सत्यमेव जयते

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(2005-2012)

Immunization Handbook

for

Health Workers

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Your suggestions for improving or enhancing the Immunization Handbook for Health Workers are always welcome and encouraged.

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FOREWORD

With the start of the Universal Immunization Programme (UIP) in India in 1985, morbidity and mortality due to vaccine preventable diseases have declined over the years. However, there is a lot of variation in the immunization coverage within States and the districts. Government of India has recently provided additional resources for strengthening UIP to all States under the National Rural Health Mission (NRHM). It is important to ensure that these resources are used to maintain high quality immunization services uniformly and consistently across the country. Efforts have to be made to ensure that the resources provided for improving immunization service delivery are used efficiently and the benefit from them is maximized. Appropriate government oversight at the State and the district level is critical to ensure not only this but also a well supervised performance by the health workers throughout the country towards high quality immunization coverage under UIP.

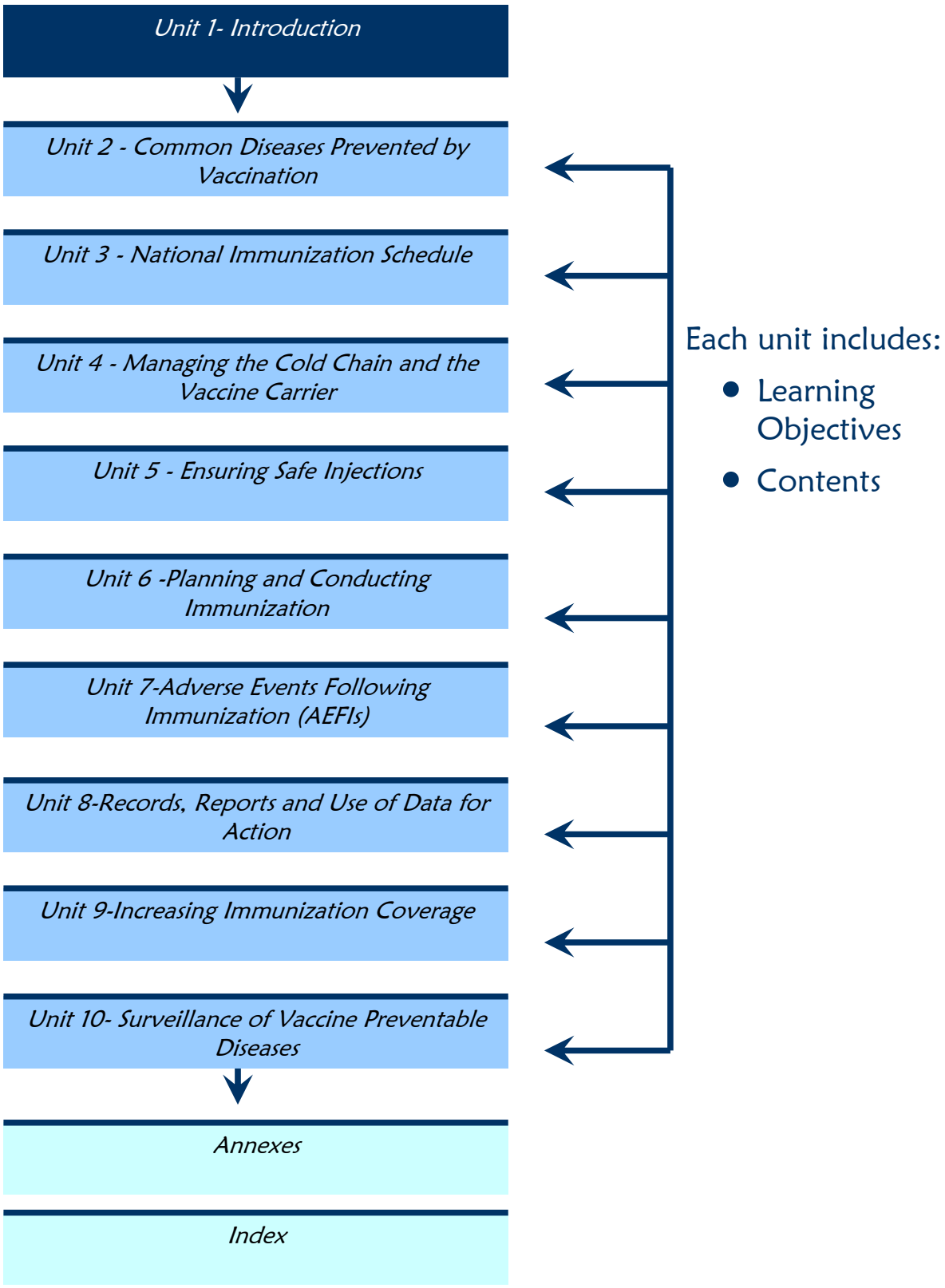
The role of health workers is providing immunization services to pregnant women and children in the community is most critical. It is, therefore, essential that the knowledge and skills of all workers are updated on a regular basis to keep them well versed with not only the basics of immunization but also with the prevailing practices pertaining to the immunization programme.

The Immunization Handbook for Health Workers and Facilitators Guide has been developed to assist the states in conducting a two-day training for health workers to improve their knowledge and skills. I am sure this will benefit the states, the health workers and ultimately the community.

I wish all those involved in the immunization programme success towards implementation of the programme to allow the children of our country to live in an environment that is free of diseases and disabilities.

(PRASANNA HOTA)
Secretary to the Government of India

Overall Handbook Structure



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Acronyms

AD	Auto Disable Syringes
AEFI	Adverse Events Following Immunization
AFP	Acute Flaccid Paralysis
AIDS	Acquired Immune Deficiency Syndrome
ANC	Ante Natal Care
ASHA	Accredited Social Health Activist
AWC	Anganwadi Center
AWW	Anganwadi Worker
BCG	Bacillus Calmette Guerin
CBWTF	Common Biomedical Waste Treatment Facilities
CMO	Chief Medical Officer
CNAA	Community Needs Assessment Approach
DIO	District Immunization Officer
DPT	Diphtheria Pertussis Tetanus
DT	Diphtheria Tetanus
ECR	Eligible Couple Register
EPI	Extended Program on Immunization
HA (M&F)	Health Assistant (Male & Female)
Hep-B	Hepatitis-B
HIV	Human Immune Deficiency Virus
ILR	Ice Lined Refrigerator
IP	Ice Pack
JE	Japanese Encephalitis
MO (PHC)	Medical Officer (PHC)
NGO	Non Governmental Organization
NID	National Immunization Day
NRHM	National Rural Health Mission
NNT	Neonatal Tetanus
NSS	National Social Service
OPV	Oral Polio Vaccine
PHC	Primary Health Centre
PMU	Program Management Unit
RMP	Registered Medical Practitioner
SC	Sub Centre
SMO	Surveillance Medical Officer
SIHFW	State Institute of Health and Family Welfare
SNID	Sub National Immunization Day
TB	Tuberculosis
TBA	Trained Birth Attendant
TT	Tetanus Toxoid
UIP	Universal Immunization Program
VPD	Vaccine Preventable Disease
VVM	Vaccine Vial Monitor

Unit 1 Introduction

Immunization is one of the most well-known and effective methods of preventing childhood diseases. With the implementation of Universal Immunization Programme (UIP), significant achievements have been made in preventing and controlling the Vaccine Preventable Diseases (VPDs). Immunization has to be sustained as a high priority to further reduce the incidence of all VPDs, control measles, eliminate tetanus and eradicate poliomyelitis.

Why immunization?

- Full immunization (i.e. received one dose of BCG, three doses of DPT and OPV each and one dose of Measles before one year of age) gives a child the best chance for a healthy life. Immunization is one of the safest and most cost-effective health interventions available in the world today. Preventing disease before it occurs saves money, energy, and lives.
- Full immunization is attainable.
- Immunization is a key strategy to child survival. By protecting infants from VPDs, immunization significantly lowers morbidity and mortality rates in children. The security provided to families can lead to lower birth rates.
- Immunization is an indicator of a strong primary health care system.

Reasons for Low immunization coverage

- ***Failure to provide immunization*** at planned outreach, sub center or PHC sites.
- ***Dropouts***: Children who receive one or more vaccination, but do not return for subsequent doses.
- ***Unreached populations***

  - Children whose parents do not know about immunization or face socio-economic barriers to utilize services.
  - *Lack of geographic access:* Children who live too far away from a health center or outreach site to realistically complete a full immunization schedule.

- ***Resistant populations**:* Children whose parents do not believe in immunization services, even though a health center is within reach.
- ***Missed Opportunities:*** Children who visit the health center for some other reason, but are not immunized by health workers.
- ***Improper logistics management leading to unmet need***

As a health worker, you play a very important role in improving the Immunization coverage of mothers & children. You are expected to immunize all eligible infants and pregnant mothers in your area, using safe injection practices. You should involve the community through ASHAs, Anganwadi Workers, Panchayat members and school teachers, etc. in improving the immunization coverage by reducing left outs and decreasing dropouts*.*

This handbook is developed to help you improve your knowledge and skills to provide better immunization services to your community.

Unit 2 Common Diseases Prevented by Vaccination

Learning Objectives

At the end of the unit, you should be able to:

- List diseases that are preventable by immunization under the Universal Immunization Programme (UIP).
- Describe their mode of spread and how they can be recognized and prevented.

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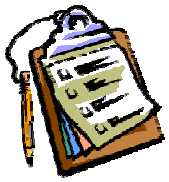

- Diseases prevented by Immunization under UIP Programme.
- Their mode of spread and how they can be recognized and prevented.

The following are the eight targeted vaccine preventable diseases along with their symptoms, mode of spread and methods of prevention.

- Tuberculosis
- Polio
- Diphtheria
- Pertussis
- Tetanus
- Hepatitis B
- Measles
- Japanese Encephalitis

2.1 Tuberculosis

Tuberculosis (TB) is caused by a bacteria (*Mycobacterium tuberculae)*. It is a highly contagious disease that affects the lungs but can also affect the intestines, bones and joints, lymph glands, meninges, and other tissues of the body. TB can cause serious illness and death.

2.1.1 How to recognize the disease?

Figure 2A: A case of TB Meningitis

- An ill child with a history of contact with a suspected or confirmed case of pulmonary tuberculosis.
- An ill child with one of the following: Weight loss, cough and wheeze, which does not respond to antibiotic therapy for acute respiratory infection.

2.1.2 How is it spread?

TB is spread when individuals come in contact with cough or sneeze droplets of infected pulmonary tuberculosis individuals. A variety of tuberculosis called Bovine tuberculosis occurs due to consumption of raw cattle milk without boiling.

2.1.3 How is the disease prevented?

Vaccination with Bacillus Calmette-Guerin (BCG) as per the schedule will prevent serious forms of childhood tuberculosis.

2.2 Polio

Figure 2B : A case of Paralytic Poliomyelitis

Polio is a viral infection that affects the nervous system and can cause severe illness, paralysis, and even death. Due to intensive immunization campaigns, there has been a very significant decline of polio cases in the country since 1999.

2.2.1 How to recognize the disease?

History of sudden onset of weakness and paralysis of the leg(s), and / or arm(s) and/or trunk and history that paralysis was not present at birth or associated with serious injury or mental retardation.

2.2.2 How is it spread?

Polio is transmitted by contact with fecal matter, usually as a result of poor hygiene, or indirectly through contaminated water, milk, or food. More than 50 percent of all cases involve children less than three years of age.

2.2.3 How is the disease prevented?

Immunization with the Oral Polio Vaccine is the only way to effectively prevent infection. Oral Polio Vaccine (OPV) should be routinely administered as per the immunization schedule and during Supplementary Immunization Activities (NID and SNID) till 5 years of age.

2.3. Diphtheria

Diphtheria is caused by bacteria (*Coryne bacterium diphtherae)*. Diphtheria is an infectious disease that commonly infects the tonsils and pharynx, forming a membrane that can lead to obstructed breathing and death.

2.3.1 How to recognize the disease?

Sore throat with gray patch or patches in the throat.

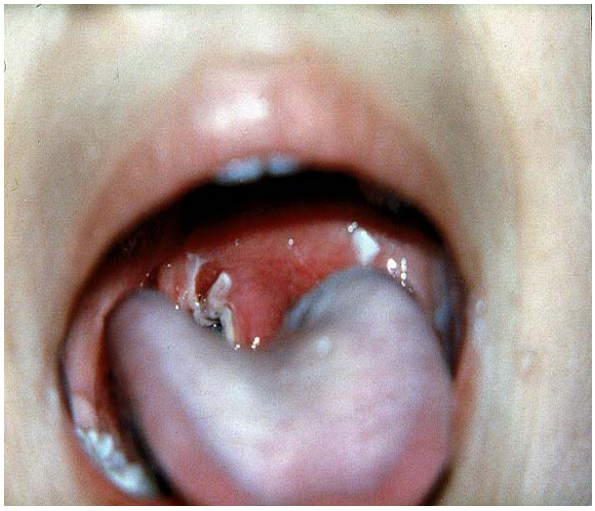

Figure 2C: A case of Diphtheria with membrane in throat

2.3.2 How is it spread?

The bacteria causing diphtheria inhabit the mouth, nose and throat of an infected person. It spreads from person to person by coughing and sneezing.

2.3.3 How is the disease prevented?

The most effective method of prevention is immunization with DPT vaccine in early childhood. Unless immunized, children till 14 years of age are susceptible to repeat diphtheria infections. DPT vaccine should be given as per the immunization schedule.

2.4 Pertussis (Whooping Cough)

Figure 2D: A case of Pertussis with violent cough .

Pertussis, commonly known as whooping cough, is caused by bacteria (*Bordetella pertussis)*. Pertussis is a highly contagious bacterial disease, involving the respiratory tract. It is characterized by repeated cough that may lead to aspiration and possible death, in a few cases.

2.4.1 How to recognize the disease?

A history of repeated and violent coughing, with any one of the following: cough persisting for two or more weeks, fits of coughing, cough followed by vomiting, typical whoop in older infants.

2.4.2 How is it spread?

Pertussis bacteria live in the mouth and nose of the patient and are spread easily through the air, usually from coughing or sneezing.

2.4.3 How is the disease prevented?

DPT vaccine given according to the immunization schedule will prevent Pertussis. Half of all deaths due to Pertussis are in children less than 12 months.

2.5 Tetanus

Tetanus is caused by bacteria (*Clostridium tetani)*. People of all ages can become infected with tetanus.

Figure 2E: A case of Neonatal Tetanus

2.5.1 How to recognize the disease?

Neonatal Tetanus presents with a history of normal suck and cry during the first two days of life, onset of illness between 3 and 28 days of life, inability to suck followed by stiffness of neck and body and/or jerking of muscles.

2.5.2 How is it spread?

Tetanus is present in dirt, intestines and faeces of animals. It enters the body through cuts, punctures or other wounds/infections (like ear infection) and occurs when bacteria come in contact with broken skin or injuries, and also unclean cutting and dressing of the umbilical cord. Neonatal Tetanus (NNT) affects newborn babies that lead to death, if not treated. It generally occurs during the first few days of life, when a woman delivers in unsanitary conditions.

2.5.3 How is the disease prevented?

Immunizing pregnant women and children with TT/DT/DPT as per the immunization schedule is an effective method of preventing both neonatal as well as tetanus in other age groups.

2.6 Hepatitis B

Hepatitis B is a highly infectious viral disease (40-100 times more infectious than HIV) and is the leading cause of jaundice, fulminant liver disease, cirrhosis and liver cancer.

Figure 2F: A case of Hepatitis with Jaundice

2.6.1 How to recognize the disease?

Clinical signs and symptoms include fever, headache, nausea, vomiting, jaundice (yellowish eyes) and light or gray stools. Final confirmation is done by laboratory tests.

2.6.2 How is it spread?

The disease spreads through contact with infected blood or body fluids. It can be acquired during childbirth, through unprotected sex, use of unsterilized needles and sharing of toothbrushes or razors.

2.6.3 How is the disease prevented?

By immunizing children, we can prevent infection and its complications. Hepatitis B vaccine is given along with DPT at 6, 10, and 14 weeks of age. For institutional deliveries, if first dose has to be given at birth followed by two more doses at 6 weeks and 14 weeks.

2.7 Measles

Figure 2G: A case of Measles with rash

Measles is a highly infectious illness caused by a virus that can be found in the nose, mouth or throat of an infected person. Infection is characterized by fever, cough and spreading rash that may lead to death due to secondary infections like diarrhea and pneumonia.

