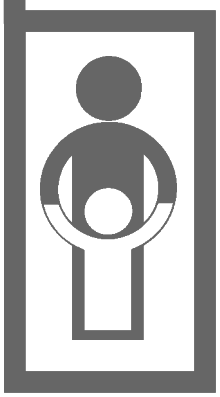
WHO/V&B/01.37
ENGLISH ONLY
DISTR.: GENERAL

Measles Technical Working Group: strategies for measles control and elimination

Report of a meeting, Geneva, 11-12 May 2000



DEPARTMENT OF VACCINES AND BIOLOGICALS

World Health Organization
Geneva
2001

The Department of Vaccines and Biologicals
thanks the donors whose unspecified financial support
has made the production of this document possible.

This document was produced by the
Expanded Programme on Immunization
of the Department of Vaccines and Biologicals

This document is available only on the Internet at:
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Abbreviations

AFP	acute flaccid paralysis
CDC	Centers for Disease Control and Prevention (USA)
EPI	Expanded Programme on Immunization
GAVI	Global Alliance for Vaccines and Immunization
NIDs	national immunization days
OPV	oral polio vaccine
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organization

Preface

In May 2000 WHO, UNICEF and the United States Centers for Disease Control and Prevention (CDC), cosponsored a meeting to bring together the representatives of international agencies, countries and academics with experience in measles control and elimination to review the strategies required to achieve measles mortality and morbidity reduction goals.

Participants reviewed the status of measles control and elimination and discussed and reviewed the global plan of action to establish milestones for measles control and elimination.

This report presents the recommendations of that meeting.

The recommendations of this meeting have also been published in Weekly Epidemiological Record, 15 December 2000, Vol. 75, 50 (pp 409-416).

Strategies for reducing global measles mortality

Recommendations from a meeting

Worldwide, measles vaccination has been very effective, preventing an estimated 80 million cases and 4.5 million deaths annually. Nevertheless, because vaccination coverage is not uniformly high, measles still causes approximately 30 million cases and 888 000 deaths each year – 40% of the estimated two million deaths caused annually by vaccine-preventable diseases of childhood. More than half of measles deaths occur in Africa.

The World Health Assembly in 1989 and the World Summit for Children in 1990 set goals for measles morbidity and mortality reduction of 90% and 95%, respectively, compared with prevaccine levels.[1] Subsequently, target dates for measles elimination in three WHO regions, the Americas, Europe and the Eastern Mediterranean, were set for 2000, 2007 and 2010, respectively.[2]

In May 2000, UNICEF and the United States Centers for Disease Control and Prevention (CDC) cosponsored a meeting of a technical working group[3] to review the current status of global measles control and regional elimination efforts, and to formulate recommendations for accelerating control activities, particularly in countries and regions with a heavy burden of disease.

Meeting participants developed specific conclusions and recommendations concerning: action plans for accelerating measles control; improving routine and supplementary immunization; measles surveillance; defining and monitoring measles elimination; and providing vitamin A supplements to children at nutritional risk.

1 World Health Assembly resolution WHA42.32.

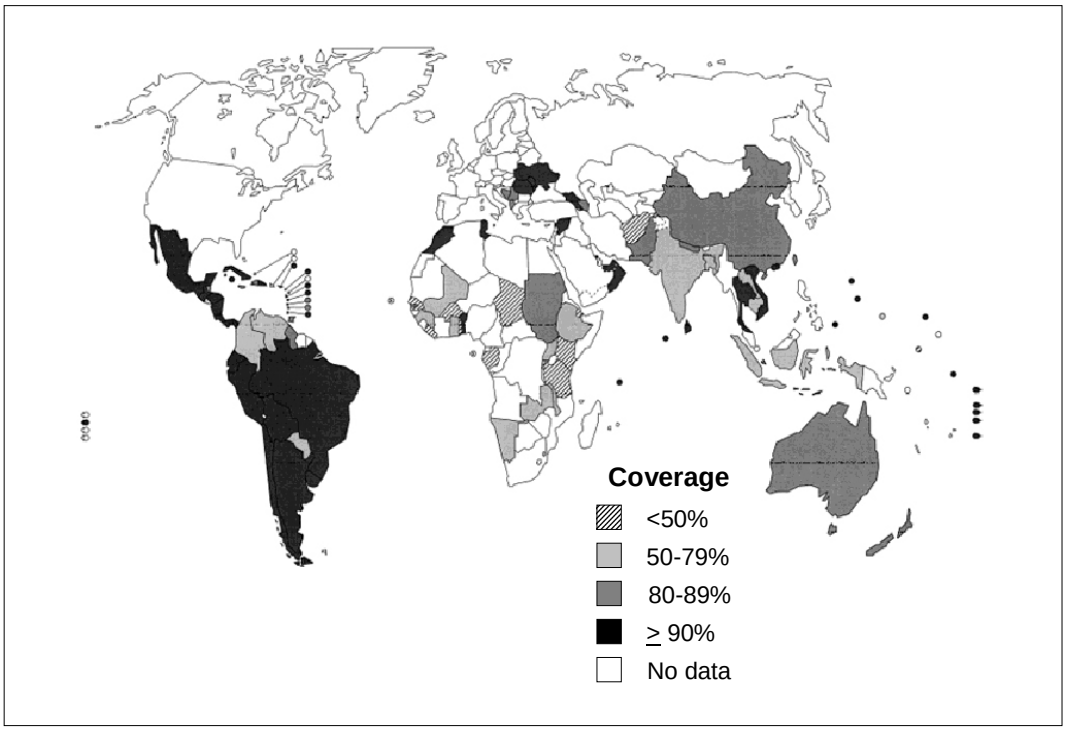
2 See No. 50, 1999, pp. 429-439.

