Poliomyelitis

Dr. Aye Lwin

National Surveillance Coordinator

What is Poliomyelitis ?

- Highly infectious disease
- Caused by Poliovirus type 1,2 or 3
- Naturally occurring types that circulate and infect people
- mainly affects children <5 years
- One in 200 infections causes irreversible paralysis

Incubation Period

Non-paralytic poliomyelitis

- 3-6 days

Paralytic poliomyelitis

- 7-21 days
- Range (3-35days)

How is Polio spread?

- Faecal oral route
- Via food or drink that is contaminated with faeces
- Majority of infectious people do not show symptoms but can still spread the disease

Signs and symptoms

- Asymptomatic - 72% of infected person
- Approximately 25% of those with infection develop minor illness
  - Fever
  - Headache
  - Sore throat
- Paralysis 1%
- Death occurs 5-10% of paralyzed patients

Severity

1. Abortive Polio
   - 24% of infection with Polio
   - Minor symptoms - Low grade Fever, sore throat, vomiting, Loss of Appetite, Abdominal pain
   - No paralysis

2. Non- paralytic Aseptic Meningitis
   - 1-5% of infection with Polio
   - Symptoms in Abortive Polio Plus- Headache, neck stiffness
   - Recovery with 2 to 10 days
   - Difficult to differentiate Aseptic meningitis

3. Paralytic Poliomyelitis
   - 0.1 to 0.5 %
   - One paralysis patient in 200 to 1000 infected persons
   - Maximum paralysis within 72 hours
   - Paralysis due to damage in lower motor neuron of Anterior horn of the spinal cord
   - Start with proximal muscles weakness and then to distal muscles
   - Lower limbs > Upper limb
   - At 60^{th} day follow up examination, residual paralysis presents in some patient

Treatment

- No cure for Polio
- Supportive
- Symptomatic care
- Ventilator for patients with difficult breathing
- Orthopedic treatment
- Regular physiotherapy
- Uses of braces

Prevention

Immunization with

- ❖ oral polio vaccine (OPV)
- ❖ Inactivated Polio vaccine (IPV)

WHO recommends that all countries using OPPV add at least one doses of IPV to routine immunization schedule

OPV plus IPV

OPV

- Live attenuated (weakened)
- 3-4 doses
- Initiated from 6 weeks of age
- Minimum interval of 4 weeks
- In Polio endemic area or high risk for importation, birth doses (zero dose) should be given
- Doses – 2 drops into the mouth
- Storage 2 to 8˚C (keep frozen/ heat sensitive)

OPV plus IPV

IPV

- Inactivated viral
- IPV should be given from 14 weeks of age (with OPV)
- IM injection – anterolateral (outer) mid-thigh in infant and children
- Doses – 0.5 ml
- Storage - 2 to 8˚C, do not freeze

WHEN WILL YOU POSTPONE VACCINATION (OPV & IPV) ?

Special precautions (OPC & IPV)

- Postpone Vaccination if children have moderate to severe illness (with T ≥39˚C)

AFP
Surveillance

Objectives of AFP surveillance

- To detect the exact geographic locations where wild polio viruses are circulating in the human population
- To report all AFP cases and to make detailed investigation to exclude no wild polio virus transmission
- To detect vaccine derived polio virus and imported wild polio virus transmission

What is AFP?

- AFP is a syndrome occurs in many diseases and conditions like
  - Guillain-Barre Syndrome (GBS)
  - Transverse Myelitis
  - Poliomyelitis, etc.

- The polio surveillance is based upon surveillance for AFP

- Surveillance is carried out for all cases of acute flaccid paralysis (AFP) and not only for Poliomyelitis

- Therefore, all AFP cases should be reported regardless of the final diagnosis, maintaining a high sensitivity of AFP reporting will ensure that all cases of paralytic poliomyelitis are
  - Detected
  - Reported and
  - Investigated

  resulting in preventive control measures to interrupt transmission of disease

- Occasionally, poliomyelitis may occur in older children

- AFP surveillance focuses on children aged <15 years in order to capture occasional case that may occur in older children

- Experience in industrialized country shows that at least 1 case of AFP (excluding Polio) occurs annually for every 1000,000 children aged <15 years

- This is referred to as “background” rate of AFP among children

- Non polio causes of AFP including (but not limited to)
  - Guillain-Barre syndrome
  - Transverse Myelitis and
  - Traumatic Neuritis

