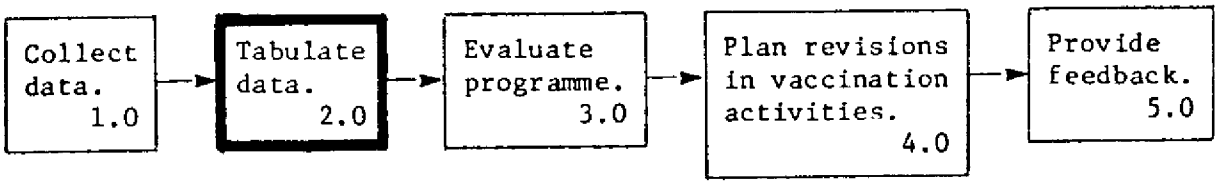


2.0 TABULATE DATA.

Collected data of any type are useless unless and until they are analyzed. Coverage evaluation information must not only be analyzed, but it must be analyzed quickly in order to serve a useful purpose. When a coverage evaluation team has finished collecting data from its 30 assigned clusters, the Household Summary Forms should be turned over immediately to the supervisor of the coverage evaluation. He will check to see that the forms are complete and accurate, and he will review the section on the Household Summary Form entitled "Vaccination Record" (Item 12) to determine which immunizations are valid (given at the correct age and at the correct interval). He will then complete the "Fully Vaccinated" section of the form (Item 13). The information should then be transferred to the Cluster Summary Form (Figure 10, page 45). The calculations of sub-totals and totals on the Cluster Summary Form are a basic part of the analysis of the collected data.

2.1 Complete the Household Summary Form (Exercise F).

The fact that a vaccination was given does not ensure that it was valid. To be effective, vaccines must be given at appropriate ages and, if the vaccination is one of a series, it must be given after an appropriate interval. Appropriate ages for vaccinations and acceptable intervals vary from country to country. They will also vary according to the vaccine. The following schedule was used in the Coastal Region:

Measles -- as soon after 9 months as possible
BCG -- any time after birth
Polio/DPT -- first shot as soon after 3 months as possible. Subsequent doses spaced at least one month apart.

In practice mothers may bring children to be vaccinated who have not quite reached the established age for a particular vaccination, and health staff may be reluctant to vaccinate such children. The risk that they may not return a few days later may be considered more serious than the risk that they will not be protected by vaccinating them when they are available. The rules established for coverage evaluation should take this practice into consideration.

In order for a vaccination to be considered valid in the Coastal Region, it must have been given within the following time limits:

Measles -- Child must have been at least 8 months and 15 days of age at time of vaccination

BCG -- Any time after birth

Polio/DPT -- Child must have been at least 2 months and 21 days of age at time of first dose. Subsequent doses must be spaced at least 28 days apart.

A person vaccinated at the wrong age should be considered not vaccinated. A second or third DPT or Polio vaccination which is given less than one month after the preceding vaccination should be considered invalid.

1. Using the corrected Household Summary Form on page 31 which you completed in Exercise E (Figure 6), *circle all shots which are not valid according to the schedule listed above.*

2. If a child has received a full series of vaccinations (there are no blank spaces and no circled vaccinations), *record a " + " in the column titled "Fully Vaccinated."*

3. If a child has <u>not</u> received a full series of vaccinations (there are blank spaces or circled vaccinations), *record a " - " in the column titled "Fully Vaccinated."*

4. After you have reviewed all vaccinations on the Household Summary Form, *add the number of "+'s" recorded in the "Fully Vaccinated" column and record the number in the space "Total Fully Vaccinated."*

5. Check your answers with the available answer sheet and discuss any differences you have with a course manager.

2.2 Complete the Cluster Summary Form (Exercise G).

To determine the number of people receiving valid vaccine in your survey of 30 clusters, you will need to transfer information from the Household Summary Forms to a Cluster Summary Form.

