SRI LANKA - 2012

WER

Conducting an EPI Coverage Survey

Introduction

Immunization coverage refers to the proportion of individuals in the target population who have been immunized.

As with many things in the Expanded Programme on Immunization (EPI), the EPI 30 cluster survey method has its roots in the smallpox eradication programme. In 1982, experience gained from this programme was adapted for infant immunization coverage and became the EPI 30x7 Cluster Survey described here. Since then, the EPI cluster survey has been used in hundreds of EPI surveys.

An immunization coverage survey examines a small number of individuals to determine their immunization status. It involves visiting homes, examining immunization records and asking the individual, parent or caretaker about immunizations received. This is done in a systematic way so that only a small sample of homes and individuals need to be surveyed in order to obtain valid results for a larger population. The coverage survey will inform you about the following issues.

- Infant immunization, i.e. how well health-centres have met their coverage target for immunizing infants. This is important because if a child does not receive the recommended immunizations as early as possible, he/she will not receive the maximum protection from vaccine-preventable diseases.

- Tetanus toxoid and Rubella immunization of women

- Reasons for immunization failure, i.e. why people do not come or do not return for immunization. This is important because it will help you find ways to increase your immunization coverage.

Routine reports from health-centres also provide important information about immunization coverage. However, immunization coverage estimates based on health-centre records may be inaccurate or misleading. A coverage survey can validate the results of routine reports and provide additional information. The advantage of a coverage survey is that it tells you how many people were immunized correctly, as well as how many were immunized by other providers.

Information provided by the immunization coverage survey helps you evaluate your performance and find ways to improve your immunization activities. Immunization coverage estimates can also be used to estimate reductions in morbidity and mortality from vaccine-preventable diseases.

Different ways of calculating coverage

There are several possible ways in which immunization coverage can be calculated in a survey. Coverage can be ascertained by the use of different sources of evidence, considering whether the dose is valid and if immunization was given on time to provide the maximum possible protection to the child.

Sources of evidence

Evidence for immunization may be based solely on documented sources, such as immunization cards or health-facility records. Coverage estimate based only on documented immunizations, (cards or other records) is called 'CARD' or 'CARD ONLY'.

The survey may also include the child's immunizations based on a parent or care- taker's report of whether the child received the different immunizations. This is called evidence by 'HISTORY'. The disadvantage of this method is that the exact date of immunization may not be remembered. Surveys that count immunizations based on either information from immunization cards or from the child's primary caretaker are called 'CARD OR HISTORY' or 'CARD PLUS HISTORY'.

Steps in planning and conducting the survey

Planning the survey

The survey method described here uses a cluster-sampling technique. This technique allows a small number of the target population to be sampled to

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provide statistically valid data. A cluster is a randomly selected group which in this case contains seven children in the specific age group we want to evaluate . A coverage survey contains 30 clusters and meets the following standards of reliability.

The results of the survey will have a level of accuracy of within 10%. For example, if the survey shows immunization coverage of 70% in the sample, the coverage in the target population will be between 60% and 80%.

the level of confidence is 95%, which means that in 19 out of 20 cases the results of the survey will be within the stated level of accuracy (i.e. plus or minus 10%).

<u>Identifying Clusters</u>

To identify clusters you must know the total population of the area to be surveyed and the population of the cities, towns and villages in the area.

An important concept to understand when identifying clusters is the sampling interval. This is a number used to systematically select clusters. Calculate a sampling interval using the formula below.

Sampling Interval =

$$\text{Sampling Interval} = \frac{\text{Total population to be surveyed}}{30 \text{ clusters}}$$

The sampling interval should be rounded off to the nearest whole number. To identify clusters, you will also need to know how to select a random number and that can be done using a table of random numbers or a computer programme.

- First step is to obtain a list of all communities in the area to be surveyed with as up-to-date population data as possible. Any areas which are not going to be accessible during the survey or which no longer exist should be omitted from the list. List all communities (cities, towns and villages) included in the immunization target area to be evaluated. When the survey includes a big city, list all neighbourhoods.

- List the population size of each community.

- Calculate and write in the cumulative populations as each community is added. To obtain a cumulative population you must add the population of the next village to the combined total of all populations in the preceding villages. The final cumulative population should be the same as the total population to be surveyed.

- Select a random number which is less than or equal to the sampling interval. The number must have the same number of digits as the number of digits in the sampling interval.

- Identify the community in which Cluster 1 is located. This is done by   locating the first community listed in which the cumulative population equals or exceeds the random number.

- Identify the community in which Cluster 2 is located using the formula below. The cumulative population listed for that community will be equal or exceed the number you calculate.

Random Number +sampling interval-This process can be continued (last Number + sampling interval) until the desired number of clusters are selected.

Select households for the survey

When you conduct a coverage survey, data is collected by interviewing members of households and recording this information for

analysis. This section describes how to select households, conduct the interview, and record the information.

