Introduction to PHEM

For District RRT

October 17, 2022

Adama, Ethiopia

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Learning Objectives

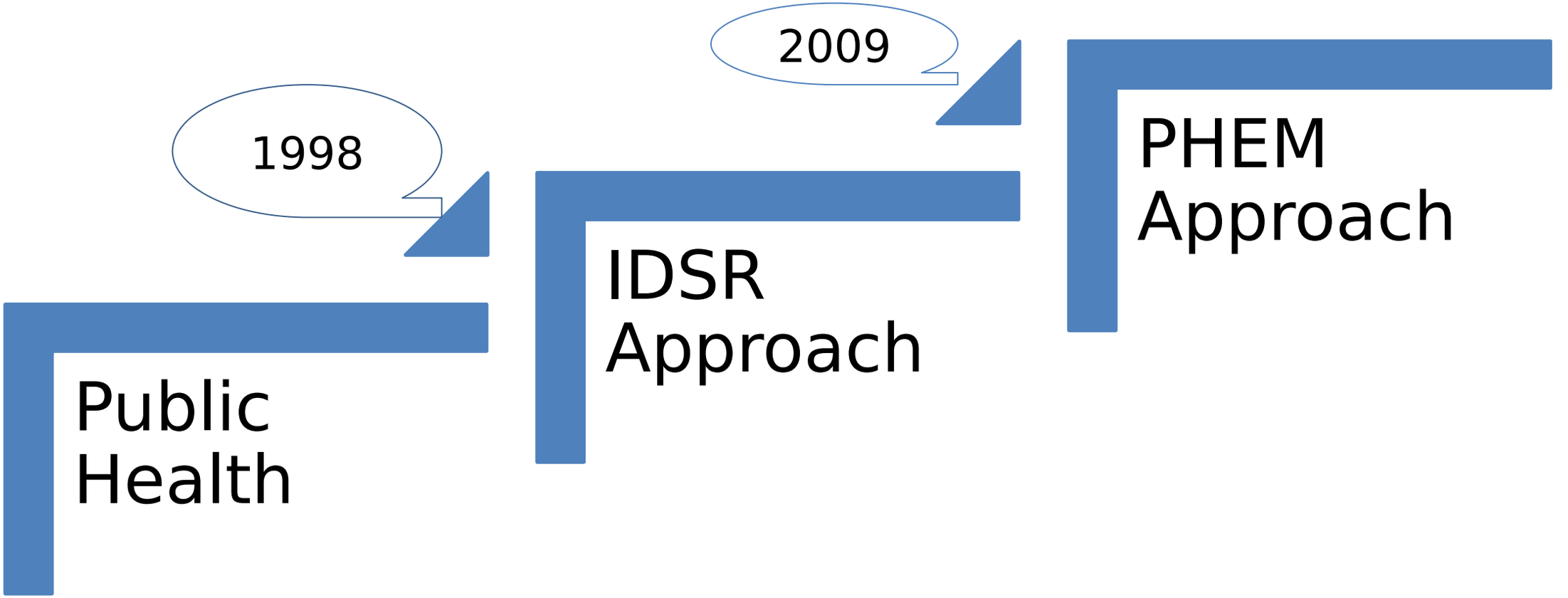
By the end of the training, participants will be able to:

- ☺Define Public Health Emergency Management
- ☺Identify major PHEs in the country
- ☺Identify the principles of PHEM
- ☺Discuss the four core processes of PHEM
- ☺Identify priority diseases and selection criteria
- ☺Describe PHEM reporting time, format & structure

Introduction

- IDSR approach is adopted by FMoH in 1998
  - Mainly focus on epidemic disease
  - No nutritional and weak laboratory surveillance
  - Lack of appropriate preparedness and recovery
  - Surveillance data comes monthly
  - Lack of representativeness
  - Weak early warning system
  - No event based surveillance/only indicator based surveillance

Introduction



Think-Pair-Share



- What do you perceive about PHEM?
- What are the major public health emergencies in Ethiopia?
- What factors do you think are challenging the PHEM system?

