Overview of EPI ,Myanmar

Dr Aung Kyaw Moe

Assistant Director

Expanded Programme on immunization

12th July 2017

A comprehensive multiyear plan (cMYP) for immunization (2017-2021)

- To strengthen immunization programme management, human resources, financing and service delivery to provide equitable service to all target populations
- To improve demand creation and ownership of immunization
- To strengthen immunization supply chain (iSC), vaccine management and build stronger cold chain systems at all levels
- To maintain zero polio cases and vaccine derived poliovirus (VDPV))
- To maintain MNTE status
- To achieve elimination of measles and control of rubella and CRS by 2020
- To strengthen and maintain strong surveillance systems for adverse events following immunization (AEFI) and other priority VPDs
- To introduce new and underused vaccines and new technology into routine immunization

Prevent; Immunization: background

[Milestones]

1978
Launch of Expanded Programme on Immunization (EPI) with BCG, DTP and TT vaccines



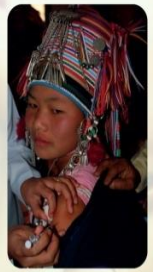

1987
Introduction of
- Oral Polio Vaccine (OPV)
- Measles

1990
Initiation of Universal Child Immunization (UCI 1990) in operational areas



1996
Polio Eradication Initiative started

1998
Introduction of CRASH programme in physically hard-to-reach areas


1999
Introduction of Maternal and Neonatal Tetanus Elimination Plan (TT)

2002 – 2004
Measles control though implementation of Mass Measles Campaigns (MMC)

2003 – 2005
Hepatitis B vaccine introduced in phases

2007
Comprehensive strategies package for Measles Control Campaign



2012
Introduction of
- Haemophilus influenza type b (Hib)
- Measles 2nd dose

Intensification of Routine Immunization

2015
Introduction of
- Catch up campaign for Measles Rubella (MR)
- Rubella
- Inactivated Polio Vaccine (IPV)


2016
Introduction of Pneumococcal Conjugate Vaccine (PCV)

Routine vaccination schedule (July 2016)

Dose/Age	Vaccine	Preventable Disease
 At Birth	BCG*	TB meningitis
	Hepatitis B	Hepatitis B
 First Dose (2nd month)	BCG*	TB meningitis
	(DPT, Hepatitis B, Hib) Pentavalent - 1	Diphtheria, Pertussis, Tetanus, Hepatitis B, Meningitis, Pneumonia
	Pneumococcal Conjugate Vaccine - 1	Pneumococcal Diseases
	Oral Polio Vaccine - 1	Poliomyelitis
 Second Dose (4th month)	DPT, Hepatitis B, Hib) Pentavalent - 2	Diphtheria, Pertussis, Tetanus, Hepatitis B, Meningitis, Pneumonia
	Pneumococcal Conjugate Vaccine - 2	Pneumococcal Diseases
	Oral Polio Vaccine - 2	Poliomyelitis
	Inactivated Polio Vaccine	Poliomyelitis
 Third Dose (6th month)	(DPT, Hepatitis B, Hib) Pentavalent - 3	Diphtheria, Pertussis, Tetanus, Hepatitis B, Meningitis, Pneumonia
	Pneumococcal Conjugate Vaccine - 3	Pneumococcal Diseases
	Oral Polio Vaccine - 3	Poliomyelitis
 Fourth Dose (9th month)	Measles - Rubella	Measles, Rubella
 Fifth Dose (18th month)	Measles	Measles

Newborn babies who were delivered at health centers must be immunised by Hepatitis B vaccine during 24 hours after birth.

*Children must receive BCG before and at 2nd month along with other vaccines if they did not receive at birth.

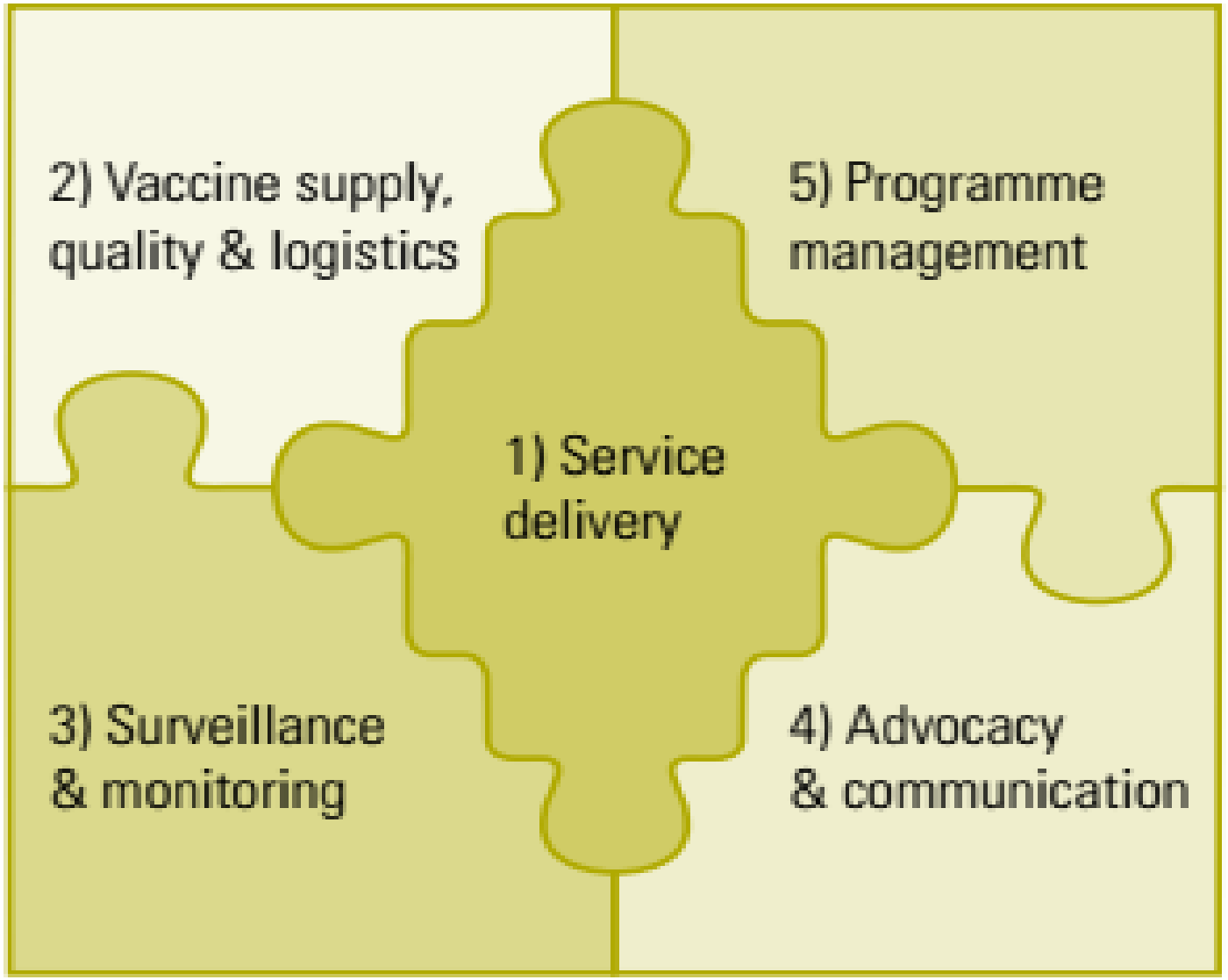
World Health Organization

unicef

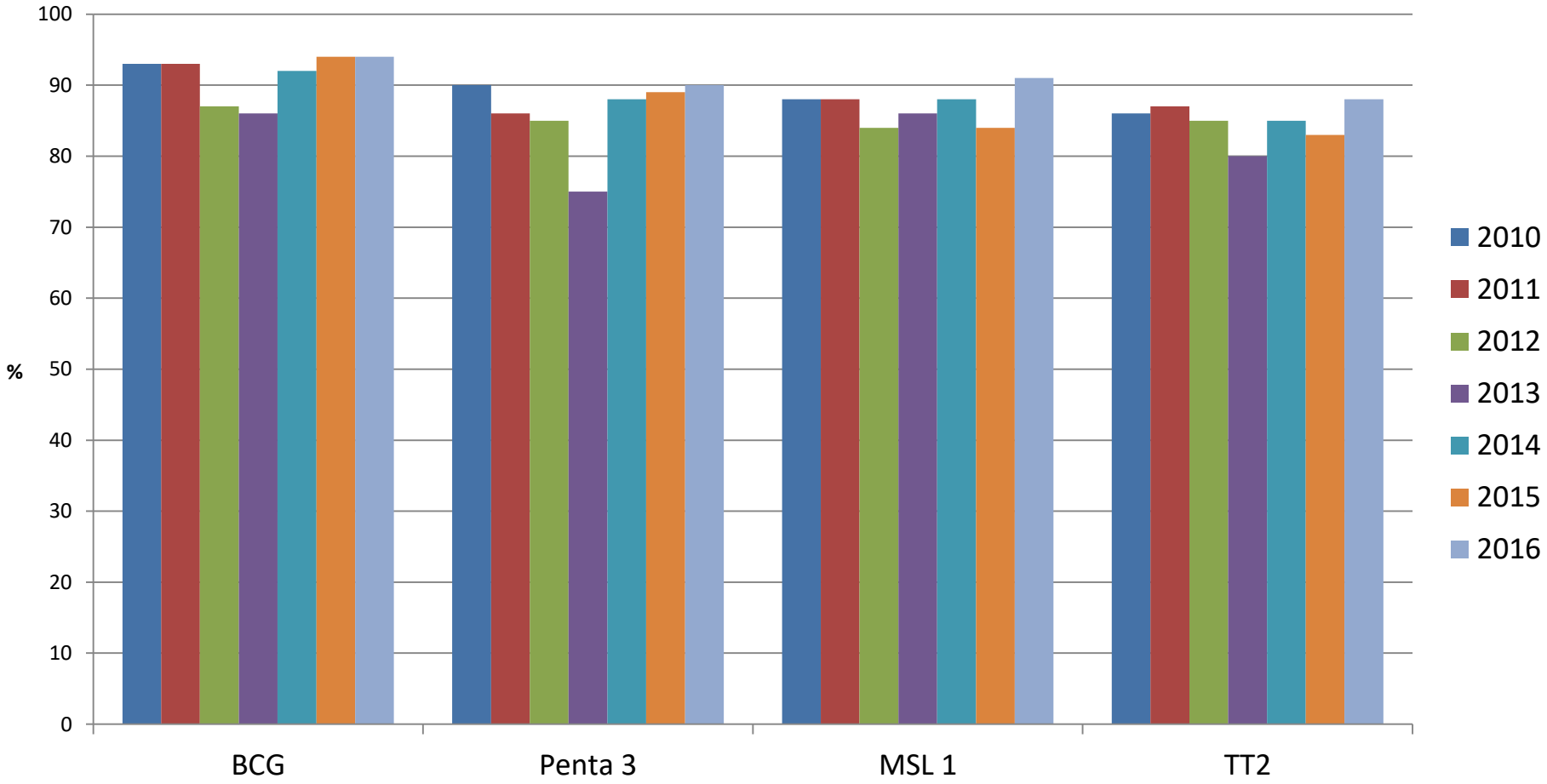
Targeted Vaccine Preventable Diseases

1. Diphtheria .
2. Pertussis
3. Tetanus
4. Tuberculosis
5. Poliomyelitis
6. Measles
7. Hepatitis B
8. *Haemophilus influenzae* type b disease
9. Rubella and congenital rubella syndrome
10. Pneumococcal disease
11. Japanese encephalitis
12. Rotavirus gastroenteritis
13. Human papillomavirus infection and cervical cancer
14. Seasonal influenza
15. Yellow fever
16. Meningococcal disease
17. Mumps