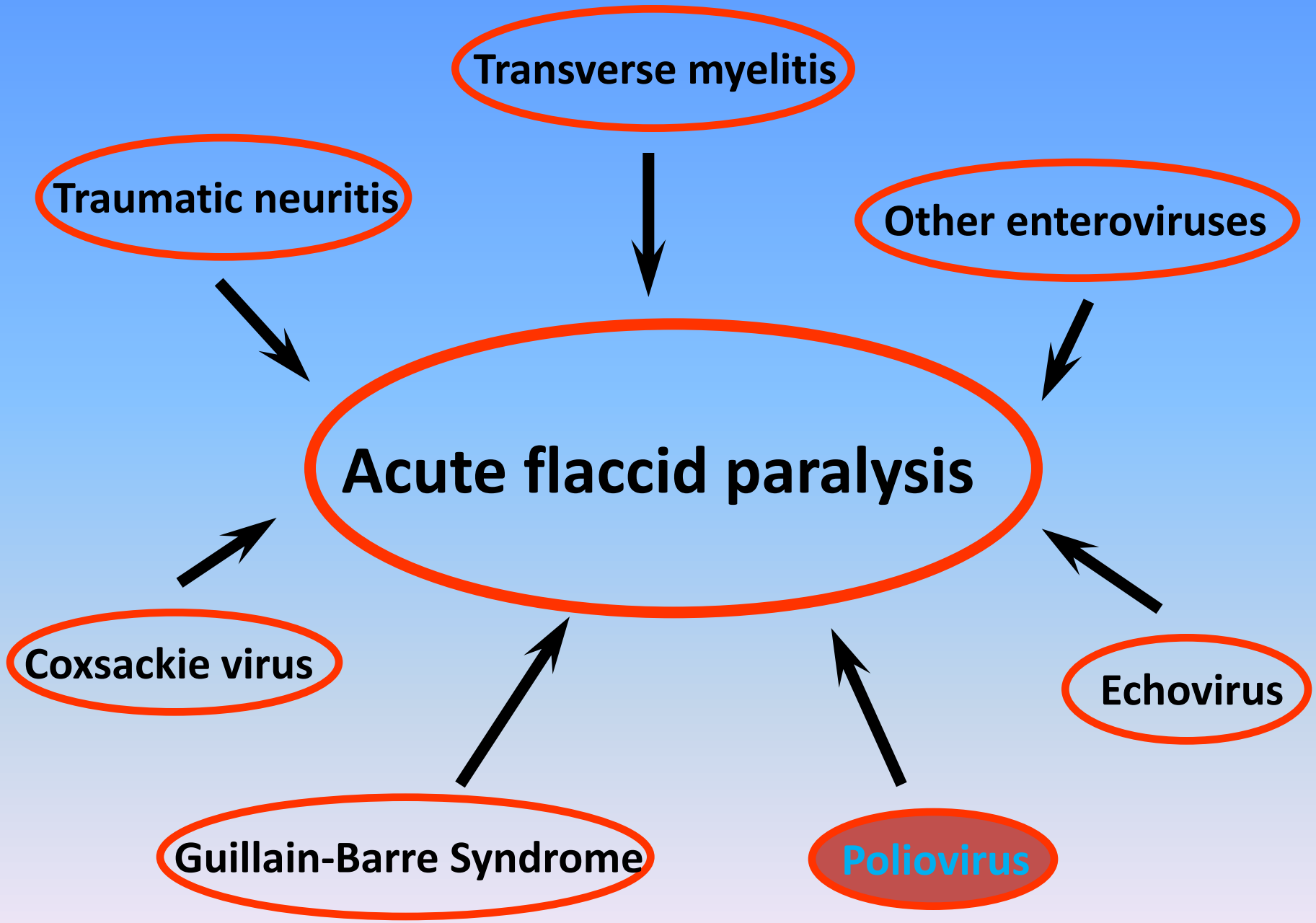
  account for this background rate

It may be higher in developing countries to increase sensitivity for surveillance system

Case Definition for Acute Flaccid Paralysis

Any case of AFP <15 years of age or any case of paralytic illness in person of any age when polio is suspected

- **Acute**: rapid progression of paralysis (from onset to maximum paralysis)
- **Flaccid**: loss of muscle tone, “floppy” (as opposed to spastic or rigid)
- **Paralysis**: weakness, loss of voluntary movement


Transverse myelitis
Traumatic neuritis
Other enteroviruses
Acute flaccid paralysis
Coxsackie virus
Echovirus
Guillain-Barre Syndrome
Poliovirus

Conditions sometimes presenting as AFP

- **Tumor**
- **Encephalitis**
- **Hypokalemic paralysis**

  (weakness due to low serum potassium, usually secondary to diarrhea, quickly reversible)

- **Pott's disease**

  (TB infection of the vertebral spine)

- **TB meningitis**

  (all other causes of meningitis)

- **Osteomyelitis**

Components of AFP Surveillance

- AFP surveillance network and case notification
- Case and laboratory investigation
- Outbreak response and active case search in the community
- 60th day follow up, cross-notification and tracking of cases
- Data management and case classification
- Virologic case classification scheme
- Surveillance performance indicators

AFP
CASE INVESTIGATION FORM

Case Identification Number:
MMR - 07 - 08 - 17 - 001

PLEASE COMPLETE THIS FORM CAREFULLY. ITS CONTENTS WILL BE REVIEWED DURING CERTIFICATION.

