

*International Seminar on 10 Year of Tsunami Aceh*

---

# Disease Surveillance in Disaster

18 December 2014

*Dr Nirmal Kandel , MBBS, MA (Anthropology), MPH, EMBA*

*Preparedness, Surveillance and Response*

*Emergency and Humanitarian Action (EHA) &*

*Disease Surveillance and Epidemiology (DSE)*

*WHO Indonesia*



**World Health  
Organization**

# Outline of presentation

- Introduction
- What is needed in an emergency?
- Fundamental Principles of Control of Communicable diseases in emergency and each of the principles
- Outbreak Control
- Prevention and control of specific communicable diseases.



# Introduction

- Communicable Diseases are the major cause of morbidity and mortality in emergencies particularly so in complex emergencies.
- Main causes of morbidity and mortality in emergencies are diarrheal diseases, acute respiratory infections, measles and in areas where it is endemic malaria.
- Malnutrition and trauma are additional causes of illness and death amongst populations affected by emergencies.



# What is needed during an emergency?

- Provision of shelter, water, sanitation, food and basic health care are the most effective means of protecting health of those affected by emergencies.
- A systematic approach to control of communicable diseases is a key component of humanitarian response and crucial for the protection of the health of the population.

# Fundamental principles

## Control of Communicable Diseases

- Rapid Assessment
- Prevention
- Surveillance
- Outbreak Control
- Disease Management



# Rapid Health Assessment

The objectives should be :

1. To assess the extent of the emergency and the threat of communicable diseases in the population
2. To define the type and size of interventions and priority activities
3. To plan the implementation of these activities
4. To provide information to international community, donors and the media to mobilize resources both human and financial.



# Prevention

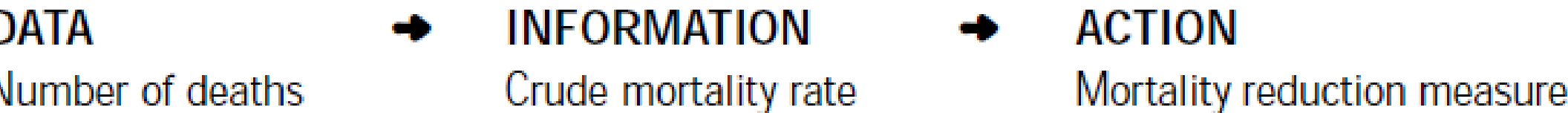
Communicable diseases can be prevented by appropriate preventive measures which include:

- Good site planning
- Provision of basic clinical services
- Provision of appropriate shelter
- Clean water supply
- Sanitation
- Mass vaccination against specific diseases
- Regular and sufficient food supply
- Control of vectors



