IMMUNIZE AND PROTECT YOUR FAMILY

Immunization Newsletter

Pan American Health Organization

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In this issue:

Diphtheria Outbreak in Haiti, 2009

Background

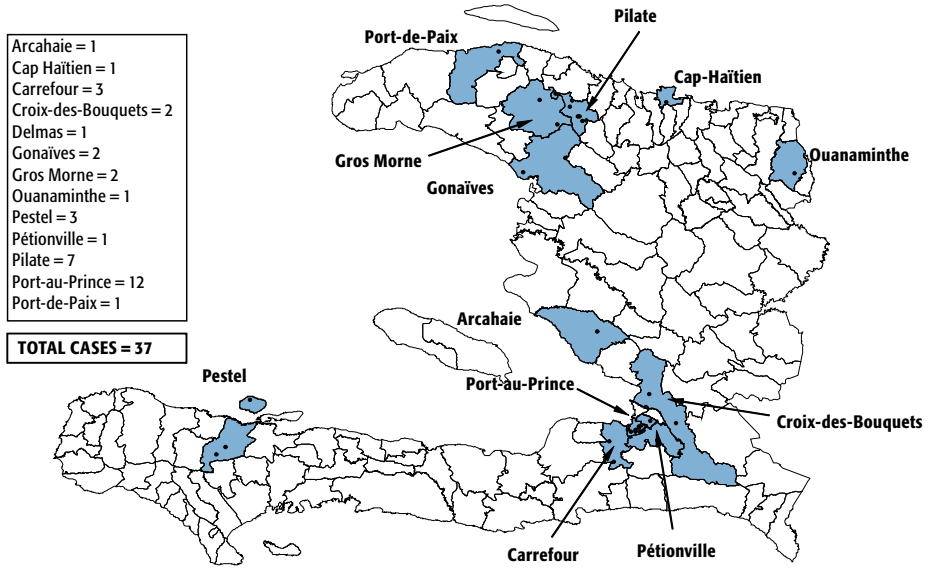
With a population of 10 million inhabitants and a total area of 27,750 square kilometers, the Republic of Haiti is a country with high population density (360 inhabitants per square kilometer). Historically, the immunization program has reported low routine vaccination coverage, with reported DTP3 coverage of 53% in 2008.

Such density, coupled with the enthusiasm of the Haitian population for immunization, should help the country with reaching high vaccination coverage rates. However, the Haitian population is also widely spread out. Consequently, to make vaccination services available to groups living far away from health centers, the Expanded Program on Immunization (EPI) must coordinate the work of thousands of health posts (around 15,000) throughout the community, in addition to providing daily vaccination services in health centers. Not all health centers offer daily vaccination services, although they are required to, and services offered at health posts can be sporadic. In addition, the integrity of the cold chain up to the final user is not perfect: all vaccines may be exposed to heat damage and the DTP[1] and Td[2] vaccines may be exposed to freeze damage. The reasons for such shortcomings are due to limited routine supervision and evaluation (monitoring) and, in some cases, the lack of vaccines and supplies (in particular propane gas, the main energy source for the cold chain). In some measure, the national immunization program and non-governmental organizations providing vaccination services in Haiti are trying to offset those shortcomings, yet routine vaccination coverage has remained low for years, and the cold chain cannot guarantee the full efficacy of the vaccine doses applied.

As a consequence, diphtheria is endemic in Haiti, with sporadic cases each year. In 2007, 23 cases were reported by 5 departments, 17 of them laboratory-confirmed, and there were 14 deaths (61% case fatality).

1 Diphtheria-Tetanus-Pertussis vaccine.
2 Tetanus-Diphteria vaccine.

Figure 3. Geographical Distribution, Diphtheria Cases, Haiti, 2009



Source: Ministry of Public Health and Population, Haiti.

