



Health Management Information System

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Jaipur



Basic Definitions

Data

“Messages not evaluated for their worth in specific situations”

Primary

Secondary

Information

“Evaluated data”

“A resource with cost & benefit

“Potential knowledge”

“An essential input for decision making



Record

“A document of transaction between a client and service provider containing details of who did what to whom, when and where”, e.g.

A bill

A prescription

A discharge ticket

A laboratory report

A register



Information System

“Comprehensive, coherent arrangement organized on an organizational or major program basis to collect, process and provide coordinated information to serve multiple needs of management system”



Data Triangulation

The synthesis and integration of data from multiple sources through collection, examination, comparison and interpretation

12 step approach to triangulation



Planning for triangulation

1. Brainstorm questions
2. Identify questions that are important, actionable, answerable and appropriate for triangulation
3. Identify data sources and gather background information
4. Refine the investigation question(s)

Conducting triangulation

5. Gather data/reports
6. Make observations from each dataset



12 step approach to triangulation

- Note trends across datasets and hypothesize
- Check (corroborate, refute, modify) hypotheses
- Identify additional data source(s) and return to step 5
- Summarize findings and draw conclusions
- Communicating the results of triangulation
- Communicate the results and recommendations
- Outline next steps based on findings



Characteristics of Data Sources for Triangulation

1. Programmatic data
2. Biological data (surveys)
3. Behavioural data



Health Information System

“an integrated effort to

- collect,
- process,
- report and
- use health information & knowledge for
 - influencing
 - policy-making,
 - program action, and
 - research.



M.I.S. ?

A two directional characteristic of information flow,
with systematically designed arrangement to -

- Generate
- Collect
- Analyze
- Store
- Present
- Make available

required information to different managerial levels
for improved and timely decisions and actions



Definition:

- MIS is a system having a combination of
 - persons,
 - a set of manuals, and
 - certain equipments to
 - select,
 - store, process and
 - retrieve data to -
- reduce the uncertainty in decision making by yielding information to managers at the time they can most efficiently use it.

Essential Features of Information System



- Reliable
- Not too much paper work
- Data transmission - accurate and timely
- Availability in disaggregated form
- Shortest time lag between collection and transmission
- Data must be available to assess both quantity and quality of health care
- Simple- recording reporting and analysis



Service statistics v/s MIS

- Service statistics- generate data
- MIS -utilization of data in the planning and control activities, in an organization


Information in Health Care Delivery: why



- Evidence based policy and strategic decision-making
- Program management
- Monitoring the process and outcomes
- Evaluation of achievements



HMIS- Need

- Increasing utilization
 - Increasing client satisfaction
 - Increasing health status
 - Induction of manpower
- 
- A large white arrow pointing downwards, indicating a flow or consequence from the first set of needs to the second set.
- Problem solving
 - Resource allocation
 - Rewards / Promotions
 - (at times for Fault finding)



HMIS: Objectives

- Strategic planning
- Disease surveillance systems
- Use of ICD-10
- National health database
- Technical support to strengthen data analysis
- Research
- Use of scientific evidence based on research



Other objectives

- Medical care-
 - Quality assurance &
 - Assessment of outcome
- Cost control & productivity enhancement
- Utilization analysis and demand estimation
- Program planning & evaluation
- Simplification of Records
- Education
- Clinical research



Sources of Data

- Diaries
- Family registers
- Hospital registers / Records
- Periodic reports
- Rapid surveys
- Exit interviews
- National sample survey
- Census
- Special studies



