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Immunize and Protect Your Family

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In September 2012, representatives from Brazil, Chile, the city of Bogotá, Colombia, Honduras, and Uruguay presented their experiences at the 2012 Immunization Information Systems Meeting of the American Immunization Registry Association (AIRA) in Saint Paul, Minnesota. In this issue of the Immunization Newsletter, we focus on immunization registries. We include abstracts from the Latin American countries that presented at AIRA, as well abstracts from Paraguay and the province of Tucumán, Argentina that were accepted for the conference but whose authors could not attend the meeting.

Immunization Registries in Latin America: Progress and Lessons Learned

Most current vaccination coverage monitoring in Latin America relies on aggregated data on vaccines administered. By taking advantage of information and communication technologies, the use of computerized national immunization registries (NIRs) can facilitate coverage monitoring in terms of particularity, timeliness, and accuracy. This has been shown to result in better coverage.

Latin American countries are rapidly developing and implementing national computerized NIRs. Uruguay (1987) and Mexico (1991) were the first countries to use national NIRs; Panama followed suit in 2007. Brazil, Belize (as part of the Belize Health Information System or BHIS), Chile, and Guatemala are transitioning to using NIRs at the national level. Colombia, Costa Rica, Honduras, and Paraguay have reached different stages of NIR piloting or early implementation. Finally, four countries are in early development/planning stages. This list does not include immunization registries used sub-nationally or those employed by NGOs, Social Security systems, or other providers.

NIR development has followed a variety of approaches for system conception and development with regards to integration with larger health information systems; modalities for data



Participants in the Immunization Information Systems Meeting of the American Immunization Registry Association (AIRA), Saint Paul, Minnesota, September 2012.

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Immunization and Birth Registration

In 2011, the Inter-American Development Bank estimated that each year 1.3 million children born in the Americas are not registered and that 6.5 million others do not possess birth certificates.¹

The consequences of unregistered births are severe and long lasting. The under-registration of births limits the ability of health officials to fully understand social and demographic factors related to infant mortality. In addition to lacking citizenship in their countries of origin, children with unregistered births have been demonstrated to have greater difficulties accessing health and education services. What's more, problems related to unregistered births do not stop in childhood. Adults who remain unregistered in national systems face life-long problems voting, owning property, and attaining jobs in the formal sectors. Even at death the problem persists; families of unregistered individuals may be unable to obtain a death certificate for their loved one, since, for legal purposes, the person never existed.² The latter adds to the problem of coverage and quality in mortality data in Latin America, where under-registration of deaths is at 10.4%.³

Several factors contribute to the delayed or under-registration of births. These include, among others, costs associated with reaching the civil registry office or completing the necessary paperwork; inconvenient locations or opening times of registry offices; lack of the national identification of the mother and/or father; rejection of names, particularly in some indigenous communities; and single mothers waiting to see if the father will provide the surname.

The under-registration of births in the Region remains a serious challenge and one that will likely require different solutions in different contexts. The immunization program is in a position, along with some

See **BIRTH REGISTRATION** page 2

collection, entry, transmission, data confidentiality, and security; and other key features. Similarly, platforms used include proprietary software, open source software, and most commonly a mix of the two. In most cases, countries themselves have provided the bulk of investment in NIR development and implementation, though some have received support from development partners or private companies.

Most countries using NIRs still collect data on paper. However, some are exploring the

use of mobile devices (mHealth) for data collection, as well as linking the registry to platforms to send vaccination reminders via phone text messages (SMS). To our knowledge, no NIR in Latin America has been externally evaluated, with the exception of an assessment of data produced by Uruguay's NIR in 2006.

The usefulness of NIRs is likely maximized when data on each dose administered is recorded at the same place where the vaccine was given and as soon as possible after vac-

ination. However, data entry at the facility level is not yet possible in most Latin American countries. Further development of electronic health records (EHR) systems, the adoption of standards for interoperability, and the increased availability of Internet access will help to shorten the lag time between vaccine administration and data entry into the computerized registry. ■

A version of this article was also published in the AIRA's newsletter: "Immunization Registries in Latin America: Progress and Lessons Learned". Snapshots: Immunization Registry News from American Immunization Registry Association. 2013; Vol. 60 (p. 3).