Introduction

- PHEM: started in 2009
  - is the process of anticipating, preventing, preparing, detecting, responding and recovering from consequences of Public Health threats in order that health and economic impacts are minimised
  - multi hazard PHEM system
  - helps to detect unusual health events timely
  - strong early warning system
  - laboratory play active role in surveillance
  - event based +indicator based surveillance

IDSR vs PHEM

IDSR

- Focus on Epidemic disease
- Surveillance data comes monthly
- Smallest reporting unit is HC
- Week early warning system
- Delayed response
- No recovery
- No event based surveillance
- Include only some Disaster Risk Management (DRM) Component

PHEM

- Multi hazard approach
- Surveillance data comes weekly
- Smallest reporting unit is HP
- Robust early warning system
- Prompt response
- Recovery activities included
- Event based surveillance
- Includes all DRM components

Goal of PHEM

- To markedly reduce mortality and morbidity due to epidemics and other Public Health Emergencies and minimize associated health , social economic and environmental crisis

Public Health Risks Identified in Ethiopia

- Based on order of **priority**
  - Epidemics of communicable disease
  - Drought with malnutrition
  - Food contamination
  - Flood
  - Pandemic Influenza
  - Conflict and displaced populations
  - Accidents including chemical spills
  - Earthquake, volcano
  - Bioterrorism

Factors challenging PHEM system

- The rapidly expanding global economy
- The convergence of people in large urban areas
- The ease of people and goods travel around the world
- Emergence of new infectious agents
- The wide distribution of manufactured foods
- The changing nature of our environment etc.,

Principles of PHEM

- **Basic principles**
- **Guiding principles**

Think-Pair-Share



- List basic principles of PHEM
- What does it mean by guiding principles of PHEM?
- Discuss the 4 guiding principles of PHEM?

Basic Principles of PHEM

1. **Comprehensive** – take into account all hazards, all phases, all stakeholders and all impacts relevant to public health problems
2. **Progressive** – anticipate future public health problem and take preventive and preparatory measures to reduce risk
3. **Risk-driven** – use sound risk management principles (hazard identification, risk analysis, and impact analysis) in assigning priorities and resources
4. **Integrated** – emergency managers ensure unity of effort among all levels of government and all elements of a community

…Basic Principles of PHEM

5. **Collaborative** – create good relationships among individuals and organizations to encourage trust, advocate a team atmosphere, build consensus, and facilitate communication
6. **Coordinated** – all relevant stakeholders should be involved to achieve a common purpose
7. **Flexible** – emergency managers use creative and innovative approaches in solving disaster challenge
8. **Professional** – PHEM activities should be knowledge-based approach

Definition of guiding principle

- Any principles that guide a PHEM system throughout it’s life in all circumstances, irrespective of changes in its goals, strategies, type of work or the top management

Guiding principles of PHEM

1. **Multi-hazard approach**
   - Evolved from communicable diseases to modern multi-hazard approach
2. **From risk assessment to recovery**
   - Cover entire cycle of emergency/disaster; from prevention to recovery
3. **Risk assessment and mitigation**
   - change from old concept of disease management to a new approach of risk management
   - analysis of vulnerability to health hazards and assessment of the risk
4. **International Health Regulations (IHR2005)**
   - PHEM considered and encompassed international obligations that Ethiopia ratified

…Guiding principles of PHEM

- IHR 2005 is a legally binding document that entered into force on 15 June 2007.
- The purpose of the IHR 2005 is to prevent, protect against, control and provide public health response to the international spread of disease
- Scope of regulation embraces all concern of PHEIC

Events to be notified under the IHR 2005

1. Four conditions that must be notified to WHO:
   - smallpox, poliomyelitis due to wild type poliovirus, human influenza caused by a new subtype, and severe acute respiratory syndrome
2. Other diseases and events may require notification if they are considered to be events of potential PHIC
   - cholera, plague, yellow fever, VHF, other diseases that are of special national concern
3. Any event of potential PHIC such as
   - unknown cause or source

