



Immunization Newsletter

Pan American Health Organization

VOLUME XXX, NUMBER 5 ► OCTOBER 2008

- 1 Immunization Program Evaluation in Guyana
- 1 Descriptive Analysis of Immunization Policy Decision-making in the Americas
- 7 10-day Electronic Temperature Monitoring Devices
- 8 Immunization in the Americas: 2008 Summary

Immunization Program Evaluation in Guyana

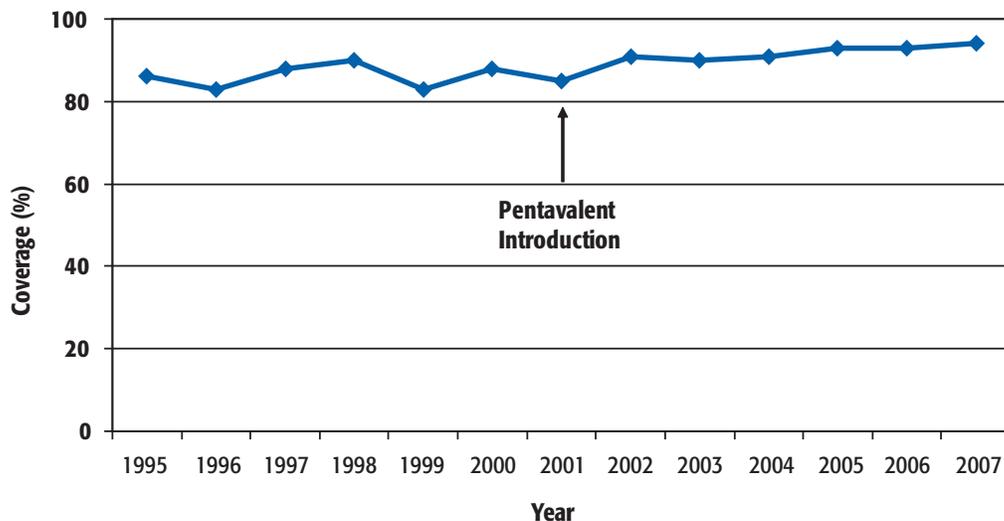
Background

In September 2008, a team conducted an international evaluation of Guyana's immunization program (EPI) to assess its strengths and weaknesses, and its capacity to accommodate new vaccine introduction. This evaluation also assessed the achievements that have occurred since the first EPI evaluation conducted in May 2000.

Guyana is divided into 10 administrative regions. Four of them are classified as interior or hinterland regions. They are mostly rural, hard-to-reach, and sparsely populated. The remaining regions are coastal areas. The role of Guyana's Ministry of Health (MOH) includes policy formulation, standard setting, evaluation, financing, and managing health programs. Government expenditure on health was estimated to be 4.5% of GDP in 2003, representing a steady increase from 2.7% in 1998. The primary source of health sector financing is government taxation. For the years 2001-2005, Guyana received major funding from the Global Alliance for Vaccines and Immunization (GAVI) for the introduction of pentavalent (DTP/Hep B/*Haemophilus influenzae* type b) vaccine in the immunization schedule. Since 2006, the country has assumed the full payment of the vaccine (1).

No case of polio or yellow fever has been confirmed in Guyana since 1962 and 1968, respectively. No case of laboratory confirmed measles has been reported since 1991. The last case of rubella was reported in 1998. Two new antigens (hepatitis B and Hib) were fully introduced into the routine vaccination schedule in 2001. Between 2005 and 2007, the Tdap, inactivated polio (IPV), and pneumococcal vaccines have been introduced for selected populations. Pneumococcal and rotavirus vaccines will be administered to all infants starting in 2009. Vaccination coverage of all antigens has increased: DTP3 coverage rose from 83% in 1999 to 93% in 2006 (Figure 1) and BCG from 91% to 96% in the same period.

Figure 1. DTP3 Coverage, Guyana, 1995-2007



Source: Country reports to Immunization Project, FCH/IM, PAHO.

Descriptive Analysis of Immunization Policy Decision-making in the Americas

Introduction

Recently, efforts to help countries increase their national capacity to make evidence-based decisions have intensified, especially regarding vaccine introduction (1). However, in order to develop targeted strategies for improvement, the existing policy decision-making process must be better understood. In response to the need for a situational analysis, in March 2008, the World Health Organization (WHO), in collaboration with the University of Ottawa, developed and distributed a questionnaire on national level immunization policy decision-making processes to all Regions. Questionnaires completed by countries of the Americas were also sent to the Pan American Health Organization (PAHO).

