

WORLD HEALTH ORGANIZATION
REGIONAL OFFICE FOR THE WESTERN PACIFIC



REPORT

**FOURTEENTH MEETING OF THE TECHNICAL ADVISORY GROUP ON THE
EXPANDED PROGRAMME ON IMMUNIZATION AND POLIOMYELITIS
ERADICATION IN THE WESTERN PACIFIC REGION**

**Manila, Philippines
29-31 March 2004**

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**FOURTEENTH MEETING OF THE TECHNICAL ADVISORY GROUP ON THE
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NOTE

The views expressed in this report are those of the participants of the Fourteenth Meeting of the Technical Advisory Group on the Expanded Programme on Immunization and Poliomyelitis Eradication in the Western Pacific Region and do not necessarily reflect the policies of the World Health Organization.

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This report has been printed by the Regional Office for the Western Pacific of the World Health Organization for the participants of the Fourteenth Meeting of the Technical Advisory Group on the Expanded Programme on Immunization and Poliomyelitis Eradication in the Western Pacific Region, which was held in Manila, Philippines, from 29 to 31 March 2004.

SUMMARY

The fourteenth meeting of the Technical Advisory Group (TAG) on the Expanded Programme on Immunization (EPI) and Poliomyelitis Eradication in the Western Pacific Region was held from 29 to 31 March 2004 in Manila, the Philippines. The meeting was attended by the members of the TAG, EPI and surveillance managers from countries within the Western Pacific Region, representatives from international organizations, other partners in immunization, and a secretariat.

The TAG on EPI and Poliomyelitis Eradication was established in 1991. Its technical guidance was a critical element for the Western Pacific Region achieving certification of poliomyelitis-free status on 29 October 2000. However, the Region is not yet receiving the full potential benefits of immunization, as many children continue to miss out on life saving vaccines. The thirteenth TAG recommended the adoption of two new EPI initiatives: measles elimination and hepatitis B control to strengthen EPI.

The fourteenth TAG was the first meeting that focussed on the implementation of these two new initiatives. In addition, the TAG addressed the broad range of issues and made detailed recommendations where the EPI requires technical guidance, including maintaining poliomyelitis-free status, maternal and neonatal tetanus elimination (MNTE), improving quality and use of data by EPI programmes, safe immunization, and vaccine security.

The challenge now is for the EPI Unit of the WHO Western Pacific Regional Office to help member countries to effectively implement these recommendations.

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1. INTRODUCTION

The Technical Advisory Group (TAG) on the Expanded Programme on Immunization (EPI) and Poliomyelitis Eradication was established in 1991. Its technical guidance was a critical element for the Western Pacific Region achieving certification of poliomyelitis-free status on 29 October 2000.

In addition to poliomyelitis-free status, EPI has delivered other important health benefits to the Region: 95% reduction in measles deaths, inclusion of hepatitis B vaccine in every programme, and neonatal tetanus eliminated in all but six countries of the Region.

However, the Region is not yet receiving the full potential benefits of immunization. Many children continue to miss out on life-saving vaccines; some are given ineffective vaccines; and immunization safety is not yet fully addressed. Vaccine security is emerging as a problem as global vaccine supply for traditional EPI vaccines has declined.

The thirteenth meeting of the TAG (Manila, 4-7 November 2002) started to address these issues and recommended the adoption of two new EPI initiatives: measles elimination and hepatitis B control to strengthen EPI. These initiatives were adopted by the 54th Regional Committee Meeting (RCM) in September 2003. The 14th TAG meeting focussed on implementation of the two new initiatives to strengthen the EPI: measles elimination and hepatitis B control.

1.1 Objectives

The TAG held the fourteenth meeting at the WHO Western Pacific Regional Office (WPRO) in Manila, the Philippines from 29 to 31 March 2004, with the following objectives:

- (1) to review the situation of, and make recommendations for, the EPI in the Western Pacific Region, including progress towards measles elimination and hepatitis B control, maintenance of poliomyelitis-free status, and reduction of other vaccine-preventable diseases;
- (2) to make recommendations concerning a target date for regional measles elimination;
- (3) to make recommendations to strengthen national immunization programmes including immunization safety, vaccine security, data quality, and use of data to improve programmes; and
- (4) to share information on the latest developments in EPI and vaccine preventable disease control and elimination.

1.2 Organization

A total of 107 participants and observers attended the meeting. These included six TAG members; and 101 representatives from 15 Member States including 25 national EPI managers and surveillance managers, 13 representatives of international organizations, one from WHO's Regional Office for South-East Asia, 31 from other partners in poliomyelitis eradication and 31 from the secretariat. The timetable of the meeting and list of participants are provided in Annexes 1 and 2, respectively.

1.3 Opening ceremony

Dr Shigeru Omi, the WHO Regional Director, welcomed all the participants, particularly the many colleagues who had been involved with EPI for so many years, recalling the first TAG meeting in April 1999 in Tokyo. He made the observation that as poliomyelitis cases dropped, the number of TAG participants increased. Dr Omi thanked all the many partners for their support to EPI over these many years, and for the national managers who obviously played a vital role in the achievements made in the Region.

The TAG was established to help with the regional challenge of eradicating poliomyelitis. It is well known that the Region was certified free of poliomyelitis in October 2000. However, this does not mean the challenge is over – a point which is sometimes forgotten. Global eradication continues to face hurdles and the Western Pacific Region must remain vigilant, especially with ongoing transmission in the neighbouring Region.

There are also challenges from new threats that have been especially challenging to this Region over the past year: severe acute respiratory syndrome (SARS) and avian influenza. However, Dr Omi emphasized the importance of EPI and the commitment to maintain WHO support and activities for EPI.

Based on the previous TAG meeting's recommendation, in September 2003, the Regional Committee for the Western Pacific adopted resolution RC54.R3 which recommends that measles elimination and hepatitis B control be adopted as new pillars to strengthen EPI. The challenge is now to implement these two new pillars, and the TAG advice will be helpful to member countries in doing so.

The Regional Committee endorsed the Western Pacific Regional Plan of Action for Measles Elimination and the Western Pacific Regional Plan to Improve Hepatitis B Control Through Immunization. These plans provide the overarching framework. Specific, practical guidance for countries is now needed so that they can introduce these two new pillars into routine immunization programmes and help ensure that every child in the Region is reached.

The two pillars are in their own way uniquely important to EPI. Measles elimination is in keeping with the Millennium Development Goals endorsed by all United Nations Member States at the 2000 Millennium Summit. One of the Millennium Development Goals is to reduce the under-five mortality rate. One of the ways to measure this goal is by increasing the proportion of one-year-olds immunized against measles. Additionally, in May 2003, the World Health Assembly stressed the importance of achieving the goal of reducing deaths due to measles by half, adopted by the United Nations General Assembly Special Session on Children and is to be reached by 2005. To attain this goal, one of the targets is a 50% reduction in the number of measles deaths as compared to 1999.

The Millennium Development Goals call for a major reduction in poverty and a significant improvement in the health of the poor. In the Western Pacific Region, the countries with the lowest immunizations coverage are not surprisingly the countries on the lower end of the socioeconomic scale. It is thought that the elevated burden of disease will slow economic growth, and the only way to lower the disease burden will be by concerted global efforts in increasing access to health services.

Dr Omi closed his speech by thanking the participants for their dedication and commitment to work for the health through the EPI and looked forward to the outcome of the deliberations.

The following TAG members were selected to serve as officers for the meeting:

Chairman	-	Dr Isao Arita
Vice-chairman	-	Dr Robert Hall
Rapporteur	-	Dr Steve Cochi

2. PROCEEDINGS

2.1 Regional EPI overview

Since the 13th TAG meeting in November 2002, EPI in the Western Pacific Region continues to make progress. A major event was the WHO Regional Committee for the Western Pacific adopting resolution WPR/RCM 54.R3 Expanded Programme on Immunization on 10 September 2003. The resolution recommended that measles elimination and hepatitis B control be adopted as two new pillars to strengthen the EPI.

Although reported immunization coverage is high (with the regional statistics dominated by China's performance), many countries in the Region have areas with difficult access and unreached children. Around 7.2 million children did not receive diphtheria-pertussis-tetanus (DPT3) immunization in 2002, mainly in Cambodia, China, Lao People's Democratic Republic, Papua New Guinea, the Philippines and Viet Nam. Data quality for immunization is not as good as expected and its use as a management tool could be improved by many programmes.

Immunization is a dynamic process that continues to develop. The Western Pacific Region will be challenged over the coming decade to reach goals already set and to manage unanticipated events. New vaccines and new technologies are likely to emerge and will need a paradigm shift to make maximum use of them. EPI remains firmly committed to reducing the impact of vaccine-preventable diseases in the Region.

The many competing priorities for resources and political commitment for health activities have affected some national immunization programmes. New and re-emerging diseases such as SARS, avian flu, human immunodeficiency virus/acute immunodeficiency syndrome (HIV/AIDS), tuberculosis (TB) and malaria mean that ensuring high political and programme commitment for EPI will be an even greater challenge in the future.

2.1.1 Pacific subregion

The Pacific island countries and areas (PICs) are working well as a block in the Region. The PICs achieved poliomyelitis-free status well before regional certification. Measles transmission has been interrupted since 1998, however, importations have occurred in French Polynesia (1999), Guam (2002) and the Marshall Islands (2003). In 1997, the PICs achieved vaccine self-funding through Vaccine Independence Initiatives (VII). Hepatitis B (HepB) vaccine was integrated into national immunization programmes in 1996 with support from partner agencies and has been funded by the PICs themselves since 2001. There has been a trend towards a slow decrease in immunization coverage in recent years, and a new project is being proposed to strengthen the PICs in EPI.

2.1.2 Immunization coverage

A high proportion of countries in the Region have achieved high immunization coverage. A small number of countries are struggling to match the performance of their neighbours and will need additional support and encouragement from the WHO Regional

Office and its partners. Regional coverage figures are largely driven by one country in the Region that has 72% (2002 data) of the Region's births.

Reported immunization coverage across the Region has been constant for the old EPI vaccines. In 2002, reported immunization coverage was 96% for Bacille Calmette-Guérin (BCG), 95% for DPT3, 96% for oral poliovirus (OPV3), 96% for measles and 70% for tetanus toxoid (TT2+) for pregnant women according to the administrative method of the WHO/United Nations Children's Fund (UNICEF) joint reporting process.

