CLERKSHIP IN COMMUNITY HEALTH

MBCHB IV– 2019-2020 Lectures

Health (Management) Information System {H(M)IS}

Health (Management) Information System H(M)IS

Objectives

At the end of the session the students should be able to:

- Explain the concept of health (management) information
- Describe the types, uses and sources of health information
- Explain community and facility based health information
- Understand the application of IT in (H)MIS
- Describe the types HMIS

Definitions and Concepts(1)

Data: raw observations and measurements e.g in an investigation

- **Information**: is processed data that can be used to support timely and efficient decision-making process.

- **Management Knowledge:** Correct application of this information in support of planning and management is now refereed as management knowledge

- **HMIS** : combination of people, equipment and data collection and processing methods co-ordinated to produce information in support of planning and management of a health care system

Definitions & Concepts(2)

Management Information System: *A communication system designed for data gathering, storage, analysis, formulation and reporting to managers.*

Control: Gathering information, comparing actual results to expected results and intervening to take corrective action, if warranted and feasible.

Standards: Agreed upon values used to measure quality of service, product, student performance, instructional methods, etc

Definitions & Concepts (3)

Measurement: Measurement is the determination of the size or magnitude of something

Appraisal: The process through which conclusions of significance, importance, of a set of information is made or judged

Intervention or change: Specific services, activities or products developed and implemented to change or improve program

HS Building Blocks
Health Information systems (HIS)

Health statistics and HIS

Information is necessary for:

- Necessary for public health decision making,
- Health sector reviews,
- planning and resource allocation and programme monitoring and evaluation.
- management decisions at the health facility

○ Information and data on health indicators

For effectiveness of HIS, management must consider:

○ What tools and methods for data collection, compilation, analysis, and dissemination (reporting & feedback)

Importance of Health Information

Needed to guide the activities of a health service and to find out whether these activities are improving the health of the population (Control)

Thus Health Information tells about:

- Health status and life expectancy
- Epidemiology - mortality, morbidity, prevalence, incidence.
- Birth and death rates in different areas.
- Usage rates of health facilities
- Accessibility to health care

Hence is needed for making decisions about:

- Planning
- Monitoring and evaluation
- Decision making

Types of information needed for management and implementation of a HS

○ Socioeconomic and environmental sanitation

○ Pattern and trends in health status

○ Health care services, coverage and quality

○ Resource mobilization, allocation and utilization.

○ Planning, coordination, monitoring and evaluation

Types of health management information system

- **Community-based health management information system**

  This system generates information through sources at the community level. Such sources are comprehensive since it covers all those who need particular health care or all who suffer from a given condition in the population. This source of information is complete in coverage and planning- and action-oriented at the **community** level.

- **Facility-based health management information system**

  This is a system of generating information originating from health facilities such as hospitals, health centres and dispensaries, private clinics,

Categories of information from a Facility-Based HMIS

1. **Administration and financial Information** – consists of information to support administrative operations, and management planning, resource allocation and control activities

2. **Clinical and medical Information** – consists of information to support patient care activities

Types of health management information

These can also be categorized according to the way they are applied in management:

1. Application Reporting Systems

2. Data-Base Management systems (DBMS)

3. Decision Support Systems

Types of Management Information Systems

1. **Application Reporting Systems –**
   - Most familiar with HSO managers
   - Consists of tailored information about specific organizational operations e.g. payroll, inventory, admission, census and scheduling

2. **Data-Base Management systems (DBMS) –**
   - data from throughout the organization are integrated and consolidated in central files rather than being segregated for specific applications reporting (see next slide)

3. **Decision Support Systems –**
   - these are model- based and contain statistical and simulation capabilities.
   - Are interactive, permitting managers to ask "what if" questions through on-line terminals e.g. what would be the effect on profit margin of 20% increase in prescription drugs cost?

OPERATIONS	MANAGEMENT INFORMATION SYSTEM	
	Applications	DBMS/DSS
Inpatient billing Outpatient billing Credit and collections (accounts receivable)	Patient accounting	Administrative, business services or financial information systems
Accounts payable Inventory management Payroll, personnel Time and attendance Fixed asset accounting General ledger Financial and statistical reporting	Hospital accounting	
Financial and statistical reporting Departmental statements Budget preparations Simulation, planning	Hospital financial and planning	
Admission, discharge, transfer Inpatient registration Outpatient registration Patient index	ADT, registration and hospital information	Clinical, medical, patient care information systems
Patient index Distributive charge entry Order/entry communication Results reporting Medical records Scheduling	Medical information	

Levels of information for health management

1. **Household level**

2. **Community level**

3. **County, Regional and National levels**

Methods and Technologies for Data Collection

- Routine data collection and reporting.

