Module 7
Expanded Programme of Immunization (EPI)
(including Vitamin A, Tetanus Toxoid and Growth Monitoring)

CONTENTS

ILLUSTRATED GUIDES

Expanded Programme of Immunization (EPI)

(including Vitamin A, Tetanus Toxoid and Growth Monitoring)

7.1 WHAT ARE THE TOOLS USED FOR DATA COLLECTION?

The data collection tools used in the EPI programme are shown below. They are classified as follows:

Primary Tools

Primary data sources are essential to routine monitoring within the HIS and are prerequisite to the calculation of indicators. They form the basis of the guidance and training within this manual, and are described in detail in the Illustrated Guides at the end of the module.

Secondary Tools

Secondary data sources have important functions within the HIS but are not directly used to calculate indicators. They have a role in informing clinical decision-making and promoting service quality and performance. They are described in information boxes in the supporting text.

> Data collection and monitoring tools

EPI, Vitamin A, Tetanus Toxoid and Growth Monitoring

Primary Tools
1. EPI Tally Sheet
2. Vitamin A Tally Sheet
3. Tetanus Toxoid Tally Sheet
4. Growth Monitoring Tally Sheet
4. EPI Report

Secondary Tools
1. Road to Health Card
2. Under Five Register
3. NCHS/WHO Reference Values

7.2 WHO IS RESPONSIBLE FOR COLLECTING THE DATA?

The basis of data collection in EPI is a tally sheet, which should be maintained each day in all health facilities. One EPI staff member should be designated responsibility to record the data each day and should decide how many tally sheets are required during the course of a week. More than one tally sheet may be filled, particularly if a large number of children are vaccinated daily. However, no single tally sheet should last for more than one reporting week.

The clinic supervisor is responsible for compiling the EPI report at the end of the week. This should begin with the gathering of tally sheets used in each clinic at the end of each week, ensuring that forms are submitted on time and corresponding to the week in question.

The EPI Report should be completed by transferring summed totals from the tally sheets into the reporting form, and submitting to the Health Manager in each camp (see 3.4 How and When should the data be reported?).

7.3 WHAT DATA SHOULD BE COLLECTED AND HOW?

The EPI Tally Sheet records the number of doses of vaccine administered each day according to the age of the child and the type of antigen. The list of vaccines will be determined by the national immunization schedule within each country and monitoring requirements should be adapted accordingly (see Country Considerations Box).

Doses of vaccine should be tallied immediately after they have been administered to each child. A tally should not be made before the vaccine is administered, as the child may not receive the vaccine. Nor should tallying be left to the end of a session and based on the number of doses left in the used vials as this can lead to "wasted" doses being recorded.

7.3.1 Immunization Status

In most national schedules, measles vaccination completes the EPI timetable at 9 months of age. The immunization history should be reviewed at this point to verify the complete and timely provision of all EPI vaccines in the schedule. This information should be available from the Road To Health Card and from the Under Five Register (see Secondary Tools Box).

If a child has received all required vaccine doses in the immunization schedule, only then can s/he can be declared fully immunized and tallied accordingly. Clinic staff should not record a child as fully immunized until the complete vaccination history has been verified in the Road to Health card and the Under Five register.

The monitoring requirements of Tetanus Toxoid, Vitamin A and Growth Monitoring programmes share many similarities with EPI. Services are often integrated and delivered at the same location and all rely on tally sheet as the primary tool of data collection and reporting. Each is described under the common set of guidelines below.

> Country Considerations

What is the national immunization schedule?

The routine immunisation schedule in most countries comprises six vaccine preventable diseases: namely measles, diphtheria, pertussis, tetanus, polio and tuberculosis (see Table 1). Before the age of one year the schedule should be completed by all children.

Women of childbearing age should also be given tetanus toxoid vaccine to prevent neonatal tetanus (see Table 2). The mothers and their future babies obtain full protection after completing the TT schedule. Routine vitamin A distribution is often integrated within national EPI programmes, and targets children aged 6 - 59 months and post-natal mothers (see Table 3).

