7 Monitoring and using your data

About this module…

This module discusses how to collect and report data, and how to monitor your performance using your own data. It also shows how you can improve the performance of your service by identifying and solving problems, and incorporating the solutions as activities in your workplan. Many of the topics covered in monitoring relate closely to planning topics in Module 5.

This module covers the following topics:

1. Basic recording tools: immunization register, immunization card, tally sheet, systems for tracking defaulters.
2. Making summary reports: monthly reporting at health facility level.
3. Monitoring your performance
   - making and using a monitoring chart
   - compiling your immunization data
   - analysing your data.
4. Using your data to identify problems, propose solutions and take corrective action according to your priorities.

Contents

1 Basic recording tools

Every health facility needs a system of recording immunization data. Making records systematically and regularly after each session will help you to follow up on defaulters and solve other problems.

The main recording tools that each health facility must use are:

1. Immunization register
2. Vaccination card
3. Tally sheets
4. Reminder files or another system for tracking defaulters.

1.1 Immunization register

The immunization register helps health workers keep track of the immunization services they offer to each infant and to pregnant women. Your health facility can either have two separate registers, one for recording infant immunizations (Figure 7A) and another for recording TT given to women (Figure 7B), or one register to record both infant immunizations and TT given to women (Annex 1).

What to include in the register

A register should include the following information, as well as any information required by your health facility:

- a unique identification number
- registration date (usually the date of the first visit)
- name of infant
- infant's birth date
- infant's sex
- name and address of mother/parent
- vaccinations provided and vitamin A supplementation
- TT vaccination provided to pregnant women (depending on country policy)
- whether infant was Protected at Birth (PAB) for neonatal tetanus (see Annex 2 for details).

The immunization register can also be used like a birth register. As soon as an infant is born in the community its name can be entered in the register even before the infant has received any vaccines. This will help to follow up on all members in the community.

Figure 7A: Sample immunization register for infants

Village: _____

Name of health facility: _____

No.	Registration date[a]	Name of infant	DOB[b]	Sex	Name of mother/ parent	Address	Vaccinations (dates, day/month/year)													PAB[c] Y/N	Remarks
							BCG	OPV				DTP			HepB				Measles	Vit. A		
								0	1	2	3	1	2	3	0	1	2	3				Completed/ died/moved

[a] Usually date of first visit [b] DOB: Date of birth [c] Protected at birth from Neonatal Tetanus

Figure 7B: Sample register for recording TT given to women

No.	Registration date	Date of visit	Name	DOB/age	Address	Pregnancy number	LMP	TT1	TT2	TT3	TT4	TT5[a]
2345	3.3.03	3.3.03	Maria Mali	30	Main Street, Villetown	4	30.12.02	✓	✓	✓	3.3.03	
2346	3.3.03	3.3.03	Fatima Togo	Jan-83	Side Street, Tree Village	2	1.11.02	✓	3.3.03			
2347	3.3.03	3.3.03	Jihmil Singht	25	Harbour Place, Tree Village	2	15.10.02	5.1.01	15.3.01	3.3.03		

[a] Write dates. If no dates are available for previous doses, ask how many doses were received earlier and place a tick under all such doses.

Figure 7C: Same infant identification number on both register and vaccination card

Village: _____

Name of health facility: _____

No.	Registration date	Name of infant	DOB*	Sex	Name of mother/ parent	Address	Vaccinations (dates, day/month/year)												PAB Y/N	Remarks
							BCG	OPV				DTP			HepB				Measles	Vit. A		Completed/ died/moved
								0	1	2	3	1	2	3	0	1	2	3				
11A		Uli	2/03/03	F																		

Vaccination card

No: 11A

Child's name: Uli

Sex: F

DOB: 2/03/2003

Mother's name: Feli

Address: 53 Timor Road

Vaccine	Dose (enter date given)		
	1	2	3
BCG	5/12/02		
Polio	16/12/03		
DTP	16/1/03		
Measles			

Note: Additional columns can be added

* DOB = Date of birth

How to use the register

You must register infants and pregnant women as soon as they arrive at the health facility or outreach site. Fill in all information except the space provided for vaccinations. This space should be completed after the vaccinations are provided.

It is recommended to have a unique identification number on the register for each infant and use the same number on the vaccination card. This way, for the next immunization, it will be very easy to locate the infant's entry on the register (Figure 7C).

Do not create a new entry in the register each time the mother brings the infant for immunization. Ask the mother for the immunization card and look for a corresponding entry in the register. If the immunization card is not available, ask the mother the age of her infant and details of the first immunization to locate the infant's entry in the register.

For every new infant (never immunized) create a new entry in the register and create a new immunization card. For an infant who has come to your health facility for the first time but has received immunizations in another health facility, create a new entry in the register, ask for the immunization card and mark on the register immunizations that the infant has already received.

1.2 The immunization card

The infant immunization card contains the immunization history and status. The immunization card is important for many reasons:

- It serves as a reminder for parents to return to the clinic for the next dose.
- It helps the health worker determine an infant's immunization and vitamin A status.
- It is useful when health workers conduct coverage surveys.

The card may be the only record of immunization history and status available for health workers if immunization registers are not well maintained or if clients move from one health facility to another.

Each infant should have a card with immunizations marked correctly. Similarly, a separate card should be made for each woman having received TT vaccine. Even when a mother's TT doses are marked on the infant's card, there is still a need to issue a separate card for the mother (see Annex 1 for sample TT card).

What information an immunization card should include

An immunization card may be a separate document or part of a general infant health card (e.g. "Road to Health Card"). At a minimum, it should include (Figure 7D):

- a unique identification number
- name of infant
- infant's birth date

- infant's sex
- name and address of mother
- date of each vaccination by dose and vitamin A supplementation
- TT vaccination provided to the mother[1] (optional)
- infant protection at birth from neonatal tetanus (PAB)
- due date for next immunization
- country immunization schedule (optional)
- growth monitoring chart (optional).

The vaccination card should be kept by the parents of the infant.

How to use the infant immunization card

Complete the card by writing down the date for each vaccine administered or vitamin A supplement given. Include doses of TT given to the mother if she is eligible for a dose.

Mark the next appointment date on the card and tell the mother when and where to return for the next dose of the vaccine.

Remember to mark on the immunization card the next appointment date. Make sure that the appointment corresponds to a planned immunization session. Remind the mother verbally as well as by writing on the card. Always return the card to the mother.

[1] A woman should receive no more than five doses of TT (see Module 2, Section 5). Each dose of TT should be recorded separately as TT1, TT2, TT3, TT4, TT5. Always screen women first (see Module 6, Section 2 and 4) before giving a TT dose. TT doses should be recorded on an immunization card, regardless of whether the dose was given during routine immunizations or SIA's.

Figure 7D: Sample infant immunization card

Card number:

INFANT IMMUNIZATION CARD

NAME OF INFANT:

FEMALE OR MALE:

BIRTH DATE OF INFANT (DAY/MONTH/YEAR):

NAME OF MOTHER:

NAME OF FATHER:

ADDRESS:

Vaccine / Date given

BCG

DTP1

DTP2

DTP3

OPV0

OPV1

OPV2

OPV3

MEASLES

VITAMIN A

HEPB0

HEPB1

HEPB2

HEPB3

Mother

TETANUS 1

TETANUS 2

TETANUS 3

TETANUS 4

TETANUS 5

WAS THE INFANT PROTECTED AT BIRTH? [a] YES / NO

Next appointments (date):

National schedule (example)

Vaccine	Age				
	Birth	6 weeks	10 weeks	14 weeks	9 months
BCG	x				
Oral Polio	x[b]	x	x	x	
DTP		x	x	x	
HepB	x[b]	x	x	x	
Measles					x

Notes

[a] Ask this question at the DTP1 contact (see Annex 2 for details)

[b] Birth doses of OPV and HepB are given in some countries

1.3 Tally sheets

Tally sheets are forms on which health workers make a mark every time they administer a dose of vaccine. These are used as a basis for monitoring and reporting. Use a new tally sheet for each session. The same tally sheet can be used to mark both vaccines given to infants as well as vaccines given to pregnant women (Figure 7E).