1. Investigation Information:

Name of Investigator (M.O.): Dr Soe Nyein

Date Case Reported: 18 / 12 / 2017

Title: Township Medical Officer

Date Case Investigated: 18 / 12 / 2017

Office: Htantabin Hospital

Place of Investigation: (Village / Ward / Township) Zigone, Kyein Taw Myaing S/C, Myo Soe R.H.C

2. Case Identification: Patient's Name: Ma Nadi Win

Sex: F Date of Birth: 15 / 9 / 2012 Age: years 5 months 3

Father's Name: U Aung Linn Htun Mother's Name: Daw Kay Thi

Permanent Address (to find child for followup exam): State/Division: Bago

URBAN: Township Htantabin Ward: Zigone, Kyein Taw Myaing S/C ; Myo Soe R.H.C

Street No. or Name: — House No.: —

RURAL: Township Htantabin Village Tract Kyein Taw Myaing Village Zigone

3. Hospitalization: (Yes)/No Date of Hospitalization: 17/12/2017

Name of Hospital: _____ Hospital Record Number: R/N - 3336

4. Immunization History: Total OPV doses received through routine EPI: 3

Total OPV doses received through NIDs or Mop Ups/Crash 2-

Date of last dose of OPV (routine or NID or Mop Ups/Crash): 20/ 2/ 2016

5. Travel History for previous 35 days . NO .

(i) Village/Ward _____ Township _____

Night stay Yes/No From_____till_____(date)

Village/Ward _____ Township _____

Night stay Yes/No From_____till_____(date)

(ii) If there are some persons suffering from AFP at visited area, mention the address of the area.

_____street_____village/ward_____Township

(Further investigation must be done and reported.)Mention Case Number of such cases: MMR / __ / __ / __ / ___

AFP
CASE INVESTIGATION FORM

Case Identification Number:
MMR - 07-08-17-001

6. Symptoms and Physical Examination:

Flaccid paralysis: (Yes) No/Doubtful
Acute paralysis: (Yes) No/Doubtful
Number of days from onset to maximum paralysis: 2
Fever -3 weeks before onset: Yes (No) Unknown
Fever on day of paralysis onset: Yes (No) Unknown
Any injections during 30 days before paralysis onset: Yes (No)
Facial muscle weakness: Yes (No)
Neck Stiffness: Yes (No) Doubtful
Proximal muscle weakness: Yes (No) Doubtful
Is proximal weaker than distal? Yes (No)
Asymmetrical paralysis: Yes (No) Doubtful
Type of paralysis: Ascending/ Decending / Stationary
Site(s) of Paralysis: (Muscle Power)** right arm (5/5) left arm (5/5) right leg (4/5) left leg (4/5) other (describe): (—)
Muscle atrophy: Yes (No) If Yes, mention site of Muscle atrophy: _____

Date of Paralysis Onset: 16/12/2017
Muscle tenderness: Yes/ No/ (Doubtful)
Deep Tendon reflex:* Bicep(1)/ Tricep (1)/ Supinator(1)/Knee (4)/Ankle (4)
Barbinski's reflex: Yes / (No) /Doubtful
Ankle clonus: Yes / (No) /Doubtful
Paraesthesia in extremities: Yes (No) Doubtful
Sensation loss: Yes (No) /Doubtful
Incontinence: Bladder/Bowel/(No)
Ability to walk : (circle) cannot walk/walks with a limp/ walks normally

7. Stool Specimen Collection:			NHL	Regional Reference Laboratory		
Date Collected	Date Sent	Date of Result	Laboratory Results	Date sent	Date of result	Result
Stool 1 19/12/17	21/12/17	__/__/__				
Stool 2 20/12/17	21/12/17	__/__/__				

Pdx Peripheral Neuropathy

Signature of Medical Officer _____

8. 60 Days Follow-up Examination: Yes/No Name of investigator and Title doing 60 days Follow-up: _____

Date of Follow-up Date: __/__/__

If there is no follow-up, why?_____

Lost to follow-up: Yes/No If yes, why? _____

Died? Yes/No If yes, (1)date: __/__/__ (2) cause of Death?_____

Follow-up Result

Residual weakness: Yes/No

Paraesthesia in extremities: Yes / No / Doubtful

Sensation lost: Yes/No/Doubtful

Ability to walk : cannot walk/walks with a limp/ walks normally

Deep Tendon reflex:* Bicep( )/ Tricep ( )/ Supinator( )/ Knee( )/ Ankle( )

Site(s) of Paralysis: (Muscle Power) ** right arm ( )/ left arm ( )/ right leg ( )/ left leg ( )/ other (describe): ( )

Muscle atrophy: Yes/ No (If Yes, mention site of Muscle atrophy: _____)

Signature of Medical Officer _____

9. Final Classification: Confirmed Polio: Yes/No Compatible: Yes / No Discarded: Yes / No

Criteria: (check all that apply)

1. Virus Isolation: _____
2. Residual Paralysis: _____
3. Died: _____
4. Lost to Followup: _____
5. Inadequate stool: _____
6. Classification of expert committee : _____ (date): _____

If discarded, what was the final diagnosis?

1. Guillain-Barre: _____
2. Transverse Myelitis: _____
3. Traumatic Neuritis: _____
4. Other: _____

NB: * Deep tendon reflex (1.Normal 2.Absent 3.Increased 4.Decreased)

** Site of Paralysis (muscle power) : (Indicate maximum power only)

0. Can't move 1. Slightly (fasciculation) 2. Horizontally 3. Vertically 4. Against resistance 5. Normal(full strength)

*** Circle the response

ကျန်းမာရေးဦးစီးဌာန
မြို့နယ်ကျန်းမာရေးဦးစီးဌာနမှူးရုံး
ထန်းတပင်မြို့- ပဲခူးတိုင်းဒေသကြီး
စာအမှတ် ။ ။ ၂(ခ) / မနက - ထတပ /၇၀၈
ရက်စွဲ ။ ။ ၂၀၁၇ခုနှစ်ဒီဇင်ဘာလ (၂၇)ရက်

