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B. PLAN OF ACTION FOR MAINTAINING MEASLES, RUBELLA, AND CONGENITAL RUBELLA SYNDROME ELIMINATION IN THE REGION OF THE AMERICAS

Introduction

1. This report presents the Governing Bodies of the Pan American Health Organization/World Health Organization (PAHO/WHO) with the evidence indicating that interruption of endemic circulation of the measles and rubella viruses has been achieved in the countries of the Americas. This report also discusses the progress made in implementation of the Plan of Action for maintaining elimination in the countries and territories of the Region.

Background

2. The 27th Pan American Sanitary Conference (2007) adopted Resolution CSP27.R2, which urged the Member States to establish national commissions in each country to document and verify measles, rubella, and congenital rubella syndrome (CRS) elimination. Creation of an International Expert Committee (IEC) was also requested in order to document and verify regional elimination.

3. Furthermore, in order to maintain measles, rubella, and CRS elimination, the 28th Pan American Sanitary Conference (2012) adopted Resolution CSP28.R14 for implementation of an emergency plan of action for the next two years.

Situation analysis

4. Measles and rubella elimination is defined by PAHO/WHO as the interruption of endemic transmission of these viruses for a period of at least 12 months, in the presence of high-quality surveillance. To confirm elimination of these diseases, countries had to document interruption for a period of at least three years from the last known endemic case. In order to implement the documentation process, the International Expert Committee was created and 23 national commissions were established, including one for the French Overseas Departments of the Americas and one subregional commission for

English-speaking and Dutch-speaking Caribbean countries and territories, including Suriname.

5. The national commissions prepared reports on elimination, endorsed by each country, and submitted them to the IEC through PAHO/WHO. These reports were carefully reviewed by the IEC, whose comments were channeled through PAHO/WHO for improvement and subsequent submission of a final version.

6. IEC members visited eight countries to study the progress made and to identify the challenges faced in maintaining elimination. Special monitoring required more than one visit and online sessions with national authorities in the countries that presented sustained outbreaks of measles in the period 2011-2013, or that identified sporadic cases of rubella during retrospective searches.

7. No fewer than five meetings were organized between the IEC and all the national commissions to analyze the epidemiological trends of measles and rubella, and to monitor advances toward verifying their elimination. These meetings were also used to continue advocating maintaining elimination and to ensure countries' political and financial commitment.

8. In their reports on elimination, the national commissions and the subregional commission presented evidence indicating the interruption of endemic transmission of the measles and rubella viruses in their countries and territories. The evidence—studied by the IEC at its fifth meeting, held in April 2014—is the following:

- a) Member States have documented the last case of endemic transmission of measles and rubella in their countries and territories. Subsequently reported cases were import-associated, according to epidemiological and molecular epidemiology data. The last endemic cases of measles and rubella in the Region occurred on 16 November 2002 and on 3 February 2009, respectively. The last endemic case of CRS was in a child born on 26 August 2009.
- b) From 2003 to 2010, historically low numbers of (import-associated) measles cases were reported in the Americas, with an annual average of 156 cases and a total of 1,249 cases for this period. In 2011, 1,369 measles cases were reported—a figure almost nine times higher than the annual average reported from 2003 to 2010. In 2012, the number of cases decreased to 143, and in 2013, 473 cases were reported.¹ These peaks in measles case reporting coincide with widespread measles outbreaks in Europe and Africa.
- c) There have been few import-associated rubella cases, with a total of 68 cases reported in seven countries for the period 2009–2013 (an average of 13 cases per year). In 2012, three import-associated cases of CRS were reported in the United States.

¹ Data for 2013 (as of 5 May 2014).

- d) In the period 2009-2013, the Region, on average, met the targets for four of the five epidemiological surveillance indicators² (>80%) on a continuous basis (83–91%). The adequate investigation indicator was achieved only in 2011, since in several countries there were difficulties in visiting homes in the 48 hours following reports of suspected cases.
- e) Given the differences among and within countries in terms of sustained achievement of surveillance indicators, 16 of 23 countries with national commissions carried out active institutional and community case-finding in the period 2010-2013, to document the absence of measles and rubella cases in their territories. These countries established criteria for identifying areas for active case-finding, such as municipalities not reporting suspected cases, areas with a heavy flow of tourists or migrants, areas experiencing population shifts, border regions, areas with low vaccination coverage, and the presence of at-risk ethnic groups.
- f) For the same period and with the purpose of documenting the absence of CRS cases, 16 of 23 countries with national commissions carried out retrospective searches for suspected cases, using several sources of information. Criteria for selecting the institutions where the searches would be made included level of care and services provided, as well as being located in areas with unreliable notification of suspected CRS cases. In collaboration with national health authorities, scientific associations, and experts from international organizations such as PAHO, each country created an analysis unit for the review and final classification of the compatible cases found. No case of CRS was confirmed.
- g) Since the presence of dengue cases in several countries could have masked measles and rubella cases, 15 of 23 countries with national commissions and the Caribbean subregional commission tested a percentage of samples from patients with exanthema for measles and rubella in areas where the dengue virus was circulating. The same was done with dengue-negative samples in areas where suspected cases of measles had been reported. None of the processed samples tested positive for measles or rubella.
- h) Genotype D9 was isolated in the last endemic outbreak of measles reported in Colombia and Venezuela in 2002. Since 2003, countries have documented importation of measles cases by identifying viral genotypes. For the period 2009–2013, viruses of genotypes B3, D4, D5, D6, D7, D8, D9, G3, H1, and H2 were identified in 90% of cases. Genotypes D4 and D8, which mainly circulate in Europe, have been found in 88% of outbreaks; while genotype B3, which circulates mainly in Africa, was identified in the longest outbreak (Ecuador 2011-2012).

