Module 3: Information Management System in Emergency

Module Description

- This module elaborates the information management system and its significance in emergency management

- It covers the areas of information gathering, collation and analysis, storage and dissemination

- It describes the processes and required tools in data gathering

Module Objectives:

At the end of this module the participants will be able to:

1. Discuss the Importance/relevance of information management system

2. Identify Information needs in emergency management

3. Describe the components, resources required, processes, and sources of information

4. Decide on information tools based on information needs and capacities

Module Content

	Session Title	**T – L Activities**
Session 1	IMS Concepts	Lecture
		Group Exercise
Session 2	The Information Management Process	Lecture
		Group Exercise
Session 3	Tools of HIMS	Lecture
		Group Exercise

Session 1: Concepts of IMS

Session Objectives:

At the end of the session, participants will be able to:
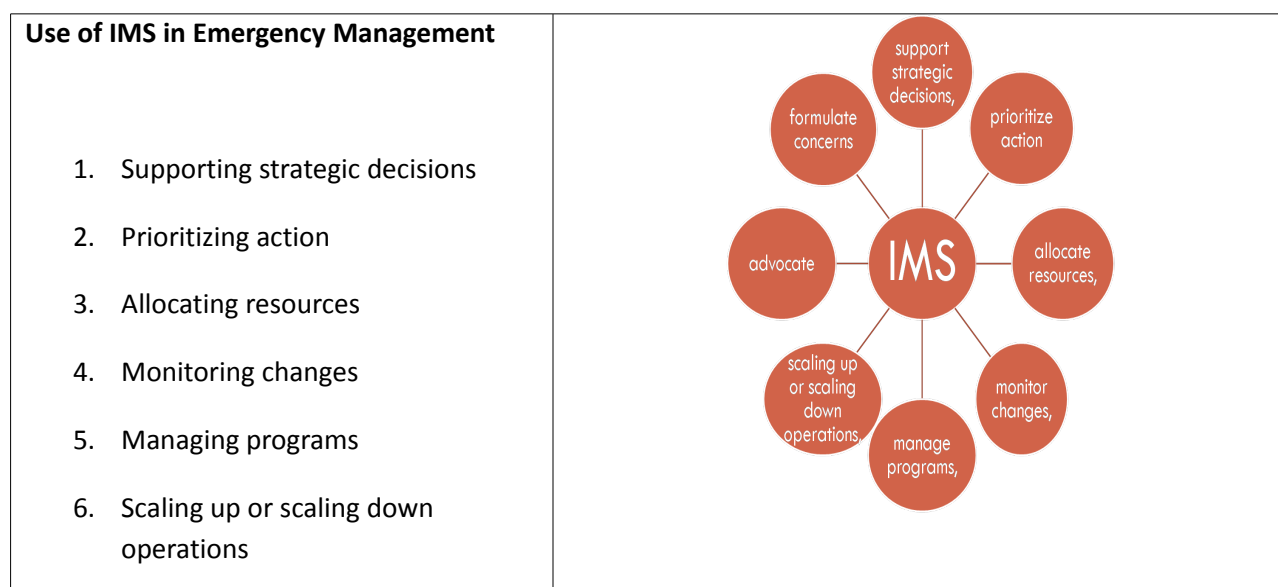
1. Explain the concept of IMS

2. Discuss the relevance of IMS in emergency management

3. Explain the elements of IMS

4. Discuss the sources of information

Inputs:

Information Management System

"is a set of data collection platforms implemented by a coordinated group of humanitarian actors generating information to support strategic decisions, monitor changes, prioritize action and allocate resources, manage programmes, scaling up or scaling down operations, advocate and formulate concerns in relation to an emergency context"

Thieren, M. Health Information System in Humanitarian Emergencies , Bulletin of the World Health Organization, August 2005

Use of IMS in Emergency Management	
1. Supporting strategic decisions 2. Prioritizing action 3. Allocating resources 4. Monitoring changes 5. Managing programs 6. Scaling up or scaling down operations	

