Financial planning in immunization

13

Financial management is an essential part of organizational management and comprises of more than just keeping accounting records. Financial management involves planning, organizing, controlling and monitoring financial resources in order to achieve organizational objectives.This unit will give you an overview of sources of funding and focuses on the detials of the program implementation plan and its norms.

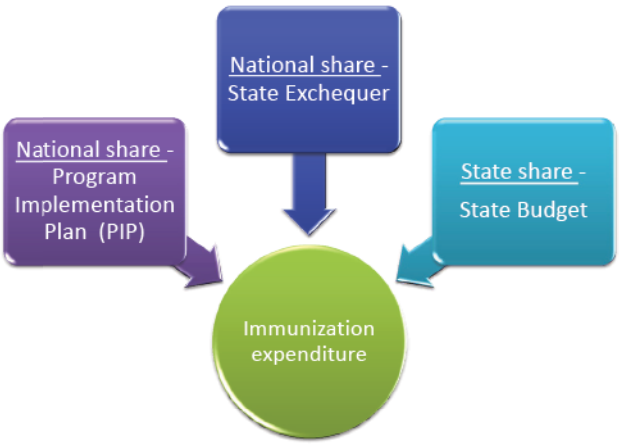
Sources of funding:

The state financial resource for health is made up from three sources:

- State Budget
- State Exchequer
- Program Implementation Plan (PIP)

The state budget is the finances allocated by the state in its annual budget and reflects the state's contribution. The state exchequer source refers to funds received by the state from the centre through the Ministry of Finance. These are amounts disbursed for regular activities and represent the centres contribution. The PIP source refers to the flexible funds proposed by the states as per the states PIP reflecting the states proposed needs for funds from the centre in addition to those committed. These funds are committed to the state by the centre through the Recording of Proceedings (ROP).

Fig. 13.1. Source of funds



State Programme Implementation Plans (PIPs) are a proposal of the overall annual activities and budgetary requirements based on which the state health system will function (Including immunization expenditure).

PIPs are made up of five parts, namely: PART I: NRHM plus RMNCH+A (including immunization), PART II: NUHM; PART III: Disease Control Programmes; PART IV: Non-communicable diseases including injury and trauma; and PART V: Infrastructure Maintenance. The MoHFW supports the states immunization programme through the National Health Mission under Part I as mentioned above.

Process of PIP:

The purpose of the PIPs is to make budgetary proposals for both regular as well as need based activities.

The block medical officer with support from the Block Program Management Unit provides inputs for the DHAP in consultation with the District Program Management Unit and district health officials. The DHAPs are a complete action plan which includes budgeting of all health programs including immunization. The DPMU will review the district action plan before submitting it to the District Health Society which under the chairmanship of the District Magistrate will review and finalize it for submission to the state.

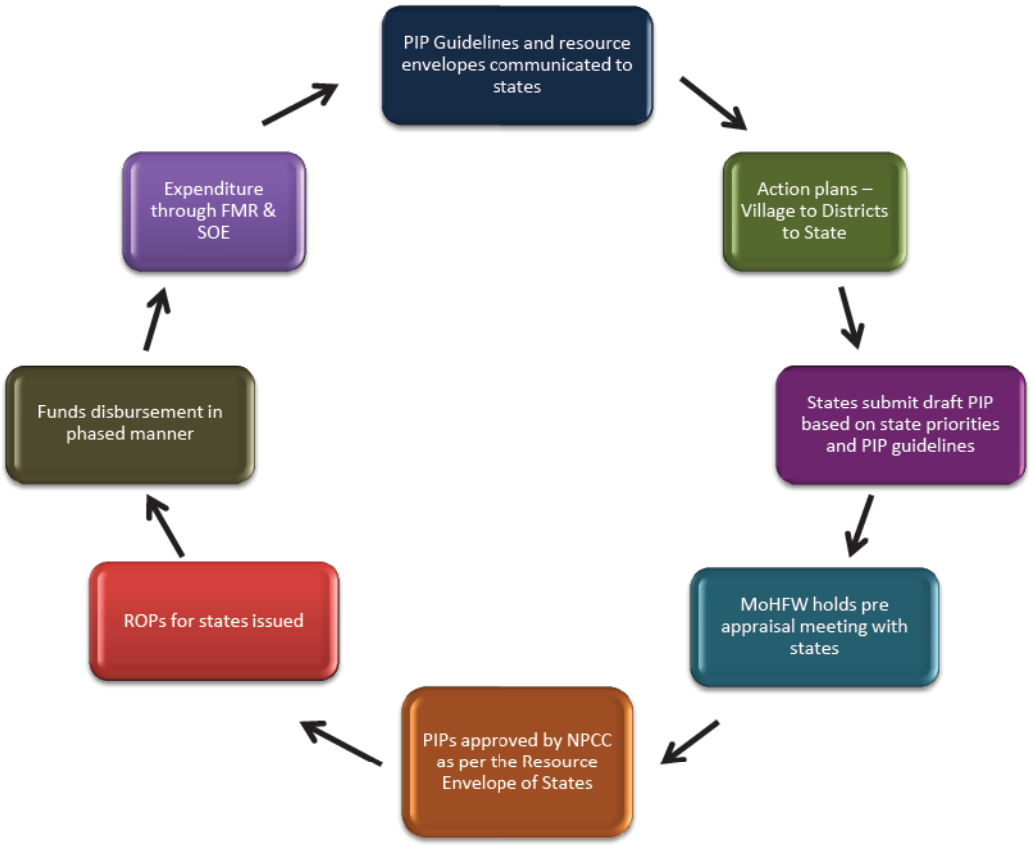
The State Program Management Unit (SPMU) with officials from the Directorate and Mission Director review the action plans which are then sent to the State Health Society where, under the chairmanship of the Principal Secretary they are finalized. The Executive Committee (EC) of the State Health Society can examine this plan and make appropriate modifications based on the states priorities and resource envelope. The State's PIP is consolidated from DHAPs.

The states submit their draft PIPs to the centre where the MoHFW conducts pre-appraisal meetings with the states. The PIP is then appraised by the National Programme Coordination Committee (NPCC), chaired by the Mission Director with officials from various program divisions in MOHFW and with state participation.

Once approved the states are issued with a Record of Proceedings (ROP). Funds from the centre are disdursed to the states in a phased manner.

The State Health Society implements the approved plan, with governance and oversight exercised by the Governing Board and the State Health Mission, in association with District Health Society (DHS). All expenditures should be made using FMR codes and followed by issuance of SOE. See fig. 13.2 for proccess flow of PIP.

Fig. 13.2. Process flow of PIP



The role of the Medical Officer is crucial for the preparation of village & block health action plans, which form the basis for making DHAPs which are finally merged into the state PIPs.

Programme Implementation Plan - Immunization

(Part C, Financial Management Report (FMR) C.1 to C.6)

Under the National Health Mission (NHM), financial support for various components of immunization is given to all states at all levels to strengthen the Immunization Programme under part C. These are further budgeted under FMR C.1 to C.6 of the PIP.

C.1 Routine Immunization strengthening project (Review meetings, mobility support, printing, outreach services, innovations, etc.)

C.2 Salary of contractual staff

C.3 Training under Immunization

C.4 Cold chain maintenance

C.5 ASHA incentive for full immunization

C.6 Pulse polio operational cost

Most of the activities are covered under C.1 component, which is further sub classified into FMR c.1.a to c.1.v.

There are certain activities which may not fit into part C like additional human resources or budget for IEC/ BCC etc. These can be budgeted under part A/ part B of PIP.

Others (Part A and B) – support for HR and IEC/BCC:

- For other HR related to immunization (technical staff), e.g. refrigerator mechanics
- For IEC/BCC activities related to immunization.

New Activity

The State should provide a brief description, rationale, data/ background information required to appraise the proposal and budget break-up for each new activity

Innovation

Up to a maximum of 10 % of the health systems strengthening budget (Mission Flexi pool and NUHM) may be proposed for innovations which is a part of the overall budget envelope.

Budget Envelope:

As per 2016-17 guidelines, the NHM funding between the Centre and States would be in the ratio of 60:40 (for all states except NE and 3 Himalayan States), 60 from Central government and 40 from State.

States are requested to estimate the resource envelope accordingly. However, FMG communicates the resource envelope separately.

Note:

Budgetary : this refers to norms to be used as guidance for preparing PIP.

Expenditure : this refers to norms to be used while spending as per GoI norms.