In this exercise you will record information on the partially-completed Cluster Summary Form on page 45 (Figure 10). You will obtain this information from the Household Summary Forms provided on pages 39, 41 & 43 (Figures 7, 8, and 9) and use it to complete the following substeps:

1. Fill in the introductory data on the Cluster Summary Form. (This has been done for you.)

2. The next step is to correct the Household Summary Forms. In Exercise F you circled all of the vaccinations which were not given at the correct time. In some instances a child may have received 2 or 3 doses of DPT and Polio and one or more of them were not valid. An example of this was child number 5, Mety Mbaye, who was born 15 January 1977, and received doses of DPT and Polio on 2 April, 5 June, and 19 September. The first dose was given too early, so the Household Summary Form should be corrected to show that the child received two valid doses instead of three. The first valid dose was received on 5 June, the second valid dose on 19 September, and the child did not receive a third valid dose.

   Figures 7, 8, and 9 are corrected Household Summary Forms.

3. On Figure 7, page 39, count the number of valid vaccinations given for each vaccine. These will be uncircled dates. Count each dose separately (DPT 1, DPT 2, DPT 3). *On the Cluster Summary Form (Figure 10) record the total number of valid shots in the "+" columns provided for each vaccine beside Cluster 1.* Since Figure 7 is a corrected form, you may assume that all uncircled dates are valid.

Next count the number of circled dates (showing invalid shots) and " 0's." *Record these totals in the " 0 " columns under each vaccine.*

Count the number of vaccination cards present. *Transfer this number to the column titled "Vaccination Cards" on the Cluster Summary Form.*

Note: In some countries, it may also be worthwhile to record information for those children who did not have vaccination cards. Results can be compared for the population with cards, and those without.

Check the total number recorded for "Fully Vaccinated" *and record the number in the last column of the Cluster Summary Form.*

Repeat this process for Household Summary Forms on pages 41 and 43 (Figures 8 and 9).

4. Determine the subtotals and totals for the Cluster Summary Form. (This has been done for you.)

When you have completed this exercise, check your answers with an available answer sheet and discuss any differences you have with a course manager.

HOUSEHOLD SUMMARY FORM

(1) Cluster Number 1

(2) Age Group Being Evaluated 12 To 17 Months

(3) Date of Interview 7/3/78

(4) Birthdate of Age Range To Be Evaluated 7/9/76 To 7/3/77

(5) Region Coastal

(6) City, Town, or Village Utaral

(7) Interviewer(s) RC Hogan

Person Number	(8) Household Number	(9) Name of Child In Age Range	(10) Birth-Date	(11) Vaccination Card (+,-)	(12) Vaccination Record (Record Date of Vaccination)								(13) Fully Vaccinated (+,-)
					BCG	Polio 1 (P_1)	Polio 2 (P_2)	Polio 3 (P_3)	DPT 1 (D_1)	DPT 2 (D_2)	DPT 3 (D_3)	Measles (M)	
1	1	Ayo Mbaye	13/12/76	+	15/12/76	16/3/77	14/5/77	30/6/77	16/3/77	14/5/77	30/6/77	30/8/77	+
2	1	ATumane Mbaye	18/2/77	-	0	0	0	0	0	0	0	0	-
3	2	Daba Kone	6/11/76	+	8/11/76	5/3/77	0	0	5/3/77	0	0	0	-
4	3	Muhammed Coulibaly	9/11/76	+	10/11/76	9/2/77	12/4/77	2/6/77	9/3/77	4/4/77	2/6/77	2/6/77	-
5	4	Abu Mbakaie	14/12/76	+	12/12/76	21/3/77	0	0	21/3/77	0	0	2/1/78	-
6	5	Balla Diallo	14/1/77	+	15/4/77	1/9/77	3/10/77	4/11/77	1/9/77	3/10/77	4/11/77	1/5/78	+
7	6	Christopher Ofosa	1/1/77	-	0	0	0	0	0	0	0	0	-
8													
9													
10													
												TOTAL FULLY VACCINATED	2