All national immunization programmes in the Western Pacific Region included HepB by the end of 2001. However, work is still needed to fully integrate HepB into the EPI in countries where it was recently introduced, to ensure that every child in the Region is offered the vaccine, and that a timely birth dose is given to prevent perinatal transmission. HepB3 coverage increased compared with previous years and reached 93% according to reports from 32 of 36 countries and areas of the Region.

It should be noted that coverage in some countries, such as Cambodia, Lao People's Democratic Republic and Papua New Guinea remained low. Viet Nam had low DPT3 coverage (75%) because of shortage of vaccine that was damaged by freezing.

2.1.3 EPI diseases

The decline in reported diphtheria and pertussis cases are consistent with increasing Diphtheria, tetanus and pertussis (DTP3) coverage. In 2002, there were 257 diphtheria cases reported from nine countries. Among those, 105 cases were reported from Viet Nam, 62 cases from the Philippines, 40 cases from Lao People's Democratic Republic and 11 cases from China. As overall reported coverage is high, these small outbreaks suggest important pockets of low immunity as diphtheria is generally controlled with relatively low immunization coverage.

The situation with pertussis is more complex, as there is increased recognition of pertussis among older children and even adults from waning immunity. There can, therefore, be outbreaks of pertussis, even in high coverage populations. There were 20 788 cases of pertussis reported from 15 countries in 2002 – China, 6293 cases; Australia, 5563; Papua New Guinea, 5002; Japan, 1760 cases; New Zealand, 1068; Viet Nam, 662 and Cambodia, 320 cases.

In 2002, a total of 129 361 measles cases were reported from 19 countries and areas of the Region. China reported 58 341 cases, Japan reported 33 812 cases; Papua New Guinea, 17 620 cases; the Philippines, 7003; Viet Nam, 6755; Lao People's Democratic Republic, 2072; Cambodia, 1361 and Mongolia, 1205.

In 2002, 2656 neonatal tetanus cases were reported. The majority of cases was from the six countries in the Region where this remains a public health problem: 2136 cases were reported from China, 169 cases from Cambodia, 163 cases from the Philippines, 95 cases from Viet Nam, 71 cases from Papua New Guinea, and 16 cases from Lao People's Democratic Republic. As with other diseases, but especially for neonatal tetanus, there are likely to be many more cases than are reported.

2.1.4 EPI indicators

The information on EPI performance is provided annually by national health authorities of the WHO member states to WHO and UNICEF through a joint reporting process. For 2002, information was available from 35 countries and areas in the Region.

Strategic plans for the national immunization programme that cover three to five years were developed in 24 countries/areas (but not prepared in eight countries and there are no data for four countries/areas). Annual activity work plans for immunization services were prepared in 23 countries/areas.

Safe injection components, including waste management, were incorporated into workplans in 26 countries.

A number of assessments and reviews were conducted in 2001/2002. These included comprehensive assessment in 13 countries, injection safety in 17 countries and cold chain assessment in 20 countries. Financial assessments were conducted in 16 countries and data quality assessment in 17 countries.

Seventy-five percent of countries/areas had a line item in the national budget for purchase of vaccines used in routine immunizations. Cambodia, Hong Kong and Lao People's Democratic Republic had no line items for vaccine purchase at the country level.

Seventy-two percent of countries/areas had a line item in the national budget for purchase of injection supplies including syringes, needles, and safety boxes for routine immunizations.

2.1.5 New vaccine introduction

An assessment of Hib burden for Mongolia was finalized and provides the basis for the country to apply for Global Alliances for Vaccines and Immunization (GAVI) support for the inclusion of Hib vaccine. In addition, an economic impact study of Hib vaccine in Tonga has resulted in the Government deciding to introduce the vaccine with donor assistance that is planned to be phased out over five years.

During 2002/03, three PICs introduced rubella vaccine (Tonga, Samoa and Tokelau) in response to rubella outbreaks and high reported rates of encephalitis. Other countries in the Pacific are considering introducing the rubella vaccine, but its high cost (four times the cost of measles vaccine) is a significant constraint, as well as the need to ensure high coverage.

2.1.6 Global developments relevant to the Region

Global immunization coverage has remained about 75% over the past few years. Of the 33 million unimmunized children, the majority are in Africa and South Asia. Using district-based analysis only 43 countries have achieved 80% DTP3 coverage in all districts.

Compared with 1999, there has been a 30% reduction in the number of estimated measles deaths in 2002. These gains have been achieved as part of the large campaigns undertaken there over the past few years.

There is a need to revitalize routine immunization services, and the initial thoughts on the key approaches need to include:

- a focus on routine immunization, using district microplanning and monitoring;
- integration of the various accelerated disease control efforts;
- using immunization to deliver priority health interventions; and
- financially sustainable programmes.

2.2 Measles elimination

The Western Pacific Regional Plan of Action for Measles Elimination has established the basic strategies for member countries: immunization, surveillance, and laboratory support.

The immunization strategy is to achieve 95% immunity because measles is highly infectious, with each person with measles infecting an average of 20 other persons. If at least 19 of the 20 people are already immune through immunization, there will be, on average, less than one additional case so that chain of transmission will die out.

Because measles vaccine is only about 85% effective when given at age nine months, and 90% to 95% effective after the age of 12 months, a single dose of measles vaccine is not able to provide the required level of population immunity. A second dose can protect those who fail to be protected by the first dose. In addition, the second dose event can be an opportunity to give a first dose to previously unimmunized children. Reaching unvaccinated children is a priority.

2.2.1 Annual review of progress

The 54th RCM in 2003 resolved that measles elimination was an appropriate regional goal, but as the Region was not yet ready to set the target date, an annual review of progress should be undertaken so that a target could be set.

The recommended strategies for achieving elimination are: (1) immunization, (2) surveillance and (3) laboratory support. Assessment of progress is based on planning and implementing each of these strategies with the indicator based on data received at WPRO.

For immunization, the indicator is providing two doses of measles vaccine, where the second dose can be either scheduled or provided through periodic supplementary immunization activities (SIAs). Twenty-seven of 37 countries and areas of the Region, that provided information, offer a second dose. However, coverage is not high enough to have achieved 95% coverage in every cohort of every district.

For surveillance, the indicator is having functional case-based surveillance and evidence of this being sending case-based data regularly to WPRO. Although over half the countries report that they have case-based surveillance, only six countries are sending the requested case-based data to WPRO.

For laboratory support, the indicator is having access to an accredited laboratory for measles testing of suspected cases. The Measles Regional Laboratory Network (MRLN) is still being developed, and the accreditation process is to be finalized. Therefore at present, the temporary indicator is simply access to a national laboratory.

The annual review of progress is based on the status of these three strategies. The first step is for countries to have a national measles plan for implementing these strategies. When the plan is developed, the country can be considered 'ready' for elimination. Once the three strategies are all operational, the country is 'in progress'. Finally, when surveillance indicators show that the operational indicators of elimination (see below) have been met, the country status is referred to as 'eliminated'.

Based on current data (and treating the PICs as one country, as they operate as one epidemiological block), three countries are 'not ready', eight countries are 'ready', and six countries are 'in progress' for measles elimination.

However, more detailed data is needed in order to set a credible and realistic target date for elimination. Waiting for all the countries to be 'ready' or 'in progress' may mean that the Region never sets an elimination target, as the setting of the regional target date may be needed to help some countries move forward on measles elimination.

Therefore currently, there is no adequate way to assess progress to allow setting of the target date, but specific in-country work is needed. There are many challenges, starting with obtaining the required high level of political commitment that is crucial for an effective programme. There are also countries that do not offer a second dose of measles immunization (either through routine schedules or periodic SIAs). The greatest challenge will be reaching children who live in remote, hard to access areas that have no regular health services. There is also the challenge of reaching other under-served populations, such as the urban poor who live in slums and the ethnic minorities who are often overlooked.

2.2.2 Country experiences

2.2.2.1 *Cambodia*. Since 2000, the incidence of measles in Cambodia has been declining dramatically as a result of the national measles SIA that was progressively rolled out over three years (2001 to 2003) after an initial pilot. National coverage was achieved over three years. In the first year the target population was only children up to age five years, but cases continued in older age groups, so for the next two years the campaign was targeted to children up to age 15 years. Very high coverage (>95%) was achieved, and was also achieved for the other interventions delivered at the same time (OPV, vitamin A, mebendazole, bednets).

Mapping of cases has been useful to monitor the impact as well as to identify areas of continuing measles transmission. Two problems were identified in 2003: (1) continuing transmission in older children because the target age was only up to age five years in that area; and (2) transmission in younger children in an area with a large migrant population. As a result in 2004 a campaign was launched targeting children seven to 14 years in those areas where the initial campaign only covered children up to age five years in 2001.

Cambodia is also planning a follow-up campaign in 2006/2007 for all children up to five years old.

2.2.2.2 *China*. In China, provinces are categorized into three measles control groups based on reported measles incidence. Active case-based measles surveillance integrated with acute flaccid paralysis (AFP) surveillance in three provinces identified twice as many suspect measles cases as reported to the Notifiable Diseases Reporting System, and had a positive impact on AFP surveillance performance.

Measles surveillance has been very useful to evaluate the impact of immunization activities and guide future control efforts. In particular, surveillance has highlighted the importance of outbreaks in school settings and high rates of transmission in some pre-school populations. As a result, new national regulations on school entry immunization requirements are being formulated and the age of the routine second measles dose is being moved forward from seven years to 18-24 months.

2.2.2.3 *Mongolia*. Starting in late 1999, after over five years with no measles, Mongolia experienced an outbreak of acute fever and rash (AFR) that has continued to the present. Initially diagnosed as measles by the local laboratory, the reference laboratory found no evidence of measles, but only of rubella. However soon after, measles cases were also identified. There was thus overlapping epidemics of measles and rubella, with rubella predominant in 2000 (about half the 2480 AFR cases had blood tests, and 48% were positive for rubella and 7% were positive for measles) and measles predominant from 2001 (73%,

53% and 18% measles positive as compared to 4%, 1% and 14 % positive for rubella in 2001, 2002, and 2003, respectively). The outbreak is ending with only 31 cases reported in 2003. The age group affected was predominantly young adults aged 15-24 years, with some transmission in school-aged children. It is likely that the measles outbreak was largely the result of a single dose of vaccine leading to susceptible cohorts in older age groups who did not get two doses of measles vaccine, as well as those children who missed out on vaccination.

