

# Enhancing Surveillance and Describe the Outbreak

A Workshop

In Myanmar, NPW

Nov 28-Dec 1, 2017

## Topic - Overview

- Why Surveillance is important ?
- What is surveillance?
  - Event-based surveillance (EBS)
  - Indicator-based surveillance
- What is an event?
- Steps in event-based surveillance
- Implementing EBS
- Evaluating EBS and elements of successful EBS

# Definition: Surveillance

- Ongoing systemic collection, analysis, and interpretation of health data essential to the planning, implementation and evaluation of public health practice, closely integrated with timely dissemination of these data to those who need to know

# Surveillance

- Hospital based reports (A-H)
- Laboratory



Indicator/Record-based  
Surveillance

- Outbreak/event Report
- Community and local health reports
- Media
- Self participation report
  - (volunteer report by individual)

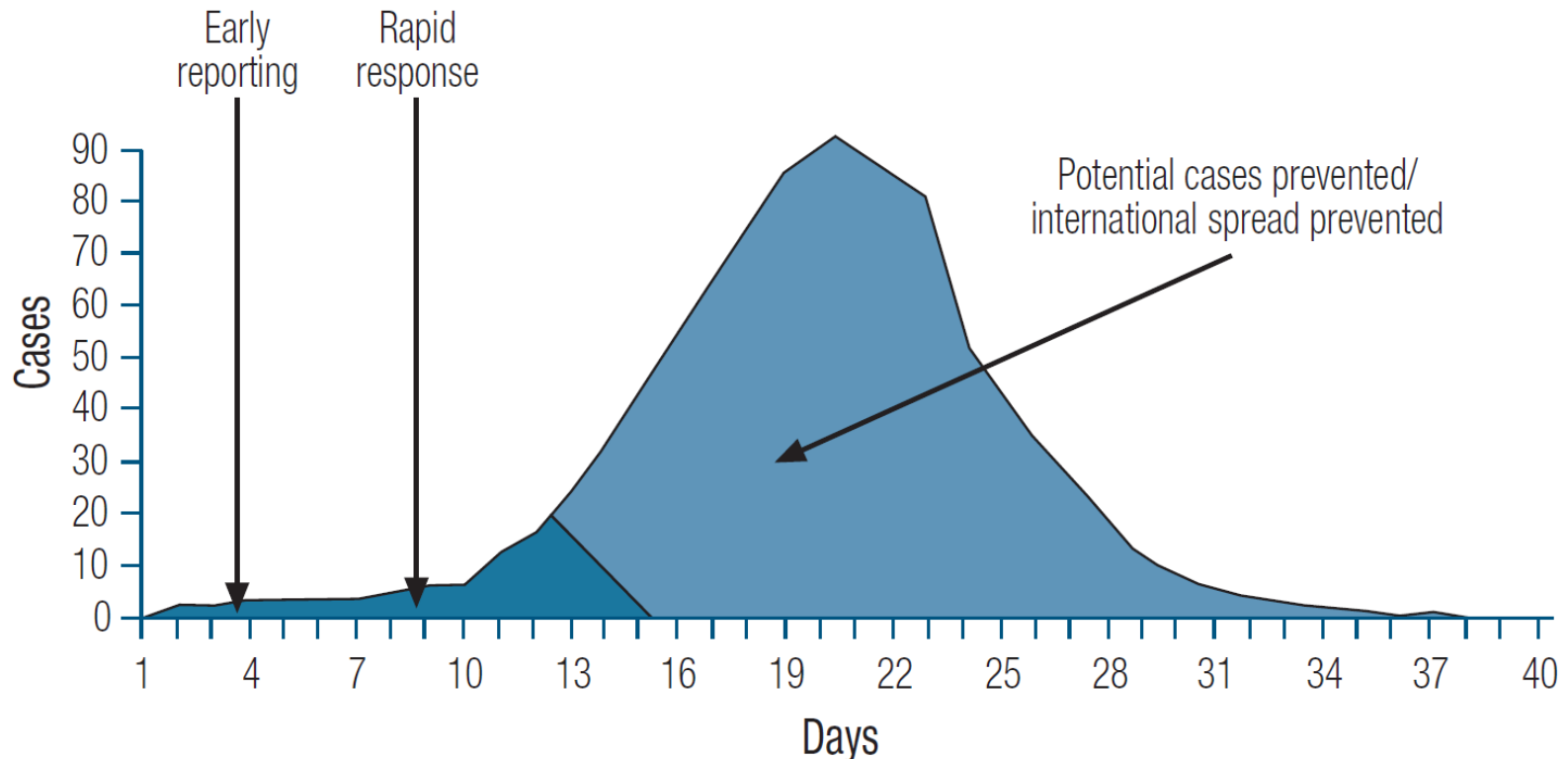


Events-based  
Surveillance

# Why Conduct Surveillance for disease Outbreaks?

To rapidly identify and efficiently respond to disease threats

- Interrupt disease transmission via control measures
- Identify unusual outbreaks which may be the first signal of a disease with pandemic potential such as AI, Ebola, Influenza etc.



Source: WHO, The World Health Report 2007.

A Safer Future: global public health security in the 21<sup>st</sup> century

# Goal/purpose of Surveillance

- To identify disease events and control in order to prevent transmission
  - Data must be organized and carefully examined/investigated
  - Results need to be communicated to public health (A-H) and medical communities

## What is an “Event”?

WHO definition of an **‘event’**: ‘A manifestation of a disease or an occurrence that creates the potential for disease.’

WHO definition of an **‘urgent event’**: ‘[Those with] serious public health impact and/or unusual or unexpected nature with high potential for spread.’

## INDICATOR-BASED SURVEILLANCE (e.g. SARI and ILI surveillance)

Process	Characteristics of Data
Systematic	Pre-determined
Routine	Standardized
Passive (mostly)	Limited
Fixed sources (e.g. sentinel sites)	Formal
	Typically health-care based
	Routinely analyzed
	Clear case definitions

Slow to detect outbreaks  
*but*  
allows monitoring of trends over time and measurement of program impact

## EVENT-BASED SURVEILLANCE

Process	Characteristics of Data
Formalized	Not pre-defined
Flexible	Not standardized
Active	Multiple and Variable
Ad hoc	Informal & formal
Real time	Reliability not established
	Multiple sources
	No clear case definitions
	Collect as much data as possible to assess risk