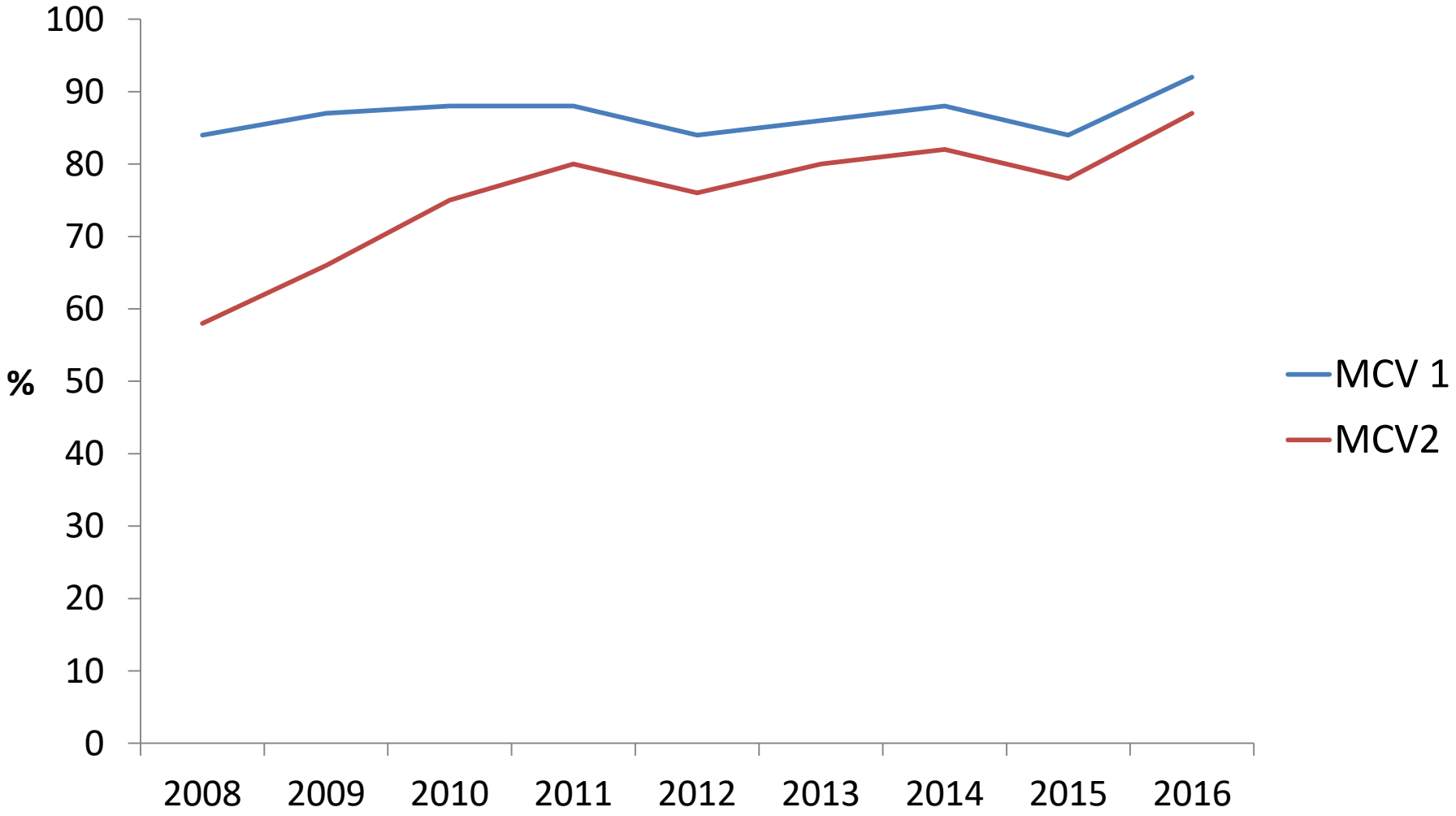
Five components of the immunization system



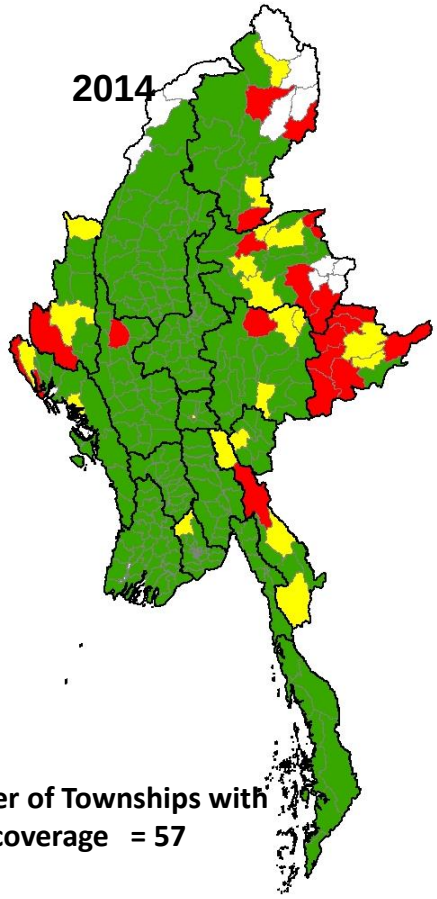
National immunization coverage , 2010-2016 (Administrative data)



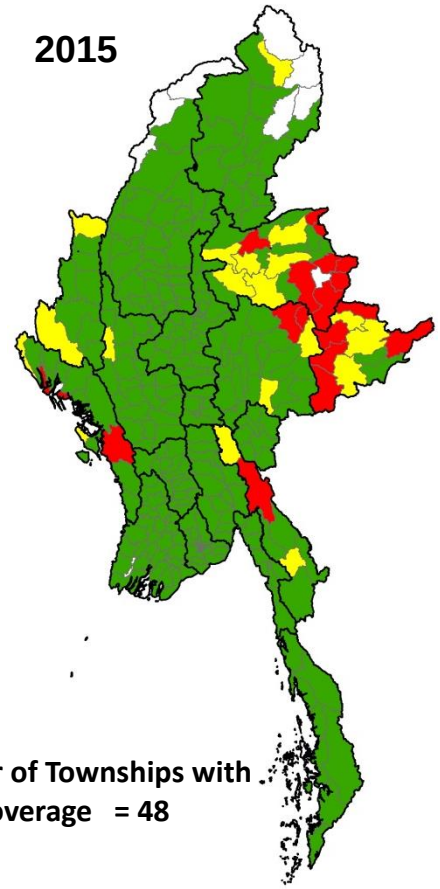
MCV 1 and MCV 2 coverage (2008 -2016)



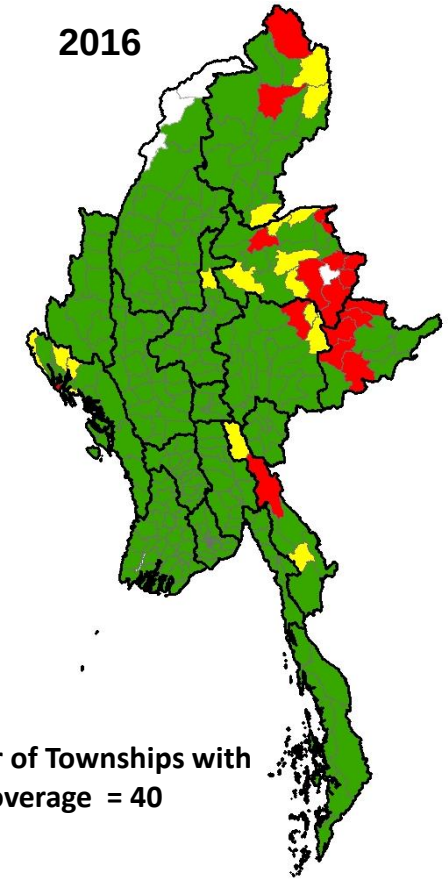
Routine Penta -3 Coverage 2014-2016



Number of Townships with <80% coverage = 57



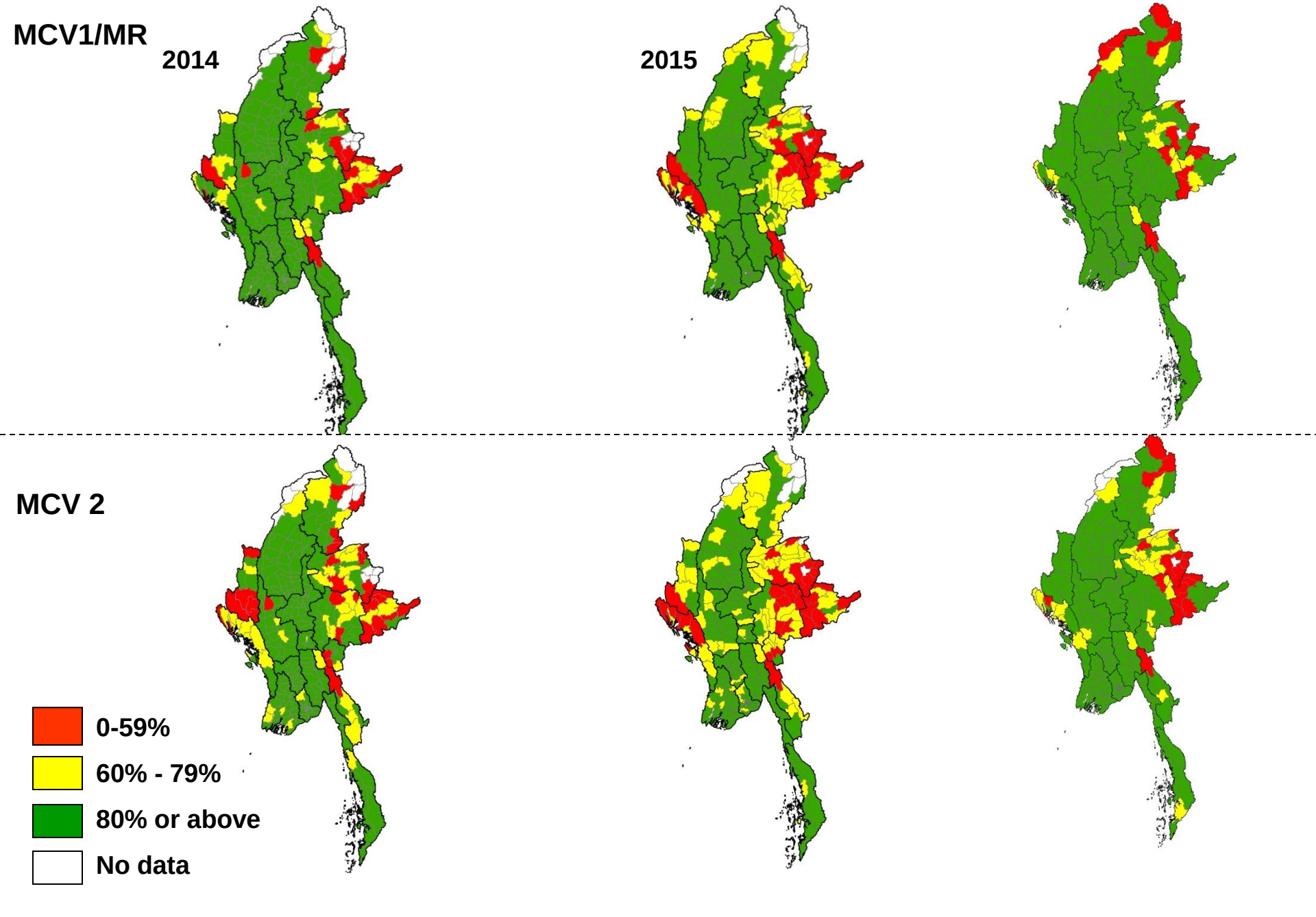
Number of Townships with <80% coverage = 48



Number of Townships with <80% coverage = 40

- 0-59%
- 60% - 79%
- 80% or above
- No data

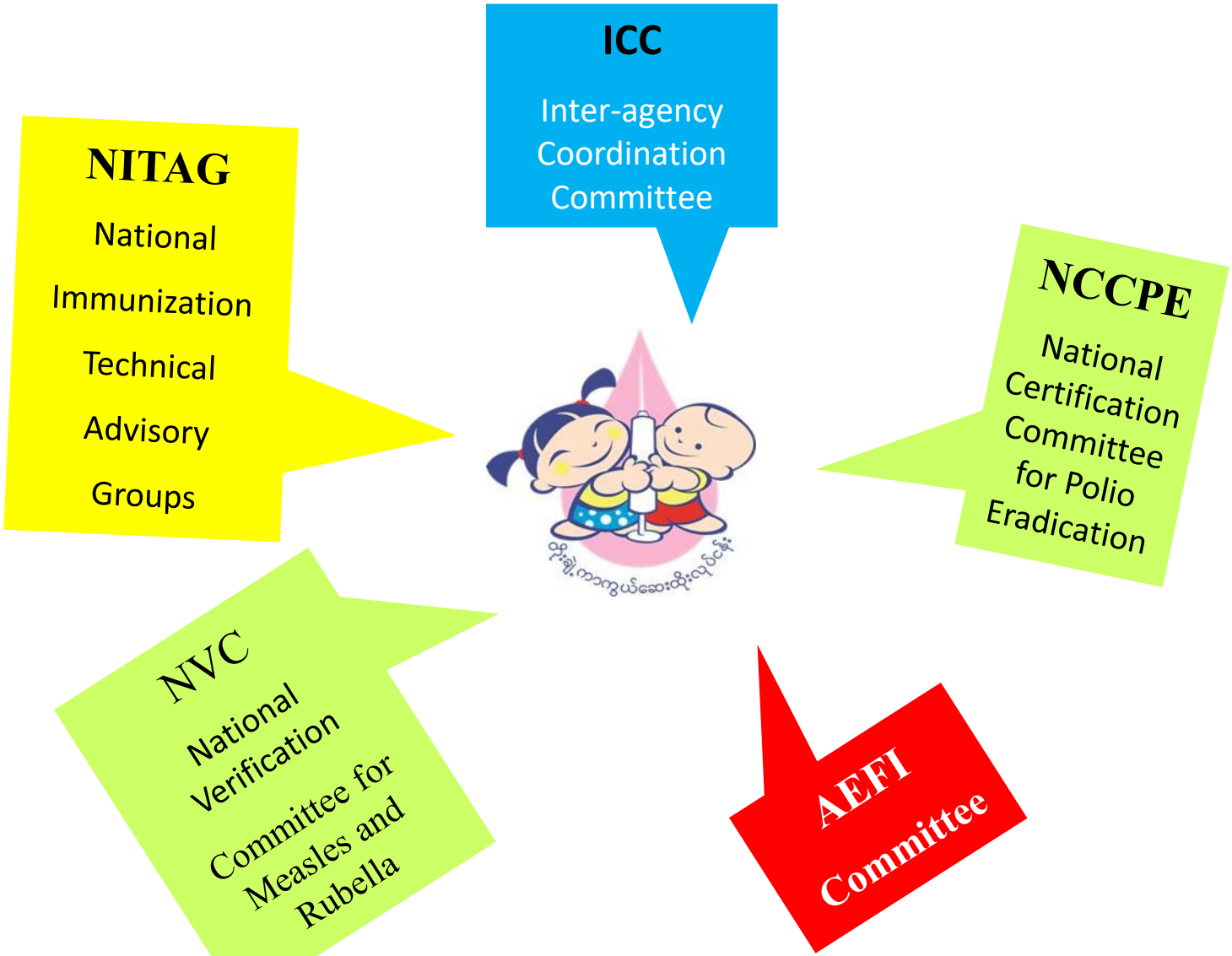
Routine Measles Coverage by Township 2014-2016