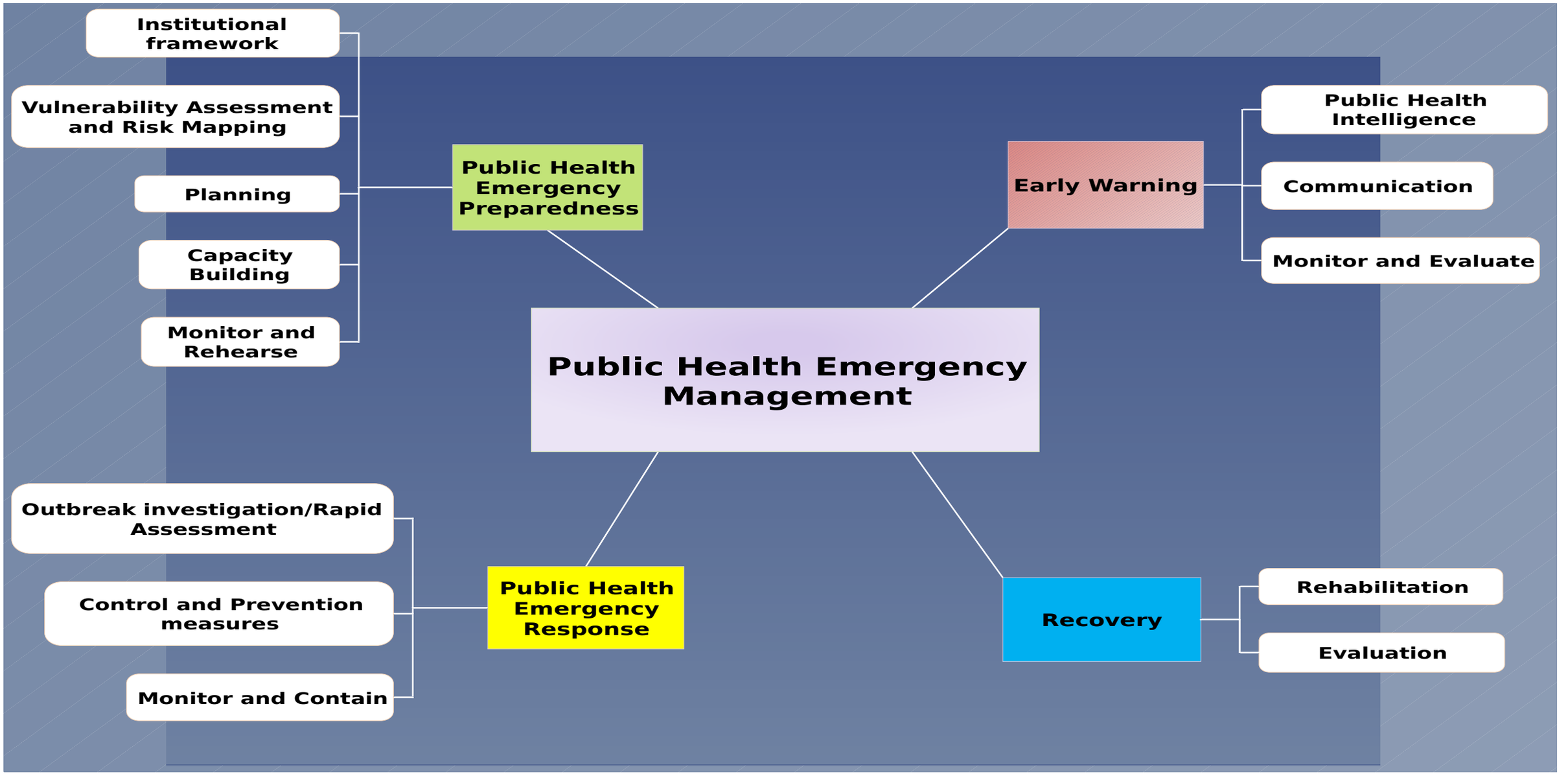
PHEM Core Process

Think-Pair-Share



- What are the four core processes of PHEM?
- What focused activities are performed at each core processes?