2.7.1 How to recognize the disease?

A history of fever with rash with cough or running nose or red eyes.

2.7.2 How is it spread?

The virus is transmitted through the air by respiratory droplets expelled by infected individuals during coughing and sneezing.

2.7.3 How is the disease prevented?

The measles vaccine is effective in preventing measles and should be given according to the immunization schedule.

2.8 Japanese Encephalitis

Japanese encephalitis (JE) is caused by a virus. It is one of the most deadly forms of viral encephalitis in India. It is prevalent in certain geographical areas in some of the states.

2.8.1 How is it spread?

JE is spread by mosquitoes. The virus normally infects birds and domestic animals, especially pigs. Children get the disease when bitten by mosquito that has bitten an infected animal.

2.8.2 How is the disease prevented?

Immunization is the single most important measure to control Japanese Encephalitis. Separate guidelines will be issued for endemic districts where the JE vaccine will be part of the routine immunization schedule.

Unit 3 National Immunization Schedule

Learning Objectives

At the end of the unit, you should be able to:

- Identify vaccines administered in the National Programme, the ages at which they are given, the number of doses along with the site and route of administration.

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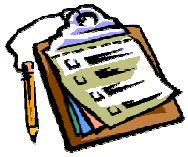

National Immunization Schedule for Infants, Children and Pregnant Women				
Vaccine	***When to give***	***Dose***	***Route***	***Site***
For Pregnant Women				
TT-1	Early in pregnancy	0.5 ml	Intra-muscular	Upper Arm
TT-2	4 weeks after TT-1*	0.5 ml	Intra-muscular	Upper Arm
TT- Booster	If pregnancy occur within three yrs of last TT vaccination*	0.5 ml	Intra-muscular	Upper Arm
For Infants				
BCG	*At birth(for institutional deliveries) or along with DPT-1*	0.1ml (0.05ml for infant up to 1month)	Intra-dermal	Left Upper Arm
OPV-0	At birth if delivery is in institution	2 drops	Oral	Oral
OPV 1,2 & 3	At 6 weeks, 10 weeks & 14 weeks	2 drops	Oral	Oral
DPT 1,2 & 3	At 6 weeks 10 weeks & 14 weeks	0.5 ml	Intra-muscular	Outer Mid-thigh (Antero-lateral side of mid thigh)
Hep B 1, 2 & 3	At 6 weeks 10 weeks & 14 weeks**	0.5 ml	Intra-muscular	Outer Mid-thigh (Antero-lateral side of mid-thigh)
Measles	9-12 months	0.5 ml	Sub-cutaneous	Right upper Arm
Vitamin-A (1st dose)	At 9 months with measles	1 ml (1 lakh IU)	Oral	Oral
For Children				
DPT booster	16-24 months	0.5 ml	Intra-muscular	Outer Mid-thigh (Antero-lateral side of mid-thigh)
OPV Booster	16-24 months	2 drops	Oral	Oral
Vitamin-A (2nd to 5th dose)	• 16 months with DPT/OPV booster • 24 months, 30 months & 36 months.	2 ml (2 lakh IU)	Oral	Oral
DT Booster	5 years	0.5 ml.	Intra-muscular	Upper Arm
TT	10 years & 16 years	0.5 ml	Intra-muscular	Upper Arm

**** TT-2 or Booster dose to be given before 36 weeks of pregnancy.***
*****For institutional deliveries, give at birth, 6 weeks and 14 weeks.***

A Fully immunized infant is one who has received BCG, three doses of DPT, three doses of OPV and Measles before one year of age.

Vitamin A helps the body fight infections like measles and diarrhoea

Frequently Asked Questions on the Immunization Schedule

BCG vaccine

Why give BCG vaccine on the left upper arm only?

BCG is given on the left upper arm to maintain uniformity and for helping surveyors in verifying the receipt of the vaccine.

Why do we give 0.05ml dose of BCG to neonates below 1 month of age?

This is because the skin of newborns is thin and an intradermal injection of 0.1ml may penetrate into the deeper tissue and may cause local abscess and enlarged axillary lymph nodes.

If not given at birth, when should BCG be given?

If not given at birth or along with DPT-1, it can be given any time before 1 year of age.

If no scar appears after administering BCG, should one re-vaccinate the child?

There is no need to revaccinate the child if there is no scar.

OPV

If not given at birth, when should OPV-0 be given?

OPV-0 dose can be given up to 15 days after birth.

Till what age can a child be given OPV?

Under the Pulse Polio Immunization Programme, OPV can be given to children up to 5 years of age.

DPT vaccine

If a child could not receive DPT 1, 2, 3 and OPV 1, 2, 3 as per the schedule, till what age can the vaccine be given?

The vaccine can be given with OPV till 2 years of age. If child comes after 2 years without any DPT vaccination, two doses of DT can be given with OPV at a minimum gap of 4 weeks (or one month).

Why give DPT in the outer mid thigh and not the gluteal region (buttocks)?

DPT is given in the outer mid-thigh and not the gluteal region to prevent damage to the sciatic nerve. Moreover, the vaccine deposited in the fat of gluteal region is not available to develop immunity.

What should one do if the child is found allergic to DPT or develops encephalopathy after DPT?

If a child is allergic or develops encephalopathy after DPT, it should be given DT vaccine during the second dose as it is usually the P (Pertussis) component of the vaccine which causes the allergy/ encephalopathy.

Measles Vaccine

When can measles be given if the child has not received measles vaccine in 9-12 months of age as per schedule?

A single dose of measles vaccine can be given till 5 years of age if the child has not received the vaccine during 9-12 months of age as per the schedule.

Why give the Measles vaccine on the right upper arm only?

Measles vaccine is given on the right upper arm to maintain uniformity and to help surveyors in verifying the receipt of the vaccine.

Vitamin A

What should be the minimum gap between two doses of Vitamin A?

The minimum gap between any two doses of vitamin A should be 6 months.

If a child who has never been vaccinated is brought at 9 months of age, can all the vaccines be given to a child on the same day?

Yes, all the vaccines can be given at the same session but at different injection sites using separate sterile syringes and needles. It is safe and effective to give BCG, DPT, OPV and Measles vaccines and Vitamin A at the same time to a 9 months old child who has never been vaccinated.

If a child who has never been vaccinated is brought between 1 to 2 years of age, which vaccines can be given to the child?

The child should be given DPT-1, OPV-1, Measles and 2ml of Vitamin A solution. It should be given second and third doses of DPT and OPV at one month intervals till 2 years of age.

Should one re-start with the first dose of a vaccine if a child is brought late for a dose?

Do not start the schedule all over again even if the child is brought late for a dose. Pick up where the schedule was left off. For example: If a child who has received BCG, DPT-1 and OPV-1 at 5 months of age, returns at 11 months of age, vaccinate the child with DPT-2, OPV-2 and Measles and do not start from DPT-1 again.

What vaccines should one give to a child who is brought after 5 years of age for the first time?

Give the child only 2 doses of TT.

Emphasize on the need for full immunization <u>NOT</u> necessarily adhering to the date. e.g. if a child comes beyond the due date for a vaccine, the child should receive all the due vaccines.

Unit 4 Managing the Cold Chain and the Vaccine Carrier

Learning Objectives

At the end of the unit, you should be able to:

- Describe the importance of the cold chain.
- Describe which vaccines are sensitive to heat /light and freezing.
- Demonstrate how to prepare ice packs.
- Demonstrate how to pack a vaccine carrier properly.
- Demonstrate how to check vaccines for exposure to heat or freezing.

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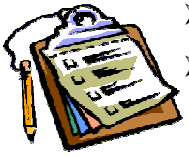


- The reasons for maintaining the cold chain.
- Maintaining the proper temperature of vaccines.

4.1 What is the cold chain?

The “cold chain” refers to the people, equipment, and procedures designed to maintain appropriate temperatures for vaccines from the time they leave the manufacturer, through transportation and storage, until the point of use. Health workers are responsible to maintain the temperature of vaccines at the peripheral level. If a vaccine is exposed to too much heat, light or cold, it can be damaged and lose its potency or effectiveness. If that happens, all the effort to give the vaccine to the child is lost.

4.2 Vaccine sensitivities

As indicated in the chart below, ***DPT, DT, TT, and Hepatitis B vaccines will lose their potency if frozen. Reconstituted BCG and measles vaccines are the most heat and light sensitive and they should not be used after 4 hours of reconstitution.*** Normally, these vaccines are supplied in vials made from dark brown glass, which gives

them some protection against light damage, but care must still be taken to keep them covered and protected from strong light at all times.

Table 4.1: Summary of Vaccine Sensitivities

Vaccine	Exposure to heat/light	Exposure to cold	Temperature at PHC
Heat and light sensitive vaccines			
BCG	Relatively heat stable, but sensitive to light	Not damaged by freezing.	+2°C to +8°C
OPV	Sensitive to heat and light	Not damaged by freezing	+2°C to +8°C
Measles	Sensitive to heat and light	Not damaged by freezing	+2°C to +8°C
Freeze Sensitive Vaccines			
DPT	Relatively heat stable	Freezes at -3°C Should not be frozen	+2°C to +8°C
Hepatitis B	Relatively heat stable	Freezes at -0.5°C (Should not be frozen)	+2°C to +8°C
DT	Relatively heat stable	Freezes at -3°C (Should not be frozen)	+2°C to +8°C
TT	Relatively heat stable	Freezes at -3°C (Should not be frozen)	+2°C to +8°C
At PHC level, all vaccines are kept in ILR in which temperature is maintained at +2^{0}C to +8^{0}C			
Thermo-sensitivity of Vaccines			
most sensitive least sensitive **Heat Sensitive** • OPV • Measles • BCG		most sensitive least sensitive **Freeze Sensitive** • Hepatitis B • DPT • DT • TT	

4.3 How to maintain the correct temperature of vaccines?

Because some vaccines are sensitive to heat and light and some vaccines are sensitive to cold, you must be very careful when packing vaccines, transporting them from the Primary Health Centre (PHC) to the immunization session and storing them during the session.

4.4 What are vaccine carriers?

Figure 4A: Vaccine Carrier

Vaccine carriers are used by health workers for carrying vaccines (16-20 vials) to sub-centers or to villages. They maintain the cold chain during transport from the PHC for one day's use in the field. Vaccine carriers have thick walls and lids and are made of a special material that prevents heat from passing through and reducing the potency of vaccines. The inside temperature of a vaccine carrier is maintained between +2 to +8 degrees centigrade with 4 frozen ice packs for one day (if not opened frequently).

- ***Only vaccine carriers with 4 ice packs should be used. Day carriers with 2 ice packs should not be used.***
- ***Do not leave vaccine carriers in the sunlight; this spoils vaccines that are sensitive to heat and light.***
- ***Do not open the lid unnecessarily as this can allow heat and light into the carrier, which can spoil vaccines.***

4.5 What are ice packs and why do we need them?

- Ice packs are plastic containers filled with water. These are hard frozen in the deep freezer. Do not add salt to water to hasten the freezing.
- Ice packs are kept along the walls of the vaccine carrier and the cold box to keep them and their contents cold.
- **Fill the ice pack up to the mark as shown in the picture and close the cap tightly, so that there is enough ice and the water does not leak when the ice melts**.

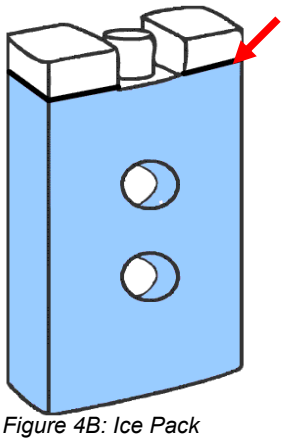


Figure 4B: Ice Pack

- Clean the outer surface of the ice packs with dry cloth before putting these in the deep freezer for freezing.

4.6 How to pack the vaccine carrier?

The vaccines should be collected on the day of immunization.

1. Check the vaccine carrier and make sure the lid fits tightly. Check the insulation for cracks.
2. **Conditioning of Ice packs**-Remove the ice packs from the freezer and keep them outside till you hear the sound of water inside the icepack when shaken next to the ear. This means that there is water in the ice pack and not just ice. The time taken for conditioning ice-packs varies depending on the outside temperature. The icepacks need to "sweat," i.e. some condensation or droplets of water on them. This prevents freezing of vaccines that may come in contact with the ice-packs.
3. **Pack four ice packs** into the vaccine carrier along the sides.
4. Take the required amount of Measles, OPV, BCG TT, DPT, DT and Hepatitis B vaccine, plus one vial of diluent for every BCG and measles vial and place inside a plastic bag. Place this bag in the centre of the vaccine carrier, away from the ice packs. This will prevent labels from peeling off from the vaccine vials. ***The vials of DPT, DT, TT and Hep. B should not be placed in direct contact with frozen ice packs***. The dropper for OPV should also be placed inside the vaccine carrier in the plastic bag.
5. Close the lid securely.

4.7 How long can vaccines be kept in the vaccine carrier?

Usually, vaccines can be stored in a vaccine carrier for one working day only. However this depends on the condition of the ice-packs and the ambient temperature. Vaccines can be kept safely in a vaccine carrier only as long as the ice packs remain at least partially frozen.

- ***Only the diluent provided by the manufacturer (1.25ml normal saline for BCG and 2.5ml pyrogen-free double distilled water for measles vaccine) should be used.***
- ***Diluent should be stored with the vaccine in the vaccine carrier during transportation. It should not come in direct contact with the ice pack***
- ***Do not drop or sit on the vaccine carrier: this can damage the carrier.***
- ***Do not carry vaccines in handbag as this can spoil vaccines that are sensitive to heat.***

4.8 How to keep vaccines cold during the immunization session?

Taking ice packs out of the vaccine carrier will shorten its cold life. During the immunization session, **only one Ice pack can be taken out for keeping OPV and reconstituted BCG and Measles vaccines**. The ice pack, once taken out, should not be put inside the carrier till the end of the session. However, **DPT, TT, DT or Hep B vaccines should never be kept on the ice pack.**

In most areas, the temperature in a vaccine carrier will stay below +8 °C for one day. In order to achieve this:

- *Keep the carrier in the shade and a cool place;*
- *Keep the lid closed during the immunization session.*
- *Reconstituted BCG and measles vaccine can be kept at room temperature for a maximum of 4 hours*
- *Write the time of reconstitution on the label of the vaccine vial and discard after four hours*

4.9 How to be sure that the vaccine is still potent?

Vaccines need to be checked both for damage from excessive heat as well as from freezing.

4.9.1 How to check for heat damage?

OPV vaccine vial label have a small white square inside a blue circle, called a Vaccine Vial Monitor (VVM) that indicated whether that particular vaccine has been exposed to too much heat. Read the VVM (Figure 4C, Page 28) and determine whether the vaccines have been damaged by heat. If these vaccine vials show change in colour to the discard point, then discard the OPV vaccines.

Check whether VVM on OPV is in usable stage before giving the vaccine

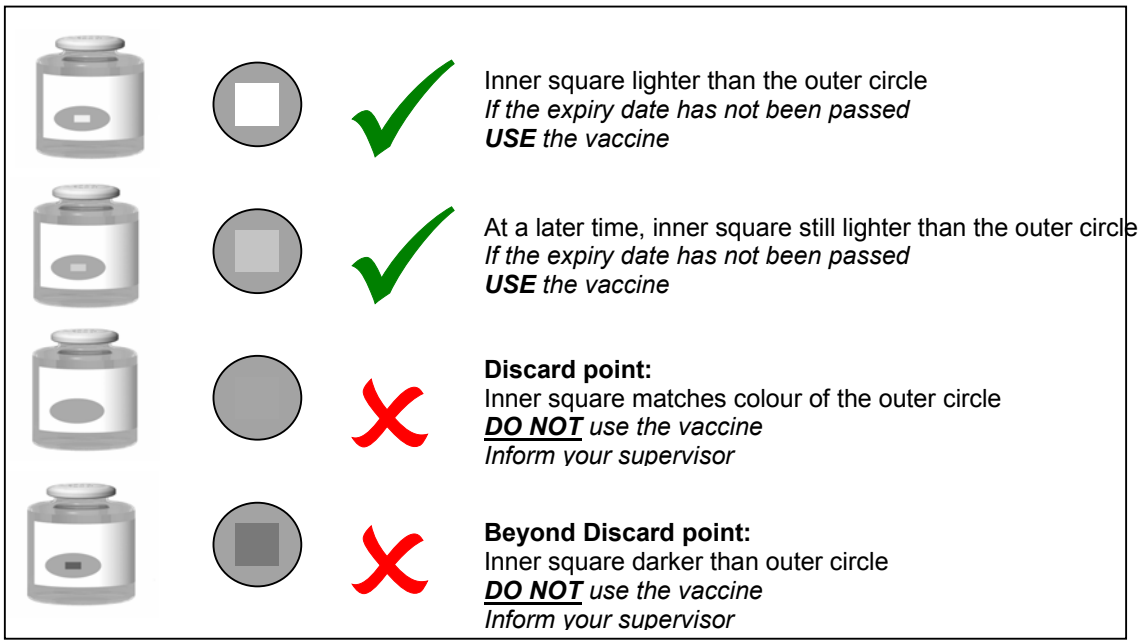


Figure 4C: Vaccine Vial Monitors showing different stages

4.9.2 How to check for cold damage (freezing)

Hepatitis B, DPT, DT and TT vaccines should not be frozen. To check for damage due to freezing (which can also take place due to direct contact of these vaccine vials with frozen ice packs), shake the suspected vaccine vial and keep it for 15-30 minutes. Discard the vial if it has a slower sedimentation rate than a normal vial and it contains flakes.