သို့-

တိုင်းဒေသကြီးပြည်သူ့ကျန်းမာရေးဦးစီးဌာနမှူး
တိုင်းဒေသကြီးပြည်သူ့ကျန်းမာရေးဦးစီးဌာန
ပဲခူးတိုင်းဒေသကြီး ၊ ပဲခူးမြို့

အကြောင်းအရာ ။ ။ (AFP) တွေ့ရှိကြောင်းသတင်းပေးပို့ခြင်း

အထက်အကြောင်းအရာပါ ကိစ္စနှင့်ပါတ်သက်၍ ပဲခူးတိုင်းဒေသကြီး၊ထန်းတပင် မြို့နယ် မြို့စိုးကျေးလက်ကျန်းမာရေးဌာန ကြိမ်တောမြောင်**S/C** ဇီးကုန်းကျေးရွာမှ မနဒီဝင်း အသက်(၅)နှစ် (၃)လ (ဘ)ဦးအောင်လင်းထွန်းသည် လတ်တလောပျော့ခွေအကြောသေရောဂါ ခံစားနေပါသဖြင့် လိုအပ်သောစစ်ဆေးမှုများနှင့် ဝမ်းနမူနာများယူပြီးသက်ဆိုင်ရာသို့ပို့ပြီး(**ORI**) ပြုလုပ်မည်ဖြစ်ပါကြောင်း အစီရင်ခံတင်ပြအပ်ပါသည်။

ပြည်ထောင်စုသမ္မတမြန်မာနိုင်ငံတော်အစိုးရ

ပြည်သူ့ကျန်းမာရေးဦးစီးဌာန

မိုးညှင်းမြို့နယ်ပြည်သူ့ကျန်းမာရေးဦးစီးဌာန၊မိုးညှင်းမြို့

စာအမှတ်၊ ၁၂၅၁/မနဆ/ပဓတ/AFP/၂၀၁၇

ရက် စွဲ ၊ ၂၀၁၇-ခုနှစ် ဒီဇင်ဘာလ (၈) ရက်

သို့

ညွန်ကြားရေးမှူး (ကူးစက်)

ဗဟိုကူးစက်ရောဂါတိုက်ဖျက်ရေးဌာန

ပြည်သူ့ကျန်းမာရေးဦးစီးဌာန

နေပြည်တော်

အကြောင်းအရာ။ ။ (ORI) ပထမအကြိမ်ဆောင်ရွက်ပြီးစီးမှုအစီရင်ခံစာပေးပို့ခြင်း

အထက်အကြောင်းအရာပါကိစ္စနှင့်ပတ်သက်၍ ပဲခူးတိုင်းဒေသကြီး ၊ သာယာဝတီခရိုင် ၊ မိုးညှင်းမြို့နယ် ပြည်သူ့ကျန်းမာရေးဦးစီးဌာန ၊ ရေကင်းကျေးလက်ကျန်းမာရေးဌာန ၊ ဝဲကြီးကျေးလက်ကျန်းမာရေးဌာနခွဲ သဲရိုး(၂) ကျေးရွာမှ (AFP) သံသယလူနာအတွက် (ORI) ပထမအကြိမ်တိုက်ကျွေးခြင်းကို (၆-၁၂-၂၀၁၇) ရက်နေ့ တွင်ဆောင်ရွက်ပြီးစီးပါကြောင်းတင်ပြအစီရင်ခံအပ်ပါသည်။

3. Hospitalization: (Yes) No Date of Hospitalization: 1/12/2017

Name of Hospital: Monyo Hospital Hospital Record Number: 2492

4. Action taken Date 6/12/17

(i) Active case search was done in: Yegin RHC (Ward/Township) for: Thae Yoe (1) & (2)

Total no. of Households visited for active case search: 123

Total no. of under 15 yr visited for active case search: 145

No. of AFP cases found during active case search: Nil

(New AFP case investigation form must be used for new AFP case and reported together with detailed information for Epidemiological findings)