BIRTH REGISTRATION from page 1

programs to end malnutrition, to support and promote birth registration. Furthermore, the increased use of nominal immunization registries provides a unique opportunity to link the registry of a person who receives a vaccine to other databases, including birth databases and the civil registry.

Vaccination provides various opportunities for parents to be encouraged to register their child. Because the vast majority of newborns receive BCG, and in some countries Hepatitis B vaccines at birth, health workers have opportunities to issue the child a vaccination card and remind the parents about registering their child. In most countries, children also have at least five vaccination contacts by their first birthday. Including a space, in the vaccination registers or in cards kept at health facilities, to mark whether the child has been registered allows trained and sensitized vaccinators to remind parents about birth registration and educate them on where to go to have their child registered.

One country where the immunization program has been working with the Civil Registry to implement a program that ties birth registration to vaccination is Nicaragua. In 2008, the country ratified the *Programa Amor*, a program that aims to restore the rights of children to enjoy a happy and dignified childhood.⁴ The initiative involves various government agencies, including the Ministries of Health, Family, Government, and Education, and has seven principal goals. The fourth goal is "to reinstate the right of all children to be registered in the Civil Registry."⁴

As of 2008, the country estimated that each year 50,000 Nicaraguan children went unregistered. To register these children, the Ministry of Health (MINSa in Spanish) set up registration booths in hospitals where births

take place in order to enroll the children in the Civil Registry. Nurses and physicians can now administer vaccines to newborns and then direct them to obtain the legal paperwork that documents their citizenship.⁴ Furthermore, during annual vaccination weeks, vaccinators and Civil Registry officials jointly visit homes to vaccinate and register children who were not born in hospitals or who missed opportunities to be registered in hospitals.⁵ Preliminary reports suggest that the program in Nicaragua has reduced the under-registration of births, and the country's experience provides valuable lessons for other countries in the Region seeking both to improve immunization coverage rates and to reduce the under-registration of births.

With the advent of computerized immunization registries, health workers also have an opportunity to register the child in a nominal immunization registry that is linked to the country's Civil Registry, or at least to a birth registry system. This is made possible, in part, because the same variables needed for birth registration—name, date of birth, parents, etc.—are also included in birth and civil registry databases.

The Health Secretariat of Bogotá, Colombia routinely matches records from the immunization registry with those of the registry of births, part of the RUAF database (*Registro Único de Afiliados a la Protección Social*). Each month, using names, the date of birth, the national ID of the child and the mother, health officials are able to identify children that are included in both databases or in only one of the two. A child whose birth was registered, but who has not yet been vaccinated and therefore is not included in the immunization registry, is then added to the immunization registry. Likewise, a child who has received a vaccine and is in the immunization registry, but whose birth was not registered

is added to the RUAF database. This simple procedure helps to increase the number of documented births in the city.

In a Central American country, local immunization officials were reviewing the quality of the data included in their immunization registry when they noticed that some children had recorded dates of BCG vaccination that preceded the registered date of birth. Upon further investigation, health officials discovered that some parents provided a false date of birth when registering the child to avoid paying penalties related to delayed civil registration. This situation illustrates how immunization registries can unexpectedly help detect barriers to birth registration.

The examples above highlight how the use of nominal immunization registries can help to promote and increase birth registration. Immunization registries may serve as an innovative way for the immunization program to further help guarantee that all children in the Americas attain their right to an identity and to legal citizenship. ■

¹ Inter-American Development Bank. Latin American and Caribbean governments and civil society aim to eliminate under-registration of births by 2015. Available at: <http://www.iadb.org/en/news/news-releases/2011-09-21/identity-and-universal-birth-registration,9555.html>

² Duryeu, S., Olgiatei A., and Stone L (2006). The Under-Registration of Births in Latin America (Working paper #551). Retrieved from Inter-American Development Bank website: <http://www.iadb.org/res/publications/pubfiles/pubwp-551.pdf>.

³ Pan American Health Organization/World Health Organization. (PAHO/WHO), Health Information and Analysis Project (HSD/HA). Health Situation in the Americas: Basic Indicators 2012. Washington, D.C., United States of America, 2012. Available at: http://ais.paho.org/chi/brochures/2012/BI_2012_ENG.pdf

⁴ Ministry of Family, Adolescence, and Childhood of Nicaragua. Programa Amor: Para la restitución de los derechos de la niñez y la adolescencia. Available at: http://www.mifamilia.gob.ni/?page_id=239.