Incidence of VPD cases (2013-2016)

Disease	2013	2014	2015	2016
Diphtheria	38	29	87	136
Japanese encephalitis	3	50	113	393
Measles	1010	122	6	266
Pertussis	14	5	5	2
Polio*	0	0	0**--	0
Rubella	23	30	34	10
Neonatal tetanus	39	32	30	21

National Committees for Immunization



Source of financing for vaccines (2016-2018)

Vaccine	2016	2017	2018 onwards
BCG	UNICEF	Government	Government
OPV	UNICEF	Government	Government
TT /Td	UNICEF	Government	Government
MSL	GAVI	GAVI (2Q) Switch to MR (2Q)	
MR	UNICEF	UNICEF (1 Q) Government (3 Q)	Government
IPV	GAVI	GAVI	GAVI
Penta	**GAVI and Gov't co-financed**	**GAVI and Gov't co-financed**	**GAVI and Gov't co-financed**
PCV	**GAVI and Gov't co-financed**	**GAVI and Gov't co-financed**	**GAVI and Gov't co-financed**

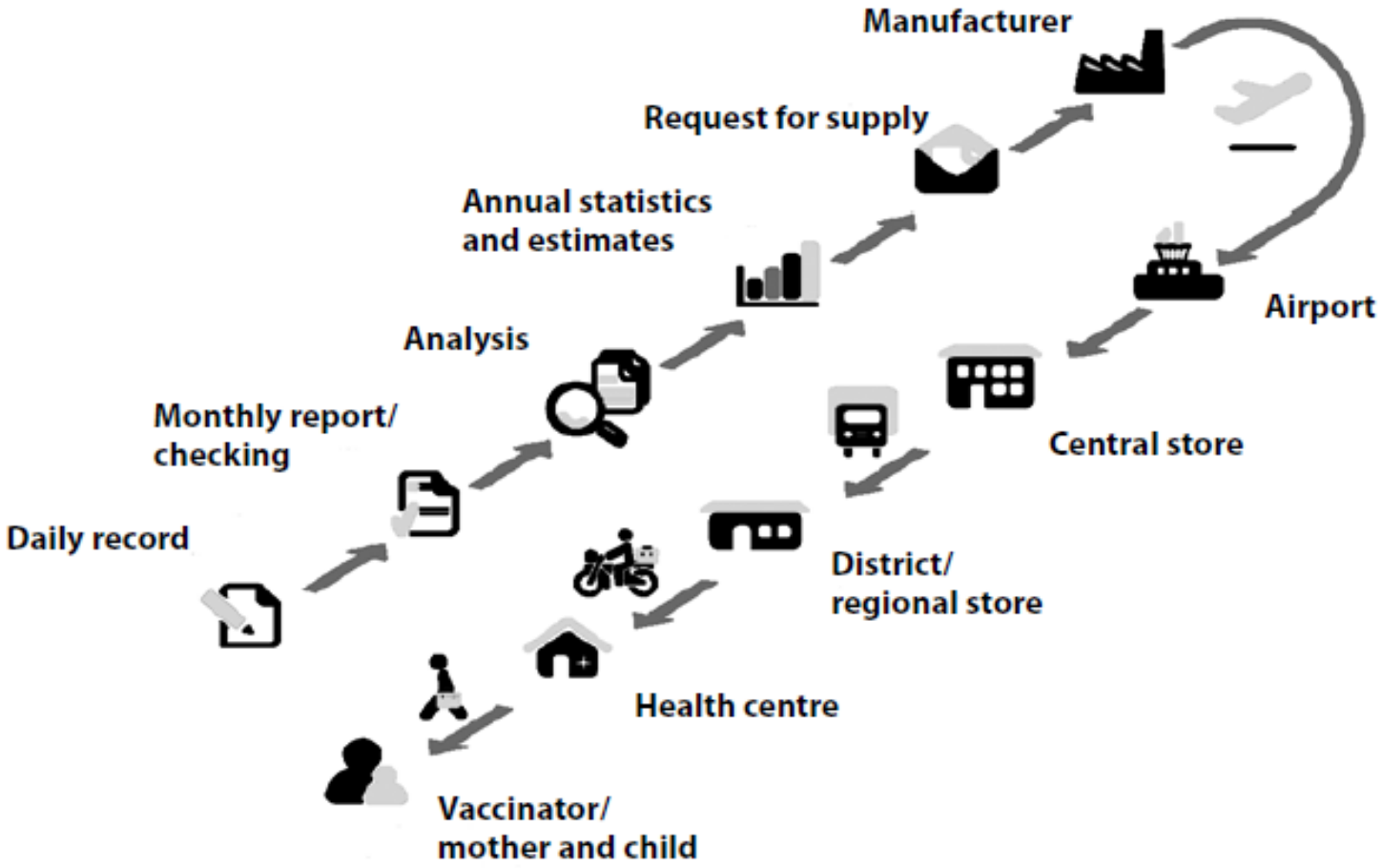
VPD and Vaccine

- What is the --------disease ?
- How is it spread?
- What are the symptoms and signs of disease ?
- What are the complications of disease ?
- What is the treatment for disease?
- How is the disease prevented?
- What are the vaccines for that disease?
- How safe is the vaccine and what are the potential adverse events following immunization?
- When are the vaccines administered?

The Vaccine

1. Type of vaccine
2. Schedule
3. Booster
4. Contraindication
5. Adverse events
6. Special precautions
7. Dosage
8. Injection site
9. Injection type
10. Storage

Figure 2.1 The cold chain



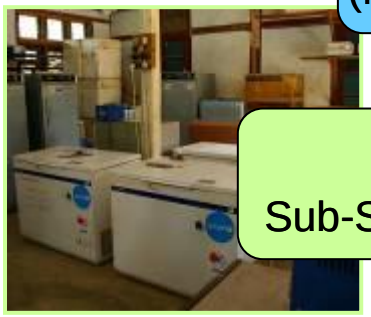
Source: PATH/WHO

Vaccine should always be stored between +2 °C and +8 °C

Cold chain network in Myanmar

Yangon
Central Coldroom

2 Main Stores
(Mandalay&Magway)



Total 22 Sub-Stores

Sub-Store…

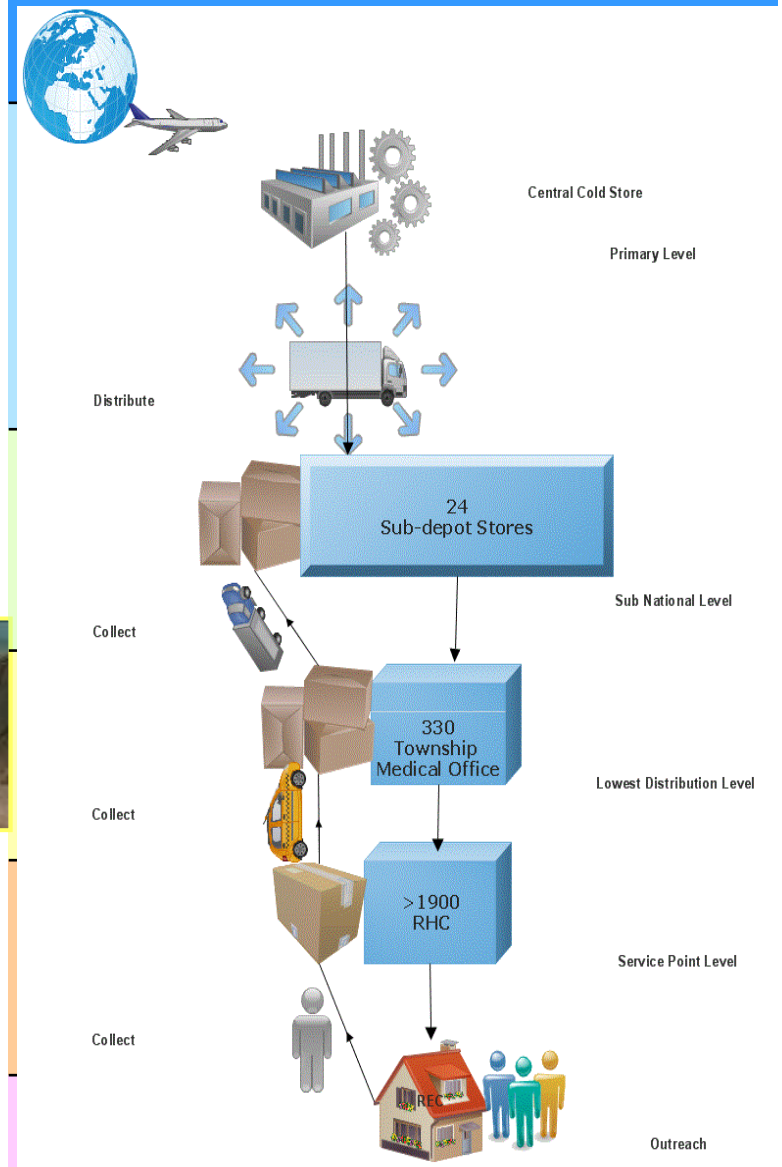
Sub-Store…

Sub-Store…

330
Townships

RHCs
(4-5 per tsp)

Sub RHCs
(20-40 /tsp)