2.2.2.4 *Papua New Guinea.* The achievement of about 80% coverage in the mid 1980s to early 1990s was not maintained, and coverage has been low (around 40%) since then, with measles outbreaks every two to four years. In 1997, measles was included in one round of the national immunization day (NID), but had limited impact because coverage was low, and vaccines were provided only to children up to five years old. However, it did appear to limit measles for a few years compared to the resurgence seen in the large outbreaks between 2000 and 2002 affecting all parts of the country at different times. With the lack of progress on improving routine coverage despite various support activities, it was proposed to undertake measles SIA for all those up to age 10 years, with a dose of OPV to maintain poliomyelitis for those aged under five years, as well as vitamin A supplementation. So far, the campaign has been successfully implemented in two provinces, and is being progressively implemented nationally through 2004. Strong political support at all levels, good social mobilization, and district microplanning were all important to the programme's success. The main problems were with the estimates of the target population and the tally sheets that were used.

2.2.2.5 *The Philippines.* There is already a target date for measles elimination by 2008, starting from the 1998 campaign for children under the age of 15 years. In February 2004, the first follow-up campaign was undertaken for all children born after the initial campaign, rounded up to eight years because of low coverage among the youngest children in the 1998 campaign. So far 92% coverage has been achieved, and ongoing mop-up is likely to increase final coverage. This campaign was the first to do validation of coverage (using a rapid coverage assessment) and mop-up of areas with low coverage. The rapid coverage assessment was based on the selection of sites using the spot maps to cover both easy and hard to reach areas. For each *barangay*, four sites were selected and the status of five eligible children assessed based on the mark from vaccination or history, as the mark did not always stay on. The validation showed that fixed sites resulted in poorer coverage than door-to-door immunization. It also showed that in areas with good local government unit (LGU) support, coverage was higher. Lessons learned to date include: using microplanning to address problems with staffing, the use of fixed sites, door-to-door strategy is critical for achieving high coverage and rapid assessment is an essential tool for ensuring coverage is achieved with unreliable target population estimates.

2.2.2.6 *Viet Nam.* Viet Nam has had very high coverage for many years, but still faces ongoing measles transmission, showing that a single dose is not enough to control measles. Therefore, a strategy for elimination was established with an initial campaign for all children aged under 10 years in 2002 and 2003 to be followed by the introduction of a routine second dose in the immunization schedule in 2006.

The measles campaigns achieved over 99% coverage, implemented in the 28 northern provinces in March and April 2002, and in the remaining 33 southern provinces in March and April 2003. As a result, measles has decreased dramatically. In the North, there was a 35-fold reduction in measles cases in 2003 compared to 2000. There has also been improved surveillance with an increase from less than 10% to over 90% of cases being investigated. At the same time there has been a decrease in the number of samples tested from suspect cases that are positive from nearly 80% in 2001 to just over 10% in 2003, showing that as measles

becomes controlled, a smaller proportion of acute fever and rash cases are in fact measles. In 2003, testing for rubella was positive in just over one-third of the samples.

2.2.2.7 *Japan*. Japan experienced a progressive decline in measles but there was an increase in 2001 and 2002. Although coverage is quite high, it is given late leading to most measles in children under the age of two years. As a result of a campaign, coverage in one year olds increased in 2003 leading to lower rate of disease overall, and a lower proportion of cases in this age group. However, there is an increasing proportion of measles in young adults (but not the absolute number).

2.2.3 Measles field guide

WPRO has prepared field guidelines for implementing the Regional Plan of Action for Measles Elimination. The aim of the guidelines is to help countries prepare a national measles to be undertaken as part of a comprehensive EPI plan. It is recommended that development and implementation of the plan be done with the support of a Measles Elimination Coordination Committee (MECC). However, this does not mean establishing a new committee, as there is likely to be an existing EPI committee that can undertake this function. However, it will be important to include representation of the education sector, because of the likely need for school-based campaigns and the value of a school entry check to make sure that every child has had two doses of measles-containing vaccine (the second dose after the first birthday) by the time of school entry. The issues that are suggested for inclusion in the national measles plan are:

- A review of the history of measles control
- Identification of groups/areas <95% population immunity
- Immunization strategies
- Logistics and vaccine supply
- Case-based surveillance
- Laboratory confirmation
- School entry check
- Potential for rubella elimination
- Inclusion of Vitamin A and other health interventions

The key issues are to make sure that 95% population immunity is achieved. When that is achieved, expensive outbreak responses will no longer be needed, as importations will only lead to limited outbreaks. The need to consistently reach practically the entire population make measles elimination a pro-poor intervention that can also be used by other essential public health interventions requiring broad population coverage.

2.2.4 Surveillance

Core surveillance functions are case detection, reporting, investigation (including laboratory confirmation of diagnosis), analysis and dissemination. WPRO is now producing a quarterly measles bulletin as one example of dissemination of surveillance data. Surveillance involves many people and actions, and the key is to find ways to encourage reporting of acute fever and rash case. WHO has a recommended case definition for measles, and countries can adopt or modify this, as appropriate to local circumstances.

As countries move towards elimination, it will be essential to have case-based surveillance. The classification of cases is based on the laboratory result as well as any epidemiological links with confirmed cases.

Since April 2003, six countries, namely Cambodia, Lao People's Democratic Republic, Mongolia, Philippines, Singapore and Viet Nam have started sending case-based reports.

Indicators to monitor the performance of the surveillance system are included in the measles field guide, as well as indicators to show the achievement of elimination status (see conclusions). One aspect is to monitor population immunity using coverage data.

2.2.5 Outbreak response

An example of what can happen when population immunity is allowed to decline was illustrated by the Marshall Islands measles outbreak in 2003. With no cases of measles and actual coverage lower than reported coverage, there was a build-up of susceptibles leading to a large outbreak following an importation in 2003. As a result there were three deaths and considerable resources used to deliver an immunization campaign to all those up to age 40 years. Carefully monitoring population immunity with good quality coverage data would have enabled a preventive immunization campaign that would have been more effective and easier to implement than the expensive outbreak response.

2.2.6 Immunization strategies

Every country needs to identify the best strategies to reach every child with two doses of measles-containing vaccine. All countries should schedule at least one-dose measles immunization. The timing of the first dose is generally at age nine months; but as measles control improves, countries can consider moving the timing of that dose to age 12 months, as the vaccine is more effective after the first birthday. The second dose can be given soon (one month) after the first dose, but must be after the first birthday. Countries need to decide whether to schedule the second dose or to deliver it through regular SIAs; but to schedule a routine second dose evidence of high first dose coverage must be in place. Even with two scheduled doses a SIA may be needed unless at least 95% coverage is achieved for the scheduled dose.

Most countries need to undertake a SIA to fill gaps in population immunity in older groups. These groups should be identified and immunized as soon as possible, as it is easier to reach them when they are still at school. The SIA builds up the wall of immunity, and while it is important to build up population immunity as soon as possible, the more important consideration is ensure very high coverage. This is why countries such as Cambodia and Viet Nam have delivered their campaigns over several years, to ensure that high coverage is achieved in every district.

2.2.7 Measles Regional Laboratory Network

The Measles Regional Laboratory Network (MRLN) is being developed to enable the laboratory support aspect of the RCM resolution to be implemented. The network, modelled on the poliomyelitis laboratory network, will confirm measles and possibly rubella diagnoses as well as provide samples for genotyping to help identify imports. The network will also help with monitoring population immunity.

Mechanisms to support and assure the quality of national laboratories in the diagnosis of acute fever and rash illness are being developed including: sustainable provision of equipment and consumables; training resources and facilities; and quality assurance-related activities, including a proficiency test (PT).

A 2001-2002 survey on the capacity of each national laboratory found that most countries in the Region have already identified a laboratory to function as national measles laboratory (NML) for the MRLN. For China, initial assessment of sub-national laboratories

(31 provincial laboratories) is still needed. In the case of PICs composed of 21 small to moderately small countries, a PIC-wide laboratory (LABNET) and surveillance (EPINET) was established. The four measles laboratories in PICs – Fiji, French Polynesia, Guam and New Caledonia – are expected to function as sub-regional laboratories for these 21 countries. Three Regional Reference Laboratories (RRLs) have been selected – National Institute of Infectious Diseases (NIID), Tokyo, Japan; Victorian Infectious Diseases Reference Laboratory (VIDRL), Melbourne, Australia; and China Center for Disease Control and Prevention (China CDC), Beijing, China. Among these laboratories China CDC and VIDRL receive on-site review for annual accreditation in November and December, respectively.

The priority is to establish an accreditation process for measles laboratories, and a regional meeting will be held on 24-25 August 2004 in Manila to start the process, and inaugurate the MRLN, and discuss practical aspects: methods for IgM test; structure of the network; sustainable supply of equipment and consumables; and provision of measles virus susceptible cell lines to selected NMLs.

2.3 Hepatitis B control

Hepatitis B virus (HBV) is an important cause of disease and death in the world, and even more so in the Western Pacific Region with over half of the global disease burden and only one quarter of the global population. The majority (90%) of the burden arises from chronic infection. Most of this is from child-to-child transmission, but up to 40% is from mother to child transmission. The primary objective is to prevent transmission from mother to child and child to child using the safe and effective vaccine.

Hepatitis B is the leading infectious cause of cancer-related deaths, and hepatitis B vaccine is the only vaccine that prevents cancer. The impact of today's immunization programmes will only be fully evident in coming decades, with failure to protect today's infants leading to a large burden on health services having to deal with cases of liver cancer and cirrhosis in the 20 to 40 years.

WPRO undertook an evaluation of hepatitis B control that revealed a number of challenges and opportunities for the Region to improve further its performance in controlling hepatitis B. The Region has made remarkable progress in controlling the infection, but many challenges remain. The most important challenge is that of the routine EPI: being able to reach every child in the Region. In addition, there is a new challenge for delivery of a timely birth dose to prevent perinatal infection.

The birth dose represents both opportunities and challenges. Many infants in the Region are born at home with no trained birth attendant present. For this reason, overcoming problems of birth dose administration has the potential for refocusing on aspects of care during home delivery that have been relatively neglected in the past. There may be potential synergies between achieving routine high coverage for the HepB birth dose and other health initiatives around the time of birth. Mother and child at birth are the focus of safe motherhood and neonatal care and survival strategies.

One way to improve access for the birth dose is to relax the cold chain requirement for hepatitis B as it is relatively heat stable and can be kept for a limited time in warm or even hot temperatures while maintaining potency. The vaccine vial monitor (VVM) is now included in most vials of hepatitis B vaccine and can provide assurance that the amount of exposure to heat is within the tolerance of the vaccine.