# Surveillance

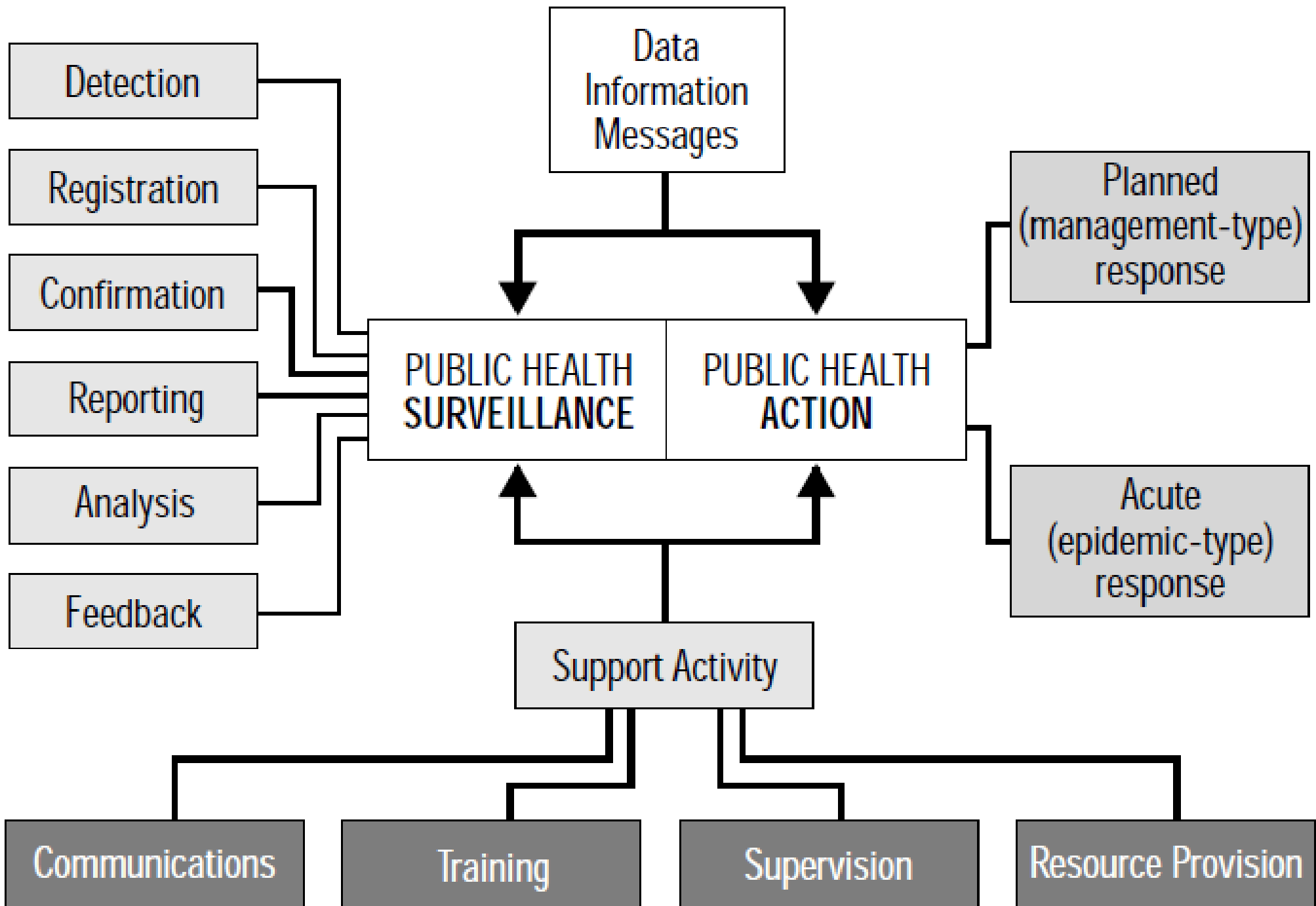
- Surveillance is the ongoing systematic collection, analysis and interpretation of data in order to plan, implement and evaluate public health intervention.
  - Surveillance system should be simple, flexible, acceptable and situation specific





# Objectives of a surveillance system in an emergency

1. Identify public health priorities
2. Monitor the severity of an emergency by collecting and analyzing mortality and morbidity data
3. Detect outbreaks and monitor response
4. Monitor trends in incidence and case fatality from major diseases
5. Provide information to ministry of health, donors to assist in health program planning, implementation and resource mobilization.



# Task of Health Workers at key steps of Surveillance

Health worker	Detection	Reporting	Investigation		Analysis	Response		
			Laboratory	Epidemiology		Control	Policy	Feedback
Technical worker	X	X	X			X		
Health coordinator		X	X	X	X	X	X	X
Ministry of health/agency coordinators				X	X	X	X	X