After you have immunized an infant, record the immunization in the register and on the immunization card and inform the mother which doses were given (see Module 6 for more on communicating during a session). On the tally sheet, place a mark next to the dose received (there are various ways of making tally marks, for example: 𝍸, 𝍸). If the infant is younger than 12 months old, place the mark in the column headed "Children under one year of age". If the child is older, place the mark in the adjacent column.

If a dose of vitamin A is given to the infant, also mark it on the tally sheet. A separate sheet should be kept for vitamin A given to postpartum mothers.

Record doses of tetanus toxoid given to women

1. If tetanus toxoid is given routinely to all women of childbearing age in your country, ask every woman for her immunization card.
2. If TT is given only to pregnant women in your country, ask each pregnant woman for her immunization card during her first antenatal or any other visit.
3. After immunizing any woman, pregnant or not, record the immunization in the register and on the woman's immunization card and mark in the correct column of the tally sheet. Rely on history to tally the dose (if no card is available). For example, if a woman says she has received three doses in the past, tally the new dose as TT4, issue a new card for the woman (Annex 1), and mark the card with the date of TT4.

Complete the tally sheet at the end of a session

At the end of each immunization session, total the number of marks recorded during the session. This tells you the number of immunizations you have given with each vaccine and each dose. You will use this information to monitor your performance and prepare a monthly report. Keep the tally sheet for the supervisor to check the data quality (accuracy of reporting).

Table 7.1: Common mistakes in tallying

Mistake in tallying	Possible problem that may occur	Correct practice
Tallying before the vaccine is administered	The child may not receive the vaccine	Give the dose first then tally using the tally sheet
Tallying at the end of a session according to number of doses contained in the used vials	"Wasted" doses may be counted	Tally each dose given (as above)
Tallying all vaccines under one age group (to include those outside the targeted age)	Will result in inaccurate coverage data	Separate tally for under 1 and over 1 year old

Figure 7E: Sample tally sheet

Name of health facility:	**Date of session:**
Fixed – Name of site:	**Outreach/Mobile – Name of site:**

Children	**Less than 1 year**		**More than 1 year**	
VACCINE	TALLY	TOTAL	TALLY	TOTAL
BCG				
DTP1				
DTP2				
DTP3				
OPV0				
OPV1				
OPV2				
OPV3				
Measles				
Vit. A				
HepB0				
HepB1				
HepB2				
HepB3				
Protected at Birth (ask at DTP1)	YES		NO	
	TALLY	TOTAL	TALLY	TOTAL
Women	**Pregnant women**		**Non pregnant women**	
	TALLY	TOTAL	TALLY	TOTAL
TT1				
TT2				
TT3				
TT4				
TT5				
TOTAL TT				
TOTAL TT2+TT3+TT4+TT5				

Names of staff	

1.4 Systems for tracking defaulters

There are many ways to monitor and follow up on defaulters. Here are two tracking systems that can easily be used.

1.4.1 Using the immunization register

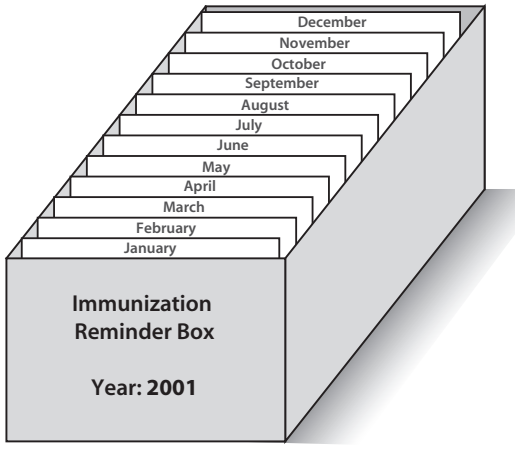
At the end of each month, review the immunization register (see Figure 7A of this module) to identify infants who may have failed to receive doses of vaccine when due. For example, if an infant received its DTP1 dose in February check to see whether he/she received DTP2 in March when the dose was due. The register can also be used to track TT defaulters.

1.4.2 "Reminder" cards

Another way to identify "dropouts" is to make "reminder" cards, which are copies of infant's immunization cards. File the copy of the immunization card in a box behind the divider for the month when the infant's *next* vaccination is due, as in Figure 7F.

When an infant receives DTP1 in January, place the reminder card in the February section, the month when DTP2 is due. In February, if the infant attends when due for DTP2, update the reminder card and place it in the March section when DTP3 is due. Every month, review the reminder cards and follow up those who did not attend when due. Ensure that the TT immunization status of pregnant women is included in the antenatal clinic tracking system. When TT immunizations are given to pregnant women outside of antenatal clinics, reminder cards can be used to ensure that pregnant women get the second dose (if it is the first pregnancy).

Figure 7F: Box for filing "reminder" cards



1.4.3 Following up defaulters

Whatever system you use, it will only be effective if you then make sure that every infant receives the vaccinations that are overdue. If you track defaulters regularly every month it will make the task of follow-up easier. To follow up defaulters you may be able to contact the mothers directly or ask members of the community to help you.

Module 8 describes ways of working with the community. For example you may be able to give a list of infants and mothers to a community leader or immunization volunteer who can then advise mothers to return for the vaccine doses that are due.

2 Making summary reports

The immunization data collected needs to be consolidated into a summary form, either manually or electronically, for transmission from the health facility to the district level. The district compiles data for use by and transmission to the next level, and eventually to central level. At each level the data should be analysed and used to improve the programme (see Section 3). The format of the summary report should be defined at district/national level and should be standard for all health facilities. An example of such a report is given in Table 7.2.

You need to send a copy of the report with date and signatures to the next level but also store (see Section 2.3) a copy of the report for use at the health facility.

2.1 Preparing good reports

Health workers should ensure that the reports prepared are:

- **Complete**: All the sections of the reports have been completed; no parts have been left blank and all reports due from reporting sites have been received.
- **Timely**: Check the deadline for report submission. Reports should be submitted to the next level before the deadline. When reports are sent and received on time, the possibility of a prompt and effective response is greater.
- **Accurate**: Before sending the reports, double-check totals and all calculations. Make sure that the reported figures correspond to the actual figures.

The district, province, national levels should keep track of the completeness and timeliness of reporting by the more peripheral level, and remind those levels of missing or late reports.

2.2 What to include in the summary report from the health facility (see Table 7.2)

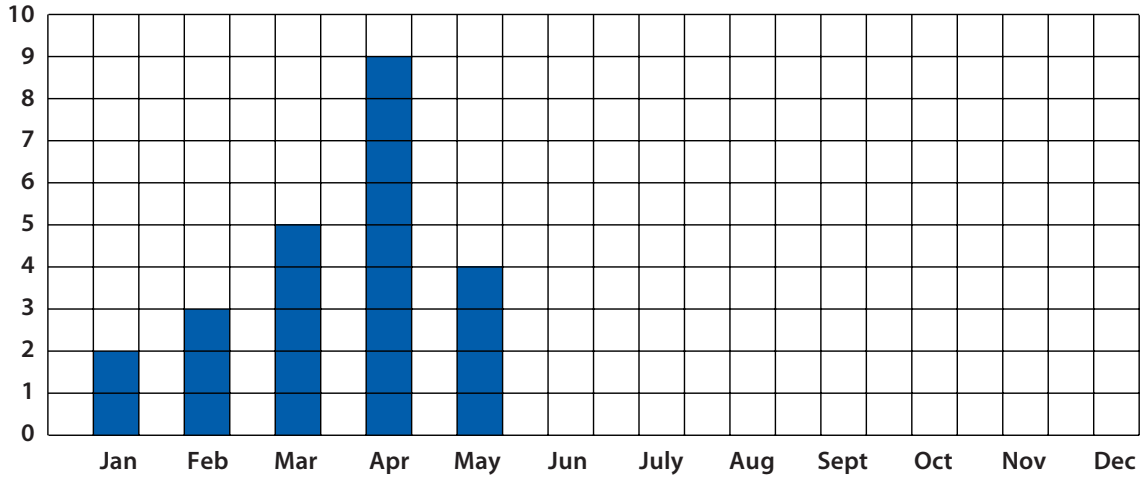
1. **Reporting on vaccinations given to infants and women and vitamin A**

   Data collected on the tally sheets needs to be consolidated into a summary form, either manually or electronically, for transmission from the health facility to the district level. Section 3 explains how these data can be presented in a chart.