Data :attributes

- Accurate
- Valid
- Reliable
- Timely
- Complete
- Retrievable



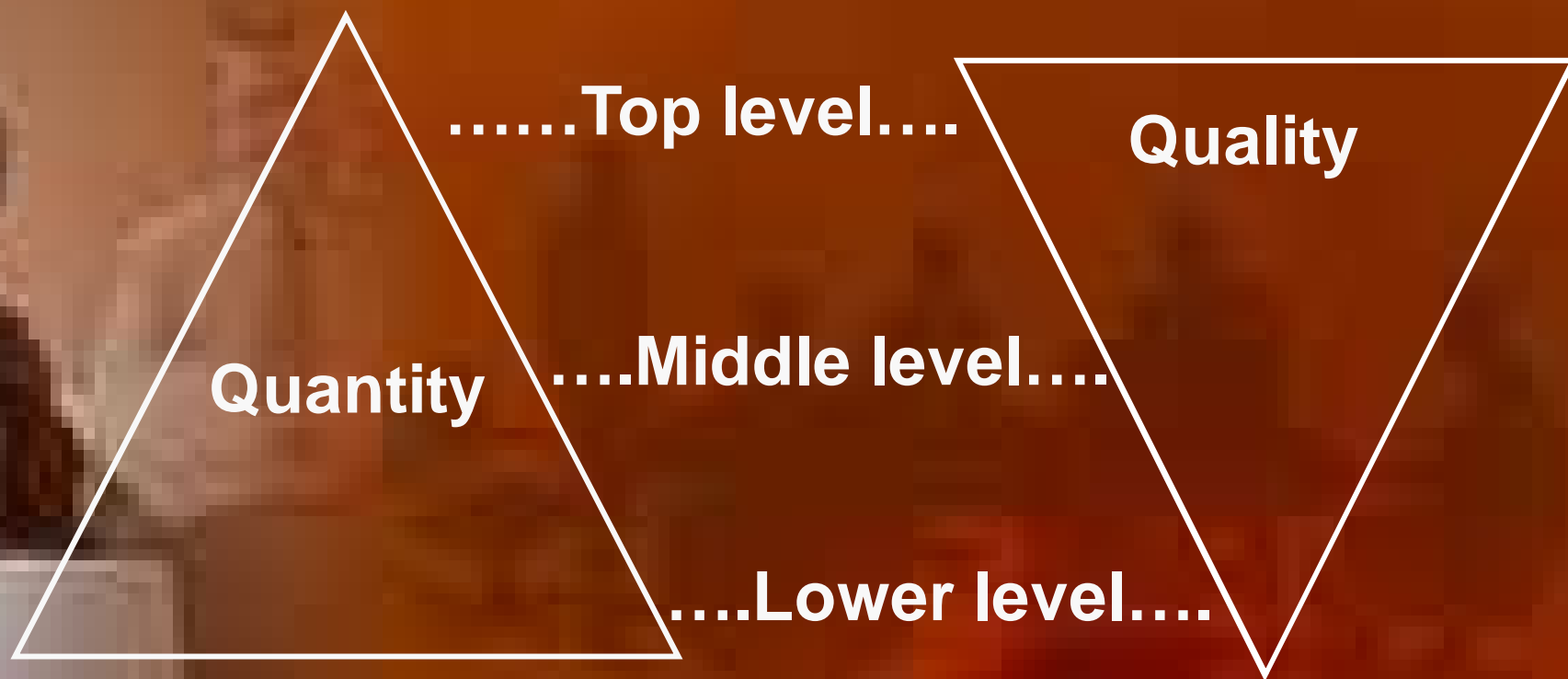
Collection of Data:

Data Collection Tools

- Reporting Formats
- Online reporting
- Eligible Couple Survey
- Concurrent Evaluation/ Studies
- Survey by different Agencies
- Monitoring and Validation Exercise