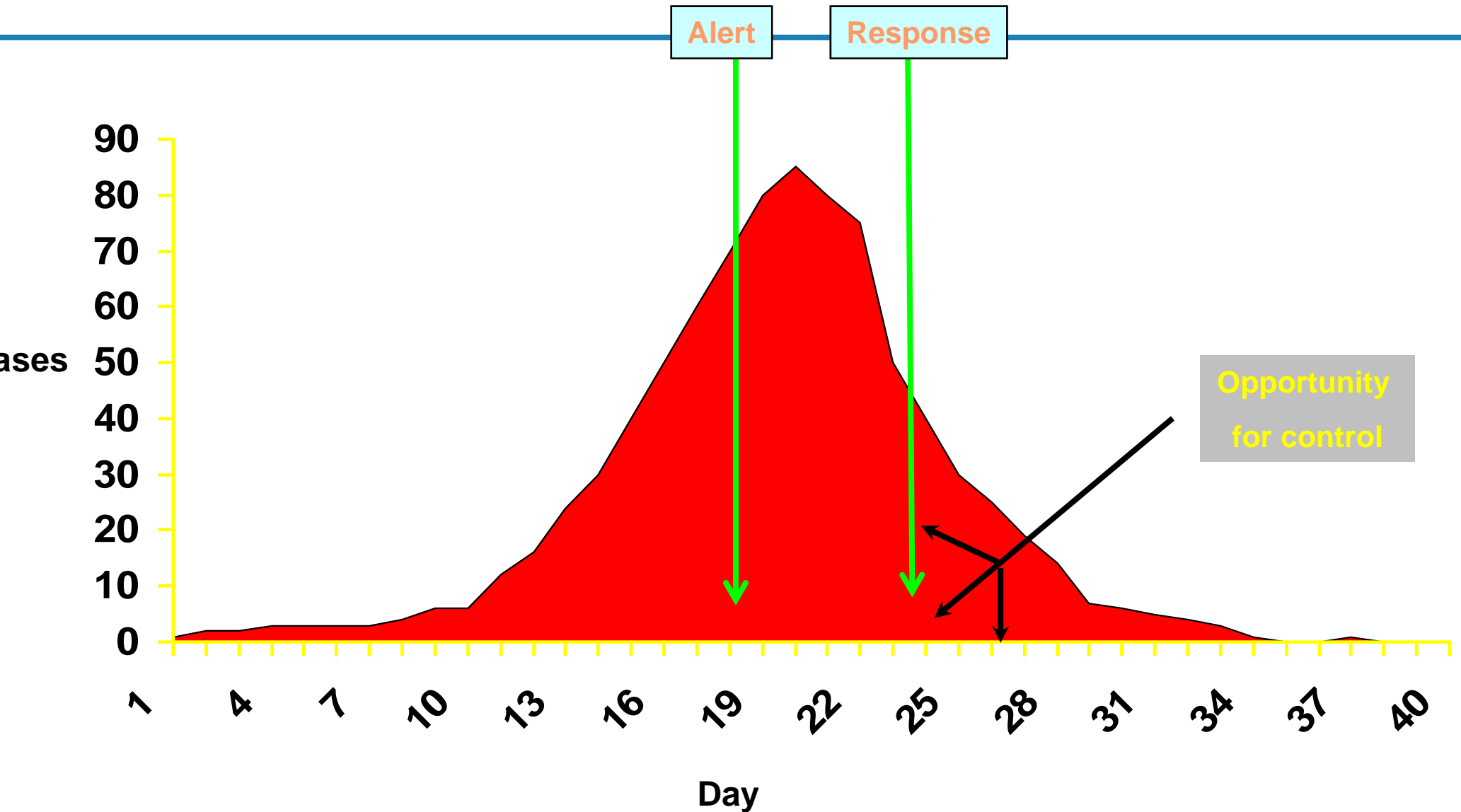


# Outbreak Control

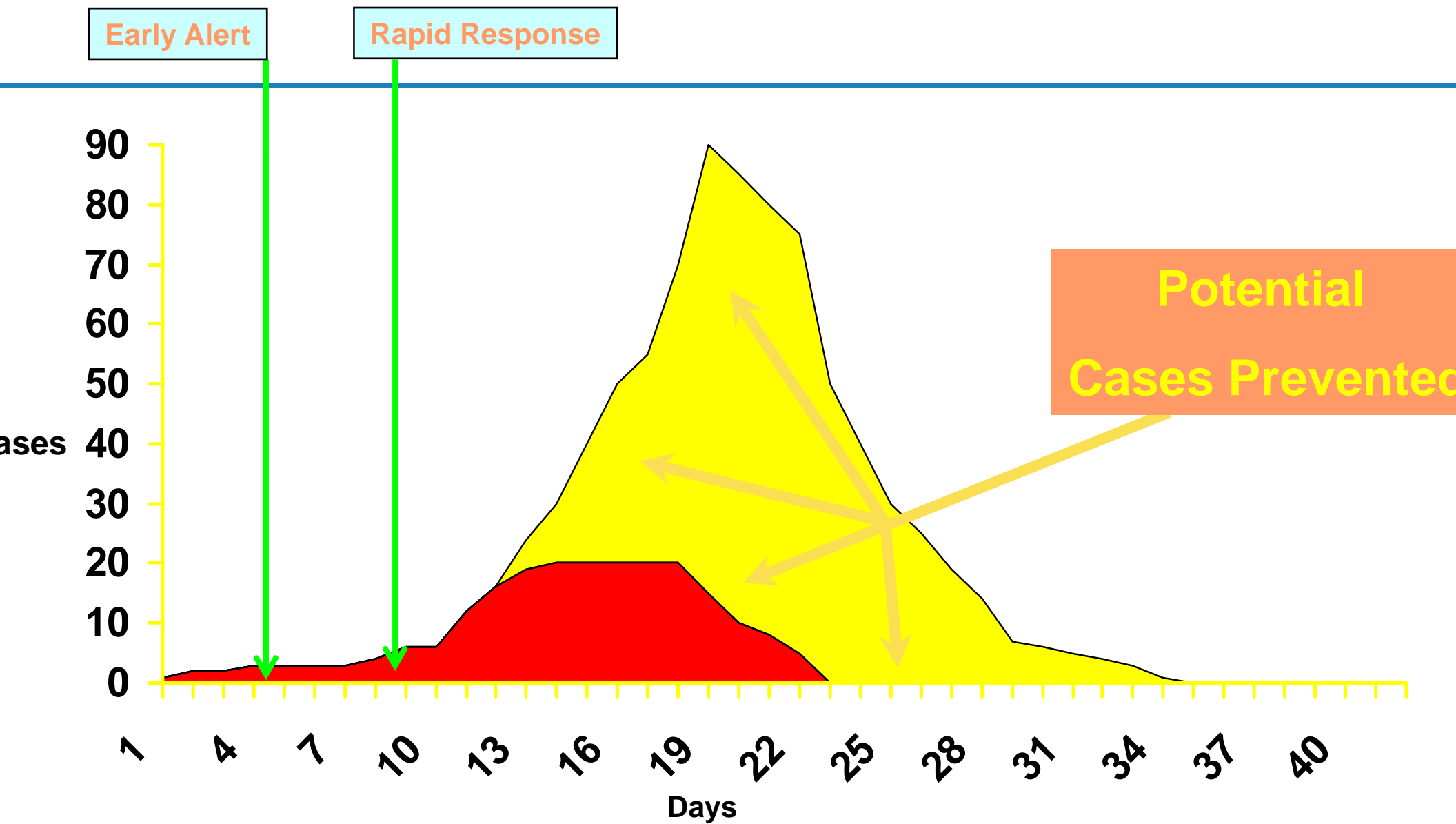
- An outbreak is occurrence of a number of cases of a disease that is unusually large or unexpected for a given place and time.
- Outbreaks and epidemics refer to the one and same thing.
- Outbreaks in emergency situations can spread rapidly giving rise to high morbidity and mortality rates.
- Aim should be to detect and control the outbreak as early as possible.