2. **Reporting on vaccine-preventable diseases in your area**

   State the number of cases of each vaccine-preventable disease and the immunization status of each case. These can be displayed in each facility on a simple chart (Figure 7G). Even if there are no cases of a disease during the reporting period, you should still provide a 'zero' report in Table 7.2.

Figure 7G: Chart showing the number of measles cases reported per month (= one case)



3. Reporting on any adverse reactions following immunization

If there have been any adverse reactions during the month, details may be provided to the next level according to the AEFI system in your country. Serious events should be reported immediately. Serious events are defined as:

- those that are **life threatening** and
- those that result in **hospitalization** (or prolonged hospitalization)
- those that result in **disability** (or have the potential to result in disability)
- or death.

4. Reporting vaccine usage and wastage patterns

The usage and wastage of vaccine will vary greatly from one session to another. However it is useful to monitor wastage and usage patterns regularly at all immunization points to improve supply and avoid stockouts. This can be done by recording vaccine vial start and end balances, and vials received each month, as in Table 7.2. This information can be compiled at the district level, where the following calculation can be made.

$$\text{Vaccine usage (rate)} = \frac{\text{Number of infants immunized during the period}}{\{\text{Number of usable doses at beginning of period}\} + \{\text{Number of doses received during period}\} - \{\text{Number of usable doses in stock at end of period}\}} \times 100$$

Vaccine wastage rate = 100 *minus* vaccine usage rate

5. Any specific problems encountered during the reporting period (e.g. stock-outs, transportation problems, cold chain failure etc.)

This is an opportunity to report supply problems and record supervisory visits.

6. **Additional information (this will vary according to national policies), for example:**
   - the sex of infants immunized (M/F) and the sex of disease cases;
   - other interventions during immunization sessions, e.g. provision of mebendazole, antimalarials;
   - campaign activities during the reporting period.

2.3 Storing data and reports

For purposes of verification and also retrieval whenever needed, data must be stored at all the different levels. Storage of data can be done in hard copies or electronically. At the health facility, tally sheets, registers and reports should be stored for a specific period, on average three years, depending upon the national standard operating procedures. Higher administrative levels may use computers, however it is important that back-ups (hard copies and/or electronic copies) be available to avoid the loss of data in the case of system failure.

Stored records are useful for supervisory visits and immunization service reviews.

The following types of data should be stored at each health facility for a period of *three years*:

1. Immunization registers
2. Copies of vaccination cards (if applicable)
3. Tally sheets
4. Reminder files or another system of tracking defaulters
5. Copies of monthly reports
6. Target population data
7. Immunization monitoring charts
8. Case/outbreak charts and reports
9. Supervisory visit reports
10. Stock card
11. Cold chain maintenance records.

Important note:

Data collection is only useful if the data are regularly analysed and the result of the analysis is used to improve service delivery. Data analysed is the responsibility not only of supervisory levels, but also that of health workers.

The following sections will guide you through the most common ways to analyse the data at health facility and higher administrative levels.

Table 7.2: Sample monthly report at health facility level

NAME OF HEALTH FACILITY:	INFANT POPULATION:	DISTRICT:	MONTH/YEAR:	SESSIONS PLANNED:	SESSIONS HELD:

NO.	DATE	PLACE OF SESSION	SESSION TYPE [a]	VACCINATION AND VITAMIN A GIVEN TO CHILDREN **UNDER 1**															VACCINATION AND VITAMIN A GIVEN TO CHILDREN **ABOVE 1**												INFANTS PROTECTED AT BIRTH FROM NT
				BCG	DTP			OPV				HEP B				MEASLES	VIT A	OTHERS	BCG	DTP			OPV			HEP B			MEASLES	VIT A	OTHERS	
					1	2	3	0	1	2	3	0	1	2	3					1	2	3	1	2	3	1	2	3				
1																															
2																															
3																															
4																															
5																															
6																															
TOTAL																															

[a] Session type: Fixed, Outreach, Mobile

NO.	DATE	PLACE OF SESSION	SESSION TYPE	VACCINATION GIVEN TO PREGNANT WOMEN		VACCINATION GIVEN TO NON-PREGNANT WOMEN	
				TT1	TT2+ [b]	TT1	TT2+ [b]
1							
2							
3							
4							
5							
6							
TOTAL							

[b] TT2+ = TT2 + TT3 + TT4 + TT5

Table 7.2 (continued): Sample monthly report at health facility level (reverse side)

Compiled Vaccine preventable diseases report

Target Diseases	Total	Age			Sex		Status of vaccination					No. of Deaths
		<1 year	1–4 yrs.	5+ yrs.	M	F	Doses				Unknown	
							0	1	2	3		
Measles												
Polio/AFP												
Diphtheria												
Pertussis												
Neonatal Tetanus												
Other Tetanus												
Other diseases[a]												

Vaccines/AD syringes/Vit. A/ Safety boxes balances

Item (enter vial size)	Start[b] balance	Received[b]	End[b] balance
BCG			
Measles			
DTP			
OPV			
TT			
HEP B			
Others (Vit A., YF)			
AD syringes (BCG)			
AD syringes (others)			
Safety boxes			

Adverse events following immunization (AEFI)[c] (report serious events immediately to your supervisor for further investigation)

Type of event	No. of cases
Serious Events (A)	
Non-serious events (B)	
Total AEFI (A+B)	
Additional comments (if any):	

Notable activities during the reporting period (supervisory visits, training events, social mobilization activities etc.)

Date of report: _____

Name of reporter: _____

Designation: _____

Signature: _____

[a] Other vaccine preventable diseases: Yellow fever, JE etc. according to region

[b] Count the number of vials and multiply by doses per vial to give the number of doses

[c] List of adverse events would vary depending on country policy. Serious adverse events especially death should be reported immediately

3 Monitoring your performance

Data collected (Section 1) and compiled (Section 2) are only useful if they are used to improve the programme performance.

Section 3 will guide you through some common ways to use the data at all levels.

3.1 Making and using charts to monitor vaccination coverage

A monitoring chart which shows doses administered and dropout rates is a simple, effective tool for monitoring progress. The monitoring chart:

- graphically shows doses given compared to the number of infants eligible to receive them;
- graphically shows dropout rates, by comparing the number of infants that started receiving immunizations to the number of infants who received all needed doses of vaccines.

Every health facility should display a current monitoring chart on the wall, where it can be seen by all staff every day. This chart can be used at every level, national, provincial, district etc. The principles are the same.

Figure 7H shows a worked example of a monitoring chart. Annex 3 contains a blank monitoring chart.

3.1.1 How to prepare the chart for monitoring doses administered and dropouts in infants less than one year of age

This chart has been developed to track the monthly progress you are making towards immunizing infants under one year of age each month and throughout the year. It also helps you to determine whether your target population is completing the series of vaccines (e.g. DTP3) or dropping out.

1. Calculate the annual and monthly target population to receive immunization services

a) Annual target population

You should aim to reach every infant in your catchment area, especially those who are hard to reach. Use existing population figures for infants under one year of age obtained from official census data or your own community census. If you do not have these numbers, obtain an estimate by multiplying the total population times 4%. This document uses 4% as the estimated percentage of infants less than one year of age and of pregnant women in a population. If you have a more precise percentage for your country or region, use this number

instead (If the total population is 3900 then infants under one year would be 3900 x 4/100 = 156).

b) Monthly target

To get a monthly target population, divide the number of infants under one year of age by 12 (If annual target under one year is 156, monthly target is 156/12 = 13).

2. Label the chart

Complete the information on the top of the chart, i.e. area and year. Label the left and right side of the chart with the monthly target figures. Label the boxes at the bottom with the name of the vaccine and dose, e.g. DTP1 and measles, or DTP1 and DTP3, as shown in Figure 7H.

3. Draw a diagonal line from zero to the top right-hand corner to show the ideal rate of progress if every infant is immunized on time.