The national schedule for each programme should be reviewed and monitoring requirements within the HIS adapted accordingly.

Table 1. Recommended schedule for routine immunisation (WHO)*

New visit	Diseases	Age
BCG	Tuberculosis	At birth
DPT	Diphtheria, Pertussis, Tetanus	6, 10, 14 weeks
OPV	Polio	At birth, 6, 10, 14 weeks
Measles	Measles	9 months

* Depending on national priorities, Ministries of Health may have introduced (or have long-term plans to introduce) "new" and under-used vaccines, such as hepatitis B (HepB), hemophilus influenzae type b (Hib) and Yellow Fever.

Table 2. Recommended schedule for Tetanus Toxoid administration (WHO)

Dose	Time for administration	Duration of protection
TT1	At first contact	No protection
TT2	4 weeks after TT1	Three years
TT3	At least 6 months after TT2	Five years
TT4	At least 1 year after TT3	Ten years
TT5	At least 1 year after TT4	For thirty years**

** throughout a woman's reproductive life

Table 3. Recommended schedule for Vitamin A distribution

Age group	Dosage	Frequency
< 6 months	50 000 IU	6, 10, 14 weeks
6 - 12 months	100 000 IU	Every 4-6 months
≥ 12 months	200 000	Every 4-6 months
Mothers	400 000	≤ 6 - 8 weeks postpartum

Note: If MoHs require data on other vaccines (e.g. Yellow fever, pneumococcal), or if they require reports on booster doses given after the age of one, this can be collected using the Additional EPI Reporting form. More information on how to activate this form is given in Part 3 of the manual.

> Secondary Tools

Under Five Register

Birth registration is a fundamental human right and an essential means of protecting a child's right to identity. Registering a birth serves to legally acknowledge a person's existence, enables a child to possess a birth certificate, establishes family ties, and tracks major milestones from birth through to marriage and death. Birth registration also helps governments, UN agencies, and health partners to track demographic statistics and trends in each camp.

It is imperative that the HIS supports a mechanism to register every child at or shortly after birth. This is most often done in an Under Five Register, supplied by the national MoH and/or the UNICEF country office.

The Under Five register should be used as a centralised record of this information, and a summary also recorded in a 'Road to Health' card that is kept by the child's mother at all times and updated during each visit to the clinic (see below).

'Road to Health' card

The 'Road to Health' card provides a useful medical summary of a child's health in the first five years of life. These are most important in a child's development, and should be closely monitored to ensure timely detection of problems and early diagnosis and treatment. The card is given to mothers when their infant is born and is updated regularly at the MCH clinic until the child reaches his or her fifth birthday.

Each card contains a record of immunisations and growth rate. To facilitate the rapid assessment of growth at each visit, the World Health Organization (WHO) has taken the National Centre for Health Statistics (NCHS) curve and modified it for use in Road To Health cards. Weight-for-age (WFA) screening measurements taken at growth monitoring are plotted within the NCHS/WHO growth curve and displayed within a percentile range.

The WFA growth curves are often colour-coded, to draw attention to children that fall within a percentile range that is below accepted thresholds. The exact parameters will depend on the national policy in each country. Children identified as low WFH should be referred immediately to the Supplementary Feeding Programme for weight-for-height (WFH) measurement (for more details see Module 8: Nutrition).

The card also identifies the child to other relevant primary healthcare programmes (e.g. PMTCT, supplementary feeding) and is an important tool in promoting integrated delivery of care between these sections. It should be kept by the mother at all times, and updated alongside the Under-Five register at each visit.

Tetanus Toxoid Card

This card is a record of each individual's tetanus toxoid history, and is most often supplied by the MoH and/or UNICEF country offices.

It should be requested and updated each time a dose of vaccine is administered. This information may also be registered centrally in a Tetanus Toxoid Register, to provide a secure reference source in the event that individual cards are lost or stolen.

7.3.2 Vitamin A distribution

Vitamin A tally sheets should be available in all health units for monitoring of routine capsule distribution to children under five. Capsules should be tallied as they are administered according to the schedule and target ages specified within the national policy (see Country Specifications Box).