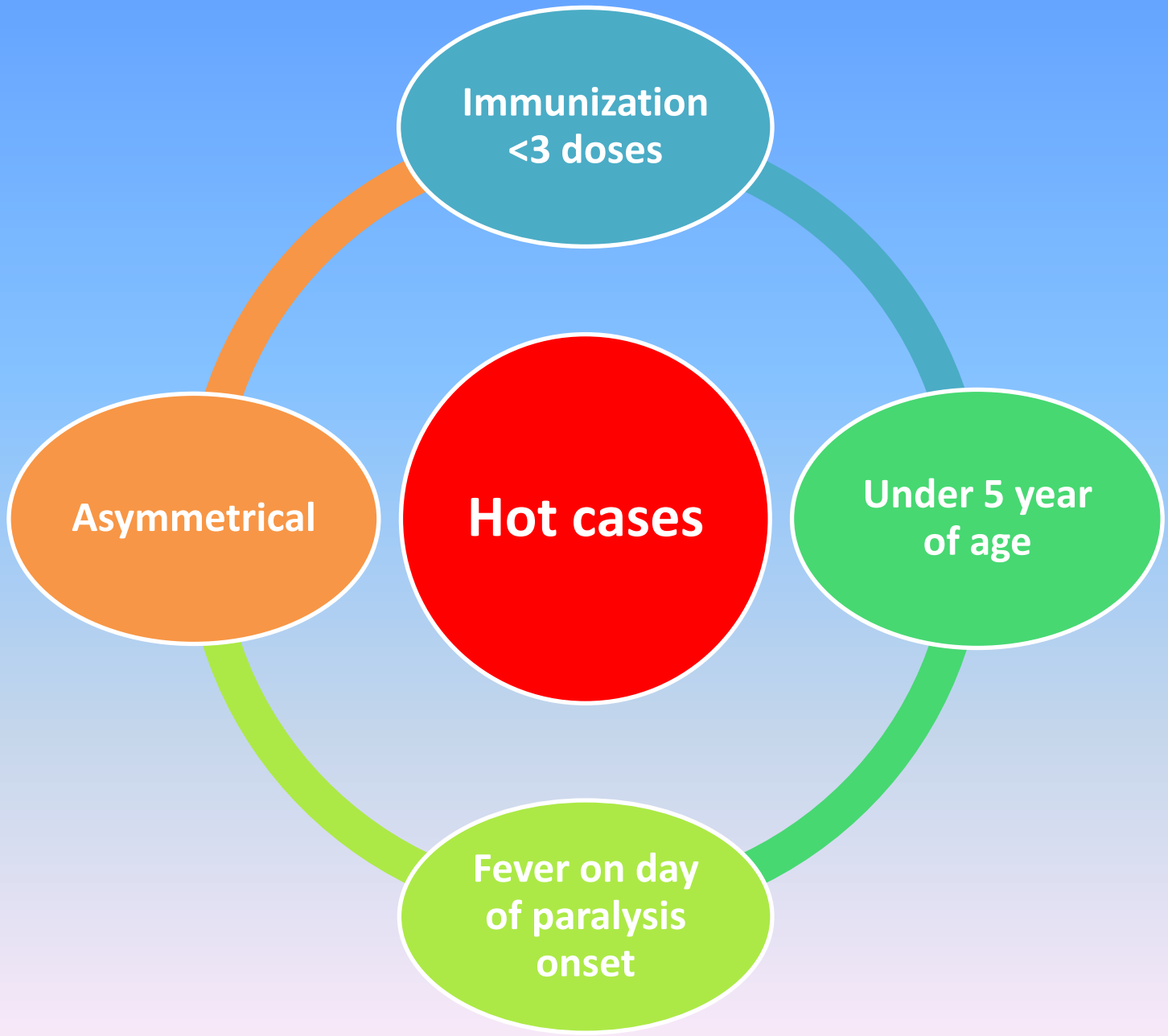
(ii) Immunization response (ORI) for that area (Define area: Thae Yoe Village (1) & (2)

- No. of households in the 123 area: ____

- No. of children living in the area	____	<1	4	1 - 5 Year	38	6 - 15 Year	103
- No. of children immunized with OPV during ORI	____	<1	4	1 - 5 Year	38	6 - 15 Year	-
- No. of children with OPV zero dose*	____	<1	-	1 - 5 Year	-	6 - 15 Year	-
- No. of children with less than 3 doses*	____	<1	-	1 - 5 Year	-	6 - 15 Year	-

(* Not counting dose given during ORI)

Hot case?


Immunization <3 doses
Under 5 year of age
Fever on day of paralysis onset
Asymmetrical
Hot cases

IF AFP case found, what will you do?

- Case investigation
- Reporting
- Outbreak response immunization within 3 days (500 household)
- Active case search
- 60^{th} day follow up examination

Stool Specimen Collection

- 2 samples, each one approximately an adult's thumb size
- Can be stored in any clean container
- Collected at least 24 hours apart
- Collected within 14 days after paralysis onset
- Send on ice or with frozen icepacks to NHL
- Accompanied by proper documentation

