Health Management Information System (HMIS)

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Learning objectives

- At the end of this unit, the learner will be able to;

- Define HMIS

- Issues in HMIS

- Explain indicators of HMIS

- Discus the steps of developing HMIS

Basic concepts

- **System:** A collection of components that work together to achieve a common objective

- **Health System:** All the activities whose primary purpose is to promote, restore or maintain health.

- **Information:** Meaningful collection of facts or data.

- **Information System:** A system that provides information support to the decision-making process at each level of an organization

Basic concepts

- **Health Information System:**

  A system that integrates data collection, processing, reporting, and use of the information necessary for improving health service effectiveness and efficiency through better management at all levels of health services

Basic concepts

- **Management information system**

 A formal method of making available accurate and timely information to management that is necessary to facilitate the decision-making process and enable the organization's planning, control and operational functions to be carried out effectively.

Basic Concepts

- **Health Management Information System:**

  It is an application of the principles of management information system in health care systems.

Or an information system specially designed to assist in the management and planning of health programmes, as opposed to delivery of care

Why health information system?

- Good management is a prerequisite for increasing the efficiency of health services.

- Improved health information system is clearly linked to good management.

- Information is crucial at all management levels of the health services fro periphery to the center.

- The system provides information on past, present and projected future & relevant events inside and outside the organization.

Why health information system?...

- It is required by policy makers, managers, health care providers, community health workers.

- Changing the way information is gathered, processed, and used for decision-making implies changing the way an organization operates.

Why health information system?...

- With the widespread computerisation of health records and other information sources, including hospital administration functions and health human resources information, health informatics and health information technology are being increasingly utilized in information management practices in the health care sector.

Health information management professionals

- Plan information systems, develop health policy, and identify current and future information needs.

- Apply the science of informatics to the collection, storage, use, and transmission of information to meet the legal, professional, ethical and administrative records-keeping requirements of health care delivery.

- Work with clinical, epidemiological, demographic, financial, reference, and coded healthcare data.

Evolution

- In the past, mostly informal.
- Present, electronic data processing (EDP) : use of computers in information management (computer based information system).
- Now called MIS.

HMIS in developing countries

- Information system procedures were not intentionally planned to provide management support in an integrated way

- Too much emphasis was given (placed) on the measurement of impacts which called for costly assessment

- Many decisions on policy, planning and resource allocation are made without analysis of the information that is readily available

- The data received are often incomplete, inaccurate, untimely, obsolete, and unrelated to priority tasks and functions of the local health personnel

Deficiencies of HMIS in Zambia

- In general, the current HMIS is **inadequate in providing the required information** for management support.

- Hence, data coming from the system is **not a resourceful** input for decision making.

- There is considerable **underutilisation of the information** generated by the system for decision making at all levels specially in the front line where the data is collected and information is generated.

Factors attributed to deficient HMIS in Zambia

- The data quality is considered to be very poor

- Outputs of HMIS are not related to the priority tasks and functions of the local health personnel

- Lack of technical knowledge and skill of data collectors at the lower level

- Considerable limitation of financial and material resources

What is wrong with current HMIS?

- Irrelevance of the information gathered

- Poor quality of data

- Lack of timely reporting and feedback

- Poor use of information

- The difference in culture between data people and decision makers: planning and management staff rely primarily on gut feeling to formulate ad hoc decisions rather than seek pertinent data

Constraints with current HMIS

- Limited funding
- Deficiency in information infrastructure
- The network is still vulnerable to external shock) caused by virus, repair and /or replacement delays, difficult system codes etc.
- Significant underutilization of data /information for decision making
- Lack of interest or/and experience of use of information by managers
- Inadequate human resource, lack of expertise

What is the HMIS objective?

- Ensuring the quality of all health data.

- Strengthening the ability to analyse and use the data.

- Making informed and cohesive decisions can and will positively affect the health and lives of the people.

- Planning, organizing, leading, controlling and decision-making.

Factors to evaluate information received

- **Information quality**: accuracy and reliability.

- **Information timeliness**: before deviations occur.

- **Information quantity:** Just sufficient.

- **Information relevance:** related tasks and responsibilities.

Design of HMIS

- Desired characteristics of information in health services
  - Relevance
  - Accuracy
  - Completeness
  - Timeliness
  - Conciseness

Sources of Information System

- Health institutions (inpatient/outpatient and other activities)
- Vital registration systems (births, deaths, and migratory movements)
- Laboratories and pharmaceuticals
- Community

Sources of Information System

- Census
- Special programmes reporting systems (tuberculosis and leprosy control, MCH, school health)
- Administrative systems (health care financing systems, health personnel systems, logistic systems)

Sources of Information System

- Investigation of outbreaks
  - Surveys and surveillances
  - Diseases notifications
  - Routine reports
- Each source has its own advantages and limitations.

A framework for defining information needs and indicators

- Perform a functional analysis at each management level of the health service system.

- Identify information needs and select feasible indicators

- Indicators are variables that help to measure changes, directly or indirectly.

A framework for defining information needs and indicators

- Indicators are important to:
  - To analyse present situation
  - To make comparisons
  - To measure trends
- Most health indicators are quantitative (numbers)

Helpful questions in selecting good indicators

- What is the indicator supposed to measure (validity)?

- What will be the cost of measuring the data to arrive at the numerator and denominator of the indicator?

- Is the change shown by the indicator a true change in the situation under study?

Helpful questions in selecting good indicators

- What is the relative importance of the subject matter to be addressed and the decision to be made based on the indicator (relevance)?

- Does the indicator actually capture the changes that occur in the situation under study (specificity)?

Types of Indicators

- Health policy

- Social and economic Development Indicators

- Population changes

- Provision of health care

- Health Status (nutritional, morbidity, mortality)

- Information is collected, analysed, presented and communicated.

Steps in developing a HMIS

(1) Review the existing system

(2) Define the data needs of relevant units within the health system

(3) Determine the most appropriate and effective data flow

(4) Design the data collection and reporting tools

(5) Develop the procedures and mechanisms for data processing

Steps in developing a HMIS

(6) Develop and implement a training programme for data providers and data users

(7) Pre-test, and if necessary, redesign the system for data collection, data flow, data processing and data utilisation

(8) Monitor and evaluate the system

(9) Develop effective data dissemination and feedback mechanisms

(10) Enhance the HMIS

Key issues of HMIS

- Movement of data through out the system
- Accessibility and analysability of data
- Transmission of finding to potential users

Tasks of HMIS

- Filing and storing
- Compiling
- Analysing

Types of reports

- Operational: detailed

- Technical: Mentoring and evaluation

- Strategic: to justify priorities and decisions

Managing the flow of data

- Impose strict timetable at each level.

- Ensure two-way flow.

- Establish regular cycle of analysis and feedback.

Data collection instruments

1. Data collection instruments for patient/client management

   A. Curative
   – Medical records
   – Laboratory forms
   – Referral forms

Data collection instruments

B. Preventive

- Growth cards
- MCH cards
- School health card
- Family registration records

Data collection instruments

2. Data collection instruments for health unit management

A. Service delivery reords.

- – Registers
- – Tally sheets (Abstract register)
- – Population charts

B. Resource Management records

Computer applications in health service delivery

1. Clinical information systems

2. Administrative information systems

Computer applications in health service delivery

- How to decide on need for a computer?
  - Technical feasibility
  - Operational feasibility
  - Economic feasibility

Computer applications in health service delivery

- Train personnel to use computers
- Social behavior
- Training for managers
- Training for problem solving
- Define role of computer in work environment