⁵ "Nicaragua: National Vaccination Campaigns and Community Participation". Immunization Newsletter. Volume XXIX, No. 4 (p. 4-6).

The Information System of Brazil's National Immunization Program

In order to have more reliable data on vaccine doses given, Brazil's National Immunization Program (NIP) and Datasus, the Information Technology Department of the Unified Health System, created an immunization information system (IIS). The IIS was developed for multiplatform graphical environments (Windows, Linux) using the open source tools Java and PostgreSQL.

The IIS captures individual-level data, including the area of residence of the vaccinated person, and unifies existing government databases for monitoring vaccinated individuals, supply stock management, and Adverse Events Following Immunization (AEFIs). Designed for providers, Brazil's IIS can be installed in any city, with data transmission via Internet to the national level, thereby ensuring that the vaccination information can be accessed from anywhere in the country. The system produces a variety of reports, allowing users to conduct evaluations at the individual level and by various variables: gender, age, vaccination strategy, municipality of residence, and population group (slave-descendants, "persons deprived of liberty," indigenous settlements). The system also allows health workers to schedule

doses, monitor AEFIs and missed opportunities for vaccination, track defaulters, and re-issue vaccination cards. Regarding biological and supply management, reports are available for stock movement by vaccine manufacturer and lot number; additionally, vaccine wastage (physical and due to open vials) can be monitored.¹ The system issues alerts at the time of data entry, giving users the opportunity to identify and correct inconsistencies. At this stage of deployment, IT infrastructure and connection to the Internet are required at the municipal level.

The deployment of IIS was subsidized by the NIP and makes all aspects of immunization program management available at a single "port:" <http://pni.datasus.gov.br>. In so doing, the system ensures that stakeholders nationwide have easy access to quality, real-time information. ■

Contributed by:

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¹ "Brazil's Experience with the Development of a Vaccine-Wastage Evaluation System." Immunization Newsletter. 2012; Vol. XXXIV, No. 1 (p. 1-2).



Brazil's Immunization Information System.

Web-based EPI Monitoring System by Birth Cohort in Bogotá, Colombia

Bogotá's online nominal immunization registry was implemented in 2005 and updated in 2011. Developed using Microsoft tools, .NET and SQL 2008, the system stores information of all vaccines given to each child living in the city of Bogotá from birth. The registry allows for the current vaccination status of each child to be monitored, thus reducing omissions, facilitating the implementation of strategies to improve vaccination timeliness, and ultimately helping to increase coverage in the city.

The Registry is available in 340 vaccination sites in Bogotá and in maternity wards. The system permits a daily control of administered doses and sends e-mails to healthcare professionals reminding them to vaccinate specific children on specific dates. Using the Registry, parents can access and print the vaccination card of their children without needing to visit the vaccine provider, and health workers

can use the system to verify the immunization status of children under their responsibility. Data in the system is organized in a cube in order to facilitate the processing of queries in multiple dimensions. For example, vaccination status may be simultaneously assessed by vaccine, age group, and neighborhood.

In Bogotá, approximately 116,000 children are born each year. Since 2011, the city's Registry has provided a monthly follow-up tool for each cohort of newborns, providing health officials with timely indicators, such as complete schedules by age and listings of defaulters or undervaccinated children. One important challenge moving forward is the use of the Registry to generate indicators for monitoring monthly birth cohorts (e.g., children born in January should receive first doses of pentavalent, rotavirus, and oral polio vaccine (OPV) in March).

Main lessons learned

- Need for ongoing training for vaccinators on the use of the immunization registry
- Use of the immunization registry requires commitment from vaccinators
- Importance of ongoing technical support
- Need for continuous updating of computer tools (network, memory, and software)
- Need to improve mothers' confidence in the health system in order to obtain correct information
- Usefulness of daily monitoring of the number of doses administered by each institution

Bogotá's immunization registry is a useful tool for providing updated vaccination information for decision-making. ■

Contributed by:

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NOTI-PAI: An Innovative Feature of Bogotá's Immunization Registry



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In addition to serving as a nominal immunization registry, Bogotá's platform includes NOTI-PAI, an electronic messaging system. Since 2006, NOTI-PAI has allowed immunization officials at the Health Secretariat to quickly send news, messages, and other updates on immunization to vaccinators throughout Bogotá.