<u>Selecting the starting household</u>

First house to be visited in each cluster should be selected at random. The method for selecting the first house will vary according to the population density (rural versus urban areas) and whether household lists are available.

Here only explain how to select the starting household in a rural area where household lists are available.
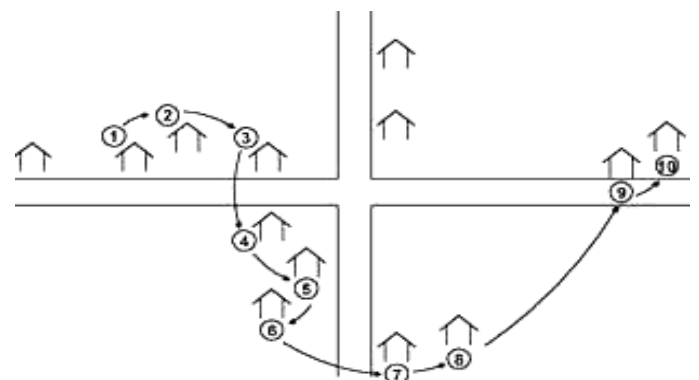
Obtain a list of households in the village being evaluated. Census records, tax lists and voting lists are the lists most commonly available, but any reasonably complete listing is acceptable. If none of these data are available, an ad hoc list should, if possible, be established with the help of community authorities. The list should be of all households in the cluster, not only those with children.

 Number the households on the list and select a random number from one to the highest numbered household on the list.

 Then find the household on the numbered list whose number corresponds to the random number selected. This will be the first household to visit.

<u>Selecting subsequent houses</u>

The second household you should visit will be the one which is nearest to the first. The next nearest household is the one whose front door is closest to the front door of the household you have just vis-

ited. The diagram below illustrates how you should move from one household to the nearest household.

Analyze the data and take action

Collected data is useless unless and until it is analysed. Coverage immunization must be analysed quickly in order to serve a useful purpose.

A coverage survey not only tells you whether your immunization coverage is high or low. It also tells you which components of the immunization services need to be improved. The next step is to decide how to improve the services, and to inform others of the survey results and any changes that are made.

Source

EPI coverage survey Training for mid-level managers, <u>available from</u> <u>http://whqlibdoc.who.int/hq/2008/WHO_IVB_08.07_eng.pdf</u>

Compiled by Dr. Manjula Kariyawasam of the Epidemiology Unit

Table 1: Vaccine-preventable Diseases & AFP
24th - 30th November 2012 (48thWeek)

Disease	No. of Cases by Province									Number of cases during current week in 2012	Number of cases during same week in 2011	Total number of cases to date in 2012	Total number of cases to date in 2011	Difference between the number of cases to date in 2012 & 2011
	W	C	S	N	E	NW	NC	U	Sab					
Acute Flaccid Paralysis	01	00	00	00	00	00	00	00	00	01	03	72	82	- 12.2 %
Diphtheria	00	00	00	00	00	00	00	00	00	-	-	-	-	-
Measles	01	00	00	00	00	00	00	01	00	02	00	63	125	- 49.6 %
Tetanus	00	00	00	00	00	00	00	00	00	00	00	12	24	- 50.0 %
Whooping Cough	00	00	00	00	00	00	00	00	01	01	00	96	51	+ 88.2 %
Tuberculosis	73	06	01	03	03	00	00	00	00	86	239	7998	8893	- 10.1 %

Table 2: Newly Introduced Notifiable Disease
24th - 30th November 2012 (48thWeek)

Disease	No. of Cases by Province									Number of cases during current week in 2012	Number of cases during same week in 2011	Total number of cases to date in 2012	Total number of cases to date in 2011	Difference between the number of cases to date in 2012 & 2011
	W	C	S	N	E	NW	NC	U	Sab					
Chickenpox	05	03	06	01	01	08	04	03	03	34	62	4117	3966	+ 03.8 %
Meningitis	04 GM=2 KL=2	02 KD=2	00	01 JF=1	01 AM=1	02 KN=2	05 AP=5	02 BD=1 MO=1	01 RP=1	18	17	780	827	- 05.7 %
Mumps	01	00	00	00	03	04	04	00	07	19	109	4137	3156	+ 31.1 %
Leishmaniasis	00	00	00	00	00	00	07 AP=5 PO=2	00	02 RP=2	09	30	1090	636	+ 71.4 %

Key to Table 1 & 2
Provinces: **W**: Western, **C**: Central, **S**: Southern, **N**: North, **E**: East, **NC**: North Central, **NW**: North Western, **U**: Uva, **Sab**: Sabaragamuwa.