Methods

The 66-variable questionnaire contains dichotomous, multiple-choice, and open-ended questions. Most multiple-choice options are not mutually exclusive, and countries are asked to check all that apply.

Key Findings and Inferences

1. Responses:

In the PAHO Region, 35 countries received the questionnaire. By July 2008, 29 countries (83%) had com-

See **DECISION-MAKING** page 5

Methodology

The evaluation team consisted of ten international members and ten health professionals from the MOH. The evaluators were divided into five teams that visited health centers and hospitals to assess immunization and surveillance activities. They conducted interviews of users, selected MOH officials, pediatricians, and physicians in private practice, and staff of other government departments and non-governmental organizations (NGOs).

Ten questionnaires were used to collect information on management, operations, decision-making, cold chain, and use of immunization services. The accuracy of the vaccination data was assessed through a data quality assessment, similar to GAVI's Data Quality Audit (DQA), conducted in all visited health centers and regional and central level offices. The data gathered was used to modify the present five-year plan of action.

Findings

The EPI is granted high priority at all levels. Political commitment toward the program is demonstrated through vaccine procurement and program support. Any outbreak of a vaccine-preventable disease (VPD) is viewed as a political challenge and resources are made readily available. By law, vaccination is mandatory for school entry. The opinion of practitioners regarding the immunization program ranges from excellent to very good.

1. Organization and Coordination

This component scored over 90% when compared to the expected norm. Vaccination services are provided at no cost to the public through a network of health centers, health clinics, and health posts strategically located throughout the country, including many remote areas. Physicians from the private sector (5% of coverage) use the same immunization schedule as the MOH, including administering IPV and pneumococcal conjugate vaccine to high-risk children and delaying immunization with BCG. Vaccination coverage for all administered antigens has been $\geq 90\%$ for the last five years. Each health centre has a defined boundary with target population for pregnant women and children aged < 5 years. Local birth data is provided by the MOH. Coordination with other sectors (NGOs in the hinterland, security services, Ministry of Education) is adequate. Screenings for vaccination status and booster vaccination activities are integrated into the school health program. There

is an interagency coordinating committee and a technical advisory committee. Among health staff interviewed, 54% reported that there was no interruption of vaccination services during the last six months and there was no shortage of vaccines due to financial constraints. However, coordination between health regions regarding immunization, defaulter-tracking, and surveillance needs improvement. Also, health unit doctors are minimally involved with day-to-day EPI operations and communication with private physicians should be strengthened. Finally, many health units have no maps displaying their geographical coverage data and no comprehensive EPI guidelines.

2. Programming and Planning

The MOH has a five-year strategic health plan and annual work plans with defined goals and objectives at national and regional levels. The EPI is integrated into the routine child health program. Nevertheless, written work plans were absent at most health units. For 2007, the EPI vaccination goals were achieved in 90% of health centers. Vaccination coverage is calculated on a monthly basis by 81% of the staff and used for decision-making at all levels. Various strategies, including fixed-post vaccination, community outreach, school vaccination, and home visits, are used to provide immunization information and services to clients. All prenatal and chronic disease clinics assess patients for tetanus and administer the Td vaccine if required.

Immunization registries are kept in the health centers. They contain vaccination information for children aged < 1 year and 1-4 years allowing for defaulter-tracking. All children receive a card with a comprehensive record of vaccinations given, growth and development information, and nutritional status. Adult immunization is usually recorded on a card given to the patient while a record is also kept in an attendance log at the health center.

3. Implementation

EPI services are provided in all health units and Guyana has sustained high national coverage ($> 90\%$) over the last 5 years despite major human resource constraints. In urban areas, immunization services are delivered each week on designated days, but vaccines are administered more frequently if required. In rural areas, immunization services are delivered on a monthly basis. Excellent efforts have been made to reach remote areas, especially in the hinterland. However, in some health regions, home visits for defaulters are conducted infrequently and some planned vaccination activities depend in large

part on ease of access and the goodwill and dedication of staff.

4. Human and Physical Resources

This component scored the lowest (47%), mainly due to reported insufficient human resources at all levels in the public health sector: 59% of interviewed staff stated that there were insufficient personnel to administer vaccines. As in other Caribbean countries, Guyana's main challenge is to attract and retain highly skilled personnel. Community health workers (CHWs) are vital to the implementation of the EPI in the hinterland regions, as they are responsible for administering vaccines in remote areas. The current dedicated staff strives to maintain high-quality service for all.