In September 2011, health authorities in the city introduced version 2.0 of NOTI-PAI. The new system features improvements that make the system more efficient and user-friendly.

In the previous version, messages could only be posted one at a time and had to be routed through an information technology (IT) team. Today, a system administrator at the city level may post multiple messages at once and may add, modify, or remove notices without consulting the IT team.

Version 2.0 of NOTI-PAI is also easier for users to navigate. Upon entering Bogotá's immunization registry online platform, healthcare professionals encounter a screen in which all posted messages appear on a rotating basis. Types of message include local, national, or global immunization news, meeting reminders, congratulatory messages, notices concerning the start of vaccination campaigns, warnings, and calls to action for health centers that are not reaching coverage goals. For users hoping to access specific information, NOTI-PAI version 2.0 contains a search function and a platform to view old postings in list form. Lastly, with the new version, users may now view photos or images uploaded by the system administrator.

Health workers have welcomed changes to NOTI-PAI, a feature of Bogotá's immunization registry they had already appreciated. Vaccinators report that NOTI-PAI helps them keep informed of the immunization program and means that they no longer have to wait for monthly meetings to learn of new developments. Most importantly, the program's tips and reminders help healthcare workers to follow defaulters and undervaccinated children and to remain alert to the fact that any visit of a child to a health center is a valuable opportunity to inquire about his or her immunization status.

Contributed by:

Jaqueline Jiménez, Patricia Arce, Health Secretariat of Bogotá.

Noti - PAI

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Estrategias de OPS para mejorar las EV

Los invitamos a consultar los siguientes Links, con documentos sobre las estrategias para mejorar las estadísticas vitales, en las instituciones que atienden partos.*** 2007: RESOLUCIÓN SP27.R12 – Estrategia para fortalecer las estadísticas vitales y de salud en países de las Américas <http://www.paho.org/english/gov/csp/csp27.r12-e.pdf> **** 2008: RESOLUCION CD48.R6 – Plan de Acción Regional para fortalecer las estadísticas vitales y de salud <http://www.paho.org/english/gov/cd/cd48.r6-e.pdf>

The home screen of the NOTI-PAI system.

Noti - PAI

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FELICITACIONES

Muchas felicitaciones por el compromiso y los resultados obtenidos el sábado 22 de septiembre a los equipos de trabajo del Hospital Vista Hermosa y el Hospital de Tunjuelto. Es de resaltar el liderazgo desempeñado, Felicitaciones compañeros!!!!

Congratulatory messages, meeting reminders, and other messages provided in Bogotá's NOTI-PAI system.

Noti - PAI

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REUNIÓN IPS ATIENDEN PARTOS

Compañeros se informa que la reunión de IPS que Atienden Partos, se ha programado para el miércoles, 10 de octubre a las 2:00 p.m. En la Secretaría Distrital de Salud: Ed. Administrativo, Aula Magistral. Recordamos que la asistencia es obligatoria y contamos con su puntualidad. Los esperamos!!!!!!

Noti - PAI

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VACUNAD@R TU ERES EL ACTOR PRINCIPAL

La vacunación en menores de un año es crucial para la supervivencia en este grupo de edad, por esta razón hace parte de los Objetivos de Desarrollo del Milenio. El impacto positivo de las vacunas en los niños menores de un año es ampliamente conocido, tal es el caso de la vacuna contra el Haemophilus Influenzae (bacteria muy común en los niños) que tras su introducción en los esquemas de vacunación en este grupo de edad, propició una dramática reducción de la mortalidad por meningitis bacteriana (infección de las capas que cubren el cerebro) y neumonía en la población infantil!



inicio usuarios notipai contactenos vacuna persona metas

Bienvenido, djimenez
Salir

Listado de Noti - PAI

Busqueda

Por fecha de creación: Fecha inicial Fecha final Por fecha de activación del mensaje: Fecha inicial Fecha final