Details of PIP Norms

FMR Code	Activities	Purpose	Norms *	Level
C.1				
c.1.a	Mobility Support for supervision for district level officers.	**Budgetary:** Mobility budget for the entire year is provided to the districts for undertaking monitoring and supervision of Routine immunization programme in the district. The mobility support is provided only for the district level officers.	Rs.2,50,000/ Year / district level officers.	District
c.1.b	Mobility support for supervision at state level	**Budgetary:** Mobility budget for the entire year is provided for undertaking monitoring and supervision of Routine immunization programme in State Level.	Rs. 1, 50,000 per year.	State
c.1.c	Printing and dissemination of Immunization cards, tally sheets, monitoring forms etc.	**Budgetary:** The funds allocated under this head are for printing and dissemination of Immunization cards, etc.	Rs. 10 / beneficiary	State/ district
c.1.d	Support for Quarterly State level review meetings of district officer	**Budgetary:** Funds allocated for conducting quarterly State level review meetings of district officer for maximum of 3 persons per meeting	Rs. 1250/ per participant/day for 3 persons (CMO/ DIO/Dist. Cold Chain Officer)	District

FMR Code	Activities	Purpose	Norms *	Level
c.1.e	Quarterly review meetings exclusive for RI at district level with one Block MOs, CDPO, and other stake holders	**Budgetary:** Funds allocated for conducting quarterly review meetings at district level for maximum of 5 persons per meeting	Rs. 100/per participant for meeting expenses for 5 persons (lunch, Organization expenses)	Block
c.1.f	Quarterly review meetings exclusive for RI at block level	**Budgetary:** Funds allocated for conducting quarterly review meetings at block level wherein honorarium is paid to ASHA	Rs. 50/ per person as honorarium for ASHA (Travel) and Rs. 25/person at the disposal of MO-IC for meeting expenses (refreshment, stationary and misc. expenses)	Block
c.1.g	Focus on slum & underserved areas in urban areas/alternative vaccinator for slums	**Expenditure:** In case the ANM is not available or appointed, an alternate vaccinator can be hired for these session sites.	Hiring of ANM@ Rs 450/session for four session/month/ slum of 10000 population and Rs. 300/- per month as contingency per slum i.e. Rs. 2100/- per month per slum of 10000 population	District/ Block
c.1.h	Mobilization of children through ASHA or other mobilizers	**Expenditure:** Funds @ 150/- per session for mobilization of Pregnant Women and targeted children for immunization as per the micro-plan are to be paid preferably to ASHA.	Rs. 150 per session	District/ Block

c.1.i	Alternative vaccine delivery in hard to reach areas	**Expenditure:** Rs. 150 per session for Hilly terrains and geographically hard to reach areas	Rs. 150 per session	District/ Block
c.1.j	Alternative Vaccine Delivery in other areas	**Budgetary:** Rs. 75 per session for RI session in other areas	Rs. 75 per session	District/ Block
c.1.k	To develop micro plan at sub-centre level	**Budgetary:** Rs. 100/- paid per subcentre to familiarize the health managers with the steps in developing a comprehensive and equitable micro plan	@ Rs 100/- per subcentre	Block
c.1.l	For consolidation of micro plans at block level	**Budgetary:** Rs.2000/- for each district and Rs.1000/- for each block or PHC for the purpose of consolidation of micro plans	Rs. 1000 per block/ PHC and Rs. 2000 per district	District/ Block
c.1.m	POL for vaccine delivery from State to district and from district to PHC/CHCs	**Budgetary:** The POL is provided for transport and distribution of vaccine from State to district and then from district to PHC/CHCs	Rs1,50,000/ district/ year	State/ District
c.1.n	Consumables for computer including provision for internet access for RIMs	**Budgetary:** The funds is earmarked for petty consumable items for each district	@ 400/ - month/ district	District

FMR Code	Activities	Purpose	Norms *	Level
c.1.o	Red/Black plastic bags etc.	**Budgetary:** Fund allocated for procurement of red and black plastic bags for containment of medical waste after post RI immunization session	Rs. 3/bags/session	District/ Block
c.1.p	Hub Cutter/ Bleach/Hypochlorite solution/ Twin bucket	**Budgetary:** For cutting the AD syringe at the hub immediately after administering the injection at the session site. Similarly other items are required for disinfecting medical/bio waste	Rs. 1200 per PHC/ CHC per year	District/ Block
c.1.q	Safety Pits	**Budgetary:** Funds allocated for the disposal of used needles and syringes that are loose	Rs. 5250/pit	District/ Block
c.1.r	State specific requirement	**Expenditure:** This head is for any innovation under Immunization. Normally it should not exceed 10% of the total resource envelope under Part C.		At all levels
c.1.s	Teeka Express Operational Cost	**Expenditure:** Funds allocated for providing operational cost for Teeka Express.		State (as a pilot in only 5 states)
c.1.t	Measles SIA operational Cost	**Expenditure:** Funds allocated for providing operational cost for Measles SIA		Allocat-ed by GOI

c.1.u	JE Campaign Operational Cost	**Expenditure:** Funds allocated for providing operational cost for JE SIA		Allocat-ed by GOI
c.1.v	Others	**Expenditure:** This head is basically for any other Immunization activity which could not be covered under any other head. Alternatively, this head can also be used for innovation in the field of Immunization		At all levels
C.1-Sub Total				
C.2		**Expenditure:**		
C.2.1	Computer Assistants support for State level	Funds allocated for payment of salary to Computer Assistant at State level		State
C.2.2	Computer Assistants support for District level	Funds allocated for payment of salaries to Computer Assistants at District level		District
C.2.3	Others(service delivery staff)	Funds allocated for payment of salaries to service delivery staff , if any		At any level
C.2-Sub Total				

FMR Code	Activities	Purpose	Norms *	Level
C.3				
C.3.1	District level Orientation training including Hep B, Measles & JE(wherever required) for 2 days ANM, Multi-Purpose Health Worker (Male), LHV, Health Assistant (Male/Female), Nurse Midwives, BEEs & other staff	**Expenditure:** Fund allocated for conducting 2 days training for ANM, Multi-Purpose Health Worker (Male), LHV, Health Assistant (Male/ Female), Nurse Midwives, BEEs & other staff	As per revised norms for trainings under RCH** (See page 286)	
C.3.2	Three day training including Hep B, Measles & JE(wherever required) of Medical Officers of RI using revised MO training module)	**Expenditure:** Fund allocated for conducting 3 days training for Medical Officers of RI		
C.3.3	One day refresher training of district Computer assistants on HIMS and immunization formats	**Expenditure:** Fund allocated for conducting 1 day refresher training of Computer assistants on RIMS/HIMS and immunization formats		
C.3.4	Two days cold chain handlers training for block level cold chain handlers by State and district cold chain officers	**Expenditure:** Fund allocated for conducting 2 days training of cold chain handlers at block level and district level		

C.3.5	One day training of block level data handlers by DIOs and District cold chain officer	**Expenditure:** Fund allocated for conducting 1 day training of block level data handlers by DIOs and District cold chain officer		
C.3.6	Others	**Expenditure:** Head reserved for any other training to be conducted under Immunization which could not be covered under the above mentioned training heads		At all levels
C.3-Sub Total				

C.4				
C.4	Cold chain maintenance	**Budgetary:** Funds are allocated for cold chain maintenance at District Level, PHC and CHC	Rs.750/PHC/CHCs per year District Rs.15000/year	State/ district
C.5				
C.5	ASHA incentive for full Immunization	**Expenditure:** The ASHAs will receive performance-based incentives for full Immunization of Rs.150/- which is paid in two years.	Rs 100 per child for full immunization in first year	District/ block
			Rs 50 per child for ensuring complete immunization up to 2nd year of age	
Total ROUTINE IMMUNIZATION				

FMR Code	Activities	Purpose	Norms *	Level
C.6	Pulse Polio Operational Cost (Tentative)	**Expenditure:** Funds allocated for providing operational cost for Pulse Polio Immunization Programme	Allocated by GOI	National level
Total				
A.8	Human Resources	**Expenditure:** Funds allocated for payment of salary to technical staff e.g. refrigerator mechanics	Any new or ongoing positions	State/ district
A.10	Program Management	**Expenditure:** Funds allocated for payment of salary to other staff related to Immunization	Any new or ongoing positions	State/ district
B.10	IEC-BCC NHM	**Expenditure:** Funds allocated for IEC / BCC activities related to Immunization		State / district

Other incentives for ASHAs under NHM

c.1.r/ c.1.v	ASHA incentive for due list preparation	**Expenditure:** For monthly updating of due list of beneficiaries under immunization	Rs 100/month	District
	ASHA incentive for house to house survey	**Expenditure:** For conducting house to house survey bi-annually	Rs 100 twice in a year	District

Please note that under Immunization most of the activities are normatic, and is to be budgeted as the multiplication factor of the mentioned norm. However, there is flexibility provided to the state under innovations head (c.1.r & c.1.v). States should also refer to the conditionality mentioned in the ROP. These conditionalities are provided for C.4 under cold chain maintenance funds, wherein the state may propose for re-appropriation of funds within part C from MoHFW, in case the funds are exhausted as per the actual expenditure. Also, the norms for alternate vaccine delivery are for budgetary purpose only and need based support should be provided for vaccine delivery as per local situation.

