

development and production; epidemiological surveillance for vaccine-preventable diseases; and laboratory diagnosis.

**Specific areas of collaboration include:**

- Developing a surveillance system capable of detecting circulation of measles and strengthening collaboration with the global surveillance system to detect and contain infectious disease outbreaks.
- Strengthening national capabilities to effectively prevent, respond and appropriately investigate outbreaks of vaccine-preventable diseases.
- Strengthening annual routine measles vaccination programs at the district level, and full implementation of PAHO's recommended vaccination strategy for measles eradication.
- Strengthening regional and national capabilities to collect, analyze and interpret epidemiological data and translate them into appropriate public health policies.
- Strengthening and expanding capabilities for national laboratory diagnosis and virus isolation.

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## XIII Technical Advisory Group Meeting

*The Thirteenth Technical Advisory Group Meeting on Vaccine-Preventable Diseases (TAG) was held in Ottawa, Canada, April 12-16, 1998. TAG meets every two years and functions as the leading forum to promote regional initiatives aimed at controlling and eradicating vaccine-preventable diseases. During the Ottawa meeting emphasis was placed on the need to highlight the role that immunization has played in reducing the incidence of vaccine-preventable diseases. This impact can be further increased if countries find the means to introduce other vaccines in a sustainable way. The following are some of the TAG's conclusions and recommendations.*

### **Impact of Decentralization and Health Reform on Immunization Programs**

Several countries going through the process of decentralization and health reform are showing a decline in process indicators for immunization programs, such as coverage and surveillance. This could have serious implications, both nationally and internationally for immunization programs, especially for measles eradication. National governments should make special efforts to maintain the quality and effectiveness of national immunization programs, so that no area becomes a reservoir to seed infection into other communities and countries.

#### **Recommendations:**

##### ***Essential Public Health Functions of National Governments***

- National governments must maintain authority for the following key functions: procurement and distribution of vaccines and syringes, programmatic guidelines, national goals and strategies, monitoring and evaluation of program performance at the state level and assurance of quality of vaccines used in national immunization programs.

##### ***Financing***

- Vaccination and surveillance programs should be considered essential public goods and funded with public resources. National governments must keep the control of the use of resources to fund national vaccination programs coming from outside sources.
- Legislation must be established that supports the creation of a direct budget line to finance recurrent costs associated with vaccination programs.

- Countries must acknowledge the presence of new partners, such as the World Bank, the Inter-American Development Bank, foundations, local community organizations and private sector organizations, and must foster their active participation in national inter-agency committees for discussion of mechanisms for financing and other support for national immunization programs.
- Performance agreements are increasingly being utilized as part of decentralization for the purpose of resource allocation. National governments should ensure that immunization indicators are included in these performance agreements with the local levels.

##### ***Delivery of Immunization Services***

- Health authorities need to ensure that national technical and managerial capabilities are in place at the local level, especially to conduct surveillance and immunization activities. These steps will be essential to guarantee that immunization services remain a priority and that they are delivered in an equitable way.
- State authority must develop mechanisms to grant accreditation to public and private health centers prior to them offering vaccination services. Health authorities also have the responsibility of periodically supervising these accredited health centers.

### **Measles Eradication**

Great progress has been made towards interrupting measles transmission in most countries of the Americas. However, measles virus continues to circulate in several areas of the Region and only twenty-one months remain until the target date of achieving the goal of hemispheric measles eradication.

#### **Recommendations:**

##### ***Vaccination Strategies***

- The full implementation of PAHO's recommended vaccination strategy in all countries of the Region is needed to assure the eradication of measles from the Americas.
- Routine vaccination of infants (*keep-up* vaccination) is a critical component of the PAHO measles eradication strategy. Efforts are needed to vaccinate 95% of infants as soon as possible after their first birthday in every district of every country every year.
- Vaccine coverage must be monitored at the district level

or geographic equivalent using appropriate denominators for the target population. Supplemental vaccination (*mop-up*) activities are needed in those districts that do not achieve 95% coverage. These activities may include door-to-door vaccination.