Figure 7: Worksheet for Exercise G

HOUSEHOLD SUMMARY FORM

(1) Cluster Number 2

(2) Age Group Being Evaluated 12 To 17 Months

(3) Date of Interview 15/5/78

(4) Birthdate of Age Range To Be Evaluated 15/11/76 To 15/5/77

(5) Region Coastal

(6) City, Town, or Village Muriya

(7) Interviewer(s) AN Wolfe

(8) Person Number	(8) Household Number	(9) Name of Child In Age Range	(10) Birth-Date	(11) Vaccination Card (+,-)	(12) Vaccination Record (Record Date of Vaccination) BCG	Polio 1 (P_1)	Polio 2 (P_2)	Polio 3 (P_3)	DPT 1 (D_1)	DPT 2 (D_2)	DPT 3 (D_3)	Measles (M)	(13) Fully Vaccinated (+,-)
1	1	Ijoma Kone	2/12/76	+	3/11/76	4/3/77	1/5/77	7/7/77	4/3/77	1/5/77	7/7/77	1/3/78	+
2	1	Biga Kone	2/12/76	+	3/11/76	4/3/77	1/5/77	7/7/77	4/3/77	1/5/77	7/7/77	1/3/78	+
3	2	Christopher Idris	1/3/77	+	2/3/77	10/6/77	5/8/77	0	10/6/77	5/8/77	0	0	−
4	3	Babi Nchinda	4/2/77	+	5/2/77	6/6/77	17/7/77	1/8/77	6/6/77	17/7/77	1/8/77	3/9/77	−
5	4	Chike Nchinda	1/12/76	+	2/12/76	7/4/77	19/5/77	0	7/4/77	19/5/77	1/7/77	0	−
6	5	Taure Mbaye	14/2/77	+	15/2/77	9/6/77	20/7/77	19/2/78	9/6/77	20/7/77	19/2/78	19/2/78	+
7	6	Okol Coulibaly	9/4/77	0	0	0	0	0	0	0	0	0	−
8													
9													
10													
											TOTAL FULLY VACCINATED		3

Figure 8: Worksheet for Exercise G

HOUSEHOLD SUMMARY FORM

(1) Cluster Number 3

(2) Age Group Being Evaluated 12 To 17 Months

(3) Date of Interview 15/5/78

(4) Birthdate of Age Range To Be Evaluated 15/11/76 To 15/5/77

(5) Region Coastal

(6) City, Town, or Village Hilandia

(7) Interviewer(s) A N Wolfe

Person Number	(8) Household Number	(9) Name of Child In Age Range	(10) Birth-Date	(11) Vaccination Card (+,-)	(12) Vaccination Record (Record Date of Vaccination)								(13) Fully Vaccinated (+,-)
					BCG	Polio 1 (P_1)	Polio 2 (P_2)	Polio 3 (P_3)	DPT 1 (D_1)	DPT 2 (D_2)	DPT 3 (D_3)	Measles (M)	
1	1	Musa Teru	21/1/77	+	0	21/4/77	20/5/77	0	21/4/77	20/5/77	0	1/8/78	−
2	2	Bolu Teru	19/3/77	+	0	1/7/77	9/8/77	2/10/77	1/7/77	9/8/77	2/10/77	1/11/77	−
3	3	Joshua Abbas	10/2/77	+	11/2/77	13/5/77	19/6/77	2/8/77	13/5/77	19/6/77	2/8/77	1/12/77	+
4	4	Obanu Lasiso	19/11/76	+	10/11/77	9/3/77	12/4/77	2/6/77	9/3/77	12/4/77	2/6/77	2/6/77	−
5	5	Abu Saradago	12/12/76	+	13/12/76	0	0	0	0	0	0	2/1/78	−
6	6	Fatuma Kestapha	14/4/77	+	15/4/77	1/9/77	3/10/77	12/11/77	1/9/77	3/10/77	12/11/77	1/5/78	+
7	7	Atumane Kone	1/1/77	+	2/1/77	4/4/77	1/6/77	9/7/77	4/4/77	1/6/77	9/7/77	5/10/77	+
8													
9													
10													
												TOTAL FULLY VACCINATED	3