** Revised training norms under RCH (as per GOI letter D.O.No. A-11033/101/07- Trg, dated 28th Jan, 2015)

S No.	Budget Head	Final Proposed Norms
1.	DA to Group A equivalent Participants	Rs 700/- per day
2.	DA to Group B, C & D or equivalent participants	Rs 400/- per day
3.	Honorarium/ per diem to Group A & B equivalent participants	Rs 500/-
4.	Honorarium/ per diem to Group C & D or equivalent participants	Rs 300/-
5.	TA to Group A,B,C & D or equivalent participants	TA rules of Central/ State Govt. (whichever applicable)
6.	Hiring of Vehicle by Trainer	State norms of hiring of vehicle will apply
7.	Honorarium to Guest faculty at District and sub-district, State/Regional/National level (Experts/Specialists of area, faculty of medical college, centre of excellence, program officer dealing with program)	Rs 600 (district) Rs 1000 (State) & 1500 (National Level) per day^
8.	Honorarium to professional/ Faculty/ Trainers from Medical Colleges^^^ for monitoring of trainings in field as Observer • Checklist • Handholding the training • Action taken decision	District to Block- Rs 500/-, State to District/Block 1000/- and National to State/ District/ Block level – 1500/- (one training in a day with complete observer report) Report to be copied to respective concern division, State headquarters/ SIHFW and in Ministry (MOHFW)
9.	Food to participants (breakfast, working tea & lunch & Dinner for residential trainings)	Rs 250/- participants/day at district level and 350 at State and 400 at National level (subject to actual)
10.	Accommodation for Trainers where residential facility is not available	Up to Rs 3000 (district level) Rs 4000 (at state level), & 5000 (National Level) per day (subject to actual). Above are the maximum limits and subject to receipt.

11.	Accommodation for participants where hostel facility is not available	Up to Rs 1000 (district level) Rs 2000 (at state level), & 3500 (National Level) per day (subject to actual). Above are the maximum limits and subject to receipt.
12.	Incidental expenses (Photocopy, job aids, flip charts etc)	Rs 300/- participants/day (subject to actual)^^
13.	Venue hiring (in absence of training institute)	Rs 5000/- per day at district/block level per day Rs 10,000 per day at State level per day and Rs 20,000 per day at National level per day^^
14.	Institutional overhead for the use of institutional facilities	15% of total training expense

^ Subject to two lectures/Guest faculty/per day

^^Subject to keeping it minimum

^^^In principle, honorarium to impart training/taking sessions is not to be paid to any type of in-house faculty from NIHFW/SIHFW/ DTC/ HFWTC/ ANMTC/ DTT/ HTT or similar institute of training since training is their defined job.

The Medical Officer may refer to the link http://nhm.gov.in/nrhm-in-state/state-program-implementation-plans-pips.html, for updated guidelines and ROPs of all states/ UTs at MoHFW National Health Mission website.

Medical Officer's role	Activity	How
Providing inputs during preparation of the block & district health action plans.	1. Ensuring all activities related to routine immunization are included in BHAP (Block Health Action Plans) of PIPs. 2. MOIC can share his ideas with the District Immunization Officer (DIO) during preparation of District Health Action Plans for adding any need based innovation.	During preparation of BHAP for PIPs, interact with BPMs (Block Programme Manager), NHM & DPMs (District Programme Manager)
Utilization of Budget provided to the state as per ROP	1. A Medical officer can view activities under state ROP which has been approved for his state in a particular financial year and accordingly incur expenditure on various activities. 2. The utilization is to be shared with the district regularly.	ROP can be viewed at NHM website of GOI or can be taken from SPMU/ DPMU.
Any additional requirement can be projected in the Supplementary PIP.	Are all activities covered under ROP? If not, you may propose a new activity within your budget envelope, explaining in a short write-up, why you need this and may propose under supplementary PIP.	Any time after the issue of final ROP.

Notes:

Further reading and links

This unit contains a list of links to some of the information that supports this module. Some of the links provided are technical information which may not have been mentioned in this manual but will be useful if you wish to read further on some topics or if you need a broader perspective. Happy reading!!

Unit 1 – Introduction

- Comprehensive Multiyear Plan 2013–2017

  https://www.itsu.org.in/Comprehensive-Multi-year-Plan

- Understanding global evolution of EPI

  http://www.who.int/immunization/programmes_systems/en/

- Information on global immunization policies and strategies

  http://www.who.int/immunization/programmes_systems/policies_strategies/en/

- Global Vaccine Action Plan

  http://www.who.int/immunization/global_vaccine_action_plan/GVAP_foreword.pdf?ua=1

- Sampling methods in estimating immunization coverage
  - http://www.who.int/immunization/monitoring_surveillance/routine/coverage/en/index1.html
  - http://www.who.int/immunization/monitoring_surveillance/routine/coverage/en/index2.html

Unit 2 – National Immunization Schedule

- How vaccines are introduced in India – National Vaccine Policy

  http://mohfw.nic.in/showfile.php?lid=900

- Detailed technical information on vaccines – WHO: Vaccine Position Papers

  http://www.who.int/immunization/documents/positionpapers/en/

- For National Technical Advisory Group on immunization recommendations

  visit www.mohfw.nic.in. Use search function on webpage; key in NTAGI. Meeting minutes and recommendations are available.

Unit 4 – Cold chain and logistics management

- National effective vaccine management assessment 2013

  http://unicef.in/Uploads/Publications/Resources/pub_doc86.pdf

- Article on best practices in intradermal, subcutaneous and intramuscular

  injections –http://www.who.int/bulletin/volumes/81/7/Hutin0703.pdf?ua=1

- Validation of the shake test for detecting freeze damage to adsorbed vaccines

  http://www.who.int/bulletin/volumes/88/8/08-056879/en/

Unit 5 – Safe injections and waste disposal

- Central Pollution Control Board for details on BMW rules

  http://www.cpcb.nic.in/Bio_medical.php

- Biomedical Waste Management and Handling Draft Rules 2015 amendments

  http://www.moef.nic.in/sites/default/files/Final_vetted_BMW%20Rules%202015.pdf

- Injection safety information

  http://www.who.int/injection_safety/en/

Unit 6 – Adverse events following immunization

- Information sheets on reaction rates of selected vaccines

  www.who.int/vaccine_safety/initiative/tools/vaccinfosheets/en/

Unit 7 – Sources and use of data

- Immunization coverage estimation

  http://www.who.int/immunization/monitoring_surveillance/routine/coverage/en/

- Using data to improve immunization – global learning

  http://www.who.int/management/UsingDataToImproveServiceDeliveryImmunization.pdf

Unit 8 – Supervision and monitoring

- NIHFW module on supervision and monitoring

  http://www.nihfw.org/pdf/nchrc-publications/module%20-%204.pdf

Unit 9 – Communication for behaviour change

- Information on vaccine hesitancy

  http://www.who.int/mediacentre/news/releases/2015/vaccine-hesitancy/en/

Unit 10 – Vaccine Preventable Diseases and VPD surveillance

- Epidemiology and Prevention of Vaccine-Preventable Diseases; The Pink Book: Course Textbook– 13th Edition (2015) available at:

  http://www.cdc.gov/vaccines/pubs/pinkbook/index.html

- WHO – recommended standards for surveillance of selected vaccine-preventable diseases available at:

  http://apps.who.int/iris/bitstream/10665/68334/1/WHO_V-B_03.01_eng.pdf?ua=1

- Field guide for AFP surveillance

  http://www.searo.who.int/entity/india/topics/poliomyelitis/Field_guide_for_Surveillance_of_Acute_Flaccid_Paralysis_3rd_edition.pdf

- Measles outbreak investigation field guide

  http://www.searo.who.int/india/topics/measles/Measles_surveillance_and_outbreak_investigation_field_guide_2005.pdf

Unit 11 – Capacity building of health functionaries in immunization

- Module on ASHA guidelines including roles and responsibilities

  http://nrhm.gov.in/images/pdf/communitisation/asha/Orders-Guidelines/Guidelines_for_Community_Processes_2014_English.pdf

Unit 12

- National Framework for NUHM implementation

  http://www.nrhm.gov.in/images/pdf/NUHM/Implementation_Framework_NUHM.pdf

- PIP guidelines for NUHM

  http://www.nrhm.gov.in/images/pdf/NUHM/NUHM_PIP_Guidelines_2013-14.pdf

Unit 13– Budgeting and finance

- E-Training Module on "PIP/Budget preparation"

  http://mohfw.nic.in/WriteReadData/l892s/8514370340PIP-%20Budget%20%20Module.pdf

Notes:

FAQ Contents

Notes:

Frequently asked questions

General queries on immunization

What is immunization?