- *Follow-up* measles vaccination campaigns should be conducted when the estimated number of susceptible children 1-4 years of age approaches the number of children in one birth cohort. In most countries, these campaigns are conducted every four years, but should be held sooner if needed (based on coverage obtained in routine programs and other epidemiologic information).
- In countries with rubella/CRS control programs, measles and rubella-containing vaccines should be used for routine infant vaccination, *follow-up* campaigns and outbreak response activities.
- Healthcare workers are at increased risk for being exposed to measles virus and for being a potential source of virus transmission in health facilities. Persons working in healthcare settings who have contact with children and persons with infectious diseases should be vaccinated against measles, regardless of disease history or vaccination status. Rubella containing vaccine should be used.

#### **Outbreak response**

- Recent experience from outbreaks in Latin America has demonstrated that certain groups of adults may be at increased risk for measles during an outbreak. These groups have also been responsible for sustaining measles outbreaks and for transmitting measles to susceptible persons of other age groups. Since the epidemiologic situation differs between countries, it is not possible to give blanket recommendations about which groups of adults to vaccinate in all countries. When measles virus circulation is suspected, consideration should be given to quickly vaccinate persons within the following groups: teachers, university students, military personnel and persons living/working within institutions such as prisons, large factories, work camps and chronic care medical facilities.
- To obtain information that can be used to prevent and control future outbreaks, appropriate investigations and analysis must be conducted for all measles outbreaks. Efforts are needed to determine sources of measles virus introduction, transmission patterns and specific risk factors for acquiring measles.
- Once measles virus circulation has been confirmed by positive measles IgM serology in several patients, it is not necessary to routinely collect blood specimens from every suspected case. Many suspected cases can be confirmed via epidemiological linkage to a laboratory-confirmed case.

#### **Vaccine Stockpile**

- PAHO should assure that a stockpile of measles containing vaccine is readily available to deal with emergency situations. Since many countries of the Americas are establishing rubella control/elimination goals, consideration should be given to having a stockpile of MR vaccine.

#### **Surveillance and Laboratory**

- Measles surveillance is critical for measuring progress towards the goal of measles eradication in the Americas and for detecting problem areas. Efforts are urgently needed to improve the quality of measles surveillance throughout the Region.
- To monitor progress toward the achievement of measles eradication, all countries should provide data on a weekly basis to the Region-wide measles eradication surveillance system (MESS).
- Each country should periodically have its measles surveillance system objectively evaluated using the standardized evaluation protocol developed by PAHO. Countries should constantly work to improve the quality of the reporting system.
- Virologic surveillance and molecular epidemiology can provide important information to an eradication program. Appropriate clinical specimens for viral isolation should be obtained from every chain of measles transmission. Urine, the most practical specimen to collect for measles virus isolation, should be obtained within 7 days of rash onset and forwarded to a reference laboratory capable of performing measles virus isolation.

#### **Rubella and Congenital Rubella Syndrome**

Rubella virus continues to circulate freely in most countries of the Region. After a complete investigation, many suspected measles cases are ultimately found to be rubella. Moreover, cases of Congenital Rubella Syndrome (CRS) have been found in all countries of the Region that have established CRS surveillance systems. This suggests that CRS is a major public health problem in all countries of the Americas.

#### **Recommendations:**

##### ***Vaccination Strategies***

- All countries should incorporate rubella-containing vaccine into childhood vaccination programs, both as part of routine childhood immunization at 12 months, and as part of the *follow-up* campaigns. Moreover, targeted efforts are needed to reduce the number of rubella susceptible women of childbearing age. Strategies, such as post-partum immunization, immunization in family planning clinics, immunization in schools and the workplace can be used to protect these women.
- There are substantial data available documenting the absence of significant risk of rubella vaccination during pregnancy. However, pregnant women are generally not vaccinated. This is to avoid the risk of the vaccine being implicated should there be an unrelated adverse outcome of the pregnancy. For women who are vaccinated and then subsequently found to be pregnant, abortions are not recommended. Finally, it is not necessary to counsel women to avoid pregnancy for 3 months following rubella vaccination because no known risk of adverse fetal outcomes has been established.

##### ***Surveillance and Laboratory***

- Rubella surveillance should be integrated with measles surveillance. The purpose of rubella surveillance is to

detect circulation of rubella virus, not to detect every case of rubella. A separate rubella surveillance system is not needed. All sera from suspected measles cases which test negative for measles IgM antibodies should be tested for rubella IgM antibodies and vice versa.

