator, baseline, and target	**Status**
2.1.1 Number of countries and territories reporting coverage by income quintile or other subgroups that make it possible to monitor vaccination equity Baseline (2013): 0 Target (2020) 15	***Partially achieved.*** As of 2019, eight countries in the Region had reported coverage by income quintile or other subgroups that make it possible to monitor vaccination equity.

Strategic Line of Action 3: Tackle new challenges in the introduction of vaccines and assess their impact

10. During the period of the Plan of Action, 14 countries or territories introduced one or more new vaccines in their immunization schedule. As of 2019, 37 countries and territories had introduced the pneumococcal conjugate vaccine (PCV); 22, the rotavirus vaccine; and 43, the human papilloma virus (HPV) vaccine in their routine vaccination schedules.

11. During the 2016-2020 period, countries and territories in the Region strengthened their capacity to make decisions based on evidence and to assess the impact thereof. More countries or territories were added to the list of those conducting studies before and after the introduction of a vaccine. In particular, multicenter and individual country studies have been conducted after the introduction of rotavirus and PCV vaccines (19 rotavirus assessments in 10 countries[5] and 14 PCV assessments in 11 countries[6]). An assessment of the impact of PCV vaccine on mortality in children under 5 years of age was conducted in 10 countries of Latin America and the Caribbean.[7] The mortality rate due to pneumonia per 10,000 children aged 2-59 months in the pre-PCV period ranged from 7.8 in Argentina to 29.6 in Peru. Following the introduction of PCV, most countries showed some evidence of reduced mortality due to pneumonia among children in this age group. In all, approximately 4,500 pneumonia deaths in the age group were avoided in the 10 countries since the introduction of PCV *(13).*

[5] Bolivia, Brazil, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, and Venezuela.

[6] Argentina, Brazil, Colombia, Chile, Dominican Republic, Ecuador, Guyana, Honduras, Mexico, Nicaragua, and Peru.

[7] Argentina, Brazil, Colombia, Dominican Republic, Ecuador, Guyana, Honduras, Mexico, Nicaragua, and Peru.

General Objective 3.1: Introduce vaccines in accordance with technical and programmatic criteria	
Indicator, baseline, and target	**Status**
3.1.1 Number of countries and territories that have introduced one or more new vaccines into their national vaccination schedules Baseline (2013): 32 Target (2020): 40	***Exceeded.*** As of 2019, 46 countries and territories had introduced one or more new vaccines (rotavirus, pneumococcal, HPV) into their national vaccination schedules.
Strategic Objective 3.1: Decision-making is evidence-based and impact assessments ensure that policies are adopted to maximize the benefits of vaccination	
Indicator, baseline, and target	**Status**
3.1.1 Number of countries and territories that have conducted studies prior to the introduction of a vaccine (e.g., cost-effectiveness analysis) Baseline (2013): 14 Target (2020): 20	***Partially achieved.*** As of 2019, 16 countries had conducted studies prior to the introduction of new vaccines.
3.1.2 Number of countries and territories that have conducted studies after the introduction of a vaccine (e.g., impact assessments, operational review, etc.) Baseline (2013): 9 Target (2020): 15	***Exceeded.*** As of 2019, 19 countries had conducted studies after the introduction of new vaccines.

Strategic Line of Action 4: Strengthen health services for effective vaccine administration

12. As of 2019, Regional influenza vaccination coverage among pregnant woman was 75%. Despite this achievement, countries need to further strengthen monitoring systems and data quality in order to better document vaccination coverage among pregnant women. The goal is for countries to use accurate data to design more timely and effective vaccination strategies and reach a larger proportion of pregnant women.

13. Technical cooperation has been undertaken in countries of the Region with various objectives, such as expanding capacity for vaccine storage, purchasing new refrigeration equipment, providing training and updates on technologies and new tools for strengthening cold chain management, improving supply chain operations, and managing vaccines. A total of 14 countries have implemented the WHO Vaccination Supplies Stock Management (VSSM) tool and seven countries are using its online application (wVSSM) to better manage their stocks.