4. Plot immunization data on the chart.

The chart can be used to monitor doses given and dropout rates. Figure 7H uses DTP1 and DTP3, but other rates can be used (e.g. DTP1 and measles).

a) Locate the row of boxes underneath the graph. Locate the spaces for the month you are recording. Enter the monthly total of DTP1 immunization given.

b) Add the current month's total to the previous cumulative total to calculate the current cumulative total and enter it on the right side of the month column you are recording.

c) Make a dot on the graph for the cumulative[2] total recorded on the right side of the month column you are recording.

d) Connect the new dot to the previous month's dot with a straight line.

e) Repeat above (a to d) every month until the end of the year.

f) Plot DTP3 immunizations given in the same way as DTP1 (follow steps a to e).

5. Calculate the total number of dropouts between DTP1 and DTP3 (DO#).

– Subtract the cumulative total for DTP3 from the cumulative total for DTP1.

6. Calculate the cumulative dropout rate (DO%) as follows:

$$\text{DO\%} = \frac{\text{DTP1 cumulative total } \textit{minus} \text{ DTP3 cumulative total}}{\text{DTP1 cumulative total}} \times 100$$

[2] Cumulative means the total number of doses of vaccines given in the current month plus the monthly totals for all the previous months. Use the same time period for each dose and vaccine. For example, the cumulative number of DTP1 doses given by the end of March is the total number of doses given in January plus the total number given in February plus the total number given in March

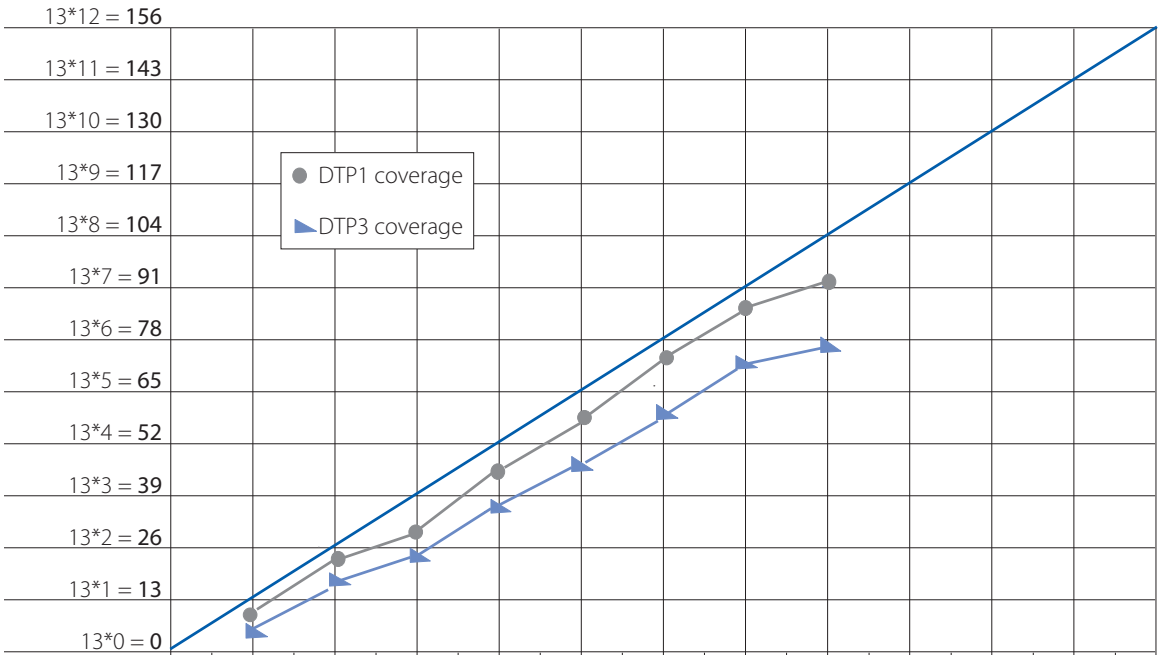
The dropout rate can be easily visually monitored: it is the gap between the line of DTP1 and of DTP3.

3.1.2 Suggested charts

There are many ways to monitor coverage and dropouts using charts:

1. DTP1 and DTP3
2. BCG and measles
3. OPV1 and OPV3
4. Measles and yellow fever
5. TT2+
6. HepB3 and DTP3.

Figure 7H: Worked example of a monitoring chart for DTP1 and DTP3



FILL IN AT THE END OF EACH MONTH	JAN	CUM. TOT.	FEB	CUM. TOT.	MAR	CUM. TOT.	APR	CUM. TOT.	MAY	CUM. TOT.	JUNE	CUM. TOT.	JULY	CUM. TOT.	AUG	CUM. TOT.	SEPT	CUM. TOT.	OCT	CUM. TOT.	NOV	CUM. TOT.	DEC	CUM. TOT.
TOTAL IMMUNIZED DTP1	10	10	12	22	7	29	12	41	14	55	15	70	14	84	7	91								
TOTAL IMMUNIZED DTP3	8	8	9	17	8	25	10	35	11	46	12	58	12	70	7	76								
DROP OUT NUMBER (DO) (DTP1 - DTP3)		2		5		4		6		9		12		14		15								
DROP OUT % (DO/DTP1) * 100		20		23		14		15		16		17		17		16								

3.2 Compiling coverage data

In order to analyse data, it is necessary to compile data properly by area. Table 7.3 provides a simple way of compiling and analysing data. Annex 4 contains a worked example.

1. List each geographic area or community that you serve (column a).
2. List the target population numbers for infants <1 year (column b).
3. Enter the number of doses of vaccine administered to the target age group during the preceding 12-month period, for example for DTP1, DTP3, measles (columns c to e).

3.2.1 Calculate Immunization coverage

4. Calculate immunization coverage in the preceding 12-month period, for example for DTP1, DTP3, measles, (columns f to h). You can also add coverage for other vaccines administered including TT1, TT2+, HepB1, HepB3 etc.. However, for the sake of simplicity, Table 7.3 uses DTP and measles only.

   To calculate immunization coverage, divide the total number of immunizations given over the preceding 12-month period by the target population.

   Use the formula below:

Annual coverage for childhood immunizations (BCG, DTP3, OPV3, measles, HepB3, yellow fever, Hib3) and vitamin A

$$\text{Percentage coverage with the vaccine or vitamin A} = \frac{\text{Number of infants under one year of age receiving all required doses for selected vaccine or vitamin A during the last 12 months}^{3}}{\text{Target population of infants under one year of age or live births}} \times 100$$

3.2.2 Calculate number of unimmunized infants

5. Calculate the number of unimmunized infants for a specific vaccine or pregnant women for TT 2+, for example: number of infants who have not received measles vaccine (column j).

Unimmunized infants with measles vaccine (j): target population (b)
minus infants who received measles vaccines (e)

[3] If the number of immunized children is greater than the target population, the reason should be identified (e.g. inadequate target population data, number of immunized children including other age groups than the target one, or including children from other areas).

3.2.3 Calculate dropout rate

6. Calculate annual dropout rates, for example: DTP1–DTP3, DTP1–measles (columns k, l), or for any other combination of vaccines you have selected.

DTP1–DTP3 dropout rate:

$$\frac{\text{doses of DTP1 administered (c) } \textit{minus} \text{ doses of DTP3 administered (d)}}{\text{doses of DTP1 administered (c)}} \times 100$$

DTP1–measles dropout rate:

$$\frac{\text{doses of DTP1 administered (c) } \textit{minus} \text{ doses of measles vaccine administered (e)}}{\text{doses of DTP1 administered (c)}} \times 100$$

3.2.4 Identify and categorize problem for each area you serve (columns m, n,o)

7. Specify in column "m" the quality of access (good or poor) depending on the DTP1 coverage ("good" is defined in this exercise as DTP1 coverage ≥ 80% in the target age group, and "poor" corresponds to a DTP1 coverage in the target age group of < 80% ; however, you may decide to use lower or higher cut-off coverage rates).

8. Specify in column "n" the quality of "utilization" (good or poor) depending on the dropout rates ("good" is defined in this exercise as a dropout rate in the target age group < 10%, and "poor" corresponds to a dropout rate in the target age group ≥ 10%; however, you may decide to use lower or higher cut-off dropout rates).

9. Refer to Table 7.4 which shows how to determine problem category 1, 2, 3, 4. Write the number of the problem category (1, 2, 3 or 4) in column "o".

