

# Annual Immunization Data Collection in the Americas: PAHO EPI Tables Meet the WHO/UNICEF Joint Reporting Form

*The collection of immunization indicators has been instrumental in developing control and elimination strategies for vaccine-preventable diseases in the Americas and monitoring their progress. This has allowed the Western Hemisphere to be the first WHO Region to be certified polio-free, the first to have interrupted the endemic transmission of measles, and the first to be pursuing the goal of rubella and congenital rubella syndrome elimination.*

## Background

Since the 1980's, the Immunization Unit of the Pan American Health Organization (PAHO) collects data on immunization indicators and vaccine-preventable diseases. Originally, a DOS-based system ("PAISIS") collected morbidity, mortality, and population data, and doses administered allowing for the calculation of administrative coverage. Over the years, several other questions were added to what became known as the "PAHO EPI tables", including items regarding morbidity and mortality by age group, coverage by municipality, immunization schedule, system performance indicators, financing data, and safety. Data were initially requested quarterly and later bi-annually. In 2004, an electronic format in Excel and a shortened mid-year version were introduced.

In 1997, the World Health Organization (WHO) and the United Nations Fund for Children (UNICEF) joined efforts to collect immunization-related data as many program indicators were being collected and used by both organizations. Thus the WHO/UNICEF Joint Reporting Form (JRF) was born, allowing data standardization for WHO Regions and reconciliation of WHO and UNICEF reports. Historically, WHO has

received most of the immunization indicators for the Region of the Americas from PAHO, yet data standardization and comparability with core indicators from the rest of the world has been increasingly difficult.

## 2004 WHO–UNICEF Meeting

In November 2004, a meeting took place to exchange experiences about current regional data collection and analysis process, gain consensus on the 2005 JRF version (2004 data), revise the content and streamline the collection process of the WHO/UNICEF JRF. Participants included representatives from all WHO Regions (including PAHO), UNICEF, and members of WHO's Division of Vaccine & Biologicals.

At the meeting, core immunization data to be collected from throughout the world were determined and agreed upon. However, Regions are free to make modifications and additions to accommodate local immunization strategies and priorities. Additionally, WHO and UNICEF bolstered their commitment to work together to facilitate the work of immunization managers and other national authorities completing the EPI Tables and JRF.

## 2005 JRF for the Americas (2004 data)

This year, the PAHO EPI Tables have been "merged" with the WHO/UNICEF JRF under the name PAHO-WHO/UNICEF JRF. The countries will now need to complete only one unified form, available as a Word document and an Excel file, to comply with both PAHO and UNICEF annual immunization data requests. The form will be distributed to the Immunization program managers and other appropriate national health authorities through PAHO country offices and UNICEF. Once completed, it should be returned following the same channels.

## PAHO-WHO/UNICEF Joint Reporting Form: How are the Data Used?

- Allow countries to organize and produce useful data for the management of their own immunization programs;
- Produce feedback that allows countries in the Americas and other WHO Regions to compare immunization programs, vaccine-preventable disease indicators, and strategies;
- Assist PAHO in guiding regional immunization strategies;
- Meet PAHO and WHO's obligation to disseminate immunization data (global-, regional-, and country-specific) and provide input for publishing WHO/UNICEF coverage estimates;
- Are used to report progress to partners who fund PAHO in support of countries;
- Assist with estimating the burden of vaccine-preventable diseases;
- Are part of an integrated approach to monitor the Millennium Development Goals, in combination with other information (water and sanitation, education, emergencies, other health issues, and human rights);
- Are used for presentations and publications, such as:
  - PAHO ([www.paho.org](http://www.paho.org)): AIS Basic Health Indicators in the Americas, Immunization Newsletter ([www.paho.org/english/ad/fch/im/Epi\\_newsletter.htm](http://www.paho.org/english/ad/fch/im/Epi_newsletter.htm))
  - WHO ([www.who.int](http://www.who.int)): Vaccine-preventable Diseases Monitoring System–Global summary ("Orange Book")
  - UNICEF ([www.ChildInfo.org](http://www.ChildInfo.org)): State of the World's Children (UNICEF's annual report), Progress of Nations (UNICEF advocacy document), and the Millennium Development Goals: The WHO-UNICEF Immunization Summary

The form will collect information on vaccine-preventable disease morbidity and mortality, coverage rates, immunization schedule, source of vaccines, vaccine supplies, system indicators and performance, neonatal tetanus elimination progress, vaccine quality, surveillance, immunization safety, financing, and supplementary immunization activities. As countries

complete the form, the most relevant national immunization data are thoroughly reviewed, thus facilitating the planning of their future activities. Additionally, reviewing the JRF during an Inter-Agency Coordinating Committee meeting provides an opportunity not only to improve the quality of the data, but also as a framework to develop national plans of action.