All interviewed staff indicated that sufficient supplies of vaccines, syringes, and safety boxes are available and there is no shortage of vaccines due to budget constraints. Although health units are located in convenient urban areas or strategically located in the hinterland, several health facilities lack continuous electrical supply. Some facilities are hazardous due to their physical infrastructure. Funding for implementation of the facility maintenance plan should be ensured. A basic communication system is available between all levels of the health system, though modern communication equipment is needed. Vehicles procured for transportation between health centers are appropriate for rugged terrain. However, the number of vehicles for transport of staff and supplies and the supply of fuel for the existing fleet are inadequate. These difficulties are a challenge to health services delivery.

5. Biological, Logistics, and Cold Chain

Guyana's EPI procures all vaccines and immunization supplies through the PAHO Revolving Fund. Private practitioners obtain their vaccines from the MOH and two private distributors. The existing central cold store is housed at the MOH in a secured area and vaccines are stored in satisfactory conditions. It is maintained monthly by a technician and a generator is available. A new central cold chain facility is near completion and scheduled to be commissioned shortly. The new facility is necessary to accommodate new vaccine introduction.

A total of 49 cold storage facilities were assessed in the public and private sectors. In general, the cold chain system is adequately maintained in many health facilities. Most health units in the coastal areas had functioning cold chain equipment and health personnel implemented cold chain management standards. All health units

are equipped with approved vaccine carriers. In facilities with a refrigerator, health center staff reported that 89% were dedicated to vaccine use. While an annual cold chain inventory is conducted nationwide, only 54% of health centers could show a cold chain equipment inventory. A preventive maintenance plan was reported to be available for only 25% of health facilities. Most (82%) of the refrigerators had appropriate temperature readings (between +2° and + 8° C); 93% of health centers reported no vaccine loss from power failure. Private sector physicians reported having functioning refrigerators for vaccine storage. To improve cold chain reliability and monitoring, replacement refrigerators should be procured as necessary.

No shortage of vaccine at central level has occurred in the past year. However, staff reported only 40% of health centers having written instructions for vaccine procurement. Eleven percent of health centers in the coastal areas reported an inadequate supply of syringes and/or needles in the previous 12 months, but no health center had stock-outs. Overall, less than 50% of health centers had experienced a disruption of immunization services in the last 6 months, with ordering problems being a significant cause.

6. Training and Supervision

EPI training was conducted in the past two years for selected health personnel, but not all have had access to training activities, resulting in wide variations in CHW performance. Nursing students rotate through the community during their training. General surveillance training is inadequate. Also, most staff had not received the phlebotomy training necessary for VPD surveillance.

One health unit in each region should serve as a training site for new health staff, especially CHWs. Special training in VPD and surveillance is needed for nursing assistants and CHWs.

A clear organizational line of authority exists for conducting supervision and a supervisory instrument is available. Of the staff interviewed, 90% reported receiving supervisory visits within the past 12 months. Geographical access and logistics have impeded routine supervision in some regions. The supervisory tool available at health facility level is not effectively used by all supervisors. All supervisory visits should include a written report given to the supervisee to allow for proper feedback.

7. Vaccination Safety

Needles and syringes are not re-used. Recapping of needles does not usually occur, although 16.7% of respondents admitted to doing it. Most health units did not have an emergency tray available with the appropriate drugs. WHO-recommended safety boxes and commercial biohazard containers are used for the collection of used needles and syringes, and a system is in place for the collection of biohazardous waste in urban areas. Filled safety boxes are collected and burned (33.3%) or incinerated (29.2%). However, final disposal of biohazardous waste is problematic and incinerators are few. Guidelines for biohazardous waste management are available. A post-exposure policy for needle-stick injuries exists: seven cases of accidental needle stick injuries were reported in the past 6 months. Adverse event notification is mandatory and 77% of clinics reported keeping a registry for vaccine-related adverse events.

8. Epidemiologic Surveillance and Laboratory

The national surveillance system consists of public and private sector facilities. Physicians forward weekly surveillance reports. Health units report weekly syndromic surveillance data to the MOH Epidemiology Unit, staffed by nurses and two epidemiologists. Most health units (80%) have a surveillance focal point. An infection control unit in the main hospital of Georgetown coordinates with the MOH Epidemiology unit. Over the past two years the national disease surveillance system had been overhauled. The new system is currently being introduced in each region with staff training ongoing.