Immunization is the process of administering vaccines for the development of the body's protective response.

How do vaccines work?

Vaccines contain either weakened or killed versions of viruses or bacteria. These are also called "antigens". Once introduced, they stimulate the immune system in the body to produce "antibodies" against the disease causing organisms. Each vaccine provides immunity against a particular disease; therefore, a number of vaccines are administered to children and women to protect them from many vaccine-preventable diseases.

Vaccines also vary in **efficacy,** according to the age at which the vaccine is administered and the number of doses given. Presence of maternal antibodies in early infancy interferes with the antibody production. For example, measles vaccine is 85% effective at the age of 9 months and 95% at 1 year.

What are the different types of vaccines?

There are four main types of vaccines:

Live attenuated vaccines (LAV), inactivated or killedvaccines, Subunit or Recombinant and Toxoid (Inactivated toxins).

> **Live attenuated vaccines** are derived from disease-causing viruses or bacteria that have been weakened under laboratory conditions. They replicate in a vaccinated individual, but because they are weak, they cause either no disease or only a mild form of the disease. Examples of live vaccines are BCG, measles, Rotavirus, JE and oral polio vaccine.
>
> **Inactivated or killed vaccines** are produced by viruses or bacteria which are inactivated with heat or chemicals. They cannot grow in a vaccinated individual and so cannot cause the disease. They may not always induce an immune response, requiring multiple doses for full protection as well as booster doses to maintain immunity. Use of adjuvants enhances response to non-live vaccines. Examples are whole-cell (pertussis), fractional polysaccharide-based conjugate (Haemophilusinfluenzae type b or Hib) and IPV.

Subunit or Recombinant vaccines are produced by inserting genetic material from a disease-causing organism into a harmless cell, which replicates the proteins of the disease-causing organism. The proteins are then purified and used as vaccine. Example is hepatitis B vaccine.

Toxoid vaccines are made from a toxin that has been made harmless but which elicits an immune response against the toxin. Toxoid vaccines are safe because they cannot cause the disease they prevent and there is no possibility of reversion to virulence. The vaccine antigens are not actively multiplying and do not spread to unimmunized individuals. Examples are Tetanus toxoid and diphtheria toxoid.

What is Herd immunity or population immunity?

A population with a high number of members with immunity to a particular disease or pathogen may give protection from that infection to the small number of its non-immune members. This is as a result of there being too few susceptible persons in the "herd" for the infection to circulate. This is known as "herd immunity or population immunity."

Immunization of children can go well beyond saving individual lives. It can also help in preventing large-scale outbreaks of diseases as well as keeping a disease under control (or sometimes even eliminated or eradicated e.g. polio) in the area. You should always strive to achieve the highest percentage of coveragepossible for all doses of the vaccines for disease control to be effective.

How are vaccines introduced in UIP and how are immunization schedules decided?

The decision on inclusion of vaccines and the schedules is taken by the National Technical Advisory Group on Immunization (NTAGI). It is based on recommendations of the Strategic Advisory Group of Experts (SAGE)as well as WHO-recommended schedules and vaccine position papers.

Why are vaccines administered at specific sites?

Vaccines are administered at specific sites to maintain uniformity and for helping surveyors in verifying the receipt of the vaccine. e.g BCG on left upper arm.

Why should there be a minimum gap of 4 weeks between two doses of a vaccine?

There should be a minimum of 4 weeks gap between two doses because decreasing the interval between doses may not achieve optimal antibody production required for protection.

How long can a bottle of Vitamin A be used, once opened?

A Vitamin A bottle, once opened, should be used within 8 weeks. Write the date of opening on the bottle. It must be kept away from direct sunlight.

What is the dose of Zinc to be used along with ORS in the treatment of diarrhea?

The dose of zinc for infants aged 2–6 months is 10 mg of dispersible tablet in expressed breast milk for 14 days. For children 6 months to 5 years of age, it is 20 mg of dispersible tablet for 14 days.

Queries on immunization schedule

If a child is brought late for a subsequent dose, should one re-start with the first dose of a vaccine?

No, do not restart the schedule again; pick up where the schedule was left off. For example, If a child who has received BCG, penta1 and OPV1 at 5 months of age returns at 11 months of age, then vaccinate the child with penta2, OPV2 , measles, Rotavirus vaccine (where applicable) and JE (where applicable).

If a child who has never been vaccinated is brought in at 9 completed months but before 12 completed months of age, then, can all the due vaccines be given to a child on the same day?

Yes, all the due vaccines can be given during the same session but at recommended injection sites, using separate AD syringes. It is safe and effective to give BCG, penta, OPV,IPV, measles ,RVV (where applicable), JE (where applicable) vaccines and Vitamin A at the same time to a 9-month-old child who has never been vaccinated.

If more than one injection has to be given in one limb then ensure that the distance between the two injection sites is at least 1 inch apart.

If a child who has never been vaccinated is brought in immediately after completing 12 months of age, (beyond one year) what vaccines would you give?

As per the national immunization schedule this child need not be given – BCG, Hepatitis B, Rotavirus, Penta and IPV.

This child should be administered DPT 1, OPV 1, Measles 1, JE 1(if applicable) and also Vitamin A solution.

The subsequent doses of DPT and OPV should be given at an interval of 4 weeks. Administer Measles 2, JE 2 (If applicable), Vitamin A and a booster dose of DPT at recommended age as per national immunization schedule.

Which vaccines can be given to a child between 1 and 5 years of age who has never been vaccinated?

Such a child will not receive BCG, Hepatitis B, Rotavirus, Penta and IPV.

Give DPT1, OPV1, measles 1, JE 1 (where applicable) and 2ml of Vitamin A solution.

Then follow with the second and third doses of DPT and OPV at 1 month intervals. Give measles 2 as per the schedule/1 month later*. Give booster dose of OPV/DPT at a minimum of 6 months after administering OPV 3/DPT 3. Also give Vit A at 6 months interval till 5 years of age.

***Note:** In an unvaccinated child more than **16 months** of age remember the interval between Measles 1 and Measles 2 is 4 weeks and for JE 1 and JE 2 (where applicable) the interval is **3 months.**

Which vaccines can be given to a child between 5 and 7 years of age who has never been vaccinated?

Give of DPT 1, 2 and 3 at 1 month intervals. Give booster dose of DPT at a minimum of 6 months after administering DPT 3 up to the age of 7 years.

Why are the DPT, HepB (birth dose), IPV and pentavalent vaccines given in the anterolateral mid-thigh and not the gluteal region (buttocks)?

This is done to prevent damage to the sciatic nerve. Moreover, vaccine deposited in the fat of the gluteal region does not invoke the appropriate immune response.

Vaccine-specific FAQs

BCG

Why is BCG given only up to 1 year of age?

Most children acquire natural clinical/sub-clinical tuberculosis infection by the age of 1 year. This protects against severe forms of childhood tuberculosis, e.g. TB meningitis and miliary disease.

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

There is no need to re-vaccinate the child even if there is no scar.

Why do we give 0.05 ml dose of BCG to new borns (below 1 month of age)?

This is because the skin of newborns is thin and an intra-dermal injection of 0.1 ml may break the skin or penetrate into the deeper tissue and cause local abscess and enlarged axillary lymph nodes. Dose of 0.05 ml is sufficient to elicit adequate protection.

Hepatitis B

What is hepatitis?

Hepatitis is an inflammation of the liver, most commonly caused by a viral infection. There are five main hepatitis viruses, referred to as types A, B, C, D and E. These five types are of the greatest concern because of the burden of illness and death they cause and the potential for spread of outbreaks and epidemics. In particular, types B and C lead to chronic disease in hundreds of millions of people and, together, are the most common cause of liver cirrhosis and liver cancer.

Hepatitis A and E are typically caused by ingestion of contaminated food or water. Hepatitis B, C and D usually occur as a result of parenteral contact with infected body fluids. Common modes of transmission for these viruses include receipt of contaminated blood or blood products and using contaminated equipment in invasive medical procedures. For hepatitis B, the causes are transmission from mother to baby at birth, from family member to child and also by sexual contact.

Acute infection may occur with limited or no symptoms, or may include symptoms such as jaundice (yellowing of the skin and eyes), dark urine, extreme fatigue, nausea, vomiting and abdominal pain.

What is the "birth dose" of hepatitis B?

This refers to the dose given within 24 hours of birth. A child vaccinated with Hep B after more than 24 hours of birth is not considered to have received the birth dose.

Why is the birth dose of hepatitis B vaccine given only within 24 hours of birth?

The birth dose of hepatitis B vaccine is effective in preventing peri-natal transmission of hepatitis B only if given within the first 24 hours.