Evaluation of Bacterial Pneumonia and Meningitis Surveillance in Guatemala

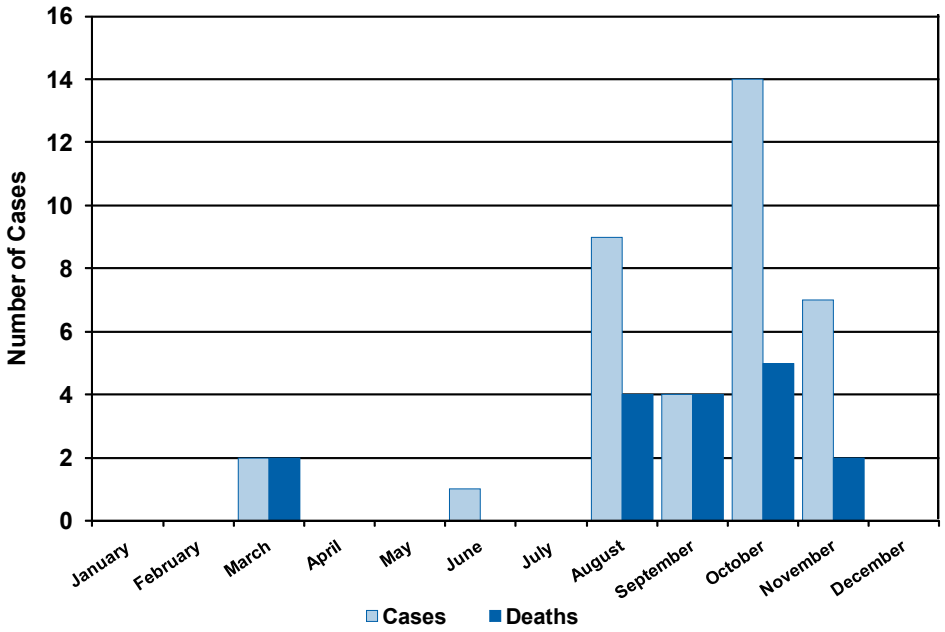
Background

Since April 2007, Guatemala has been actively involved in surveillance activities for bacterial pneumonia and meningitis in three sentinel hospitals. The objectives of these activities have been to obtain standardized epidemiological data of bacterial pneumonia and meningitis in children aged <5 years; identify and characterize the circulating strains of *Haemophilus influenzae*, meningococcal, and pneumococcal agents; monitor the antimicrobial susceptibility patterns; and generate information to substantiate the introduction of a new vaccine and monitor its impact.

From 16-20 November 2009, the first international evaluation of bacterial pneumonia and meningitis surveillance was conducted in Guatemala. The goal of the evaluation was to assess the operation, magnitude, and impact of the hospital-based sentinel surveillance system of bacterial pneumonia and meningitis in the country. In addition, strengths and weaknesses of the surveillance system were to be identified in order to propose recommendations to improve performance. The evaluation was also intended to assess the guidelines used for the first time and developed by the World Health Organization (WHO) in collaboration with the Pan American Health Organization (PAHO) and the U.S. Center for Diseases Control and Prevention (CDC).

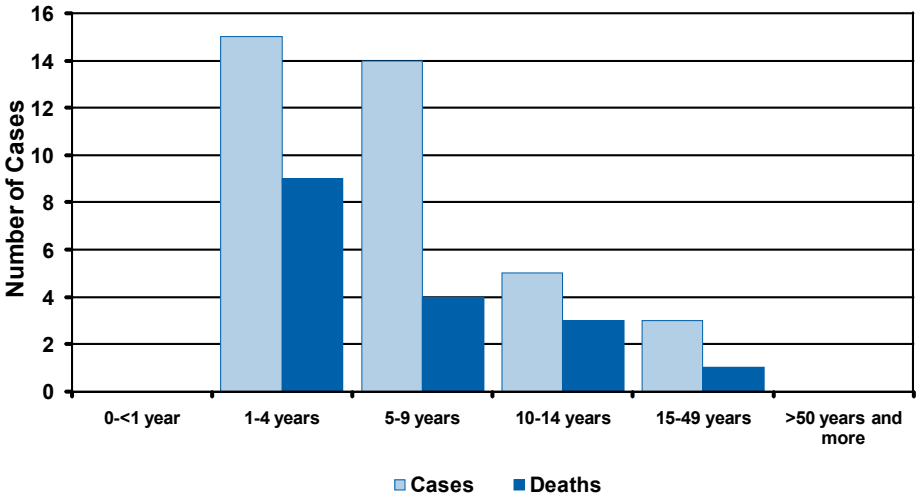
See GUATEMALA page 3

Figure 1. Number of Diphtheria Cases and Deaths by Month, Haiti, 2009



Source: Ministry of Public Health and Population, Haiti.

Figure 2. Distribution of Diphtheria Cases and Deaths by Age Group, Haiti, 2009



Source: Ministry of Public Health and Population, Haiti.

The situation is compounded by outbreaks: during the last one in 2004, 101 cases were reported by 8 of the 10 departments, with 27 laboratory-confirmed cases.

Outbreak

A new epidemic occurred in 2009. An analysis of cases by month since the beginning of the year shows it started in August (Figure 1). Since 3 August, 33 cases were reported and 8 (23%) were laboratory-confirmed (*C. diphteriae mitis*); there were 15 deaths (45% case fatality rate). Distribution of cases and deaths by age is shown in Figure 2. Case distribution by gender was 19 in men and 14 in women, with 10 and 5 deaths, respectively.

The cases reported since the beginning of the epidemic are from 4 departments (out of 10 departments in the country) and 9 municipalities. Distribution of cases and deaths by geographical area is shown in Figure 3.