Most of the health facilities visited (93%) were reporting sites for national surveillance; 36% of the interviewees reported receiving epidemiologic surveillance training. Written standards on VPD epidemiological surveillance are part of the EPI manual. A mechanism for reporting suspect VPD cases, including case investigation forms for selected diseases, is in place. One nurse in the EPI central level is dedicated to VPD surveillance, coordinating with the Epidemiology unit. Staff correctly reported case definitions for measles (80%), neonatal tetanus (58%), acute flaccid paralysis (AFP) (43%), and congenital rubella syndrome (CRS) (38%). However, investigation forms and manuals were absent from many health facilities. Active case-finding is not routinely conducted. Some health providers were not familiar with the surveillance investigation indicators for measles and rubella. No in-depth surveillance training has been conducted for many health staff in the past 2 years.

Annual communicable disease reports including VPDs are received by 47% of the health units. No cases of polio, diphtheria, or measles have been confirmed for over two decades. The completeness of the data and promptness of reporting for AFP and suspect measles/rubella is excellent. Hospital-based sentinel rotavirus surveillance is conducted. Surveillance of invasive bacteriologic disease has been limited due to low rates of positive pneumococcal isolates.

Laboratory capacity is being expanded with the construction of a new public health laboratory. A sufficient number of containers for the collection and transport of specimens to the laboratory is available. Institutional resources are available for the shipment of laboratory specimens. Mechanisms exist for the shipment of specimens of suspected VPDs to PAHO's Caribbean Epidemiology Center (CAREC). Transport is funded by the MOH. However, the timeliness of specimen shipment to CAREC must be improved. AFP cases are reported in a timely manner, yet



Children bathing in a river in Kamwatta, a remote community from Guyana's hinterland.
Photo courtesy of C. Danovaro.

samples are not always collected. Some health care workers, especially in remote areas, are not trained to collect blood, which makes confirming or discarding suspect measles/rubella cases difficult. Using alternative specimens for serological testing or specimens for viral detection should be considered.

9. Social Communication and Community Participation

A national 2008 plan for health education exists and is fully financed. The country fully participates in Vaccination Week in the Americas by promoting vaccination and conducting catch-up activities. Health promotion strategies include radio spots/talks, posters, and school health activities. Health staff provide health education talks to the community. Health education materials on immunization, especially yellow fever, were available in many health units. Among health personnel, 69% stated that health education/promotion is practiced year round, and among users, 44% had heard a message about immunization in the past two months.

10. Evaluation and Research

EPI reviews are conducted three times a year, with participation of all regions. Reporting of vaccination coverage is performed on a monthly basis and used as an evaluation indicator. A project on the burden of diarrheal disease has been conducted for the past 5 years. A health systems barrier study and an EPI situation analysis were conducted in 2004, a situation analysis of the cold chain in 2005, and an intussusception study (to estimate incidence) in 2007.

11. Health Information

A national reporting system for immunization information has been in place and maintained for several years. EPI information is the shared responsibility of health centers, regions and the MOH. New child health registries have recently been distributed. All vaccines given are recorded. However, vaccine doses administered beyond the recommended ages are recorded but not monitored systematically. Registries are duplicated in the health units, and documentation on child health records needs improvement. Immunization data from the private sector is submitted to the MOH, but there are no formal feedback mechanisms between the MOH and private physicians. In 2007, the drop-out rate was 2% at national level. The current system allows for tracking defaulters in each area. However, it is not used in all health centers and, when used, not well documented.

User Satisfaction

User surveys were conducted in all 10 regions of Guyana. A total of 249 caregivers of children aged <5 years were interviewed, of which 134 lived in coastal areas and 115 in the hinterland. Among respondents, 26 were aged <20 years and 126 were aged 20–30 years. Results of the survey were as follows:

- 96% of users consider vaccination of children to be very important and 98% attend the health centre for vaccination;
- 95% of children had immunization cards and 85% were up-to-date with age-appropriate shots;
- 96% of users were satisfied with the care received because the staff were friendly and caring, service was satisfactory, and staff provided explanation for each intervention.

Human Papillomavirus Vaccine Knowledge and Attitudes

As an addition to the standard EPI evaluation methodology, and in preparation for the introduction of the HPV vaccine, users and health workers were polled on their impression of the service and their knowledge of HPV infection and its sequelae.

Less than 10% of the users had heard of HPV, and those who had linked it to a sexually transmitted infection and not to cervical cancer. Less than 50% of the respondents had heard about cervical cancer and 69% did not know how to prevent it. Even though only 8% reported having heard of an HPV vaccine (or recognized the commercial name), 90% said that they would accept it and 91% that they would allow their daughters to receive it.