7. Advocacy 8. Formulating concerns	

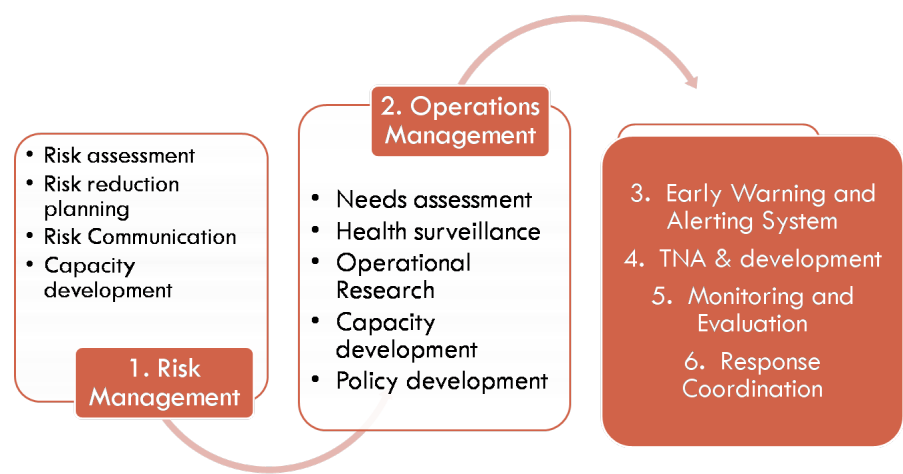**Relevance of IMS in emergency management**

Figure . Relevance of IMS in Emergency Management

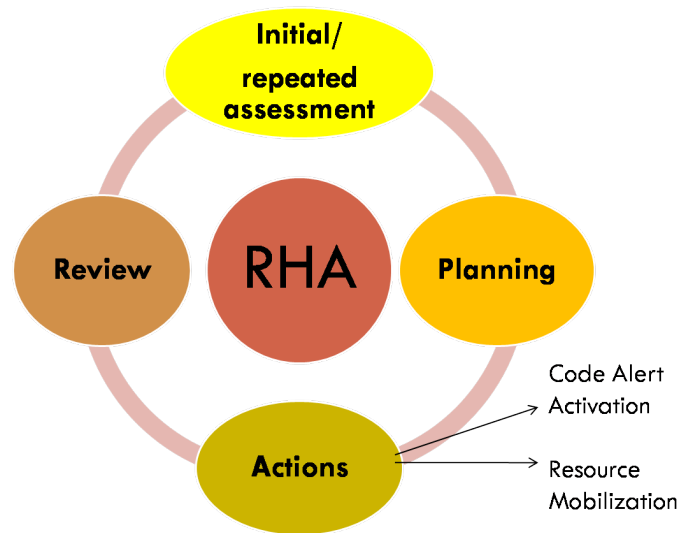**Relevance of Rapid Health Assessment in Emergency Management**

Figure . Relevance of RHA in Emergency Management

**What makes up the Information Management System?**

- Set of data collection platforms
  - ☑ Initial and in-depth needs assessment (hazard/risk/vulnerability assessments)
  - ☑ Baseline information (health status; health systems; censuses)
  - ☑ Epidemiologic surveillance
  - ☑ Death count and mortality estimation
  - ☑ Human and material response resources; service statistics
  - ☑ Facilities; logistics; infrastructure; transportation; communication
  - ☑ Demographic distribution; household surveys
  - ☑ Modeling, estimates and projections

Challenges to IMS

- Changing information needs

  - ☑ Information needs are different throughout the risk management process

  - ☑ Information needs are different throughout the different phases of disaster

The Core Elements of Health Information Management System

1. **Data Elements and Indicators**

2. **Data Sources**

3. **Data Quality**

4. **Data Flow**

5. **Data Processing and Management**

6. **Data Analysis**

7. **Data Utilization**

8. **Data Dissemination**
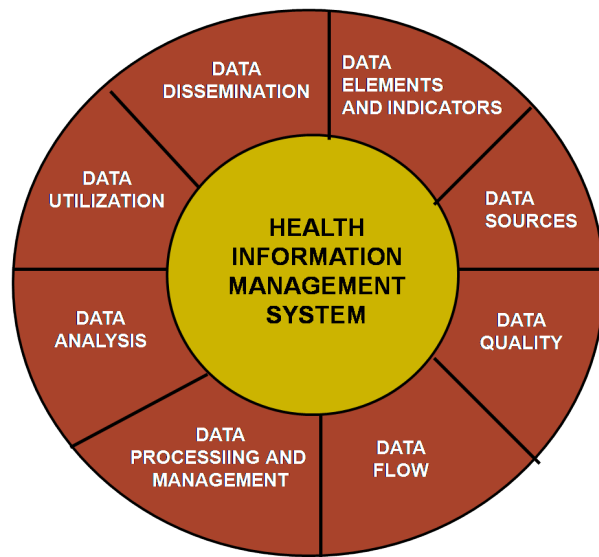
1. **Data Elements and Indicators**