Investigation Results

The Pan American Health Organization sent an international consultant with proven experience in Haiti to investigate a cluster of 4 cases (4 deaths) in a rural area of Pilate, a municipality from the Nord department. The investigation targeted the initial cluster as well as two other cases that occurred in the bordering Artibonite department while the consultant was investigating the outbreak.

The following five main conclusions resulted from the consultancy:

1. There was a confirmed diphtheria outbreak in Haiti;
2. The two main centers of the outbreak were the city of Gonaïves, capital of the Artibonite department and a group of slums on the hills overlooking the Port-au-Prince and Carrefour municipalities in the metropolitan area;
3. The outbreak in the city of Gonaïves and its subsequent spread were the result of population movements and concentration due to charcoal trade (market);
4. The majority of cases were reported in persons who had not received the vaccine doses recommended in the immunization schedule, therefore reflecting the low vaccination coverage over many years; and
5. The fact that cases occurred among persons of any age who had received the appropriate number of DTP or Td doses shows there are continuing weaknesses in the cold chain, whether the temperatures are too high or too low (freezing).

Response Strategies

The following strategies for outbreak containment were highlighted after the consultancy:

- Declaring an outbreak;
- Purchasing the supplies required to manage the cases (erythromycin and diphtheria antitoxin – see box) and to vaccinate in the communities with cases (DTP and Td vaccines);
- Relaunching of diphtheria surveillance and response throughout Haiti;
- Investigating and managing cases and establishing containment measures (erythromycin and vaccination) around the cases; and
- Conducting mass vaccination in the municipalities with cases, targeting the general population in rural areas (universal vaccination with DTP until age 7 years and with Td for older individuals) and the group aged <20 years in the metropolitan area.

It was also agreed that the routine EPI should be revitalized in the next months, in particular for

the strengthening of daily vaccination services offered in fixed posts, and that the cold chain should be strengthened, with special attention paid to measures seeking to avoid vaccine freezing.

Response Implementation

All the cases reported were immediately investigated. However, the epidemic was officially declared in November. Case management and containment measures were implemented as per instructions from the Ministry of Public Health. The first vaccination round in the outbreak sites –universal vaccination in Gonaïves, with help from the Cuban Cooperation– and vaccination of individuals aged <20 years in the slum belt overlooking Port-au-Prince and Carrefour were ongoing in December 2009. The last confirmed cases occurred on 24-26 November: 3 cases and 1 death in Pestel, Grand'Anse department.

Conclusions and Recommendations:

- Diphtheria epidemics will continue to occur and the endemic situation will persist as long as routine vaccination coverage remains low and the cold chain cannot guarantee adequate temperatures for the conservation of DTP and Td vaccines up to the time of administration. Particular attention must be paid to prevent vaccine-freezing, with mandatory use of cold packs instead of ice.
- Access to diphtheria antitoxin has been difficult, to the point where Haiti was out of antitoxin for a short period. Fortunately, no cases occurred during this stock out. Measures must be taken at national and international levels so that the antitoxin is always available in sufficient quantity to respond to epidemics.
- The implementation of universal vaccination with two Td doses starting at age 8 years (the DTP vaccine in Haiti is administered up to age 7 years) needs to be considered. This has been implemented in Gonaïves with support from the Cuban Medical Brigade, and results are encouraging. The universal use of Td would represent a way to improve the persistently low vaccination coverage responsible for both the endemic diphtheria situation and the outbreaks. It would also help with tetanus and neonatal tetanus (NNT) prevention. In 2000, tetanus represented 2% of infectious causes of death (excluding the neonatal period) in Haiti. In 2008, Haiti reported 16 NNT cases (80% in the capital), representing roughly 50% of reported cases in the Americas. The number of NNT cases is likely to be greatly underestimated due to the poor surveillance system. ■

Contributed by immunization and epidemiology staff from the Ministry of Public Health and Population, Haiti; PAHO/WHO staff in Haiti; and Immunization Project staff in Washington, D.C.

Diphtheria Antitoxin Use and Global Shortage

Prompt recognition and treatment of diphtheria are very important, as the early use of diphtheria antitoxin is associated with better outcome. Complications are directly proportional to the number of days between the onset of illness and administration of antitoxin. Antitoxin should be administered when diphtheria is suspected. It will neutralize circulating (unbound) toxin, but not toxin already fixed to the tissues. For this reason, the entire therapeutic dose should be administered in one time. The dose to be used ranges from 20,000 to 120,000 international units (IU), depending on the size of the lesions, as the amount of toxin produced depends on the size of the membranes and the interval since the time of onset.[1,2] Most antitoxin vials contain 10,000 IUs.