The monitoring of post-natal vitamin A distribution will need to be adjusted the suit the configuration of services in each health agency. Responsibility should fall to either EPI staff or nursing staff on the maternity ward. Tally sheets should be made available to each location as indicated. In camps where capsules are distributed by maternity unit staff, the nurse/midwife in-charge should supervise complete recording of information each day and ensure that the figures are compiled into the EPI report at the end of each week.

7.3.3 Tetanus Toxoid distribution

The daily administration of each Tetanus Toxoid (TT) dose should be recorded in a separate tally sheet in each health unit. Monitoring requirements should be aligned with the schedule and target groups specified within the national policy (see Country Specifications Box). Groups most commonly targeted for TT immunization in national programmes are pregnant mothers and women of child-bearing age. Other groups at high-risk of exposure should also be provided coverage as and when required.

In addition to logging data in a tally sheet, the administration of each Tetanus Toxoid dose should be documented on a vaccination card that is kept by the individual (see Secondary Tools: Tetanus Toxoid Card). This is important to preserve the continuity of care and to ensure the vaccination schedule is followed correctly. Pregnant women who receive TT vaccine as part of routine antenatal care should also have this information documented in the Antenatal Care Register (see Module 9.1: Antenatal Care).

7.3.4 Growth Monitoring

All children under five should attend for growth monitoring in the MCH clinic at least once per month as part of every comprehensive primary health care programme. The observed weight measured at each visit should be converted to a weight-for-age (WFA) percentile and registered in a daily tally sheet according to the age of the child.

WFA percentile is calculated by plotting the observed weight in the growth curve on each child's 'Road To Health' card (see Secondary Tools Box). Staff should understand how to correctly utilise and interpret the information contained in these cards, and should place equal importance on educating mothers to recognise danger signs. The design of these cards and the WFA percentile cut-offs, will depend on the policies of the host MoH. Nutrition policy and monitoring requirements

should be adjusted accordingly to reflect these national differences.

Data collection in all growth monitoring programmes should include the criterion of bilateral, pitting oedema. Staff should receive training on how to recognise and diagnose this cardinal sign of severe malnutrition and the nutrition policy in each country should provide specific referral and management guidance for such cases.

An Illustrated Guide to the Tally Sheets used in EPI and an explanation of the information that should be recorded is given at the end of the module.

7.4 HOW AND WHEN SHOULD THE DATA BE REPORTED?

At the end of each week all Tally Sheets should be gathered and used to compile the respective tables within the EPI Report.

The dates of the reporting weeks are shown in the Reporting Calendar. It is important that all staff are aware of these dates, and that copies the calendar are distributed to all health units.

The EPI supervisor is responsible for coordinating the complete and timely submission of the EPI, Vitamin A, Tetanus Toxoid and Growth Monitoring tally sheets in each clinic.

7.4.1 Converting tallies to numbers

Prior to submission of the tally sheets at the end of the week, the EPI staff member designated to record the information should convert the tallies into numerical figures. These numbers should be entered clearly into the black Number Boxes in the bottom right-hand corner of each Tally Box (see Illustrated Guide to EPI Tally Sheet). The EPI supervisor should verify that a random sample of 10 – 20 tallies in the daily forms have accurately been converted into numbers.

7.4.2 Weekly EPI Report

Using a calculator, the figures in the number boxes in each tally sheet should be added, and the weekly total transferred into the corresponding table in the EPI Report (see Illustrated Guide to EPI Report). Data should be disaggregated according to the age of the child (< 1, ≥1 - 5), status (refugee or national) and the type of antigen administered (including dose number where appropriate).

> Country Considerations

Which vaccine dose-vial sizes are used in each national programme?

Each week, the EPI programme in each camp should report the number of doses of each vaccine that were supplied to each camp. To accurately report this information, staff should know the number of doses that are contained within each vial of vaccine.