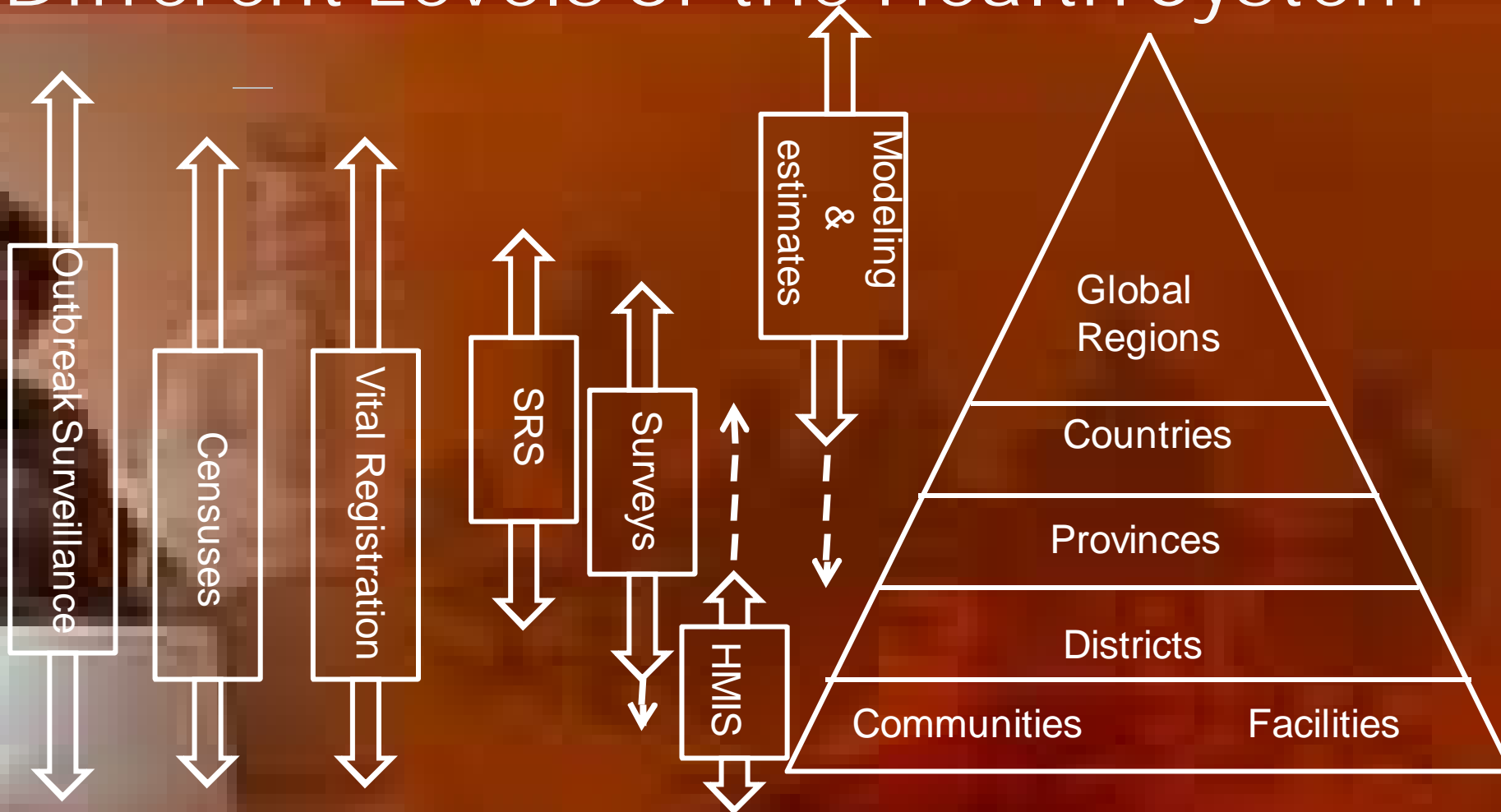


Data Requirements at Different Levels of Decision Making





Health information Tools for Different Levels of the Health System





Health determinants

Risk factors
Behaviors
Genetics
Environment

Socio-economic & demographic

Health systems inputs

Policy
Financing
Human resources
Organization

Health systems outputs

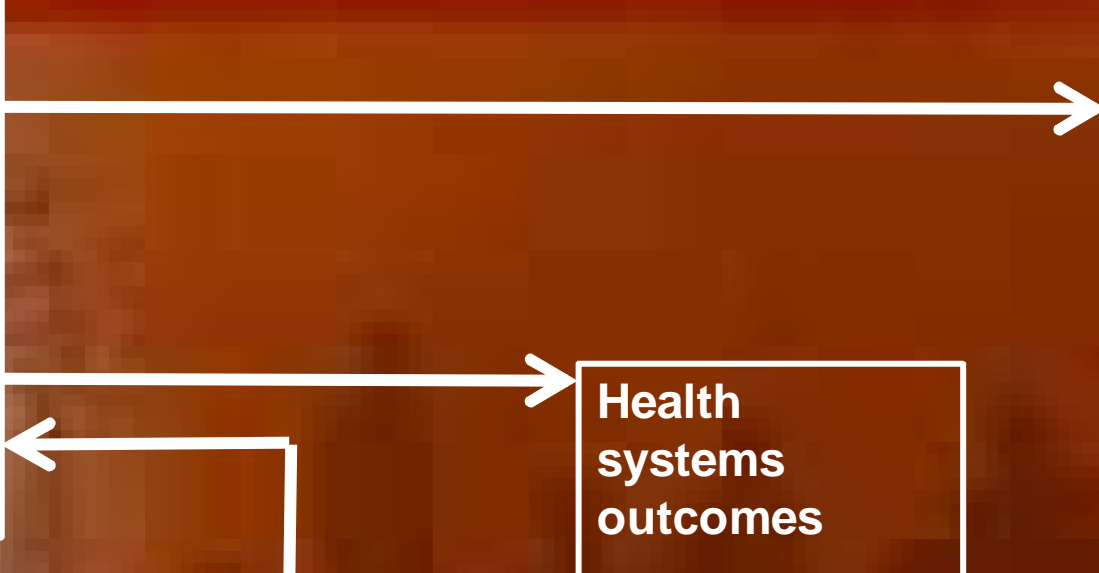
Information
Service availability & quality

Health systems outcomes

Service utilization

Health status

Mortality
Morbidity/
disability
Well-being





Attributes of HMIS

- Timeliness
- Accuracy
- Relevance
- Up-to-datedness
- Adequacy
- No Overloading
- Format Clarity
- No duplication
- Explicitness

Strengths of HMIS



- In streamlining and standardizing of data records.
- In creation of an integrated warehouse
- In collecting data from different sources
- Conducting cross analysis.
- Rationalizing of reporting flows
- Supporting customized reporting.
- Indicator based analysis.
- Integration of various software applications such as GIS and Excel.
- Conducting data quality validation.



- HMIS does not offer
“Ready - made” solution
- Each HMIS is
“Tailor made” specific to an
organization and levels within it

HMIS- Issue



- Is there a policy existing for Health Information system?
- Does an organizational structure exist at the National level for HMIS?
- Functional linkages between sub-systems