3.2.5 Use your data to prioritize areas (column p, Table 7.3)

Assign the highest priority to the area that has the most unimmunized infants, and not necessarily the lowest coverage. Figure 7I gives an example.The number of *unimmunized* infants by area is shown in columns i and j of Table 7.3.

You have compiled data (Table 7.3) and have assigned priorities to the different areas you serve. In the next section (Section 4) you will plan corrective action based on these priorities.

Figure 7I: Prioritizing districts according to total unimmunized infants, using measles vaccine coverage

District name	Population	Population under 1 year	Measles coverage under 1 year	Unimmunized infants	Priority
A	100 000	4000	50%	2000	2
B	75 000	3000	60%	1200	4
C	120 000	4800	70%	1440	3
D	10 000	400	20%	320	5
E	250 000	10 000	75%	2500	1

Table 7.3: Compilation and analyses of health facility data

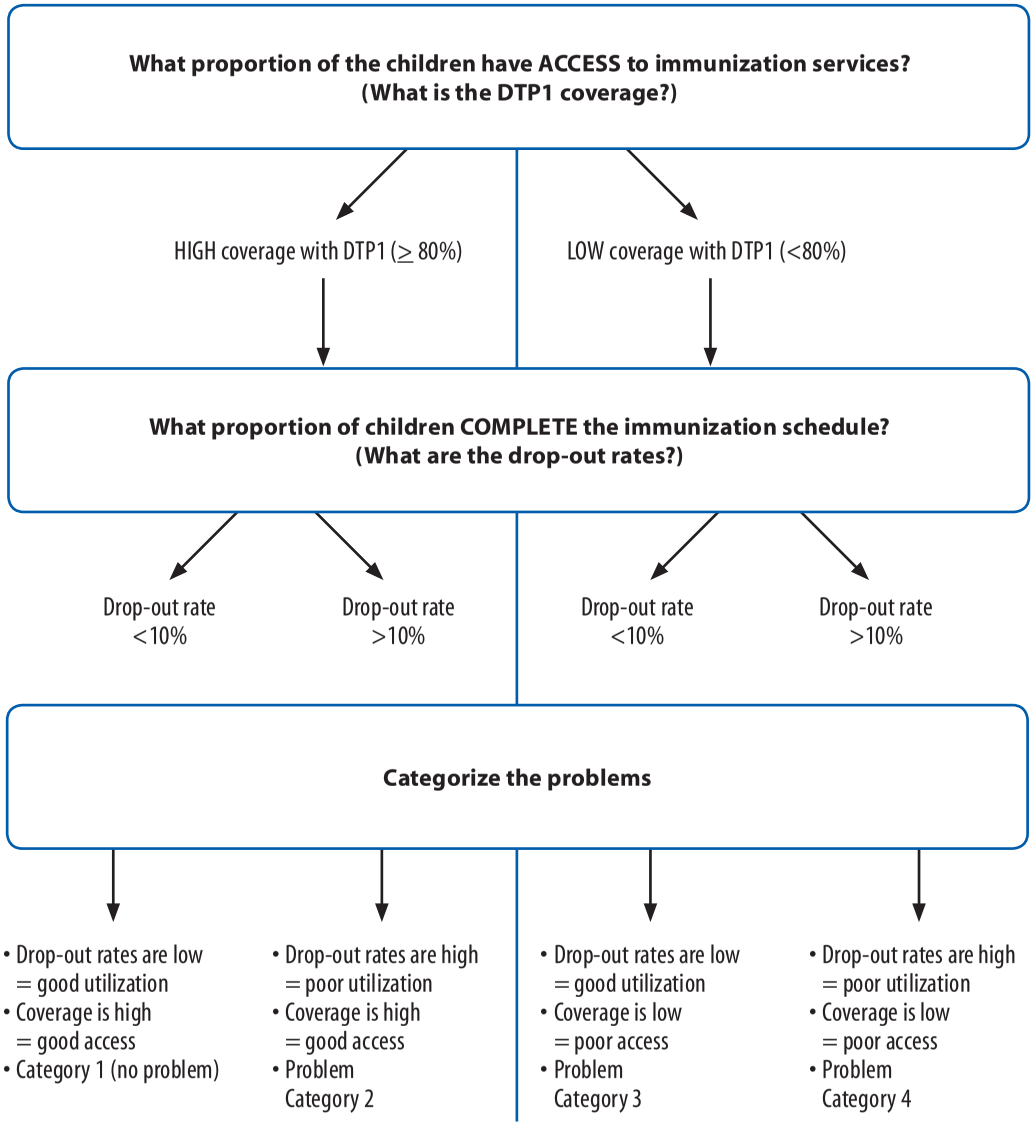
Area name	Compile population, immunization coverage data in the previous 12 months							Analyse problem							Prioritize area
	Target	Doses of vaccine administered			Immunization coverage (%)			Unimmunized (No.)		Drop-out rate (%)		Identify problem[a] (see Table 7.4)		Categorize problem according to Table 7.4[b]	
	<1 year	DTP1	DTP3	Measles	DTP1	DTP3	Measles	DTP3	Measles	DTP1-DTP3	DTP1-	Access	Utilization	Category 1, 2, 3 or 4	Priority 1, 2, 3…
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p

[a] Please specify quality of access and utilization: poor or good

[b] Category 1: No problem: drop-out rates low, coverage high.
Category 2: Problem: drop-out rates high, coverage high.
Category 3: Problem: drop-out rates low, coverage low.
Category 4: Problem: drop-out rates high, coverage low.

Note: For simplicity this table uses DTP1, DTP3 and measles immunization data.
The same format can be used for other antigens including TT1, TT2+, Hep1, Hep3 etc.

Table 7.4: Analyse problems of access and utilization



4 Taking corrective action

In this section, you will identify problems and plan corrective action in your area.

4.1 Identification of problems

Problems can be broadly associated either with access or with utilization. A problem may be related to one or more villages/areas or may apply to the entire district.

4.1.1 Problems related to poor access to service

Infants and pregnant women do not attend immunization sessions. The reasons may be:

- Sessions not conducted as planned
- Session site and times inconvenient or not advertised
- Cultural, financial, racial, gender or other barriers preventing use of immunization services.

4.1.2 Problems related to poor utilization of services

Parents do not bring infants back to complete the full series of immunizations. The reasons maybe:

- Parents lack information about the complete immunization schedule
- Supply shortage
- Incorrect contraindications applied
- Problems of relationship between health workers and community
- Tetanus toxoid not available for women at all sessions (according to national policy).

4.1.3 Examples of problems

Examples of problems are listed in Table 7.6. This is not an exhaustive list of all problems but it includes some common ones and can serve as a guide.

4.2 Finding solutions and adding corrective actions to your workplan

The purpose of this section is to help you decide what corrective action is needed. Follow the steps given below to list corrective actions that can be added to the workplan as part of your coverage improvement plan.

1 Health facility level: Review your health facility workplan

- Look at your workplan for the last quarter and identify the sessions that were not held.
- Identify the problem that led to each of these sessions not being held. List these problems.
- Suggest appropriate solution(s) for each problem (use Table 7.6 as a guide).

2 District level: Discuss the problems and possible solutions at a meeting

- Discuss the problems faced in the last quarter and suggested solutions. Together with district staff decide corrective action(s) to address each problem.
- Categorise the problems according to whether they affect all areas or only some areas.

3 Prioritization of activities

- Solutions for those problems that impact the whole district should be implemented before area-specific solutions.
- Using the area priority developed in Table 7.3 (based on number of unimmunized infants), prioritize the order in which you will implement the area-specific solutions.

4 Adding corrective actions to the workplan

After developing a list of solutions and prioritizing them, the next step is to add these to the workplan for the next quarter (Table 7.5 and Module 5, Annex 2).

- Some problems will result in all workplans (district and all health facilities) to be modified, while others will be specific to workplans of one or more health facilities (Table 7.5) and/or the district (Module 5, Annex 2).
- Include at least one solution per month in the workplan and implement it during that month.
- The problems that cannot be realistically addressed during one quarter should be addressed in the following quarter.

4.3 Ensure quality of sessions

Sessions should be completed as planned but they must also be of good quality. Decide what corrective action is needed to ensure the quality of every session. The following modules provide further guidance on:

- Adequate safety measures regarding immunization practices – Module 4
- Adequate safety measures for safe waste disposal – Module 4
- Community involvement in providing immunization services – Module 8.