ကာကွယ်ဆေးများနှင့် အပူနှင့်ပက်စီးလွယ်ခြင်းပြဇယား

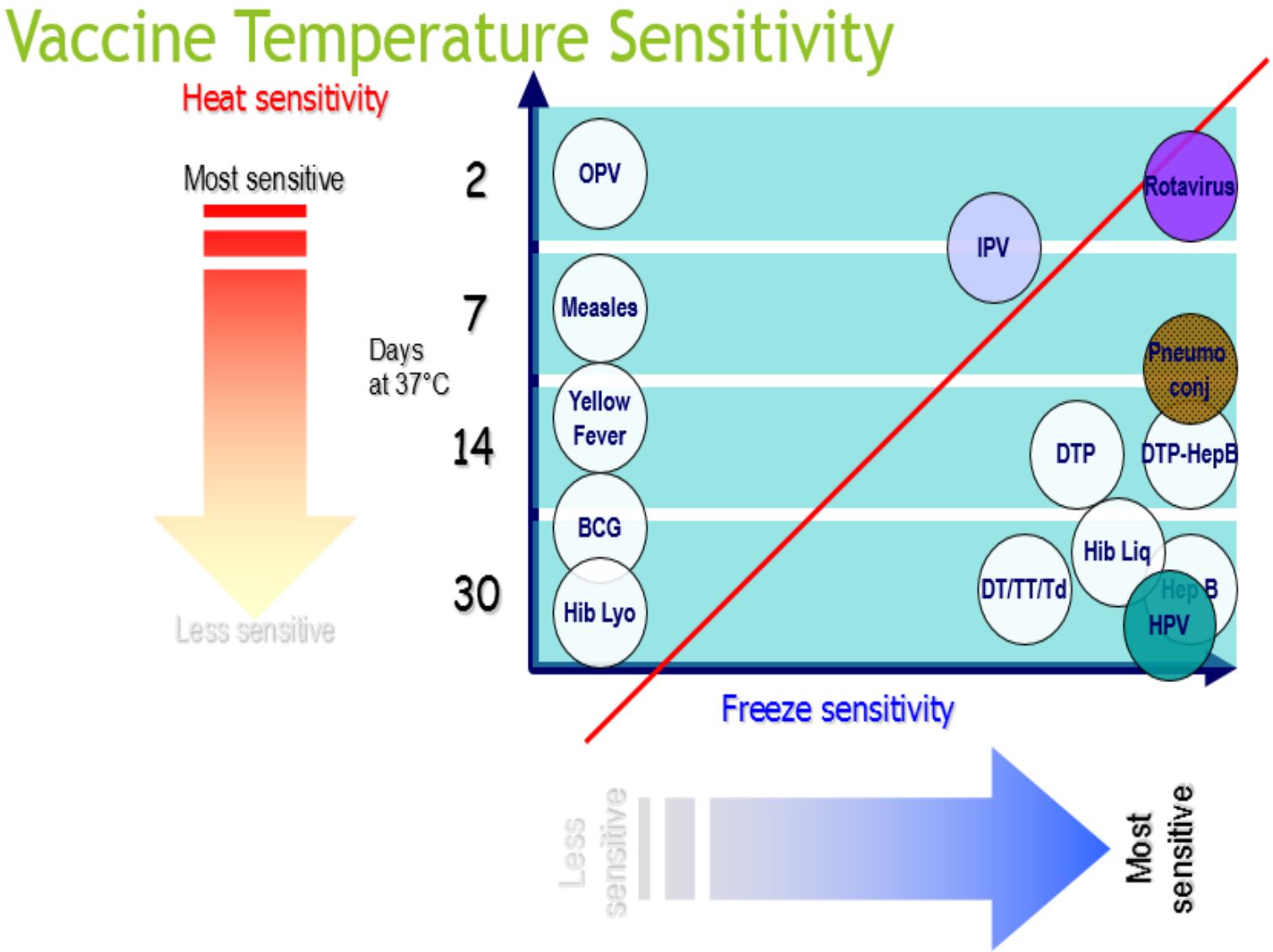


Figure 5.3
How to read a vaccine vial monitor

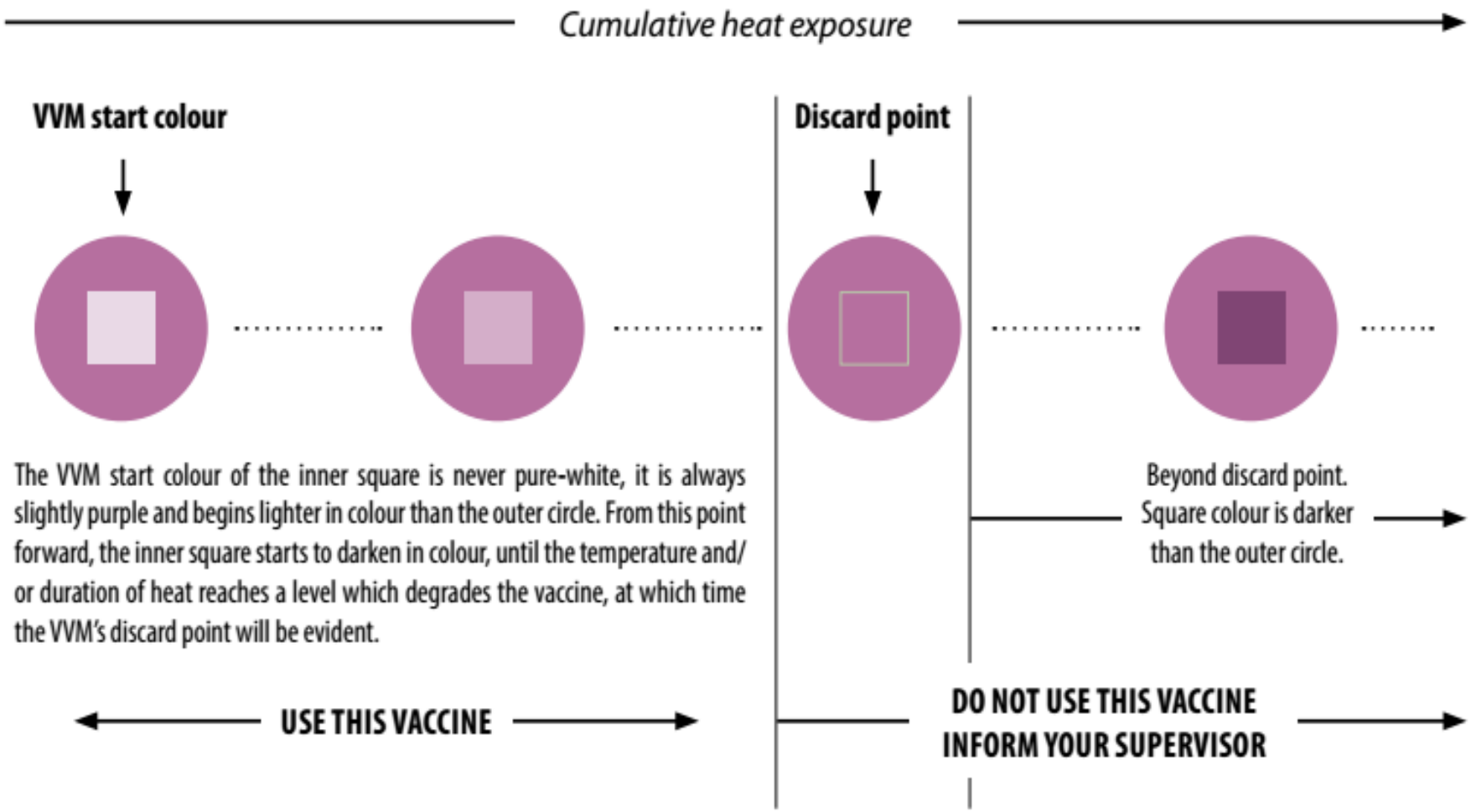


Figure 4.1: Different stages of the VVM

Freeze sensitive vaccines

- DTwP-hepatitis B-Hib (pentavalent)
- Hepatitis B (Hep B)
- Human papillomavirus (HPV)
- Inactivated poliovirus (IPV)
- Pneumococcal
- Rotavirus (liquid and freeze-dried)
- Tetanus, DT, Td

Cold Chain (ILR , Cold Box & Vaccine Carrier)

Continuous Temperature Monitoring Devices

Vaccines OK

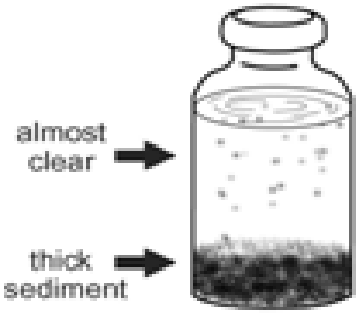
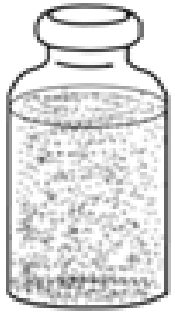
Do shake test

Temperature Monitoring Chart

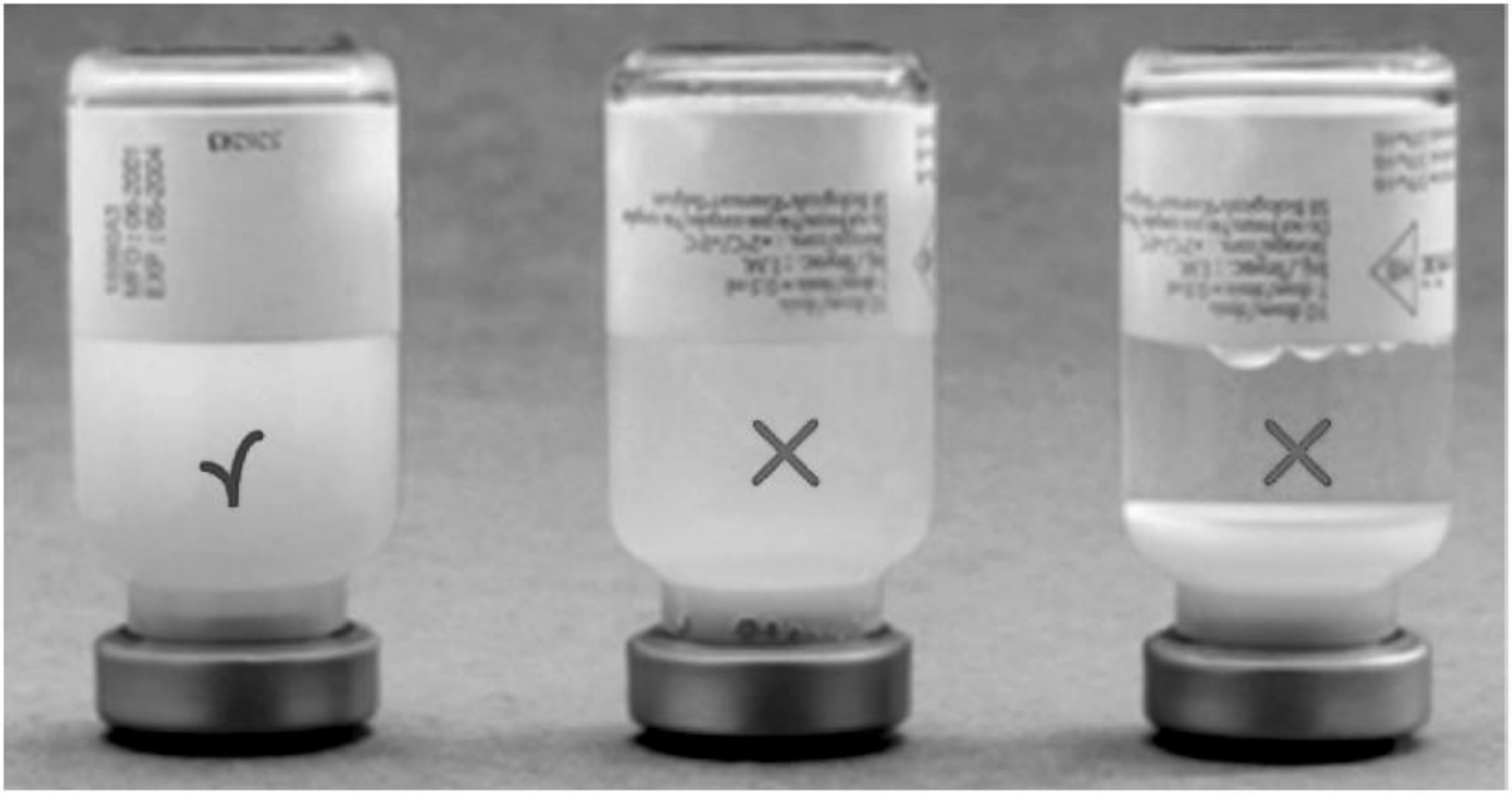
Day		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		23		24		25		26		27		28		29		30		31	
Temperature chart	°C	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm	am	pm
	+16																																																																				
	+15																																																																					
	+14																																																																					
	+13																																																																					
	+12																																																																					
	+11																																																																					
	+10																																																																					
	+9																																																																					
	+8																																																																					
	+7	X			X																																																															
	+6		X	X		X					X																			X			X																																
	+5						X			X														X		X		X			X		X																																
	+4							X	X		X													X		X		X		X			X																																	
	+3											X	X	X								X																																													
	+2														X																																																						
	+1															X	X					X																																													
	0																	X																																																		
	−1																		X	X	X																																																
	−2																																																																					
	−3																																																																					
	−4																																																																					
	−5																																																																					
FI (x or OK)																																																																					
>+8 °C alarm		Once every 24 hours, enter high alarm status and maximum temperature recorded by the continuous temperature monitoring device																																																																				
Alarm or OK		OK		OK		OK		OK		OK		OK		OK		OK		OK		OK		OK		OK		OK		OK		OK		OK		OK																																				
Maximum °C		+7.5		+6.5		+6.3		+4.5		+5.2		+3.3		+3.0		+1.8		+0.2		−0.8		−0.5		+5.2		+5.4		+5.3		+6.1		+5.5		+6.1																																				
<−5 °C alarm		Once every 24 hours, enter low alarm status and maximum temperature recorded by the continuous temperature monitoring device																																																																
Alarm or OK		OK		OK		OK		OK		OK		OK		OK		OK		X		X		OK		OK		OK		OK		OK		OK		OK																																		
Min °C		+5.8		+5.4		+4.8		+3.5		+3.6		+2.8		+1.7		+0.8		−0.5		−1.5		−1.3		+0.9		+3.5		+3.8		+3.6		+4.6		+3.9																																				
Initials:		JWL	JWL	JWL	JWL	JWL	JWL	FC	FC	FC	FC	FC	FC	FC	FC	FC	FC	FC	JWL	JWL	JWL	JWL	JWL	JWL	JWL	JWL	JWL	JWL	JWL	JWL	JWL	JWL	JWL	JWL																																

Shake Test

Compare the deliberately frozen vial next to the suspect vial

Deliberately Frozen Vial	Suspect Vials
	 ✓ **USE THIS VACCINE** If the sediments in the suspect vial settle **more slowly**, the suspect vaccine *may* be used.  ✗ **DO NOT USE THIS VACCINE** If the sediments in the suspect vial settle at the **same rate**, the suspect vaccine *may NOT* be used.