Figure 9: Worksheet for Exercise G

CLUSTER SUMMARY FORM

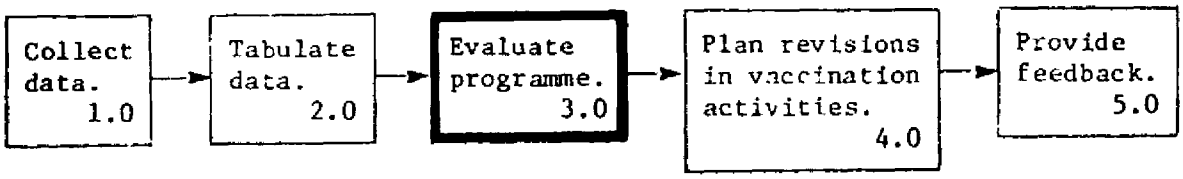
(Summary of Vaccination Status for all children falling in the Age group being evaluated for all 30 clusters in the sample)

(1) Age Group Being Evaluated: 12 to 17 months

(2) Date: 15/5/78 (3) Region: Coastal

Cluster Number	Vaccination Cards	BCG		Polio 1		Polio 2		Polio 3		DPT 1		DPT 2		DPT 3		Measles		Fully Vaccinated
		0	+	0	+	0	+	0	+	0	+	0	+	0	+	0	+	
1																		
2																		
3																		
4	6	2	5	2	5	3	4	3	4	2	5	3	4	4	3	2	5	3
5	6	2	6	3	5	4	4	4	4	3	5	3	5	5	3	3	5	3
6	7	1	6	1	6	2	5	3	4	1	6	3	4	3	4	1	6	4
7	6	2	5	3	4	3	3	5	2	3	4	4	3	5	2	3	3	2
8	6	2	6	3	5	3	5	3	5	3	5	5	3	5	3	4	4	3
9	5	2	5	2	5	4	3	5	2	1	6	2	5	4	3	2	5	2
10	6	1	6	1	6	3	4	3	2	1	6	1	6	2	5	1	6	2
11	6	1	6	2	5	2	5	3	4	2	5	3	4	4	3	3	5	3
12	5	2	5	2	5	3	4	3	4	2	5	4	3	4	3	3	5	3
13	7	1	6	3	4	4	3	5	3	4	3	5	2	6	1	3	4	1
14	6	2	6	3	5	3	5	5	3	3	5	3	5	3	5	4	4	3
15	7	1	6	1	6	1	6	2	5	1	6	1	6	2	5	1	6	5
16	7	0	7	2	5	3	4	4	3	2	5	3	4	4	3	2	5	3
17	4	2	4	1	5	2	4	3	3	2	4	3	3	5	1	2	4	1
18	6	1	6	2	5	3	4	3	3	1	6	4	2	4	3	2	5	3
19	5	2	5	2	5	2	5	3	4	2	5	2	5	1	4	3	4	4
20	4	3	4	4	3	4	3	5	2	4	3	5	2	7	0	3	4	0
21	6	1	6	2	5	3	4	3	4	2	5	3	4	3	4	3	5	4
22	6	2	5	3	4	4	3	4	3	4	3	5	2	6	1	4	3	1
23	7	0	7	1	6	2	5	3	4	1	6	3	4	4	3	4	5	3
24	6	2	5	3	4	4	3	5	2	3	4	3	4	4	3	3	4	2
25	5	2	5	3	4	3	4	4	3	3	4	4	3	4	3	2	5	3
26	7	1	6	1	6	3	4	3	4	1	6	2	5	3	4	1	6	4
27	7	2	6	3	5	4	4	5	3	3	5	3	5	5	3	4	4	2
28	5	2	5	3	4	3	4	3	4	3	4	4	3	4	3	2	5	3
29	7	1	7	3	6	4	4	5	3	3	6	2	6	3	5	3	5	3
30	6	2	5	2	5	3	4	4	3	3	4	3	4	3	4	2	5	3
Sub-Total	X	47	167	64	150	88	126	113	101	66	148	92	122	118	96	75	139	X
Total	179	214		214		214		214		214		214		214		214		81