The most common dose-vial sizes are shown in Table 1. Exact combinations will vary depending on specific programme requirements and the stock availability of the MoH and/or UNICEF office in each country.

Table 1. Common dose-vial sizes

Vaccine	Doses per vial*
BCG	20
Polio	20
DPT	10
Measles	10

* Also available in 1, 2, 5 , 6 dose vials depending on programme requirements

If there is more than one unit reporting in each camp, the information from each should be combined to create one weekly report for the entire camp. Photocopies of the weekly report form may be required to assist units compile their individual reports prior to aggregation into the camp report.

7.4.3 Vaccine Supply and Wastage

Each week, the EPI programme should report the number of doses of each vaccine that were supplied to each camp. This vaccine supply data is important for the calculation of vaccine wastage at the end of each month. The MCH supervisor should enter the number of doses of vaccine supplied to each camp into the corresponding table in the EPI Report. This data is not collected in tally sheets and therefore requires separate records to be kept in each cold chain facility.

To ensure accurate reporting, it is vital that all staff appreciate the important distinction between 'vials' and 'doses' of vaccine (see Country Considerations Box). The figure entered in the weekly report must also take into account any unused doses of vaccine which were able to be returned to the fridge.*

* Note: as BCG and Measles are live attenuated vaccines, opened vials of these vaccines cannot be preserved. Vaccine wastage is therefore expected to be higher for these antigens

An Illustrated Guide to the EPI Report, and an explanation of how the information should be reported from daily sources, is given at the end of the module.

7.4.4 Monthly EPI Report

At the end of each week the paper-based report forms can be directly entered into the computer. The database will then automatically combine these into a monthly report composed of 4 or 5 weekly reports, depending on the reporting calendar. More information on data management and is given in Part 3 of the manual.

7.5 HOW SHOULD THE DATA BE INTERPRETED AND USED?

The indicators for EPI, Vitamin A, Tetanus Toxoid and Growth Monitoring are shown opposite. Each is classified according to the five core objectives of the HIS and is used to monitor progress towards its achievement. A summary of each indicator, including formulae, units of expression, and the corresponding standard (where available) is given in the Standard and Indicator Guide that accompanies this manual.

It is essential that staff are familiar with how these indicators are calculated, and understand how they should be used to evaluate programme performance and to inform public health decision-making. A group exercise on how to calculate and interpret the indicators, using sample data, is given in the CD-ROM that accompanies this manual.

> Indicator Summary

EPI, Vitamin A, Tetanus Toxoid and Growth Monitoring

Objective	Indicator	Source
3. Evaluate the effectiveness of interventions and service coverage	Vaccination coverage*	UNICEF
	Post-natal Vitamin A coverage	HIS
	Coverage of growth monitoring	HIS
4. Ensure that resources are correctly targeted to the areas and groups of greatest need	Vaccination wastage rate*	UNICEF
5. Evaluate the quality of health interventions	Programme drop-out rate	UNICEF