Discard T-series vaccines and Hepatitis B, if

- ***Frozen***
- ***Floccules after shaking (Shake- test positive)***

4.10 What are Cold Boxes?

Cold boxes are used to collect and transport monthly supplies of vaccines from district stores to the health facility. They are also used to store vaccines when the ILR is out of order and when defrosting the freezer to keep frozen ice packs.

Figure4D: Vaccines transported in a Cold box

Before the vaccines are placed in the cold

box, fully frozen ice packs should be placed at the bottom and sides of the cold box. Thereafter, vaccines should be placed in cartons or polythene bags and placed in the cold box. The vaccines should be covered with a layer of fully frozen ice packs before the cold box is closed. The vials of DPT, DT, TT and Hep B should not be placed in direct contact with the frozen ice packs

Note that vaccines should be transported or stored in cold boxes only with a sufficient number of hard frozen ice packs. In such a case, vaccines can be stored for 90 hours in a 5 ltrs cold box and for six days in a 20 ltrs cold box. The temperature of the cold box should be monitored by keeping a dial thermometer inside the cold box.

4.11 What are Deep freezers?

Deep Freezers are kept at the PHC (140 ltr) and district levels (330 ltrs). At the PHC level, they are used only for making ice-packs. In the 140 ltr deep freezer, 16-20 ice-packs and in 300ltr, 24-26 icepacks can be frozen per day. The cabinet temperature is maintained between -18 to -20 degree centigrade. In case of power failure, they can maintain the cabinet temperature for 18 to 26 hours.

4.12 What are Ice-lined Refrigerators (ILRs)?

ILRs are top opening and lined with pipes of ice or ice packs, which maintain the temperature of the vaccines in case of power failure. Once the pipes are frozen, ILRs are effective even with an electricity supply of 8 hours in 24-hour cycles. These are used to store vaccines at Primary Health Centers. There are no freezer compartments in the ILRs. Hence, they cannot be used to freeze ice packs.

All vaccines must be kept in the basket of the ILR along with diluents. OPV and Measles vaccine can be placed at the bottom of the ILR where the temperature is lower than the rest of the ILR. T series vaccines and Hepatitis B vaccine along with diluents are to be placed in basket. A thermometer should also be placed in the basket along with the vaccines, as this gives the correct temperature.

If no basket is available, place two rows of unfrozen ice packs on the floor of the ILR. The T–series vaccine and Hepatitis B vaccine must never be placed on the floor of the ILR.

All vaccines removed from the ILR must be used or returned to the ILR after the immunization session on the same day. Vaccines that have been returned unused and unopened must be used during the following session, or failing this, during the third session. If they are not used even during the third session, they should be discarded.

4.13 Alternate vaccine delivery support under National Rural Health Mission

The Medical officer of the PHC is responsible to ensure planning of alternate vaccine delivery and delivery of vaccines at the session site according to the micro plans. Funds are being provided by the GOI for this activity.

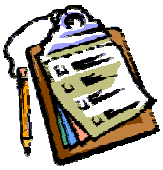
Unit 5 Ensuring Safe Injections

Learning Objectives

At the end of the unit, you should be able to:

- Explain the importance and advantages of safe injection practices.
- Demonstrate how to use AD Syringes.
- Demonstrate safe disposal of immunization waste.

Contents



- The importance of safe injection practices.
- Simple ways to improve injection safety.
- Giving safe injections using AD syringes.
- Safe disposal practices.

5.1 What is a safe injection?

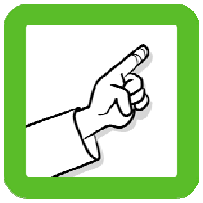
A safe injection is an injection that does not cause harm to the recipient, the provider, or the community. Health workers should assume that all used injection equipment is contaminated and should not be used. They should take the necessary precautions to ensure that no person is potentially exposed to infection or accidental needle-stick injuries.

5.2 What are the risks associated with unsafe injections?

As health workers, we understand that reusing syringes and needles can cause cross-infection and put people at risk. The most common, serious infections transmitted by unsafe injections are Hepatitis B, Hepatitis C, and HIV (the virus that causes AIDS). Poorly administered injections can also cause injuries or drug toxicity when the wrong injection site, drug, diluent, or dose is used. It is important to understand the risks of accidental needle-stick injury, and the importance of safely disposing injection equipment to prevent risks to the community at large.

5.3 Simple ways to improve injection safety

- **Keep hands clean before giving injections**
  - Wash or disinfect hands prior to preparing injection material.
  - Avoid giving injections if the skin of the recipient is infected or compromised by local infection (such as a skin lesion, cut, or weeping dermatitis).
  - Cover any small cuts on the service provider's skin.



- **Use sterile injection equipment, every time**
- **Prevent the contamination of vaccine and injection equipment**
  - Prepare each injection in a designated clean area where contamination from blood or body fluid is unlikely.
  - If the injection site is dirty, wash with clean water
  - Always pierce the rubber cap of the vial with a sterile needle.
  - Do not leave the needle in the stopper of the vial.
  - Follow product-specific recommendations for use, storage, and handling of a vaccine.
  - Discard any needle that has touched any non-sterile surface.

- **Assume all used equipment is contaminated**
  - Cut the used syringe at the hub immediately after use.
- **Practice safe disposal of all medical sharps waste**
  - Used sharps (needles) must be deposited in a hub cutter and then carried to the PHC for safe disposal.
- **Prevent needle-stick injuries**
  - Do not recap.
  - Collect sharps in a puncture proof container (Hub cutter).
  - Anticipate sudden movement of the child.

Tab le 5.1: Unsafe immunization practices

	**Do not recap the needle**
	**Do not leave the needle inside the vial**
	**Do not touch the needle**

According to Government of India's guidelines, all the glass syringes and needles will be replaced with Auto Disable Syringes (ADS) for Immunization purpose. 5 ml. Disposable reconstitution (Mixing) syringes and needles are supplied for reconstitution of BCG and measles vaccines. One sterile (previously unused) disposable syringe and needle will be used, only once for reconstitution of each vial.

5.4. Auto-Disable Syringes

5.4.1. Features of AD Syringes

- Pre-sterilized in a sealed pack
- Have a fixed needle
- Available in two sizes with vaccine drawing capacity of 0.1 ml. and 0.5 ml.

Figure 5A: Auto Disable syringe

Auto Disabled Syringes can only be used once and are the safest

5.4.2. Advantages of AD syringes

- AD syringes are designed to prevent the re-use of non-sterile syringes.
- The fixed-needle design reduces the blank space in the syringe that wastes vaccine and eliminates chances of entry of air bubbles into the syringe due to loose fitting of the needle.
- AD syringes are dose-specific (0.5 ml and 0.1 ml) and hence, drawing the plunger to the full length to the specified marking ensures the correct dose. No further adjustment is required.
- AD syringes are pre-sterilized therefore eliminating the need to carry bulky equipment such as pressure cookers, stove, kerosene, etc. to the session site and help save time.

5.4.3. Injection technique of AD Syringes

In AD syringes the plunger can go back and forward only once. The plunger gets locked after the complete dose of vaccine is pushed in. ***Health workers should NOT draw in air to inject it into the vial before drawing the vaccine.***

5.4.4 Handling syringes and needles safely

Do not touch any part of the needle at the time of drawing and administering the vaccine.

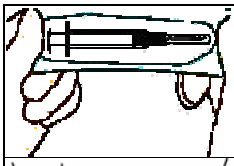
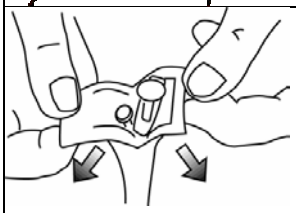
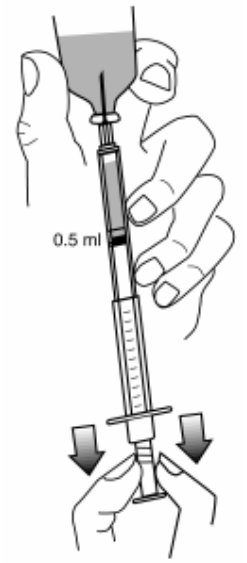
If you touch any part of the needle, discard the syringe and needle and use a new, sterile syringe.

5.4.5 Setting up the immunization work area to minimize risk of injury

You should plan the layout of your work-space so that:

- The vaccine carrier is in the shade.
- Tally sheets can easily be used.
- Your position is between the child and all needles or sharp objects.

5.4.5.1 Injection Technique

	Select the correct syringe for the vaccine to be administered. BCG 0.1ml and all others 0.5ml can be put on a table.
	Check the packaging. Don't use if the package is damaged, opened, or expired.
	Peel open or tear the package from the plunger side and remove the syringe by holding the barrel. Discard the packaging into a **black** plastic bag.
	Remove the needle cover/ cap and discard it into the **black** plastic bag. Do not move the plunger until you are ready to fill the syringe with the vaccine and **do not inject air into the vial as this will lock the syringe.**
	Take the appropriate vaccine vial, invert the vial, and insert the needle into the vial through the rubber cap. Insert the needle such that the tip is within the level of the vaccine. If inserted beyond you may draw air bubble which is very difficult to expel. **Do not touch the needle or the rubber cap (septum) of the vial**.
	Pull the plunger back slowly to fill the syringe. The plunger will automatically stop when the necessary dose of the vaccine has been drawn (0.1 or 0.5 ml). **Do not draw air into the syringe.** In case air accidentally enters the syringe, follow these steps to remove the air bubbles : a) Remove the needle from the vial. Holding the syringe upright, tap the barrel to bring the bubbles towards the tip of syringe. b) Then carefully push the plunger to the dose mark (0.5 or 0.1 ml) thus expelling the air bubble.
	If the injection site is dirty then clean it with a clean water swab and administer the vaccine. (BCG: Left upper arm; DPT, DT and Hep B: Antero-lateral aspect (outer side) of mid thigh Measles: Right upper arm; TT: Upper arm) Push the plunger completely to deliver the dose. **Do not rub the injection site after vaccine is given.**
	Cut the hub of the syringe immediately after use with a hub-cutter that collects the sharps in a translucent plastic container.
	Do not recap the needle. Then collect the plastic portion of the cut syringes in a red plastic bag.
	Destroyed syringes, barrels and needles must be disinfected at the designated place and properly disposed off.

5.5 Guidelines for Waste Disposal

Figure 5B : Electrical and Manual Hub Cutters

Step1 Cut the needle of the AD syringe immediately after administering the injection at the immunization site using the Hub cutter that cuts plastic hub of syringe and not the metal part of needle.

Step 2 The cut needles will get collected in the puncture proof translucent container of the hub cutter.

Step 3 Store broken vials in a separate white translucent sturdy and puncture proof container or in the same hub cutter in case its capacity is able to accommodate broken vials also.

Step 4 Segregate and store the plastic portion of the cut syringes and unbroken (but discarded) vials in the red bag or container.

Step 5 Send the collected materials to the Common Bio-medical Waste Treatment Facilities (CBWTF). If CBWTF doesn't exist then, go to step 6.

Step 6 Treat the collected material in an autoclave. If it is unable to impart autoclaving, boiling such waste in water for at least 10 minutes or chemical treatment[1] may be done. Make certain that these treatments result in disinfection. However, District

[1] Chemical treatment should be done using at least 1% solution of sodium hypochlorite for 30 minutes

Hospital/CHC/PHC etc. will ultimately make the necessary arrangements to autoclave on a regular basis.

Step 7 Dispose the autoclaved waste as follows:

- Dispose the needles and broken vials in a safety pit/tank
- Send the syringes and unbroken vials for recycling or landfill.

Step 8 Wash the containers properly for re-use

Step 9 Make a proper record of generation, treatment and disposal of waste

Disposal of bio-medical waste generated at Outreach Points/outside District Hospitals/CHCs/PHCs etc.

Steps 1 to 4 are same as above.

Carry the Immunization waste generated in the outreach sessions and hand over these to the District Hospitals/CHC/PHC, etc for further disposal according to steps 5 onwards stated above.

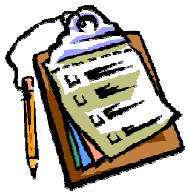
Unit 6 Planning and Conducting Immunization

Learning Objectives

At the end of the unit, you should be able to:

- Draw a map that identifies the locations of all outreach sessions.
- Develop a weekly Work plan and Mobility plan for immunization, including ASHA and AWW.
- Calculate requirement of vaccines, syringes, supplies and equipment.
- Plan for all vaccine delivery.
- Demonstrate how to conduct an immunization session.
- Demonstrate the correct administration techniques for each vaccine.

Contents



- Steps in preparation of a Sub-center Micro plan.
- Estimating immunization-related needs for each session.
- Arranging an Immunization session.
- Conducting an Immunization session.
- Administering vaccines.

6.1. What is the Micro plan for immunization?

In terms of immunization, the micro plan for a sub-center is a work plan and estimate of vaccine and supply needs. The **Work plan**, displayed in the sub center, (see page 42) includes**:**

- Who are the target beneficiaries?
- What services will be provided (type of vaccine to be provided to each beneficiary)?
- Who will provide the services? (Immunization and social mobilization)
- Where and how will the services be provided (selection of sites)?
- When will the services be provided (planning of sessions)?

6.1.1. Guidelines for selection of immunization sites

- Session sites should be finalized after discussions with the AWW, ASHA, TBAs, other service providers and Panchayat members,.
- Community members should also be consulted and should fix a mutually convenient site and time for the immunization session.
- Government buildings (sub-centers or Anganwadi Centers) should be preferred as Immunization site. In case, both do not exist then alternative sites such as Community Centers, Schools and other places, which are easily accessible to all sections of the community should be selected for holding immunization sessions. For hard-to-reach areas, with few beneficiaries, sessions can be planned at sites close to the community.
- All attempts should be made not to change session sites and times unless required.

ANM should share with AWW and ASHA:

- ***Where and when is the next session?***
- ***Who are the due children, to ensure that they bring all children to the session?***

6.1.2. Guidelines for estimation of the number of sessions for each sub-centre

The number of sessions will depend on the injection load.

- Out reach sites
  - For every 25-50 injections, one session can be planned
  - If more than 50 injections are expected, then two sessions can be planned.
  - If less than 25 injections are expected, then a session can be planned for every alternate month.

Vaccination sessions may be organized at an interval of one, two or three months, depending on the expected injection load per immunization session.

- Fixed sites (Sub center /PHC/CHC)
  - One session can be held for 40-70 injections load.
  - If the load is more than 70 injections, then two sessions can be held in a month.

For hard to reach areas, a minimum of 4 sessions in a year (once every quarter) should be held.

6.1.3 Steps in preparation of a sub-center micro plan

Step 1. List all villages and hamlets in the sub-center area

Step 2. Write the population of each village

Step 3. Write estimated number of beneficiaries (children and pregnant mothers). Match this figure with the number of infants in the records of the AWW.