The main difficulty hampering the implementation of response efforts during the outbreak in Haiti was access to diphtheria antitoxin. In spite of Haiti's best efforts, the country was out of antitoxin for a full day once doses donated by the US Centers for Disease Control and Prevention were used up. Two manufacturers were identified, yet one couldn't comply with PAHO requirements for immunoglobulin specifications. The second manufacturer was Instituto Butantan (Brazil), a long-time PAHO supplier, but it had no available stock. Haiti finally procured its antitoxin through a Canadian company.

In developing countries, demand for diphtheria antitoxin tends to occur mainly during outbreaks. In addition, developed countries have stopped using the antitoxin. Consequently, it has become very hard to find a manufacturer able to provide a licensed product in sufficient quantity on an emergency basis.[3] PAHO has contacted Instituto Butantan to examine the possibility of garanteeing a steady supply for countries of the Region.

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2. Centers for Disease Control and Prevention. Use of Diphtheria Antitoxin (DAT) for Suspected Diphtheria Cases. IRB #4167/BB IND 11184. Atlanta, Georgia: CDC ; 2008. Available at http://www.cdc.gov/vaccines/vpd-vac/diphtheria/dat/downloads/protocol_032504.pdf.
3. K.S. Wagner et al. A review of internationl issues surrounding the availability and demand for diphtheria antitoxin for therapeutic use. *Vaccine* 28 (2010) 14-20.

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Methodology

The evaluation was a collaboration between Guatemala's Ministry of Public Health and Social Welfare (MSPAS), PAHO, WHO, and CDC. The technical team included 10 national and international experts from the MSPAS, PAHO, and CDC. The team was divided into three groups: one laboratory group and two epidemiology groups. Three sentinel surveillance sites and their respective local laboratories, the national surveillance coordination, and the National Reference Laboratory were evaluated: Hospital Roosevelt; Guatemala's Social Security Institute Hospital (IGSS Area 9); the Regional Hospital of Cuilapa in Santa Rosa; the National Epidemiology Center and; Guatemala's National Health Laboratory.

Data were collected through standardized questionnaires, meetings, visits to the sentinel and laboratory sites, and observation. They were reviewed and specifically adapted to Guatemala. The components that were evaluated included:

- **The structure of the surveillance system**, such as assessing the partners and collaborators of the surveillance system, the strategies used to implement the system and the type of networks used.
- **Core surveillance functions**, including detection, registration, analysis, and reporting of cases, as well as the feedback of these results to various sentinel hospitals, laboratories and the Ministry of Health.
- **Surveillance support functions** such as human, financial, and logistical resources that maintain and sustain surveillance activities; communication; training; and supervision.

Results

The strengths and weaknesses of Guatemala's bacterial pneumonia and meningitis surveillance system are presented in Table 1.

Table 1. Bacterial Pneumonia and Meningitis Surveillance System in Guatemala: Strengths and Weaknesses

Strengths	Weaknesses
Guidelines and Policies	
• Guatemala's surveillance system is part of a regional network. • The surveillance of pneumonia and meningitis is conducted through a surveillance system, and its sentinel surveillance includes both facility- and population-based sites. • The sentinel surveillance system is widely supported by hospital directors. • Protocols and flow charts of invasive bacterial diseases surveillance have been developed.	• Surveillance protocols are not well disseminated throughout the surveillance sites. • Guidelines and flow charts are not systematically followed. • Except for one hospital, there are no standard operating procedures for data collection, case detection, or specimen collection.
Human, Logistics, and Financial Resources	
• The infrastructure and logistics for surveillance is adequate. • Financial resources are sufficient to provide adequate surveillance. • Surveillance coordinators and epidemiologists are available at all levels. • Epidemiologists have adequate education. • Residents and interns are responsible for various surveillance activities. • Integrated supervisory visits could be conducted as the sites also conduct surveillance for other diseases.	• There is a lack of personnel responsible for sentinel surveillance at the central level. • The epidemiologist at the central level does not have sufficient time and sufficient human resources to properly complete surveillance activities. • Roles and responsibilities are not clearly defined between directors, coordinators, clinicians, epidemiologists, residents, and interns. • Residents and interns change tasks and responsibilities every month; they are not properly supervised and do not receive systematic and ongoing training every month. • Communication between staff regarding surveillance activities is limited. • There is little communication between the laboratory and the epidemiology and clinical staff with regards to surveillance activities at the site levels. • The national level fails to supervise on a regular basis the sentinel sites. • The regional level fails to supervise on a regular basis the country level with regards to invasive bacterial diseases surveillance. • There is a lack of regular training at all levels for the personnel responsible for invasive bacterial diseases surveillance.
Case Detection, Registration, and Notification	
• Adequately detecting and capturing cases has proven to be feasible. • Hospital- and population-based sites exist.	• Case definitions for invasive bacterial disease are unclear for clinical staff. • Not all hospitalized cases of pneumonia and meningitis are captured in the sites, limiting the sensitivity and representativeness of the system. • In some hospitals, cases are captured only after samples are taken. • Specimens are not obtained under standardized conditions of asepsis. • Culture and cerebrospinal fluid (CSF) specimens are not delivered to the laboratory within the recommended timeframe, limiting the ability of the system to confirm cases by the laboratories.
Data Management and Analysis	
• A staff member is responsible for entering surveillance data in all sites. • Laboratory data is accessible electronically. • A standardized electronic spreadsheet is available for presentation and sharing of aggregated data.	• There are no standardized surveillance databases at the sentinel sites. • Responsibilities for completing case investigation forms are not clearly defined; therefore, forms are not systematically and consistently completed. • The national level does not receive case-based data (only aggregated data), and therefore its ability to analyze data is limited. • The national level does not provide feedback to the hospitals.
Laboratory	
• Laboratory staff has sufficient experience to identify pathogens. • Laboratory personnel process all cultures and strains that arrive at the laboratory. • Two of the local laboratories at the sentinel hospitals have the necessary infrastructure to process blood culture, CSF, and bacterial strains. • Two of the local laboratories at the sentinel hospitals have adequate equipment, electrical power on a regular basis, and proper lighting conditions in the physical space.	• In one laboratory, the physical space is inadequate for the bacteriology services to be performed. • In selected laboratories at the local levels, the personnel in charge of the microbiology laboratory lack specific invasive bacterial diseases knowledge. • There is no biosecurity training for new laboratory staff. • Refresher training and continuing education activities lack for all the laboratories. • The systematic quality control of culture media is not performed in selected laboratories. • The contamination rate of blood cultures is very high, rendering very difficult to culture bacterial organisms causing bacterial pneumonia and meningitis. • Feedback from the National Laboratory to the local laboratories is neither timely nor systematic. • The National Reference laboratory lacks reagents needed to conduct their assigned activities. • The time of collection of blood culture samples and CSF is not registered.