   Reminder: Collect only MINIMUM BASIC DATA SETS AND INDICATORS in order not to overload the system like:
   - health status (morbidity; mortality)
   - health service coverage
   - human resources
   - service availability
   - stock inventory
   - denominator data (number of population affected; at risk; displaced)

- Need to distinguish between those which will be routinely collected during an emergency, and those which will be collected through the conduct of special studies and sample surveys

- Needs to consider the use of qualitative measures and methods

- Common problems:

  o in most cases, absence of standard form for data collection and reporting; in other cases, too many forms used

  o duplication of data elements collected

  o lack of uniform standard definitions

- Counting the dead during emergencies pose special problems

  o overlaps with counting the missing

  o bodies are often buried and cremated without being identified

  o service-based mortality data are incomplete and includes only those attended by facilities

  o converting body parts into number of bodies

2. **Sources of Data:**

   - Multiple data sources
     - ☑ Media
     - ☑ Health – Health assessment; Surveillance; Early Warning
   - and Alert System
     - ☑ Social welfare
     - ☑ Military
     - ☑ Humanitarian organizations
     - ☑ Other related government agencies - (agriculture;
   - education; transportation; communication, etc.)
   - Biggest challenge: harmonizing inputs of multiple data sources

Exercise 1: Identifying information need and source

Group Exercise:

You are a Health Emergency Manager and you intend to conduct the following risk Management activities:

- Risk assessment

- Risk reduction planning

- Risk Communication

- Capacity development

Your Tasks:

1. List the information you need to collect to facilitate the conduct of above risk. management activities

2. List the possible sources of information.

Session 2: The Information Management Process

Session Objectives:

At the end of the session, participants will be able to:

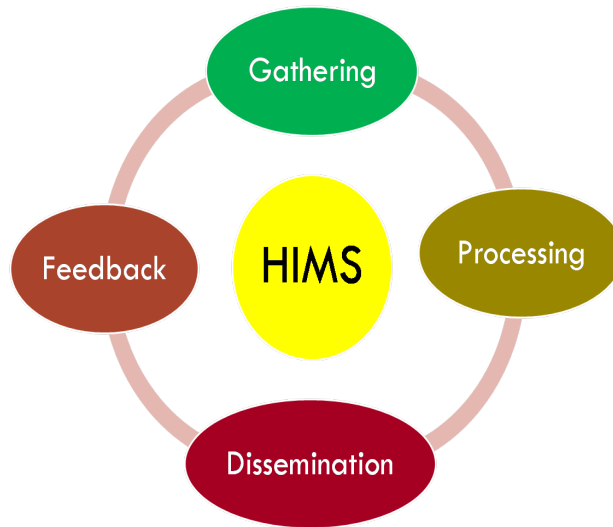1. Explain the Information Management Process
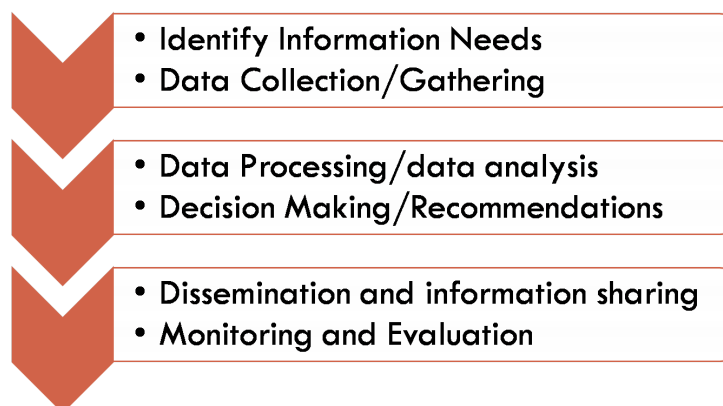
Inputs:

Figure . The HIMS Process

In session 1, we discussed the first two elements of HIMS. We will now continue with the remaining elements in the context of the IMS process.