PHEM Core Process



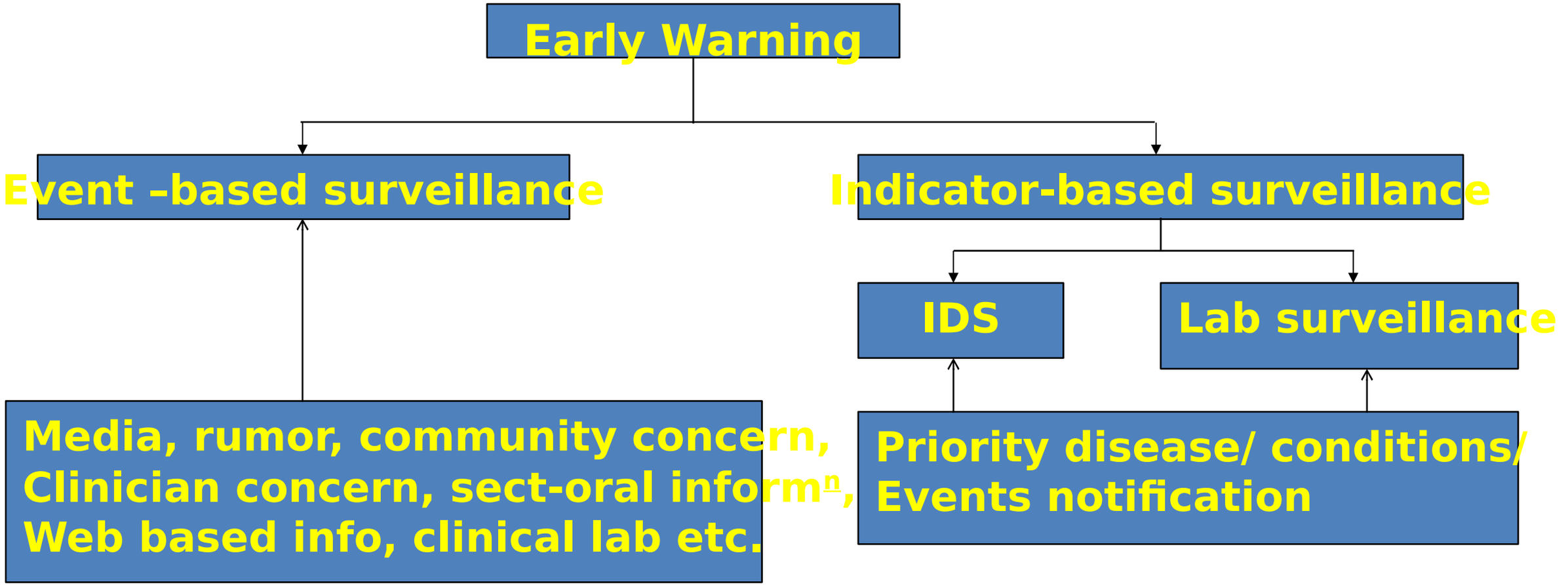
Early Warning

- Identification of public health treat by closely and frequently monitoring and predicting the risk it poses
- Enable the provision of timely and effective information to the public and to responders
  - To avoid or reduce risk

Major Indicator of Early Warning System

- Increased in number of cases beyond expected /outbreaks
- Unexplained morbidity and mortality
- Evidence of increased zoonotic disease &/or related vectors
- Environmental changes such as air pollution
- Water quality changes contamination
- Drought, flood, severe weather (metrological information)
- Agricultural events: reduced harvest, occurrence of

Components of Early Warning



Public Health Emergency Preparedness

- Coordination and collaboration
- Vulnerability assessment and risk analysis
- Planning & resource mobilization
- Exercise/drill – test the plan regularly
- Capacity building - System and Human
- Stockpile system –Drugs, Vaccines, PPE…

… Prepardness

- The main objectives of health emergency preparedness include:
  - Preventing avoidable crisis and catastrophes;
  - Reducing morbidity and mortality effects;
  - Availing resources;
  - Minimizing disruption to health services;
  - Maintaining business continuity as far as possible;
  - Reducing disruption to society as much as possible.

Public Health Emergency Response

- **Rapid assessment/outbreak investigation**
  - Epidemiological link
  - Laboratory
  - Environmental
- **Control, preventive and supportive measures**
  - Isolation and quarantine
  - Case management
  - Mass vaccination
  - Monitoring of drug sensitivity
  - Environmental management

…Response

- **Emergency operation Center(EOC):**
  - Equipped with trained staff and state of the art communication and IT at the central level
  - Horizon scanning – e-mail, web based, News
  - Hotline – health personnel and to the public
  - Activation and deactivation process

Public Health Emergency Recovery

- Impact assessment
- Monitoring and evaluation
- Rehabilitation
- Restoration of the health system
  - Infrastructure
  - Supplies
  - Health Personnel
- Liaison with multi sectorial committee

Monitoring and Evaluation of PHEM

- Monitoring and Evaluation is the important component of PHEM
- It is carried out at each level starting from preparedness to recovery from incidents.

Priority Events and Prioritization Criteria

Think-Pair-Share



- List diseases/events under surveillance in Ethiopia
- What are the main criteria for prioritization of events?
- What is case definition?