- Capacity building-potential, activities and resources



- Is there a Fixed- frequency review of reports and records?
- How are reports made and who makes them?
- Is there a built in system for checking reliability of data generated at the lowest level ?



HMIS- Purpose

Planning
Implementation
Monitoring
Evaluation

Needed for

← **Information**

↑ **Purpose**

- Monitoring
- Control

- Cost
- Time
- Resources



HMIS-Application should Provide Support to-

- Health Workers:
 - Understand health needs
 - Prioritizing clients
 - Estimate requirement
- Program Mangers:
 - Assess quality & Coverage
 - Allocate resources
 - Reduce wastage and duplication



- Policy Makers:
 - Assess cost-effectiveness
 - Decide content & mode of service delivery
 - Develop norms
 - Financial
 - Infrastructure
 - Staffing
 - Logistics



Prerequisites of HMIS

- Existing formats, transmission system & channels, capacity of data handlers and analyzers and the resources (hard and soft) available.
- Exploring possibilities of additions and deletion of parameters
- Complimentary or contradictory nature of sub-systems of the System

Components - Basic Management process



5 components of the basic mgt. process in healthcare-

1. Establishing goals & Objective
2. Estimate demand for services
3. Allocate resources including manpower to meet demands
4. Control quality
5. Evaluate performance