**RAPID  
REPORTING!**

# Sources of Reports in EBS

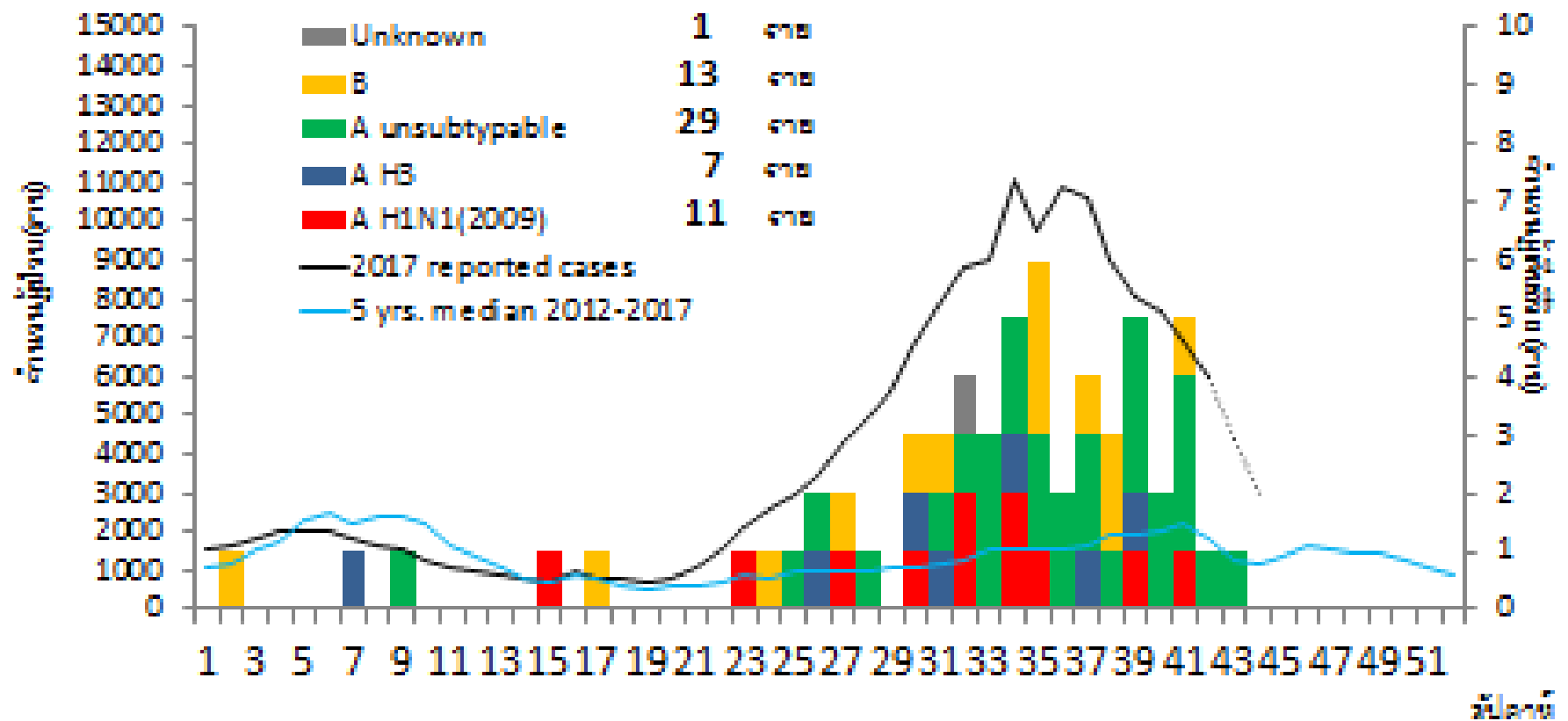
## Community Setting

Community groups	<ul style="list-style-type: none"> <li>• Village leaders</li> <li>• Village health volunteers</li> <li>• Members of the public</li> <li>• Local animal traders/sellers, fisher-people, farmers, etc.</li> <li>• Forest or park workers</li> </ul>
Community services	<ul style="list-style-type: none"> <li>• Religious organizations</li> <li>• Nurseries</li> <li>• Schools</li> <li>• Pharmacies</li> <li>• Police</li> <li>• NGOs</li> <li>• Veterinary services</li> <li>• Wildlife services</li> <li>• Environmental organizations</li> <li>• Agricultural organizations</li> </ul>
Media and published sources	<ul style="list-style-type: none"> <li>• Newspaper, radio, TV,</li> <li>• Internet, newsletters</li> </ul>