Recommendations

The following recommendations were made:

National Level

1. Allocate specific budgets for surveillance activities in each sentinel site.
2. Emphasize the importance of surveillance activities by better promoting and supporting protocols and guidelines in the country.
3. Contract a computer technician to manage surveillance data.
4. Contract a nurse for each sentinel site who will be responsible for case identification, capturing, and monitoring.
5. Establish a standardized database for all sentinel sites.
6. Promote monthly surveillance meetings or discussions.
7. Prepare monthly data reports and providing feedback to sentinel sites, other areas of the Ministry of Health, and the IGSS.
8. Analyze and publish national reports on surveillance results.
9. Conduct periodic evaluations of the surveillance system.
10. Conduct case-control studies for impact assessment.

Hospital Level

1. Develop and use standardized operating procedures to periodically train rotating staff especially in blood culture processes.
2. Clearly define roles and responsibilities of surveillance staff at each sentinel site.
3. Increase and systematize supervision and training of bacteriology staff with regards to biosecurity and diagnosis methodologies.
4. Disseminate bacterial meningitis and pneumonia case definitions to all surveillance staff.
5. Register in the system all suspect cases of pneumonia on a daily basis, whether or not blood specimens were collected for culture.
6. Perform blood culture on all specimens from suspect cases.
7. Establish a routine for specimen transportation from the sentinel sites to the laboratories to ensure timely submission.
8. Send a case-to-case database of bacterial pneumonia and meningitis to the national level on a monthly basis.
9. Promote periodic surveillance meetings or discussions between laboratories and clinical staff.

National Reference Laboratory

1. Increase awareness of the roles of sentinel site laboratories and the scope of work of the surveillance of invasive bacterial diseases.
2. Train bacteriologists and laboratory staff on basic clinical bacteriology on a regular basis.
3. Conduct systematic training in biosafety for new personnel: review and update the biosafety manual.
4. Create and promote basic guidelines for the standardization of the surveillance of invasive bacterial diseases.
5. Immediately return strain information to the sentinel sites.
6. Eliminating expired reagents and immediately acquire necessary reagents to confirm bacteria.
7. Improve communication between the microbiology laboratories and the sentinel site laboratories.

Local laboratories in sentinel sites

1. Expand and separate the various services of clinical bacteriology.
2. Conduct systematic and intensive training in clinical bacteriology and biosafety for all laboratory personnel.
3. Train laboratory staff and clinicians on diagnosis methodologies and invasive bacteria, especially on blood culture and cerebrospinal fluid sampling and processes.
4. Train clinicians on systematically registering the collection of blood culture, cerebrospinal fluid samples, and received strains.
5. Improve communication between the microbiology laboratory and the clinical pediatricians to reduce blood culture contamination.
6. Facilitate the procurement of key laboratory resources supplies for invasive bacterial diseases surveillance.