Core Elements of IMS

1. Data elements and indicators (see discussion in session 1)

2. Sources of data (see discussion in session 1)

3. **Quality of** Data

    *   Timeliness is of utmost importance

    *   Real-time data needed for immediate action

- Reliability/consistency and accuracy of data coming from various sources is the greatest challenge

- Needs system for constant updating of figures

The Information Management Process

- Identify Information Needs
- Data Collection/Gathering

- Data Processing/data analysis
- Decision Making/Recommendations

- Dissemination and information sharing
- Monitoring and Evaluation

4. **Data gathering:**
    - Who submits data to whom?
    - Which data:
        - will remain at each level?
        - will be submitted to higher levels?
    - How frequently should data be submitted?
    - When should data be submitted?

5. **Data Processing and Management:**
    - Manual vs computerized system
    - Software
    - Facilities/system for data storage and retrieval
    - Modern ICT applications
        - GIS; global positioning and remote sensing systems can be used for mapping health facilities and services; estimating population sizes, especially in inaccessible areas
        - Personal Digital Assistant (PDA) – facilitates data collection during survey interviews through electronic recording of respondent's answers

6. **Data Analysis**
    - Which statistical outputs should be routinely generated from the data at each level, to facilitate the interpretation and utilization of results?

    - What are the implications of the results for programme planning, management, monitoring and evaluation?

    - Data presentation according to smaller levels of aggregation frequently a problem

7. **Data Utilization**
    - Development and application of appropriate data analysis techniques
    - At present, emergency-related data are used more for administrative functions or for crisis management; very little use for programme planning and policy development
    - Mechanisms needed to facilitate linkage of information to policy

8. **Data Dissemination**
    - To whom?
    - In what form?
    - How frequently?
    - Public information; filtering/sifting information for release to general public
    - Feedback mechanism
    - Marketing of IMS products

How does the information management system works?

- It is implemented by a coordinated group of humanitarian actors ……
- generating information through the following processes:
    - ☑ data collection
    - ☑ data analysis
    - ☑ data clearance and auditing
    - ☑ data presentation and dissemination

For what purpose?

- Emergency programme management
- Monitoring and evaluation
- Strategic planning
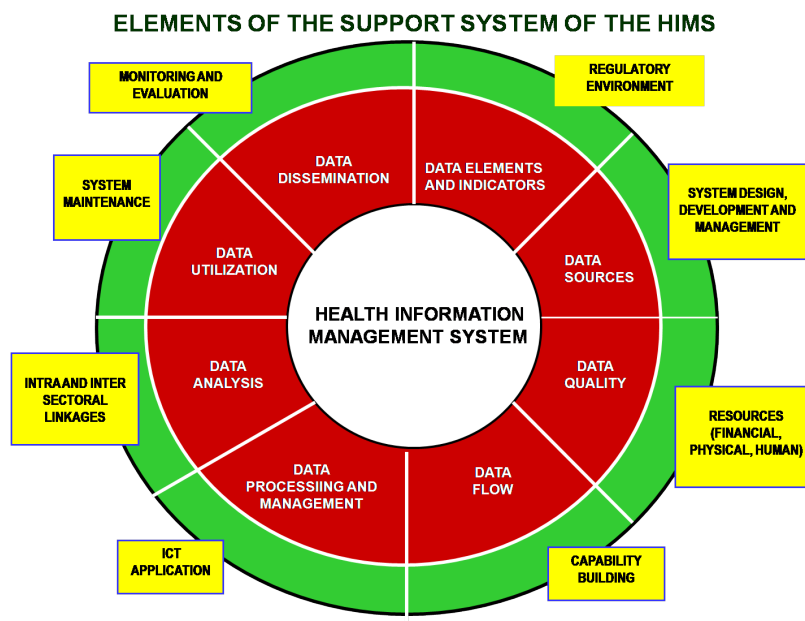- Advocacy
- Operational research

ELEMENTS OF THE SUPPORT SYSTEM OF THE HIMS

Table . Description of the Elements of the IMS Support System

Support Systems	Description
Regulatory Environment	• Development of policies, laws and regulations related to the IMS • Provides legal basis/authority for data collection • Development of implementing/ operational guidelines for policies, laws and regulations which have been developed • Common problem is strict implementation of policies, laws and regulations which have been developed
System Design, Development and Management	• Identification of most appropriate agency/unit/body to manage the IMS ☑ technical capability ☑ physical and human resources ☑ accessibility to all levels and types of data users