Assuming a birth rate of 25 per 1000 population, approximately 25 infants would need to be immunized per year in a village having a population of 1000. This means that there would be approximately 2 infants and 2 pregnant women for immunization every month. The monthly injection load for such a village can be calculated as follows:

- 2 infants for BCG and 2 infants for Measles (4 injections)
- 2 infants each for DPT and OPV 1,2,3 (6 injections)
- 2 infants each for Hepatitis B 1, 2, 3 (6 injections). (**This may be calculated in districts having Hepatitis B in Immunization program).**
- 2 Children each for DPT booster and DT booster (4 injections)
- 2 pregnant women, each for TT1 and TT2 are expected per month (4 injections)

Therefore, a total of about 24 injections need to be given in a month. In case Hepatitis B is not included, then the injection load will be 18 per month. This means that one session has to be held every month.

Step 4. Prepare a map of sub-centre showing:

- All villages and hamlets with their population and expected beneficiaries.
- All Anganwadi centers
- Distance of villages from the sub-center and the mode of transport.

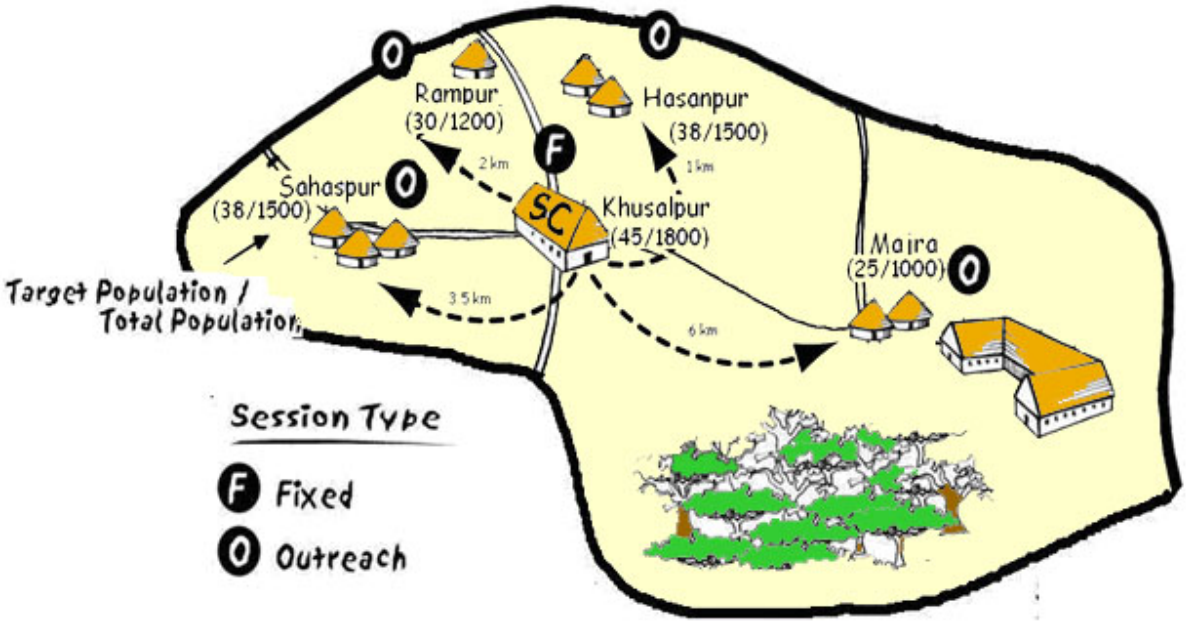


Figure 6A: Map of Khusalpur sub-center

- Other Important landmarks as Panchayat Bhavan, School, Roads etc.

Step 5. Prepare the Sub Centre Session Plan & Work Plan

Table 6.1: Example of Sub-center (Khusalpur) Session Plan & Work Plan

Sl. No.	Village Name	Distance from SC	ANM	AWW	ASHA/ Social Mobiliser	Vaccination		Population	Annual Target		Monthly Target		Beneficiaries per session							Vaccine Vials per session							Injections per session	Syringes per session		
						Day	Site		Pregnant Women	Infants	Pregnant Women	Infants	TT	BCG	DPT	OPV	HepB	Measles	DT	TT	BCG	DPT	OPV	HepB	Measles	DT		0.1 ml ADS (BCG)	0.5 ml ADS	5 ml Reconstitution
1	Khusalpur (SC Village)	0	Rajkumari Devi	Pooja	Geeta	1st Wed.	Fixed at SC	1800	50	45	4	4	8	4	16	16	12	4	4	1	1	2	1	2	2	1	48	5	49	3
2	Sahaspur	3.5 km		Rani	Lalita	2nd Wed.	Outreach at AWC	1500	42	38	3	3	6	3	12	12	9	3	3	1	1	2	1	2	1	1	36	4	37	2
3	Rampur	2 km		Bela	Kamini	3rd Wed.	Outreach at Panchayat Bhavan	1200	33	30	3	2	6	2	8	8	6	2	2	1	1	1	1	1	1	1	26	3	27	2
4	Hasanpur	1 km		Mina	Shabnam	4th Wed.	Outreach at AWC	1500	42	38	3	3	6	3	12	12	9	3	3	1	1	2	1	2	1	1	36	4	37	2
5	Majra	6 km		Laali	Kamla	3rd Sat of alternate months	Outreach at Community leaders house	1000	28	25	2	2	4	2	8	8	6	2	2	1	1	1	1	1	1	1	24	3	25	2

6.2 Listing equipment and supplies required for fixed and outreach immunization sessions

a. Source of clean water	j. Paracetamol liquid or tablets
b. Vaccine carrier	k. Soap for hand washing
c. Frozen Ice packs	l. Metal file to open ampoules
d. Vaccines and diluents	m. MCH card/ Immunization card
e. AD Syringes	n. Immunization register
f. Disposable syringes	o. Counterfoils pertaining to the session
g. Hub cutter	p. Immunization tally sheets
h. Equipment for waste disposal – Black and Red bags	q. Table, stools and chair
i. Cotton swabs	

6.3 Arranging the immunization session

Choose an appropriate location

Ideally, the immunization session sites should have:

• Adequate space to accommodate beneficiaries before and after being immunized; space for registration, immunizing and recording.

• A table for vaccines and injection equipment

• A seat on which a parent can sit while holding a child for immunization

• A seat for the health worker

Place everything you need within reach

A table is required to hold the equipment and stationery used while giving immunization.

On the table you should put:

- Vaccine carrier
- Hub Cutter
- Immunization cards and records
- Cotton swabs
- Clean water for cleaning the injection site

You should keep red and black bags near the table, for keeping used syringes etc. Also keep a bowl, water and soap for scrubbing your hands clean before beginning the immunization session and every time your hands come in contact with any un-sterile surface.

6.4 Conducting Immunization session

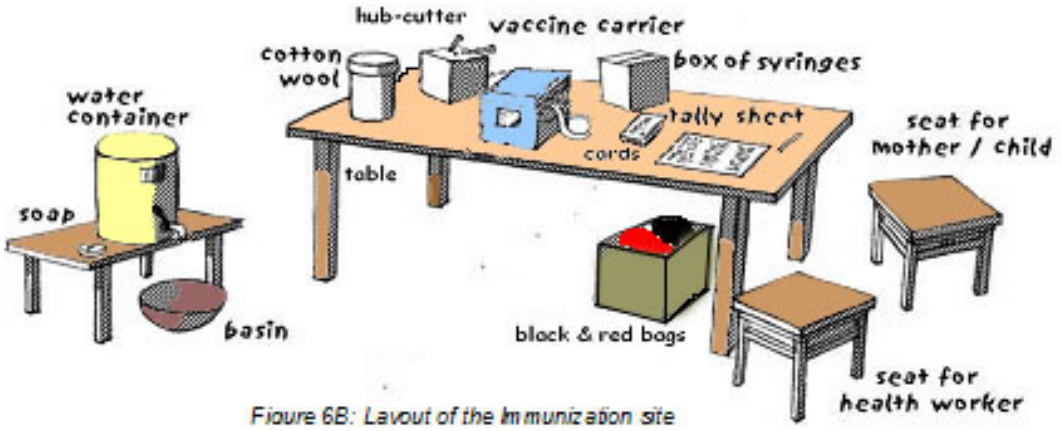


Figure 6B: Layout of the immunization site

6.4.1 Steps in conducting the immunization session (also refer to Annex 1 and 2)

You should follow the steps given below while conducting an immunization session:

1. Welcome the beneficiaries.
2. Verify beneficiaries' record and age and check that the beneficiary is due for vaccination today.
3. Explain what vaccine(s) will be given and the route of administration.
4. Screen for contraindications.
5. Check vial expiry date and double check vial label. Do not use if there is no label on vaccine vial. For OPV, check VVM.
6. ***Wash hands*** before reconstituting vaccine and conducting the session. Write the time of reconstitution on the vial (BCG,Measles).
7. Maintain aseptic technique throughout.
8. For T-Series Vaccines, lightly shake the vials before withdrawing the dose.
9. Use only diluent supplied with the vaccine (Double distilled water (2.5 ml) for Measles & normal saline (1 ml) for BCG.
10. Inject the vaccine at the correct site and follow the correct route of administration of the vaccine e.g. intradermal; sub-cutaneous; intramuscular.
11. Inject the vaccine using steady pressure.
12. Withdraw the needle at the angle of insertion.
13. ***Do not massage the injection site after giving the injection.***

14. Cut the needle at the hub with the hub cutter. Collect cut needles in the hub cutter and place the cut syringes in the red bag.
15. Explain potential minor side-effects/ problems that may occur due to the vaccine and how to deal with them.
16. Ask beneficiaries to wait there for some time (15-30 minutes) after giving the injection
17. Fully document each immunization in the immunization card, tally sheets and immunization register
18. Remind beneficiaries /parents about the next visit and ask them to bring the card on next visit.
19. Retain the counter foil in the tickler box / tracking bag shown in Unit –8 (Figure 8B, Page 61)
20. Ensure disinfection of the needles and syringes before disposal.
21. Disposal of syringes and needles should be done as per guidelines.

- ***BCG & Measles vials should be opened even for one beneficiary.***
- ***Spend approximately 5-10 minutes for each child for immunizing, recording, communicating etc.***

6.4.2 Contraindications to immunization

All infants should be immunized except in these rare situations:

1. Anaphylaxis or a severe allergic reaction is an absolute contraindication to subsequent doses of a vaccine. Persons with a known allergy to a vaccine component should not be vaccinated.
2. Any serious AEFI reported during previous vaccination to the child with the same vaccine is also a contraindication. e.g. convulsion and encephalitis with a previous dose of DPT
3. High fever

Mild fever, diarrhoea, and cough are not contraindications for immunization

6.4.3 Selecting safe and potent vaccines

Before beginning your immunization session, and before giving each vaccine, follow these steps to ensure that every dose that you are going to give is safe and effective

- **Check label:** Make sure the label on the vaccine vial is attached and clear enough to read. If you find that the label is not clear enough to read or has come off, **discard the vial.**
- **Check vaccine:** Check that the vaccine being given is the correct one.
- **Check expiry:** Look for the expiry date on the vial. If the expiry date has passed, do not use the vial; **Discard it.**
- **Check the vaccine vial monitor (VVM)** on OPV vials to make sure that the vaccine is in the usable stage.

6.4.4 Reconstituting vaccines

BCG and measles vaccines are freeze-dried and must be reconstituted with diluents before use. Keep the diluents in the middle of the vaccine carrier. Do not freeze the diluents because the ampoules can break when frozen.

- Diluents for BCG are normal saline.
- Diluents for measles are pyrogen-free, double-distilled water.

When reconstituting vaccines, follow these steps carefully:

- Double check that you have chosen the correct diluent, which has been supplied by the manufacturer for the specific freeze-dried vaccine you are going to mix.
- Reconstitute the vaccine even when only one eligible child is present. Vaccination is more important than wastage.
- Use a separate 5ml disposable syringe for measles and BCG for mixing. Do not use for injecting.
- Open the vaccine vial and Open an ampoule of diluent.
- Draw the required quantity of the diluent into the mixing syringe. Tap the vaccine vial or ampoule sharply before opening and then shake till all the vaccine powder has settled to the bottom.
- Insert the reconstitution needle into the vaccine vial, inject the diluent into the vial and remove the needle.
- ***Do not leave the needle in the stopper of the vial***.
- To mix the vaccine and diluent, roll the vial between the palms of your hands.
- Write the time of reconstitution on the vials.
- ***Use the reconstituted vaccine, within four hours of reconstitution. If more than four hours have passed, then discard the vaccine and reconstitute a new one.***

6.4.5 Positioning the child for immunization

The correct positioning of a child for immunization is to ask the mother (or caregiver) to sit with the baby on her lap with one arm around the back of the baby, holding the baby's hand and leg steady. The baby's other arm should wrap around the mother's side.

Figure 6C: Correct position of the child for immunization

6.4.6 Giving the injection

Vaccine administration is the key to the successful outcome of any immunization programme. The ease and efficiency with which vaccine administration is done goes a long way towards establishing confidence in the minds of beneficiaries and helping to achieve the goal of full coverage. The following are critical to delivery of safe and effective immunization services.

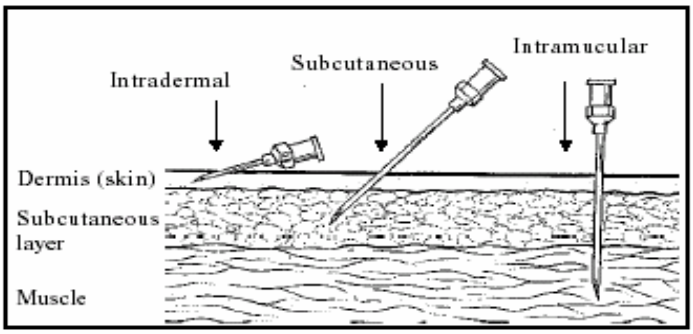


Figure 6D: Various Needle Positions

Always give vaccines through the correct route and at the correct site

Intra-dermal injection (BCG)

An Intra-dermal injection is one given directly into the dermis (skin) layer. Carry out the following steps when giving an intra-dermal injection:

1) Position the baby, and load the reconstituted BCG vaccine 0.05 ml for infants under one month and 0.1ml for infants older than one month.
2) Position your left hand under the child's left arm and gently pull the skin under the arm to stretch the skin at the injection site.

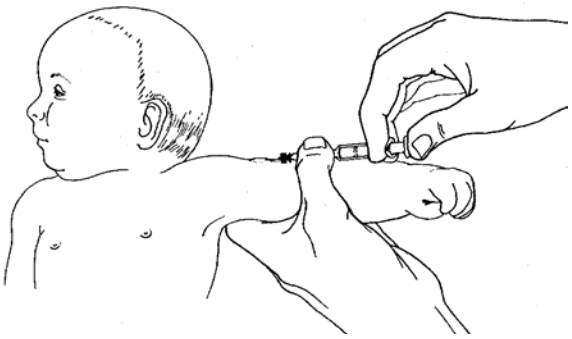


Figure 6E: Intra-dermal Injection

3) Hold the syringe in your right hand with the leveled edge of the needle pointing up towards you.

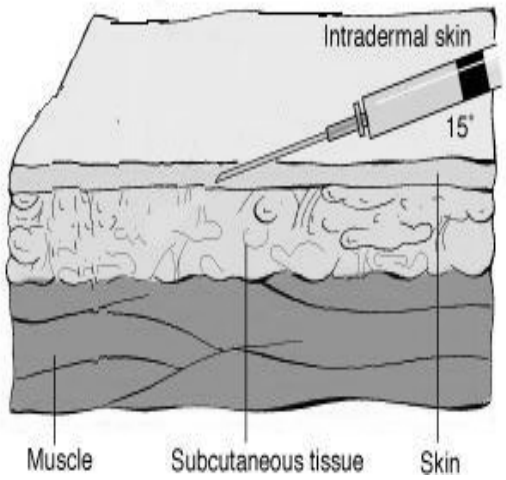


Figure 6F: Intra-dermal Needle Position

4) Insert the tip of the needle into skin- just the bevel and a little bit more at 15^0 angle.
5) Do not push too far, and do not point downward **(This way, the needle will go under the skin and will make the injection subcutaneous, instead of Intradermal)**
6) Put your left thumb over the needle-end of the syringe (not on the needle itself) to hold it in position.
7) Hold the plunger end of the syringe between the index and middle fingers of your right hand and press the plunger in with your right thumb.
8) Inject vaccine (0.05/0.1 ml as required) and withdraw the needle.
9) Cut the needle with the hub cutter and put plastic portion of the syringe into the red bag.
10) If the technique is correctly followed, there will be a clear, flat-topped swelling in the skin. The swelling may look pale, with very small pits (like an orange peel).