Events under Surveillance in Ethiopia

Immediately notifiable

1. Acute Flaccid Paralysis
2. Anthrax
3. Avian Human Influenza
4. Cholera
5. Dracunculiasis/ Guinea warm
6. Measles
7. Neonatal tetanus
8. Pandemic Influenza A(H1N1)
9. Rabies
10. Small pox
11. SARS
12. Viral Hemorrhagic Fever(VHF)
13. Yellow Fever
14. Maternal death
15. Perinatal Death

Weekly reportable

1. Dysentery
2. Malaria
3. Meningitis
4. Relapsing
5. Typhoid Fever
6. Typhus
7. SAM
8. Scabies

Prioritization Criteria

- High epidemic potential (anthrax, avian human influenza, cholera, measles, meningococcal meningitis, pandemic influenza, smallpox, severe acute respiratory syndrome (SARS), viral hemorrhagic fever (VHF), and yellow fever)
- Required internationally under IHR2005 (smallpox, poliomyelitis due to wild-type poliovirus, human influenza caused by a new subtype, SARS)

…Criteria

- Targeted for eradication or elimination (poliomyelitis , Dracunculiasis, NNT
- Have a significant public health importance (rabies, dysentery, malaria, RF, typhoid fever, typhus and SAM
- Diseases that have available effective control and prevention measures for addressing the public health problem they pose

Thresholds for outbreak

- Single case as epidemic (14 diseases/events):
  - NNT, Cholera , Anthrax, Avian Human influenza, Pandemic influenza (H1N1), Guinea worm, Maternal death, Prenatal death, Rabies, SARIS, Small pox, Viral Hemorrhagic fever and Yellow fever

Thresholds…

- **Measles:** 5 Suspected cases or 3 Confirmed cases
- **Malaria:** Crossing the norm line OR Doubling of cases compared to the same week of the previous year
- **Meningitis:** 5/<30,000 population or 10/100,000 population
- **Dysentery:** Unusual increase of the cases OR Doubling of cases on subsequent weeks
- **Typhoid fever:** Unusual increase of the cases OR Doubling of cases on subsequent weeks
- **Typhus:** Unusual increase of the cases OR Doubling of cases on subsequent weeks
- **Relapsing fever:** Unusual increase of the cases OR Doubling of cases on subsequent weeks
- **Scabies:** unspecified
- **SAM:** unspecified

Case definition

- A case definition: is a set of criteria used to decide if a person has a particular disease, or if the case can be considered for reporting and investigation
- Standard case definition: is a case definition that is agreed upon to be used by everyone within the country. Can be classified as:
  - Confirmed,
  - Probable, and
  - Possible/suspected
- Community case definition: used at health post level