Estado Activo Inactivo

Título mensaje

Código	Título	Fecha Activación	Fecha Desactivación
Select1	Mensaje 1	02/09/2011	20/09/2011
Select2	Mensaje 2	02/09/2011	20/09/2011
Select5	Reunión IPS de Parto.	11/10/2011	12/10/2011
Select7	Jornadas Epidemiológicas	11/10/2011	14/10/2011
Select8	PAI 2.0	11/10/2011	25/10/2011
Select9	Información Importante	15/10/2011	02/11/2011
Select11	Información	24/10/2011	15/11/2011
Select13	Información	18/11/2011	09/12/2011
Select14	!!!URGENTE LISTADOS!!!	15/12/2011	31/03/2012
Select15	!!!URGENTE INGRESO DE INFORMACION!!!	21/11/2011	31/12/2011

Version 2.0 on NOTI-PAI allows users to list and sort messages.

Chile's National Immunization Registry

The goal of Chile's National Immunization Registry (NIR) is to register all vaccinations given in the country. The system allows each vaccine and immunized person to be monitored, regardless of whether the vaccine is given year-round as part of the routine schedule (universally), seasonally, or sporadically and independently of whether the vaccine is recommended for a specific age or risk group.

The NIR was launched nationwide in 2010 to register influenza vaccine doses administered in Chile's annual anti-influenza campaign. Pre-launch activities included videoconferences to train health workers, delivery of all necessary materials to health centers, and activities preparing statistical clerks for implementation of the NIR in public and private healthcare centers. The cooperation of officials at the national and sub-national levels

allowed the country to begin electronically registering all individuals vaccinated against influenza in 2010. In 2011, vaccines administered in the regular immunization program began to be registered in the NIR.

The NIR was introduced quickly and in stages, soon allowing daily coverage updates to be obtained online. To date, data from nine vaccination campaigns have been included in the system. These include campaigns against seasonal influenza (2010, 2011, 2012), measles and rubella (children, travelers, health workers), hepatitis (pre- and post-earthquake), and whooping cough. As of mid-2012, 6,528,064 people had been registered in the NIR.

The NIR is user-friendly. Data may be entered from any vaccination facility connected to the system. Using the system, health work-

ers may generate immunization cards for patients or certificates with individual vaccination histories. What's more, the NIR's flexible design has permitted data from vaccination campaigns arising due to health emergencies and unexpected situations to be included in the system.

The NIR has been successful thanks to a coordinated effort between the immunization program and the statistical team in the Ministry of Health and due to the simultaneous participation of the public and private sectors in the system's implementation. Additionally, the NIR has proven to be a valuable management tool that provides timely information and empowers decision-makers at all levels. ■

Contributed by:

Josette Iribarne, Melissa Fuenzalida, Ximena Calvo, and Patricia Cabezas, Ministry of Health, Chile.

Information Management System, Province of Tucumán, Argentina

In 2006, Tucumán, a province in northern Argentina, began computerizing information in primary care centers (CAPS) and central provincial hospitals, whereby any patient seen in a health care center would be registered in a single database. The system included registration of the patient's clinical procedure. In 2010, a vaccination module was implemented in CAPS and the Hospital Management Subsystem. Using a simple and effective data entry interface online or on paper, this vaccination registry collects information on the vaccine type, dose, patient identification, provider, date of service, and the date of vaccine administration.

This data comes from Public Vaccination Centers in hospitals and CAPS with computers, private vaccination facilities, and non-computerized CAPS. In the latter, existing vaccines were coded and personnel were trained to use paper forms that are entered into the database system at a later time. The system is provided through the *Plan Nacer*, which covers pregnant women and children aged 0-6 years. Those outside this age range will be registered beginning in 2012.

The nominal immunization registry will allow an analysis of vaccination coverage as well as the issuance of a digital immuniza-

tion card with all antigens. This card will be able to be accessed from the information system and printed, permitting reporting on the diseases covered by each vaccine and/or the dose given to the child, according to the vaccination schedule. In the near future, the vaccination card will also be made available on the website of the Ministry of Health as a service to the population. ■

Contributed by:

Sergio E. Epstein. Ministry of Public Health, Province of Tucumán, Argentina.