After 2-3 weeks of a correct injection, a papule develops which increases slowly in size up to 5 weeks (4-8mm). It then subsides and breaks into a shallow ulcer. Healing occurs spontaneously within 6-12 weeks, leaving a permanent tiny round scar, 4-8 mm in diameter. This is a normal reaction. When the technique is incorrect (the vaccine will go in easily and no swelling will be visible).

1. If the whole dose has been delivered under the skin, consider the child vaccinated. Do not repeat the injection.
2. If the whole dose has not been administered, reposition the needle and give the remaining dose.
3. Follow-up for side effects such as abscess and enlargement of the glands.

Intra-muscular injection (DPT, TT, DT and Hepatitis B)

Intra-muscular injections are injections given into the muscle tissue. All intramuscular injections should be given in the anterolateral aspect of the thigh (mid-outer thigh). Pregnant women should be injected on the outer aspect of the left upper arm. Carry out the following steps when giving an intra-muscular injection:

Figure 6G: Intra-muscular Injection

1. Check the vaccine vial.
2. Position the child on the mother's lap.

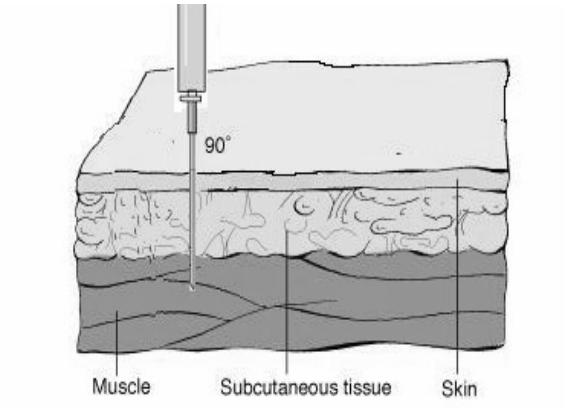


Figure 6H: Intra-muscular Needle Position

3. Load the vaccine into a 0.5 ml AD syringe (throw the AD syringe wrapper or plastic caps in the black bag).
4. If necessary, expel excess air from the syringe by tapping the syringe.
5. Make sure you have exactly 0.5 ml of vaccine in the syringe (no more, no less).
6. Put your finger and thumb of your left hand on either side of the injection site.
7. Stretch the skin flat between finger and thumb.

Do not massage the injection site after vaccination

8. Hold the syringe like a pen in the right hand and push the needle straight down at 90^0 (as it will traumatize fewer muscle fibers) through the skin between finger and thumb. Penetrate deep into the muscle, but not all the way to the bone.
9. Press the top of the plunger with the thumb to inject the vaccine.
10. Withdraw the needle and press the site of injection with a dry cotton swab.
11. Cut the needle with the hub cutter and put the plastic part of the syringe into the red bag.

Caution: Infants should never be given injections in the buttock as evidence indicates that there is risk of damaging the nerves in the area. The vaccine will also be less effective if injected deep into fatty tissues.

Subcutaneous injection (Measles)

A subcutaneous injection is one that is given into the thin layer of tissue between the dermis (skin) and the muscle. The injection should be given in the right arm in the deltoid site of the skin. Carry out the following steps when giving a sub-cutaneous injection:

Figure 6I: Sub-cutaneous Injection

1. Make sure the reconstituted vaccine has not expired (To be used with in four hours of reconstitution)
2. Position the child on the mother's lap.
3. Load the vaccine into a 0.5ml AD syringe (put the AD syringe wrapper or plastic caps in the black bag)
4. If necessary, expel excess air from the syringe by tapping the syringe.
5. Make sure you have exactly 0.5ml vaccine in the syringe (no more, no less).
6. Pinch the skin of the right upper arm through the left index finger and thumb.
7. Push the needle in a slanting position at 45^0 angle into the pinched-up skin. Do not push the needle too far in.
8. Press the plunger with your thumb to inject the vaccine.

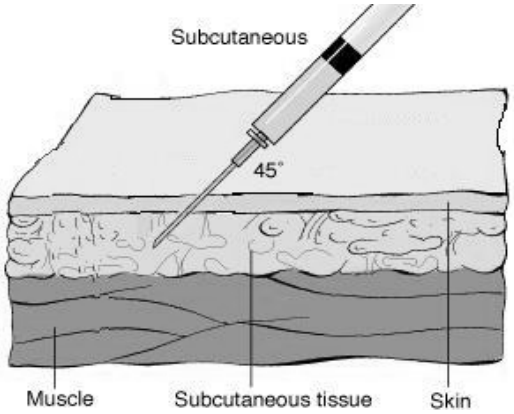


Figure 6J: Sub-cutaneous Needle Position

9. Withdraw the needle and press the site of injection with a dry cotton swab.
10. Cut the needle with the Hub cutter and put the plastic part of the syringe into the red bag.

Oral administration (OPV)

The Oral Polio Vaccine (OPV) comes in a glass/plastic vial with a sterile dropper. The vaccine is given orally; two drops in the child's mouth.

Figure 6H: OPV Administration

1. Check VVM on the vial before use
2. Remove the metal or rubber cap on the vaccine vial.
3. Fit the dropper on the vial.
4. Put two drops directly in the mouth of the child. Take care that the dropper does not touch the mouth.
5. Make sure the child swallows the vaccine. If it is spit out, give another dose.

Role of health workers in the Pulse Polio Immunization programme.

Pulse Polio Immunization is one of the strategies to eradicate Poliomyelitis, beside AFP surveillance, Routine Immunization and Mop-up campaigns for Polio.

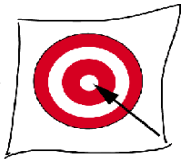
All health workers:

- Should be involved in micro planning of booth and house-to-house activity
- Work as vaccinators for immunizing children with OPV vaccine, fill up tally sheet and mark the left little finger with indelible ink /ink pen provided to them.
- Lead the team for booth and house to house activity
- Visit all houses assigned to their teams and immunize all children.
- Mark all houses with the P/date for the house where they immunized all children and X/date if any child is left unimmunized.
- Use the tally sheet to record all houses visited and children immunized.
- Take all precaution to keep vaccine potent.
- Inform the community about the Pulse Polio booth day and place banners, posters and other IEC materials at prominent places, before the pulse polio round

Unit 7 Adverse Events Following Immunization (AEFIs)

Learning Objectives

At the end of the unit, you should be able to:



- Identify common adverse events.
- Prevent adverse events from occurring in your service delivery area.
- Manage an adverse event.

Contents

7.1 What is an Adverse Event Following Immunization?

An Adverse Event Following Immunization (AEFI) is a medical incident that takes place after an immunization, causes concern, and is believed to be caused by immunization. An AEFI may occur because of programmatic errors or sensitivity to vaccine or it may occur coincidentally. Whatever the cause, AEFIs must be taken seriously and the management must be rapid and professional.

Remember: Common, minor side effects, such as a slight fever, pain, swelling or redness at the site of the injection, and irritability usually resolve without any serious consequences. Hence, there is no need to report these reactions as AEFIs on a routine basis. They are normal reactions that become all right with extra fluids, rest and Paracetamol, when necessary.

7.2 Types of AEFIs

There are several categories of adverse events following immunization, depending on how they occur.

Table 7.1: Types of AEFIs

Classification	Cause of Event	Example
Programmatic error	Event caused by an error in vaccine selection, storage, preparation, handling, or administration: • Wrong vaccine used, • Vaccine reconstituted incorrectly • Needle left in vial • Wrong technique used • Expired vaccine used • Reconstituted vaccine not discarded after 4 hours. • Freezing of freeze-sensitive vaccines(DPT, DT, TT)	BCG injection given sub-cutaneously instead of Intradermally
Vaccine reaction	A rare event that is caused by the inherent properties of the vaccine, not by Programmatic error.	Child has an allergic reaction to Vaccine.
Coincidence	Event not caused by the vaccine (a chance association)	Child shows signs of measles a few days/ weeks after DPT vaccine is given.
Injection reaction	Event is caused by pain from (or fear about) the injection itself.	Child screams and faints at the sight of the needle.
Unknown	The cause of the event cannot be determined.	Child develops respiratory infection or fever a few days after Injection.

The most common adverse events following immunization are a result of programmatic errors. Below is a list of common programmatic errors and their consequences.

Table 7.2: Types of Programmatic Errors causing AEFIs	
Programmatic Errors	**Possible Adverse event that may occur**
Non-sterile injection: • Improperly sterilizing syringe and needle • Contaminated vaccine or diluent • Re-use of reconstituted vaccine at subsequent sessions • Wiping the needle with a swab • Administering injection over clothes	• Infection such as local abscess at site of injection, sepsis, toxic shock syndrome or death.
Re-use of disposable syringe and needle	• Transmission of blood-borne infections such as Hep B, HIV, Hep C
Reconstitution Error/ Wrong vaccine preparation • Reconstitution with incorrect diluent • Drug substituted for vaccine diluent • Inadequate shaking for T- series vaccines	• Vaccine ineffective • Negative effect of drug, e.g. insulin causing death • Local abscess
Injection at incorrect site • BCG given sub-cutaneously • DPT/DT/TT given superficially • Injection into buttocks	• Local reaction or abscess • Local reaction or abscess • Sciatic nerve damage
Vaccine transportation/storage incorrect	• Local reaction from frozen vaccine • Vaccine ineffective
Contraindications ignored	• Avoidable serious reaction

7.3 Elicit past history of AEFIs

Ask parents about the history of any adverse reaction following earlier vaccinations, such as convulsion after DPT vaccination.

7.4 How to minimize AEFIs in your area?

The most important thing a health worker can do to manage adverse events is to minimize the chances that an adverse event following immunization occurs in the first place. Most adverse events are caused by programmatic errors.

The following are some ways you can minimize the most common causes of adverse events following immunization:

- A separate site should be used for each vaccine.
- One syringe & one needle should be used for each injection.
- Use auto-disable syringes for all immunization injections. If auto-disable syringes are not available, follow correct sterilization procedures for glass syringes and needles with utmost care (including curative injections).
- Reconstitute vaccines only with diluents supplied by the manufacturer for that vaccine.
- Use Measles and BCG vaccine within 4 hours of reconstitution. If they could not be used with in 4 hours then reconstituted vials should be discarded, irrespective of number of doses remaining in the vials.
- Keep diluents of BCG and measles vaccine separate from other potentially harmful liquids.
- Do not keep needles in the rubber cap (stopper) of vaccine vials. This can cause toxic shock syndrome, a deadly and completely avoidable adverse event.
- Do not store other drugs or substances in the ice-lined refrigerator or deep freezer. These refrigerators are only meant for vaccines.

7.5 What to do if an AEFI occurs?

When a severe adverse event occurs, the health worker should immediately contact the Medical Officer and if needed should accompany the patient. All vaccines can cause minor vaccine reactions in some patients. These mild reactions are normal and do not need to be reported.

Table 7.3: Minor Reactions due to vaccines (Normal and not required to be reported)		
Mild vaccine reactions	**Treatment**	**When to report**
Local reaction (pain, swelling, redness)	• Cold cloth at injection site • Give Paracetamol	• In case of an abscess
Fever > 38.5^0C	• Give extra fluids • Wear cool clothing • Give tepid sponging • Give Paracetamol	• When accompanied by other symptoms
Irritability, malaise and systemic Symptoms	• Give extra fluids • Give Paracetamol	• When severe or unusual

Unit 8 Records, Reports and Use of Data for Action

Learning Objectives

At the end of the unit, you should be able to:

- Describe the importance of record keeping
- Screen/ register children for immunization using the immunization card
- Record the information accurately, adequately and completely in the prescribed registers.
- Correctly file and use counterfoils to track beneficiaries, calculate vaccine requirement etc.,
- Maintain and submit records and reports in a timely manner.

Contents

- Importance of record-keeping
- Infant Immunization Cards & counterfoils
- Tally Sheets
- Mother and Child Register
- Monitoring Chart
- Monthly Progress Report

8.1 Importance of Record-Keeping

Accurate, reliable, and timely information is critical to the success of any activity. The following records are the foundation of all the health information generated at the sub-center and higher levels:

- Infant immunization card
- Tally sheet
- Mother and child register
- Monitoring chart (for coverage, dropout and left out)
- Monthly progress report

Remember that the information from the Sub centers is the one that is compiled and sent upwards to the National level for policy and planning

8.2 Infant immunization card and Counterfoils

A correctly and completely filled Infant immunization card contains a child's date of birth, complete address and immunization status. The immunization card is important for the following reasons:

- It serves as a reminder for parents to return to the clinic on the scheduled date until the child has achieved full immunization.
- It helps the health worker determine a child's immunization status
- It helps the health system track coverage, dropouts and performance.

To properly use the card:

For Beneficiaries coming for the first time:

- Issue a new card (registration) to the pregnant woman at the time of first ANC visit.
- Assign a typical running number, such as ECR survey number or ANC number.
- Inform the mother that the same card would continue for her child too, hence it is important to keep it safe as she does other important documents like the ration card. Also ask her to bring the same card during her subsequent visits to the health centre in future.
- Record the date, month and year of all entries clearly.
- **Write date of birth of the infant and not the age in months**.
- If the beneficiary cannot give the exact date, try to get the exact dates using local calendar/ fairs and festivals.
- Do not leave any cells or columns blank.
- After filling up all the columns, retain the smaller portion of the card (counterfoil). Give the rest of the filled-in card to the mother / parents of the child after immunization.
- File the counter foils according to the procedure described later in this section