## Cleaning Up the Regional MESS Database

Previous *EPI Newsletter* articles have addressed the importance of data quality and the “cleaning” of data after entry into

the Measles Eradication Surveillance System (MESS) database. Ideally, country managers should review the quality of

the data entered prior to sending weekly data files to PAHO/Washington. Such efforts will likely decrease errors and improve data quality for all aspects of surveillance. To evaluate the quality of the data entered into the MESS database, thirty key variables were reviewed for the years 2002-2003. A similar assessment of data quality of the MESS system was conducted for the years 2000-2001.<sup>1</sup>

Data for each year were extracted into EPI INFO 2002 and simple frequencies were tabulated on the selected variables. For each variable the following was determined: the number of variables that lacked information or were left blank, the number of “ZZ” responses indicating the information was unknown, and the number of obvious data entry errors, e.g., entering an impossible date of onset such as 2022 or entering a “D” when only “A”, “B”, “Y”, or “Z” are options. No attempt was made to verify the accuracy of the data entered. The evaluation is summarized in Table 1.

In 2002, a total of 21,021 records were examined with a possible 566,941 responses. In 2003, 10,326 records were evaluated with 280,232 possible responses. As seen in Table 1, during both years only 0.012% of possible responses had obvious errors (0.013% in 2002, and 0.012% in 2003). Most of these errors dealt with incorrectly entered dates, i.e., of the total 108 data entry errors detected in the two years,

**Table 1. Missing Information and Data Entry Errors by Variables in MESS The Americas, 2002-2003**

Variable	Year 2002 (n=21,021)			Year 2003 (n=10,326)		
	Blank	ZZ	Error	Blank	ZZ	Error
Date reported	0	0	9	0	0	1
Date of rash onset	0	0	2	0	0	0
Site type	193	128	0	4	81	0
Type of rash	482	685	10	167	202	1
Date investigated	2898	784	2	878	290	0
Source	418	155	0	12	95	0
Case classification	0	0	0	0	0	0
Classification code	10	0	0	7	0	0
Gender	20	16	0	5	3	0
Age	51	109	3	5	32	2
Number of doses (Measles)*	389	2632	8	137	1688	2
Date of last measles dose**	550	565	10	392	8	12
Fever	262	144	0	122	31	0
Date of fever onset	409	0	17	263	0	12
Trip	468	2224	0	295	871	0
Conjunctivitis	356	629	0	246	222	0
Coryza	340	555	0	225	188	0
Cough	314	439	0	187	156	0
Contact	603	3588	0	343	1492	0
Date of confirmation	36	1	0	1	0	1
Lymphatics	397	769	0	271	303	0
Hospitalization	338	524	0	200	349	0
Death	344	601	0	263	355	0
Initial diagnosis	3	0	0	43	0	0
Final diagnosis	10	7287	0	7	3579	0
Number of doses (Rubella)*	633	3125	4	261	1974	1
Date of last rubella dose**	403	21	7	98	1804	2
Arthralgias	640	1604	0	532	687	0
Pregnancy status***	386	232	1	273	215	0
Weeks pregnant****	14	9	1	11	13	0
<b>TOTAL</b>	<b>10967</b>	<b>26826</b>	<b>74</b>	<b>5248</b>	<b>14638</b>	<b>34</b>

\* Among persons at least 1 year of age

\*\* Among persons at least 1 year of age & with at least 1 dose of vaccine

\*\*\* Among women 15-39 years of age

\*\*\*\* Among pregnant women

<sup>1</sup> EPI Newsletter: *Regional Measles Database: How “clean and complete” are the data?* April 2002, Vol. XXIV (2): 4-5 available at [http://www.paho.org/english/ad/fch/im/Epi\\_newsletter.htm](http://www.paho.org/english/ad/fch/im/Epi_newsletter.htm).