! Remember: All solutions should be activities that can be done with existing resources. These can be added to the workplan. The workplan needs to be reviewed every quarter.

Table 7.5: Sample quarterly workplan of health facility M that includes corrective action to solve problems

Village	Session plan	Jan	Feb	Mar
M	Fixed session 1st Wednesday	Date scheduled 1 Jan Date held _____	Date scheduled 5 Feb Date held _____	Date scheduled 5 Mar Date held _____
K	Outreach every 2nd Wednesday at community centre	Date scheduled 8 Jan Date held _____ Transport: motorbike	Date scheduled 12 Feb Date held _____ Transport: motorbike	Date scheduled 12 Mar Date held _____ Transport: motorbike
L	Outreach every 3rd Wednesday at community centre	Date scheduled 15 Jan Date held _____ Transport: bicycle	Date scheduled 19 Feb Date held _____ Transport: bicycle	Date scheduled 19 Mar Date held _____ Transport: bicycle
P and N	Outreach every 4th Wednesday at community centre at village P	Date scheduled 22 Jan Date held _____ Transport: motorbike	Date scheduled 26 Feb Date held _____ Transport: motorbike	Date scheduled 26 Mar Date held _____ Transport: motorbike
New activities planned for this quarter (based on data analysis and monitoring)		1. Training in AD syringe use 2. Meeting community leaders to discuss migrant issues	1. Ensure pregnant women get TT at outreach	1. Follow up on defaulters in village M

Table 7.6: Common problems associated with high dropout and poor access and their solutions

	Examples of common problems	Examples of solutions: activities to be included in workplan
Supply quantity	Stock-outs of vaccine(s), AD syringes, diluents, safety boxes; immunization cards	• Request immediate supplies from district level. • Review stock recording system. (Module 5, Section 4) • Review vaccine usage and wastage rates and take action. (Module 5 annex 3, Module 7 Section 2) • Review method of estimating needs. (Module 5, Section 3)
Supply quality	• Expired vaccine(s) in stock • VVMs show that vaccine has reached the discard point • Frozen DTP and HepB containing vaccines in refrigerator	• Review stock recording system. (Module 5, Section 4) • Review method of estimating needs. (Module 5, Section 3) • Review management of cold chain equipment. (Module 3, Section 4)
Staffing quality	Some staff have not had recent training	Inform supervisor and select subjects for "on-the-job" training/supportive supervision, for example: • Using AD syringes (Module 6, Section 3.5) • New vaccines (Module 2) • Reading Vaccine Vial Monitors (VVM) (Module 3, Section 3) • Implementing Multi dose vial policy (MDVP) (Module 3, Section 4)
	Irregular supervisory visits	• Include supervisory visits' schedule in district workplan (Module 5, annex 2)
Staffing quantity	Vacant position of health worker, general staff shortage	• Inform supervisor and district authorities and take steps for recruitment. • Request temporary assignment from district level and consider volunteers for some duties. • Ensure staff available for each session. (see district workplan, Module 5, annex 2)
Service quality and demand	Poor attendance at sessions and poor utilization in some areas	• Meet with the community to discuss possible reasons for low attendance and suggested solutions. (Module 8, Section 1) • Consult the community and change workplan to make sessions more convenient for the community. (Module 5, Section 5 and Module 8) • Check whether all planned sessions have been held, aim to improve reliability by holding all planned sessions. (Module 5, Section 2) • Screen all infants for immunization whenever they visit the health facility and give all of the vaccines they are eligible to receive (Module 6, Section 2) • Review use of true contraindications to ensure that infants are not missed (Module 6, Section 2)
	Mothers lose or do not bring the immunization cards	• Set up a defaulter tracking system to keep complete records (register, reminder cards) at the health facility and take these along during outreach sessions. (Module 7, Section 1). Provide new cards and update from other records. (Do not restart schedule because of lost cards) (Module 7, Section 1)
	Parents fear side-effects and there are rumours that Injection practices are not 100% safe	• Inform parents about benefits of immunization and reassure about side-effects. (Module 2) • Review safe injection practices: ensure AD syringes supply, use safety boxes, use safe disposal practices. (Module 4) • Meet community to discuss rumours (Module 8, Section 4) • Review information on AEFI (Module 2) and how to report AEFI cases (Module 7, Section 2)

(Continues)

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	Examples of common problems	**Examples of solutions: activities to be included in workplan**
Service quantity and demand	Unreliable information about catchment population	• Request community to list of all households, families, newborns (Module 8) • Map your catchment area to include all populations (Module 5, Section 1) • Compare population data from various sources including data from National Immunization Days (use the NID <5 population and divide by 5 for infant target).
	Inaccurate coverage data	• Check record keeping and reporting systems for completeness (Module 7, Section 1 and 2) • Review all tally sheets and reports (Module 7, Section 1), does numerator include all areas?
	Some areas distant and underserved	• Discuss with supervisor and organize mobile team approach from district/ province, minimum 4 sessions per year. (Module 5, Section 2) • Discuss service with the communities and arrange adequate sessions, dates and timings. (Module 8)
	Transport not available for some outreach sessions	• Identify which sessions were not held due to lack of transport • Look for alternative transport e.g. public transport , sharing with other programs • Request next level for vehicle for outreach/mobile
	Poor attendance at antenatal care (ANC) clinics and/or poor TT2+ coverage	• Promote value of antenatal care including TT immunization during any contact with pregnant women. • Inform the community about dates of ANC clinics. Find out if session timing or venue is inconvenient, if so make appropriate changes in next quarter's work-plan. • Use all opportunities to give TT immunization including when mothers accompany infants for childhood immunizations.

4.4 Supervising the activities

Quick checklist for supervising activities at the health facility level.

Every facility that provides immunization services should have basic planning and monitoring tools. It is helpful to list these as a simple checklist:

- a map of the catchment area
- session plan
- workplan (updated every quarter)
- stock cards or book
- cold chain temperature log (if applicable)
- immunization register
- monitoring chart
- chart of reported cases
- system for tracking defaulters.

A supervisory checklist is provided in Annex 5. This checklist is useful for supportive supervision.

Checking data quality

Look for the following data quality problems and take action to improve the quality:

- coverage rate over 100% (maybe due to a denominator problem);
- large month to month variations in total doses given (may indicate a completeness problem, e.g. were all the tally sheets correctly filled?);
- negative dropout rate – some doses are not being tallied correctly or infants may receive DTP1 at one health facility and DTP2 and DTP3 at other places, or older children included for DTP3;
- discrepancy between doses which are theoretically given at the same time, e.g. DTP1 and OPV1, measles and yellow fever, etc.;
- discrepancy between the number of persons immunized and number of vials used during the period;
- decrease in the target population compared to previous years (in most developing countries, the birth rate is increasing, not decreasing).

Most of these problems can be checked by good quality record-keeping and reporting (register, tally sheets, reporting forms).

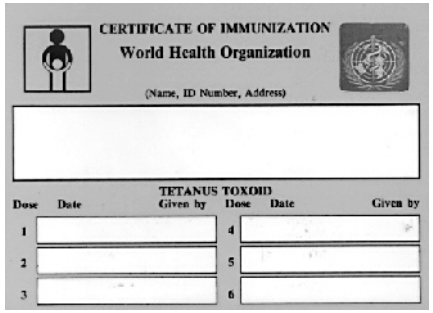
annex 1 Sample immunization register for infants and mothers (used in some countries)

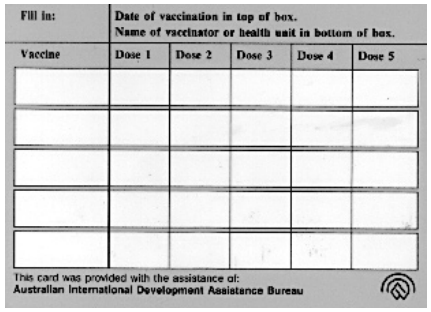
No.	Date of visit	Name of infant	DOB[a]	Sex	Name of mother	Address	Vaccinations (dates, day/month/year)													Maternal TT					PAB	
							BCG	OPV0	OPV1	OPV2	OVP3	DTP1	DPT2	DTP3	HEPB0	HEPB1	HEPB2	HEPB3	MEASLES	VIT. A	TT1	TT2	TT3	TT4	TT5	Y	N

Note: Additional columns can be added to include other vaccines, i.e. yellow fever, Hib…

[a] DOB: Date of birth

Sample TT card for women


CERTIFICATE OF IMMUNIZATION
World Health Organization
(Name, ID Number, Address)
TETANUS TOXOID
Dose Date Given by Dose Date Given by
1 4
2 5
3 6


Fill in: Date of vaccination in top of box. Name of vaccinator or health unit in bottom of box.
Vaccine Dose 1 Dose 2 Dose 3 Dose 4 Dose 5
This card was provided with the assistance of:
Australian International Development Assistance Bureau

annex 2 Reporting routine TT immunization for women

1. TT2+ coverage indicator

TT immunization is recorded on tally sheets and cards as TT1, TT2, TT3, TT4, TT5.