- CRS surveillance should be initiated throughout the Americas. The purpose of CRS surveillance is to detect new or incident CRS cases in infants; efforts should not be routinely made to confirm CRS in older children.
- Similar to measles/rubella surveillance, laboratory confirmation is crucial for the diagnosis of CRS. A blood sample should be collected from every infant with suspected CRS. For surveillance purposes, a single serum specimen is generally considered adequate to either confirm or discard CRS. If, however, the first sample tests negative for rubella IgM and there exists compelling clinical and/or epidemiologic suspicion of CRS, then a second serum specimen may be requested to confirm CRS.
- Little information is available concerning the molecular epidemiology of rubella in the Americas. Similar to measles surveillance, rubella virus surveillance may pro-

vide important information concerning the viral subtypes that are currently circulating in the Region. Efforts should be made to collect several appropriate clinical specimens for viral isolation from every documented rubella outbreak. Nasopharyngeal aspirates are the preferred specimens for rubella virus isolation. Specimens should be collected within 4 days of rash onset and forwarded to an appropriate reference laboratory.

### Neonatal Tetanus

While there has been a gradual decline in the number of districts that are repeatedly affected, cases continue to be reported. Targeted efforts are needed to increase the level of protection among women of childbearing age (WCBA) living in high-risk districts. Provisional data show that a majority of NNT cases occur in infants born to multiparous mothers. This stresses the need to eliminate missed opportunities to vaccinate.

### Recommendations:

- Td is the vaccine of choice among WCBA for NNT prevention.
- In high-risk districts intense efforts (Attack Phase) are

## Poliomyelitis

National data continue to show deterioration in the surveillance of acute flaccid paralysis (AFP) in some countries. It is critical that AFP surveillance systems remains fully functional to rapidly detect poliovirus throughout the Region, should the virus be re-introduced.

### Recommendations:

- Countries need to maintain 95% vaccination coverage with OPV in 80% of the districts or equivalent geopolitical area. Countries unable to reach this coverage level should carry out at least two National Immunization Days (NIDs). Measles *follow-up* vaccination campaigns should be used as an opportunity to administer OPV.
- Immunization coverage should be monitored at the lowest geopolitical level. In areas that have discrepancies in terms of target population, there should be verification of information using other sources, such as number of BCG doses applied, or number of DPT1 doses, or results of *mop-up* operations, or household census used by malaria programs, or rapid assessment surveys.
- All countries should strengthen the key surveillance indicators of AFP reporting: surveillance systems must detect at least one AFP case per 100,000 population <15 years of age per year, and at least 80% of the AFP cases should have an adequate stool sample collected within 15 days of paralysis onset.
- Oral polio vaccine (OPV) remains the vaccine of choice for the final phase of the global eradication of polio. OPV is the vaccine recommended for the eradication because it is easier to administer, is inexpensive and it

provides better intestinal immunity which constitutes a special barrier to inhibit further spread of wild poliovirus.

### Laboratory

- Stool samples must be received in laboratories within 14 days after collection. Once a sample has arrived in a laboratory, results should be available within 28 days.
- All laboratories should implement the use of RD and L20B continuous cell lines.
- Efforts are urgently needed to strengthen communication between polio laboratories and epidemiology units.
- All governments should ensure the implementation of WHO's Guidelines for Implementing Phase I of the Global Action Plan for Laboratory Containment of Wild Polioviruses.

### AFP Surveillance Indicators

Country	80% weekly reporting units	80% of cases investigated within 48 hours	80% of cases with 1 adequate stool sample taken	AFP Rate ≥ 1:100,000 in children <15 years
Chile				
Ecuador				
Honduras				
Nicaragua				
Colombia				
Cuba				
Panama				
Peru				
Dominican Republic				
Mexico				
Venezuela				
Bolivia				
Brazil				
CARE C				
Costa Rica				
El Salvador				
Guatemala				
Haiti				
Argentina				
Paraguay				
Uruguay				

\* Data as of 22 May 1999  
Source: HVP/PAHO (PESS)

needed to achieve 90% Td2 coverage among WCBA. Furthermore, ongoing vaccination efforts are needed to assure that at least 90% of all new cohorts of WCBA receive a dose of Td.