Conclusion

Three years ago, Guatemala started implementing sentinel based surveillance of bacterial pneumonia and meningitis. The investment has been rewarding and, even tough the evaluation identified several weaknesses, the quality and usefulness of the surveillance is progressing. The evaluation was able to provide recommendations that can be easily implemented and will result in significant improvement of Guatemala's invasive bacterial disease surveillance. ■

Contributed by staff from the Ministry of Public Health and Social Welfare, Guatemala; the U.S. Centers for Disease Control and Prevention; the World Health Organization; and the Comprehensive Family Immunization Project, Pan American Health Organization.

Polio Laboratory Network

Considering that poliovirus is still endemic in other regions, the polio laboratory network in the Americas must continue to be fully functional, providing fast and quality results critical for monitoring and verifying virus circulation in the Region. Rapid detection and reporting of wild and vaccine-derived polioviruses are essential to facilitate early implementation of public health interventions to minimize virus spread.

In this context, a new test algorithm was designed to reduce the time for laboratory results and to increase the sensitivity of poliovirus detection. In the Americas the average time for completing laboratory procedures was 42 days. The new algorithm will allow for a 50% reduction of the overall laboratory target test time from the current 42 days to a maximum of 21 days. The current data management system and reporting of PESS[1] results should be reviewed to include the new timeliness indicator for polio laboratory results.

Recommendations:

- The laboratory network should have implement by October 2009 the new test algorithm for cell culture and intratypic differentiation (ITD) with current updates to provide faster results. Resource mobilization may be required for implementation in some settings.
- The data management systems (PESS or ISIS[2]) should accommodate the changes in reporting to reflect the new algorithm and the surveillance indicator for laboratory of up to 14 days for cell culture results and up to 21 days for polio and non-polio positive specimens.
- The network laboratories should ensure that all poliovirus isolates are appropriately screened for the presence of vaccine-derived poliovirus (VDPVs); detection should be conducted by screening with genetic ITD test followed by analysis of the complete sequence of the VP1 poliovirus protein.
- All network laboratories should continue to implement Quality Assurance processes, including preparation, use, and periodic update of Standard Operating Procedures and ensure compliance. ■

1 Poliomyelitis Elimination Surveillance System.
2 Integrated Surveillance Information System.

Pan American Health Organization
Regional Office of the World Health Organization

Hepatitis B Immunization of Health Workers

AIDE-MEMOIRE

for an effective approach to the immunization of health workers against hepatitis B

Are health workers at risk of exposure to hepatitis B virus (HBV)?

Yes: HBV is an important occupational hazard for health workers. **Approximately 37% of hepatitis B infections among health workers worldwide are the result of occupational exposure.**[1] The World Health Organization (WHO) recommends that health workers be vaccinated against HBV.[2] The **WHO Global Plan of Action on Workers' Health** calls upon member countries to develop and implement occupational policies and programs for health workers, including hepatitis B immunization.[3]

What is hepatitis B?

HBV is a viral infection that attacks the liver and can cause both acute and chronic disease that can be life-threatening. Persons with chronic HBV infection have a 15 to 25% risk of dying prematurely from HBV-related cirrhosis and liver cancer.[2] Worldwide, an estimated two billion people have been infected with HBV, and more than 350 million have chronic liver infections.[4] **Health workers can become infected with HBV by exposure to even small amounts of blood from needle-stick injuries or punctures with blood-contaminated equipment.**

How can health workers be protected against HBV?

- ❑ Immunize
- ❑ Adhere to standard precautions
- ❑ Train health workers about mode of transmission and preventive measures
- ❑ Ensure access to post-exposure management services
- ❑ Record and report exposure to blood and body fluids

Be prepared: addressing commonly asked questions related to the hepatitis B vaccine

➢ **What is the efficacy and safety of the hepatitis B vaccine?**
The hepatitis B vaccine is 95% effective in preventing HBV infection and its chronic consequences. The hepatitis B vaccine has been used since 1982 and over one billion doses have been administrated worldwide.2

➢ **What are the benefits of being vaccinated against hepatitis B?**
Hepatitis B vaccination protects and promotes the health of health workers, patients, and families. For employers, a vaccinated workforce contributes to the availability of a healthy workforce.