Why is hepatitis B vaccine given only till 1 year of age?

Hepatitis B vaccine is given till 1 year of age because infections during first year of age have a 90% chance of becoming chronic as compared to 30% during 1–5 years and 6% after 5 years. Persons with chronic infection have 15–25% risk of dying prematurely due to HBV-related liver cirrhosis and cancer.

Pentavalent Vaccine

What is pentavalent vaccine?

Pentavalent vaccine is a vaccine that contains five antigens (diphtheria + pertussis + tetanus+ hepatitis B + Haemophilusinfluenzae type b).

How is pentavalent vaccine more advantageous?

- The addition of Hib vaccine provides protection against Haemophilus Influenzae Type b related diseases (bacterial meningitis, pneumonia and others)
- The number of injections administered under UIP during the first year of life reduces from ten to seven (not including IPV).
- It does not require reconstitution.

What is the schedule for pentavalent vaccine?

As per the National Immunization Schedule, three doses of pentavalent vaccine are to be administered. The first dose is given only after a child is 6 weeks old. The second and third doses are given at 10 and 14 weeks of age, respectively. There is no booster dose recommended under UIP

Note: Pentavalent vaccine should be started for any child aged more than 6 weeks and can be started upto 1 year of age.

For what reasons should a child not be given pentavalent vaccine?

- Age – a child below 6 weeks of age should not be given pentavalent vaccine.
- Vaccination history – a child whose vaccination schedule has been initiated with DPT/hepatitis B vaccine will continue to receive subsequent doses of DPT/hepatitis B and not pentavalent vaccine.
- Severe allergic reactions – although serious side effects have not been reported, a child who has had a severe reaction to pentavalent vaccine earlier should not be given another dose.
- Children with moderate or severe acute illness should not be administered pentavalent vaccine until their condition improves. Minor illnesses, however, such as upper respiratory infections (URI) are not a contraindication to vaccination.

What vaccine will be given to a child who has received at least one dose of pentavalent vaccine before his/her first birthday?

If a child has received at least one dose of pentavalent vaccine before his/her first birthday, the child should be administered the due pentavalent doses at a minimum interval of 4 weeks, at the earliest available opportunity.

What are the common side-effects of pentavalent vaccine?

Pentavalent vaccine has not been associated with any serious side-effects. However, redness, swelling and pain may occur at the site where the injection was given. These symptoms may appear the day after the injection is given and last from 1 to 3 days. Less commonly, children may develop fever for a short time after immunization.

After introduction of pentavalent vaccine, will DPT and Hep B be required?

Yes, Hep B birth dose (within 24 hours) for institutional deliveries and DPT boosters at 16–24 months and 5–7 years will continue as before.– Introduced

Rotavirus vaccine – Introduced in Feb 2016 - in phases

What is Rotavirus?

Rotavirus is a highly contagious virus. It is the most common organism that causes diarrhea among children which may lead to hospitalization and death.

What are the clinical features of Rotavirus diarrhea?

Rotavirus diarrhea has an incubation period 1-3 days. It presents usually with sudden onset of watery stools, often accompanied by fever and vomiting. Sometimes accompanied with abdominal pain. The diarrhea and associated symptoms may last for 3-7 days.

How effective is the Rotavirus vaccine?

The available Rotavirus Vaccines are observed to be effective in preventing severe rotavirus diarrhea by 54-60%. The protective effect of Rotavirus vaccine lasts through 2nd year of life.

Is Rotavirus vaccine being used in any other country in the world?

Rotavirus vaccine is being used in national immunization program more than 80 countries. Rotavirus vaccine has also been in use by private practitioners in India for several years.

Will vaccination with Rotavirus vaccine prevent all diarrheas?

No it does not prevent all diarrheas. Diarrhea is caused by many organismsof which Rotavirus is one of the leading causes for diarrheain children. Rotavirus vaccine is effective in preventing diarrhea due to Rotavirus only. So the child may still get diarrhea due to other germs and causes even after receiving Rotavirus vaccine.

How and when is the Rotavirus vaccine given?

Rotavirus vaccine is an oral vaccine. The dose of Rotavirus vaccine varies from manufacturer to manufacturer.

The dose and route for Rotavirus vaccine currently being supplied under UIP is 5 drops to be administered to all infants at 6, 10 and 14 weeks along with other vaccines in routine immunization .

What is the maximum age limit for giving the first dose of Rotavirus vaccine?

The upper age limit for the first dose of Rotavirus vaccine is one year of age. If a child has received only the first dose of Rotavirus vaccine by 12 months of age, two more doses of the vaccine should be given at an interval of 4 weeks between the two doses to complete the course.

Is a booster dose required for Rotavirus vaccine?

No booster dose of Rotavirus vaccine is recommended. Only three doses at 6, 10 and 14 weeks are required to complete the schedule of vaccination for a child.

Should Rotavirus vaccine be given to children who have already received first dose of OPV and Pentavalent vaccine?

No, during the initial period of Rotavirus vaccine introduction, only the infants coming for the first dose of OPV and pentavalent vaccine will be administered Rotavirus vaccine. These children will be given 2nd and 3rd doses in subsequent visits as per the schedule.

Infants who are coming for their second or third dose of OPV and pentavalent vaccine, will complete the schedule with OPV and pentavalent vaccine only. Rotavirus vaccine is not to be started with second or third dose of OPV and Pentavalent vaccine.

What should be done if a child has received one or two doses of Rotavirus vaccine in a private facility?

If the parents want to vaccinate their child from the public sector after receiving one or two doses of Rotavirus vaccine in a private facility, a new course of Rotavirus vaccine must be started with all three doses at one month intervals provided the child is less than one year old.

Inactivated Poliovirus Vaccine

What is IPV?

IPV refers to Inactivated Poliovirus Vaccine administered by injection. Evidence suggests that this vaccine, when used along with OPV, increases the protection to the individual as well as the community. IPV together with OPV prevents re-emergence and reinfection of wild poliovirus (WPV).

Will IPV (injection) replace OPV (drops)?

No, IPV (injection) will not replace OPV (polio drops), since IPV is recommended to be administered in addition to OPV.

Is IPV a new vaccine?

No, IPV is not a new vaccine. It is being used in many countries. IPV was licensed in 1955 for use in United States, Canada, and Western Europe.

IPV was licensed for use in India in 2006. Based on recommendations of the Indian Academy of Paediatrics (IAP), IPV is being used in the private sector in addition to OPV schedules since 2007.

What is the benefit of IPV?

IPV provides much needed additional protection against polio and protects a child as well as other children in our community. Evidence shows that when IPV is used along with OPV, it builds better mucosal (intestinal) immunity than when OPV is used alone; it thereby increases both the protection to the individual and the community. To maximize childhood immunity and move towards global polio eradication, it is recommended that both vaccines be used together.

Is IPV safe?

Yes, IPV is considered very safe, whether given alone or in combination with other vaccines.

Are there any contraindications for use of IPV?

IPV should not be administered to children with a documented or known allergy to streptomycin, neomycin or polymyxin B, or with a history of a previous allergic reaction after IPV injection.

Is it safe to give IPV and OPV together?

Yes, it is absolutely safe to give IPV and OPV together. It is also important – and best – for a child to receive both IPV and OPV. Together, these two vaccines provide safe and strong protection against polio. If a child only receives one of the vaccines they will not be as well protected as the child that has received both the vaccines. Primary doses of OPV (OPV1, OPV2 and OPV 3) should be completed as per schedule.

How and when is IPV to be administered?

IPV is to be given as a fractional dose (0.1 ml) intradermally in the Right arm of the child.

Fractional IPV is given in two doses at 6 and 14 weeks along with OPV 1 and OPV 3

Measles / Rubella

What are Measles / Rubella diseases?

Measles is a highly infectious disease causing illness and death due to complications in the form of diarrhea, pneumonia or brain infection mostly among the children less than five years of age. Rubella is a mild disease but when infection occurs in early pregnancy, it has the potential to cause spontaneous abortions, fetal deaths, still births and serious congenital defects in the child causing lifelong disabilities.

What is CRS?

CRS, (Congenital Rubella syndrome) is a set of serious congenital defects a child may be born with when a pregnant women gets Rubella infection in early pregnancy , causing blindness, deafness, heart defects, mental retardation, liver disorders and other hematological disorder, incompatible with normal living.

Why is Measles-Rubella vaccine given?

This Measles –Rubella vaccine is given for preventing both measles and rubella disease in the child, as these diseases can be only prevented by vaccination.

What is the efficacy of Measles-Rubella vaccine?

The efficacy of measles component in the vaccine is 85% when given below 12 months of age in a child and >95% efficacy when given above 12 months of age. While the efficacy of the Rubella component in the vaccine is more than 95% below 12 months and > 99% if given above 12 months of age.