Figure 10: Worksheet for Exercise G



3.0 EVALUATE PROGRAMME.

The purpose of collecting and analyzing vaccination coverage data is to make possible an evaluation of the extent to which vaccination programme coverage objectives are being achieved. Is the target age group being reached? What is the vaccination coverage of the target age group? Are people outside the target age group being vaccinated? These are some of the questions that any vaccination programme must be able to answer. A coverage evaluation provides a means of answering these questions.

3.1 Evaluate the Extent of Achievement of Programme Vaccination Objectives (Exercise H).

Completion of the Programme Coverage Evaluation Form on page 42 (Figure 11) will provide an evaluation of the extent to which the vaccination target age group for a specified geographical area has been fully vaccinated according to age. Read the guidelines below and complete the practice exercise.

Evaluate the extent of achievement of programme vaccination activities by transferring the completed data from Figure 10, page 45, to the appropriate space on Figure 11, page 51.

1. *Complete the introductory data on Figure 11.*
2. *List on Figure 11 (under column 1, "Dose") each vaccine for which Programme coverage is being evaluated.* Record doses separately (DPT 1, DPT 2, etc.). *Also list "Fully Vaccinated" as the last item in column 1.*
3. For each dose listed under column 1, *list under column 2 ("Objective for Percent Vaccination Coverage") the percent vaccination coverage that was expected according to*

the programme objective. For this exercise, assume that the vaccination coverage objective has been set at 80% for BCG and Measles, 80% for DPT 1 and Polio 1, 75% for DPT 2 and Polio 2, and 70% for DPT 3 and Polio 3. You may assume a 70% vaccination coverage objective for "Fully Vaccinated" children.

4. For each of the doses listed under column (1), utilize the subtotals ("+" and "0") from the Cluster Summary Form to determine the percent vaccination coverage achieved, and *enter these percents under column (3),* "Percent Vaccination Coverage Achieved." This determination can be made by using the formula below:

$\frac{\text{Subtotal "+"}}{\text{Total of "+" and "0"}}$	=	Percent Vaccination Coverage for the Disease

For example, if the subtotal "+" for Measles = 160 and the total of "+" and "0" for Measles = 210

$$\frac{160}{210} = .76 \text{ or } 76\% \text{ Vaccination Coverage for Measles.}$$

The coverage for "Fully Vaccinated" is simply the number of children fully vaccinated divided by the number of children surveyed. Remember that for this exercise 30 clusters each containing at least seven children were surveyed. In this example 214 children were surveyed.

5. For each of the doses listed under column (1), write in the "Difference" between the vaccination objective, column (2), and the vaccination coverage, column (3).

Vaccination Objective	−	Vaccination Coverage	=	Vaccination Difference

Note: Coverage evaluation should be conducted at least annually. It is particularly important to conduct coverage evaluation quickly after vaccination if the population is a migratory one, if weather

conditions might make evaluation impossible later, or if there is a suspicion that the population may lose their vaccination cards.

Is the programme in the coastal region achieving its vaccination coverage objectives? How would you judge the vaccination coverage performance in the coastal region? Good? Bad? Discuss your evaluation with your course manager.

3.2 Evaluate the vaccination status of people not in the target age group.

As a vaccination programme becomes more firmly established, it may be desirable to measure the vaccination status of people younger or older than the target age group. This will enable an evaluation of the extent to which vaccination teams are vaccinating only the target age group. In principle, the procedures to be followed for such an evaluation will be the same as the procedures outlined above for the evaluation of the target age group. The fewer children vaccinated who are outside of the target age group, the better. It can be assumed that children younger than the target age group will frequently have maternal antibodies and that the vaccination will not be effective. Children older than the target age group may be immune from an earlier immunization or the natural occurrence of disease.