The evaluation found no systematic data inconsistencies between daily and monthly forms, and between health centers and regions. However, there were difficulties in retrieving data in some facilities and regions. Most data inconsistencies found are likely to be resolved once better record-keeping practices are implemented. Computerization of health information is required together with a central registry for vaccination.

Finally, an excellent system is in place to monitor Td coverage among pregnant women, where detailed history on number of previous Td or DTP doses is well documented to avoid unnecessary Td vaccination in each pregnancy. The evaluation team invited Guyana to share its experience on monitoring Td coverage, as it could serve as a model for other countries.

Conclusions

The EPI has improved substantially since the last evaluation in 2000, ensuring the protection of children through the provision of safe vaccines. The program is given high priority. Now that access to vaccination has been ensured, improving service quality should be the focus. The evalu-

ation team identified strengths and areas for improvement for each component and provided specific recommendations. These recommendations are reflected in the modified multi-year plan of action.

The main challenges for Guyana's EPI are to sustain >95% coverage for all administered vaccines, maintain the absence of indigenous cases of polio, measles, rubella, and CRS, and introduce new vaccines while sustaining the current gains. ■

Reference:

1. GAVI and Guyana: A Success Story. *Immunization Newsletter* 2006. 28(5).

DECISION-MAKING from page 1

pleted and returned the questionnaire. One country instead submitted a description of existing immunization committees (Haiti), and five countries (14%) did not return the questionnaire.

National immunization program coordinators were the most likely to fill out the questionnaire (76%). However, in 10% of countries, questionnaires were completed by other epidemiologists or health care professionals. Thus, reporter bias may be a limitation of this questionnaire, as the national immunization program coordinators would be the most qualified to provide information.

2. Governmental Cross-sectional Coordination:

Thirty one percent of countries listed only their Ministry of Health as involved in the decision-making process for immunization. Forty five percent listed their Ministry of Finance, and 41% listed at least one other ministry besides health or finance. These results suggest that more cross-sectional coordination, essential in creating effective and sustainable immunization policies, is needed.

3. Immunization Decision-making Structures:

Of the 29 countries who returned a questionnaire, 17 countries (59%) reported having a national immunization technical advisory group for all vaccine-preventable diseases (TAG), and 12 (41%) countries indicated that they do not have such a group.

- **Countries without a TAG.** All countries that indicated they do not have a TAG are located in the Caribbean. All receive guidelines from an annual Caribbean EPI Managers' meeting. The small size and similar characteristics of these countries validates the usefulness and practicality of such an approach. In smaller countries, sub-regional recommendations are most likely to be a more appropriate and efficient use of resources. In response to the questionnaire, 92% stated that their Ministry of Health (MOH) follows guidelines from PAHO when determining which recommendations to use. Seventy five percent indicated that they use WHO vaccine position papers, and 75% reported using PAHO inter-country meeting reports and recommendations as sources of information.
- **Countries with a TAG.** All reported establishing their group after 1996, with the exception of Canada and the USA (1960s), Cuba (1989), and Brazil (1991).

4. TAG Description:

- **Function:** Of the 17 countries with a TAG, 65% reported that their TAG assists government in establishing immunization policies, informs government on the public health needs for vaccines, addresses issues of vaccine quality and safety, or evaluates new vaccines.
- **Logistics:** Although 82% of countries stated that their TAG has formal terms of reference and 76% reported that the group is mandated with legislative or administrative directives, only 29% indicated that members must make a declaration of potential conflicts of interest. At least 94% of countries reported having an epidemiologist, public health expert, or pediatrician as TAG member. At least 53% stated the presence of an infectious disease expert, clinician other than a pediatrician, immunologist, or medical microbiologist. Interestingly, no countries reported having a health economist.
- **Decision-making process:** At least 94% of TAGs reported considering disease burden, vaccine efficacy, vaccine safety, or economic impact of the disease when making a recommendation. However, only 53% address the issue of whether vaccination is a public health priority. Only 53% consider public perception of the disease risk, and only 29% consider method of administration of the vaccine
- **Sources of information:** At least 65% of