3 Participants included country representatives and selected experts in measles control, representatives from each WHO regional office, UNICEF, the Japanese Agency for Cooperation in International Health, the International Federation of Red Cross and Red Crescent Societies, the World Bank, the United States Agency for International Development (USAID), the Public Health Laboratory Service of the United Kingdom, and the Centers for Disease Prevention and Control (United States).

After reviewing the epidemiological situation by region and in selected countries, participants agreed that very high immunization coverage is required to achieve a high level of measles control, and that a 1-dose measles policy is insufficient to achieve and sustain current measles control targets (Map 1). The average seroconversion rate of 85% following a single dose at age nine months, which is the recommended strategy for routine immunization in developing countries, leaves an important proportion of children susceptible. Furthermore, the routine delivery system in many countries has failed to reach many children with a dose at nine months.

- Action plans to reduce measles mortality through increasing immunization coverage should be part of each country's comprehensive long-term immunization strategy. Plans of action for measles mortality reduction should be incorporated into the 3-5 year Expanded Programme on Immunization (EPI) plans of action currently being developed or updated by countries.

Map 1: Reported routine measles vaccine coverage, 1999*



* From country reports to WHO as of 3 October 2000

The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area of its authorities, or concerning the delimitation of its frontiers or boundaries.

- Action plans should specify activities and budgets for all recommended strategies for measles control, including improving routine immunization, conducting supplementary immunization campaigns in both the short and long term, intensifying surveillance, managing measles cases, and providing vitamin A supplements.

- International development partner agencies and the Global Alliance for Vaccines and Immunization (GAVI)[4] should advocate for global support to reduce measles mortality within the overall strengthening of immunization and support recommended strategies to reduce global measles mortality.
- Until achieved, polio eradication should remain the top priority in all countries where wild poliovirus continues to circulate, or where acute flaccid paralysis (AFP) surveillance does not meet standards necessary to certify the eradication of wild poliovirus.[5] Adding measles control to existing polio eradication activities should be done in a way which ensures the success of both goals, by maintaining focus on immunization and surveillance.

Routine and supplementary immunization

- Routine immunization is the foundation of effective measles control. Increasing and sustaining high routine measles coverage (i.e. over 90%) is essential for achieving sustainable reduction of measles mortality.
- Countries with support from partner agencies should assess the reasons for low coverage and strengthen efforts to improve routine immunization coverage using appropriate strategies (e.g. fixed posts, outreach services, door-to-door canvassing, and regular pulse immunization).[6]
- Management of immunization services must be strengthened at all levels. WHO and UNICEF should guide and support the development of training courses and tools that cover such topics as reducing missed opportunities and drop-out rates,[7] canvassing door to door, conducting outreach and periodic supplementary campaigns.
- Training and supervision of immunization safety must be given high priority so as to ensure proper handling and reconstitution of the vaccine, appropriate injection techniques, safe disposal of syringes and needles, and the monitoring of adverse events.
- In addition to the first dose at age nine months, countries should provide children a second opportunity for measles vaccination. The second opportunity provides a first dose of vaccine to children previously missed by routine services or a second dose to children who failed to respond to their first dose. The second opportunity can be provided through supplementary campaigns, routine immunization services,[8] or a combination.

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4 For details see http://www.vaccinealliance.org.