Support Systems	Description
	☑ recognition; reputation/credibility
	• Coordinating mechanisms for systematic linkage of all data providers in the system
	• Unit responsible for IMS review, monitoring and evaluation
Financial, Physical and Human Resources	• Fund sharing to support IMS
	• Physical facilities and equipment for data processing and storage
	• IMS workforce structure
	• Number and qualification of IMS staff at national, sub-national and peripheral levels
	• Policies for staff recruitment and retention
Capability Building	• Training of data providers and data users at different levels
	• Development of training materials, IMS User's Manuals, reference materials
	• Development of capacity to conduct special studies and sample surveys
	• Goal should be to develop capability to use data for information-based decision-making at all levels
ICT Application	• Feasibility of using IT at different levels
	o physical facilities (including power supply)
	o staff capacity to use IT
	o hardware and software maintenance
	o financial requirements to support computerized system

Support Systems	Description
	• Provision of computer hardware, software and other information infrastructure at appropriate levels • Strengthen capacity to access, transmit and share information related to emergencies • Participation in local and international emergency information networks
Inter and Intra Sectoral Linkages	• Communication, cooperation and coordination among different stakeholders of the IMS • Mechanisms for regular and effective communication between different levels and types of data users and data providers • Biggest challenge is to harmonize, integrate and strengthen data needs and data collection systems of different data providers and sources of information

System Maintenance	• Development of policies and implementation of maintenance plan for various resources related to IMS
	
	   o maintenance of physical resources
	
	   o replacement and upgrading of equipment (radios, computers, etc.)
	
	   o updating of IT standards
	
	   o retention of qualified staff
	
	• Normally given very little attention and allocated few resources

Monitoring and Evaluation	• Regular, systematic and institutionalized monitoring and evaluation of IMS • Periodic review of data needs and core indicators

Support Systems	Description
	• Needed for the growth and development of the IMS

Exercise 2: Information Dissemination

Context:

In the first exercise (in session 1 of this module), you were asked to identify and list data to be collected and sources of information in support of your risk management activities.

In this short exercise:

Assume that you have gathered, analyzed, and used the information in emergency management.

Answer the following question:

- How do you now intend to disseminate them?

Session 3: Tools of HIMS

Session Objectives:

At the end of this session participants will be able to:

- Discuss the tools of HIMS

- Explain the roles of health emergency managers in HIMS

Inputs:

General Guidelines for HIMS:

- Warning system should produce appropriate response to minimize harm

- Warning message should:

  o Provide timely information about impending emergency

  o State the actions to be taken to reduce loss of life, injury

  o State the consequences of the failure to heed the warning

  o Be short, simple and precise

  o Contain active verbs

  o Repeat information regularly

Tools for HIMS

- Rapid Health Assessment
- Damage Assessment and Needs Analysis
- Early Warning System
- Surveillance:

  o aims and objectives
    - Establish priorities, follow trends, identify vulnerable groups, high risk situations and reassess priorities

    - Detect and respond to epidemics as needed

    - Inform day-to-day planning and management decisions on public health action

    - Ensure targeting of resources

    - Evaluate program progress/effectiveness or quality of health care

    - Design and field test data collection forms

    - Train personnel in data collection

    - Define data entry and analysis method

    - Ensure timely decision making

    - Develop feedback mechanisms

- Promote follow up and monitoring mechanisms

- Evaluate system periodically

- Operational Research
  - Provide experience and guidance for risk planning and operational response

  - Assess needs of disaster affected areas

  - Provide data for analysis of risk factors

  - Match resources to needs to prevent further adverse health effects

  - Evaluate program effectiveness

  - Assess long term effects of emergencies and interventions to emergencies

  - Provide guidance in future emergencies

  - Optional Operational Research studies should augment response decision making

  - Needless research drains resources and interferes with response operations

  - It is vital for the development of emergency response as a discipline

  - It is vital for continued improvements in Health Emergency Management

Exercise 3: Role of health emergency managers in HIMS

Please answer the following question briefly:

Please list what you think are your roles as health emergency manager in HIMS?

Roles of Health Emergency Managers in HIMS

2. Analysis of data and information; identification of gaps

3. Coordination and capacity development of HIMS

4. Dissemination of information to:

5. Guide decision makers

6. Determine operational responses

7. Inform the public

8. Monitoring, reporting, and evaluation