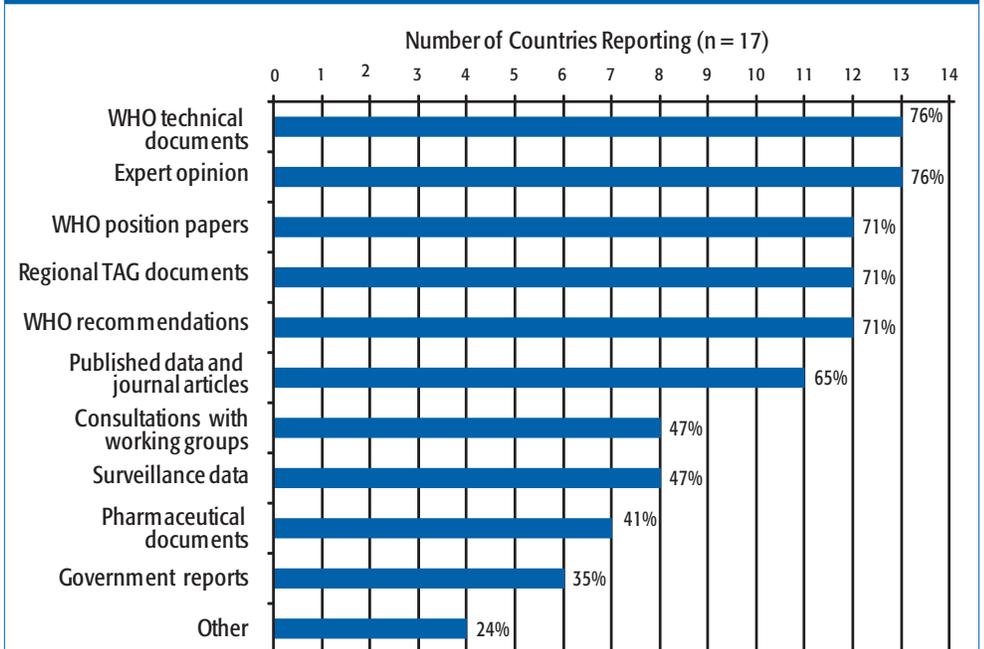
countries indicated that they use advice from WHO, expert opinion, TAG documents, or published data and journal articles as sources of information to influence TAG recommendations. Less than 47% reported using consultations with working groups, surveillance data, or government reports. Forty one percent reported using pharmaceutical documents (Figure 1).

5. Opportunities for Improving the Immunization Decision-making Process:

All countries cited ways in which their immunization policy-making could be improved (Table 1). Many countries stated the need to improve national coordination of vaccine policy stakeholders. Specific improvements needed included increasing communication across governmental departments, cross-country organization, and standardization of vaccine policies. Some stated that better coordination with private healthcare practitioners and vaccine manufacturers is needed, especially for improving the availability of immunization and clinical trial data, respectively.

Deficiencies in epidemiological data collection and surveillance systems were also reported. With a lack of quality data, many found it difficult to determine the burden of vaccine-preventable diseases, especially those for which new vaccines were available. Countries reported the desire to strengthen and integrate data collection systems.

Figure 1. Sources of Information Used to Inform TAG Recommendations, the Americas, 2008



Source: Immunization Project, FCH/IM, PAHO.

Economic sustainability and financial security of vaccine programs were also important to many countries. Many stated the need to expand existing legislation for national health budgets to purchase recommended vaccines. They reported that the lack of a legal designation of resources for vaccination hinders long-term program forecasting, mobilization of resources, and introduction of new vaccines.

Many countries cited a lack of economic studies on vaccination, such as cost-benefit or cost-effectiveness analysis for new vaccines. They indicated that with standardized economic analysis more informed immunization policy decisions can be made. Furthermore, countries stated the need to train TAG members in the generation and interpretation of these economic studies.

Discussion

1. Strategizing Technical Assistance:

Achieving the greatest sustainable impact in elimination of vaccine-preventable diseases requires evidence-based and informed policy decision-making. Variations in resource availability and burden of disease between countries and sub-regions must be reflected in any such immunization policy decisions.

This study has provided useful information to understand the current situation of national level immunization policy decision-making in countries of the Americas. The questionnaire provided an opportunity for countries to document the main challenges encountered, improvements needed, and support requested from PAHO. All 29 countries that completed the questionnaire cited ways in which their immunization policy-making process can be improved.

The questionnaire has been highly important in helping to strategize technical assistance from PAHO for strengthening country-level capacity to make evidence-based decisions. Improving processes for policy-making will help to ensure that immunization decisions are reached through rigorous and informed deliberations. Synthesizing knowledge from a diverse range of experts, utilizing a variety of information sources, and increasing transparency in decision-making will encourage implementation of the most utilitarian recommendations.

