

1. INTRODUCTION

1.1 Purpose

Measles is a vaccine-preventable disease that remains a leading cause of death among children in the Western Pacific Region. Therefore, the 2003 Regional Committee Meeting (RCM) resolved to eliminate measles. The target date is to be set based on an annual review of progress in implementing the Measles Regional Plan's key strategies: immunization, surveillance, and laboratory diagnosis.¹

This *Field Guide* is to help countries develop and implement **national plans** for these three strategies, implement the RCM resolution, and achieve elimination. It provides health workers, immunization programme managers, public health professionals, and policy-makers at national and subnational levels with advice on what needs to be done and how to do it.

This guide has been released as a 'field test' version. It will be finalized after the Region sets a target date for measles elimination.

1.2 Impact of measles and of immunization

Measles is the most infectious virus that affects humanity. Until the vaccine was introduced in 1963, practically every child got measles. On average (in a completely susceptible population), each infected person infects nearly 20 others. This is why 95% population immunity is needed to interrupt transmission and hence eliminate measles (see *Western Pacific Regional Plan of Action for Measles Elimination*, January 2003).

Without immunization, the Region could expect nearly 25 million measles cases per year – the annual birth cohort of the Region. Measles immunization is already preventing about 95% of the measles disease burden, with the 2002 estimate of 170 000 cases and 32 000 deaths in the Region (see Annex 1 for more details on measles and the vaccine).

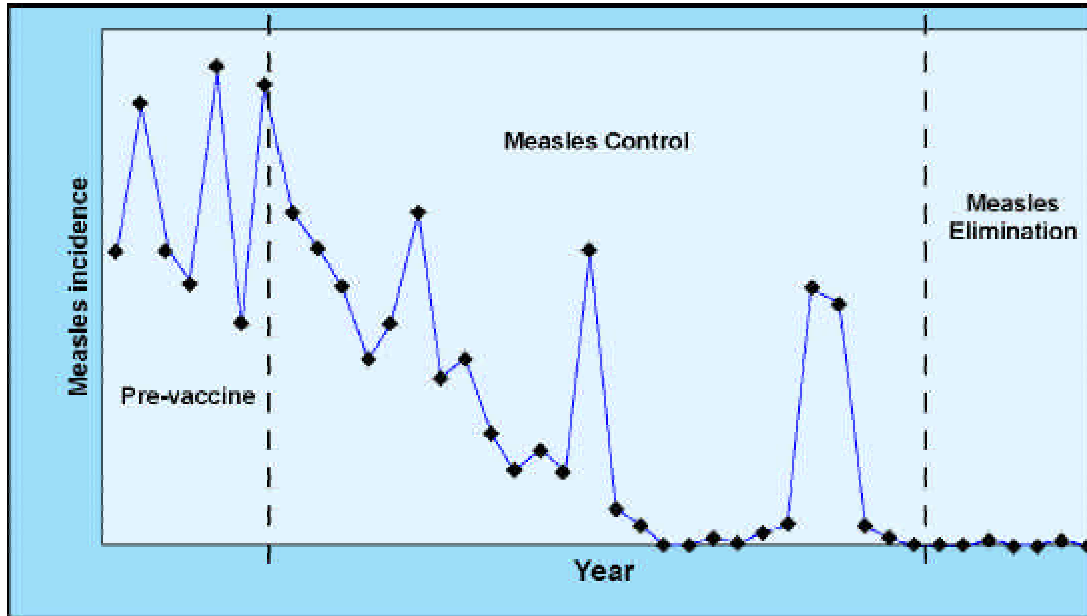
1.3 Public health control options: elimination or epidemics

Measles epidemiology can be broadly categorized in three stages (see Figure 1):

- (1) **Similar to pre-vaccine:** Low immunization coverage (~60% to 70%) means that the epidemiology of measles is similar to that of the pre-vaccine era, with measles constantly present but epidemics of increased activity every two to three years and a reduction in the number of cases proportional to immunization coverage. As coverage increases, so does the time between epidemics.
- (2) **Control:** Moderate-to-high immunization coverage may interrupt measles transmission for a certain length of time, resulting in few cases for some years. However, eventually the number of susceptible persons gradually grows until there are enough to sustain an epidemic.
- (3) **Elimination:** Immunization coverage is sufficient to achieve and maintain 95% population immunity. Not enough susceptibles will accumulate to cause an epidemic. Each importation will only lead to a few secondary cases (unlikely to be more than 100).