General Objective 4.1: Achieve the expected results proposed by the Post-2015 Development Agenda for reductions in infant mortality and maternal mortality	
Indicator, baseline, and target	**Status**
4.1.1 Number of countries and territories whose immunization schedules include vaccination of pregnant women against influenza and/or with tetanus-diphtheria vaccine, as tracers of maternal vaccination Baseline (2013): 27 Target (2020): 35	***Achieved.*** As of 2019, influenza vaccination was being prescribed for pregnant women in 34 countries of the Region.
4.1.2 Number of countries and territories that offer other preventive interventions integrated with vaccination Baseline (2013): 4 Target (2020): 20	***Exceeded.*** As of 2019, 35 countries were offering preventive interventions integrated with vaccination—for example: deworming, iron and folic acid, vitamin A, etc.
Strategic Objective 4.1: Supplies are available for the immunization program on a sustainable basis with national resources	
Indicator, baseline, and target	**Status**
4.1.1 Number of countries and territories that finance more than 90% of their immunization programs with national resources Baseline (2013): 27 Target (2020): 35	***Achieved.*** As of 2019, 34 countries and territories in the Americas were able to fund their programs with domestic resources.
4.1.2 Percentage of birth cohort in Latin America and the Caribbean that has access to an adequate vaccine supply of quality vaccines Baseline (2013): 100 Target (2020): 100	***Achieved.*** As of 2019, 100% of the cohort had access to an adequate supply of quality vaccines.
4.1.3 Number of countries and territories that procure vaccines through the Revolving Fund that meet the criteria for accuracy of demand for vaccines and supply Baseline (2013): 10 Target (2020): 30	***Partially achieved.*** As of 2019, 13 of 41 participating countries and territories were able to accurately forecast at least 50% of the vaccines procured.
Strategic Objective 4.2: Strengthened immunization services are part of comprehensive, well-run health services	
Indicator, baseline, and target	**Status**
4.2.1 Number of countries and territories that have dropout rates below 5% between the first and the third dose of DPT vaccine Baseline (2013): 11 Target (2020): 35	***Partially achieved.*** As of 2019, 26 countries and territories had a dropout rate between the first and the third dose of DPT vaccine of less than 5%.

Strategic Objective 4.2: Strengthened immunization services are part of comprehensive, well-run health services	
Indicator, baseline, and target	**Status**
4.2.2 Number of countries and territories with coverage above 95% for third dose of DPT vaccine sustained for three or more consecutive years Baseline (2013): 13 Target (2020): 35	***Not achieved.*** As of 2019, six countries and territories had maintained DPT3 coverage above 95% for three or more consecutive years. Countries and territories were affected by challenging circumstances: migration, displacement, urbanization, and vaccine hesitancy, among others.
4.2.3 Number of countries and territories that have conducted exercises to identify and correct barriers to reaching the unvaccinated or under-vaccinated populations Baseline (2013): 22 Target (2020): 35	***Partially achieved.*** As of 2019, 30 countries and territories had conducted exercises to identify and correct barriers to reaching unvaccinated or under-vaccinated populations.
4.2.4 Number of countries and territories that have held activities to improve the quality of their coverage data and that include these activities in their annual action plans Baseline (2013): 12 Target (2020): 25	***Exceeded.*** As of 2019, 30 countries and territories had held activities to improve the quality of their immunization data.
4.2.5 Number of countries and territories that have a national system for computerized nominal immunization registry Baseline (2013): 3 Target (2020): 10	***Exceeded.*** As of 2019, 19 countries and territories had Electronic Immunization Register systems in place.
4.2.6 Number of countries and territories that report having had a stock-out of a vaccine or related supplies for one full month or more at any level (local, subnational, or national) Baseline (2013): 11 Target (2020): 0	***Not achieved.*** As of 2019, 26 countries and territories had reported stock-outs for PCV, rotavirus, Bacille Calmette-Guérin (BCG), DPT3, measles, yellow fever (YF), HPV, inactivated polio vaccine (IPV), polio, Tdap, or hepatitis B. Reasons for not achieving the indicator included global lack of production capacity for certain vaccines, such as: YF, DTaP, BCG, Pentavalent vaccine, and IPV, as well as administrative/financial challenges.
4.2.7 Number of countries and territories that have strengthened post-marketing surveillance of vaccines in the Expanded Program on Immunization (EPI) Baseline (2013): 4 Target (2020): 10	***Exceeded.*** As of 2019, 38 countries and territories had strengthened post-marketing surveillance of vaccines in the EPI with a national system to monitor adverse events following immunization.

Strategic Objective 4.2: Strengthened immunization services are part of comprehensive, well-run health services	
Indicator, baseline, and target	**Status**
4.2.8 Number of countries and territories that hold vaccination activities geared to health workers Baseline (2013): 19 Target (2020): 25	***Exceeded.*** As of 2019, 30 countries and territories were working to improve the knowledge and skill of their health workers.