လူဝင်ခါစမ်းသပ်ခြင်း နမူနာ(၂)

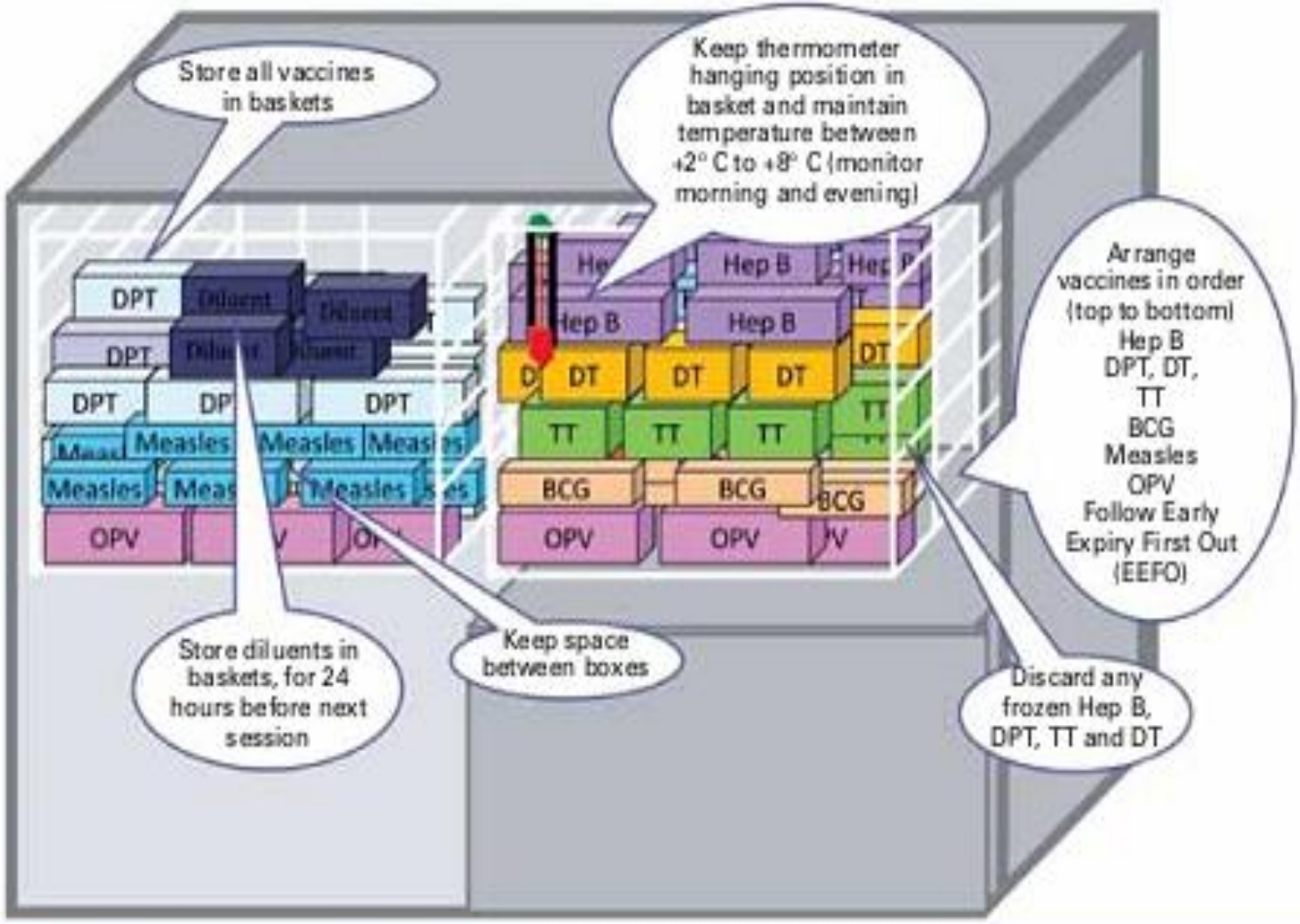


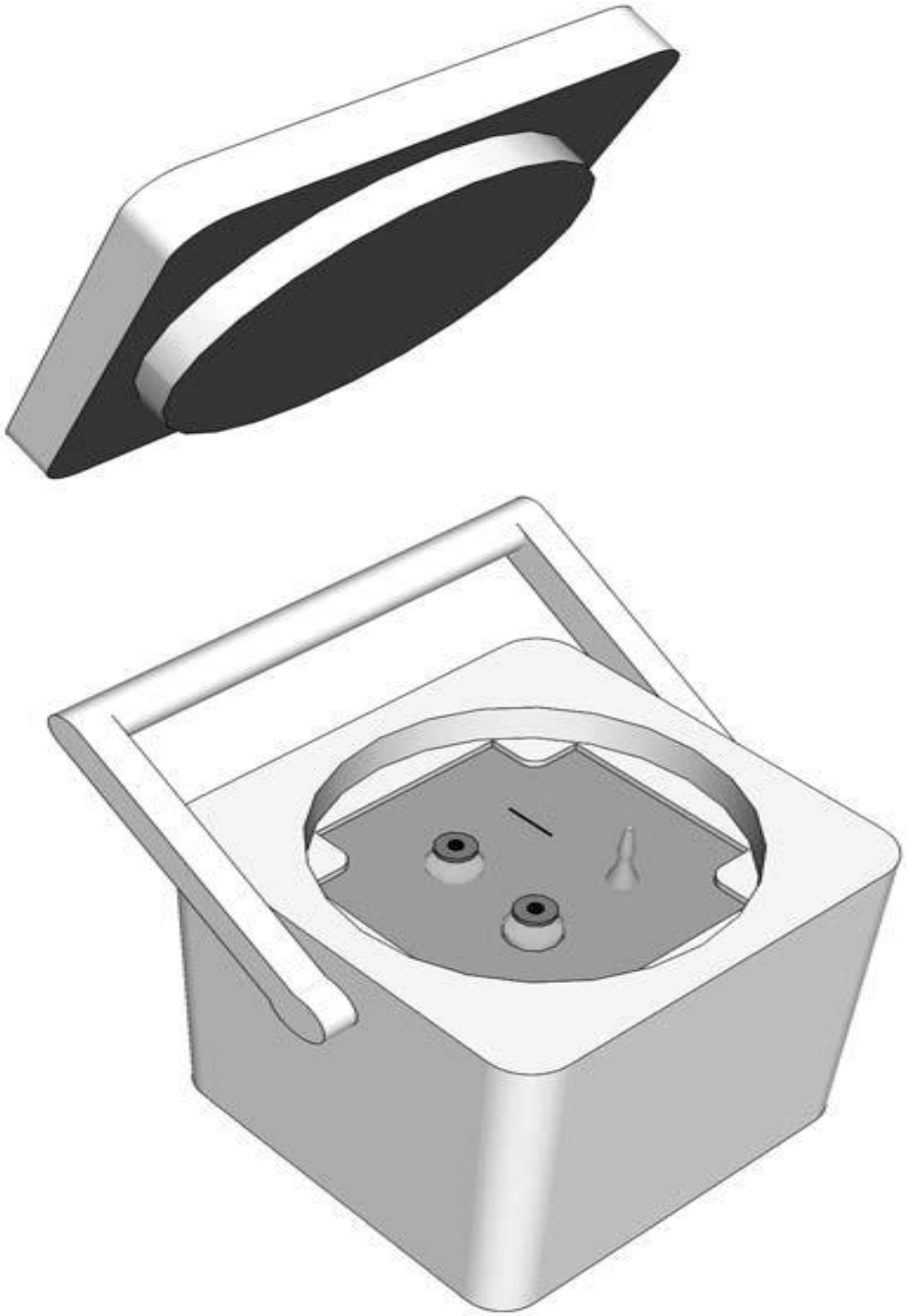
Non Frozen	Frozen	Frozen
Test Vital	Test Vital	Control Vital
အေးခဲခဲ့ခြင်း မရှိသော	အေးခဲခဲ့သော	အေးခဲထားသော
စမ်းသပ်နမူနာ	စမ်းသပ်နမူနာ	ထိန်းချုပ်
ကာကွယ်ဆေးပုလင်း	ကာကွယ်ဆေးပုလင်း	ကာကွယ်ဆေးပုလင်း

ရေခဲဘူးပြားများ ကောင်းစွာပြုပြင်ထားပြီး (Conditioned Ice Pack) ဖြစ်ကြောင်း စစ်ဆေးနေပုံ

Listen for the water

Figure 10: Storage of vaccine in ILR





WHO Multi-dose Vial Policy (MDVP), 2014

All opened WHO-prequalified multi-dose vials of vaccines should be discarded at the end of the immunization session, or within six hours of opening, whichever comes first, unless the vaccine meets all four of the criteria listed below.

If the vaccine meets the four criteria, the opened vial can be kept and used for up to 28 days after opening. The criteria are as follows:

Four criteria for MDVP

1. The vaccine is currently **prequalified** by WHO.

2. The vaccine is **approved for use for up to 28 days** after opening the vial, as determined by WHO.

3. The **expiry date** of the vaccine has not passed.

4. The vaccine vial has been, and will continue to be, stored at WHO- or manufacturer-**recommended temperatures**; furthermore, **the vaccine vial monitor**, if one is attached, is visible on the vaccine label and is not past its discard point, and the vaccine has not been damaged by freezing.

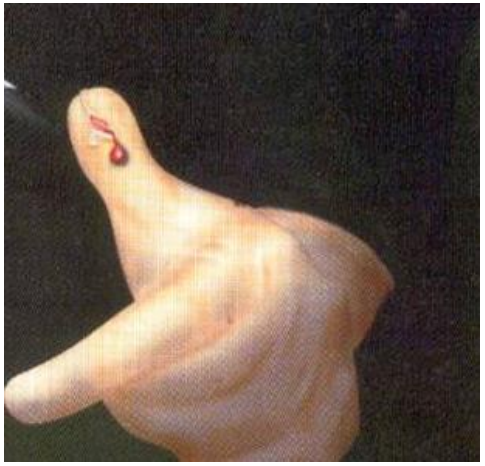
Examples of incorrect immunization practices

- Non-sterile injection
- Reconstitution error
- Injection at incorrect site
- Vaccine transportation/storage incorrect
- Contraindications ignored

Safe Injection and waste disposal

Recipient

Unsafe injections can harm



Health worker

Community

Immunization Safety

- Vaccine safety and quality
- Safe injections and waste disposal
- Adverse Events Following Immunization (AEFI) surveillance

Unsafe immunization practices

Adverse event(s) following immunization (AEFI)

AEFI are defined as

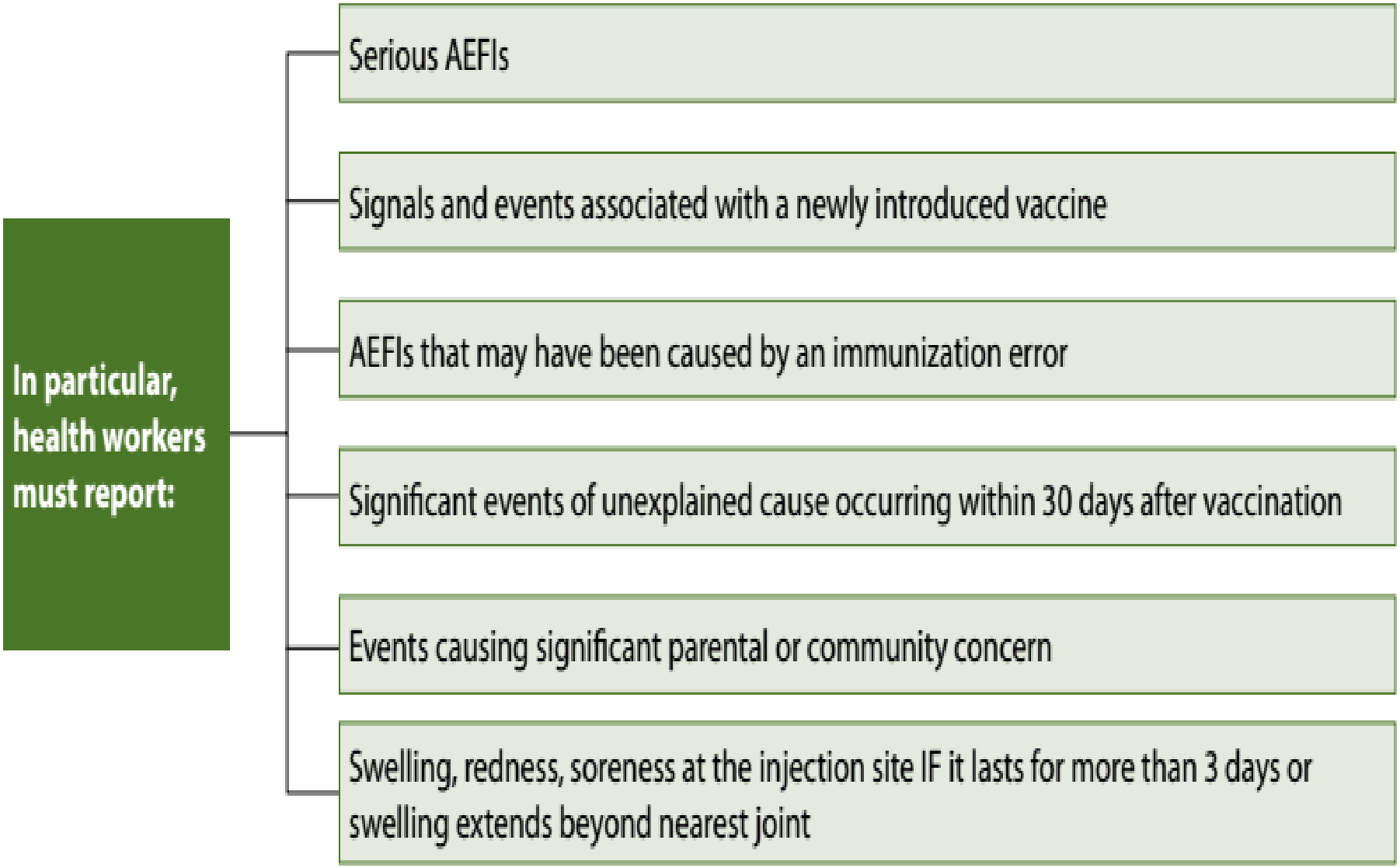
“any untoward medical occurrence that follows immunization and which does not necessarily have a causal relationship with the usage of the vaccine.”