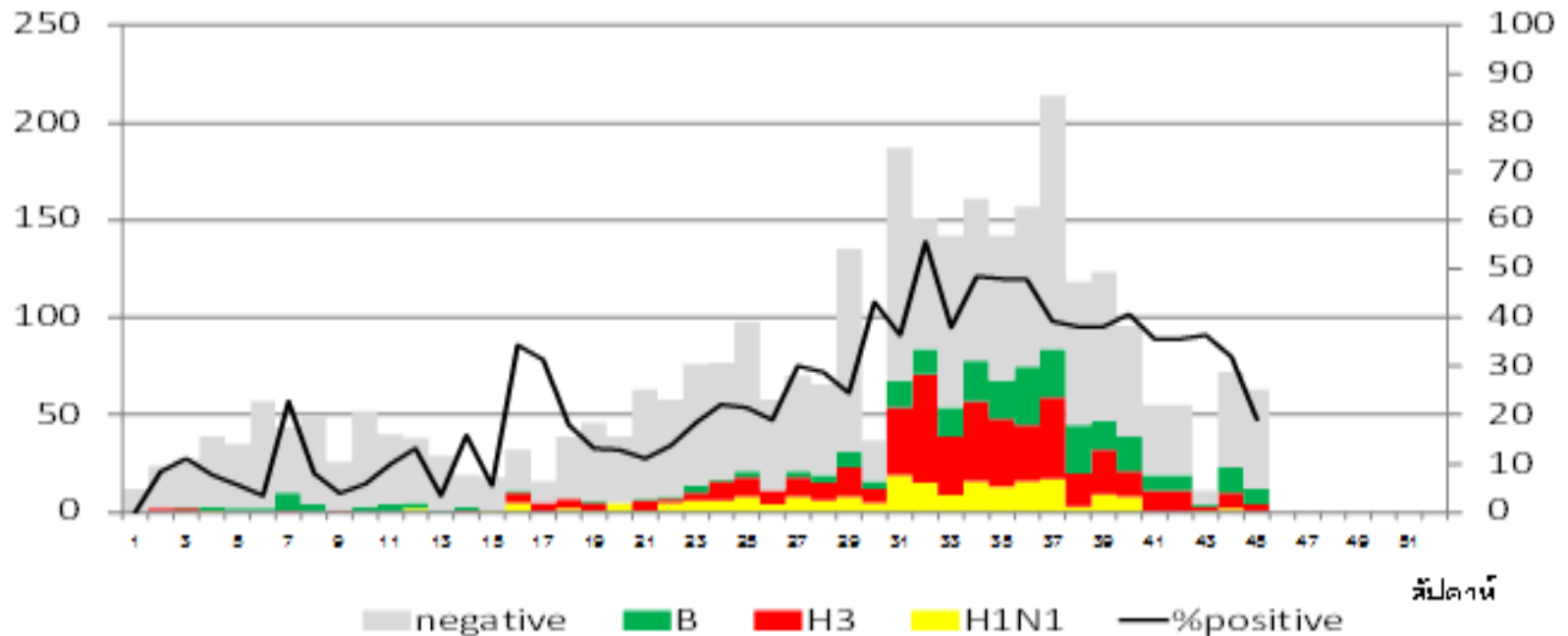
## Medical Setting

Health care facilities	<ul style="list-style-type: none"> <li>• General practitioners</li> <li>• Health clinics</li> <li>• Hospitals</li> <li>• Veterinary clinics</li> <li>• Wildlife rehabilitation clinics</li> <li>• Pathology services</li> <li>• Agricultural/veterinary officers</li> </ul>
Allied health care professionals and organizations	<ul style="list-style-type: none"> <li>• Community health workers</li> <li>• Midwives</li> <li>• Traditional healers</li> <li>• Laboratories</li> <li>• Ambulance services</li> <li>• Environmental health officers</li> <li>• Health quarantine officers</li> </ul>

# On going Influenza Surveillance, Data Week 1-46<sup>th</sup>, Thailand



# Laboratory test for Influenza Thailand (1 Jan-11 Nov, 2017)



ที่มา กรมวิทยาศาสตร์การแพทย์และสำนักงานโรคติดต่อ

Total tested = 3210/positive 973

# Example of EB Report

- 18 Nov 2017, a health center in NKS province notified a male 44y with fever, legs pain with mild jaundice 3 days ago. The patient was refer to provincial hospital and later died with suspect leptospirosis.
- A heath center report on 18 November 2017 : a suspect leptospirosis case in NKS province (flooding area). Pt was male 49 years, had fever conjunctivitis, body pain. He later had kidney failure and died on November 11, 2017
- A health center in border province reported 40+ cases of children ( age average 9 years (9 m- 34y) with fever, rashes, and respiratory symptoms : cough, rhinorrhea and conjunctivitis.

