



PAN AMERICAN HEALTH ORGANIZATION  
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### **ELIMINATION OF RUBELLA AND CONGENITAL RUBELLA SYNDROME IN THE AMERICAS: PROGRESS REPORT**

#### **Background**

1. The rubella elimination initiative in the Americas was developed after surveillance for measles elimination clearly highlighted how significant rubella and congenital rubella syndrome (CRS) were as public health problems for the Western Hemisphere.

2. The availability of a safe, affordable, and efficacious vaccine, the lessons learned from vaccinating large and heterogeneous population groups with measles-rubella (MR) vaccine, and the existing cost-benefit and cost-effectiveness data, prompted PAHO's Directing Council (2003) to adopt Resolution CD44.R1, calling for rubella and CRS elimination in the Americas by 2010. Countries were urged to develop plans of action to reach the elimination goal and PASB's Director was asked to elaborate a regional plan of action to mobilize the necessary resources to support rubella and CRS elimination and to ensure its sustainability. In 2006, PAHO's Directing Council adopted Resolution CD47.R10 reaffirming the rubella elimination initiative as a Regional priority. The Council acknowledged that sustained efforts by Member States and their development partners were required to achieve the elimination goal.

#### **Strategy for Rubella and CRS Elimination**

3. PAHO's rubella and CRS elimination strategy includes using rubella-containing vaccines as measles-mumps-rubella vaccine (MMR) in the routine childhood program and aiming to reach >95% coverage in all municipalities; conducting periodic follow-up campaigns with MR vaccine; conducting a one-time mass campaign targeting adolescents and adults (men and women); integrating measles and rubella surveillance; and implementing CRS surveillance.

4. Reaching high coverage with rubella-containing vaccines in the routine program, coupled with periodic measles-rubella follow-up campaigns, ensure high levels of immunity in the population. A one-time mass vaccination campaign targeting adolescents and adults (men and women) aims to rapidly reduce susceptible populations, while preventing a shift of disease burden to susceptible young adults, particularly to women of childbearing age.

5. Quality integrated measles-rubella epidemiological surveillance, including laboratory confirmation of cases, is a critical element to documenting rubella and measles elimination in the Americas. Furthermore, molecular epidemiological data can be used to support rubella elimination. Finally, surveillance is recommended to identify infants with suspected CRS.

### **Advances towards Rubella Elimination**

6. Countries of the Region have demonstrated remarkable progress in effectively interrupting endemic rubella virus transmission. This has been possible through the sustained efforts of Member States and the continued dedication of the international community. Health workers and volunteers have further contributed to this success. PAHO sincerely thanks these individuals and collaborating organizations for their invaluable contributions to the significant advances towards achieving the rubella elimination goal.

7. Before 1990, only 6 of the 44 countries and territories in the Region included rubella vaccine in their routine childhood vaccination programs. Today, around 99% of new birth cohorts in the Americas have access to MMR vaccine. All countries but Haiti have introduced MMR vaccine into their routine immunization programs. It is anticipated that Haiti will incorporate MMR vaccine into its regular program for children aged 1 year after its 2007 campaign.

8. By December 2006, 40 (91%) countries and territories (accounting for 90% of the population of the Region) had implemented vaccination strategies, obtaining coverage  $\geq 95\%$ . From 1998 to 2006, Argentina, Bolivia, Brazil (women only), Chile (women only), Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, the English-speaking Caribbean, Honduras, Mexico (subnational), Nicaragua, Paraguay, Peru, and Venezuela (young cohorts only) conducted mass vaccination campaigns among adult men and women to quickly interrupt rubella virus transmission and prevent CRS. Five countries have yet to conduct or finalize mass rubella elimination campaigns in 2007: Bolivia (children), Guatemala, Haiti, Mexico (rest of the country), and Venezuela (adults). Brazil will conduct a campaign (males and remaining susceptible cohorts) in 2008. Collectively, over 108.5 million men and women (children and adolescents) have been vaccinated against measles and rubella in the context of rubella and CRS

elimination efforts. At the culmination of the campaigns programmed for 2007, an additional 47.5 million individuals will be protected against rubella and measles, not counting the final campaign in Brazil.