Mobile Data Entry Clerk: An Innovative Idea Worth Exploring

In the context of project Optimize,^{1,2} the Ministry of Public Health and Social Welfare of Guatemala proposed and developed guidelines for the use of mobile data entry clerks. Each clerk would be responsible for visiting a select number of health posts on a weekly basis to collect information to be included into the National Health Information System, including individual data on vaccination and other basic health services.

Clerks would travel on motorcycles and record data on laptops for subsequent transfer to databases at the municipal level or in the

closest health facility with access to Internet. Each clerk would be required to possess a valid driver's license, maintain up-to-date antivirus software on his or her computer equipment, and sign in and sign out all equipment. Clerks would work under the direct supervision of a municipal health authority and in coordination with local health officials to ensure that data would be recorded accurately and in a timely manner.

Mobile clerks may be an innovative solution for data entry into nominal immunization registries in settings lacking a centralized

electronic data system and in those where having computers and Internet in each health post may not be feasible. However, possible risks include accidents, robberies, and loss of data. A program using mobile data entry clerks has yet to be evaluated in the field in the Americas. ■

¹ "Project Optimize Comes to an End in Guatemala". Global Immunization Newsletter. February 2013; Vol. I (p. 2).

² "Guatemala's Vaccination Information System: An identification of unvaccinated and improved logistics for vaccine and supply distribution tool". Immunization Newsletter. 2011; Vol. XXXIII (p. 5).

Paraguay's New Immunization Information System

In Paraguay, the national Expanded Program on Immunization (EPI) is responsible for vaccinating all eligible people in the country. The EPI has to define vaccination goals, strategies, and supply needs, implement vaccination activities, and monitor and evaluate results and impact. It is also responsible for the surveillance of Vaccine-preventable Diseases (VPDs) and Adverse Events Following Immunization (AEFIs).

Currently, the EPI uses three different standalone information platforms: "PAI Visual" to monitor coverage; the World Health Organization's Vaccination Supply and Stock Management (VSSM) for stock management at the national and department levels;¹ and the Pan American Health Organization's (PAHO) Integrated Surveillance Information System (ISIS) for surveillance of measles,

rubella, and polio. For other VPDs and for AEFI surveillance, the EPI uses Excel tables.

In 2011, the EPI embarked on the development of a new comprehensive immunization information system (IIS), as part of the Ministry of Health's new Health Information System. The IIS is a confidential and secure Web-based platform developed with open source software (MySQL, others). It includes three modules: 1) a nominal immunization registry to monitor coverage and individual vaccination schedules; 2) a logistics component to manage vaccine and supply inventory and traceability from country arrival to vaccine administration; and 3) a case-based surveillance system for monitoring VPDs and AEFIs. The system will help provide a comprehensive vision of the EPI to assess risks and better manage the program. It is expected

that the nominal registry module will help increase vaccination coverage and timely vaccine administration. IIS development was delayed due to issues with the original company contracted; however, the product should be ready to start piloting in 2012.

Paraguay's new IIS is one of the first such integrated immunization systems in Latin America. It should help the country's EPI to improve program efficiency and increase coverage by making key information readily available. ■

Contributed by:

Carlos Torres, Raúl Montesano, Eder González, and Elcida Centurión.

¹ "Paraguay's Evaluation of the Vaccination Supplies Stock Management (VSSM) Software". Immunization Newsletter. 2011; Vol. XXXIII, No. 6 (p. 5).

Uruguay's Nominal Immunization Registry

Since 1987, Uruguay's National Immunization Program has used a nominal immunization registry (SNNI in Spanish) to monitor the vaccination history of each child living in the country.¹

In Uruguay, over 99% of births occur in health facilities and all live births must be legally registered. This allows for inclusion of all children in the SNNI and vaccination records starting with the BCG vaccine administered at birth in maternity wards.

Currently, vaccinations are recorded on an individual paper form (with a carbon copy). All vaccination providers, public and private,

send these forms to the departmental level for data entry into the SNNI and keep a copy for their own records. Each department, in turn, sends the data to the national level. The national level maintains the complete database, routinely produces reports, and sends reminders to health workers concerning children who have missed a vaccine dose.

The SNNI includes the following information: 1) basic childhood vaccination data starting with the 1987 birth cohort; 2) vaccines given at age 12 years starting with the 1995 birth cohort; and 3) vaccines given at age 5 years starting with the 2000 birth cohort.