However, there were limitations in the questionnaire design. Countries without a TAG were excluded after completing the first section of the questionnaire. Therefore, the opportunity

Table 1. Countries' Request for Support in Immunization Policy-making

Countries specifically requested support in the following areas:	Have TAG Percent (Number)	Do not have TAG Percent (Number)
Building infrastructure: Support development of a TAG	0	100 (11)
System strengthening: Improve existing TAG	100 (17)	0
Improving coordination among stakeholders	35 (6)	18 (2)
Increasing awareness or political commitment	18 (3)	45 (5)
Strengthening data collection systems	53 (9)	45 (5)
Securing vaccine financing	29 (5)	36 (4)
Generating economic evaluations	41 (7)	27 (3)
Obtaining financial assistance	24 (4)	18 (2)

for equal evaluation of the immunization policy decision-making process in countries with and without a TAG, was missed. Multiple-choice options were rarely mutually exclusive, and the order varied between different language versions. Sometimes, options did not have clear definitions. For example, 33% of countries who indicated that they did not have a TAG marked that they rely upon recommendations of a national TAG. Occasionally, there were inconsistencies in country responses. For example, a few countries who indicated that they did not have TAG liaison members, answered subsequent questions about which organizations these liaison members represent. Additionally, at least one question was not translated accurately between the English and Spanish versions of the questionnaire, prompting a quantitative and qualitative response, respectively.

As all questionnaires were not completed by national immunization program coordinators, who might provide the most accurate information, reporter bias may be an additional limitation of this questionnaire.

2. ProVac Initiative:

PAHO's ProVac Initiative has been designed to provide the essential technical support that countries have requested for strengthening infrastructure and processes for decision-making. A partnership of technical cooperation task force led by PAHO will bring together national and sub-regional surveillance groups, experts from other disciplines, and key stakeholders to improve epidemiological surveillance systems. Establishing a network of Key Centers of Excellence specialized in health costing will ensure that health economists are available to help countries in the generation and analysis of economic evaluations.

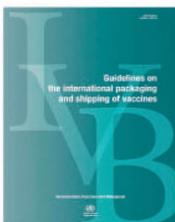
PAHO's ProVac will facilitate the strengthening or establishment of a TAG in countries. The goal is to have functioning TAGs with improved composition and coordination with other stakeholders. Providing a broader base of evidence and increasing accountability will be essential activities that ProVac will support. In some cases, a sub-regional approach may be the most effective method for capacity development. ■

Editorial Note: The editors wish to thank Maggie Bryson, University of Ottawa, for developing and conducting the global survey on immunization policy decision-making and Julianne Burns, University of California, for analyzing the data received for the Americas and preparing this report. The University of Ottawa and WHO are performing a worldwide analysis that will be published shortly.

Reference:

- (1) Andrus et al. A model for enhancing evidence-based policy decisions on the introduction of new vaccines in the Americas: PAHO's ProVac Initiative. *Public Health Reports* 2007. 122:811-816.

10-day electronic temperature monitoring devices



According to WHO Guidelines on the international packaging and shipping of vaccines a 10-day electronic temperature monitoring device should be included in each international vaccine shipping carton.

10-day electronic temperature monitoring devices show when, and to what extent, the set temperature conditions have been violated.

There are two types of devices:

Type I device that is attached to YELLOW backing card is designed to accompany the DTP, DT, TT, Td, HepB, IPV, liquid Hib and combination vaccines.

Type II device is attached to BLUE backing card and is designed to accompany the OPV and freeze-dried BCG, measles, MR, MMR, lyophilized Hib, yellow fever and meningitis vaccines.



10-day electronic temperature monitoring devices show when, and to what extent, the set temperature conditions have been violated.

When you receive an international vaccine shipment, you must open ALL cartons to remove the devices. This has to be done one-by-one.

1

When you remove the Q-tag 2plus from the carton you will see run signal flashing on the bottom right corner of the screen meaning that the device is in active recording mode.

2

If everything is OK with the shipment, that is no violation has had occurred, the OK sign will be seen in the middle of the screen.

In order to stop the device you have to press the STOP button for three seconds. The run sign will disappear from the bottom right corner of the screen and the stop sign will appear on the bottom left corner of the screen. The device is now stopped and will not record anymore.

3

If any of the set temperature limits is violated, an ALARM indicator will be seen in the middle of the screen under the total elapsed transport time.

In order to read the details of temperature history during the transit time, you must set the device into HISTORY mode.

1

When you remove the 3M TXG1 from the carton you will see an arrow (▶) on the bottom of the screen indicating that the device is in recording mode.

2

To stop the device, you must press the STOP button. Once stopped, the arrow symbol indicating the running status will disappear and the STOP symbol that is a blank square (□) will appear at the bottom of the screen. The device is now stopped and will not record anymore.

If everything is OK with the shipment and no violation has occurred, the OK sign will be seen at the bottom left corner of the screen.