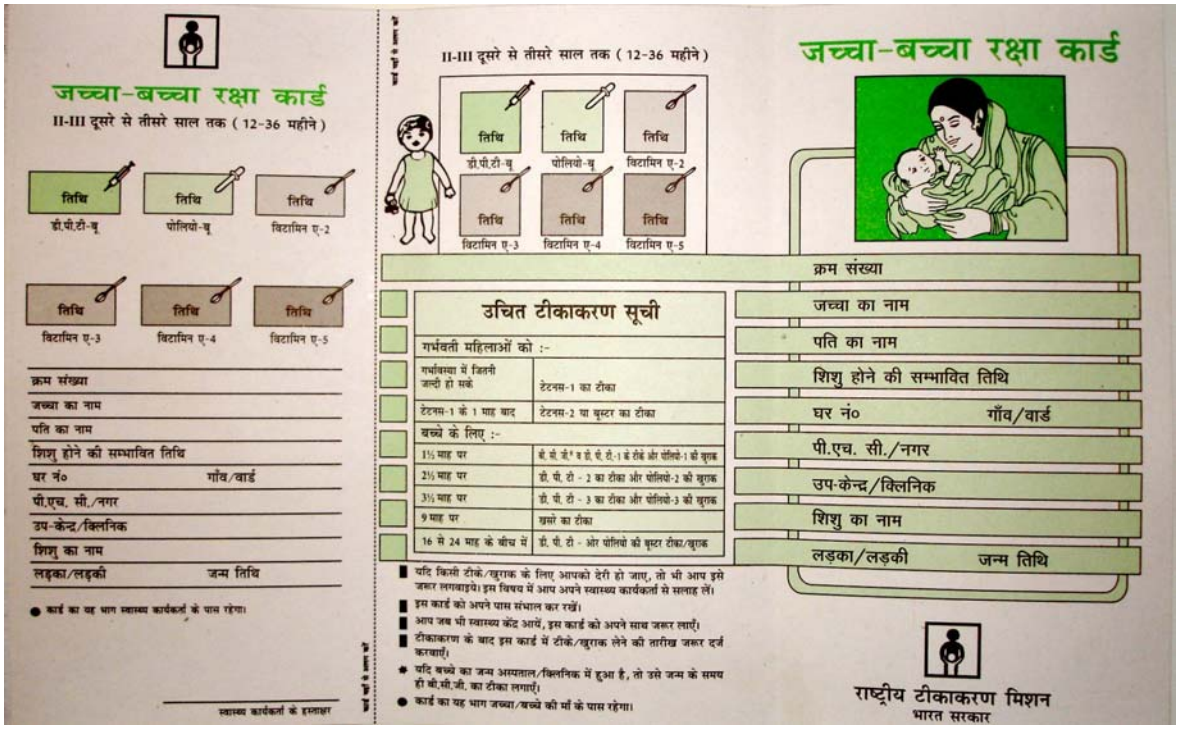
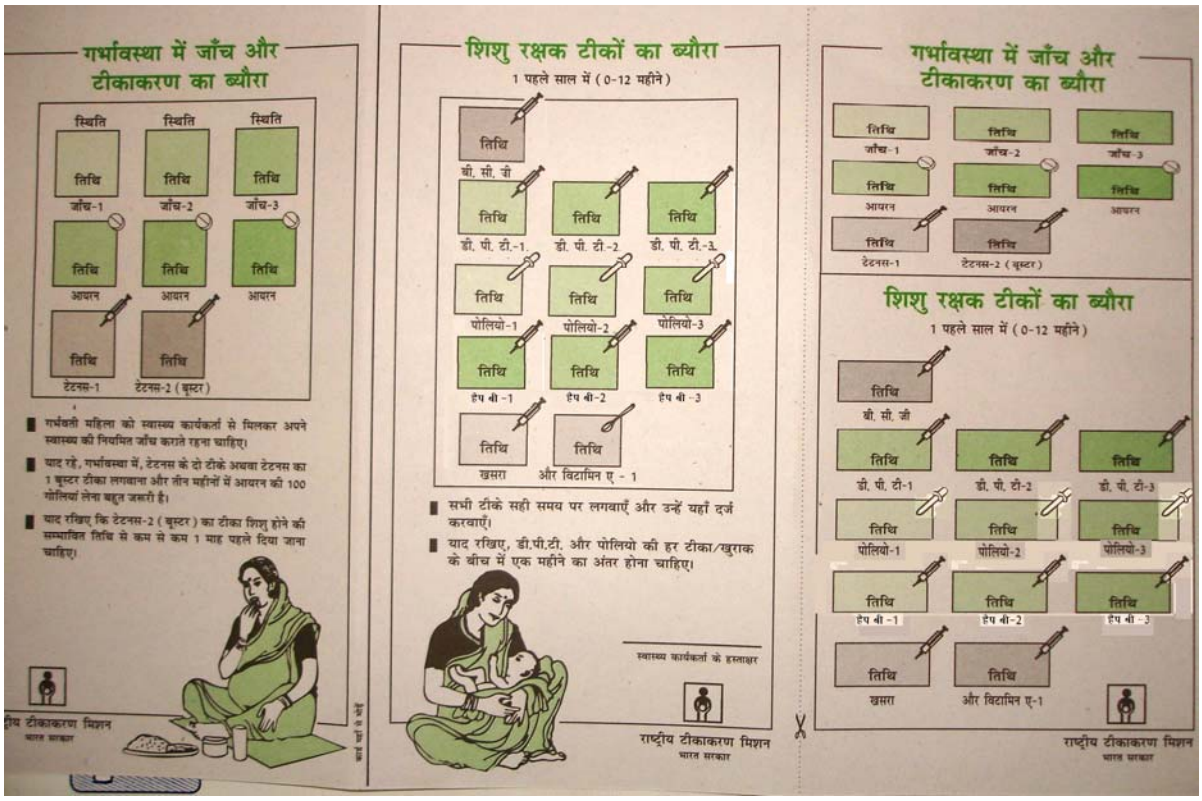


Figure 8A: Routine Immunization Card



For the beneficiaries coming subsequently

- Ask to see each child's immunization record before giving immunization.
- Look for missed doses (if any) and complete according to the schedule.

Do not start the doses all again even if the gap between the DPT / OPV doses is more than a month. If the child has not crossed the age of 2 years, give the next dose of DPT. Remember that a minimum gap of 4 weeks must pass between every injection/dose of DPT

- After every dose, ensure that the parent is informed of the next immunization date.
- Fill the counterfoil and the immunization card section meant for the parents.
- Give back the card to mother/parent of the child following immunization.
- Tell the mother that the card must be kept in a good condition. She must bring the card whenever the child is brought to the sub-center or out-reach site for immunization.
- At the end of each session, keep the counterfoils, separating them by the month in which the next vaccination is due, and place them in the section in your tracking box/bag for that month.
- Each month, look at the counterfoils in the tracking box/bag and make sure those children come for immunization. If they miss the session, ask the local community team/ mobiliser to follow-up with those families and ensure they attend the next session.

- ***Do not refuse vaccination for not bringing the card***
- ***If the guardian informs that the card is lost, issue a new card with the information available from the immunization register or the counterfoil***.

Counter foils

It is observed over several years that the counter foil is not given due importance by the health worker and is neither issued, filed nor preserved properly. It is important because it helps in:

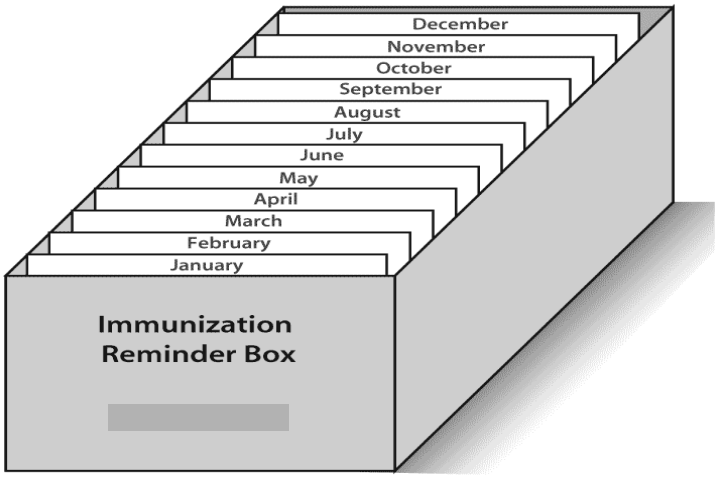
- Estimating the number of beneficiaries for next sessions.
- Estimating the vaccine requirement for the sessions.
- Tracking the dropouts.
- Providing information, if the immunization card of the beneficiary is lost.

The counterfoils need to be filed separately for each session site. The methods suggested are:

1. Tracking box with separators for different months (Tickler method), or
2. Tracking bag with 14 pockets on a cloth, placed on the wall of sub-center. 12 pockets indicate the 12 months. The 13th pocket is for those who left/ died during the period and the 14th pocket is for fully immunized children.

Once a beneficiary is immunized, the counterfoil would be placed in the month (pocket) due for the next dose. For example, if a child comes for DPT-2 and OPV-2 in January

Figure 8B: Tracking Bag and Tickler Box



then file the counterfoil in February. If a child comes for DPT-3 and OPV-3 on January 15 at 14 weeks of age then file the counterfoil in June since the child has to return then for measles. If some cards are left in the pocket at the end of the month, it indicates that the beneficiaries are the dropouts and thus helps in tracking them.

In case no tracking box/bag is available, counter foils for each month can be separately tied with different rubber band. File counterfoils for each session site separately and do not forget to carry them to the session.

8.3 Mother and Child Register

The Mother and Child register tracks every child born in the sub center area and is used to monitor pregnancy and immunization. Every child's immunization record must be entered in this register. It contains a number of columns, tracking births, immunization details, and the details about the health status of the mother and child. Use the Mother and Child register as follows:

- List eligible beneficiaries during the pregnant mother's first antenatal visit and update her information each time she and her child visit a session.
- Before each immunization session, check the register to find out which infants are eligible for their next dose of immunization.
- After each immunization session, update the register according to vaccines given to each child. When the register is full, you should submit it to the PHC for safe keeping, as this is a very important document for tracking immunization throughout the country.
- If a child misses a scheduled dose, you can track it by compiling a list of children who were due to receive any vaccine but have not visited the session on the due date. These children should be encouraged to return for services by a designated person in the community such as ASHA and AWW who will do the follow-up and report to you.

Please note:

- If the beneficiary is not from your area, prepare and issue a new card and give vaccination. Enter the same in the Mother and Child register in the non-resident column, if available.
- If the beneficiary receives the immunization from private practitioners, record the same in the immunization register and the immunization card and write 'P' after the date.

Ask the AWW/ASHA for the name of the new borns and record them in the register so that they are not left out.

8.4. Tally Sheets (Reporting form of Immunization session site)

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.

REPORTING FORM OF IMMUNIZATION SESSION SITE (Tally Sheet)

Name of PHC/ Sub Center **Name of village/Mohalla** **Date of session:** **Place of session**

Children	**Less than 1 year**				**More than 1 year**			
Vaccine	***Tally***		***Total***		***Tally***		***Total***	
	Male	***Female***	***Male***	***Female***	***Male***	***Female***	***Male***	***Female***
BCG								
DPT1								
DPT2								
DPT3								
DPT-Booster								
OPV-0								
OPV1								
OPV2								
OPV3								
OPV-Booster								
Measles								
Vit.A 1								
Vit. A 2								
HepB1								
HepB2								
HepB3								
DT								

Women	**Pregnant women**		**Others**	
	Tally	**Total**	**Tally**	**Total**
TT1				
TT2				
TT Booster				

	Issued	***Consumed***
AD SYRINGES 0. 5 ml 0.1 ml		
DISPOSABLE SYRINGES 5 ml		
HepB vaccine		
BCG VIALS		
DPT VIALS		
OPV VIALS		
MEASLES VIALS		
DT VIALS		
TT VIALS		

Names of staff
1. ANM. :
2.Superviser :

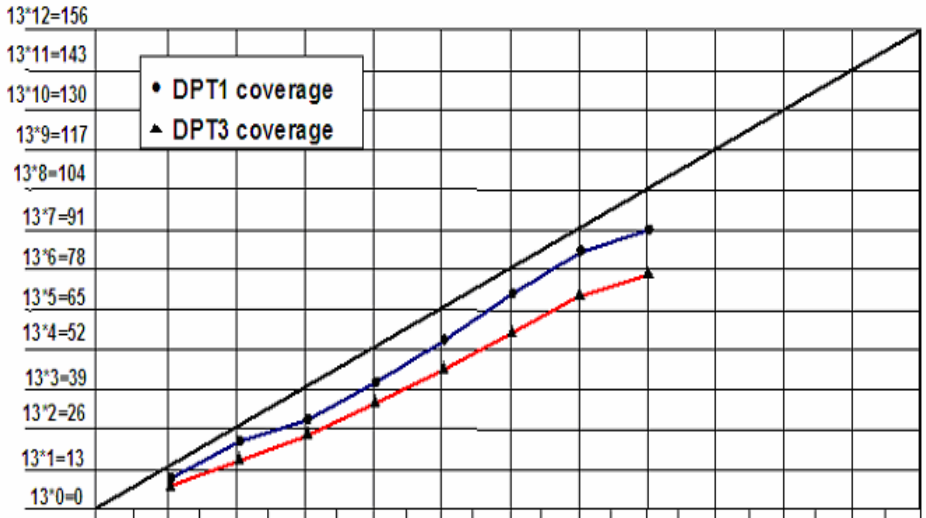
Signature of ANM:

Use separate tally sheets for reporting of immunization of SC/ST infants and children

8.5 Monitoring Chart

The monitoring chart is a useful tool, which provides at-a-glance information on target figures and trends in immunization coverage, particularly in terms of left-outs and dropouts. The supervisor should plot the immunization data on the chart during visits to the sub-centre (as given in the Figure 8C). It should be updated every month. Here is an example for calculating coverage, dropouts and Left outs for DPT-1 and DPT-3. A similar chart can be prepared for other vaccines.

Figure 8C: Monitoring Chart



FILL IN AT THE END OF EACH MONTH	April	CUM TOT.	May	CUM TOT.	Jun	CUM TOT.	Jul	CUM TOT.	Aug	CUM TOT	Sep	CUM TOT	Oct	CUM TOT.	Nov	CUM TOT.	Dec	CUM TOT.	Jan	CUM TOT	Feb	CUM TOT.	Mar	CUM TOT.
TOTAL IMMUNIZATION DPT1	10	10	12	22	7	29	12	41	14	55	15	70	14	84	7	91								
TOTAL IMMUNIZATION DPT3	8	8	9	17	8	25	10	35	11	46	12	58	12	70	6	77								
DROPOUT NUMBER (DPT1-DPT3)		2		5		4		6		9		12		14		15								
DROPOUT % (DPT1-DPT3)		20		23		14		15		16		17		17		16								

For example: If the yearly target for DPT1 is 156 children in a Sub-centre with a population of 5000, then the monthly target is 156/12 = 13 children. On the chart, the months of the year are given on the horizontal axis starting from April to March. On the vertical axis, the line is divided into 12 equal parts each representing the monthly target (in this case, 13 children). Plot a graph starting from 0 in the beginning of April. Then, in the row below the specific month, write the total and cumulative number of children immunized with DPT1 and DPT 3 till that month. Plot above on the graph, the cumulative total of DPT1 till that month. Similarly, plot for DPT 3 in a different colour in the same column.

You can also calculate dropout rate by $\frac{(DPT1 - DPT3) \times 100}{DPT1}$

This will give you the dropout rate in percentage.

8.6 Monthly Progress Report

The Monthly Progress Report is a report of the sub-centre submitted by the ANM at the end of each month. It contains a monthly summary of information related to ANC, immunization, VPDs and AEFIs. The information collated from this form will help you in documenting immunization coverage achieved during the month. The cumulative coverage will enable you to calculate the coverage and dropout status for each of the antigen. Since this is the basis of obtaining all coverage and epidemiological data at State and National levels, the data must be recorded correctly as follows:

- Under antenatal care, TT doses given to pregnant women should be recorded.
- Infant Immunization with different antigens also needs to be filled in with great care.
- In the event of an adverse event following immunization (AEFI), you should make note of the same and report it to the PHC for follow-up.
- All VPDs seen by you including AFPs need to be reported to the PHC centre and this will enable your seniors to take action.

Prepare the monitoring chart for dropouts and display at the sub-center

MONTHLY SUBCENTRE REPORT

Subcentre_____ MONTH_____ 200____
P.H.C_____ DISTRICT_____
Yearly Target : Infants_____ Pregnant women_____
Number of Sessions : (a) Planned_____ Actually held_____
Number of Sessions where vaccines received at site____

Number of Volunteers / ASHA engaged to mobilise children____

Number of Sessionsfor which private vaccinators hired	ANM absent	Underserved areas	Urban slums	Total

(A) IMMUNISATION AND VIT. A.

Pregnant women	Tetanus Toxoid	Doses	For the month	Cumulative
		1		
		2		
		B		

	Vaccines	Doses	For the month				Cumulative			
			Under 1 year		Over 1 Year		Under 1 year		Over 1 Year	
			Male	Female	Male	Female	Male	Female	Male	Female
CHILDREN	BCG	1								
	OPV	0 dose								
		1								
		2								
		3								
	DPT	1								
		2								
		3								
	Hepatitis B (Where introduced)	1								
		2								
		3								
	MEASLES	1								
	VITAMIN A	1								
	DPT Booster	B								
	OPV Booster	B								
	VITAMIN A	2								
		3								
		4								
		5								
	DT -5	1								
	TT -10	1								
	TT -16	1								

(B) SURVEILLANCE

Disease	For the month		During The year	
	Cases	Death	Cases	Death
Diphtheria				
Pertussis				
Tetanus Neonatorum				
Tetanus others				
Acute Flaccid Paralysis				
Measles				

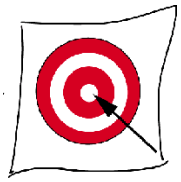
(C) UNTOWARD REACTIONS FOLLOWING IMMUNIZATION

UNTOWARD REACTIONS	During the		Remarks
	Month	Year	
Reported deaths			
Number of absoessess			
Other Complications			

Unit 9 Increasing Immunization Coverage

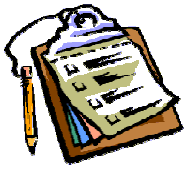
Learning Objectives

At the end of the unit, you should be able to:



- Describe potential methods of increasing coverage through dealing with dropouts, missed opportunities, left-outs and resistant populations.
- Identify important communication methods to inform the community.
- Mobilize community groups to educate and remind parents about immunization and seek their support and assistance to make sessions run smoother.

Contents



- Dropouts, missed opportunities, left-outs, resistant populations.
- Using interpersonal communication to increase demand.
- Different Methods for giving information to parents.

9.1 Introduction

As a health worker you are responsible for immunization services at your sub-center. Your goal is to ensure that all children in your area are fully immunized before their first birthday. This also means that children should be protected against neonatal tetanus through the immunization of their mothers. In terms of immunization, the community where you work can typically be divided into three groups.