* Disaggregated by antigen, as specified in national schedule

> Illustrated Guide to EPI Tally Sheets

Health Information System

Daily Tally Sheet

7.1a Children Vaccinated

A

Organisation: _____

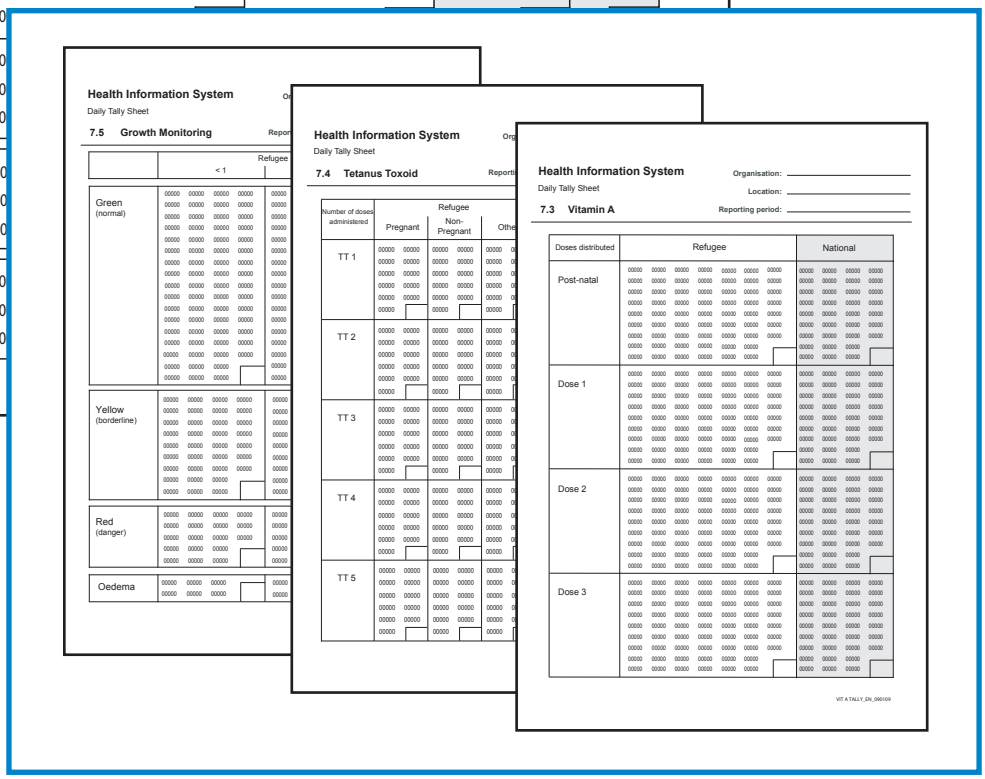
Location: _____

Reporting period: _____

B

Number of doses administered	Refugee < 1	Refugee ≥ 1 to < 5	National < 1	National ≥ 1 to < 5
BCG	00000 00000 00000 00000 / 00000 00000 00000 00000 / 00000 00000 00000	00000 00000 00000 / 00000 00000 00000 / 00000 00000	00000 00000 00000 / 00000 00000 00000 / 00000	00000 / 00000 /
Polio 0	00000 00000 00000 00000 / 00000 00000 00000 00000 / 00000 00000 00000	00000 00000 00000 / 00000 00000 00000 / 00000 00000	00000 00000 00000 / 00000 00000 00000 / 00000	00000 / 00000 /
Polio I	00000 00000 00000 00000 / 00000 00000 00000 00000 / 00000 00000 00000	00000 00000 00000 / 00000 00000 00000 / 00000 00000	00000 00000 00000 / 00000 00000 00000 / 00000	00000 / 00000 /
Polio II	00000 00000 00000 00000 / 00000 00000 00000 00000 / 00000 00000 00000	00000 00000 00000 / 00000 00000 00000 / 00000 00000	00000 00000 00000 / 00000 00000 00000 / 00000	00000 / 00000 /
Polio III	00000 00000 00000 00000 / 00000 00000 00000 00000 / 00000 00000 00000	00000 00000 00000 / 00000 00000 00000 / 00000 00000	00000 00000 00000 / 00000 00000 00000 / 00000	00000 / 00000 /
DPT I	00000 00000 00000 00000 / 00000 00000 00000 00000 / 00000 00000 00000	00000 00000 00000 / 00000 00000 00000 / 00000 00000	00000 00000 00000 / 00000 00000 00000 / 00000	00000 / 00000 /
DPT II	00000 00000 00000 00000 / 00000 00000 00000 00000 / 000	00000 00000 00000 / 00000 00000 00000 / 00000 00000	00000 00000 00000 / 00000 00000 00000 /	00000 / 00000 /
DPT III	000 / 000 / 000			
Measles	000 / 000 / 000			
Fully Vaccinated	000 / 000 / 000			

C



A HEADER:

Organisation:
Print name of health partner

Location:
Print name of Camp and Reporting Unit

Reporting period:
Enter number of week and month (e.g. Week 1 March)

NOTES

It is the responsibility of a designated EPI officer to maintain correctly use each tally sheet. A new sheet should be used if any one of the tally sections is filled.