Taking the vaccine out of the cold chain at the end-user will also limit the chance of exposure to sub-zero since the vaccine is freeze-sensitive. Published reports and field evidence demonstrate that freezing of vaccines in the cold chain is commonplace, potentially

resulting in the widespread delivery of vaccines whose potency has been compromised by the disassociation of antigen from the adjuvant.

Hepatitis B vaccine is extremely safe and effective. It has very few adverse reactions associated with its administration. It is also very cost-effective. The main difficulty faced by policy-makers in many countries is not to confirm that a universal HBV vaccination programme is a good way to spend resources, rather, whether such a programme deserves priority over other highly cost-effective interventions such as oral rehydration salts. Insufficient importance has been given to generating and sustaining demand for hepatitis B vaccine.

2.3.1 Country experiences

2.3.1.1 *Cambodia.* With one study finding 12% seroprevalence, poor sanitary conditions, and many unsafe injections, the introduction of hepatitis B was considered a priority. Hepatitis B vaccine is progressively introduced (as DTP-HepB replacing DTP), starting from a single district in 2001 and being progressively phased in, to cover half the country in 2004 and the rest by 2005.

To improve coverage, a workshop was held to help districts prepare a coverage improvement plan (CIP). The work focussed on 10 districts with low coverage. The addition of DTP-HepB with the CIP led to increases in coverage for DTP.

As only about 10% of children are born in facilities, it is challenging to deliver a birth dose, and effective social mobilization is needed. This requires resources and training. There is also a need to improve the microplanning skills at districts so that more children can be reached. There will also be a financial challenge to continue to provide this expensive new vaccine once GAVI support ends.

2.3.1.2 *China.* In China, the impact of hepatitis B immunization is monitored through a variety of methods including routine coverage monitoring, periodic coverage surveys, and intermittent serosurveys. Routine coverage reporting in China currently is constrained by incomplete reporting and variable target denominators. The reported EPI target denominator is 30% to 40% less than the Statistics Bureau estimated number of births. Target numbers for hepatitis B and DTP doses are often different yet coverage is nearly the same. A national 1999 coverage survey found wide variations in hepatitis B coverage ranging from under 50% in the western provinces to over 90% in some of east coast provinces. A coverage survey done in 10 provinces in 2003 showed improvement in coverage for HepB vaccine compared to the 1999 national survey.

Several serosurveys were conducted in 2002 and 2003 and were compared to the national serosurvey that was undertaken in 1992-1995. The analysis shows a decline in carriage, but with very variable rates and most provinces still having >2% carriage (national target). Differences in sampling and testing methodology, however, make direct comparison difficult.

This experience emphasizes the need to develop strategies to increase timely first birth-dose coverage, as well as the need for standard regional guidelines for monitoring routine coverage and conducting hepatitis B serosurveys.

2.3.1.2 *Macao.* In Macao pre-immunization, 11.5% of adults had chronic HBV infection and HBV is a leading cause of death. Immunization was first introduced to the National Immunization Programme (NIP) in 1984 for babies of carrier mothers; this was extended to all infants in 1989. A survey was undertaken in 2003 to assess the impact of carriage. The survey sampled school children which is very representative as over 99%

attend. Over 75% of those invited responded to the invitation (n=1221) and had blood taken. Immunization coverage for three doses of hepatitis B (and birth dose within 24 hours in brackets) was 99% (94%), 95% (89%) and 96% (30%) for children aged 6-9 years, 10-13 years, and 14-15 years, respectively. Carriage rates were 0%, 0.7%, and 1.9% respectively showing the importance of coverage and the birth dose. However, there was no statistical difference in carriage among those who got the birth dose within 24 hours as opposed to after 24 hours. This result arose from the anomalous finding that that three of the four of the 10-13 year-old carriers had a birth dose within 24 ours (the fourth was unvaccinated). Overall, children who were unvaccinated were 239 times as likely to be carriers, showing very high vaccine effectiveness.

2.3.1.3 *Viet Nam*. Hepatitis B was first introduced in 1997 in 34 districts (5%) expanding while 125 (19%) of districts in 2001, using locally produced vaccine. Vaccine supply, while expanding was still limited and only able to cover about 15% of the birth cohort. With GAVI support, the vaccine was able to be introduced nationally, starting in 2002 with but a half of the districts and expanding to all districts by 2003.

The birth dose is recommended within 24 hours for children born within a health facility and up to 72 hours if born outside. The monitoring has been established to distinguish whether the birth dose is given during the first three days after birth or not. In 2003, coverage for the birth dose was nearly 95%, and timely (within 3 days) was just over 50%.

To improve availability of vaccine for birth doses for those born away from a health facility with a refrigerator it is planned to pilot the use of the vaccine with VVM out of the cold chain. This will only be for the birth dose and with support from WHO, and with careful implementation to monitor the impact on other vaccines.

2.4 Strengthening routine EPI

2.4.1 Improving outreach and strengthening microplanning

The Reaching Every District (RED) strategy is based on microplanning at district level. It is an annual plan to reach every child at least four times per year – to allow full immunization. The strategy includes five key components:

- Re-establishment of outreach services
- Supportive supervision
- Community links with service delivery
- Monitoring and use of data for action
- Planning and management of resources

The steps in developing a microplan are:

- An analysis to assess current district status (to use past performance to identify the problem and priority areas)
- A map in every district and every health facility (mapping the district is a logical way to identify populations and how to reach them)
- Immunization session plan showing how to reach every community
- A workplan showing activities, persons, timetable, transport, and supervisory visits
- A monitoring chart, regular coverage/drop-out analysis and system for tracking defaulters
- System for stock/supply monitoring

- Delivering other interventions (bednets, etc.) where feasible

The main challenges for the RED strategy are the ongoing follow up after the initial training and the nature of the process that requires time as it depends on local capacity being built. The RED strategy is also unable because of systemic barriers such as under-funding, weak infrastructure, and limited capacity to deal with the competing health priorities. Nevertheless, the RED strategy provides a simple management tool for improving district performance with an emphasis on better use of and integration of various resources. It enables a single district plan to be developed that can address all the accelerated disease control activities.

2.4.2 Immunization policy

WHO has published two earlier versions of a document outlining how national programmes might best use vaccines in their infant immunization service. Since the last revision in 1995, much has changed in the world of vaccines.

An updated document is available that provides concise background information that will assist national planners to formulate policies on the use of previously used and many new vaccines.

A national immunization policy needs to cover several areas including the national immunization schedule, safe injection policy (including disposal of used injection materials), cold chain policy, and all aspects of the programme. This can be a very concise statement, and the information provided in the WHO document provides the background technical information to help with national policy development.

2.4.3 Vaccine security

Vaccine supply has increased since the last TAG meeting due to increased manufacturers entering the vaccine market, in part due to higher prices being paid for vaccines. However, supply is still relatively tight, particularly for measles and combination vaccines.

In this environment, accurate vaccine forecasting is critical and is an area that needs further improvement in the Region, as many countries have a wide variation between vaccine forecasts and actual orders.

To address this, UNICEF and WHO have prepared a joint regional vaccine security strategy that provides a plan for working with selected countries to help them improve their vaccine management system as the way to strengthen regional vaccine security.

2.4.4 Financial sustainability

Money is the essential fuel for an immunization programme. Its role is summed up in the definitions of financial sustainability used by GAVI: “Although self-sufficiency is the ultimate goal, in the nearer term sustainable financing is the ability of a country to mobilize and efficiently use domestic and supplementary external resources on a reliable basis to achieve current and future target levels of immunization performance in terms of access, utilization, quality, safety and equity.”

The definition makes financing a shared responsibility between the government and its development partners, with the primary role being that of the government including the efficient use of available resources. It also makes explicit the link between funding and programme performance.

GAVI has made the preparation of a financial sustainability plan one of the requirements for obtaining GAVI support. Moreover, a financial sustainability plan can be useful for any country, even for the more wealthy countries of the Region.

The country reports make apparent the very limited financial data that most immunization programmes have available to them. In most cases there is no overall cost for the NIP; hence, no cost for each fully immunized child (FIC). For countries that do have data report, a cost of US\$1 to US\$900 per FIC has been estimated. The lack of data on financing (and linking of that data to programme performance) is a key deficit.

Immunization is undertaken as one component of increasingly complex health services with variable (and usually inadequate) levels of funding. There is intense competition between programmes for scarce budget resources, and health has to compete with more glamorous portfolios such as infrastructure and military spending. How can programme managers compete more effectively in this challenging environment?

Firstly, programme managers need to understand the unique position of immunization that allows for special arguments in its favour. These are:

- (1) High level of evidence of efficacy and cost-effectiveness of immunization
- (2) Benefits to the community of each individual being immunized by reducing disease transmission
- (3) Public good aspect of disease control (everybody benefits)
- (4) The increasing benefit of a programme as coverage increases that makes immunization one of the few programmes where the marginal extra cost to reach more children is more than balanced by the increased overall benefits
- (5) The need to reach the entire population which makes it a good foundation for other pro-poor interventions, especially as the poor are most at risk from vaccine preventable diseases.

Secondly, immunization is relatively simple and measurable both in terms of its outputs (coverage) and impacts (disease reduction). It is not technically difficult to gather and analyze information on programme performance and to use that data to improve performance.

Thirdly, it is possible to compare sub-national programme performance with resource consumption allowing identification of best and worst practices, and using these data to improve effectiveness and efficiency.

Therefore, if the immunization programme is able to demonstrate that it is making effective use of existing resources, a strong case can be made for more resources as long as there are unreached children that are suffering from vaccine preventable diseases.

2.4.5 Evaluation of vaccine stores management

The Effective Vaccine Stores Management (EVSM) initiative aims to improve the management of vaccine stocks in a country so that they are not compromised by thermal damage and that the right amount of vaccine gets to the right place at the right time.

Ten key criteria for effective vaccine store management were agreed upon at a meeting of experts, which took place at WHO Geneva in December 2001. These criteria form the policy foundation for the EVSM initiative and are listed below.

Over a period of 12 months at a countries national level vaccine stores:

- (1) Pre-shipment and arrival procedures have ensured that all shipments were in satisfactory condition when received in the primary stores.
- (2) All vaccines have been stored within WHO-recommended temperature ranges.
- (3) The capacity of cold storage has been sufficient to meet the demand.
- (4) The buildings, equipment and transport available to the programme have enabled the cold store to function effectively.
- (5) All buildings, equipment and transport have been correctly maintained.
- (6) Stock management has been effective.
- (7) Deliveries of vaccine to the next level have been timely, sufficient and correct.
- (8) Minimal damage has occurred to the vaccine during distribution.
- (9) The facility has followed standard operating procedures.
- (10) Human and financial resources have been sufficient.