The three groups can be represented as:

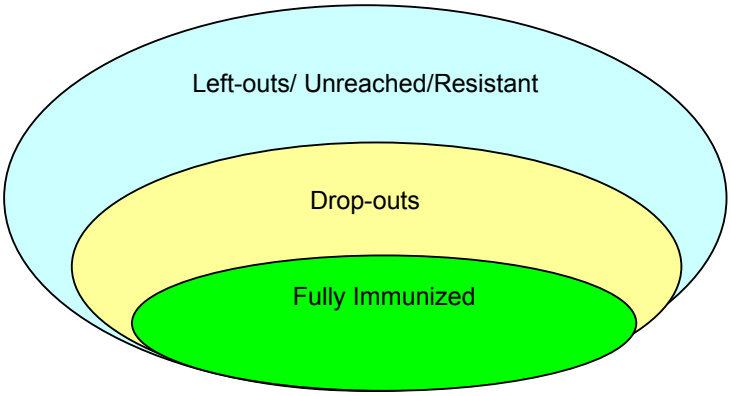


Figure9A: Three Types of Behavior Groups

Your aim, as a health worker, is to expand the inner circle to cover the entire universe of eligible children. Since there are varied reasons for each of the above behavior groups, they also require differing interventions.

9.2 Dropouts

Dropouts are children who receive one or more vaccination, but do not return for subsequent immunization. Common reasons for Dropout are:

- Parents are not told or forget when to return.
- Parents are not aware of the reason of following an immunization schedule.
- Parents do not know that immunization is important.
- Parents develop misconceptions about immunization.
- Families move to a new village.

Why bother about dropouts?

People who "drop-out" of the immunization system are the easiest to reach and convince to return for full immunization. If you focus your efforts on reducing dropouts, you can increase coverage significantly in your area.

Actions to be taken to minimize dropouts:

- ***Each planned immunization session should be held in spite of holiday or leave***. Necessary arrangements should be made in consultation with MO (PHC) in case of leave or holiday.
- Maintain a list of children who have not completed full immunization.

- Fill in the immunization card correctly and completely. Give the main part of the immunization card to the parent and retain the counterfoil.
- Inform the parents about next date for immunization and advise them to come again on that date.
- Visit dropouts before the next session to find out the reasons why they missed the session. Often, people have misconceptions about immunization, particularly with measles. Talk to them, answer their questions and doubts, and provide advice accordingly.
- Take the help of your community teams (AWW, ASHA, NGOs etc) and share with them the list of dropouts so that they can remind parents about the importance of full immunization and inform them about the date and time of the next session.
- Provide immunization services to children from outside the area, if they are brought to the session, and provide their parents with a follow-up schedule.
- Re-schedule immunization session timings, as per the convenience of the beneficiaries e.g. If you find that parents leave for work on farms during 7am to 1 pm, you can hold the session from 2 pm to 5 pm.
- Develop your own solutions based on the responses of parents who have dropped out of the immunization program. For example, if most parents complete the full immunization schedule except measles vaccine, give a talk in the village about the measles vaccine to answer questions and clear doubts.

9.3 Missed opportunities

A missed opportunity occurs when an eligible child comes to outreach site or a sub-centre (along with a sibling or parent who is getting a service or receiving a service because it is ill) and the child's immunization status is not enquired about and is not vaccinated.

What can you do about missed opportunities?

Whenever you see children in the sub-center or at outreach sites, ask whether the child has been fully immunized. Ask to see the vaccination card or check the register or counterfoil.

Actions to be taken to minimize Missed Opportunities:

- Identify any children under two years old and ask about their immunization status.
- When providing other services, always keep an eye out for eligible children, even if they are just visiting the session with a parent or sibling. Ask about their immunization status and provide services, as appropriate.
- Put a reminder about immunization in the waiting area of the sub- centre.
- Keep sufficient stock of vaccines available in order to provide services to beneficiaries.

9.4 Left-outs/Un-reached population

Left outs/un-reached population are children and women who do not utilize the immunization services for reasons including lack of geographic access. Because many people live in remote areas with little or no transportation, they find it nearly impossible to access immunization services. This poses a significant problem in several districts.

Actions to be taken to reach the un-reached

- Develop a list of children who have never accessed immunization services in the area.
- Look for migrant populations traveling through your service delivery area and reach out to them. Tell them about immunization and give them the date, time and place of the nearest session.
- Visit several of these households to find out the reasons why they have never accessed immunization services. Use the opportunity to clear up any doubts expressed by the families and help them find ways to overcome any barriers that prevent them from bringing their child to the next session.
- Take the help of the community workers such as ASHA, AWW and NGOs to talk to parents about the importance of full immunization and give them the date and time of the next session.

How can you deal with lack of geographic access?

You can bring the issue to the attention of your MOPHC, and supervisors and request them to reorganize your catchment area in order to provide immunization services to unreached populations. Sometimes, the best solution will be to visit the remote site once every two or three months and conduct at least 4 immunization sessions in a year.

9.5 Resistant populations

Some pockets of the population are reluctant to be immunized because they are suspicious or untrusting of the health system or of immunization. Their negative attitudes are often due to misconceptions, rumors, inexperience, and poor-quality immunization services. Because of these factors, they become resistant to the idea of accessing immunization services.

Actions to be taken for dealing with resistant populations

- Find out the reasons for their reluctance by talking directly to them. Try to address their misconceptions, doubts, and fears by listening to them, and offering support and care.
- Request community leaders and other staff working within that particular community to educate them about vaccination.
- Spend more time talking with community leaders, religious leaders, and other key persons in the village about the benefits of immunization.
- Always provide prompt and quality services.
- Arrange for an interaction between resistant groups and satisfied beneficiaries in the area to promote immunization.

9.6 Use Inter-Personal Communication to increase demand

As a health worker you are in direct contact with parents and caregivers, perhaps the most important contribution you can make towards increasing demand is by being a friendly, efficient, interested person, who sincerely cares. Smile, be friendly, and reassure both parents and children. This ensures that parents will listen to your advice, change their behaviour, and return for a full course of immunization for their children.

Tips for effective communication with parents at the facility or outreach session

- ***Act respectfully towards the mother/parent.***
- ***Praise parents/caregivers for bringing their children for immunization.***
- ***Give clear information on side effects and the date for next immunization.***
- ***Encourage them to continue bringing their child to the immunization session and bring the vaccination card until fully vaccinated.***
- ***Keep information simple and clear and be sure to write the reminder date for the next vaccination in the card and say it to the parent.***
- ***Encourage parents to ask questions.***

9.6.1 Give basic information to all parents on immunization

Besides understanding the value of immunization, parents need to know:

- When and where they should bring their child for the next immunization.
- The number of additional contacts needed for the child to complete its vaccination schedule.
- What are common side effects that may occur after immunization.
- What they should do if side-effects do occur.
- The importance of bringing the vaccination card each time the child comes for health care.

9.6.2 Use the vaccination card to remind parents when to return with their child

Vaccination cards for each child are important communication tools. Educated parents can determine from the cards, the type of vaccine and dosage given and the dosage due. For those less educated, recognizing a vaccine by how it is delivered is one way of keeping abreast of their child's schedule.

- ***Information on immunization is easier to understand when one vaccine at a time is discussed.***
- ***In addition to being a health care provider, you are also a health educator.***
- ***In most situations, one-to-one, interpersonal communication is best when providing specific information.***

9.7 Different methods for giving information to parents

Call upon other trusted sources of information

Involve formal and informal leaders and other community resource persons like the Panchayat members, political leaders, Anganwadi workers, ASHAs, teachers, religious leaders, traditional birth attendants, RMPs, private medical practitioners and NSS volunteers in the program and then conduct immunization orientation training.

Identify locations to communicate with parents

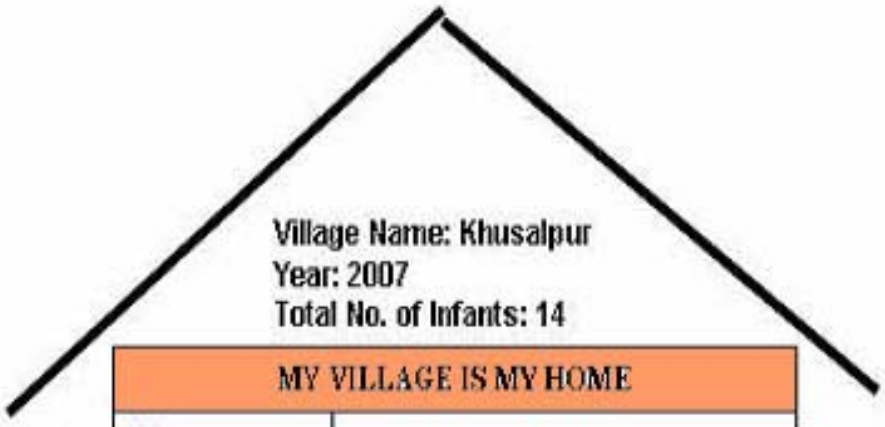
Identify places where people frequently gather, such as Anganwadi centers, markets, bus stops, ration shops, the Panchayat office etc., and display information related to the session site, date, and program details.

Make use of community-based organizations

Build a rapport with community-based organizations and NGOs in your areas such as Youth Clubs and Mahila Mandals. Conduct health talks on the vaccine preventable diseases, the immunization and common side effects.

Use Community tools for Increasing Immunization coverage

In each village, the names of all the infants can be written on a chart paper in the form of bricks of a house as shown in the Figure 9B (Page 74). Start with oldest infant as number 1, second oldest as number 2 and so on. Keep on adding the names of newborns at the top with a number. Write the name of the village, the year of head count and number of infants counted. As the infant completes the immunization, put a mark or colour in the related row with the name. Hang the chart on the wall of AWC/Panchayat Bhawan in each village. This tool can be used by community workers to motivate and remind families to get their children immunized.



Village Name: Khusalpur
Year: 2007
Total No. of Infants: 14

MY VILLAGE IS MY HOME	
16	
15	
14	Ramesh
13	Rina
12	Devi
11	Sharad
10	Panka
9	Kali
8	Tina
7	Raja
6	Indira
5	Sweta
4	Joby
3	Satyah
2	Usha
1	Sita

Figure 9B: Community Tool for Increasing Coverage

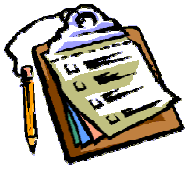
Unit 10 Surveillance of Vaccine Preventable Diseases

Learning Objectives

At the end of the unit, you should be able to:

- Describe importance of surveillance in the Immunization Programme.
- Describe how to conduct surveillance for the seven VPDS.
- Describe how to fill in the surveillance report.

Contents



- The role of surveillance in the immunization program.
- How to conduct disease surveillance.
- Reporting requirements for acute-flaccid paralysis and neo-natal tetanus.
- The surveillance report.

10.1 The role of surveillance in the Immunization Program

When you implement immunization programs in your area, it is essential to keep track of the numbers and causes of childhood deaths in your area. Disease surveillance is a regular system of collecting, analyzing and interpreting data and then using it to guide disease-control and immunization strategies. It helps in the following ways:

- Detect disease outbreaks.
- Determine how many people become sick or die.
- Assess the size and geographic reach of the disease under surveillance.
- Enable the planning of medical interventions.
- Determine whether control measures are working.

10.2 How to conduct disease surveillance?

The Universal Immunization Program recommends that health workers monitor and report any incidence of the following vaccine-preventable diseases:

- Tuberculosis (in children under 5)
- Diphtheria
- Pertussis
- Measles
- Neonatal Tetanus
- Hepatitis B
- Acute Flaccid Paralysis or AFP (Polio)

To ensure your reporting is done properly, you should carry out the following steps:

Step 1: Learn to recognize the disease

As a health worker, it is important that you understand the definition of a disease and be able to match it up with what your village informant has told you.

Table 10.1: Ready Reckoner for Recognizing Diseases correctly based on symptoms

Disease	Lay Definition (suspected)
Measles	History of fever and rash and any one of the following; cough, running nose, red eyes with in 3 months
Poliomyelitis (acute flaccid paralysis)	Any child under 15 years of age with history of sudden onset of weakness and paralysis of the leg(s) and / or arm(s) and/or trunk and history that paralysis was not present at birth or associated with serious injury or mental retardation(with in 6 months). Every case of acute flaccid paralysis must be investigated and 2 stool specimens should be collected.
Diphtheria	Sore throat with grey patch or patches in the throat.
Neonatal Tetanus	History of normal suck and cry during first two days of life, onset of illness between 3 and 28 days of life, inability to suck followed by stiffness of neck and body and/or Jerking of muscles.
Tetanus	History of injury or ear infection followed by difficulty in opening of mouth (or jerking of mouth) or stiffness of the neck or body.
Tuberculosis	An ill child with a history of contact with a suspected or confirmed case of pulmonary tuberculosis. Any ill child with one of the following: Weight loss, cough and wheeze which does not respond to antibiotic therapy for acute respiratory infection.
Pertussis	History of repeated and violent coughing with any one of the following: Cough persisting for 2 or more weeks, fits of coughing, cough followed by Vomiting, typical whoop in older infants.
Hepatitis –B	Clinical signs and symptoms include fever, headache, nausea, vomiting, jaundice (yellowish eyes), light or grey stools.

Step 2: Ensure all cases are reported

When you visit villages, ask about cases of measles, neonatal tetanus and polio, especially since they are often not reported to health centre staff. If you hear about cases, you should visit the patients (neonatal tetanus and polio) or encourage their parents to come to a health facility (measles). If you confirm a case, then report it to the Medical Officer in charge at the PHC. The types of cases that should be included in the health worker's monthly report are:

- Cases that come to the health centre for treatment.
- Cases that health workers hear about in the community and verify in person.
- Cases that are treated at non-government health facilities (for example, mission hospitals or private physicians).
- All cases seen and diagnosed by health workers at outreach sessions.

Step 3: Avoid double counting

In order to use data effectively, it must be as reliable and accurate as possible. It is important that each case is counted once, and only once. Avoid "double-counting" through the following data collection standards:

- If a child makes two health-centre visits for the same disease episode, count it as one case only.
- Only count those cases that have been diagnosed/seen by a health worker. Do not count cases that have been reported to the health centre by community members without verification.

10.3. Acute Flaccid Paralysis

. The reporting process is as follows:

- Report the case to the health centre Medical officer as soon as possible.
- The Medical Officer, DIO and SMO will conduct an investigation within 48 hours of reporting.

- Under the guidance of the Medical Officer, the health worker should collect two stool samples, 24 hours apart, within 14 days of onset of AFP. These samples should be forwarded in cold chain to the DIO. The DIO will then forward the sample to a WHO-accredited lab in India for virus isolation.
- Communicate the result of stool examination to the parents.

10.4 Neonatal Tetanus

All cases of suspected neonatal tetanus and deaths-of-unknown-causes should be investigated using a standardized case investigation form. The purpose of investigating neonatal tetanus cases is to identify why the case occurred, so that future cases can be prevented. When investigating a case of neonatal tetanus, ask the mother of the infant who died if she is willing to answer some questions about her infant's illness. Explain that the information she provides will help you prevent future deaths. With the case investigation form in front of you, ask her questions listed in the form and carefully record her responses.

The questions are about:

- The immunization status of the mother.
- Whether the mother received antenatal care.
- Where the baby was born (at home or in an institution).
- In case of a home delivery, whether a trained birth attendant (TBA) was present at the time of actual delivery.
- Whether the five clean practices were followed (clean surface, clean hands, clean cord tie, clean scissors/knife and clean cord stump).
- Whether the infant sucked normally at birth, and then later developed problems with sucking, convulsions and stiffness.
- Whether the infant was treated in a hospital for the illness.

Medical Officers should ensure that neonatal tetanus cases are investigated promptly and correctly and help with the investigations if needed. For example, a Medical Officer may conduct some case investigations him/herself and provide additional training if health workers are uncertain of the procedures to follow.

10.5 Measles

Whenever you go for an immunization session to an area, you should enquire about any case of fever with rash in the locality since your last visit. The information may be collected from local medical practitioners, Anganwadi workers, ASHA, community members etc. If you come across any case of fever with rash, you should note down the name and the complete address of the case. This should be reported immediately to the Medical Officer of the PHC. This information also needs to be documented in your monthly report to the PHC. If the MO PHC decides to do an outbreak investigation in the area, you should assist him/her. If the case is labelled as a suspected measles case, then Vitamin "A" supplementation has to be provided. The schedule is as follows.