- Informal investigations

- Sample surveys

Important properties for information collecting, Analyzing and Distribution

1. Information is collected on record forms, registers and tally sheets filled by health staff

2. If information is to be used at county, regional or national level, then certain conditions for it collection must be fulfilled:

   - The record and report forms used must be easy to understand and to fill in.
   - The records must be standardized nationally.
   - The amount of data collected should be as minimal as possible.
   - The data collected must be valid, reliable and sensitive

Common Problems of Health Information Systems

1. Important information is not available, e.g.
   - Information about target population -
   - Information about outcome
   - Information about social and environmental developments of health
2. Available data inappropriate in quantity and quality
3. Health staff have limited skills in information processing and use
4. Available information is not sufficiently used for local decision-making

Purpose of Information for Health Managers and Planners

- Allocate resources efficiently and effectively
- Monitor the functional status of equipment including vehicles.
- Control epidemics
- Manage medical supplies (drugs, vaccines, commodities)
- Set programme targets and monitor their achievements
- Identify and upgrade poorly performing workers and clinics
- Make daily decisions.

Areas in which MIS can support managers

1. **Medical Quality Assurance**
   - Clinical information abstracted from patient medical records can be used by health professionals in peer review systems to assess diagnostic and treatment practices within the hospital.

2. **Cost Control and Productivity Enhancement**
   - Computerized information system can provide opportunity for providing cost analysis and productivity reports for use by hospital management in improving the efficiency of operation. Need to integrate clinical and financial information systems.

Areas in which MIS can support managers

3. **Utilization Analysis and Demand Estimation**
   - A complete hospital information system should provide current and historical data on utilization of hospital services. Use in current analysis of efficiency in resource use and provide basis for predicting future demand for services.

5. **Program planning and Evaluation**
   - Information on quality assurance, cost control, utilization analysis and demand can be used to make management decisions related to evaluation of programs and combined with
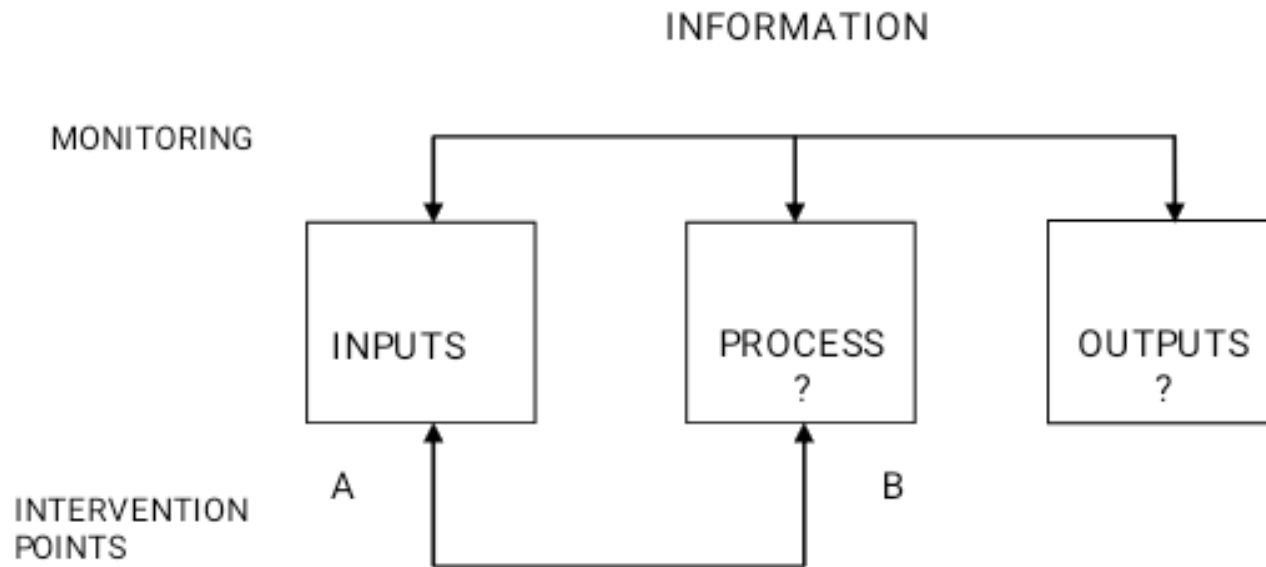
MIS and ICT

Development and use of MIS are preliquisites to managing effectively and controlling inputs, processes and outputs.

HMIS and Control

Generic Control System

Generic Control System

All control systems are information based
In the process of control, information is collected at 3 monitoring points:

- Input utilization
- Functioning of conversion processes
- Outputs
- Should there be an indication that results occurring at any of the three points are inconsistent with expectations or standards, intervention can be instituted at the input or process points or both.

References

1. *WHO 2004.* **DEVELOPING HEALTH MANAGEMENT INFORMATION SYSTEMS** A PRACTICAL GUIDE FOR DEVELOPING COUNTRIES

2. *WHO 2008.* **HEALTH INFORMATION SYSTEMS.** *Toolkit on monitoring health systems strengthening.* EN_PDF_Toolkit_HSS_InformationSystems.pdf