Think-Pair-Share

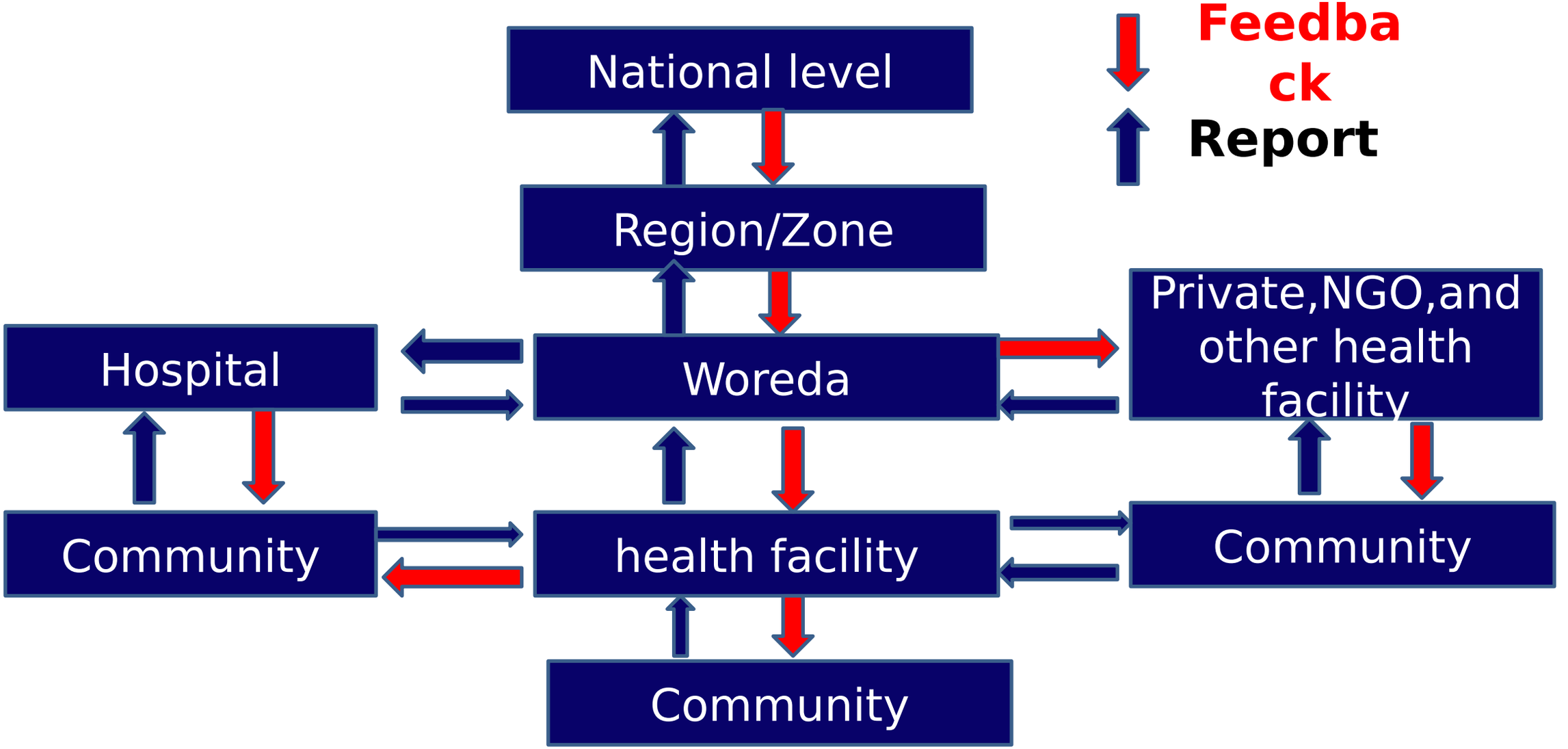


- List reporting tools for PHEM
- Discus time period and hierarchy of reporting system