AFP Surveillance Performance Indicators

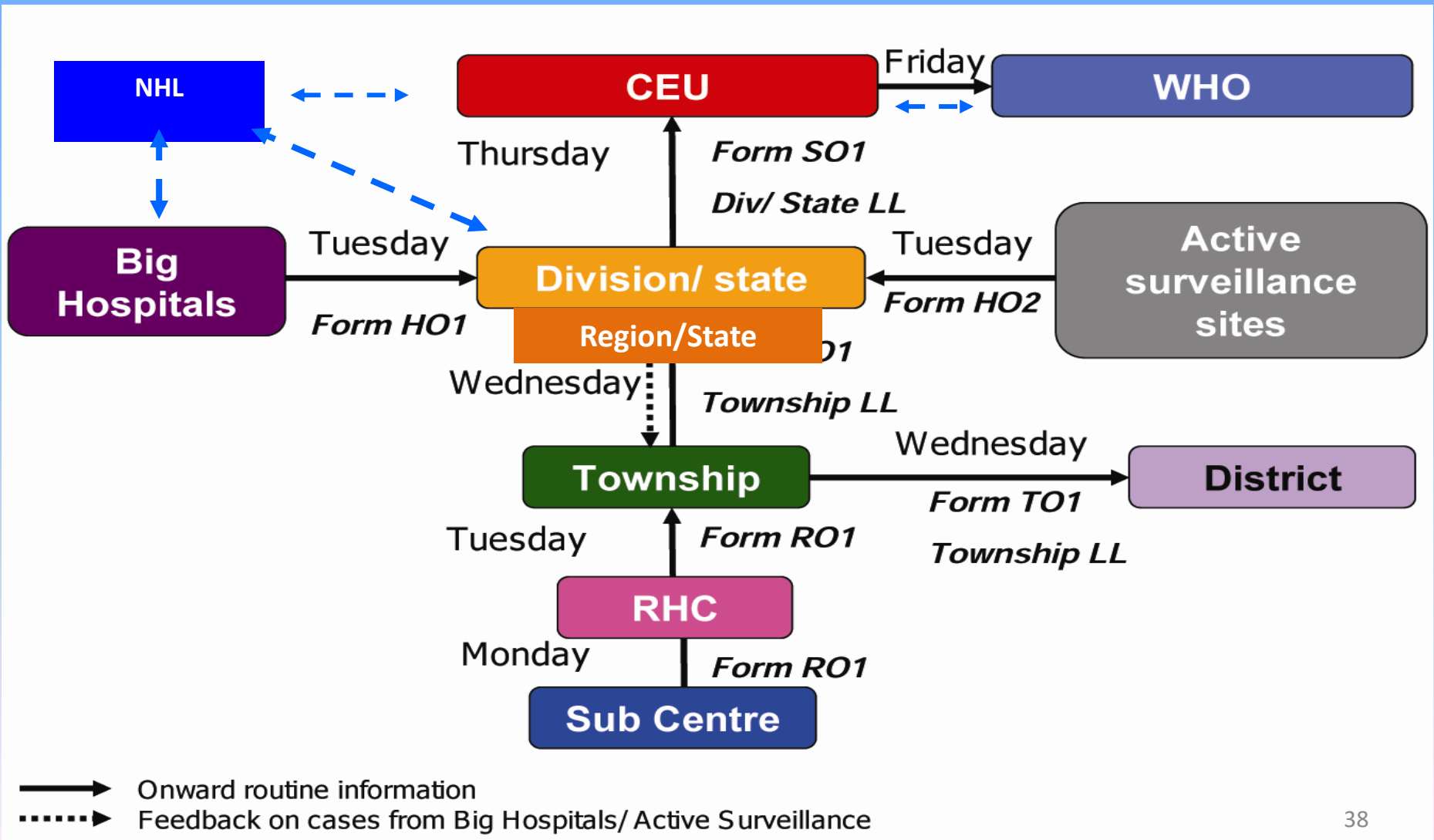
No	Indicator	Target
1	Non-polio AFP rate	≥ 3/100,000
2	Reported AFP cases with 2 specimens collected ≤ 14 days since onset	≥ 80%
3	Reported AFP cases investigated ≤ 48 hours of report	≥ 80%
4	Timeliness of weekly reporting	≥ 80%
5	Completeness of weekly reporting	≥ 80%

AFP Surveillance Performance Indicators

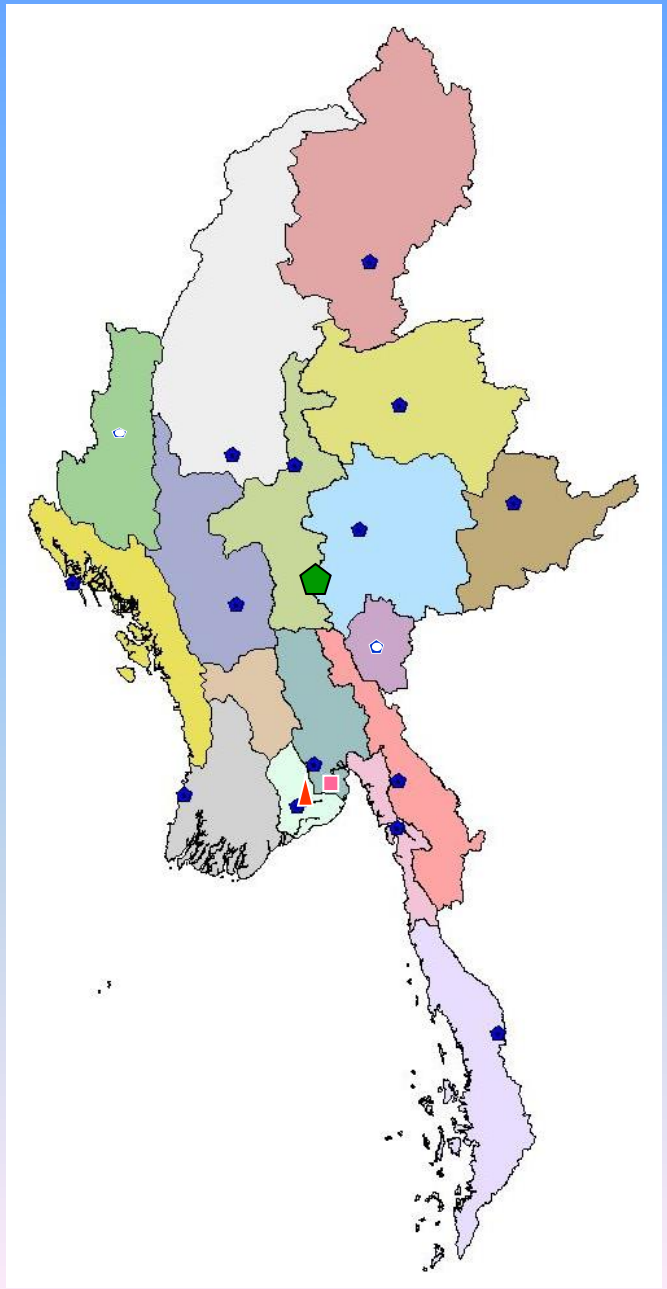
No	Indicator	Target
6	Reported AFP cases with a follow up exam at least 60 days after paralysis onset to verify the presence of residual paralysis or weakness	≥ 80%
7	Specimens arriving at NHL ≤ 3 days of being onset	≥ 80%
8	Specimens arriving at NHL in good condition	≥ 80%
9	Specimens with a turn-around time ≤ 14 days	≥ 80%
10	Stool specimens from which non-polio entero virus was isolated	10%