In November 2006, the Pan American Health Organization (PAHO) independently assessed the data produced by SNNI. Based on this evaluation, the coverage data the system produces was validated and the system was deemed very reliable. PAHO suggested using the SNNI as a model nominal registry for other Latin American countries.¹

Currently, SNNI is being revamped to decentralize data recording by allowing online data entry in all vaccination facilities. All vaccines given in the country to any target population, even those not yet part of the recommended immunization schedule, will be included in the new SNNI. Furthermore, the upgraded SNNI will provide geo-referenced information about the vaccinated population. SNNI will also soon produce real-time reports of coverage and individual vaccination histories. ■

Contributed by:

Fernando Arrieta.

N° DE BOLETA		M.S.P. C.H.L.A.-E.P.		PLAN NACIONAL DE VACUNACION		N° H		CENTRO DE VACUNACION	
LUGAR DE NACIMIENTO		FECHA DE NACIMIENTO		CEDULA DE IDENTIDAD		SEXO		N° DE FUNCIONARIO	
1er. NOMBRE			2do. NOMBRE			1er. APELLIDO		2do. APELLIDO	
VACUNA		DOSIS	FECHA		VACUNA		DOSIS	FECHA	
BCG 0.20					D P T				
D P T/HB - Hib					S R P				
POLIO					H B				
S R P + VAR					d T				
HEPATITIS A					NEUMOCOCCO				
MOTIVO DE NO VACUNACION					USUARIO DE SERVICIO DE SALUD				
1 - CONTRAINDICACION TRANSITORIA					COMPLETO				
2 - CONTRAINDICACION DEFINITIVA					INCOMPLETO				
3 - FALTA VACUNA									
4 - SE NEGA									
5 - OTROS									
DOMICILIO: CALLE y N°			ESO		TEL		SECC. POLIC. N°		
LOCALIDAD			DEPARTAMENTO						
NOMBRE DE LA MADRE:									
DOMICILIO DE ALTERNATIVA: CALLE y N°			ESO		TEL				
LOCALIDAD			DEPARTAMENTO						

All vaccines administered in Uruguay are recorded on tickets, such as the one above, and later transferred into the country's nominal immunization registry.

¹ Ronveaux O, Arrieta F, Curto S, Laurani H, Danovaro-Holliday MC. Assessment of the quality of immunization data produced by the national individual registration system in Uruguay, 2006. Rev Panam Salud Publica. 2009; 26(2):153-60

Pertussis/Diphtheria/Tetanus/Mumps Data Final Classification, 2010-2011

Country	Pertussis		Diphtheria		Tetanus				Mumps	
	2010	2011	2010	2011	Neonatal		Non-neonatal		2010	2011
					2010	2011	2010	2011		
The Americas	28,580	24,879	87	12	25	21	596	575	40,133	31,588
Anguilla	0	0	0	0	0	0	0	0	0	0
Antigua and Barbuda	0	0	0	0	0	0	0	0	0	0
Argentina	804	3185 ^b	0	0	0	0	5	0	5083	5481
Aruba	1	...	0	...	0	...	0	...	0	...
Bahamas	0	0	0	0	0	0	0	0	0	0
Barbados	0	0	0	0	0	0	0	0	0	0
Belize	0	0	0	0	0	0	0	0	36	0
Bermuda	0	1	0	0	0	0	0	0	0	2
Bolivia	0	0	5	0	0	1	0	0	1781	1096
Brazil	477	2257	32	5	6	6	302	327
Canada	759	676	0	1	0	0	3	2	799	282
Cayman Islands	0	0	0	0	0	0	0	0	0	0
Chile	794	2582	0	0	0	0	9	12	891	950
Colombia	344	1010	0	0	2	2	69	35	10,376	15,926
Costa Rica	71	79	0	0	0	0	0	1	17	1
Cuba	0	0	0	0	0	0	1	1	1	0
Dominica	0	0	0	0	0	0	1	0	0	0
Dominican Republic	37	3	4	2	0	2	50	43	4897	0
Ecuador	0	3	0	0	2	2	0	0	1331	733
El Salvador	2	7	0	0	2	0	0	9	369	632
Grenada	0	0	0	0	0	0	0	0	0	0
Guatemala	0	0	0	0	0	1	2	1	9	0
Guyana	0	0	0	0	0	0	0	0	0	0
Haiti	13	0	46	2	2	0	2191	...
Honduras	135	113	0	0	1	2	15	12	172	143
Jamaica	0	1	0	0	0	0	3	1	1	4
Mexico	371	252	0	0	3	1	43	22	5780	2685
Montserrat	0	0	0	0	0	0	0	0	0	0
Nicaragua	24	87	0	0	0	0	1	0	52	1
Panama	22	36	0	0	0	0	1	1	81	111
Paraguay	1	11	0	2	2	0	6	10	132	283
Peru	64	56	0	0	5	1	42	37
Saint Kitts & Nevis	0	0	0	0	0	0	0	0	0	0
Saint Lucia	0	0	0	0	0	0	0	1	0	0
Saint Vincent and the Grenadines	0	0	0	0	0	0	0	0	0	0
Suriname	0	0	0	0	0	0	1	1	0	0
Trinidad and Tobago	0	0	0	0	0	0	0	0	0	0
Turks and Caicos Islands	0	0	0	0	0	0	0	0	0	0
United States of America ^a	27,550	18,719	0	0	0	1	26	35	2612	404
Uruguay	36	639	0	0	0	0	3	0	169	132
Venezuela	0	3	0	0	2	3	11	23	3353	2740
Virgin Islands (UK)	0	0	0	0	0	0	0	0	0	0