Event based surveillance reported cumulative 13 clusters (5-48 cases) in 2017

# Steps of EBS

1. Define events of interest that should be reported
2. Generate health event report with basic initial information
3. Confirm the event
4. Assess the event
5. Response (as indicated)



## EBS Step 2: Report an Event

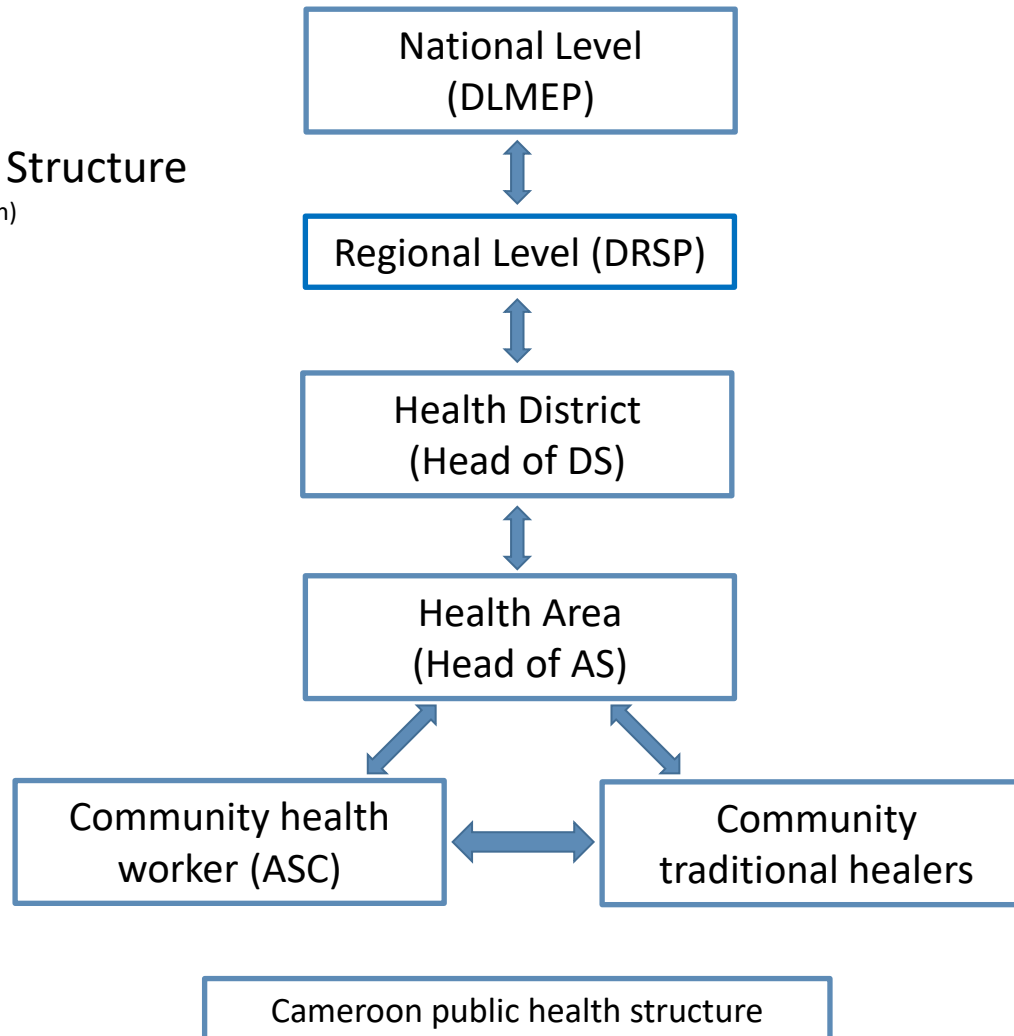
### Health Event Report

Please send this to your Local Health Office or to your regional epidemiology and surveillance unit

1	Date (today's date)	
2	What do you want to report? What happened?	
3	When did this happen? (Month, day, year)	
4	Where did this happen? (Municipality or City, Province, Region)	
5	How many have been affected?	
6	Has anyone died? How many?	
7	Other information you have	
8	What is your name and contact number?	