No single tally sheet should be used for more than one reporting week.

B SERVICE PROVISION:

EPI

Strike a tally corresponding to:

> Vaccine (antigen-specific)

> Status (Refugee / National)

> Age (< 1 / ≥ 1 to < 5; for refugees only)

Tetanus Toxoid

Strike a tally corresponding to:

> Vaccine (dose-specific)

> Status (Refugee / National)

> Target Group (Pregnant / Non-pregnant / Other; for refugees only)

Vitamin A

Strike a tally corresponding to:

> Capsule (dose-specific)

> Status (Refugee / National)

Growth Monitoring

Strike a tally corresponding to:

> WFA or MUAC zone (Green / Yellow / Red)

> Status (Refugee / National)

> Age (< 1 / ≥ 1 to < 5; for refugee only)

C NUMBER BOXES:

Before submitting the tally sheet at the end of the week, count the number of tallies in each box and convert to a number.

> Write number clearly in the black square in the bottom right hand corner of each tally box

NOTES

It is the responsibility of the designated EPI officer responsible for the form to convert tallies to numbers PRIOR to submission at the end of the week.

The clinic supervisor should check a random sample of 10 - 20 tally conversions for accuracy at the end of each week.

> Illustrated Guide to EPI Report (FRONT)

A

Health Information System

Reporting Form

Organisation: _____

Location: _____

Reporting period: _____

7.0 EPI and Vitamin A

B

7.1a Children Vaccinated

Doses administered	Refugee		National	
	< 1	≥ 1 to < 5	< 1	≥ 1 to < 5
BCG				
Polio 0				
Polio I				
Polio II				
Polio III				
DPT I				
DPT II				
DPT III				
Measles				
Fully Vaccinated				

C

7.2 Vaccine Supplied

Vaccine	No. of doses supplied
BCG	
Polio	
DPT	
Measles	
Tetanus Toxoid	

EPI REPORT_EN_090109

A HEADER:

Organisation:
Print name of health partner

Location:
Print name of Camp and Reporting Unit

Reporting period:
Enter number of week and month (e.g. Week 1 March)

NOTES

The dates of the reporting weeks are shown in the Reporting Calendar. It is important that all staff are aware of these dates, and that copies the calendar are distributed to all EPI clinics.

The EPI supervisor is responsible for coordinating the complete and timely submission of all sections contributing to the weekly report.

B CHILDREN VACCINATED:

Complete Table 7.1, using the sum total of the corresponding black number boxes in the daily EPI tally sheets

C VACCINE WASTAGE:

Complete Table 7.2, by entering the number of doses of each type of vaccine that were supplied to the camp during the week.

NOTES

This information is not reported within the tally sheets and requires separate records to be kept in each cold chain facility.

It is important for number of doses supplied to take into account any doses of vaccine that were returned to the fridge (this does NOT apply to BCG and Measles vaccine).

> Illustrated Guide to EPI Report (REVERSE)

D

7.3 Vitamin A distribution

Doses distributed	Refugee	National
Post natal		
Dose 1		
Dose 2		
Dose 3		
Dose 4 + above		

E

7.4 Tetanus Toxoid utilisation

Doses administered	Refugee			National		
	Pregnant	Non-Preg.	Other	Pregnant	Non-Preg.	Other
TT 1						
TT 2						
TT 3						
TT 4						
TT 5						

F

7.5 Growth Monitoring

Number of children screened	Refugee		National
	< 1	≥ 1 to < 5	
Green (normal)			
Yellow (borderline)			
Red (danger)			
Oedema			

D VITAMIN A:

Complete Table 7.3, using the sum total of the corresponding black number boxes in the daily Vitamin A tally sheets

E TETANUS TOXOID:

Complete Table 7.4, using the sum total of the corresponding black number boxes in the daily Tetanus Toxoid tally sheets

F GROWTH MONITORING:

Complete Table 7.5, using the sum total of the corresponding black number boxes in the daily Growth Monitoring tally sheets