Does a child need to be vaccinated if she or he has history of any fever-rash illness including measles or rubella disease?

Yes, every child must be vaccinated with two doses, as per the national immunization schedule with MR vaccine at the recommended ages, irrespective of any past fever-rash illness or measles/rubella disease.

If a child has received the Measles Rubella vaccine before 9 months of age, is it necessary to repeat the vaccine later?

Yes, the Measles Rubella vaccine needs to be administered, according to the National Immunization Schedule, after the completion of 9 months until 12 months of age as 1st dose and at 16-24 months as 2nd dose in RI.

If a child comes after 2 years for the first dose, then can he/she get the second dose?

All efforts should be made to immunize all children at the right age i.e. first dose at completed 9 months to 12 months and second dose at 16-24 months. However if a child comes late (beyond 2 years),then two doses of the vaccine can be given at one month interval until 5 years of age under UIP.

If a child has received all vaccines as per the national immunization schedule, dose she or he need to be vaccinated during supplementary MR campaigns?

Yes, in addition to the recommended national immunization schedule the child (if eligible as per age group targeted) must be vaccinated with supplementary MR vaccines during campaigns.

As measles and JE vaccine doses are recommended for the same age group, can they be given together?

Yes, two live injectable vaccines can be administered simultaneously at different sites, otherwise at a minimum interval of 28 days.

Japanese Encephalitis

What is Japanese encephalitis and what is acute encephalitis syndrome (AES)?

Japanese encephalitis (JE) is a severe, disabling viral disease spread by infected mosquitoes, primarily in the agricultural regions of Asia. The disease affects the central nervous system and can cause severe complications, seizures, and even death.

Clinically, a case of acute encephalitis syndrome (AES) is defined as a person of any age, at any time of the year with acute onset of fever and a change in mental status (including symptoms such as confusion, disorientation, coma, or inability to talk) and/or new onset of seizures (excluding simple febrile seizures). Other early clinical findings may include an increase in irritability, somnolence or abnormal behaviour greater than that seen with usual febrile illness (WHO).

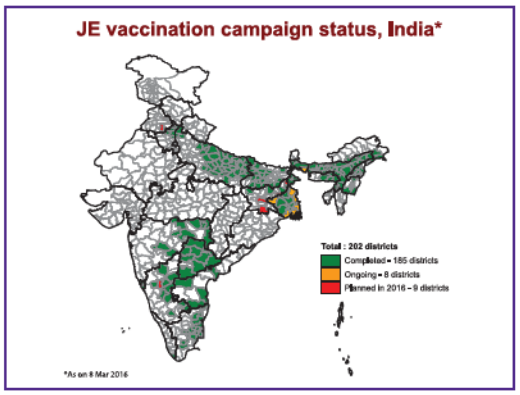
AES including JE is a group of clinically similar neurological manifestations caused by several different viruses, bacteria, fungus, parasites, spirochetes, chemical/toxins, etc. Some other causes of AES could be tuberculosis, meningitis, viral encephalitis, cerebral malaria, etc.

How common is JE?

JE is the leading cause of viral encephalitis in Asia. Though 30,000 to 50,000 cases and 15,000 deaths are reported each year, a lack of diagnostic capability and reliable data suggest that the actual number of cases is much higher.

Where is JE endemic in India?

JE is endemic in 202 districts in 12 states across the country. JE vaccination campaigns have been completed in 193 districts and with the remaining nine scheduled to be completed in 2016.



Who is at risk for JE?

People living in rural rice-growing and pig-farming regions face increased risk. Cases are also found in the peri-urban parts of cities. In areas where JE has been present for many years, the disease is most frequently seen in children between the ages of 1 and 15 years; however, it can affect adults also.

Which vaccine is used in JE?

Live attenuated SA-14-14-2 JE vaccine manufactured by Chengdu Institute of Biological Products, China is used by the GoI.

What is the schedule of JE vaccine in the UIP?

Two doses of JE vaccine are administered in UIP in all JE endemic districts of the country. The first dose of JE vaccine is given to infants aged 9–12months along with the first dose of measles vaccine and the second dose is given along with DPT booster dose and measles vaccine second dose.

What is the side-effect of SA 14-14-2 JE vaccine?

JE vaccine is as safe as any other immunization vaccines given in India. Rare serious adverse events may be reported, such as transient fever amongst 5–10% vaccine recipients and local reactions such as injection site tenderness, rash or irritability in 1–3% of cases.

What if someone misses receiving JE vaccine during catch-up campaigns?

Those children aged 1–15 years who have missed receiving JE vaccine during the catch-up campaigns can receive it at the nearest PHC/CHC or district hospital.

If a child more than 9 months but less than 24 months who has never received any JE vaccine comes for immunization, how should JE vaccine be administered?

The first dose should be given at first contact and the second dose should be given with an interval of 3 months following the first dose.

Pneumococcal

What is pneumococcal disease?

- Pneumococcal disease is a group of diseases caused by a bacterium Streptococcus pneumoniae (also known as pneumococcus).
- The most serious of these diseases are pneumonia, meningitis, and blood stream infections.
- Streptococcus pneumoniae is the leading cause of bacterial pneumonia in children under 5 years of age.

How common is pneumococcal disease?

- Pneumococcal disease constitutes a major public health problem.
- In India, pneumococcal pneumonia was estimated to have caused 105,000 deaths in 2010.
- Beyond the pneumonia cases there are other serious pneumococcal cases and deaths from blood stream infections (sepsis) and meningitis.

How is pneumococcal disease spread?

- Pneumococcus spreads from person to person (coughing, sneezing or close contact). Many people have pneumococcus in their nasopharynx for days or weeks at a time. In most cases the pneumococcus disappears from the nasopharynx without causing any symptoms, but sometimes disease develops.

What diseases does pneumococcus cause?

Diseases that are often caused by pneumococci include:

- Pneumonia,
- Bacteraemia, sepsis: bloodstream infection,
- Bacterial meningitis: infection of the membranes and fluid that covers and protects the spinal cord and brain
- Middle ear infection (otitis media)
- Sinusitis, Bronchitis

Who is at increased risk of pneumococcal disease?

- Young children and elderly individuals are most at risk.
- The children most at risk of pneumococcal disease are:
  - Children under 5 years of age, especially those under 2 years of age
  - Immunocompromised children
  - Those with influenza or other respiratory virus infections can get a second infection with pneumococcus.
  - Malnutrition, lack of breastfeeding, exposure to indoor smoke and crowded living conditions.
  - Poor and marginalized populations with poor access to health care.

What is the vaccination schedule for PCV?

PCV is to be administered in three doses (2 primary doses and 1 booster) at 6 weeks, 14 weeks and 9 months of age.

Age	PCV schedule	Other scheduled vaccines to be given along with PCV
6 weeks	**PCV-1***	**OPV-1, Pentavalent-1, Rota-1*, fIPV-1**
14 weeks	**PCV-2***	**OPV-3, Pentavalent-3, Rota-3*, fIPV-2**
9 months	**PCV booster dose***	**Measles-1/MR-1, JE-1***

* Where applicable

Microplanning

RI microplans already exist in my PHC/UHC. Do I need to review them?

Yes, RI microplans require to be reviewed every quarter. This ensures that all areas and all beneficiaries are included in the RI session due lists.

Why should we do the house-to-house survey?

The house-to-house survey is the most important activity in RI microplanning. It gives the exact count of pregnant women and eligible children, and is the basis for calculation of injection loads. This injection load estimation determines the number of sessions to be conducted in an area.

Why is head counting important for microplanning?

- Head counting identifies all beneficiaries (children and pregnant women) for immunization;
- When done correctly, it makes sure that no beneficiary is missed;
- It provides an opportunity to build community confidence in the programme;
- Due list preparation is based on head count;
- The head count is important for estimation of injection loads ,vaccines and logistics.

What should an ANM do if there is no ASHA in her area?

- After discussing with the sector MO or MOIC, she should plan for an ASHA from nearby to cover this area.
- With support from the ICDS supervisor, an AWW can also be deputed to help with the head counting.

OR

- After discussion with the MOIC, a local person who is involved with the polio programme, or who supports mobilization, can be called in to conduct the head counting after receiving training from the MO.

Is there any incentive for ASHAs under NHM for conducting house to house survey?

Yes, an ASHA is to receive Rs 100 twice in a year for conducting the house-to-house survey. (refer Unit 12)

Who is expected to conduct immunization at vacant sub-centres?

Any ANMof the adjoining area / SC with more than one ANM/ who has no planned sessions on the day should be delegated to conduct RI sessions in vacant sub-centres. In some cases, ANMs from other blocks can be deployed by block/district officials to conduct sessions for such vacant areas.

First line Management of Anaphylaxis in Field Settings

SOP for administration of one dose of Intra-muscular Adrenaline by ANM

Q 1. What is Anaphylaxis? How does it manifest?