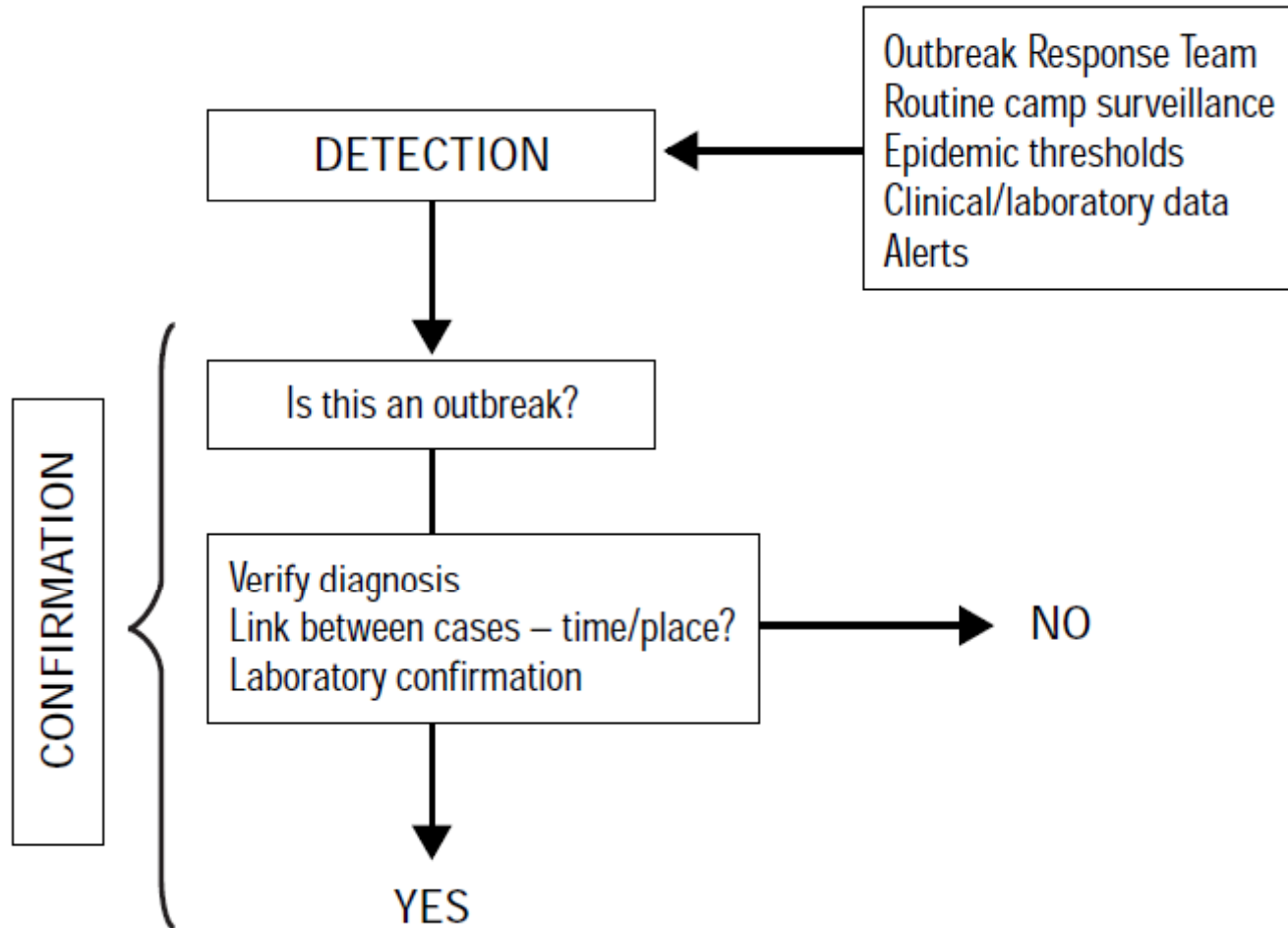
# Sequence of Events in Outbreak Detection and Confirmation