² The indicators are: % sites reporting weekly; % of cases with adequate investigation (indicator made up of % of cases with household visit within 48 hours following reporting, and % of cases with the following eight data points); % of cases with adequate blood specimen; % of blood specimens received in laboratory in ≤5 days; and % of laboratory results reported in <4 days.

- i) Rubella virus genotype 1C has been identified as endemic in the Americas, because it has not been found in other regions of the world. The last case of 1C transmission occurred in 2005. From 2006 to 2009, genotype 2B was isolated in outbreaks reported in three countries and is also considered endemic in the Region. For the period 2009-2013, reported genotypes 1E, 1G, 1J, and 2B have been linked to imported cases.
- j) The countries presented an analysis showing that all cohorts aged ≤ 40 years were vaccinated against measles and rubella. From 1994 to 2013, nearly 500 million people were vaccinated in catch-up campaigns (< 15 years), follow-up campaigns (in general, for children aged 1–4), and speed-up campaigns (in general, for people aged 20–39). To complement the cohort analysis, 18 of 23 countries with commissions estimated the accumulation of susceptible individuals, prior to defining the target population for follow-up and speed-up campaigns. Latin American countries have carried out at least one follow-up campaign in the last five years.
9. At the fifth meeting of the IEC, Brazil presented the current epidemiological situation of the sustained measles outbreak affecting the states of Ceará and Pernambuco, where 379 cases have been confirmed for the period 2013-2014³. The date of rash onset was 19 March 2013 for the first case and 22 April 2014 for the latest case. The cases are distributed in 24 of 185 municipalities in Pernambuco and 12 of 184 municipalities in Ceará. Children under 1 year are the age group most affected by this outbreak (42%), in which genotype D8 has been identified. The country has conducted a vaccination campaign aimed at children under 5 in the affected states and has stepped up epidemiological surveillance as part of the attempt to interrupt this outbreak.
10. After reviewing the data presented in the elimination reports, including the data from the outbreak in Brazil, the IEC concluded at its fifth meeting that it will wait for solid evidence of interruption of the measles virus in Brazil, in order to declare the elimination of measles, rubella, and CRS in the Americas.

Sustainability of measles, rubella, and CRS elimination

11. In compliance with Resolution CSP28.R14 (2012), 20 national commissions presented an elimination sustainability plan for the period 2013-2015, containing concrete actions to address challenges identified in their epidemiological surveillance systems and routine vaccination programs.
12. Maintaining elimination requires $\geq 95\%$ coverage with two doses of MMR or MR⁴ at the municipal level. The second dose of MR or MMR prevents the accumulation of susceptible children from reaching dangerous levels. In 2012, average coverage in the Region for the first dose (MMR1) was 94%, but only 77% for the second dose (MMR2).

³ Data to epidemiological week 18 (2014).

⁴ MMR: measles-, mumps-, and rubella-containing vaccine.
MR: measles- and rubella-containing vaccine.

Bolivia, the Dominican Republic, Guatemala, Haiti, and Honduras have not introduced MMR2 into their routine immunization schedules, but do give a second dose in periodic follow-up campaigns (every 4–5 years). In order to achieve the highest possible coverage with MMR2, in 2013, the PAHO/WHO Technical Advisory Group (TAG) on Vaccine-preventable Diseases recommended administering MMR2 at 15–18 months, simultaneously with other vaccines in the regular program, such as the first booster of the diphtheria, tetanus, and whooping cough (DPT) vaccine.

13. Five countries implemented follow-up campaigns in 2012 and 2013, while eight countries will do so in 2014 and 2015. To ensure uniform coverage $\geq 95\%$ in all municipalities, all countries that have carried out campaigns have implemented rapid monitoring of vaccination. Countries that will be stepping up vaccination in high-risk areas will continue to use this methodology, making it possible to identify pockets of unvaccinated people that could otherwise be masked by average coverage figures reported by municipalities.

14. PAHO/WHO Member States have strengthened their surveillance systems to detect every case of measles or rubella that occurs. Epidemiological alerts have been issued for major international events such as the Soccer World Cup 2014 in Brazil and the U-20 World Cup in Colombia. Coordination has been strengthened with the private sector, including laboratories, because many import-associated measles and rubella cases have been detected in the private sector. Intersectoral work with institutions involved in tourism has also been strengthened, so that their workers are properly vaccinated. On the recommendation of their national commissions, at least four countries have evaluated their epidemiological surveillance systems, using PAHO/WHO guidelines, with special emphasis on “silent areas.”

15. In order to strengthen national research capabilities and the timely control of outbreaks, PAHO/WHO developed and validated guidelines that collect lessons learned in the control of outbreaks in the post-elimination phase. The Organization also continues to provide technical assistance for follow-up training at subnational levels and for the formation and institutionalization of rapid response teams to deal with outbreaks.

Call to action (next steps)

16. The president of the IEC will present the evidence indicating that measles, rubella, and CRS elimination has been achieved in the Americas, provided the data from Brazil is available. In addition, Member States and strategic partners will be called upon to continue their sustained commitment to maintaining elimination. To this end, the countries should:

- a) Implement actions aimed at maintaining elimination and progressively integrate them into their annual immunization plans, in order to maintain continued political support and allocation of financial resources.

- b) Continue implementing vaccination strategies (routine program, follow-up campaigns), to ensure high and uniform population immunity levels.
- c) Maintain a high-quality epidemiological surveillance system, including early case detection and rapid response to importation of measles and rubella.
- d) Disseminate the lessons learned from the process of documenting and verifying elimination, including actions to support elimination.

Action by the Executive Committee

17. The Executive Committee is invited to take note of this IEC report and to make any recommendations it deems appropriate in order to maintain measles and rubella elimination in the Region of the Americas.

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