Anaphylaxis is an extreme and severe allergic reaction, that is potentially life threatening. The whole body is affected, often within minutes of exposure to the allergen (substance causing the allergic reaction), but sometimes after hours. It occurs because the immune system overreacts to an allergen, and causes secretion of chemical substances that cause swelling of blood vessels. Common allergens include foods such as peanuts, dairy products, eggs etc. and non-foods such as wasp or bee sting, medications, vaccines, latex etc. The symptoms of an anaphylactic reaction include generalized flushing of the skin, nettle rash (hives) anywhere on the body, swelling of throat and mouth, difficulty in swallowing or speaking, alterations in heart rate, severe asthma, abdominal pain, nausea and vomiting, sudden feeling of weakness (drop in blood pressure), collapse and unconsciousness.

Q2. How will you suspect a case of anaphylaxis?

In anaphylaxis, there is sudden onset of symptoms which rapidly worsens. Individual may complain of difficulty in breathing and/or giddiness/loss of consciousness, hypotension, skin changes such as generalized rashes, swelling of the lips and tongue (angioedema), hives (urticaria) and flushing.The person may have had a severe allergic reaction or anaphylaxis in the past. However, this may be the first time. Sudden onset and rapid progression of ≥ 1 signs and symptoms of any of the two systems (respiratory, cardiovascular and dermatological/ mucosal) should be suspected as a case of anaphylaxis.

Recognition of anaphylaxis case in field setting

Usually respiratory, dermatological and cardiovascular systems are involved in anaphylaxis. In most cases of anaphylaxis, skin and mucous membrane are affected. The case of anaphylaxis is suspected if the following criteria are met:

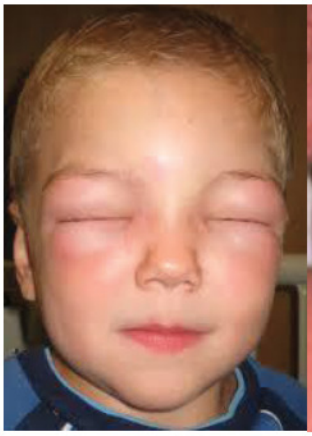
Rapid onset and progression of ≥ 1 signs and symptoms of any of the two systems (respiratory, cardiovascular and dermatological/mucosal) as illustrated in Figure 3 (clinical features).

In addition to the signs and symptoms given in Table 1, following features could also be observed: anxiety, diarrhea, abdominal cramps, nausea, vomiting and sneezing or rhinorrhea.

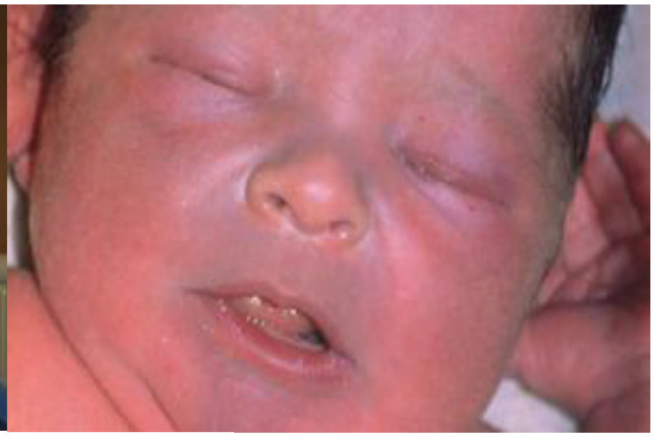
Table 1: Signs and symptoms of Anaphylaxis

System	Sign and Symptom
Respiratory	• Swelling in tongue, lip, throat, uvula or larynx • Difficulty in breathing • Stridor (Harsh vibrating sounds during breathing) • Wheezing (breath with whistling or rattling sound in the chest) • Cyanosis (bluish discoloration of arms and legs, tongue, ears, lips etc.) • Grunting (noisy breathing)
Cardiovascular	• Decreased level /loss of consciousness (fainting, dizziness) • Low blood pressure (measured hypotension) • Tachycardia (increased heart rate, palpitation)
Dermatological or mucosal	• Generalized urticaria (raised red skin lesion, rash with itching) • Generalized erythema (redness of skin) • Local or generalized Angioedema- itchy/ painful swelling of subcutaneous tissues such as upper eyelids, lips, tongue, face etc. • Generalized pruritus (itching) with skin rash

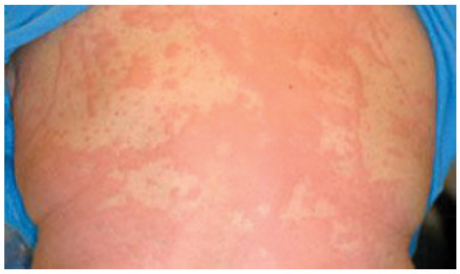
Figure 3: Clinical features



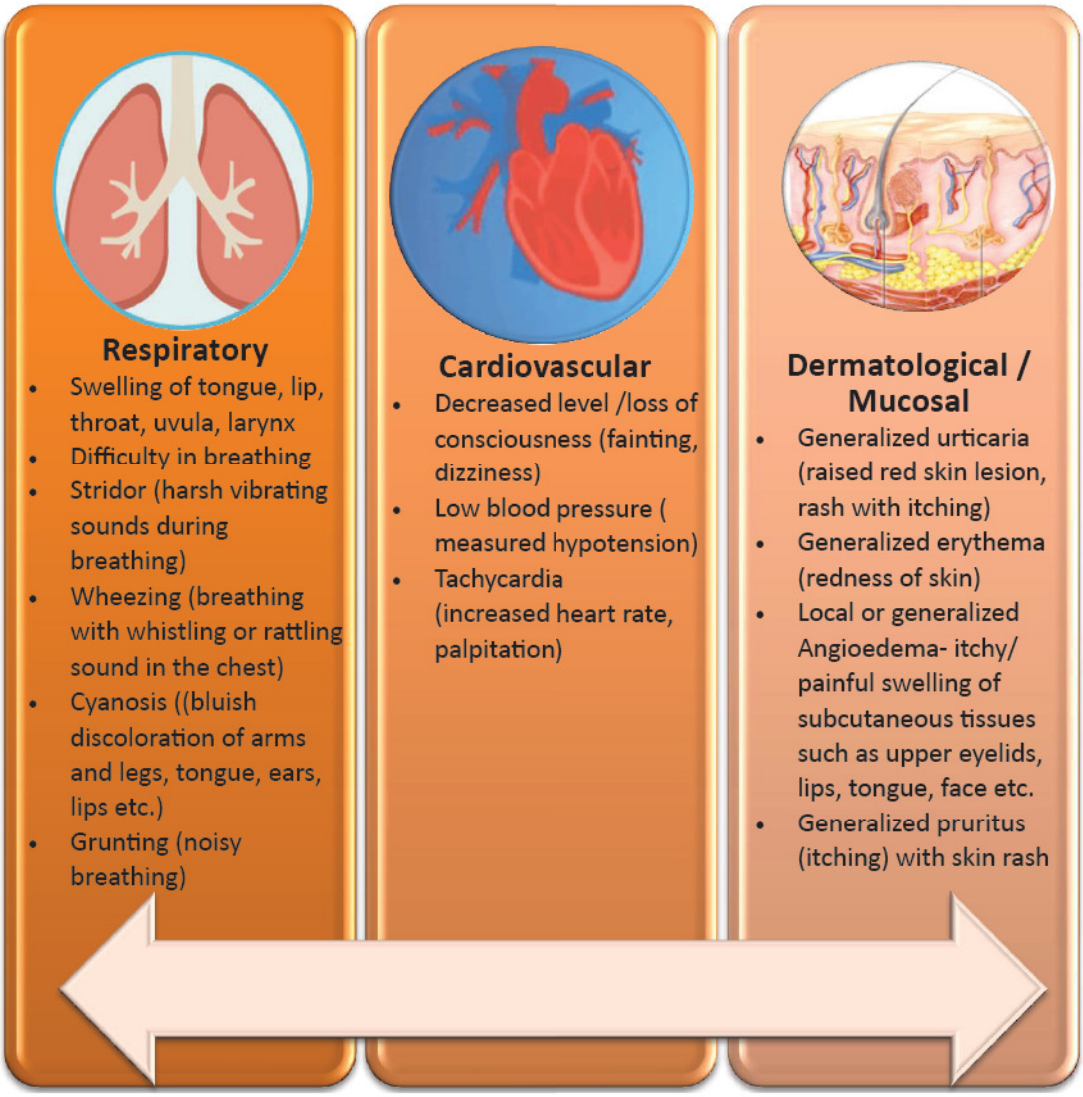
Picture 1: Angioedema



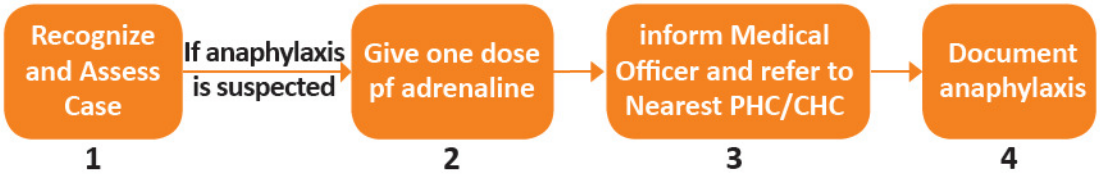
Picture 2: Cyanosis



Picture 3: Urticaria



The ANM should follow four steps for initial management of anaphylaxis cases.