3

If any of the set temperature limits is violated, you will see a NOT OK sign at the bottom of the screen displayed as a crossed-out OK in a circle.

If there are any alarms, write down the time you stopped the device on the backing card. This is important when you refer to the device after you stopped it. It will help you to calculate the precise time of violation.

Make a photocopy or scan the device to document the ALARM status. In each image, indicate the

number of the box that the device was in. Include all necessary information in the Vaccine Arrival Report (VAR). If there are any ALARMS, fill in the Alarm Reporting Form and attach it to the VAR. Send the VAR with photocopies or printed images from scanned devices and the Alarm Reporting Form to the "procurement agency".



Department of Immunization, Vaccines and Biologicals
Quality, Safety and Standards

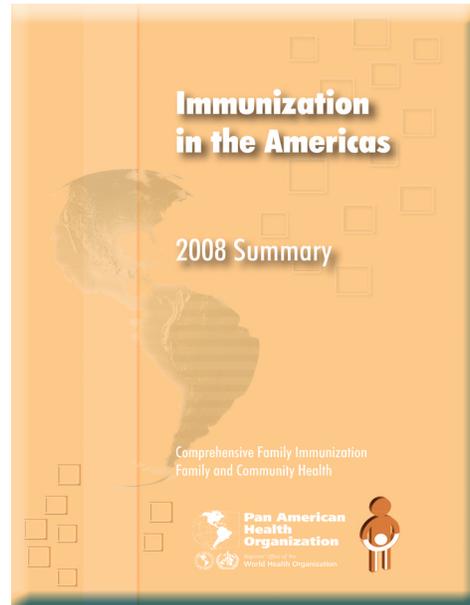
Immunization in the Americas: 2008 Summary Now Available

The *Immunization in the Americas* brochure is published every year by the Comprehensive Family Immunization Project. Its objective is to highlight the key data on vaccine-preventable disease surveillance and the provision of immunization services by the countries of the Americas. The publication serves as a benchmark for monitoring the progress of national immunization programs in the following three main strategic areas of work:

1. Protecting the achievements. The Americas have been the first Region in the world in eradicating poliomyelitis and eliminating endemic measles transmission. National immunization programs in the Americas have reached approximately 90% vaccination coverage for all childhood vaccines. However, to protect these achievements, it is necessary that countries aim to reach and maintain coverage levels $\geq 95\%$ for all childhood vaccines in all municipalities.

2. Addressing the unfinished immunization agenda. First, coverage levels are not homogeneous between and within countries, leading to

pockets of unvaccinated persons at risk of contracting vaccine-preventable diseases. Overall, 42% of the municipalities of Latin American and Caribbean countries report not having reached



95% coverage with three doses of diphtheria-tetanus-pertussis vaccine. Second, seasonal influenza vaccine use in Latin American and Caribbean countries needs to be extended to all at-risk groups. Third, yellow fever has not been fully controlled in all enzootic areas of the Region, and the risk of yellow fever reurbanization in the Americas does exist.

3. Meeting new challenges. Countries must adapt to a growing number of vaccines and more complex demands placed on the immunization program at all levels. The effectiveness of these new vaccines varies by country. They are also much more costly than traditional childhood vaccines. Therefore, countries will have to make policy decisions based on a broader base of evidence, supported by a strong national surveillance and a robust laboratory network to evaluate disease burden and vaccine impact after introduction.

Copies of the brochure, available in English, Spanish, and French, can be obtained by sending a request to fch-im@paho.org. The electronic versions corresponding to the last four years are available on the Immunization Project's page at www.paho.org/immunization. ■

The *Immunization Newsletter* is published every two months, in English, Spanish, and French by the Immunization Unit of the Pan American Health Organization (PAHO), Regional Office for the Americas of the World Health Organization (WHO). The purpose of the *Immunization Newsletter* is to facilitate the exchange of ideas and information concerning immunization programs in the Region, in order to promote greater knowledge of the problems faced and possible solutions to those problems.

References to commercial products and the publication of signed articles in this Newsletter do not constitute endorsement by PAHO/WHO, nor do they necessarily represent the policy of the Organization.

ISSN 1814-6244

Volume XXX, Number 5 • October 2008

Editor: Jon Andrus

Associate Editors: Béatrice Carpano and Carolina Danovaro



**Pan American
Health
Organization**



Regional Office of the
World Health Organization

Immunization Unit

525 Twenty-third Street, N.W.

Washington, D.C. 20037 U.S.A.

<http://www.paho.org/immunization>