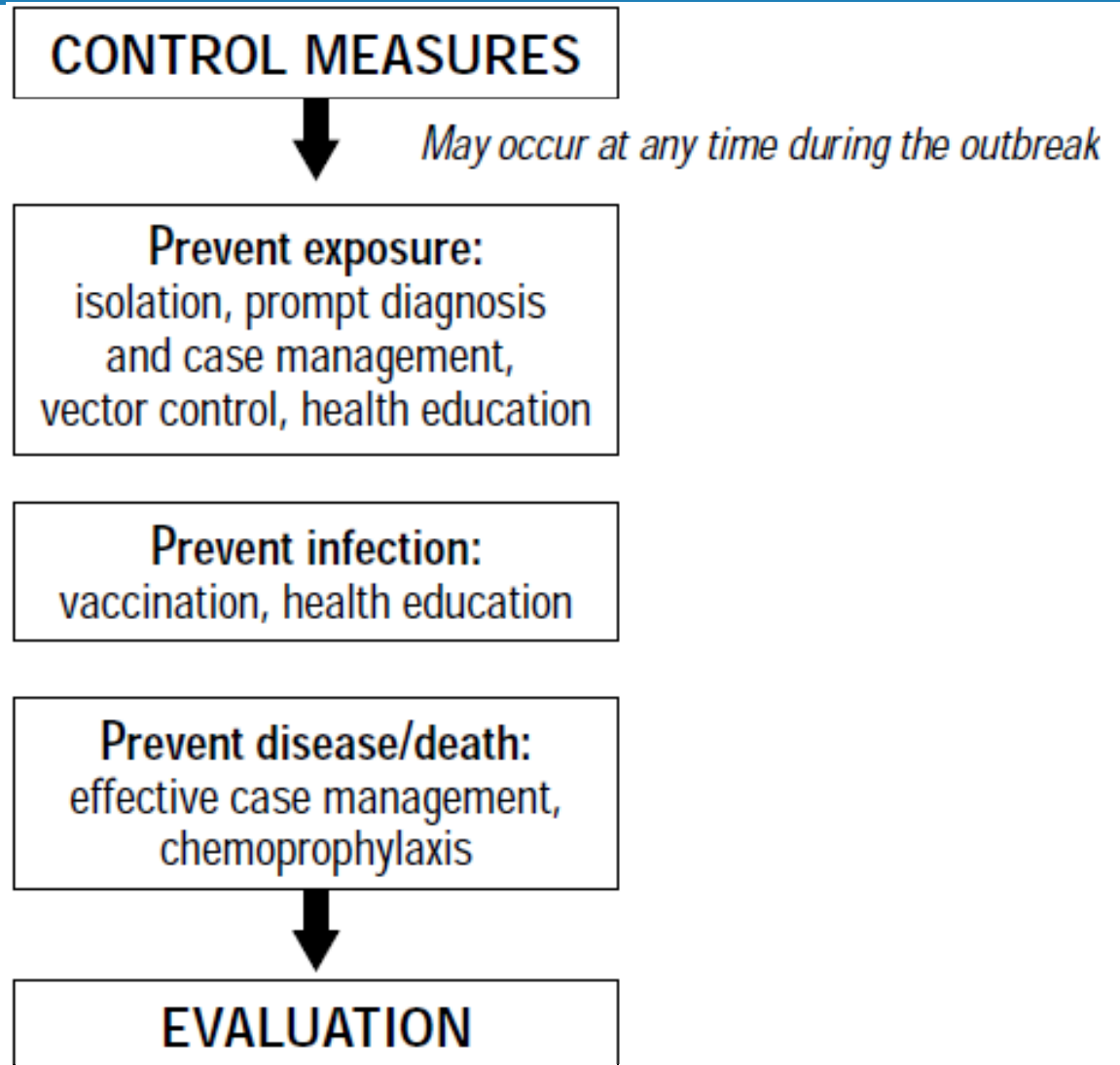
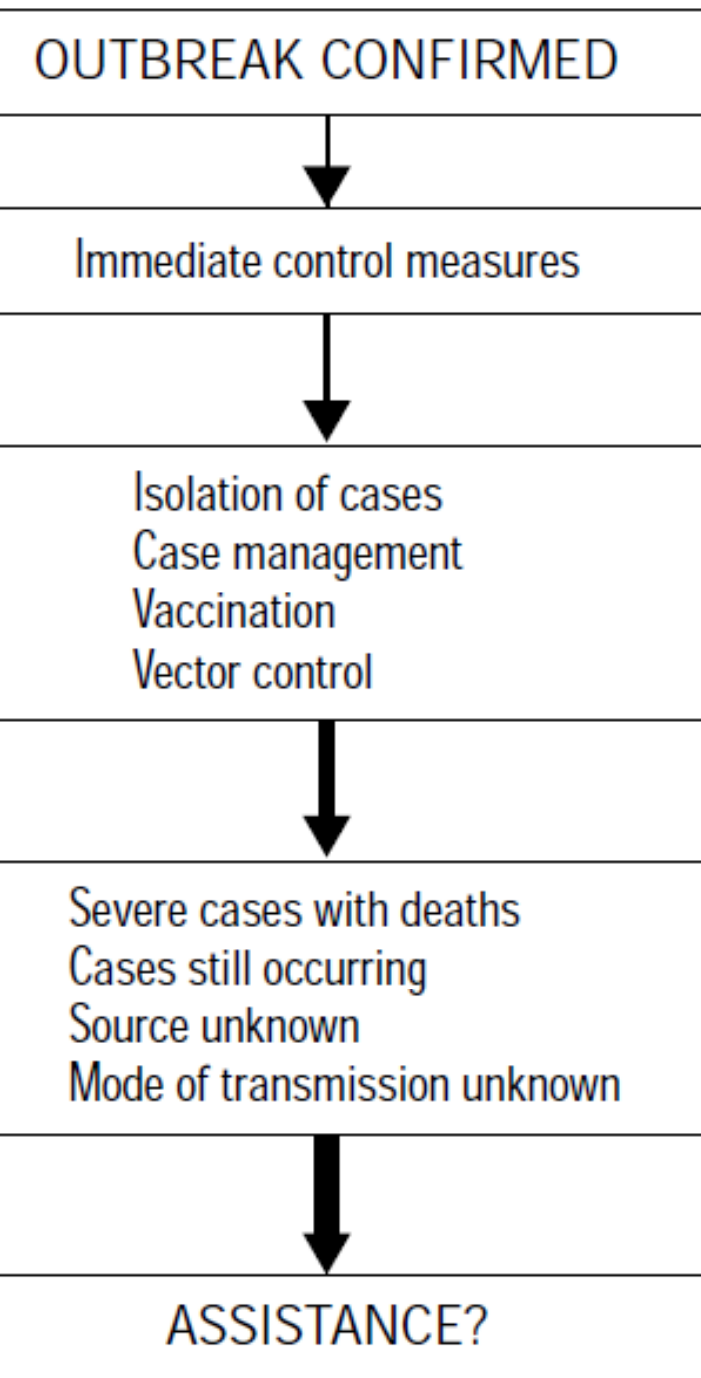
# Sequence of Events in Outbreak Detection and Confirmation