¹ World Health Organization. *Western Pacific Regional Plan of Action for Measles Elimination*. 2003, Manila. WHO.

Figure 1. Three stages of measles epidemiology



If moderate immunization coverage results in low numbers of cases, the extra resources to reach elimination may seem hard to justify. However, with only moderate coverage, there will eventually be a large measles epidemic through the build up of susceptibles. Such epidemics are likely to have a disproportionate impact because: (1) health services are no longer used to deal with measles, and there will be many cases; and (2) a greater proportion of cases will be in older children and young adults. It is clear that elimination is the only appropriate option (unless one accepts pre-vaccine measles morbidity and mortality).

1.4 Measles as foundation for other health interventions

Equity is another argument for elimination. Children who are most at risk of disease (the poor and other disadvantaged groups) tend to be insufficiently served by health services. An elimination goal necessarily means that at-risk children will be reached. If the lessons learnt in reaching underserved populations for measles immunization can be used for other basic health services, long-term benefit will accrue. Furthermore, elimination is a 'public good' that benefits the population as a whole, especially the most at-risk members of the community.

Delivering and monitoring immunization is relatively straightforward compared to many other health interventions. As such, it can provide a foundation for delivering other essential health services that need to reach the whole population.

1.5 Regional Committee Meeting (RCM) Resolution R54.R3

In September 2003, the RCM resolved that measles elimination should be a regional goal, and urged Member States to:

- (1) develop or strengthen national plans for measles elimination;
- (2) use measles elimination to strengthen the Expanded Programme on Immunization (EPI) and other public health programmes, such as prevention of congenital rubella syndrome;

- (3) offer all children two doses of measles vaccine, taking into account local situations, so that the 95% population immunity of each birth cohort can be achieved and maintained in every district;
- (4) develop or strengthen measles surveillance systems and laboratory confirmation of cases; and
- (5) improve the quality of routinely reported immunization coverage data and to monitor both immunization and disease data at the district level to improve programme management.

2. DEVELOPING A NATIONAL PLAN FOR MEASLES ELIMINATION

The RCM urged all Member States to develop or strengthen their national plans for measles elimination. Each country/area should establish a national Measles Elimination Coordinating Committee, or use an existing body for this task. The Committee needs to include technical experts and representatives of all stakeholder groups. For example, representatives from the education sector should be included to ensure effective implementation of school-based immunization activities.

Important issues to be addressed by the plan are discussed in this section (to supplement the outline provided in Annex 2 of the Regional Plan); details about immunization strategies, and surveillance methods and laboratory support appear in Section 5. The Measles Elimination Coordinating Committee should provide the strategic and technical guidance to the National Immunization Programme in developing the national plan, as well as assistance in its implementation. The national Committee should consider the value of establishing subnational bodies to help planning and implementation.

2.1 History of measles control

The plan should provide a historical context to aid understanding and planning for measles elimination strategies. Useful information includes estimates of annual incidence, identification of outbreak years, and the timeline, target groups and coverage attained in previous measles immunization activities.

2.2 Estimating needed vaccine and minimizing wastage

The global supply of measles vaccine is barely adequate to meet current demand, and demand is likely to increase. Each country/area should estimate its vaccine requirements in five-year blocks (updated annually) so that global efforts can be coordinated to ensure that each country's needs are met. As needed, updated estimates should be communicated to vaccine suppliers and the WHO Western Pacific Regional Office.

The key issues for planning vaccine requirements relate to the introduction of a second dose, SIAs, and efforts to improve routine coverage. Wastage will also have important consequences for demand. Countries need to develop strategies to minimize wastage in a way that does not impact on coverage.

2.3 Groups with less than 95% population immunity

Groups likely to have less than 95% population immunity should be defined by age and geographic location. Grouping by other characteristics such as ethnicity or religious affiliation may be needed in some settings.