PROGRAMME COVERAGE EVALUATION FORM

REGION _____

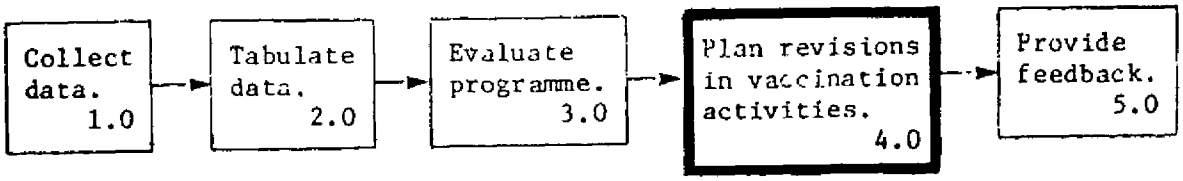
AGE GROUP BEING EVALUATED _____ TO _____ MONTHS

MONTH: _____

YEAR: _____

(1) DOSE	(2) OBJECTIVE FOR PERCENT VACCINATION COVERAGE	(3) PERCENT VACCINATION COVERAGE ACHIEVED	(4) DIFFERENCE

Figure 11: Worksheet for Exercise H.

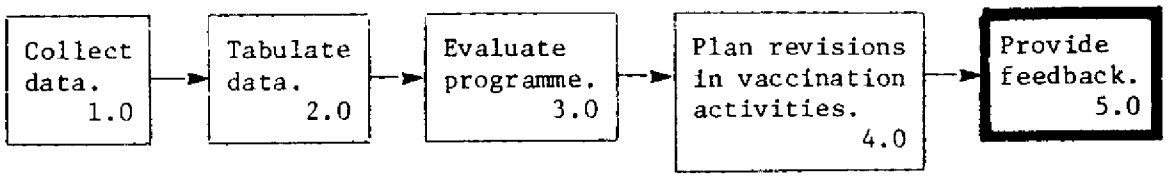


4.0 PLAN REVISIONS IN VACCINATION ACTIVITIES.

Knowledge gained from programme evaluation (Step 3.0) should be used when engaging in further planning of vaccination activities. Evaluation will help identify problems which should be corrected through carefully planned revisions in the vaccination activities. Planning should be a continual process and should be based on (1) the extent to which objectives are not being achieved and an analysis of the underlying reasons for this, (2) the extent to which objectives are being achieved and an analysis of the underlying reasons for this, and (3) the extent to which programme data are not complete, accurate, timely, or utilized.

For example, if a coverage objective of 80% was established and evaluation showed 75% coverage, we could conclude that no major modifications were needed and that a slightly greater effort might well bring the programme to its goal. If evaluation showed only 30% coverage, however, either some major changes would have to be made in activities or objectives would have to be significantly reduced.

Coverage evaluation should be reported to higher levels so that staff at those levels can help in developing improved plans.



5.0 PROVIDE FEEDBACK.

Staff responsible for vaccination activities should be provided with planning feedback as existing plans are revised or new plans are developed. Feedback should be provided within one month of plan completion and, if possible, should be presented together with programme evaluation results. Feedback can be provided in two forms: (1) meetings, and (2) newsletters.

5.1 Provide feedback via meetings.

While newsletters should serve as an ordered, regular means of providing feedback to programme staff, feedback via newsletters will need to be supplemented from time to time by feedback via meetings. The appropriate timing for providing feedback via meetings is best judged by senior programme staff. One time that would certainly be appropriate would be after a new or revised plan has been adopted. It would then be necessary for senior programme staff to meet with programme staff and other appropriate individuals or organizations in order to explain the new or revised plans and the reasons for their adoption.