Suspect Anaphylaxis in a case with following symptoms and signs

Assess Case

Rapid onset & progression of >= 1 signs & symptoms of any of the two systems (Respiratory, cardiovascular and dermatological / mucosal)

Respiratory:

- Swelling of tongue, lip, throat, uvula, larynx
- Difficulty in breathing
- Stridor (harsh vibrating sounds during breathing)
- Wheezing (breathing with whistling or rattling sound in the chest)
- Cyanosis ((bluish discoloration of arms and legs, tongue, ears, lips etc.)
- Grunting (noisy breathing)

Cardiovascular:

- Decreased level /loss of consciousness (fainting, dizziness)
- Low blood pressure (measured hypotension)
- Tachycardia (increased heart rate, palpitation)

Dermatological or mucosal:

- Generalized urticaria (raised red skin lesion, rash with itching)
- Generalized erythema (redness of skin)
- Local or generalized Angioedema- itchy/ painful swelling of subcutaneous tissues such as upper eyelids, lips, tongue, face etc.
- Generalized pruritus (itching) with skin rash

Manage anaphylaxis

Give one dose of adrenaline deep IM

- **Reassure** patient, parents/ relatives
- **Immediately administer** one dose of injection Adrenaline by deep IM route
- **Seek help to immediately arrange for ambulance** to transport the patient to the nearest health facility (PHC/CHC/District Hospital/Civil Hospital)
- **Do not leave patient alone**
- If patient is **conscious,** he/she should be kept in **supine position with lower limbs raised** higher than head
- If patient is **unconscious,** he/she should be kept in **left lateral position**

Referrals

Refer to higher center

- **Call for ambulance**
- **Inform MO** about the case for timely management

Document suspected anaphylaxis

Document suspected anaphylaxis on immunization card in block letters against vaccines administered

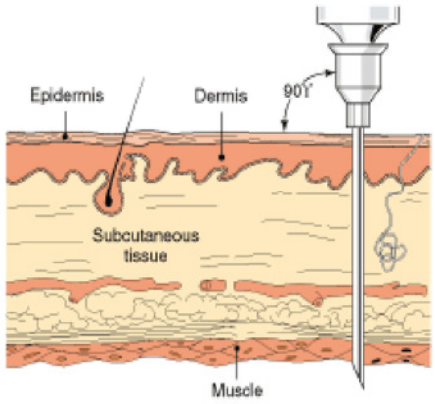
Steps for administration of injection Adrenaline by ANM

- Take one ampoule of adrenaline (1:1000) solution from the **Anaphylaxis Kit** and check name, dilution and expiry date on **label of vial** (not from kit label).
- Take a 1 ml syringe and 24/25 G needle of length 1 inch and load the required dose of adrenaline as per the age of the patient. [Table 2]
- Adrenaline ampoules are also labelled as Epinephrine. Epinephrine is another name for adrenaline.

Table 2: Age specific dosing chart of adrenaline (1:1000) for management of anaphylaxis

Age group (in years)	One inch needle gauge	Dosage (in mL) using 1 mL tuberculin syringe	Dosage (in units) using 40 units insulin syringe
0-1	24G/ 25G	0.05	2
1-6		0.1	4
6-12		0.2	8
12-18		0.3	12
Adults		0.5	20

- Use alcohol swab to clean the middle 1/3rd of anterolateral aspect of the thigh of the opposite limb to that in which vaccine is given.
- Hold the muscle mass on the anterolateral aspect of thigh with hands, stretch the skin (do not bunch) with fingers.
- Give deep intramuscular injection at 90 degree angle to skin in middle 1/3rd of anterolateral aspect of thigh.

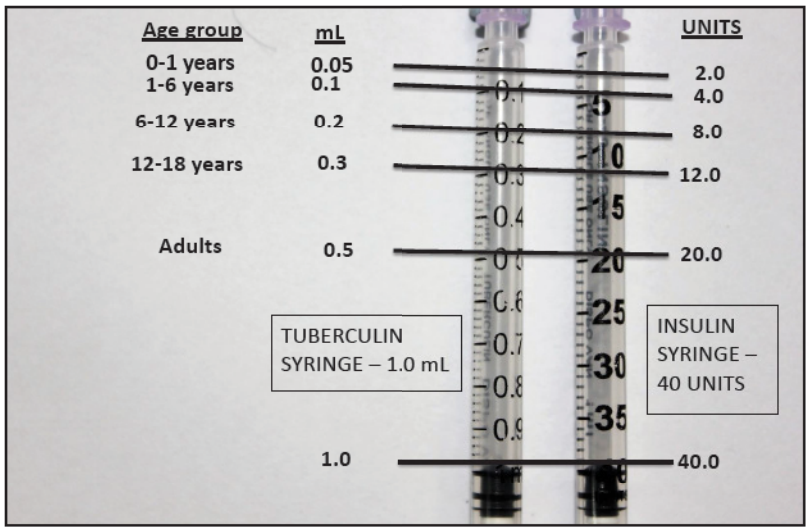


Source: Smith et al., 2000, p. 394

Ensure appropriate syringes and Needle availability at sub centre

- States/districts should procure and supply anaphylaxis kits with the following syringes and needles:
  Tuberculin syringe (1 ml) OR
  Insulin syringe (40 units) (without attached needle) – 3 nos./ANM

* 1ml tuberculin syringe comes with a detachable 0.5 inch needle. Procure 1 inch 24/25G needles separately and supply in anaphylaxis kit.



Anaphylaxis kit for ANM

Anaphylaxis Kit – Each kit should contain the following items:

- Annexure 2 of these guidelines to be taped to the inside of the box lid – 1 no.
- 1 mL ampoule of adrenaline (1:1000 aqueous solution) – 3 nos.
- 1 mL syringes – 3 nos.
- 24/25 G needles of 1 inch length – 3 nos.
- Alcohol swabs – 3 nos.
- Up to date contact information for the DIO and Medical Officer(s) of PHC/CHC and local ambulance services.

The kits can be stored in an air tight container. Ensure the drugs are not exposed to light which can cause deterioration. Ensure the contents of Anaphylaxis kits are verified in advance of every session so as to replace drugs before the expiry date.

Adrenaline Administration record

Name of Patient: _____ Age: _____

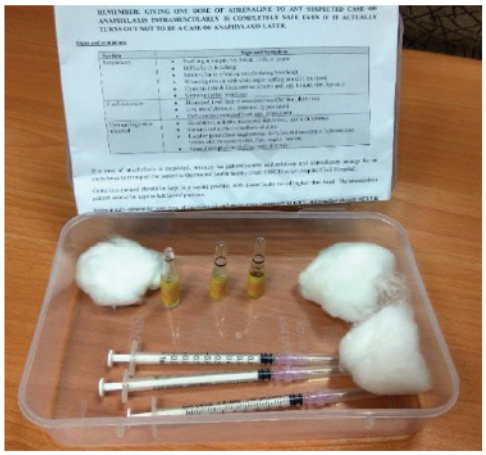
Date:_____

Adrenaline (1:1000 dilution) dose administered:

dose Amount: _____ mL

(if given)Time:_____ Site:_____

Anaphylaxis Kit



ANM should administer only one dose of adrenaline and refer the patient to referral center. Record of the administration of Adrenaline should be entered in the card above, which must be provided with the patient when he/she referred to medical officer. These details must also be recorded in immunization session summary and available with the ANM after transferring the patient.

About Adrenaline Injection

Adrenaline ampoules should not be exposed to temperature above 25 degree Celsius.

Key features of adrenaline are as follows:

- Description of drug: Adrenaline is a naturally occurring catecholamine.
- Dosage: 0.01ml/Kg body weight
- Route of administration: Intramuscular
- Site of injection: middle 1/3rd of anterolateral aspect of thigh in children and deltoid region of arm in case of adults.
- Preparation: injection adrenaline is available in 1 mg/ml preparation.
- Storage: Store in airtight containers, protected from light.
- Shelf life: 1 year

World Health Organization

COUNTRY OFFICE FOR India

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