The adverse event may be any unfavorable or unintended sign, abnormal laboratory finding, symptom or disease.

AEFI categories

1. Vaccine product-related reaction
2. Vaccine quality defect-related reaction
3. Immunization error-related reaction
4. Immunization anxiety-related reaction
5. Coincidental event

Figure 6.8 General guide for AEFI reporting from health facility level

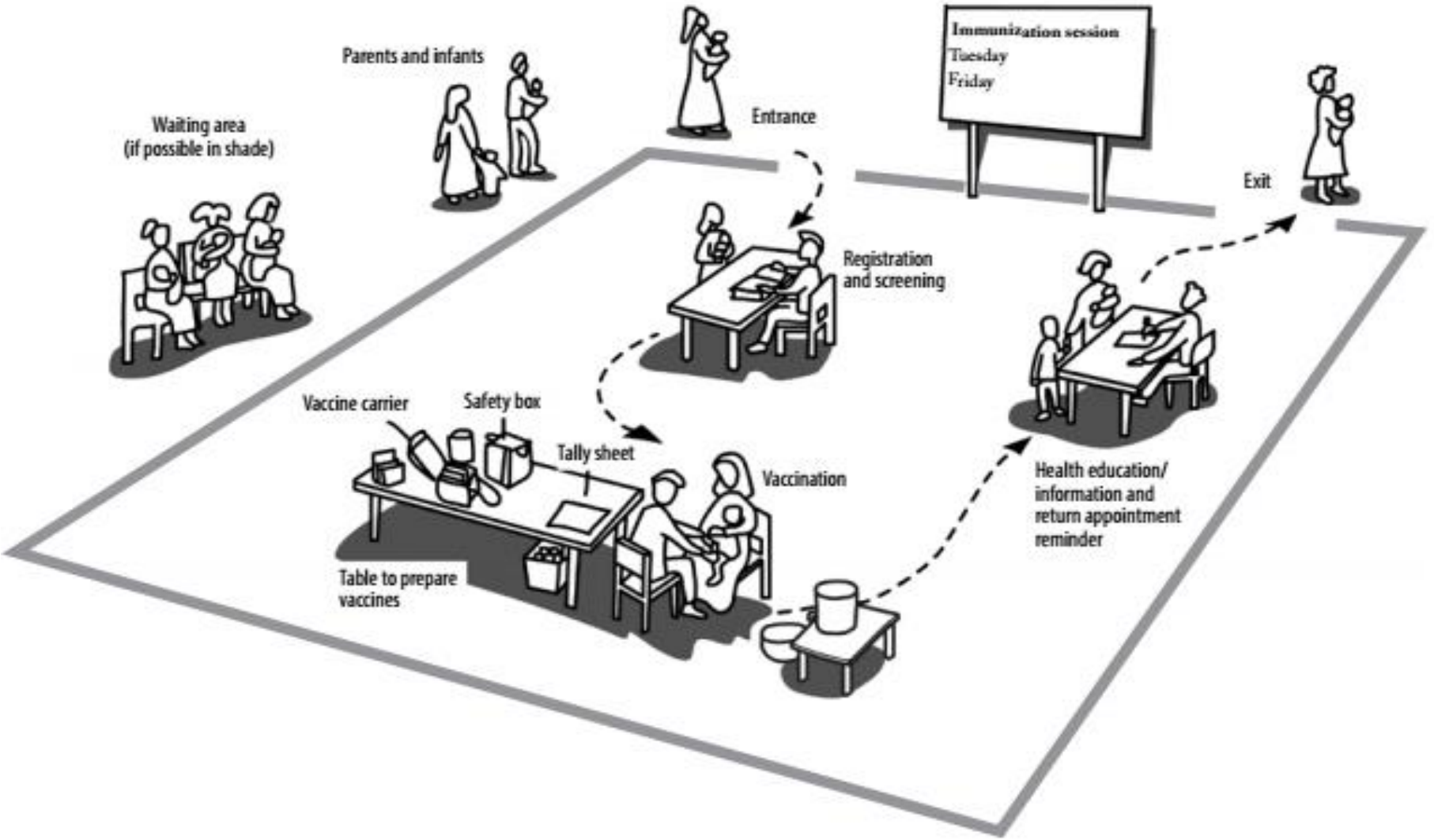


Managing an immunization session

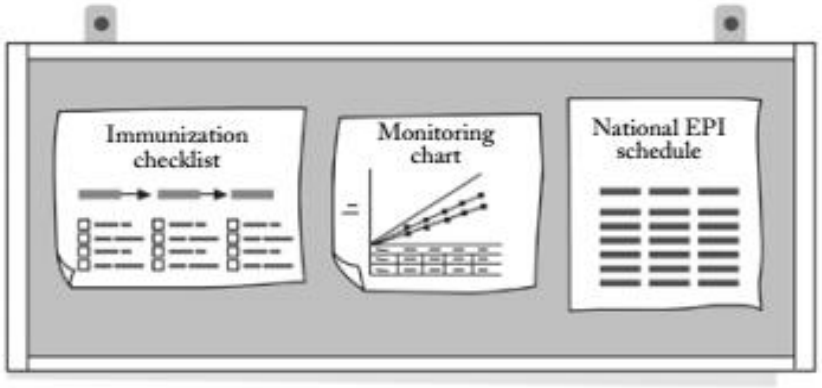
1. Preparing for the session
2. Communicating with caregivers
3. Assessing infants for vaccination.
4. Giving vaccinations
5. Closing the session
6. Recording data

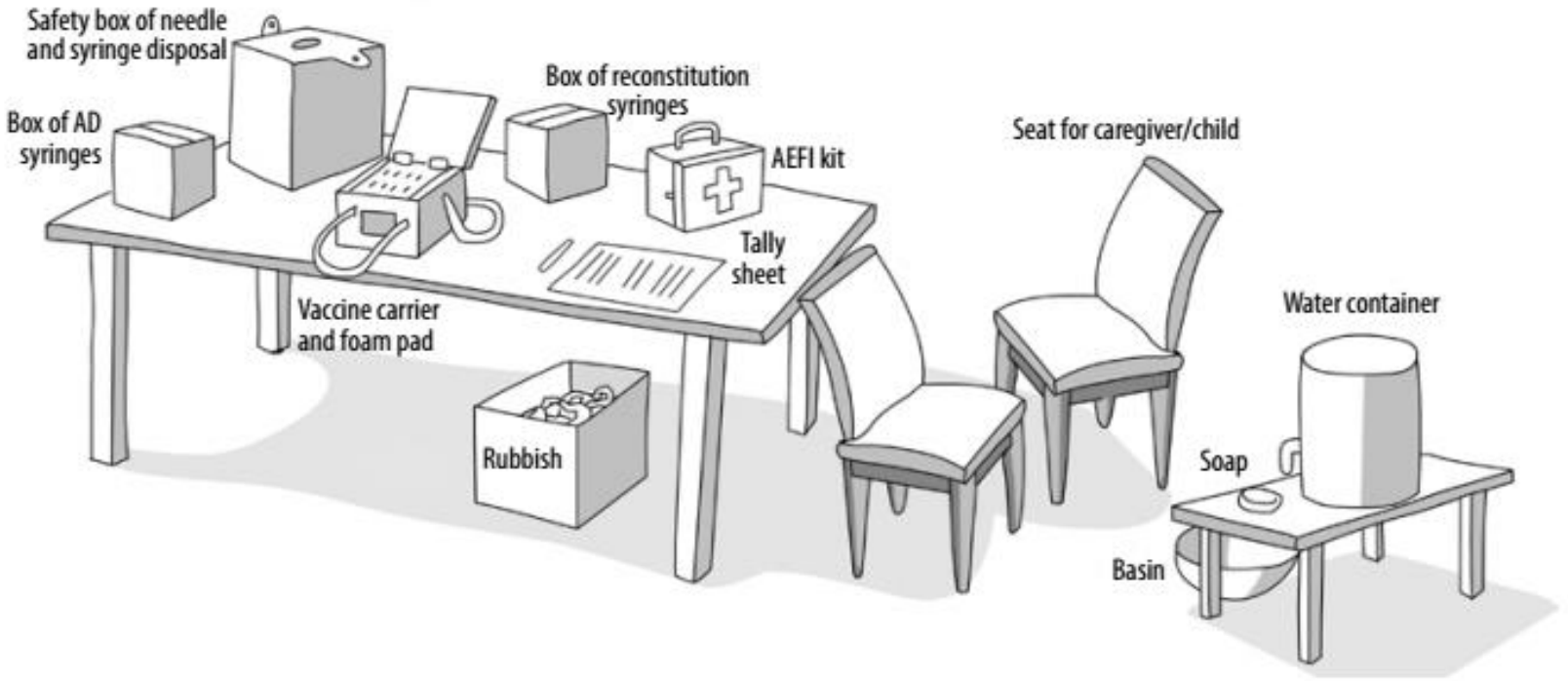
Prepare the workplace

Immunization session



Immunization station:



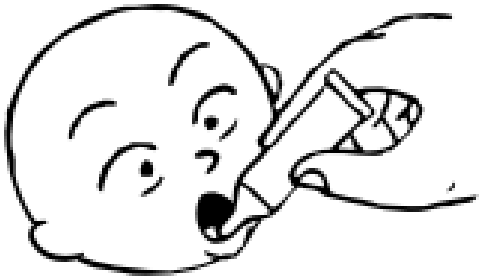


2. Communicating with caregivers

The actual content of communication ultimately depends on

- what caregivers want to know (their own questions) and
- the key information that must be given