Ensure that immunization remains an essential activity at the first level of care during the COVID 19 pandemic

14. After the declaration of the COVID-19 pandemic in March 2020, WHO and the Bureau recommended that immunization be maintained as an essential health service. However, the demand for immunization services had decreased because of people's concerns about the risk of exposure to COVID-19, as well as a redirection of immunization program and surveillance health workers to COVID activities. A comparison of the number of doses of DPT1 and DPT3 administered to children during the first trimester in 2019 and in 2020 showed a 14.33% reduction for DPT1 and a 12.26% reduction for DPT3 *(14)*. In the Region, 17 out of 38 countries and territories reported being affected by the pandemic, primarily due to priority being shifted to focus on the surveillance of SARS-CoV-2 cases. Similarly, laboratory services and activities were affected in 12 countries.

15. The Bureau is in close contact with all the countries to support the functioning of their immunization programs. This support has included: *a)* providing guidance regarding the operation of immunization programs in the context of the COVID-19 pandemic *(15, 16)*; *b)* organizing an ad hoc TAG meeting *(17)*; *c)* adapting and disseminating the Strategic Advisory Group of Experts on Immunization recommendations; *d)* updating Member States on progress made in planning components for the introduction of COVID-19 vaccines and discussing key priority activities to support countries in the Region; *e)* providing technical assistance on planning follow-up vaccination campaigns that were suspended due to the pandemic; and *f)* developing technical documents, tools, training workshops, and virtual seminars on how to maintain routine immunization operations while also preparing countries for the introduction of COVID-19 vaccine(s).

16. Countries have made extraordinary efforts to sustain immunization as an essential service during the pandemic, including the provision of financial resources to secure personal protective equipment for the personnel involved. Countries have also developed innovative approaches to establishing vaccination posts during lockdowns in such places as pharmacies, grocery stores, and banks where retirees collect their pensions. Several of them offered "drive-through immunization," in which patients could receive their vaccinations without leaving their car. Efforts to maintain people physically distanced included offering immunization services outdoors, extending service hours for longer periods during the day and on weekends, and assigning patients specific times to access

services through appointments or by assigning days based on demographic criteria such as gender or last name.

Lessons Learned

17. During the five-year implementation period of the Plan of Action (2016-2020), the Region of the Americas made great progress, but it has also had to address considerable challenges. The lessons learned have helped to build a resilient Region-wide vaccination program that is increasingly capable of overcoming crises as it deals with the needs of the population, including maintaining routine vaccination and surveillance of vaccine-preventable diseases during the COVID-19 pandemic. A few of these lessons are summarized below.

a) The Plan of Action on Immunization served as a framework for monitoring and evaluating the strategies and activities being implemented and strengthening the use of immunization data. Countries adopted the PAHO/WHO-UNICEF Joint Reporting Form on Immunization as the official source of information for the Plan of Action on Immunization and improved the quality and the timeliness of reporting.

b) Achieving homogenous high coverage at the subnational level met with challenges due to a number of different circumstances, some of them beyond the immunization program's control, such as political instability, displacement, and migration. To address these challenges, it will be important to apply a country-focused approach and explicitly involve new stakeholders, including community leaders and local governments.

c) The role of communication, including risk communication and community engagement, is key not only for the introduction of COVID-19 vaccines, but also for building the confidence of populations in vaccines and the immunization program in general and fighting vaccine hesitancy.

d) The objectives that the Region did not meet are of high relevance, such as increasing coverage, addressing inequities, and strengthening surveillance. Immunization is a cornerstone that contributes to the broader global health agenda *(18)*.

Action Needed to Improve the Situation

18. Key actions need to be continued in order to improve the situation in the Region.

a) The goals and objectives of the Plan of Action on Immunization remain highly relevant today. It is essential to continue working along these lines of action with a country-focused approach and in keeping with the WHO Immunization Agenda 2030 *(18).*

b) It is urgent to maintain immunization as an essential service. Because of the COVID-19 pandemic and imminent introduction of the COVID-19 vaccines in all countries, it is crucial to add an intense focus on this emergency response while also ensuring that routine immunization continues to be a critical service, including maintenance of epidemiological surveillance of vaccine-preventable diseases *(16).*

c) Other actions for improvement include: maintaining and strengthening political commitment; ensuring available resources for all the components as part of the process of integrating universal health, and protecting the immunization program's financial and operational sustainability; guaranteeing access to vaccination for everyone while adapting to local conditions, sociodemographic changes, and the presence of specific populations; taking advantage of integrated approaches within the health system in service delivery, supply chain, cold chain, surveillance, and other primary care interventions; improving the quality and timeliness of surveillance in order to provide rapid response; making use of new technologies for data collection, analysis, and decision-making; and, increasing communication and social mobilization efforts.

Action by the Directing Council

19. The Directing Council is invited to take note of this report and provide any comments it deems pertinent.

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