Meetings should not be held only for the benefit of senior or mid-level staff. In vaccination programmes particularly, it is the basic level workers who are most often asked to work the hardest and who are most affected by programme changes. These staff in particular must be made to feel that they are an important part of the programme. Special efforts by senior programme staff to meet with basic level workers will do much to serve this purpose.

Also, a meeting is not a meeting if the communication is only one way. Facts and reasoning presented must also be discussed with those attending the meeting. Questions should be invited, and those in attendance should be allowed to have their say.

Finally, at the end of the meeting, those in attendance should be provided with a written copy of the points presented during the meeting.

5.2 Provide feedback via newsletters.

Newsletters should ideally combine as many different kinds of related feedback as is practical. For instance, it is generally useful to have vaccination coverage evaluation data and surveillance data presented in the same newsletter. It is uneconomical to have a different newsletter for each kind of feedback. Furthermore, related feedback of several kinds will make a more interesting and informative newsletter.

If programme resources will not permit monthly newsletters, newsletters at less frequent but regular intervals (for example, quarterly) will do. The point is to establish a feedback system that programme staff and other appropriate and interested individuals can expect to receive at regular intervals.

ANNEX

FORMS USED FOR EVALUATION OF VACCINATION COVERAGE

HOUSEHOLD SUMMARY FORM

(1) Cluster Number _____

(2) Age Group Being Evaluated _____ To _____ Months

(3) Date of Interview _____

(4) Birthdate of Age Range To Be Evaluated _____ To _____

(5) Region _____

(6) City, Town, or Village _____

(7) Interviewer(s) _____

(8) Person Number	(8) Household Number	(9) Name of Child In Age Range	(10) Birth-Date	(11) Vaccination Card (+,-)	(12) Vaccination Record (Record Date of Vaccination)								(13) Fully Vaccinated(+,-)
					BCG	Polio 1 (P_1)	Polio 2 (P_2)	Polio 3 (P_3)	DPT 1 (D_1)	DPT 2 (D_2)	DPT 3 (D_3)	Measles (M)	
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
												TOTAL FULLY VACCINATED	

CLUSTER SUMMARY FORM

(Summary of Vaccination Status for all children falling in the Age group being evaluated for all 30 clusters in the sample)

(1) Age Group Being Evaluated: _____ to _____ months

(2) Date. _____ (3) Region: _____

Cluster Number	Vaccination Cards	BCG		Polio 1		Polio 2		Polio 3		DPT 1		DPT 2		DPT 3		Measles		Fully Vaccinated
		0	+	0	+	0	+	0	+	0	+	0	+	0	+	0	+	
1																		
2																		
3																		
4																		
5																		
6																		
7																		
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25																		
26																		
27																		
28																		
29																		
30																		
Sub-Total																		
Total																		

PROGRAMME COVERAGE EVALUATION FORM

REGION _____

AGE GROUP BEING EVALUATED _____ TO _____ MONTHS

MONTH: _____

YEAR: _____

(1) DOSE	(2) OBJECTIVE FOR PERCENT VACCINATION COVERAGE	(3) PERCENT VACCINATION COVERAGE ACHIEVED	(4) DIFFERENCE

Glossary

cluster - group that is surveyed; for the purposes of evaluating vaccination coverage, a cluster is defined as 7 or more children in the age range being evaluated

cluster sampling technique - use of surveys in 30 areas to determine vaccination status of a cluster of children (7 or more) in each area. Areas and children are selected randomly.

coverage evaluation survey - random survey of small number of individuals to determine their vaccination status. When done correctly, results can be considered representative of a much larger area which is included in the vaccination programme.

morbidity - sickness

mortality - death

random number - a number selected by chance

target population - group of individuals who are to be included in the vaccination programme based on their age and the area in which they live

vaccination coverage - proportion of individuals vaccinated to individuals in the target population

vaccination coverage objective - proportion or number of individuals in the target population who are to be vaccinated with specified vaccines in a given time period

WORLD HEALTH ORGANIZATION
IN COOPERATION WITH
DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
CENTER FOR DISEASE CONTROL