Establishing goals & Objective

- Problem indicators
 - » Mortality
 - » morbidity
 - » Social indicators
 - » Economic data
 - » Health seeking behavior
- Data on services delivered by other community organizations
- Resources available



Estimate demand for services

- Data on utilization
- Demographic data
- Community projections



Allocate resources

- Data on work force
- Financial information
- Capital requirements
- Short term demand forecasts



Control quality

- Output measure
- Quality control data
- Work sampling & measurement
- Medical audit



Evaluate performance

- Changes in problem indicators
- Cost benefit analysis
- Changes in community's capability to provide services



HMIS- Components

- Identification
- Collection
- Classification
- Processing
- Communication
- Interpretation
- Storage
- Retrieval

Factors Required to Develop and Implement HMIS:



- Strong political backing
- A culture that values and uses information
- Involving all levels in changes to HMIS
- Starting with improving the paper based system
- Ensuring the feedback loop is continuous and reliable



Levels at Which We Need Information

- Point of entry of client into the System
- Point of Service
- Point of decision-making



Use of Information

- National & State Ministries for
 - Assessing impact
 - Policy development
 - Financial allocations
- Health care professionals for
 - Treatment in Hospitals/ CHC/ PHC
 - Choosing alternatives between care lines



- Legal bodies
 - As documentary evidence of care
 - Protect interests of Health care professionals and patients

- Insurance companies for reimbursement of claims



Information in Health Planning

- Information for assessing need
- Information for controlling utilization and standards (quality of services)
- Information for controlling deployment of resources
- Information for increasing effectiveness of services

HMIS- Designing Technical Requirements



- Data collection instrument
 - Simple
 - Minimum
- Develop a data flow mechanism
 - Who generate
 - Who consolidate
 - Whom to be sent & How (mode)
 - Where & by whom to be analyzed
 - Whom to be reported
 - Frequency of compilation, Analysis & reporting

Basic steps in designing HMIS



- Determine organizational need for information
- Identify sources of information
- Decide on amount, form and frequency
- Select means of information communication & processing

HMIS- Designing information system



Steps

- What data is needed
- Who generates in what form
- Quality
- Processing requirement
- Types of formats for reporting
- Frequency of reporting
- Data storage system
- Devices for storage
- What should be the channel for info. flow

- Determine organizational need for information
- Identify sources of information
- Decide on amount, form and frequency
- Select means of information communication & processing



Designing HMIS

1. Design Requirements:

- Clarity of Objectives
- Awareness of information need
- Flexibility to change



2. Considerations in information system design

- Identifying & listing of objectives and norms
- Identification of all decision points
- Determination of relative importance & priority of identified decisions
- Identifying information need for decision
- Identification of relationship among decision sets
- Specification of information system
- Installation
- Establishing a review mechanism