Reporting system

Integrated Weekly Reporting of AFP, NNT, Measles & VPD



Network of regional surveillance officers (RSO) and laboratories



NSC Office

17 RSO Office

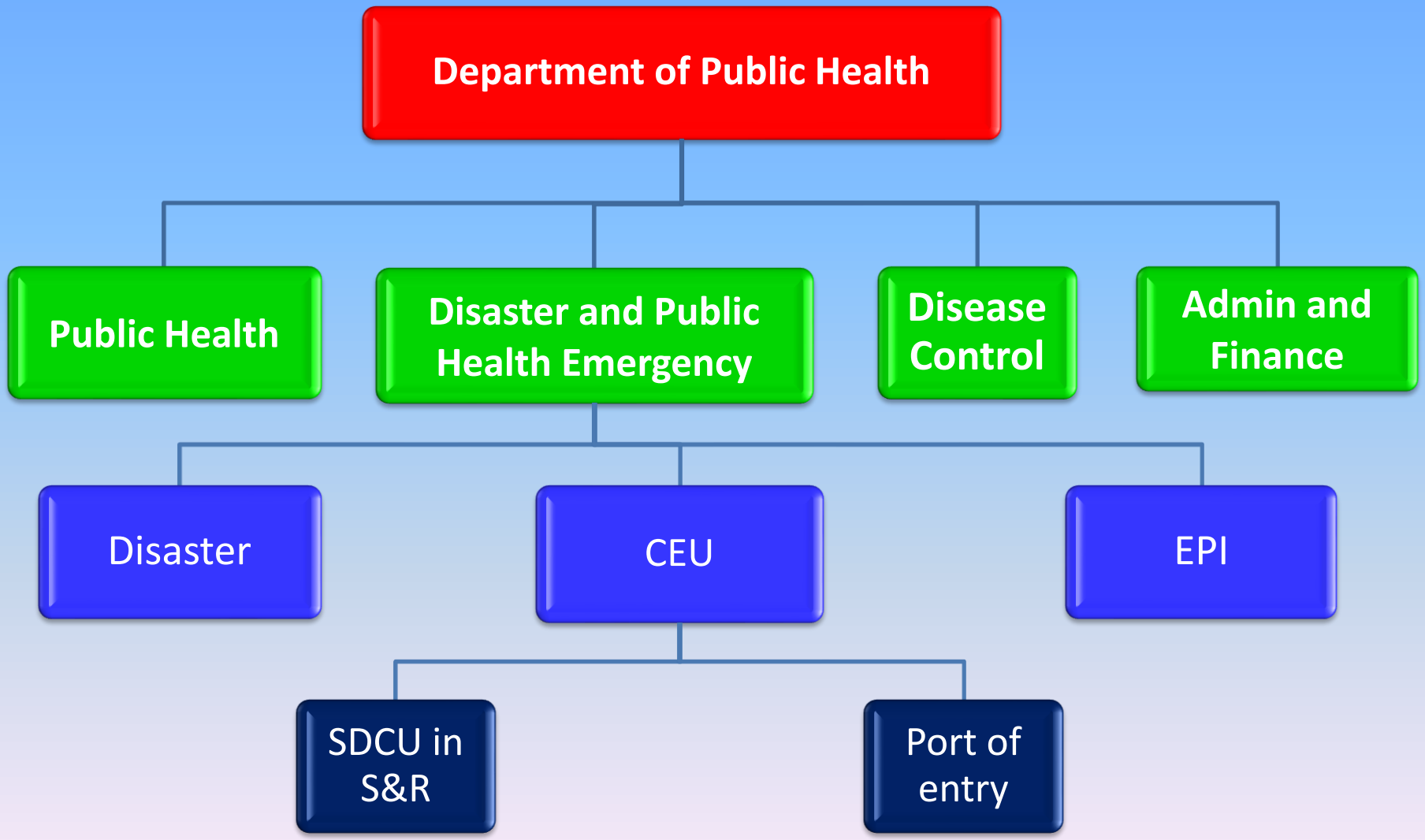
National Health Laboratory

- National polio laboratory
- National measles & rubella laboratory
- National Japanese encephalitis laboratory