When these doses are reported to the next level the indicator used is TT2+.

The numerator is an aggregate of TT doses from the second dose onwards (the first dose is not included in the coverage indicator, but reported separately since it is not protective).

The denominator is the target population of infants under one year of age, since this is simplest and closest to the number of pregnant women. Some countries will use the number of live births as the denominator.

$$\text{Percentage coverage with TT2+} = \frac{\text{TT2+TT3+TT4+TT5}}{\text{Target population of infants under one year of age or live births}} \times 100$$

2. Protection at birth (PAB) indicator

a) Computation of PAB

The TT2+ indicator works well when coverage with TT is relatively low. However, as TT coverage increases, fewer women will need to receive TT (they are already protected) so the numerator will go down, but the denominator (births) will not. This will lead to an incorrect estimate of programme performance. One way to avoid this problem is by using the protection at birth indicator. This indicator measures the percentage of infants who were protected from NT at birth by the immunization of their mothers with TT before the birth.

$$\text{Percentage of protection at birth} = \frac{\text{No. of infants whose mothers had protective doses of TT}}{\text{Target population of infants under one year of age or live births}} \times 100$$

b) How to measure protection at birth (PAB)

The best way to measure this indicator is during the first visit of the infant for its DPT1 dose. Ask the mother accompanying the infant if she has a TT record card. If she has not, ask if she can remember receiving doses of TT during pregnancy.

You can consider that the infant was protected from NT at its birth (PAB) if the mother has received:

Two doses of TT during the recent pregnancy or at least three doses of TT in the past.

Note that this is the simplest way to measure PAB. Some countries have adopted more elaborate ways to measure PAB. Ideally, PAB questions should take into account all doses received as well as intervals between these doses. Where this is not feasible, the method mentioned above can be considered as an acceptable alternative.

c) How to record "protected at birth"

Protected at birth can be recorded:

- in a separate column in the infant register together with other information about the infant;
- on the tally sheet when DTP1 is given;
- on each infant immunization card in a separate box.

Remember that the information should be obtained by asking the mother at the DPT1 immunization contact, as it will be less reliable at later contacts.

When you need to report the monthly performance for "protection at birth", you can look at the register and total up the number of infants recorded as protected at birth for that month, or you can use the tally sheets.

Finally, it is of utmost importance that every woman who has a child considered to be "not protected at birth" receive a dose of TT during the same immunization session as her child. An appointment for subsequent doses should be made. Likewise, a woman who is eligible for a dose (even if the child was protected at birth), should receive a booster at that very session.

annex 3

Blank monitoring chart

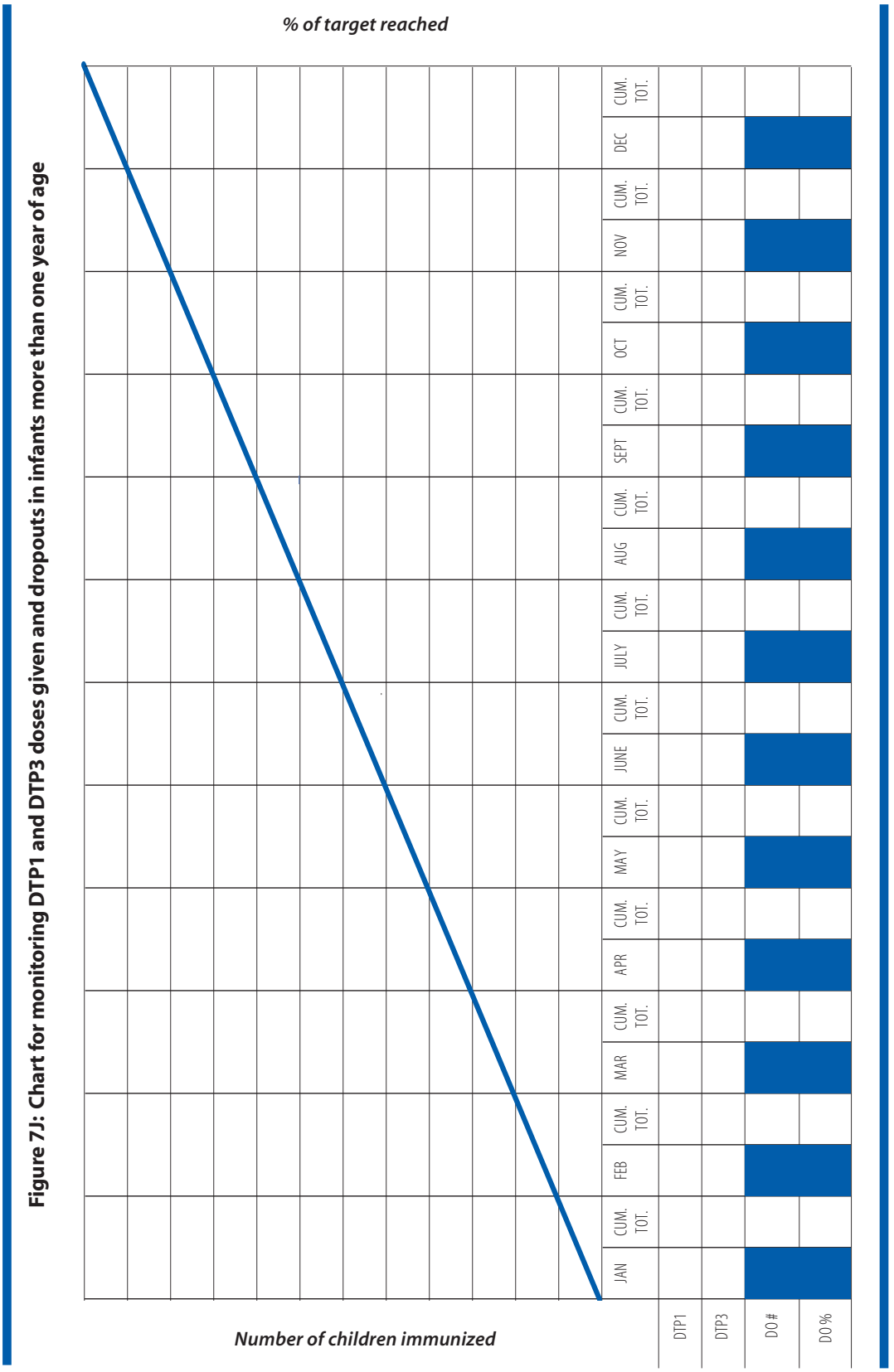


Figure 7J: Chart for monitoring DTP1 and DTP3 doses given and dropouts in infants more than one year of age