Considering the above, WHO and UNICEF strongly recommend that all countries adopt the EVSM initiative and conduct the necessary assessments and improvements leading to high quality management of their vaccine stores starting with the primary. Cambodia and Fiji have undertaken an EVSM assessment, and both found them to be useful.

2.4.6 National cold chain policy and functional inventory

Cambodia has developed a national policy as part of the process of upgrading its cold chain equipment at the provincial, district and health centre level. The policy specifies storage temperature according to the level and type of equipment used so as to make more efficient use of the cold chain. The policy also specifies the standard equipment for each level, so that appropriate equipment is used based on storage need and to facilitate repairs and maintenance.

The policy sets the maximum and reserve levels of vaccine stock at each level, and provides recommendations on the type and frequency of temperature monitoring. The equipment is limited to electrical and gas-powered. Solar is not used because of its cost, need for maintenance, as well as frequent need to adjust the solar panels.

The monitoring of wastage data has shown the reduction in wastage from (1) changing from 20- to 10-dose vials; (2) implementing the Multi-Dose Vial Policy (MDVP); and (3) using VVMs. The current outreach policy requires that VVMs are attached, but this may need to be altered, as DTP-HepB does not have a VVM.

2.4.7 Safe immunization

Immunizations are undoubtedly one of the most effective and safest of all health interventions. Nevertheless, implementation of immunization programmes face many challenges. "Immunization safety" (i.e. ensuring and monitoring the safety of all aspects of immunizations including vaccine quality, vaccine storage and handling, vaccine administration, and the proper disposal of used sharps) is one such challenge that needs to be addressed through a comprehensive immunization safety programme.

2.4.7.1 Injection safety

To date, auto-disable syringes (ADs) and safety boxes have been introduced in all provinces of Cambodia, Lao People's Democratic Republic and Viet Nam. The full scale local production of ADs and safety boxes in Viet Nam has ensured access to locally made

ADs and safety boxes throughout the entire routine immunization programme. The supply of ADs and syringe safety boxes, however, is only part of an overall strategy to ensure injection safety. To properly ensure that the equipment is safe from the point of use to the point of destruction, a multi-faceted approach needs to be adopted using not only ADs and syringe safety boxes but also ensuring safe collection, disposal and destruction of the used injection equipment. Applications to the GAVI Board for funds to support injection safety have been approved for Cambodia, Lao People's Democratic Republic and Viet Nam.

WPRO recommends the use of auto combustion incinerators, specifically the Sicim and Vulcan incinerators. It is important to note that WPRO/EPI does not advocate incineration as the final solution to the problem of destruction of used injection equipment. However, incineration currently is the best available method in the field, and is greatly preferable to the re-circulation of used injection material or the disposal of used injection material in the regular garbage or municipal dump.

To date WHO/WPRO, in collaboration with the respective Ministries of Health in Cambodia and Lao People's Democratic Republic, has installed Sicim incinerators in all provinces of both countries. In Viet Nam 17 Sicim incinerators have been installed in two northern and two southern provinces. However, Viet Nam already has a national plan for medical waste management, and the National EPI Programme is collaborating with the relevant department within the Ministry of Health to ensure that EPI waste is processed as part of this system.

An additional 26 Sicim incinerators provided by Japan will be installed in a further 26 districts of Cambodia. WHO will provide technical assistance.

With the adoption of the WHO, UNICEF and United Nations Population Fund (UNFPA) joint policy on the introduction of ADs into the entire immunization programme by the end of 2003, there is a very real possibility that there could be a global shortage of ADs. This potential shortage could ultimately translate into a reduction in vaccinations for children. To respond to this, the WHO Viet Nam Office and the Ministry of Health, Viet Nam, investigated the potential for ADs to be locally manufactured in Viet Nam.

An agreement was finalized between Medioplast Company (Viet Nam) and Star Syringe Company (United Kingdom) to transfer technology for ADs in September 2001. Full production of ADs started in early 2003. The National EPI Programme has now introduced these locally made ADs into the entire routine immunization programme. In addition, Medioplast also manufacture safety boxes for the EPI programme.

Mongolia is currently investigating the potential for technology transfer for AD syringes as part of an injection safety application to GAVI.

2.4.7.2 Adverse Events Following Immunization (AEFI)

As immunization programmes mature and diseases come under control, public perception changes about the risks of immunization compared with the disease. Concerns about vaccine safety have disrupted immunization programmes in both developing and industrialized countries. All countries need to develop or strengthen their capacity to respond to vaccine safety concerns.

The critical requirement is the ability to promptly, credibly, and effectively investigate any AEFI so that its cause can be determined and an appropriate response made. Communication is a vital part of the response. The WPRO guidelines on immunization safety surveillance provide guidelines for countries on these and other aspects of AEFI.

To build investigation capacity requires undertaking investigations. The investigation of AEFI is similar to other epidemiological investigations, but requires good knowledge of the immunization programme and of vaccines. Documenting the investigation and response to AEFI is recommended so that lessons can be learned and shared.

Programme managers should have formal and informal information sources of information to alert them of any AEFI causing community concern, without the need for a formal AEFI surveillance system. Responding rapidly to such concerns with an investigation and communication strategy can proceed ahead of developing AEFI surveillance. AEFI investigation may identify programme errors (e.g., unsafe injections) that need remedy, as well as prevent vaccines being blamed for coincidental events.

Developing the investigation and communication strategy for AEFI should have beneficial aspects for other aspects of the immunization programme and other disease control programmes.

2.4.7.3 National Regulatory Authority (NRA)

An important challenge of immunization safety is to ensure vaccine quality and safety. In order to accomplish this, it is necessary for all countries, but specifically vaccine producing countries to have a qualified NRA. NRAs are national agencies responsible for ensuring that vaccines released for public distribution are evaluated properly and meet international standards of quality and safety, and need to exercise six critical control functions that include:

1. **A** published set of requirements for licensing
2. **S**urveillance of vaccine field performance
3. **S**ystem of lot release
4. **U**se of laboratory when needed
5. **R**egular inspection for "Good Manufacturing Practice" (GMP)
6. **E**valuation of clinical performance

For United Nations procurement, WHO undertakes the last four functions, and countries that only procure do not undertake the last two functions. Over the past decade, WHO has been working with countries and through the Global Training Network to increase the number of fully functional NRAs, with a special focus on vaccine producing countries that need to undertake all six functions. As a result of the recent work, at the end of 2003 China now has a fully functional NRA, and this means that over 90% of the children in the Region are now receiving vaccines of assured quality.

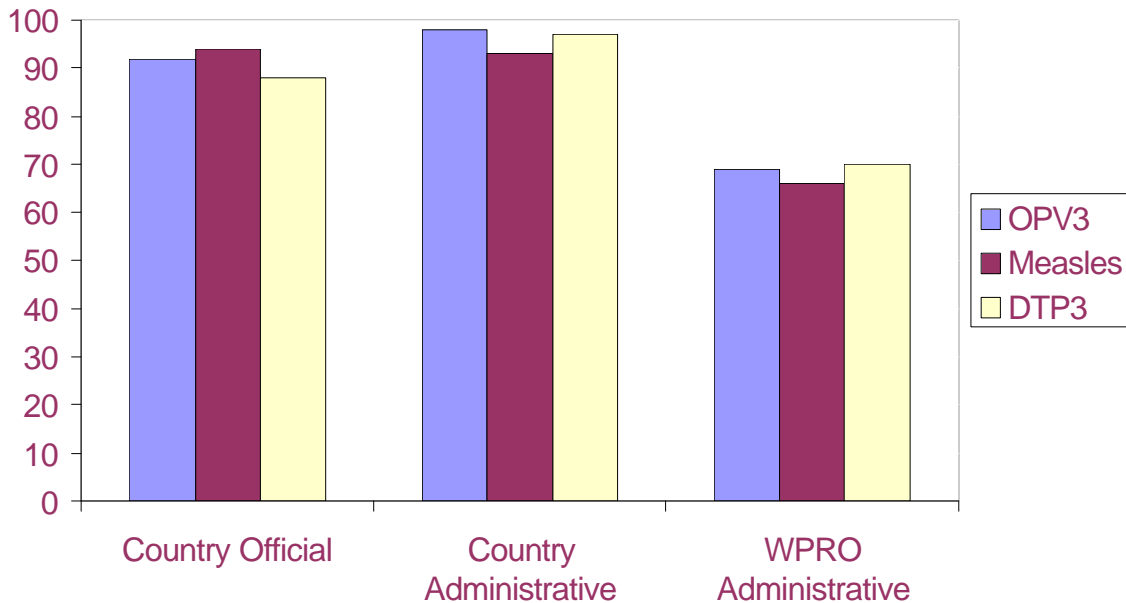
2.4.8 Improving routine EPI data management

Improving the quality of routine data is needed so that the data can be used as a management tool to improve the programme management. The Data Quality Audit (DQA) is a tool designed to look at the quality of routinely reported data. It has a cluster design effect aiming to visit six health facilities in each of four districts and produces a verifiability factor. The DQA was designed for GAVI audit of improvements in performance. It has been modified into the Data Quality Self-assessment tool that will be available by mid-2004.

To improve the data quality process, WPRO is aiming to integrate the data sources and improve the data processes so that the burden on countries is minimized. A questionnaire sent to countries last year identified that most countries prefer to send data on an electronic form, with the remainder wanting to complete a paper form. No country chose the option of web-based data entry.

To standardize the reporting of coverage data, it is proposed that in future the administrative method for measuring coverage should be derived by using the numerator from the NIP and the denominator from United Nations statistics on births as held by the WPRO office. Countries would then prepare a best estimate of coverage based on administrative data supplemented by other information. All but two countries agreed with this method, but several countries did not respond to the question. The impact of using this denominator is shown in Figure 1

Figure 1. WPR immunization coverage using three methods: official estimates, doses administered, WPRO recalculation of administrative data



From the data that countries have sent, WPRO has prepared a database that was used to generate reports on each country. The database was also distributed to participants on the meeting compact disk (CD).

2.4.8.1 Cambodia and Lao People's Democratic Republic experience

Both Cambodia and Lao People's Democratic Republic had DQAs undertaken in 2003 as part of their GAVI support. Cambodia benefited from previously having undertaken a self-audit of data quality and was able to score a 99% verification factor. Lao People's Democratic Republic was not able to verify reported DTP3 and therefore will need another DQA. The DQA was able to pinpoint issues that each country needs to address.