9. Critical elements making high-quality mass vaccination campaigns possible include high political commitment and participation; strong social communication; intensive social mobilization and local micro-planning to ensure full community participation; and the involvement of scientific societies, other social actors, and the media. PAHO's timely and sustained technical support has been instrumental in conducting quality campaigns in the Region.

10. High immunization coverage obtained through routine vaccination and the implementation of complementary vaccination campaigns have dramatically decreased the incidence of rubella. The number of confirmed rubella cases decreased by 98.5% between 1998 and 2006 (from 135,947 to 2,078<sup>1</sup>), and the number of confirmed CRS cases from 23 in 2002 to 5 in 2006.<sup>2</sup> The impact on rubella incidence reduction has been greater in countries that vaccinated men and women in their campaigns.

11. In addition to interrupting rubella transmission, mass vaccination campaigns have greatly contributed to consolidating measles elimination. All 345 measles cases, except one case, reported in the Americas since 2005<sup>2</sup> have occurred in countries that had not yet implemented or completed a mass MR vaccination campaign among adolescents and adults.

12. Currently, Latin American and Caribbean countries are using the seven performance indicators recommended by PAHO to monitor the integrated measles/rubella surveillance. In 2006, 99% of suspect cases reported were discarded following laboratory testing. Prior to implementing the elimination strategy, less than 20% of rubella cases were confirmed by laboratory or epidemiological link. Regional performance on two of the recommended indicators was weak in 2006. The percentage of cases with adequate investigation was only 79%, and only 59% of samples reached the laboratory within five days.

13. Twenty-one national and 124 subnational laboratories are part of the Measles/Rubella Laboratory Network, providing quality testing for measles/rubella serology. In 2005-2006, 75,000 samples were tested throughout the network. Improved viral detection has increased knowledge regarding the rubella genotypes endemic to the Region. The most frequent genotype is 1C, followed by 1E. Genotypes 1g and 2b have been linked to imported cases in epidemiologic investigations. However, the collection of

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<sup>1</sup> Preliminary data as of Epidemiological Week 52, 2006

<sup>2</sup> Preliminary data as of Epidemiological Week 15, 2007

specimens for virus detection must be accelerated to obtain samples for a regional rubella genetic baseline.

14. The number of countries and territories reporting suspect CRS cases increased from 18 (41%) during 1998 to all countries (100%) by 2003. In 2005, countries started reporting suspect CRS cases weekly. In 2006, 617 suspect CRS cases were reported, 5 of them confirmed,<sup>1</sup> a reduction from 1,952 suspect CRS cases and 20 confirmed cases reported in 2005. Best public health practices are currently being identified to improve CRS surveillance at the primary care level, aiming to strengthen the capacity to diagnose congenital anomalies in health services and ensure expert reviewing of suspect CRS cases. Interprogrammatic collaboration with regional networks such as the Latin American Center for Perinatology, Women and Reproductive Health (CLAP/WR) and the Latin-American Collaborative Study of Congenital Malformations (ECLAMC) for CRS surveillance has been emphasized.

#### **Budgetary Implications, Partnerships, and Resource Mobilization**

15. Following the 2003 Directing Council resolution it was estimated that the implementation of the rubella and CRS elimination initiative would cost US\$ 210 million (2003-2010). This included the provision of approximately \$35 million (17% of the total) from PAHO and WHO regular budgets combined with extrabudgetary funds. These resources would supplement the estimated \$175 million (83%) that national immunization programs invest in activities related to surveillance, laboratory, supplemental vaccination (follow-up and one-time adult mass campaigns), supervision, social mobilization, training, research, program evaluation, and documenting rubella elimination.

16. It is important to highlight that during the pre-elimination era (accelerated rubella and CRS control), between 1998 and 2003 pioneer countries such as the English-speaking Caribbean, Chile, Costa Rica, Brazil, and Mexico invested \$110 million.