- Missed opportunities to vaccinate can be markedly reduced by administering Td to all mothers who visit a health center for any reason. Women attending prenatal clinics should have their vaccination histories reviewed and should receive vaccination if they had not previously received at least two doses of Td.
- Many NNT cases have occurred in infants born to mothers who have had one or more previous live births. Post-partum Td vaccination in health facilities can be used as an additional opportunity to prevent NNT.
- All cases of NNT should be fully investigated. Case investigations should obtain information about the mother's age, immunization history and recent migration. The mother's migration history may help to identify additional high-risk districts for NNT.
- Tetanus occurring in other age groups should be reported and investigated; this information will help to identify specific risk groups.
- Health professionals and the general population need to be informed about the importance of WCBA maintaining good documentation of their vaccination histories (i.e. vaccination cards).

## Yellow Fever

The seriousness of the yellow fever problem in the Region requires a commitment by countries at risk to implement appropriate vaccination and surveillance strategies for controlling and preventing the disease. Yellow fever vaccine is highly effective, safe and inexpensive. A single dose of yellow fever vaccine will confer immunity to at least 95% of persons vaccinated and is protective for at least 10 years.

### Recommendations:

- Yellow fever endemic countries must achieve 100% vaccination coverage in enzootic yellow fever zones, as well as in contiguous areas infested with *A. aegypti*. These steps will provide protection to those persons exposed to the sylvatic cycle and will help prevent the introduction of the disease to urban settings.
- Given that it is difficult to predict demographic movements, countries with high migrant movements from non-enzootic to enzootic areas should consider national mass vaccination campaigns to immunize the entire population. Brazil is planning to conduct such a campaign.
- Yellow fever vaccination is also recommended for all travelers entering enzootic areas.
- In order to maintain high levels of population immunity to yellow fever, countries at risk should incorporate yellow fever vaccine into routine childhood vaccination schedules. Yellow fever vaccine should be given, as a separate injection, when measles vaccine is administered.
- Yellow fever surveillance must be strengthened. Timely yellow fever surveillance will allow the rapid implementa-

tion of control activities when an outbreak is detected. All suspected cases meeting the WHO surveillance case definition and those with icteric syndrome, in whom other infectious etiologies have been ruled out should be investigated.

- Countries should prepare emergency rapid response guidelines to be used in the event of a yellow fever outbreak.
- Adequate planning of vaccine supply for routine vaccination and outbreak control is critical. A stockpile of vaccine should be available at *all* times.
- The implementation of a comprehensive vector control and surveillance program will keep the density of *A. aegypti* low in urban environments. This approach will also help to prevent dengue outbreaks.

## Haemophilus influenzae type B

Remarkable progress has been achieved in the introduction of Hib vaccine in the Americas. By December 1999, PAHO estimates that 81% of all newborns in the Region (75% in Latin America and the Caribbean) will be living in countries where Hib vaccine is included in routine infant immunization schedules.

### Recommendations:

- Hib vaccine should be included in the routine immunization programs of every country in the Region once sustainability has been assured. Countries introducing Hib vaccine should monitor and report vaccine coverage.
- Countries should have surveillance systems to monitor Hib-related illnesses and to measure the impact of vaccine introduction. All countries in the Region should implement hospital-based sentinel surveillance for meningitis and pneumonia due to *H. influenzae* type b and *Streptococcus pneumoniae*. Surveillance should be integrated with and strengthen already existing systems. A network consisting of sentinel hospitals, public health laboratories, and national epidemiology units should be organized in each country.
- PAHO should provide technical support to assure the implementation and coordination of this surveillance system.

### Combination vaccines

- Countries that include DTP, Hib and/or Hepatitis B vaccines in their routine immunization programs should consider introducing vaccines that contain either the four or five antigens in combination.

## Vaccines of Quality

Using vaccines of proven quality is essential for immunization programs. Although the manufacturer is primarily responsible for assuring vaccine quality, there should be a national authority in each country that performs the six basic regulatory functions: licensing, clinical evaluation, Good Manufacturing Practices (GMP) inspections, lot release, laboratory testing and post-marketing surveillance. PAHO has been strengthening the vaccine quality control system in the Region by organizing a network of certified national control laboratories responsible for the quality testing of

vaccines and by harmonizing regulatory procedures of National Regulatory Authorities of all countries.