2.5 Poliomyelitis eradication initiative

2.5.1 Global status

In 2004, the world has the best opportunity to stop transmission of wild poliovirus, as transmission is confined to a limited number of 'hot-spots' within six countries: Nigeria, India, Pakistan, Niger, Afghanistan and Egypt (in order of intensity of transmission with 90% of case in the first three countries). In 2003, 75% of poliomyelitis cases globally were linked to just five states or provinces within these countries — Kano (Nigeria), Uttar Pradesh and Bihar (India), North West Frontier Province and Sindh (Pakistan).

At the same time, however, between 2002 and 2004 the number of poliomyelitis-free countries conducting preventive immunization campaigns decreased from 100 to 20,

increasing the world's vulnerability to poliovirus importations. In 2003 re-establishment of transmission occurred in countries or areas of countries that had previously interrupted virus circulation as a result of wild poliovirus exports from northern Nigeria (Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Côte d'Ivoire, Ghana and Togo) and from Uttar Pradesh to other States in India. Already in 2004, four cases following importations have been reported in Côte d'Ivoire, Benin and Burkina Faso.

In response to this situation, there will be an immediate and massive scale-up during low season with over 250 million children targeted in the first six months of 2004. There will also be up to six campaigns in all infected areas during 2004 [for example there will be five NIDs in India targeting 165 million children as well as one Subnational Immunization Day (SNIDs)]. The campaigns in West and Central Africa, and in Pakistan and Afghanistan will be synchronized to ensure control in epidemiological blocks. The results of progress will be reported to Ministers of Health at the World Health Assembly (WHA) in May 2004 and to Heads of States at the United Nations General Assembly in September 2004.

While focusing on interrupting remaining chains of transmission, importations will remain a risk until poliomyelitis is eradicated everywhere and should be treated as an urgent public health threat. Countries must strengthen their AFP surveillance systems nationally and regionally, to rapidly detect further potential importations. Upon identification of further potential importations, massive nation-wide house-to-house mop-up campaigns must be conducted as soon as possible.

The remaining funding gap has always been considered as the single largest threat to the programme. While the initiative has received more than US\$200 million in new funding since May 2003, programme costs for 2004-2005 have also increased by more than US\$100 million due to the intensification of immunization activities in the priority countries. This resulted in a January reduction of the funding gap for 2004-2005 to US\$130 million. The funding gap will be revised at the next meeting of the WHA.

2.5.2 Update on situation in the Western Pacific Region

The Regional Certification Commission (RCC), at its meeting of 12-13 November 2003, concluded that sufficiently sensitive surveillance systems for AFP and wild or vaccine-derived poliovirus (VDPV) are still in place in most, but not all countries.

The surveillance indicators are generally being maintained, although preparedness and control measures for the outbreak of SARS temporarily affected AFP surveillance work in many countries during 2003. There has been no new emergence of circulating VDPV in the Region since the outbreak in the Philippines in 2001. One VDPV was isolated from a healthy child in Mongolia, but review of surveillance and coverage data in Mongolia as well as epidemiological investigation of and in the area of the child did not reveal any longer-term or current virus circulation.

Maintaining high routine OPV3 coverage and quality AFP surveillance are critical to maintain the Region's hard-won poliomyelitis-free status. While the key to sustain population immunity is to improve routine immunization activities, selected regions have undertaken SIAs to protect high-risk populations. In 2002/2003, SIAs were undertaken in 62 prefectures of China targeting almost 11 million children under four years of age. The Lao People's Democratic Republic targeted in January/February 2003 40% of the country's children under five years of age in 27% of all villages from all provinces and 80% of the districts. In the Solomon Islands in November 2003 a catch-up campaign was conducted targeting all children under age five who had missed vaccinations. In Viet Nam, OPV SIAs were carried out in November and December 2003 in 22 districts of six provinces targeting almost 230 000 children under five years of age.

Laboratory containment of wild poliovirus infectious and potentially infectious materials continues to progress with China and Japan finalizing their national inventory. Validation of national inventories and the containment process using a standard quality assessment tool will commence shortly.

2.6 Maternal and neonatal tetanus elimination (MNTE)

The Maternal and Neonatal Tetanus elimination (MNTE) initiative was launched in January 1999, revitalizing the WHA goal of 1989. Six of the 57 countries that are yet to eliminate MNT as a public health problem (i.e., < 1 per 100 live births in every district) are in the Region, namely Cambodia, China, Lao People's Democratic Republic, Philippines, Papua New Guinea and Viet Nam.

Five countries (Eritrea, Malawi, Namibia, South Africa and Zimbabwe) and one area (Andhra Pradesh in India) have been validated by WHO as having eliminated MNT. Rwanda will undergo validation in April 2004 and eight countries including Viet Nam are expected to undergo validation in 2005. In the Western Pacific Region current national Plan of Actions (POAs) in place in Cambodia, Lao People's Democratic Republic and Viet Nam are fully funded or cleared for full funding.

UNICEF has raised almost US\$70 million for MNTE since 1999, and US\$50 million was allocated for SIAs in over 20 countries (including Cambodia, Lao People's Democratic Republic and Viet Nam in the Region), management and technical assistance to countries and technology development.

It has been learned that even though the global estimate of high-risk childbearing age women (CBAW) remains the same (100 million), about 240 million CBAW will need to be targeted because of limited data to identify exactly where most high-risk women cluster, the need to include previously protected women because of unreliable history and the effectiveness of a district-wide approach.

Originally, it was estimated that US\$130 million was required to achieve global MNTE, of which US\$100 million needed to be raised. The revised estimate to reach global MNTE is now US\$300 million of which US\$ 157 million remain to be raised.

The elimination approach coupled with meaningful investments in strengthening routine immunization is currently perceived as achieving the most significant results and benefiting in the long term, including infants. The RED strategy can serve as one of the foundations (see item 2.4.1 above).

Cambodia has extended neonatal tetanus (NT) surveillance (integrated with AFP surveillance) to all 75 operational districts (ODs). Eight high-risk ODs targeted for SIAs in 2002 completed their third round of TT SIAs in the first quarter of 2003 with a reported coverage of three doses of TT or more (TT3+) of 66% among almost 300 000 CBAW vaccinated. In 2003, seven additional high-risk ODs with 182 219 CBAW and four factories with 3300 CBAW were targeted by TT SIAs. In all three rounds a TT2 coverage of 91% was achieved (range of 86%-99% among districts) and a TT3 coverage of 79% (range of 67%-90%) was achieved.

China has set a national target for NT elimination by 2010 using increased clean and hospital delivery, as the main strategy. This target date was set and addressed in *the National Program on Children's Development in China for 2001*. In this context, a Mother and Child Health (MCH) project, with a total budget of US\$12 million funded by the Government, on reducing maternal mortality and achieving NTE was carried out in 2000-2001. This project is

further continued for 2004-2005 with an additional total budget of US\$12 million provided by the Chinese Government.

The reported clean delivery rate and hospital delivery rate at the national level in 2000 improved to 95% and 65% respectively. While high rates of unattended home births in some remote areas limit the impact of this strategy, there has been a steady decrease in numbers of NT cases and high-risk NT counties nationwide. The Australian Agency for International Development (AusAID) has been funding an MNTE and safe injections project in 61 counties in Qinghai and Gansu Provinces and Ningxia and Inner Mongolia Autonomous Regions which began in June 1999. At the end of 2002, 36 high-risk counties conducted TT immunization campaigns, and there are now <5 high-risk counties where MNT incidence still exceeds one per 1000 live births. Experience with AEFI associated with one TT campaign highlights the need to proactively address surveillance and response to AEFI to minimize negative impacts on national EPI programmes.

As logistic and social challenges contribute to poor routine coverage in Lao People's Democratic Republic, it was planned that MNTE objectives could be realized through the support and improvement of routine immunization activities, which would include TT immunization of childbearing age women. Particular emphasis is supposed to be given to a quality micro-planning process, which was pilot-tested in seven districts in 2003 and is planned for expansion to 20 districts in 2004.

Although a first draft towards a national POA for MNTE had been developed in the past, it requires further comprehensive discussions on policy frameworks, particularly for NT surveillance. The approach of the MCH Division is mainly focusing on promotion of clean deliveries at health facilities. Given the nature of the country and its population distribution, adopting a TT immunization strategy that focuses on support for strengthening routine immunization services appears to be appropriate.

The Philippines has targeted 2006 for MNTE and in April 2003, drafted a national POA for MNTE. NT surveillance is being integrated into the AFP surveillance system. There will be renewed efforts to address MNTE once the measles SIA is completed.

Viet Nam continues to make considerable and steady progress towards MNTE and has sound surveillance and immunization systems in place. The National Expanded Programme on Immunization (NEPI) has undertaken an annual process in select districts that still have to be considered at risk for NT and thus to be targeted with SIAs for CBAW. Twenty districts were considered high-risk in 2002 and 20 high-risk districts (HRDs) were identified to be targeted in 2003 with six districts already targeted in 2002. Validation of elimination status had appeared possible in late 2003/early 2004 after a low number of reported cases for 2002 with only one district above the threshold (May 2003 data). Planned SIAs in 2003 were considered mainly preventive.

During a "pre-validation" visit in February 2004 latest data showed 76 NT cases in 2003 with six small districts above elimination levels (one with only one case). Five further districts (each with one case) had 0.8 to one case per 1000 live births. Revised 2002 data included 93 cases with 12 districts exceeding the threshold and thus final validation is now expected to take place in 2005.

3. INTERAGENCY COORDINATION COMMITTEE

The meeting was opened by the chairperson, Dr Steve Atwood from UNICEF, who welcomed the representatives of all partner agencies. He reminded participants of the objective of the Regional Interagency Coordination Committee (ICC) meeting which is to provide an update of the past, present, and projected future funding status of the EPI in the Region and to discuss and coordinate future partner contributions to the programme.

WPRO presented a structured summary of the activities of each partner agency for the biennium 2002-2003 and the operational work-plan for 2004-2005. The total budget requirement for the current biennium is US\$14.6 million of which US\$7.6 million has been identified, and further funds are likely to be identified to meet at least some of the shortfall.

The GAVI Secretariat outlined the extent of GAVI support to countries in the Region, emphasizing that financial sustainability of immunization programmes in the Region is the joint responsibility of Ministries of Health and donor agencies. During 2006-2010, GAVI support to countries in the Region would not end abruptly but may be revised or redirected depending on decisions taken at the June 2004 retreat and subsequent meeting of the GAVI Board. It was observed that the financial sustainability plan for Cambodia, although considered a model plan, did little beyond describing the gaps in funding that would be there after GAVI support was finished. At present they have no further plans for filling these gaps.