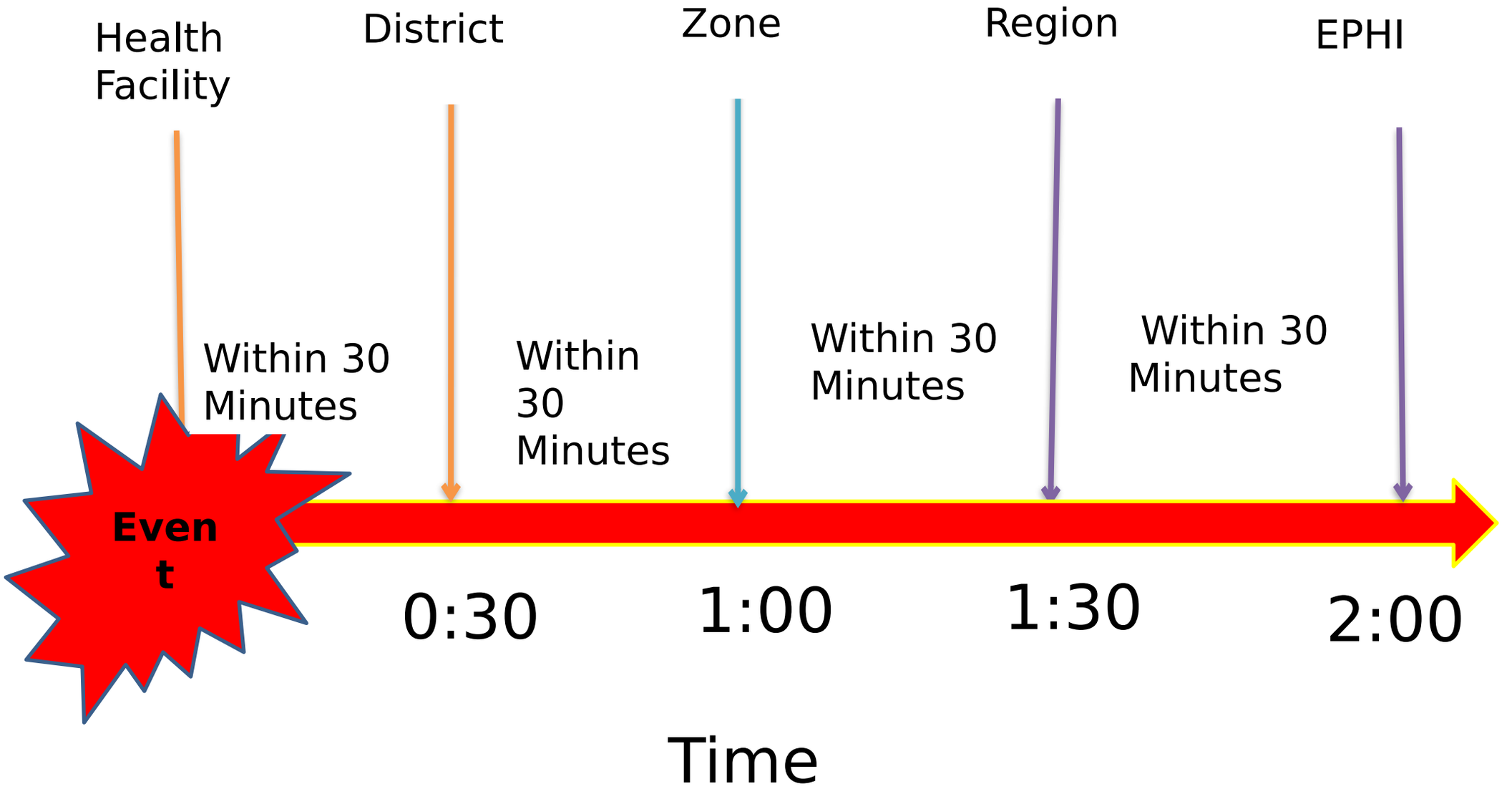
Reporting tools

- Weekly reporting form for health post / HEW
- Weekly reporting format for other levels
- Daily epidemic reporting format for Woreda (DERF-W)
- Daily epidemic reporting format for Region (DERF-R)
- Integrated case based reporting format
- Case based reporting format (CRF) for many diseases
- Line list – for outbreak
- Rumor log book
- Case based laboratory reporting form (CLRF)
- Maternal death identification and notification
- Verbal autopsy
- Maternal death reporting format (MDRF)