5 See No. 17, 2000, pp. 134-143.

6 Periodic vaccination campaigns, usually conducted within a limited geographical area such as a district, targeting all children born since the last campaign.

7 Usually calculated as the difference in vaccination coverage between the first and third doses of combined diphtheria-tetanus-pertussis vaccine.

8 In countries with highly developed immunization programmes capable of achieving and sustaining measles immunization coverage exceeding 90% through routine services, the second opportunity for measles immunization can also be provided through the implementation of a routine 2-dose vaccination schedule.

- Mass measles vaccination campaigns, if well implemented, are an effective strategy to control measles. Campaigns will result in a period when measles transmission is low or absent. The impact of campaigns is more prolonged when they are conducted in settings where routine coverage is high or improving. Depending on the coverage achieved in the campaign and the routine vaccination coverage, campaigns will need to be repeated at regular intervals.
- Campaigns should target large populations (entire nations or large regions) and achieve high coverage (>90%) with quality services. Preliminary data from the WHO African Region suggest that targeted urban campaigns have limited impact on measles transmission either in cities or in neighbouring rural areas.
- The target age group for mass campaigns should be based on the susceptibility profile of the population, which can be determined from the history of measles vaccination coverage, age-specific disease incidence data, and seroprevalence studies. Campaigns should include special efforts to reach previously unvaccinated children. Planning for measles campaigns should take into account the need for improvements in routine services.
- Most intensified oral polio vaccine (OPV) immunization activities are now conducted in polio priority countries with the weakest health infrastructure and usually on a house-to-house basis. In general, it is not appropriate to add measles vaccine to house-to-house OPV immunization activities. Adding measles to polio national immunization days (NIDs) should only be considered if there is sufficient time for planning, sufficient funding, adequate logistical preparation, adequate supervision and monitoring, and ensured injection safety.
- Mass campaigns have to be planned carefully, with particular attention to the immunization safety component, so that sufficient trained personnel, syringes, needles and vaccines will be available. All countries implementing mass measles campaigns should ensure appropriate management through a plan that includes an adequate budget, the use of monitoring tools (e.g. a supervision checklist) during implementation, and the assessment of waste management.
- Mass campaigns should include an assessment component in order to improve future measles mortality reduction activities. All countries undertaking mass campaigns should document immunization safety during campaigns and routine services, using recommended assessment tools. Assessment should include reviewing coverage trends before and after campaigns.

Measles surveillance

- Where feasible and appropriate, surveillance for measles should be integrated into existing surveillance for acute flaccid paralysis. However, measles surveillance must be carefully adapted to country capacities and must not overburden AFP surveillance capacity.
- Measles surveillance should collect the basic information to document disease burden and guide programme planning: measles case counts by month and geographical area (both urban and rural); age and vaccination status of cases by area; and timeliness and completeness of reporting.

- Surveillance information should be reported and analysed regularly at all levels (e.g. weekly or monthly). Feedback of this information is critical for maintaining the surveillance system and guiding control efforts.
- Countries should use outbreak investigations and sentinel surveillance as additional opportunities to monitor changes in measles epidemiology (e.g. age distribution and vaccination status of cases and case-fatality rates).

In addition, the following strategies should be implemented to achieve further reduction of overall mortality among children aged < 5 years.

- In countries where vitamin A deficiency is a significant public health problem, provision of vitamin A supplements to children aged six months to five years every 4-6 months through immunization contacts as appropriate:
  - vitamin A supplements should be provided with routine measles vaccination (usually at age nine months);
  - measles campaigns and response to measles outbreaks should be used as an opportunity to provide vitamin A to those children at risk of measles, regardless of immunization history.
- Improved management of measles cases including vitamin A supplementation and adequate treatment of complications.

Defining and monitoring measles elimination

- Measles elimination is defined as the absence of ongoing transmission of the measles virus in a large geographical area. When elimination has been achieved, imported cases may still occur, with limited spread to susceptible persons. Therefore elimination does not equate to zero cases.
- Proposed methods for monitoring elimination of indigenous transmission of measles virus (using proportion of cases imported and distribution of outbreak sizes and duration) should be applied in different countries and regional settings to further assess their usefulness.
- Special studies of susceptibility patterns (e.g. seroprevalence studies and disease modelling) may be useful in projecting the likelihood of transmission of measles and determining the target age groups for supplementary vaccination.

A strategic plan for global measles mortality reduction and regional elimination for 2001–2005 that includes these recommendations and conclusions will be published by WHO/UNICEF in 2001.

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