➢ **What are the potential adverse effects of hepatitis B vaccine?**
Potential advance effects include redness, swelling, and pain at the injection site. Serious effects are very rare; difficulty breathing, rash, and shock have been reported.5

☑ Checklist

Ensuring a successful vaccination campain targeting health workers

Action Plan for immunizing health workers

- ❑ Identify responsible authority (e.g., occupational health unit)
- ❑ Implement occupational health and immunization policy and guidelines
- ❑ Integrate immunization activities within existing health and safety plan
- ❑ Allocate human and financial resources

Effective strategies to increase vaccination coverage

- ❑ Demonstrate management commitment towards the health of employees including providing resources needed to prevent exposure
- ❑ Provide and promote accessible and free on-site vaccination
- ❑ Establish participation in vaccination by signed consent or declination
- ❑ Educate health workers about the occupational risks associated with HBV, the efficacy of vaccination and other preventive measures
- ❑ Repeat reminders to ensure completion of all three doses of hepatitis B vaccine
- ❑ Integrate immunization into pre-employment orientation for employees and students
- ❑ Monitor immunization coverage regularly

Who should be immunized?

- ❑ Any health worker who performs tasks involving direct patient contact or handles blood-contaminated items is at risk:
  - □ Physicians, nurses, laboratory workers, dentists, pharmacists, aids, and allied health professionals
  - □ Support staff, such as transporters, cleaners, and waste collectors
- ❑ Students training in the field of health care

Hepatitis B immunization

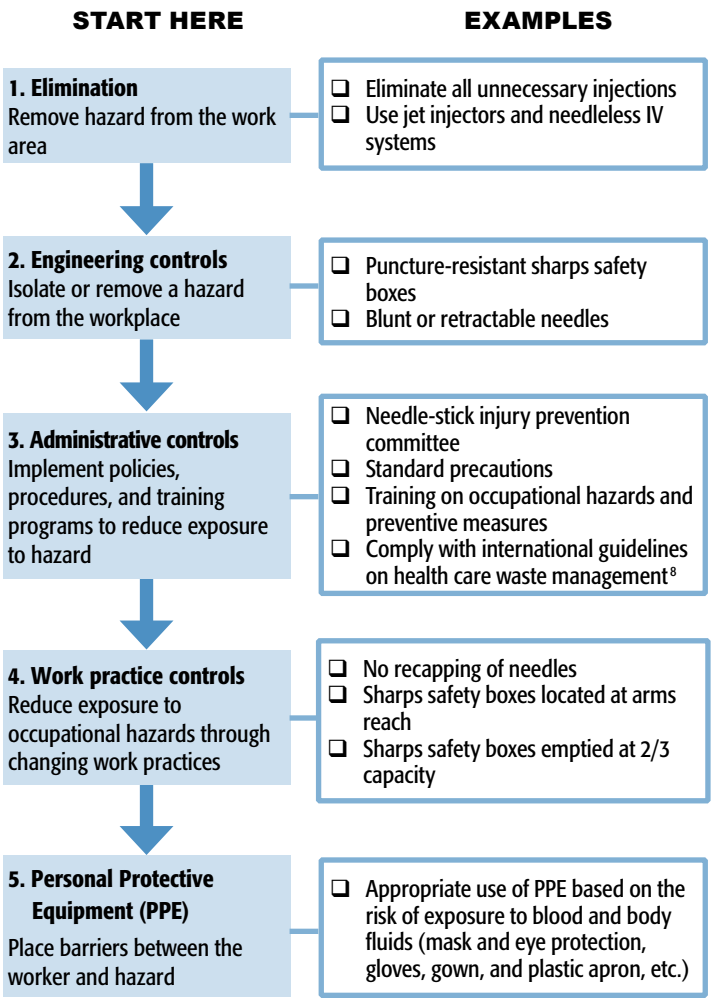
- ❑ Recommended schedule: 0, 1, and 6 months[6]
- ❑ Dose: 1mL intramuscular injection
- ❑ Serological testing:
  - □ Pre-vaccination: not indicated[6,7]
  - □ Post-vaccination: not required as part of a routine program[2]

Comprehensive Approach to the Prevention of Occupational Transmission of Blood-borne Pathogens Among Health Workers

Key Elements at a Glance

1. Apply hierarchy of controls

Methods to control the transmission of blood-borne pathogens (BBPs) in order of effectiveness. The optimal prevention measure is to eliminate the hazard directly at the source.



2. Provide training to health workers

Health workers need to know their risk and how to protect themselves against blood-borne pathogens ***Key training components include:***

- ❑ Risk of infection and mode of transmission; and efficacy of preventive measures
- ❑ Legal rights and obligations related to occupational health and safety
- ❑ Reporting procedures for needle-stick injuries and other blood and body fluid exposures
- ❑ Practice on the proper use of personal protectiveequipment
- ❑ Regular updates, training, and orientation on new products and procedures

3. Implement standard precautions

Standard precautions are a simple set of effective practices designed to protect health workers and patients from infectious pathogens from recognized and unrecognized sources. ***These include:***