Source: PAHO-WHO/UNICEF Joint Reporting Forms (JRF) and Country reports to FCH-IM/PAHO, 2011 and 2012.

(a) 2010 Data source: MMWR, Vol. 59/No. 53: Summary of Notifiable Diseases--United States, 2010.

(b) Argentina 2011 data updated from 2012 meeting of the Technical Advisory Group on Vaccine-preventable Diseases (TAG).

Note: Table does not include French Departments, former Netherland Antilles, Puerto Rico, or the US Virgin Islands.

... - Not available

The *Immunization Newsletter* is published every two months, in English, Spanish, and French by the Comprehensive Family Immunization Project 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.

An electronic compilation of the *Newsletter*, "Thirty years of *Immunization Newsletter*: the History of the EPI in the Americas", is now available at: www.paho.org/inb.

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Lessons Learned from Implementing a Nominal Immunization Registry in Honduras

Following the creation of the Expanded Program on Immunization (EPI) in Honduras in 1979, a manual information system was implemented at the local level and a data flow was established. The system produced consolidated monthly reports of doses given by level: health units, areas, departments, and nationally. Since 1988, the information system for registering vaccines has been automated.

In 2009, with support from the Pan American Health Organization (PAHO), a project to design and implement a Nominal Immunization Registry (SINOVA) was started. SINOVA aims to include all children aged <5 years serving as a national birth database. It will use the national ID number as an identifier and will capture individualized information: name, date, place of birth, residence, sex, race, maternal information, telephone number, etc. SINOVA will show the distribution of the vaccinated population by geographical location and monitor compliance with the national immunization schedule. The project will be implemented nationally in three phases during the period 2010-2014.

To design SINOVA, the EPI, with technical support from the Department of Statistics of the Secretary of Health, considered the following: the performance of the existing vaccination information system; its main limitations; a diagnosis of existing material and human resources and equipment at the central, departmental, and municipal levels; the experience of other countries; and the availability of technical and financial resources. The main barriers identified were the lack of guidelines for the design and implementation of a nominal immunization registry, or guidelines explaining the process; limited human resources at the municipal and local levels; and the insufficient equipment and financial resources in the country.

The main lesson learned was that in or-

der to create a nominal immunization registry, developing countries should have strategic and operational plans to start the process. Such plans must have political support to streamline nominal registry development. ■

Contributed by:

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EDAD	HB	BCG	POLIO ORAL	PENTAVALENTE	NEUMOCOCCO	ROTAVIRUS	SRP	DPT	SALT	OTROBACTERICA	VIT-A
RN	DU	DU									
<1 AÑO			Ira	Ira							
1-4 AÑOS											
2-8 MESES											
12-23 MES											
2-4 AÑOS											

A data entry screen from SINOVA displaying one child's immunization schedule.