DPDHS Divisions: **CB**: Colombo, **GM**: Gampaha, **KL**: Kalutara, **KD**: Kandy, **ML**: Matale, **NE**: Nuwara Eliya, **GL**: Galle, **HB**: Hambantota, **MT**: Matara, **JF**: Jaffna, **KN**: Killinochchi, **MN**: Mannar, **VA**: Vavuniya, **MU**: Mullaitivu, **BT**: Batticaloa, **AM**: Ampara, **TR**: Trincomalee, **KM**: Kalmunai, **KR**: Kurunegala, **PU**: Puttalam, **AP**: Anuradhapura, **PO**: Polonnaruwa, **BD**: Badulla, **MO**: Moneragala, **RP**: Ratnapura, **KG**: Kegalle.

Data Sources:
Weekly Return of Communicable Diseases: Diphtheria, Measles, Tetanus, Whooping Cough, Chickenpox, Meningitis, Mumps.
Special Surveillance: Acute Flaccid Paralysis.
Leishmaniasis is notifiable only after the General Circular No: 02/102/2008 issued on 23 September 2008.

Dengue Prevention and Control Health Messages

Thoroughly clean the water collecting tanks bird baths, vases and other utensils once a week to prevent dengue mosquito breeding.

Table 4: Selected notifiable diseases reported by Medical Officers of Health
24th – 30th November 2012 (48th Week)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human Rabies		Returns Received
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	%
Colombo	70	8653	0	133	0	8	0	205	10	56	0	181	0	6	0	105	0	5	8
Gampaha	69	7379	1	88	2	18	0	61	0	44	7	303	0	23	2	311	1	1	60
Kalutara	24	2634	119	223	0	5	0	52	0	28	12	279	0	4	1	35	0	2	85
Kandy	25	2326	3	125	0	4	0	25	0	58	1	78	2	118	2	131	0	0	87
Matale	10	522	6	102	0	5	0	12	0	54	1	43	0	3	1	35	0	0	58
Nuwara	5	325	2	180	0	3	0	27	0	9	1	37	0	63	0	20	0	1	69
Galle	10	1455	3	128	0	6	0	18	0	17	3	129	0	72	0	4	0	0	79
Hambantota	12	572	5	48	0	3	1	11	0	31	6	86	0	55	1	26	0	0	75
Matara	16	1735	0	107	0	8	1	20	8	39	4	194	0	80	3	140	0	0	100
Jaffna	94	707	12	236	0	14	15	361	0	83	0	3	10	273	0	18	0	1	100
Kilinochchi	0	85	2	57	0	3	0	34	0	45	0	4	0	31	0	4	0	1	50
Mannar	3	153	3	83	0	4	5	64	0	17	0	26	1	44	0	2	0	0	100
Vavuniya	3	93	4	47	0	21	1	14	0	22	0	18	0	3	0	1	0	1	100
Mullaitivu	3	28	4	34	0	1	0	14	0	3	0	3	0	5	0	1	0	0	80
Batticaloa	6	667	11	286	1	5	0	16	0	307	0	10	0	0	0	9	0	4	79
Ampara	0	144	2	92	0	3	0	6	0	13	0	27	0	0	0	3	0	0	57
Trincomalee	5	150	8	242	0	2	0	16	0	15	0	40	0	18	0	4	0	0	75
Kurunegala	50	2854	4	212	0	17	2	99	0	41	5	150	1	34	1	133	0	4	81
Puttalam	40	1517	4	103	0	9	1	14	0	12	1	41	0	16	0	6	0	2	75
Anuradhapu	4	370	1	90	0	7	0	13	0	23	1	85	0	24	0	60	0	1	63
Polonnaruw	2	240	3	79	0	2	0	4	0	125	1	50	0	3	1	45	0	1	86
Badulla	8	371	2	125	0	4	0	51	0	6	0	36	0	116	0	44	0	0	71
Monaragala	3	264	18	166	0	6	0	26	0	23	0	68	0	86	0	173	0	2	91
Ratnapura	36	3777	5	279	0	25	1	51	0	14	2	295	0	41	3	130	0	3	83
Kegalle	24	2531	0	59	0	9	0	26	0	19	3	181	0	62	8	568	0	0	82
Kalmune	0	235	2	275	0	2	0	8	0	91	0	9	0	1	0	10	0	3	46
SRI LANKA	522	39787	224	3599	03	194	27	1248	18	1195	48	2376	14	1181	23	2018	01	32	75

Source: Weekly Returns of Communicable Diseases WRCD).
***Dengue Fever / DHF** refers to Dengue Fever / Dengue Haemorrhagic Fever.
****Timely** refers to returns received on or before 30th November , 2012 Total number of reporting units 329. Number of reporting units data provided for the current week: 249
A = Cases reported during the current week. **B** = Cumulative cases for the year.

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Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiological Unit, P.O. Box 1567, Colombo or sent by E-mail to **chepid@sltnet.lk.**

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