Essential elements of every encounter



ADVISE
on what is given

ALERT
for possible adverse events and the response needed

ARRANGE
for when to return

Micro-planning for reaching every community

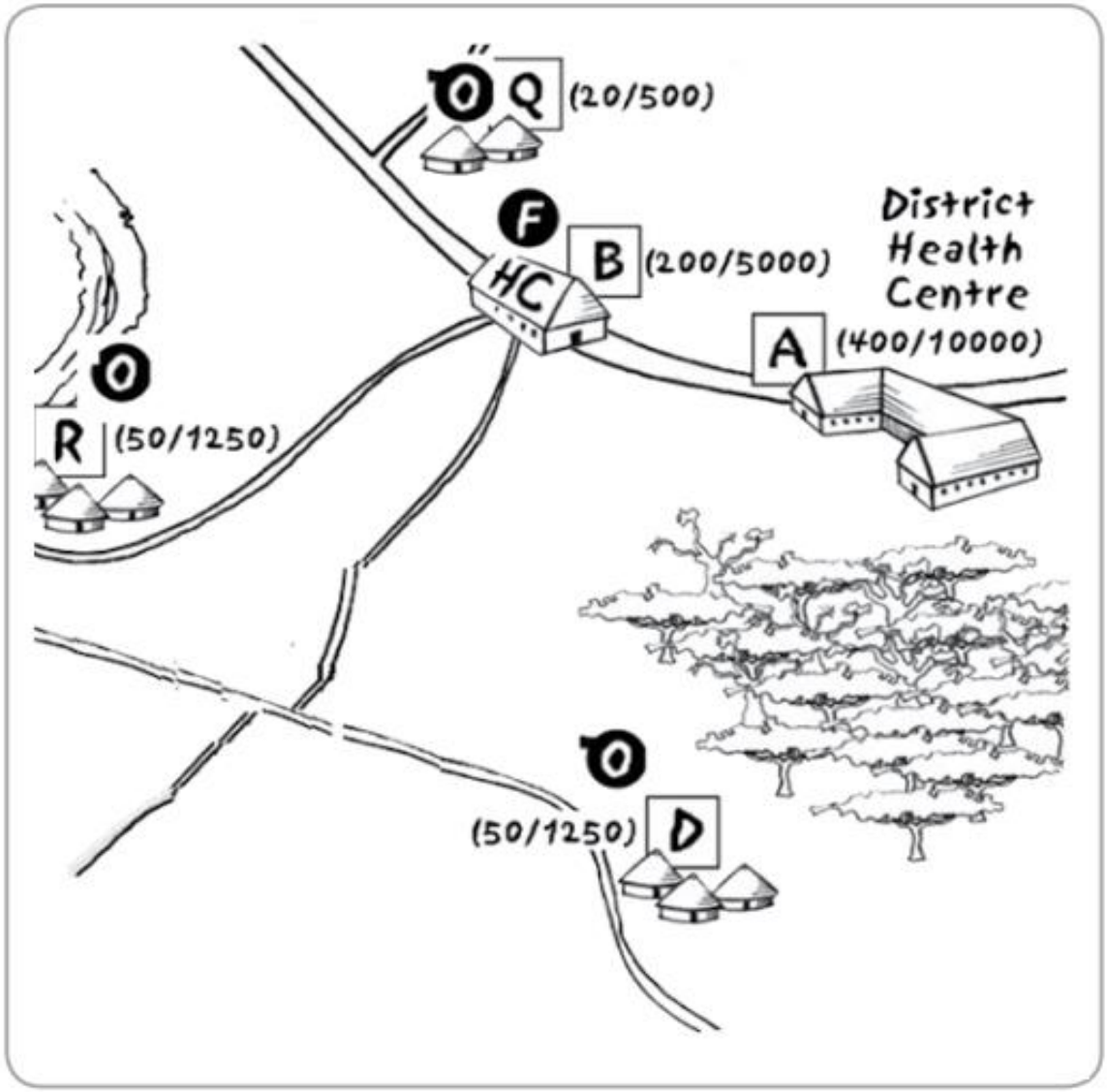
1. **Making or updating a map**
2. **Identifying priority health centres and communities**

   Analysis of immunization data
3. **Identifying barriers to access and utilization**

   Household survey of immunization status

   Community discussion
4. **Identifying solutions and preparing a workplan**
5. **Making a session plan**
6. **Finding defaulters**

Example health centre map



Deciding immunization delivery strategy

Fixed	Delivery of services in a HF	Serves the community within easy access to the HF
Outreach	Delivery of services in an 'outreach site'	Area around the HF that the staff can visit in one day
Mobile teams	Delivery of services beyond the 'outreach area'	Areas, not possible to cover in one day, requires overnight stay

Health centre-level list of catchment area communities and populations

Community name	Total population in community*	Population <1 year of age in community	Distance between community and health centre (km and travel time)	Name of community contact person	Phone number of community contact person

Prioritizing village

Village Name	MR coverage	Priority
A	50 %	
B	60 %	
C	70 %	
D	20 %	
E	75 %	

Prioritizing village according to total unimmunized infants

Village Name	MR coverage	Population	Population under 1 year	Unimmunized infants	Priority
A	50 %	10000	200	100	2
B	60 %	7500	150	60	4
C	70 %	12000	240	72	3
D	20 %	1000	20	16	5
E	75 %	25000	500	125	1

How to prioritize health centres using district immunization data

- Use all available information
- Rank health centres by the number of unimmunized infants; the one with **the highest number of unimmunized children is ranked first (1)** and so on
- Consider prioritizing health centres that –
  - have inaccurate data;
    (-negative values for unimmunized children due to inaccurate population data or
    - negative vaccine wastage rates)
  - with known management problems.

Health centre data analysis:

Name of community	Target population <1 year of age	Penta3 doses given during the year	Unimmunized (missed penta3 doses)	Priority: highest number of unimmunized (c) is 1, and so on	Distance from HC (km)	Number of outreach visits planned during year	Number of outreach visits completed during year	Main community characteristics: urban poor, semi-urban, rural, migrant, ethnic minority, new settlements, flooded in rainy season and/or other relevant factors
	a	b	a – b = c					

Identified solutions list

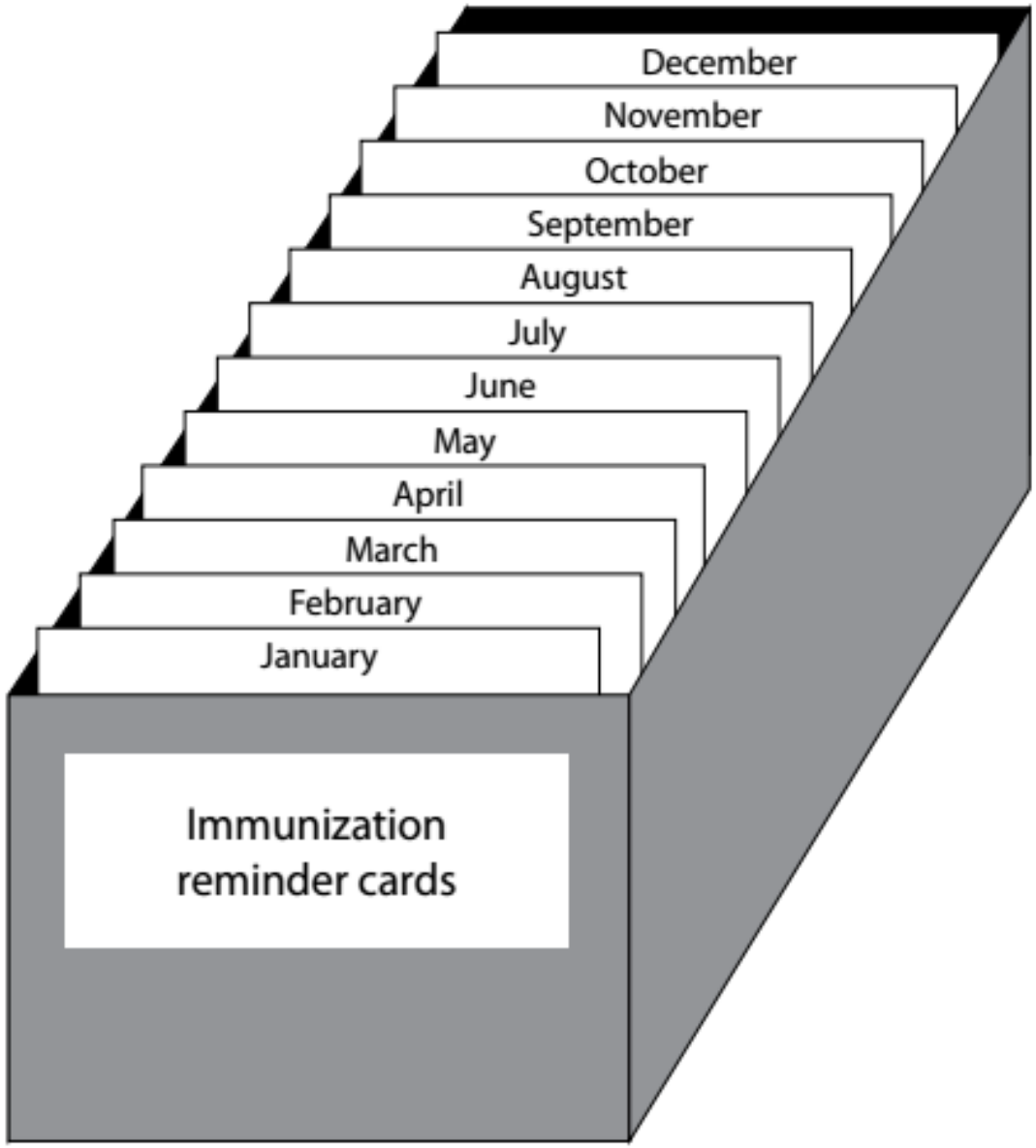
Community name:	**Village One**		
Main problems Description of the main problems identified for the community	**SOLUTIONS**		
	HEALTH CENTRE activities	**COMMUNITY activities**	**DISTRICT activities**
Example: Poor community attendance at outreach sessions	Call the community chief or community worker by mobile phone in advance of the session to confirm time and place	Mobilize mothers and children by informing them in advance and encouraging attendance at session	Ensure costs of outreach sessions are budgeted (transport and per diem) according to HC session plan

Monitoring and Surveillance

Tools for monitoring

- Immunization register
- Immunization card
- Defaulter tracking list.

Figure 6.5 Box for filing reminder cards



ကာကွယ်ဆေးထိုးနှံနည်းစနစ်အလိုက်ဧရိယာလွှမ်းခြုံမှု (Area Coverage)

စဉ်	Township	ရပ်ကွက် ကျေးရွာ စုစုပေါင်း	ကာကွယ်ဆေးထိုးနှံနည်းစနစ်အလိုက် လျာထားသော ရပ်ကွက်/ကျေးရွာအရေအတွက်				ကာကွယ်ဆေးထိုး ဧရိယာလွှမ်းခြုံမှု (ရပ်ကွက် နှင့် ကျေးရွာ)	
			လစဉ် ပုံမှန်	ဧရိယာ အော /ဘီ	REC/IRI/ Crash	လုံးဝ မလွှမ်း ခြုံနိုင်	လွှမ်းခြုံ %	မလွှမ်းခြုံ %

ကာကွယ်ဆေးထိုးနှံနည်းစနစ်အလိုက်
(၁) နှစ် အောက်လူဦးရေလွှမ်းခြုံမှု (Population Coverage)

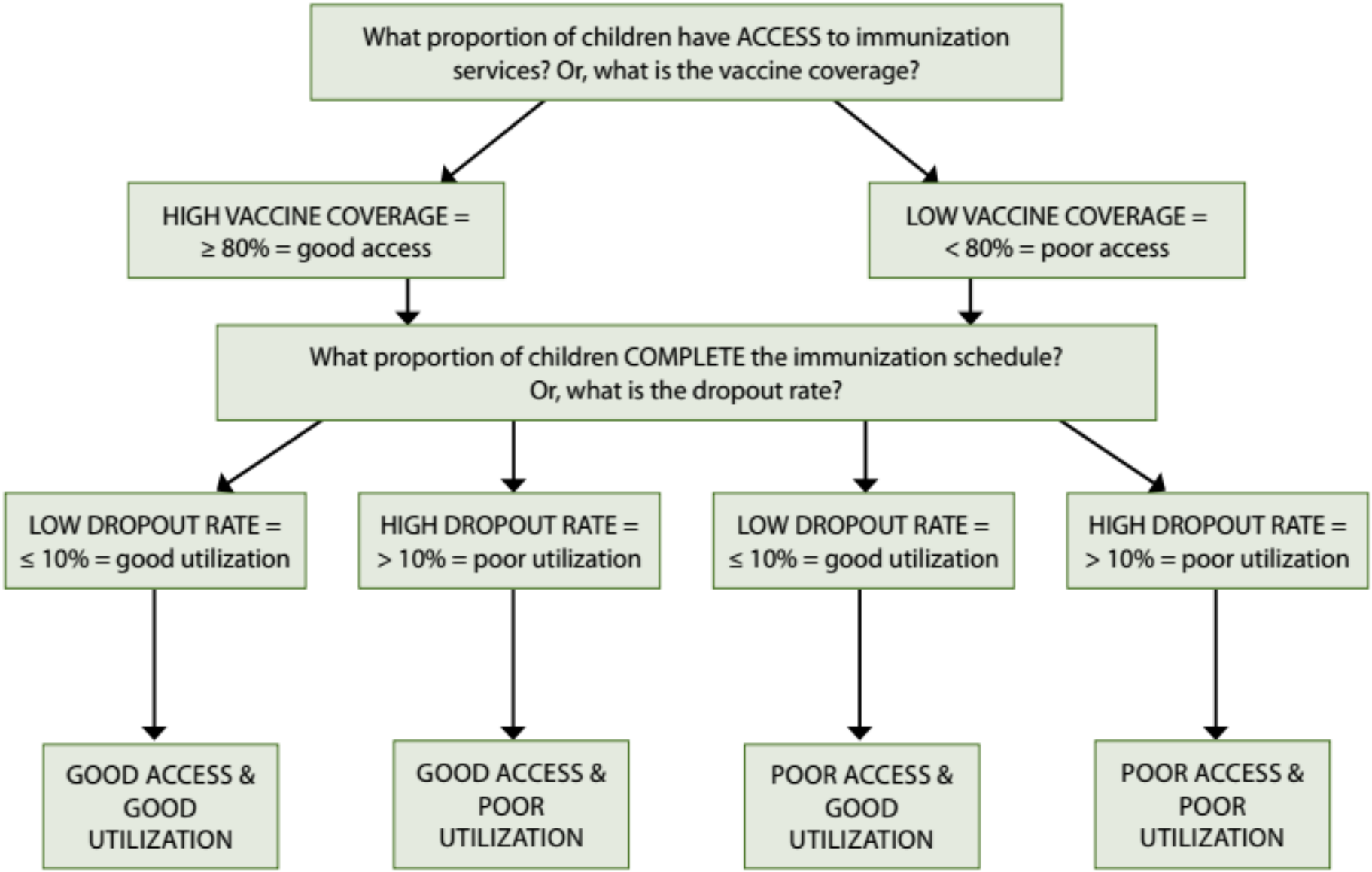
စဉ်	Township	(၁) နှစ် အောက် ရည်မှန်း ဦးရေ	ကာကွယ်ဆေးထိုးနှံနည်းစနစ်အလိုက် လျာထားသော (၁) နှစ်အောက်ကလေးဦးရေ				ကာကွယ်ဆေးထိုး < 1 လူဦးရေလွှမ်းခြုံမှု	
			လစဉ် ပုံမှန်	ဧရိယာ အေ /ဘီ	REC/IRI/ Crash	လုံးဝ မလွှမ်း ခြုံနိုင်	လွှမ်းခြုံ %	မလွှမ်းခြုံ %