- ❑ Ensure hand hygiene products availability (e.g., clean water, soap, single-use clean towels, alcohol-based hand rub)
- ❑ Comply with WHO hand hygiene practices[9]
- ❑ No recapping of needles
- ❑ Use and availability of puncture- and liquid-proof sharps safety boxes at site of use
- ❑ Use proper personal protective equipment based on the type of exposure to blood (gloves, gown, mask and eye protection, face shield, etc.)
- ❑ Use gloves for contact with blood, non-intact skin, and mucous membranes
- ❑ Cover all cuts and abrasions on workers with a waterproof dressing
- ❑ Clean spills of blood promptly and carefully

4. Ensure access to post-exposure management

- ❑ Implement guidelines to include first aid, reporting mechanism, and procedure to be followed for post-exposure follow-up (risk assessment, prophylaxis, and management)
- ❑ Provide a conducive, blame-free, and confidential environment to workers reporting exposure
- ❑ Where possible and indicated, provide post-exposure prophylaxis (hepatitis B immune globulin for positive source) and hepatitis B vaccine if not previously immunized
- ❑ Record exposure by using a standard surveillance system (e.g., EPINet[10])
- ❑ Use exposure record data for prevention by recommendations for changes in policy, practices or products

Tools to prevent exposure to BBPs

PAHO, WHO, and the United States National Institute of Occupational Safety and health (NIOSH) have developed a free toolket amed at previnting BBP transmission:

'Protecting Healthcare Workers: Preventing Needlestick Injuries Toolket'

http://www.who.int/occupational_health/activities/pnitoolkit/en/index.html (English)

http://www.who.int/occupational_health/activities/pnitoolkit/es/index.html (Spanish)

Additional resources: Workers' Health and Safety in the Health Sector:

http://www.bvsde.ops-oms.org/sde/ops-sde/ingles/bv-saludtrab.shtml

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Source: Workers' Health Project, Sustainable Development and Environmental Health Area, PAHO (http://new.paho.org/hq/index.php?option=com_content&task=blogcategory&id=1399&Itemid=1340).

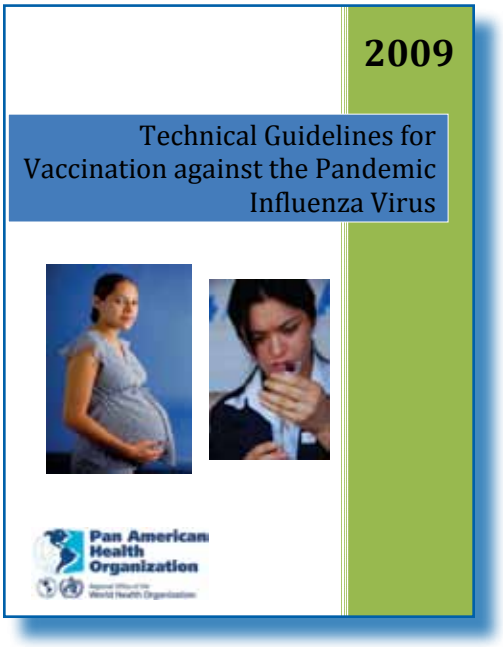
Influenza A(H1N1): Technical Guidelines for Vaccination Against the Pandemic Influenza Virus

A workshop was held in Bogotá, Colombia, from 27-31 July 2009, as part of the Pan American Health Organization's (PAHO) Regional Plan for the Preparation of the Introduction of a Pandemic Influenza Vaccine. Participants included staff from the World Health Organization and PAHO headquarters as well as PAHO Immunization focal point in the countries. The goal of the workshop was to prepare for future trainings on pandemic vaccine introduction at sub-regional and national levels with participation of EPI Managers and individuals responsible for national pandemic plans.

This was a participatory meeting designed to build on past experiences and lessons learned. A variety of pandemic vaccine-related topics were reviewed. Two main documents, a draft PAHO Technical Operational Manual in preparation for the introduction of a pandemic influenza vaccine and the WHO Guidelines for the Deployment of a Pandemic Influenza Vaccine, were presented and reviewed. As a result of the workshop, PAHO decided to merge both documents and create the *Technical Guidelines for the Introduction of a Pandemic Vaccine* to be used in future trainings.

Three subsequent sub-regional workshops were held during the months of October (Panama and Peru) and November (St. Kitts and Nevis) to provide technical support to countries and territories in the elaboration of their pandemic vaccine plans of action. Participants in all workshops included national EPI Managers, the national authority responsible for the Influenza Pandemic Preparedness Plan, PAHO Immunization focal points in the countries and staff from the headquarters office.

The Guidelines, along with other information regarding vaccination against influenza A(H1NI) can be found on the Immunization Project website (http://new.paho.org/ hq/index.php?option=com_content&task=view&id=2515&Itemid=2028). Additional information and documents are also available on the website the Health Surveillance and Disease Prevention and Control Aria (http://new.paho.org/hq/index.php? option=com_content&task=blogcategory&id=805&Itemid=569&lang=en). ■



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