Rotary International, District 2650 advised about contributions to poliomyelitis eradication in the Region over the past 10 years and indicated their intention to remain engaged in ensuring maintenance of the poliomyelitis-free status in the Region and continuing to support other aspects of routine EPI.

Japan International Cooperation Agency (JICA) presented the organization's contributions to poliomyelitis eradication, accelerated measles control (most recently with US\$7.8 million for vaccines and supplies for the Philippines measles SIA). JICA places special attention on safe injection practices with quality vaccines including safe disposal, vaccine self-sufficiency and the need to strengthen laboratory capacity as well as support for general immunization activities.

The United States Agency for International Development (USAID) discussed the role of the private sector in increasing the sustainability of EPI programmes. A question was raised about the challenge of maintaining equity in programmes with private-public partnerships.

The Centers for Disease Control and Prevention (CDC), Atlanta presented its support to the Region in three categories: 1) technical support (both long-term staff and short-term consultancies), 2) procurement of OPV and bundled measles vaccine for supplementary immunization activities, and 3) special projects. The latter include the Guizhou Project which aims to achieve measles elimination and increase routine coverage over the period 2003-2006 and a new project in the six Pacific island nations affiliated with the United States of America (USA) [three US Territories (American Samoa, Guam, Northern Mariana's) and three nations in free association with the USA (Palau, Federated States of Micronesia, and the Republic of the Marshall Islands)].

Experience in other regions has shown that well-substantiated national POAs have been instrumental for advocacy and resource mobilization. National POAs provide the opportunity for multi-lateral cooperation and the formation of donor coalitions. The Measles Partnership

in the African Region provides a good example of this. The Pacific Immunization Programme Strengthening (PIPS) initiative presented to the donor community at the meeting in Suva, Fiji, in January 2004 proposed that partners form a consortium (PacVac) to coordinate donor input for support of immunization activities in PICs. Such a partnership can be a model for wider donor support for measles elimination, hepatitis B control, and general EPI programme strengthening in the Region.

There was general discussion about the need to continue partner support to ensure vaccine security throughout the Region.

The Regional ICC congratulated the country programme managers and their staff for their outstanding achievements over the past year. The vision for revitalizing the EPI programme using the pillars of measles elimination and prevention of hepatitis B deaths was again welcomed by ICC members who recognize the need to have highly visible programme goals in order to get immunization back on the political agenda within countries and at the 2005 RCM. ICC members agreed to work more closely and where possible form multi-lateral partnerships in support of specific projects and countries in order to improve the efficiency and effectiveness of their support.

The Regional ICC recommended that:

- WPRO should support countries to improve documentation of progress toward achieving programme goals and explore ways to improve programme operating efficiency.
- More regular communication and coordination among partners is needed to improve efficiency and effectiveness of donor support to EPI in the Region.
- Partner agencies should increase advocacy efforts in support of EPI activities and develop the political will to achieve programme goals.
- Future ICC/TAG meetings should discuss the role and ability of governments to assume greater responsibility for funding of EPI as GAVI support ends.
- WHO/UNICEF should support GAVI-funded countries in dealing with potential gaps in funding that will result from decreases in GAVI funding.

The meeting closed with a sense of optimism that ongoing progress in reaching programme goals combined with the clear operational work plan for EPI in the Western Pacific Region would lead to stronger support by the partner agencies in the future.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Strengthening routine EPI

4.1.1 Conclusions

1. The RCM resolution for measles elimination and hepatitis B control provides a solid foundation for strengthening routine EPI. There is a new challenge to integrate the planning for, and implementation of, accelerated disease control activities and delivery of routine EPI within a single national plan to address common problems. The foundation for both measles elimination and hepatitis B control is a strong routine EPI that reaches every child; coverage is the key.
2. The RED strategy has all the essential elements to contribute to strengthening all aspects of EPI. The district-based approach is focussed on service-level delivery of quality routine EPI services. The district focus also provides an opportunity for making practical links with other interventions (malaria, nutrition, etc.). The emphasis is on better use of existing resources (GAVI/Vaccine Fund, poliomyelitis, measles, MNT, etc.), rather than establishing a new project or initiative.
3. Global vaccine supply has improved since the last TAG meeting. New vaccine manufacturers are entering the market and production capacity increased, but the UNICEF price for vaccines is increasing. The main challenges now are for improved country forecasts for vaccines (and related supplies) and funding requirements (particularly for GAVI-supported countries as that support is soon ending). The UNICEF/WHO strategy of improving vaccine security provides a valuable framework for the Region and countries to address this.
4. National cold chain policies, that include inventory management, are an important aspect of vaccine management systems to ensure functional cold chain and to ensure the availability of quality vaccines at the point of administration to the child.
5. Several countries have made progress in the use of ADs, safety boxes, and appropriate waste disposal. Cambodia, Lao People's Democratic Republic and Viet Nam now exclusively use ADs for all EPI injections. In the Philippines 2004 measles SIA, 29 million ADs were safely disposed using non-incineration techniques.
6. The appropriate use of incinerators allows the safe disposal of used EPI injection equipment, which is only a small fraction of the overall medical waste in the Region. Viet Nam is integrating EPI waste into a general national plan for medical waste management.
7. There were no vaccine safety concerns during the 2004 measles SIA in the Philippines as a result of prompt investigation of all AEFI reports, highlighting the importance of AEFI investigation.

4.1.2 Recommendations

1. Countries need to develop and support district-microplanning activities based on the RED strategy. Countries also need to monitor and evaluate the effect of these strategies so that they can be continuously improved and provide the basis for implementing measles elimination and hepatitis B control. District-level staff should

be trained on the RED strategy to enable both capacity building and effective implementation.

2. Countries need to have a financial commitment to adequately fund service delivery, especially for under-served populations. This commitment should be reflected in adequately-resourced district plans.
3. WHO and UNICEF should work closely with countries to implement the regional strategy for vaccine security, including work with selected countries to strengthen vaccine management systems.
4. Countries should implement the WHO MDVP as one of the strategies to reduce wastage. However, MDVP should only be used for outreach sessions after careful consideration and assurance of cold chain and safety. Where there is doubt, safety must take precedence over wastage concerns. Donors of vaccine should recognize the difficulties of outreach programmes and adjust wastage allowances according to the country situation to ensure that safety or coverage is not compromised with the desire to reduce wastage.
5. Continued progress in implementing the Regional Plan of Action for Immunization Safety should be made through further technical assistance and introduction of ADs, safety boxes, and appropriate disposal.
6. Ministries of Health and Environment of each country should urgently introduce mechanisms for the safe disposal and destruction of all medical waste on a national basis, with EPI integrated into these plans. In the meanwhile, installation of auto-combustion incinerators should be continued in areas of low population density for EPI waste.
7. Countries should continue to strengthen their capacity to investigate and respond to AEFI to prevent unfounded vaccine safety concerns and rumours.

4.2 Measles elimination

4.2.1 Conclusions

1. The countries of the Region have substantial measles control experience. Regional measles elimination is appropriate and feasible. However, the current status of each country's commitment and capacity for elimination is variable, and the precise criteria for establishing a target date for the Region have yet to be determined.
2. Most (27 of 37 reporting) countries/areas have already adopted or have plans to adopt a two-dose measles immunization schedule; the second dose offered through routine or supplemental immunization. However, full implementation of the two-dose schedule and reporting on each dose remains incomplete in the Region.
3. Working towards measles elimination will require reaching practically every child thus providing a platform for delivery of other health services to disadvantaged and unreached populations, especially during outreach sessions. Successful examples of administration of other health interventions (including OPV, vitamin A, mebendazole, and distribution of impregnated bednets) in a measles campaign have been demonstrated in the Region.
4. The experience of China's three provincial measles surveillance projects has demonstrated that integrating measles surveillance with AFP surveillance can actually improve and sustain AFP performance, as well as providing vital guidance for the measles control programme.

5. The experience of the Philippines' nationwide monitoring and validation system has demonstrated that rapid validation of coverage done by nationals with partner support can dramatically improve immunization coverage and that a door-to-door strategy is essential for achieving high coverage in most areas, especially in urban centres.
6. The following practical indicators provide an operationally useful definition of elimination for countries to work towards:
 - a. Less than one confirmed measles case reported per million population per year (excluding imported cases)
 - b. Excellent surveillance with comprehensive reporting and investigation of all fever and rash cases and chains of transmission, as demonstrated by:
 - 1 at least one suspect measles case reported per 100 000 population per year in at least 80% of districts (or equivalent, as used for AFP surveillance);
 - 2 serum samples adequate for detecting measles IgM collected in at least 80% of suspected measles cases (excluding from the denominator cases that are epidemiologically linked to a laboratory-confirmed case); and
 - 3 viral isolate obtained from every confirmed chain of transmission (for genotyping to help identify source of virus)
 - 4 Maintaining 95% immunity to measles in each cohort in every district, as demonstrated by:
 - (a) at least 95% coverage with one dose and at least 80% coverage with two doses of measles-containing vaccine
 - (b) importations only lead to small outbreaks (less than 100 cases).
7. Outbreaks of measles require investigation as they represent unique opportunities to understand programme weaknesses (and strengths) and develop political and financial support for correcting these weaknesses.
8. The immediate benefits of achieving elimination, which include the avoidance of expensive outbreak responses, mean that individual countries that are ready do not have to wait for regional target date to move towards elimination.

4.2.2 Recommendations

1. WPRO should immediately convene a task force with representatives of interested partner organizations and selected countries to:
 - a. Provide the necessary technical support over the next 12 months to prepare countries and the Region for establishment of a target date for elimination, including examining the economic and financial arguments for measles elimination; and
 - b. The TAG will propose to the Regional Director a target date to be based on comprehensive assessment including epidemiological, financial, and

programmatic factors. The Regional Director will propose a target date at the RCM in September 2005. A target date between 2010 and 2015 seems likely to be appropriate based on current considerations.