# Implementing EBS: Reporting Structure

Example Reporting Structure  
(sample, Cameroon)



# Verifying the Credibility of the Event

- Review and substantiate reported events
  - Is information accurate?
  - Confirm information from unreliable sources
  - Eliminate information based on inaccurate rumors

Event reports are more likely to be true if they:

- Are confirmed by multiple different sources of information (i.e. not the same source repeated by secondary informants);
- Are reported by trained health care workers; and
- Include clear information about TIME, PLACE, PERSON (i.e., 5 people from village X developed fever and symptoms of upper respiratory infection after having contact with sick chickens over the last 2 weeks).

## EBS Step 4: Assess the Event for Public Health Risk

**Is it a public health threat?  
Is further action warranted? (need)**

*‘Risk assessment [is the] systematic process for gathering, assessing and documenting information to assign a level of risk to human health to an event.’*

*--WHO Manual on Early detection, assessment and response to acute public health event*

## EBS Step 4: Components of WHO Risk Assessment

**Hazard** refers to the pathogen(s) or other etiology causing the event and the associated negative health effects

- Laboratory-confirmation (when available)
- Clinical features
- Seasonality
- Geographic area
- Persons/populations affected

## EBS Step 4: Components of WHO Risk Assessment (cont,)

**Exposure** of individuals and populations to the likely hazard

- Number of people or population exposed
- Number of exposed people who are susceptible

**Context** is the environment or setting in which the event is taking place

- Physical environment
- Infrastructure
- Cultural practices and beliefs

## EBS Step 5: Respond to the Event

### Response planning

- Scale guided by risk assessment and triage: partial or full-scale investigation
- Organized by local or national level
- *Should follow clear procedures and include defined roles and responsibilities of responders*
- May link with national Emergency Response Center

## EBS Step 5: Respond to the Event (cont.)

Institute control measures (organize/coordinate action)

- Infection control (community and hospital)
- Social distancing
- Vaccines (in humans or animals)
- Antivirals/antibiotics as indicated
- Animal control and bio-containment strategies

Risk communication

## Feedback and Communication to Stakeholders

- Relevant, periodic and useful feedback to stakeholders is *critical* to maintaining EBS
- Format of feedback should be simple and appropriate to the audience
  - Include updates on event confirmation, assessment, and response
  - Include data on EBS in surveillance bulletins and consider publishing reviews and evaluations of the system
  - Positive reinforcement for local workers

## Monitoring and Evaluation for EBS

- Timeliness
- Positive predictive value
- Representativeness
- Usefulness

## Elements of a Successful EBS System

- Close links between all levels of response chain
- Clear understanding of the roles at each level
- Timely communication of information
- Systematic collection of data
- Regular monitoring and evaluation
- Multi-sectoral approach involving human, animal, and environmental components
- Apply new technology ..... digital report and social media could be an important trends.

## Strengthening Indicator based surveillance regularly to support verification and comprehensive surveillance

- EBS is complimentary system for Indicator based surveillance
- Whenever has EBS - review of hospitals, laboratory data need to do carefully to detect any possible cases in different system
- Review disease/syndrome
- Active case finding
- Connect to RRT and field investigation

# Enhance Surveillance Strategy

- Define **Priorities disease/syndrome** (need rapid action and prevent potential negative impacts)
- Connect with **Emergency Operation Center**
- Able to **scale up for surge** capacities
- Multi-sectors collaboration – such as **One Health** Approach
- **Public-Private partnership**
- Promotion of transparency and Trust
- **Community participation**
- **Technology Innovations**
- **Exercise and Evaluation (include AAR)**

Q/A

Thank you very much