17. From 2003 to December 2006, \$100.4 million have been invested in the regional initiative. This includes \$76.5 million from countries and an additional \$1.3 million from PAHO and WHO regular budgets. PAHO partners, vaccine suppliers, and non-governmental organizations have contributed over \$22.6 million. These funds have covered surveillance, campaigns, training, evaluation and research costs associated with elimination activities.

18. For the period 2007-2010, an additional \$112.5 million will be required to complete rubella vaccination campaigns, including campaigns in Brazil and Mexico, and to maintain and strengthen integrated measles/rubella and CRS surveillance in the Region. It is expected that a total \$95.5 million (85%) will be covered by government

funding and the remaining \$17 million (15%) will be mobilized by PAHO and its partners.

19. Intense resource mobilization efforts have been directed at diversifying the sources of funding to ensure the sustainability of the initiative. To this end, intersectoral coordination with PAHO partners, external governmental agencies, nongovernmental organizations, and community-based groups, has been essential to mobilize the necessary resources, additional to government funding, to sustain rubella initiative activities.

20. PAHO's partners have contributed to the overwhelming success of the rubella vaccination campaigns and the progress to date. Partners include the American Red Cross (ARC), the US Centers for Disease Control and Prevention (CDC), the Canadian International Development Agency (CIDA), the GAVI Alliance, the Inter-American Development Bank (IDB), the International Federation of Red Cross and Red Crescent Societies (IFRC), the Japanese International Cooperation Agency (JICA), the March of Dimes (MOD), the Sabin Vaccine Institute (SVI), the United Nations Children's Fund (UNICEF), the United States Agency for International Development (USAID), and the Church of Jesus Christ of Latter-day Saints (LDS). Each partner has played a strategic role in implementing and/or evaluating one-time mass vaccination campaigns throughout the Region. Large vaccine suppliers have also contributed to campaign successes by donating high-quality vaccines to overcome country shortfalls and financing gaps.

21. PAHO's Revolving Fund for vaccine procurement (RF) has successfully provided an uninterrupted supply of high-quality vaccines and syringes at affordable prices for countries of the Region. Country vaccine shortfalls not addressed by the RF have often been overcome by timely contributions from international vaccine manufacturers, such as the Serum Institute of India, and inter-country collaboration. For example, vaccine donations from Chile, Peru, and Venezuela helped sustain campaign activities in Bolivia in 2006, and vaccine donations from Venezuela and El Salvador helped sustain campaign activities in Guatemala in 2007.

22. Sustained political commitment of Member States for immunization programs and rubella elimination activities has been critical in the intense resource mobilization efforts, at the national and local levels. At the local level, the elimination initiative has harnessed invaluable support by engaging community leaders, local associations, and faith-based groups. An outstanding example is Paraguay, where a third of the funds for the national rubella campaign were procured through local efforts.

23. Strong partnerships with professional societies and academic institutions have been cultivated and sustained to steadily advance towards rubella elimination. Cooperation with professional associations has led to training opportunities for health care professionals and secured vaccination campaign credibility. Finally, collaboration

with the news media has not only increased visibility for the rubella initiative, but also for the regular national immunization programs.

### **Lessons Learned**

24. Immunization in the Americas is rapidly moving from a child to a family program. The many lessons learned from vaccinating adolescents and adults, as part of the rubella elimination initiative, will serve as a model for other regions of the world seeking to vaccinate beyond childhood. These lessons also provide valuable insights for developing immunization strategies aimed at groups not traditionally targeted and for the effective introduction of new vaccines. Promoting men's roles as partners and fathers in social communication messages during rubella campaigns has been essential for enlisting their participation in vaccination activities.

25. Collaboration between ministries of health and other sectors (armed forces, tourism, transportation, and news media) has been invaluable to attain high coverage during campaigns. These intersectoral relations will facilitate rapid and efficient responses to potential complex health emergencies such as a pandemic.