Table 10.2: Schedule for Vitamin A Supplementation for Measles' cases

Age	Immediately on diagnosis	Next day
< 6 months	50,000 IU	50,000 IU
6 – 11 months	1,00,000 IU	1,00,000 IU
≥ 12 months	2,00,000 IU	2,00,000 IU

Also plan to improve the routine immunization status in the community.

10.6 The surveillance report

Monthly report of disease incidence and mortality should be prepared in the UIP reporting format described previously in Unit 8 (Section 8.6). To find out the number of cases and deaths (if any) as a result of the diseases, you will:

- Count the number of VPD cases from your daily diary.
- Ensure that same case or same episode is not recorded more than once (which may happen if you have visited many times or because different informants told you about the same case).
- Fill up the number of cases in appropriate boxes of the report.

Ensure that each case is counted once and only once

Annex 1: Do's and Don'ts during Immunization Sessions

Do's	Don'ts
Vaccination Schedule	
• It is safe and effective to give BCG, DPT, OPV and Measles vaccines at the same time to a 9-month-old child who has never been vaccinated. • Give BCG to infants less than 1 yr of age (never give BCG to children above 1 year of age). • If a child is brought late for a dose, pick up where the schedule was left off. For example, if a child left with DPT- 2 and comes at 13 months give DPT-3 & Measles.	• Withhold the vaccine in case of illness such as cold, cough, diarrhoea or fever.
Cold Chain	
• Check VVM label of OPV vial before immunizing every child. • Keep the vaccines and diluents in a plastic bag/zipper bag in the centre of vaccine carrier away from the ice packs. Make sure that the diluents are also at +2 to +8^{o} centigrade before reconstitution. • Take one ice pack from vaccine carrier and keep reconstituted BCG & Measles vaccines only on the top of the ice pack.	• Leave vaccine carrier in sunlight; this spoils vaccines that are sensitive to heat and light. • Leave the lid open; this can allow heat and light into the carrier, which can spoil vaccines. • Drop or sit on the vaccine carrier: this can damage the carrier. • Carry vaccines in handbag as this can spoil vaccines that are sensitive to heat. • Keep the DPT, DT, TT and Hep. B vaccines on the Ice pack during the session
Vaccine Handling & Administration	
• Welcome beneficiaries. • Wash hands before conducting the session. • Verify beneficiary's record and age of the child. • Screen for contra-indications. • Check label of the vial and expiry date. • Lightly shake the vial of T-Series Vaccine before drawing the dose. • Use a sterile syringe and needle. • Use correct diluent for reconstitution of vaccine. • Give appropriate vaccine. • Use one child one syringe one needle norm. • Inject vaccine using the correct site and route for the vaccine e.g. Intradermal in left arm for BCG; sub-cutaneous in Right arm for Measles; intramuscular in anterolateral aspect of thigh for DPT, DT and Hep. B. • Allow dose to self-disperse instead of massaging. • Explain potential adverse events following immunization and what to do. • Discuss with beneficiaries /parents about next visit.	• Use un-sterile syringe or needle for immunization. • Draw air into AD syringes. • Touch any part of the needle. • Recap the needle. • Leave the needle inside the vial. • Ever inject in the buttock, never do that. • Massage the vaccination site after vaccination. • Use reconstituted measles and BCG vaccine after 4hrs. • Use OPV vaccine with Stage 3 or 4 VVM or with expiry date.
Recording and Reporting	
• Fully document each immunization in the immunization card, daily reporting sheet and immunization register. Ask parents/guardians to bring the card on next visit. • Retain the counterfoil.	• Turn away beneficiaries for not bringing the card. • Leave any cell blank in immunization card.
Adverse Event Following Immunization (AEFI)	
• In case of serious AEFI refer the patient to appropriate health facility, inform your supervisor immediately – document the type of vaccine(s), batch number, expiry date, and full address of the child • Report all serious AEFI to the MOI/C.	• Report minor reaction following vaccination (mild fever of less than three days, redness and pain)
Social Mobilization	
• Use vaccination card to remind parents when to return with their child. • Enlist community team like AWW, ASHA, NGOs and other community-based workers to remind parents of the importance of full immunization.	• Leave any community meeting without communicating about immunization session days.

Annex 2: Supervision Checklist for Vaccinator at Immunization Session site

Sl. No _____Date of Visit___/___/_____Supervisor_____PHC _____ Name of Sub-center_____ Location(PHC /SC/AWC/Panchayat/UHC)_____	
Adherence to Micro plan	
1. Session held in the village/mohalla specified in micro plan (date AND place)	Yes ☐ No ☐
Cold Chain and Logistics	
2. Collection of vaccines on same day/ vaccine delivered at session site	Yes ☐ No ☐
3. Use of vaccine carriers with 4 ice packs	Yes ☐ No ☐
4. Frozen or partially frozen icepacks in the vaccine carrier	Yes ☐ No ☐
5. Use of polythene bag for all vaccines	Yes ☐ No ☐
6. All vaccines along with diluents available at session	Yes ☐ No ☐
7. Vitamin A available at session	Yes ☐ No ☐
8. Presence of freeze-sensitive vaccines in liquid form and shake test-ok	Yes ☐ No ☐
9. VVM stage usable on OPV	Yes ☐ No ☐
10. All the vaccines at session within usable date	Yes ☐ No ☐
11. All vaccines have readable labels	Yes ☐ No ☐
Service delivery and Injection Safety	
12. Clean place available for immunization	Yes ☐ No ☐
13.Washes hands before beginning the immunization session	Yes ☐ No ☐
14.Vaccine is reconstituted correctly just before immunization session	Yes ☐ No ☐
15.Time of reconstitution written on vial	Yes ☐ No ☐
16. Use of correct diluents for BCG and measles	Yes ☐ No ☐
17. Reconstituted vaccines used within four hours of reconstitution	Yes ☐ No ☐
18. Use of 0.5 ml AD syringes for all vaccines except BCG	Yes ☐ No ☐
19. Use of AD syringes 0.1 ml for BCG	Yes ☐ No ☐
20. Correct selection of injection site	Yes ☐ No ☐
21. Correct selection of injection route	Yes ☐ No ☐
22. Correct technique of giving vaccines (angle of the needle for giving I/D, I/M and S/C injections)	Yes ☐ No ☐
23. Correct dose of vaccine given	Yes ☐ No ☐
24. Injection surface (if dirty) is cleaned with clean water swab before injecting	Yes ☐ No ☐
25. Needle NOT touched with swab or finger before injection	Yes ☐ No ☐
26. Correct age of administration of measles vaccine (9-12 months) and up to 5 years to missed children	Yes ☐ No ☐
27. Absence of recapping AND bending used syringes	Yes ☐ No ☐
28. Hub cutters in use for containing used needles after cutting plastic hub of the used syringes	Yes ☐ No ☐ NA ☐
29. Use of separate needle and syringe for each injection (including reconstitution syringes for each vaccine vial)	Yes ☐ No ☐
30. Evidence of maintaining at least 28 days gap between DPT doses	Yes ☐ No ☐
31. Correct method of waste collection for disposal	Yes ☐ No ☐ NA ☐
32. No needle stick injuries to ANM during last 3 months	Yes ☐ No ☐

Records and Reports	
33. New cards and counterfoils being filled correctly and completely and issued for each beneficiary	Yes ☐ No ☐
34. Proper filling of immunization cards and counterfoils of beneficiaries visiting on that day	Yes ☐ No ☐
35. Proper filing of counterfoils (including counterfoils from previous sessions at this site)	Yes ☐ No ☐
36. Correct filling in of Tally sheets	Yes ☐ No ☐
37. Correct filling in of immunization registers	Yes ☐ No ☐
38.Verification of beneficiaries found correct according to counterfoils of the immunization cards OR immunization register	Yes ☐ No ☐
Tracking Left Outs/ Drop outs and Missed Opportunities	
39. EACH of known pregnancies and births in the AWW catchment area over the past 3 months added to AWW AND ANM register, even if they have not yet come for vaccination. (Verify lists)	Yes ☐ No ☐
40. Active tracking for dropouts	Yes ☐ No ☐
41. ANM checking for immunization status of infants brought to session for other ailments	Yes ☐ No ☐
42. Infants with minor problems like Fever / Diarrhea being given immunization	Yes ☐ No ☐
AEFI	
43. Any complaints/reports received about adverse events for vaccines from parents/guardians	Yes ☐ No ☐
IPC and Community Mobilization	
44.Mothers are treated with respect	Yes ☐ No ☐
45. ANM is giving 4 essential key messages* after vaccination to the care giver	Yes ☐ No ☐
46.No child is turned away for mild illness like fever, diarrhoea, respiratory infection etc.	Yes ☐ No ☐
47. Presence of Anganwadi worker/ Other Mobiliser in immunization session	Yes ☐ No ☐
48. AWW/ Other Mobiliser shared list of children due for vaccinations on that day with ANM	Yes ☐ No ☐
49. AWW/Helper/ Other Mobiliser visited families of due children and informed care-givers to attend immunization session	Yes ☐ No ☐
50. Beneficiary list for that session displayed at Site	Yes ☐ No ☐
51. IEC/BCC materials displayed at site	Yes ☐ No ☐
Supervision	
52. The Supervisor visited the session site at least once a month during last 3 months	Yes ☐ No ☐

*Key Messages: 1. what antigen is given, 2. When to come next for dose, 3. AEFI information 4. To bring card for next visit

Annex 3: Responsibilities of the ASHA in immunization

Immunization Schedule

- Should be well versed with the National immunization schedule.
- Mobilize all children for immunization.

Planning for Immunization

- Assist AWW in survey of all mothers and children (including newborn and pregnant mothers) in the village and share the list with ANM.
- Help ANM to identify hard to reach areas and underserved population.
- Conduct home visits and mothers' meetings to educate parents for immunization.
- Display posters and other IEC materials.
- Plan for monthly/fortnightly Village Health Day at the AWC.

Maintaining Cold chain at immunization site

- Arrange suitable place for keeping the vaccine carrier in shade.

Conducting the immunization session

- Ensure all dropouts from previous sessions are brought for immunization.
- Ensure all births occurring after the last session are identified and the newborns are brought to the session.
- Ensure all beneficiaries due for that session are mobilized.
- Assist AWW and ANM in making the arrangements for water and space.
- Greet beneficiaries.
- Assist ANM in conducting the immunization session
- Manage crowds.

Injection safety

- Assist ANM in safe disposal of immunization waste.

Recording and tracking of drop outs.

- Visit the houses of drop-out children.
- Counsel women about protecting the child's health by ensuring immunization.
- Accompany such children to the next planned session.

Adverse events following immunizations

- Report all AEFIs to ANM.

Surveillance of Vaccine Preventable Diseases (VPDs)

- Report all suspected VPDs to ANM.

Pulse Polio

- Inform community for pulse polio day and ensure their presence at the booth.
- Assist ANM in coordination for booth establishment and display of IEC materials.
- Help track newborns and convince reluctant parents

Perform any other job assigned by higher authorities

Annex 4: Responsibilities of the AWW in immunization

Immunization Schedule

- Should be well versed with the National immunization schedule.
- Mobilize all children for immunization.

Planning for Immunization

- Enumerate all mothers and children (including newborn and pregnant mothers) in the village and share the list with ANM.
- Help ANM to identify hard to reach areas and underserved population.
- Conduct home visits to educate parents for immunization.
- Display posters and other IEC materials.
- Display immunization days /dates at the AWC.
- Liaise with ANM to ensure that vaccines are available at AWC on immunization days.

Maintaining Cold chain at immunization site

- Arrange suitable place for keeping the vaccine carrier in shade.

Conducting the immunization session

- Ensure all dropouts from previous sessions are brought for immunization.
- Ensure all births occurring after the last session are identified and the newborns are brought to the session.
- Ensure all beneficiaries due for that session are mobilized.
- Greet beneficiaries.
- Assist in verifying age of the child.
- Arrange water for washing hands.
- Arrange space for immunization activity and waiting place for beneficiaries.
- Assist ANM in conducting the immunization session.
- Manage crowds.

Injection safety

- Assist ANM in safe disposal of immunization waste.

Recording and tracking of drop outs.

- Update and share immunization register with ANM.
- Counsel the women about protecting the child's health by ensuring immunization.

Adverse events following immunizations

- Report all AEFI if noticed to ANM.

Surveillance of Vaccine Preventable Diseases (VPDs)

- Report all suspected VPDs to ANM.

Pulse Polio

- Help ANM to prepare micro plan.
- Work as Vaccinator during pulse polio days.
- Inform community for pulse polio day and ensure their presence at the booth. Assist ANM in coordination for booth establishment and display of IEC materials
- Help track new borns and convince reluctant parents

Perform any other job assigned by higher authorities

Annex 5: Responsibilities of the ANM in immunization

Immunization Schedule

- Should be well versed with the National Immunization Schedule.
- Immunized all children according to the National Immunization Schedule

Planning for Immunization

- Enumerate all mothers and Children in the villages.
- Prepare Sub center session plan and work plan.
- Estimate requirement of Vaccines and AD syringes.
- Arrange supplies and equipment for the session.
- Attend village health day with logistics.
- Inform MO PHC for visiting the AWC on village health day.
- During home visits, motivate family members for accepting immunization services

Maintaining Cold chain at immunization site

- Ensure that vaccines are brought in a vaccine carrier with frozen ice packs.
- Ensure vaccine carriers are kept in shade and are not opened frequently.
- Check the VVM of the OPV vials before use.
- Check the T-Series and Hep-B vaccines are not frozen.
- Ensure that vaccine vials are not floating in water and that labels are intact.

Conducting the immunization session

- Set up immunization work area to minimize risk of injury.
- Greet beneficiaries.
- Verify the immunization record and age of the child.
- Explain guardians about the vaccine to be given and the route.
- Facilitate correct positioning of the child for immunization
- Administer the vaccines by using the correct technique.

Injection safety

- Use sterile syringe and needle for each injection.
- Collect the used needle and syringes for safe disposal as per guidelines.

Recording and tracking of drop outs

- Prepare a list of dropouts for sharing with AWW and ASHA
- Record all immunization in a tally sheet, immunization cards, immunization register.
- Keep the counter foil of the immunization card with her for tracking of dropouts.
- Maintain immunization coverage monitoring chart at the sub center.
- Write next date for immunization in the card and communicate to guardians

Adverse events following immunizations

- Take steps to prevent common programmatic errors to prevent AEFIs.
- Educate guardians about reporting of any AEFI.
- Report all AEFIs.

Surveillance of Vaccine Preventable Diseases (VPDs)

- Report all suspected cases of TB, Diphtheria, Pertussis, Neonatal Tetanus, Measles and AFP to Medical Officer.

Pulse Polio

- Prepare micro plan with the help of LHV and AWW.
- Work as Vaccinator / Supervisor during pulse polio days.
- Inform community for Pulse Polio day.
- Coordinate with school teachers, Panchayat members, Mahila mandals for mobilization of children and establishment of booths and display of IEC materials.

Perform any other job assigned by medical officer or higher authorities

Annex 6: Responsibilities of State/District PMU officials and trainers for Immunization training activities

MoHFW and Partners 1. To provide the guidelines, training material and funds. 2. To facilitate the training workshops at the state level. 3. Monitoring and evaluation.	*National Level*
SIHFW and State PMU 1. Assist the State Government in identification of the trainers. 2. Orientation of the State and District trainers. 3. Coordination of the training at the District level. 4. Monitoring of the training at District level. 5. Follow up (on the job) evaluation of the health workers after 6 months of training.	*State Level*
Trainers 1. To prepare a training calendar and invite nominations. 2. To make arrangements for field visit and teaching aids. 3. To confirm the nominations. 4. To give adequate opportunity to the trainees to acquire skills. 5. Evaluate and provide on the job training to the health workers after 6 months of training.	*State/District*
CMO and Districts PMU 1. Ensure that funds are made available at the ANMTC/DTC to conduct the training. 2. To guide and supervise preparation of district training plan and calendar. 3. Nominate the health workers for immunization training and ensure their attendance. 4. Orientation of all Medical officers of PHCs/CHCs during the meetings. 5. Ensure the supply of essential equipment and supplies required for providing good quality of immunization services by the health workers. 6. Monitoring of the training. 7. Provide supportive supervision during field visits.	*District Level*
MO(PHC) 1. To provide supportive supervision to the health workers. 2. To ensure the procurement of essential equipment and supplies.	*PHC Level*

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