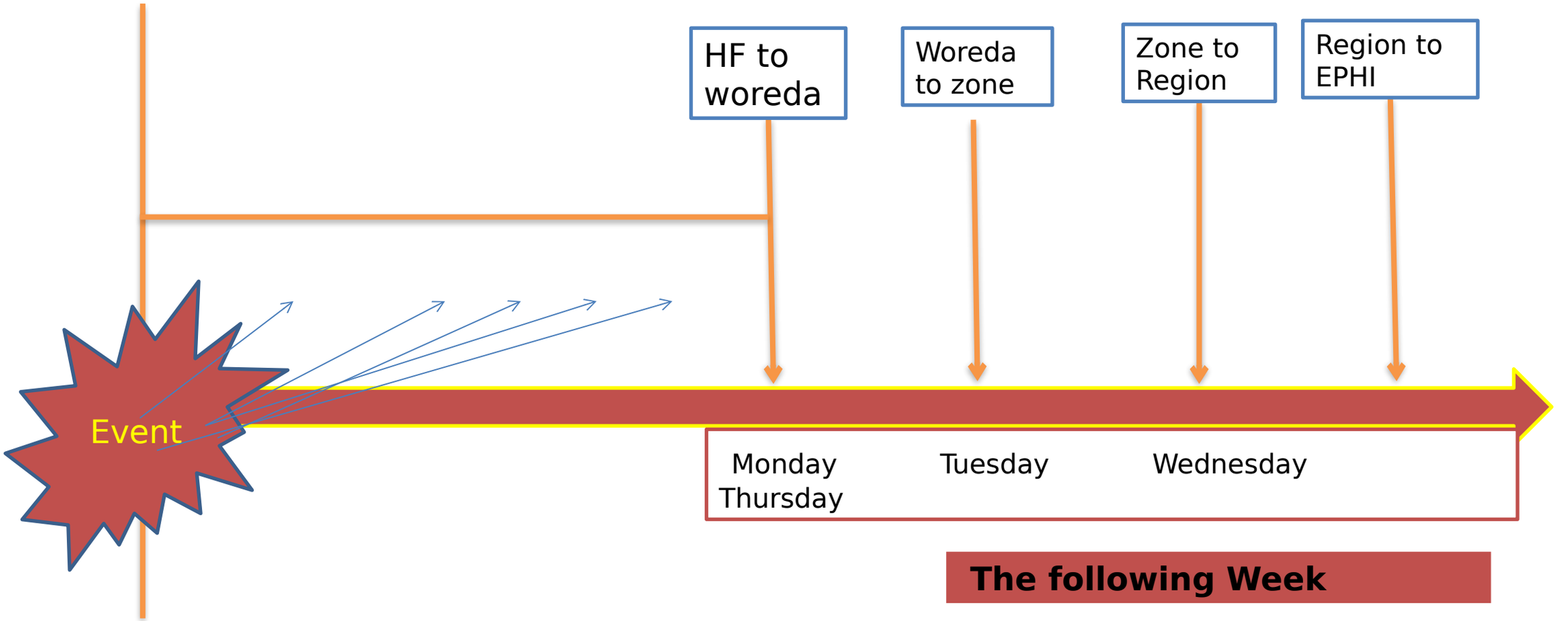
PHEM Information Flow Chart



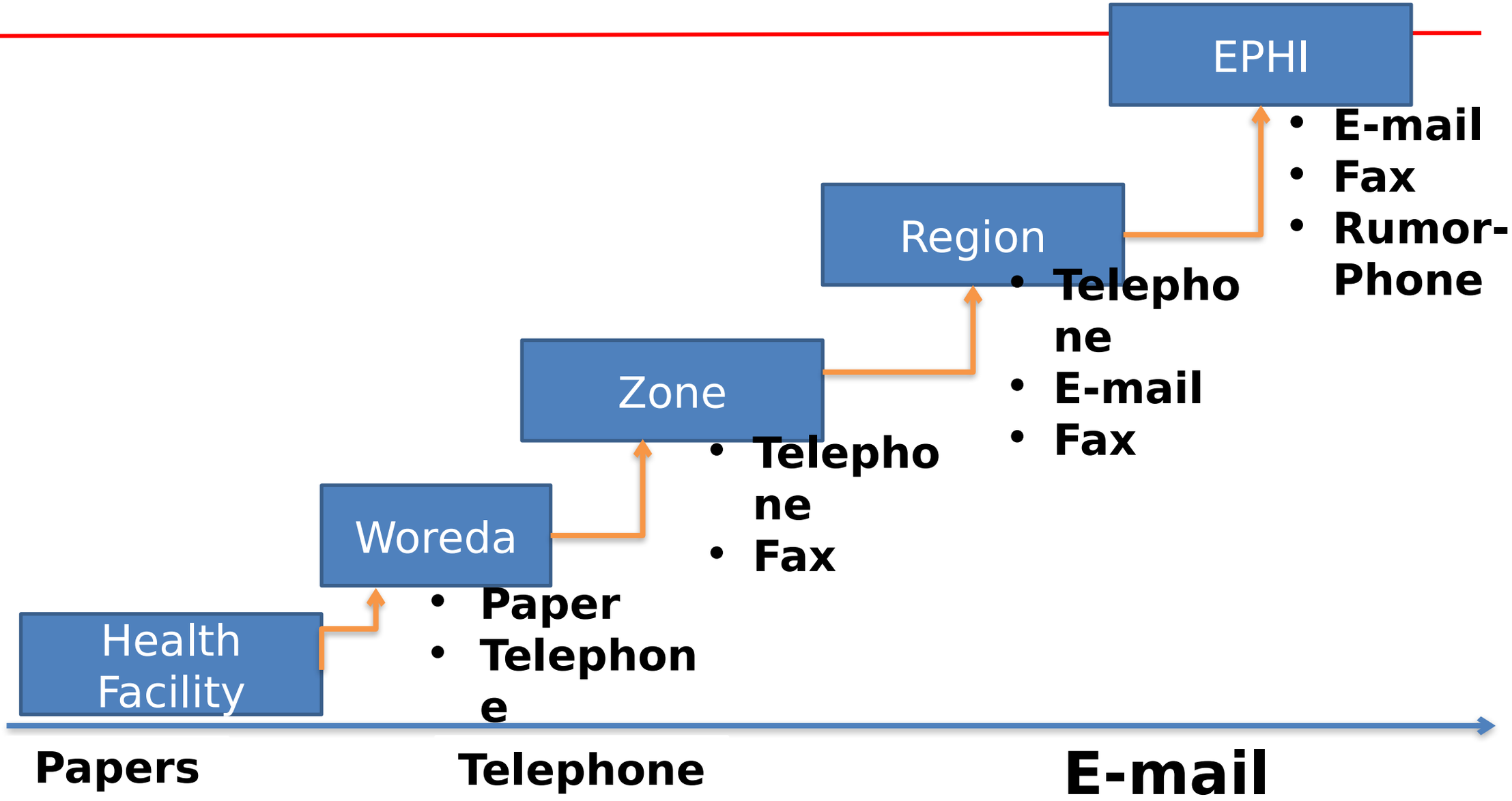
Timeline for immediately notifiable events



Timeline for weekly reportable diseases/conditions



Surveillance data reporting methods



Stay Safe!

Thank you,