# Detection of Outbreak



# Confirmation & Evaluation of Outbreak





# Major diseases with epidemic potential in emergency situations

- Cholera
- Measles
- Shigellosis
- Acute Respiratory Infection
- Meningococcal disease
- In certain areas the following diseases have to be included: malaria, leishmaniasis, viral hemorrhagic fever, typhoid and hepatitis A and E.



# Steps in the management of a communicable disease outbreak

1. Preparation
2. Detection
3. Response
4. Evaluation



# Preparation for the outbreak

- Health coordination meetings
- Strong surveillance system
- Outbreak response plan for each disease
- Stocks of iv fluids, antibiotics and vaccines
- Plans for isolation wards
- Laboratory support



# Detection of outbreak

- Surveillance system with early warning system for epidemic prone diseases.
- Inform ministry of health and WHO in case of outbreaks of specific diseases.
- Take appropriate specimens (stool, CSF or serum) for laboratory confirmation.
- Include case in the weekly report.



# Response to the outbreak

- Confirm the outbreak
- Activate the outbreak control team
- Investigate the outbreak
- Control the outbreak



# Evaluation

- Assess appropriateness and effectiveness of containment measures.
- Assess timeliness of outbreak detection and response.
- Change public health policy if indicated.
- Write and disseminate outbreak report.



# Prevention and Control of specific communicable diseases

- Acute Respiratory Infections
- Cholera
- Other diarrheal diseases
- Conjunctivitis
- Dengue
- Diphtheria
- Hepatitis
- HIV/AIDS
- Japanese Encephalitis
- Leishmaniasis
- Malaria
- Measles
- Meningococcal Meningitis
- Relapsing Fever(louse borne)
- Scabies
- Sexually Transmitted Infections
- Trypanosomiasis
- Tuberculosis
- Typhoid
- Typhus (Epidemic louse borne)
- Viral Hemorrhagic fever



# References used for this presentation and recommended further reading

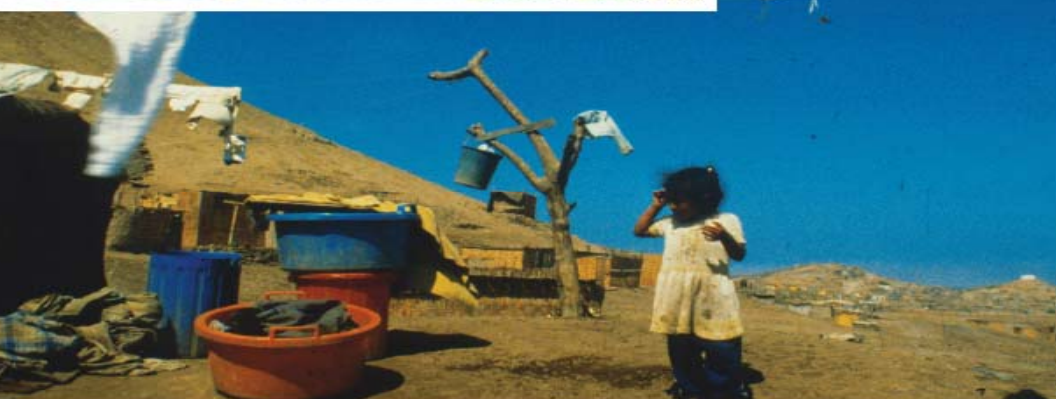
- Communicable disease control in emergencies (Field manual)- WHO
- Control of Communicable Diseases Manual APHA Editor James Chin
- Reingold AL Outbreak Investigations- a perspective Emerging Infectious Diseases, 1998, 4(1):21-27





# Communicable disease control in emergencies

## A field manual



## Communicable diseases following natural disasters

Risk assessment and priority interventions

Programme on Disease Control in Humanitarian Emergencies  
Communicable Diseases Cluster



# Thank You