2. Countries should prepare a national measles plan by mid-2005, using the principles and strategies of the Regional Plan as outlined in the Field Guidelines for Measles Elimination of the Western Pacific Region. The measles plan should be one part of a comprehensive multi-year strategic plan for the immunization programme (including hepatitis B control).
3. Each country needs to develop locally-appropriate strategies to:
 - a. work towards delivery of two doses of measles vaccine to every child, and achieve at least 95% population immunity in every birth cohort of every district.
 - b. fill in gaps in population immunity among cohorts with less than 95% immunity, paying particular attention to children in school and college settings (where the potential for spread is greatest and targeting by SIAs easiest).
 - c. develop a high quality, case-based measles surveillance system that is based on epidemiological investigation of cases and outbreaks. Case-based surveillance is needed as soon as practicable as countries and areas move towards elimination. As a general guide it is needed after major control activities (e.g. SIAs) or when measles incidence is less than two per 100 000 per year.
 - d. ensure access to an accredited laboratory to test samples of suspect cases for confirmatory diagnosis.
4. Validation of coverage methodologies should be used as the key element of monitoring in the planning and implementation of SIAs and routine EPI.

4.3 Hepatitis B control

4.3.1 Conclusions

1. The countries in the Region continue to make good progress in reducing the large disease burden from HBV infection in the Region. However, the full impact of immunization in reducing HBV-related mortality will take decades to be seen because of the nature of the virus. Therefore, rates of chronic HBV infection (carriage) are used as a proxy for disease burden. Up to 25% of carriers will die from HBV-related liver cancer or cirrhosis.
2. As most of the disease burden from HBV infection is delayed and not directly attributed to the virus, coverage rather than disease reporting is used for monitoring. The Regional Plan recommends validating the impact expected from coverage with at least one serosurvey.
3. The priority for improving hepatitis B control is improving routine immunization coverage so that every child is given three doses of hepatitis B vaccine in the first year of life. As perinatal infections are an important cause of chronic HBV infections, delivery of a timely (within 24 hours) birth dose is the second priority for countries to address.

4. Social mobilization needs to be given greater emphasis so that demand can be generated for a timely birth dose and full immunization for all children.

4.3.2 Recommendations

1. Countries should enhance their efforts to reach every child so that every child is fully immunized by their first birthday with all EPI vaccines, including a timely birth dose and three doses of hepatitis B vaccine where scheduled.

2. Countries should assess the quality of routinely reported data to improve the quality of routine reporting. Timely analysis and feedback of district-level data is a crucial management tool that can help to improve data quality as well as overall performance. Districts should be empowered to make decisions on programme management to improve quality. They should still be accountable to higher levels for the quality of the district programme.

3. Countries should establish systems to monitor and increase timely (within 24 hours) delivery of a birth dose as part of routine reporting for EPI vaccines. Special strategies may be needed in countries facing challenging conditions to both increase timely birth dose delivery and overall immunization coverage. Linking with other MCH interventions [e.g. safe motherhood, child survival, integrated management of childhood illness (IMCI)] and finding new ways and people to deliver the immunization, especially the birth dose, should be explored.

4. To improve access to vaccine for the timely delivery of the birth dose, countries can use hepatitis B vaccine out of the cold chain while closely monitoring the VVM as per the WHO guidelines and in accordance with national policies. The VVM is the minimum requirement for use out of the cold chain; it assures that potency has not been impaired by exposure to heat. Storage at warmer temperatures also avoids the risk of freezing.

4.4 Maintaining poliomyelitis-free status

4.4.1 Conclusions

1. The Region remains poliomyelitis-free, and is generally meeting the challenge of maintained high quality AFP surveillance, but not all countries have been able to sustain certification level surveillance. Funding and competing priorities will make it increasingly challenging to continue to maintain high quality AFP surveillance and routine immunization activities and to improve it in deficient areas.

2. The regional poliomyelitis laboratory network continues to provide a high standard of technical support to maintaining poliomyelitis-free status. Challenges faced by network members include meeting reduced reporting times for intratypic differentiation (ITD) results, the rapid detection and characterization of VDPV from clinical specimens, and the timely shipping of poliovirus isolates. To maintain the ability for rapid detection of wild poliovirus importation and VDPV outbreaks, it is imperative that high quality laboratory performance be sustained. In the near future, it is anticipated that the work of the poliomyelitis laboratory network will actually increase, as it accommodates demands for supplementary virologic data in advance of global certification.

3. The TAG noted that complete regional information on national inventories of wild poliovirus infectious/potentially infectious materials is not yet available. The

TAG considers the potential release of wild poliovirus from laboratory sources into populations already free of virus transmission a risk.

4.4.2 Recommendations

1. Countries should enhance their efforts to achieve and sustain: high quality AFP surveillance (integrated with surveillance for other diseases), well performing national poliomyelitis laboratories, and high routine OPV3 coverage (supplemented by periodic SIAs, where needed) to maintain the Region's poliomyelitis-free status.
2. The TAG urges all countries to obtain and provide complete inventories on all laboratories which store wild poliovirus infectious and potentially infectious materials and considers validation of national inventories and containment process (through a standard quality assessment tool) as an essential and integral component of phase 1 laboratory containment.
3. Regular updates on the global poliomyelitis situation should be provided to countries.

4.5 Maternal and neonatal tetanus elimination (MNTE)

4.5.1 Conclusions

1. Progress continues to be made towards MNTE in the six Western Pacific Region priority countries with a large range of activities tailored to the country-specific situation. Yet MNT remains a major public health problem in the majority of the countries concerned.
2. The elimination approach coupled with meaningful investments in strengthening routine immunization is currently perceived as achieving significant results and benefits in the long term. Lessons learned: implementing activities in several countries lead to a subsequent increase in overall budget requirements and shortage of funding.
3. The TAG emphasizes that there are several complementary approaches to increase coverage and eliminate MNT. Multi-antigen interventions may provide a way to address needs of populations while maximizing limited resources. GAVI funding supports to strengthen routine immunization services can mutually benefit vaccinations provided to pregnant and childbearing age women.

4.5.2 Recommendations

1. As with other disease-specific control initiatives, countries should adopt an integrated approach based on a comprehensive national planning process, and detailed district microplanning (e.g. using the RED strategy). Neonatal tetanus surveillance should be integrated into AFP surveillance whenever possible.
2. The TAG noted the close UNICEF/WHO collaboration in MNTE at country and regional level and encourages both organizations to further strengthen this approach.

6. ACKNOWLEDGEMENTS

The TAG gratefully acknowledges the Regional Director, Dr S. Omi, for the invitation to hold this meeting at the WHO Regional Office of the Western Pacific in Manila, Philippines.

As in all previous meetings, the TAG gratefully acknowledges the outstanding contribution and participation of all the partners in the EPI and poliomyelitis eradication, including the national governments of the WHO member countries; the Government of Australia through AusAID; the Government of Japan through JICA; Ministry of Health, Labour, and Welfare of Japan through the WHO Technology Transfer Program Office; the CDC, Atlanta, United States; Rotary International; Rotary International District 2650; UNICEF; the World Bank, Shinnyo-en and Agency for Cooperation in International Health. In addition to funds, partner agencies have generously contributed technical, management and promotional expertise.

Manila, 29-31 March 2004

TENTATIVE TIMETABLE

Time	Monday, 29 March	Time	Tuesday, 30 March	Time	Wednesday, 31 March
0800-0830	REGISTRATION		4 Hepatitis B control		5 Strengthening routine EPI and improving vaccine security (continuation)
0830-0930	1 Opening ceremony <ul style="list-style-type: none"> • Opening speech • Self-introduction • <i>Election of officers:</i> Chairman, Vice Chairman and Rapporteur • Administrative announcement • Group photograph 	0800-0830 0830-0900 0900-1000	(a) Regional overview (b) Country experience <ul style="list-style-type: none"> i Cambodia ii China iii Viet Nam (c) Operational issues	0800-0830 0830-0900 0900-0930 0930-1000	(e) Evaluation of vaccine stores management (f) National cold chain policy and functional inventory (g) Safe immunization (h) National Regulatory Authority (NRA)
0930-1000	COFFEE BREAK	1000-1030	COFFEE BREAK	1000-1030	COFFEE BREAK
1000-1030	2 Overview of programmes (a) Regional overview of EPI (with focus on measles elimination and hepatitis B control)	1030-1200	Discussion on hepatitis B control	1030-1100 1100-1115	(i) Introduction to monitoring and evaluation of EPI (j) Processing Data
1030-1045	(b) Global overview of EPI			1115-1130	(k) Improvement of routine EPI data management – country reports:
1045-1115	3 Measles elimination 1 (a) Annual review of progress of measles elimination			1130-1145	<ul style="list-style-type: none"> i Cambodia ii Lao People's Democratic Republic
1115-1215	(b) Country experiences <ul style="list-style-type: none"> i Cambodia ii China iii Mongolia iv Papua New Guinea v Philippines vi Viet Nam 				
1215-1315	LUNCH BREAK	1200-1300	LUNCH BREAK	1200-1300	LUNCH BREAK
1315-1345	(c) Field guidelines (measles, rubella)		5 Strengthening routine EPI and improving vaccine security	1300-1330 1330-1400 1400-1430	6 Maintaining poliomyelitis-free status (a) Update on global poliomyelitis eradication (b) Regional overview
1345-1415	(d) Surveillance	1300-1330	(a) Improving the quality of outreach services, developing tools to strengthen microplanning	1400-1430	7 Regional overview of maternal and neonatal tetanus elimination (MNTE)
1415-1445	(e) Outbreak response (Marshall Islands)	1330-1400	(b) Development of immunization policy and practice		
1445-1515	(f) Immunization <ul style="list-style-type: none"> i Supplementary immunization activities ii Two-dose issues, timing of first dose 	1400-1430 1430-1500	(c) Improving vaccine security in the Region (d) Financial sustainability		
1515-1545	COFFEE BREAK	1500-1530	COFFEE BREAK	1430-1500	COFFEE
1545-1615	(g) Measles laboratory network	1530-1700	Interagency Coordinating Committee (ICC) meeting	1500-1530 1530	8 Conclusions and recommendations
1615-1715	Discussion on measles (a) Measles elimination (b) Operational and other issues				9 Closing ceremony
1800	Cocktails and Buffet at the Diamond Hotel				



**REGIONAL OFFICE FOR THE WESTERN PACIFIC
BUREAU RÉGIONAL DU PACIFIQUE OCCIDENTAL**

**FOURTEENTH MEETING OF THE
TECHNICAL ADVISORY GROUP (TAG) ON THE
EXPANDED PROGRAMME ON IMMUNIZATION
AND POLIOMYELITIS ERADICATION IN THE
WESTERN PACIFIC REGION**

**WPR/ICP/EPI/5.2/001/EPI/(2)/2004/IB/2
19 April 2004**

**Manila, Philippines
29-31 March 2004**

ENGLISH ONLY

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