annex 4

Worked example: Analyses of health facility data

Area name	Compile population, immunization coverage data in the previous 12 months							Analyse problem							Prioritize area
Village name	Target pop.	Doses of vaccine administred			Immunization coverage (%)			Unimmunized (No.)		Drop–out (rates (%)		Identify problem (see Table 7.4)		Categorize problem according to Table 7.4	
		DPT1	DPT3	Measles	DPT1	DPT3	Measles	DPT3	Measles	DPT1–DPT3	DPT1–Measles	Access	Utilization	Category 1,2,3, or 4	Priority 1,2,3,,,
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p
KIRANE	580	615	352	272	106%	61%	47%	228	308	43%	56%	Good	Poor	Cat. 2	
FANGA	387	365	232	332	94%	60%	86%	155	55	36%	9%	Good	Poor	Cat. 2	
DIONCOULANE	362	164	75	25	45%	21%	7%	287	337	54%	85%	Poor	Poor	Cat. 4	
TAMBACARA	399	447	256	190	112%	64%	48%	143	209	43%	58%	Good	Poor	Cat. 2	
KERSIGNANE D	134	105	75	41	78%	56%	31%	59	93	29%	61%	Poor	Poor	Cat. 4	
MARENA	441	263	79	91	60%	18%	21%	362	350	70%	65%	Poor	Poor	Cat. 4	
BANDIOUGOULA	160	195	76	121	122%	48%	76%	84	39	61%	38%	Good	Poor	Cat. 2	
DIONGAGA	313	261	92	61	83%	29%	20%	221	252	65%	77%	Good	Poor	Cat. 2	
KERSIGNAME K	472	273	90	149	58%	19%	32%	382	323	67%	45%	Poor	Poor	Cat. 4	
CENTRAL	613	649	395	342	106%	64%	56%	218	271	39%	47%	Good	Poor	Cat. 2	
GORY	236	107	50	71	45%	21%	30%	186	165	53%	34%	Poor	Poor	Cat. 4	
KODIE	152	116	88	60	76%	58%	40%	64	92	24%	48%	Poor	Poor	Cat. 4	
TOTAL	**4,249**	**3,768**	**1,860**	**1,755**	**89%**	**44%**	**41%**	**2389**	**2494**	**51%**	**53%**	**Good**	**Poor**	**Cat. 2**	

annex 5 Supervisory checklist during visits to a health facility

Checklist	Explanation
A. Recording practices of routine immunization activities	
1. Are there tally sheets for infant vaccinations and do they have entries for the last immunization day?	Main concern is regular use of tally sheet and monitoring session activities.
2. Are registers used for recording individual information about infant immunizations?	Each health facility should have a book or register where each infant's immunization history can be registered and traced back.
3. Are individual immunization cards used, updated and given to the parent (or guardian) at the time of the immunization visit?	Blank cards should be available in the health facility. Immunization cards are often integrated in "Road to Health" or other health cards. The HU should not keep original vaccination cards.
4. Can an infant's vaccination history be easily and rapidly found in the health facility's books?	A new dose should be entered in the health facility's registers in the location where previous doses have been entered.
5. Is there a mechanism in place to track vaccine doses that are due or to track defaulters?	Check how the health facility's can know when an infant should return for a vaccine dose.
6. Can copies of previous reports from this health unit be found in the health facility's?	Copies of all reports from current and previous year should be available.
7. Are the health unit reports filled in correctly and completely?	Check whether reports have been filled in correctly.
8. Is the book for vaccine stock and syringe supply up-to-date?	Check against available stock (count doses in the fridge).
9. Observe a minimum of five vaccinations. Were all vaccinations correctly registered on the tally sheet, the health facility's register and the infant health card? Are mothers told when the next dose should be received?	Check the tally sheet, the register and the card after immunization as well as the return date.
10. Are health staff aware of how to report an adverse event?	Ask health staff what is supposed to be done if an infant becomes severely ill or dies after a vaccination. Ask to show any forms that are to be used.
11. Is the cold chain temperature monitoring chart completed daily?	Check the chart and compare the latest reported temperature with the actual temperature in the refrigerator.
12. Is PAB checked at the moment DTP1 is given?	Mothers of unprotected newborns should receive TT and be told when to get next dose. TT dose must be recorded on a vaccination card.

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Checklist	Explanation
B. Demographic information	
1. Does the health facility have data on the number of infants born in its catchment area, and does it have a target set for the number of infants that should be vaccinated during the calendar year?	Discuss if difference with denominator available at more central level. Discuss ways to collect denominator information from community (e.g. birth register), NIDs data, or other sources. Discuss if the target was setup by the district or health facility level. Compare target to total population (should be around 4% in most countries).
2. Does the health facility have a session plan, with a map showing the catchment area – including the outreach villages, and by strategy: – fixed/ outreach/mobile?	It is important to know if the session plan shows how all the target population can be reached regularly. Pick a remote village from the map, and ask the health facility when this village was last visited and will next be visited, according to a written plan.
C. Core outputs/analyses	
1. Does the health facility have an up-to-date chart or table (preferably on display) showing the number of vaccinations by report period for the current year?	Monitoring coverage chart must be up-to-date. Check if available for DTP1, DTP3, and measles.
2. Is there a monthly chart/graph of VPD cases (broken down by VPD)?	How do these data correspond to coverage data (i.e. more cases in areas with poor coverage). When was the last VPD outbreak? Was it investigated? Why did it occur?
3. Is there a monitoring of dropout rate?	Discuss the importance and reasons for dropouts.
4. Is there a monitoring of vaccine wastage?	Discuss the reasons for wastage and any ways it might be reduced. Is the multi-dose vial policy being practised?
D. Evidence of using data for action	
1. Are areas of low access identified and is there evidence of actions taken to deal with it?	If there is low access (evidenced by low BCG or DTP1 coverage) in certain areas, what strategies are being used to reach these areas?
2. Have reasons for any high dropout been identified, and are there plans/actions to deal with it?	Are there any managerial practices that can be changed?
3. Is there a standard system in place to follow up defaulting infants (i.e. who don't come back for subsequent doses); when was the last time a child was followed up?	Is the register being used? Are there reminder cards? Is the community informed? Are there follow-up visits?
4. Are there ever stockouts of vaccine or syringes? How are data used to prevent stockouts?	What action is taken to obtain more supplies when stock levels go below the reserve level?
5. Is there interaction with the community regarding immunization? Ask for information on "what" and "when".	Are health staff actively involved in any community committees or meetings on health, follow-up of defaulters, investigations of outbreaks or any rumours of AEFIs, etc.

annex 6 Simple questionnaire to investigate reasons for low coverage and dropouts

This questionnaire will assist you to gather feedback about the status of immunization services in areas close to the health facility. You will not need much time to do this. It can be carried out in one day. It is an opportunity to discuss directly with child caretakers and find out how services could be improved and why they are not used.

The results of this survey are not representative of any population other than the households you interview. It is intended to supplement, not replace, routine reporting.

The purpose is to investigate at least *five* infants under two years of age and their mothers of childbearing age not vaccinated or who did **not** complete their immunization schedule.

Follow the steps below:

1. Use the tally sheet and the questionnaire presented on the following page for the interviews and to compile data. If needed you can modify this questionnaire to fit your needs.
2. Collect and compile data.

   a) Visit the households that are closest to the health facility until you identify at least five infants under two years of age, and their mothers, who are not vaccinated or who are overdue for the next vaccine dose ("partially immunized"). The households do not have to be randomly selected and they may be interviewed in any order. In each household having any infants under two years of age and their mothers, ask for the infant's and mother's immunization card(s). If the infant or mother is not completely immunized, each mother should be asked to give one reason why. Enter this information in Item C of the tally sheet. Each woman should also be asked for her suggestions on how to improve the health services: enter this in Item D.

   b) Add up the number of households visited from Item A and the immunization status of infants and mothers interviewed in the survey from Item B. Record the totals in the appropriate space on the form.

3. Analyse the data.

   c) Investigate why the infants and mothers were not, or were only partially, immunized.

   d) Make a list of all the reasons given (Item C) and of suggestions for improvement (Item D).

   e) Discuss possible solutions with your team given current resources as well as with extra resources (see Section 4 "Identify causes of the problems"). What step does this refer to?

Tally sheet and questionnaire for the convenience households survey

Infants under two years of age (0 – 23 months) and their mothers for TT

Health facility: _____ Date of questionnaire: _____

Response	**Place tally marks here**		**Total**	
A. Tally the number of households visited				
B. Immunization status:	Tally children (c)	Tally mothers (m)	(c)	(m)
Not immunized				
Partially immunized				
Adequately or fully immunized				
C. Child name	Reasons given for being partially or not immunized			
1.				
2.				
3.				
4.				
5.				
C. Mother's name	Reasons given for being partially or not immunized with TT			
1.				
2.				
3.				
4.				
5.				
D. Suggestions for improvement				
1.				
2.				
3.				