Routine Immunization Drop-Out Rate

Vaccines		Number immunized		Drop-Out	%
BCG		200		30	15
	MR1		170		
Penta1		200		20	10
	Penta 3		180		
OPV1		200		20	10
	OPV3		180		
TT1		210		10	4.7
	TT2		200		
MR1		170		20	11.7
	MSL2		150		

Health Centre																					
Name of health facility	Year								Catchment population				Target population under one				Monthly targe				
M*12=																					
M*11=																					
M*10=																					
M*9=																					
M*8=																					
M*7=																					
M*6=																					
M*5=																					
M*4=																					
M*3=																					
M*2=																					
M*1=																					
0																					
	Jan	Cum Total	Feb	Cum Total	Mar	Cum Total	Apr	Cum Total	May	Cum Total	Jun	Cum Total	Jul	Cum Total	Aug	Cum Total	Sep	Cum Total	Oct	Cum Total	Nov
Penta1																					
Penta 3																					
Drop out # (DO) = Penta1 - Penta 3																					
Drop out % (DO/Penta1) *100																					

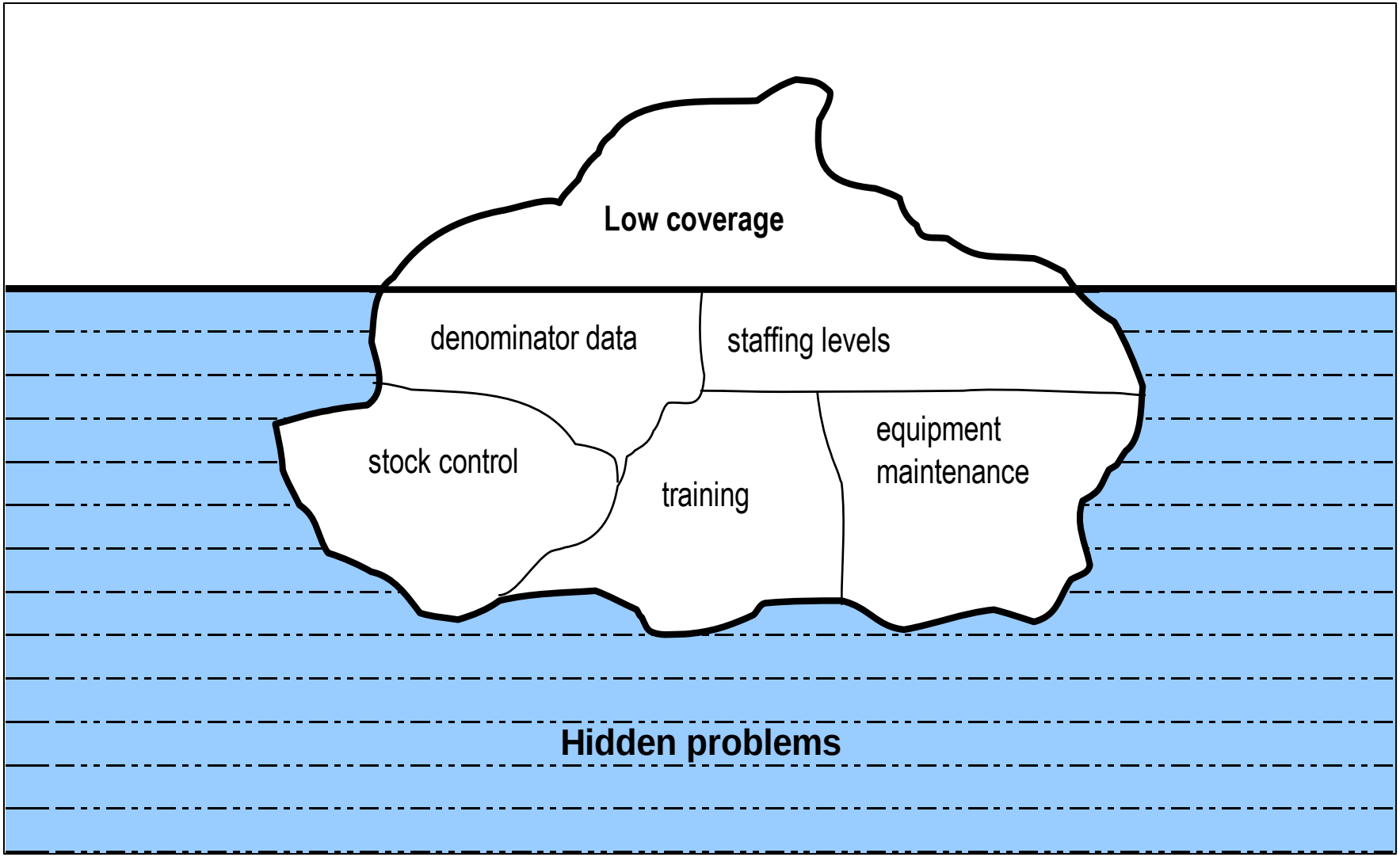
Access and utilization problem analysis flowchart and graph



Examples of Common problems associated with poor access and utilization

Type of problem	Examples of common problems
Supply quantity	
Supply quality	
Staffing quality	
Staffing quantity	
Service quality and demand	
Advocacy and communication	
Monitoring and supervision	
Reporting	

Any single problem identified may just be a symptom of many underlying problems in the immunization system.



Problems and Solutions

- **Hard to reach areas**
  - Geographical hard to reach
  - Socially hard to reach
- **Mobile peri-urban**
  - Area of migrants
  - Work sites
  - Farming places

CRASH programme

Fixed/Outreach expansion

Creation of demand generation

Partnering with communities

- Learn about the community
- Plan services with communities
- Involve communities in monitoring and surveillance
- Inform and engage community members
- Address resistant groups

Reaching Every District (RED) implementation and monitoring tools

- Re-establishing outreach services
- Supportive supervision
- Linking services with communities
- Monitoring and use of data for action
- Planning and management of resources

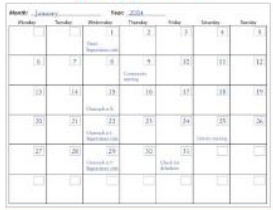
Put these R.E.D tools into action

(1) Area Map

(2) Session Plan

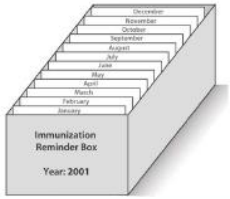
Village /town	Total popn	Target popn	Session type	Injections per year	Injections per month	Sessions per month
M	1975	75	HC	525	44	1
K	500	20	outreach	140	12	1
L	625	25	outreach	175	15	1
P&N*	1000+250	40+10	outreach from M	280+70	23+6	1

(3) Work Plan

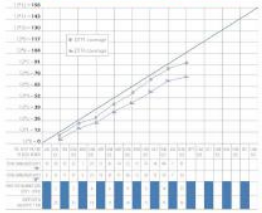


(4) Stock Record

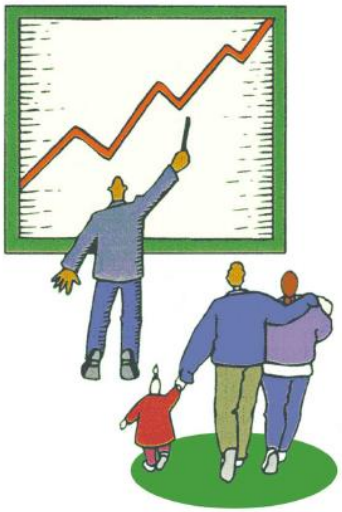
(5) Drop-outs Tracking System



(6) Monitoring Chart



Go for 100% coverage



Thanks

Immunization service supervisory visit checklist

Question	Yes/ No	Comments	Corrective action on-site
Is the session organized efficiently?			
Are immunization cards in use for every infant and pregnant woman?			
Is the register used for recording information on each child			
Are caregivers advised on when to return?			
Does the health facility have a monitoring chart displayed?			

Immunization service supervisory visit checklist

Question	Yes/ No	Comments	Corrective action on-site
Does the health facility have a map of the catchment area displayed?			
Does the health facility have a workplan for the quarter?			
Is there a system for tracking defaulters?			
Does the health facility display a spot map of measles cases?			
Is a temperature monitoring chart in use?			

Immunization service supervisory visit checklist

Question	Yes/ No	Comments	Corrective action on-site
Are the vaccines stacked properly inside the refrigerator?			
Are there any expired vaccines inside the refrigerator?			
Are there any vaccines with VVM reaching the discard point?			
Do the health workers know how to read and interpret the VVM?			
Do the health workers know when and how to perform the Shake Test?			

Immunization service supervisory visit checklist

Question	Yes/ No	Comments	Corrective action On-site
Is the injection technique appropriate?			
Is each used AD syringe and needle disposed of in a safety box?			
Are community volunteer(s) involved with immunization services?			
Is there a stock register?			
Are immunization posters displayed on the health facility wall(s)?			

Examples of incorrect immunization practices and possible AEFI

Incorrect practice	Possible AEFI
Non-sterile injection due to: • reuse of disposable syringe or needle • improperly sterilized syringe or needle • contaminated vaccine or diluent	Infections such as local abscess at injection site, sepsis, toxic shock syndrome, or death Transmission of bloodborne infections such as hepatitis or HIV

Examples of incorrect immunization practices and possible AEFI

Incorrect practice	Possible AEFI
Reconstitution error due to: • inadequate mixing of vaccine • reconstitution with incorrect diluent • drug substituted for vaccine or diluent • inappropriate reuse of reconstituted vaccine at subsequent session	-Local abscess at injection site -Vaccine ineffective -Negative effect of drug (for example, insulin, oxytocin, muscle relaxants) -Death

Examples of incorrect immunization practices and possible AEFI

Incorrect practice	Possible AEFI
Injection at incorrect site such as: • BCG given subcutaneously • DTP/DT/dT/TT too superficial • injection into buttocks	 -Local reaction or abscess -Local reaction or abscess -Sciatic nerve damage
Vaccine transportation/storage incorrect such as: • VVM changed colour • clumping of adsorbed vaccine	 -Local reaction -Vaccine ineffective
Contraindications ignored	Avoidable severe reaction

Examples of Common problems associated with poor access and utilization

Type of problem	Examples of common problems
Supply quantity	Stock-outs of vaccine(s), AD syringes, diluents, safety boxes, immunization cards
Supply quality	Expired vaccine(s) • VVMs show that vaccine has reached the discard point • Frozen DTP- and HepB- Vaccine wastage rate exceeded expected rate
Staffing quality	Some staff are not using correct protocols/procedures
	Irregular supervisory visits
Staffing quantity	Vacant positions; general staff shortage

Examples of **Common problems associated with poor access and utilization,**

Type of problem	Examples of common problems
Service quality and demand	Poor attendance at sessions and poor utilization in some areas
	Mothers lose or do not bring the immunization cards
	Parents fear adverse events and/ or there are rumours that Injection practices are not 100% safe
	Unreliable information about catchment population
	Inaccurate coverage data
	Some areas are distant and underserved
	Transport not available for some outreach sessions
	Failure of outreach services in hard-to-reach areas
	Poor attendance at antenatal care (ANC) clinics

Examples of **Common problems associated with poor access and utilization,**

Type of problem	Examples of common problems
Advocacy and communication	
Monitoring and supervision	
Reporting	Timeliness
	Completeness