Rotavirus laboratory

- Department of Medical Research

Organization of CEU



➢ Surveillance and Response

Diseases under National Surveillance	Epidemic prone Communicable Diseases	Vaccine Preventable Diseases	Emerging Infectious Diseases	Zoonotic Diseases
(17 diseases) by strengthening of HMIS	•Diarrhoea •Cholera •Meningitis •Food poisoning ,etc.	•Poliomyelitis •Measles •NNT •Diptheria •Whooping Cough	•Influenza •(H1N1, H5N1) •Ebola •SARS • MERS CoV	•Rabies •Plague •Leptospirosis •Anthrax

➢ IHR Implementation (Port Health & Cross Border Surveillance)

➢ Disaster Management (esp. Early Warning Alert & Response System)

Supporting MOH and DoPH Goals
Improving Community Health

Communicable Disease Under Surveillance

Immediate Reporting

- Unusual Occurrence
- Disasters
- Accidents

- *Daily Zero Report (SDCU)

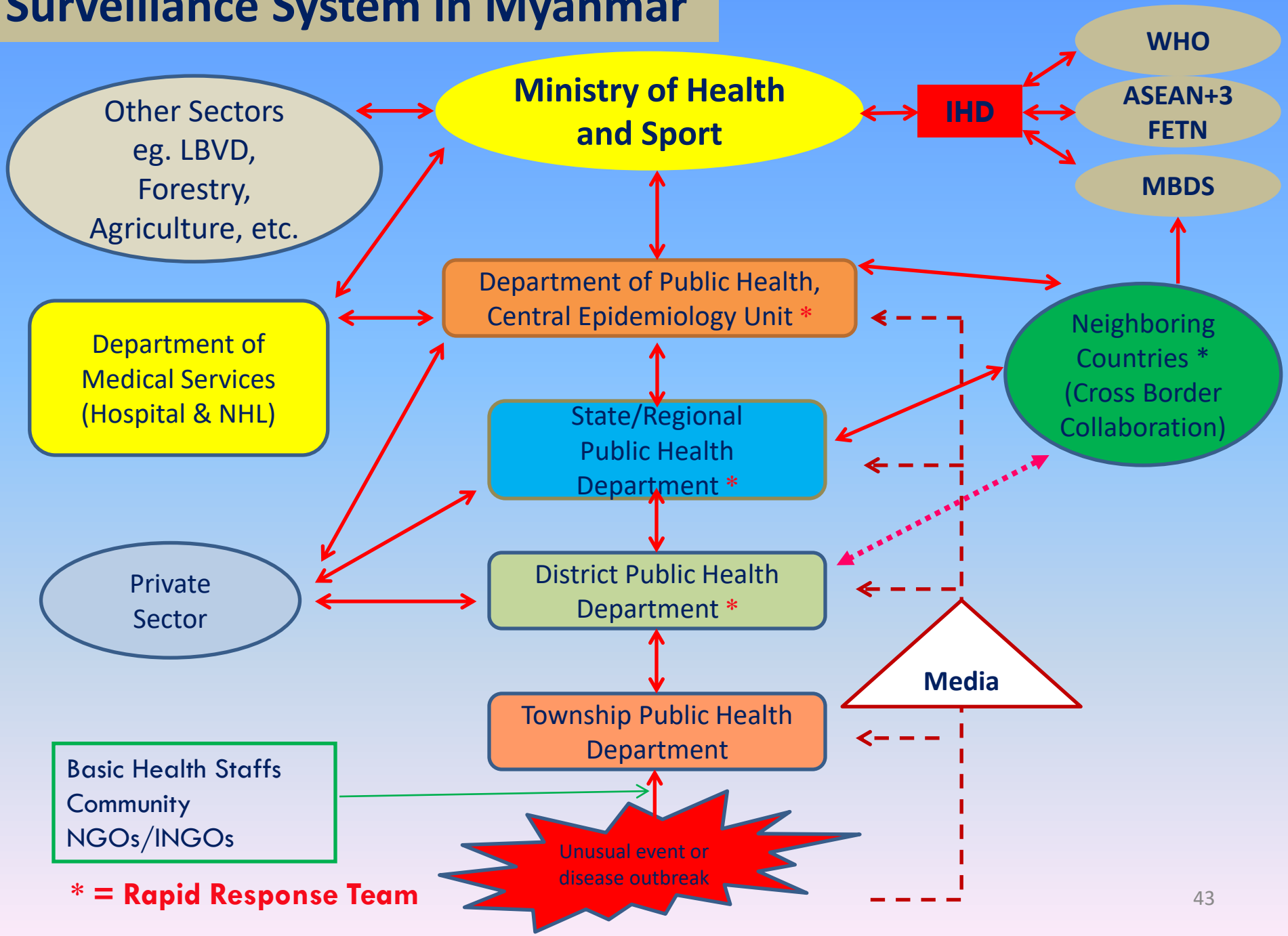
Weekly Integrated Disease Surveillance

- NNT
- Measles
- AFP
- ARI, Bird fall, chicken fall

Monthly DUNS

- Diarrhoea, Dysentery, Food Poisoning, Typhoid
- Measles, Diphtheria, Whooping Cough, Neonatal Tetanus, Tetanus,
- Meningitis, ARI(Pneumonia), Hepatitis
- Rabies, Anthrax, Snake Bite
- Malaria
- TB (a)Sputum (+)ve Pul:TB(new), (b) Sputum (-)ve Pul:TB(new), (c) Extrapul:TB(new)

Surveillance System in Myanmar



Thank You