#### **Recommendations:**

- It is essential that immunization programs use vaccines of known quality according to international standards of safety, potency, efficacy and stability. It is expected that all countries will meet this goal by the year 2000.
- Vaccine producers must implement quality systems that guarantee consistent production of vaccines in compliance with GMP, national regulations, and WHO requirements on vaccine quality and production.
- The fulfillment of international quality standards must be an essential factor to be considered in the economical and technical feasibility studies of vaccine production.
- Governments in the Region must, through their National Regulatory Authorities, assure that they have effective control of the quality of vaccines used in the country: all vaccines used in the country should be licensed and every lot released before usage. In vaccine-producing countries, National Regulatory Authorities should comply with laboratory testing of vaccine lots, GMP inspections and post-marketing surveillance.
- National Control Laboratories should participate in the certification program in order to guarantee the quality of their results and provide analytical support to National Regulatory Authorities and PAHO.

#### **Hepatitis B**

It has been estimated that as many as 400,000 new hepatitis B infections occur annually in the Americas. In highly endemic areas, transmission occurs primarily perinatally or in early childhood. In areas with intermediate endemicity, infection occurs in all age groups. In areas of low hepatitis B seroprevalence, most infections occur in adults, especially among persons belonging to defined risk groups.

Since the development of chronic infection is age-dependent, children can account for a high proportion of chronic hepatitis B infections. The risk of chronic infection is highest when infection is acquired early in life. Chronic infection is responsible for most HBV-related morbidity and mortality.

#### **Recommendations:**

- Routine universal infant immunization should be the primary strategy to prevent HBV transmission.
- In highly endemic areas (hepatitis B surface antigen [HbsAg] prevalence >7%), an area-wide vaccination campaign should be conducted.
- Healthcare workers who are at risk of being exposed to blood or other body fluids should be routinely vaccinated.
- Vaccination coverage should be monitored on a regular basis.
- The feasibility of establishing an "integrated" surveillance system for patients presenting with fever and jaundice should be explored. The purpose of such a surveillance system would be to detect cases of hepatis

B, yellow fever and other tropical diseases, such as leptospirosis and malaria.

- Countries that have introduced hepatitis B (HB) vaccine should consider using combined tetravalent (DTP+HB) or pentavalent (DTP/HB+Hib) vaccines. These vaccines have a similar cost to the monovalent vaccines purchased separately and are easier to administer, thereby reducing the number of injections and visits to health establishments.

#### **Safe Syringe Practices**

Non-sterile injection practices remain a problem in some areas. Insufficient supplies of syringes and needles seem to be a major factor. Unsafe injections can result in the transmission of blood-borne pathogens from person-to-person.

#### **Recommendations:**

- The only way to ensure that used injection equipment is not reused is through the utilization of single use auto-destruct syringes.
- All healthcare workers should be informed about the danger of recapping needles.
- All countries using or introducing single use disposable syringes for the delivery of vaccines must absolutely provide the funds for: procurement of sufficient syringes and safety boxes, supervision to document safe syringe disposal and proper collection/burning of used equipment.
- PAHO should provide support for developmental studies of needle-less injection devices.

For a complete version of the Report, please refer to the following web address: [www.paho.org/english/hvp/hvp\\_home.htm](http://www.paho.org/english/hvp/hvp_home.htm)

### **What's New at the HVP Website**

- **From the XIII Technical Advisory Group Meeting:**
    - ▶ Download the Final Report from the Meeting, which contains conclusions and recommendations about vaccines and vaccine-preventable diseases.
    - ▶ Read the Abstract Book, containing summaries of selected presentations from the TAG meeting.
  - Information on ***Haemophilus Influenzae type b*** includes clinical and epidemiological characteristics of the disease, as well as information on the vaccine and its use in the Region of the Americas. A Fact Sheet is also available on the introduction of Hib vaccine in the Americas.
  - **New Fact Sheets**—Download and/or print fact sheets on the following subjects:
    - ▶ Measles in the Americas: Approaching the Year 2000
    - ▶ Introduction of Hib Vaccine in the Americas
    - ▶ HVP Partnerships:
      - With CDC
      - With USAID
      - With the World Bank
- [http://www.paho.org/english/hvp/hvp\\_home.htm](http://www.paho.org/english/hvp/hvp_home.htm)