26. PAHO has sustained and expanded its efforts to integrate rubella elimination activities with the basic principles of primary health care, thereby improving primary health services. Improvements achieved during the campaigns in the areas of health infrastructure and collaboration will remain, and lead to improved health outcomes for all. Such improvements are the enhanced coordination with blood banks, increased awareness of safe vaccination practices, and improved services for newborns and infants.

27. One of the main objectives of the rubella initiative is improving women's health, consistent with the Millennium Development Goals (MDGs). A major challenge in women's health is ensuring universal access. Vaccination campaign efforts are aimed at equitably reaching 100% of the target population. Inequities based on sex, ethnicity, social class, race, and geographic distribution are reduced. The initiative also contributes to the reduction of inequities in maternal health outcomes by empowering women with the knowledge of prevention and their rights to access quality health care.

### **Challenges and Call to Action (Next Steps)**

28. The rubella and CRS elimination initiative in the Region of the Americas will prove to be one of the most successful and cost-effective interventions of the 21<sup>st</sup> century. Countries are urged to strive to reach and maintain routine program coverage levels >95% with rubella-containing vaccines (and all other childhood vaccines) in every municipality. Countries that continue to have endemic rubella transmission are encouraged to implement a one-time mass vaccination campaign targeting both men and

women and aiming to achieve >95% coverage. Additionally, countries that did not vaccinate all susceptible groups need to analyze their epidemiological data to identify these susceptible populations, particularly among men, and vaccinate them.

29. Emphasis should be placed on ensuring a high performing surveillance system (as measured by the seven recommended surveillance indicators), implementing active surveillance activities, investigating clusters of suspect cases, and periodically evaluating “silent areas.” This will strengthen and fully integrate existing rubella and CRS surveillance systems. The number of specimens for rubella virus isolation is still limited. The collection of samples for viral detection should be substantially increased to better document endemic rubella genotypes, and facilitate documenting the interruption of endemic rubella transmission in the Americas.

30. Regional experience has proven that CRS surveillance presents many challenges, as CRS clinical manifestations during the first year of life are not specific, vary significantly, and may be difficult to suspect and diagnose. CRS underdiagnosis and underreporting is widespread. To confront these challenges, creative avenues should be explored to improve the identification of suspect CRS cases in the Region.

31. Member States are encouraged to document and disseminate their experiences, successes, and lessons learned from developing and implementing rubella and CRS elimination strategies. These experiences will serve as model for other Regions of the world embarking on rubella elimination, or targeting populations traditionally not covered by childhood immunization. Lessons learned will provide valuable insights for strengthening health services, increasing access to health care, heightening awareness about preventative care, informing vaccination strategies to reach untraditional groups, introducing new vaccines, and, ultimately, for improving infant and maternal health outcomes.

32. The roadmap for achieving the rubella and CRS elimination goal includes developing and implementing a practical protocol to verify the interruption of endemic rubella virus transmission. The following data components have been considered: rubella and CRS epidemiological data; information on population immunity, including vaccination coverage for routine immunization, follow-up campaigns, and adolescent and adult campaigns including post partum vaccination; evaluation of rubella (and measles) and CRS surveillance systems; and molecular epidemiology. Country-specific situations will be considered in order to provide a “big picture” perspective when reviewing the information needed to substantiate rubella elimination in the Region.

33. It will be necessary to appoint an international expert committee to independently verify that endemic rubella virus transmission has been interrupted in the Western Hemisphere. The verification process will be completed in two phases. During the first

phase, the situation in groups of countries will be verified by special national commissions, advised by the international expert committee. The first phase will include visits by members of the committees to corresponding sites. The national commissions should prepare the required documentation for review in order to obtain definitive verification. During the second phase, the international expert committee will complete a final analysis of all available data to determine definitive verification, to report the findings to the PAHO Directing Council in 2010.

34. PAHO efforts to mobilize the remaining \$17 million required to finalize the rubella and CRS elimination initiative, and ensure its sustainability, will remain critical until the elimination goal is achieved.

**Action by the Executive Committee**

35. The Executive Committee is invited to review the progress made towards the elimination of rubella and congenital rubella syndrome in the Americas and consider the actions necessary to achieve the elimination goal by 2010.

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