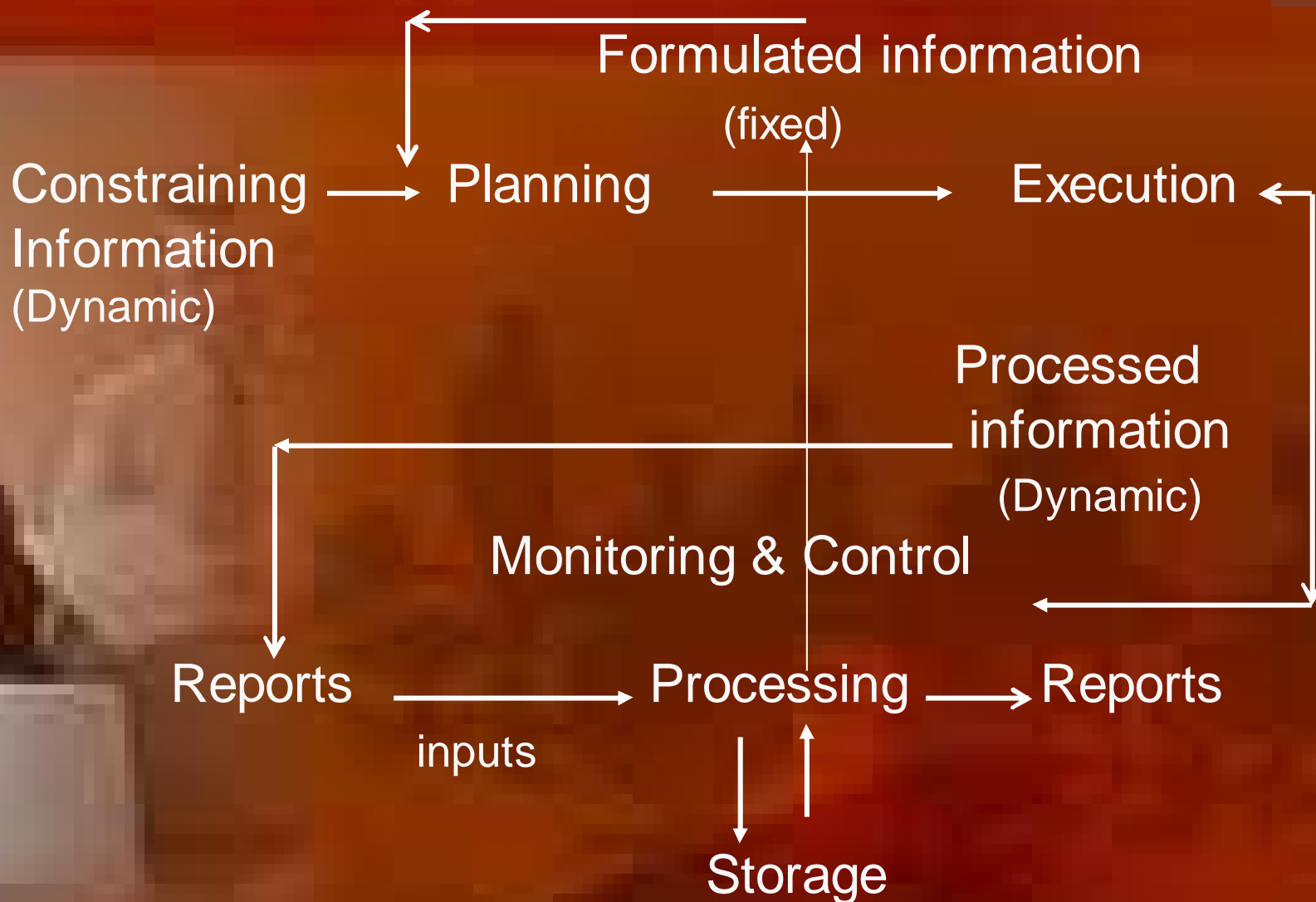


3. Information requirements - governed by

- Decision structure of Program
- Levels of decision making
- Questions to be answered
- Economics of information management, based on these requirements decision shall be taken regarding type of information, which could be-
 - Scientific & Technical (Related to problem & solution)
 - Situational (Program environment)
 - Programmatic (Intervention system)



HMIS- Process





Analyze the Data:

- By allotted ELA/Targets
- By comparison of last year progress
- By health indicators
- By annual action plan
- By Five Year plans



HMIS- Problem Areas

- Unrealistic expectation of Managers
- Addressing to –"Report to higher levels" rather than convincing of benefits
- Too much information asked
- Poorly trained, Over worked staff, (30-40 % time in reporting)
- Information-selective & to handle out of pressure ad hoc exigencies
- Many reporting levels- Data lost



- Performance indicators
 - Shifting priorities within program
 - New additions- NO deletions
- Indicators- simply output oriented
- Program priorities & timeliness of information flow
- Retrieval
- Duplication
- NO periodic review
- NO feed back to initiate corrective measures



HMIS supports

- **Decision makers to:**
 - Detect and control emerging and endemic health problems
 - Monitor progress towards health goals,
 - Promote equity
- **Empowering individuals and communities with**
 - Timely and understandable health-related information
 - Drive improvements in quality of services



- **Supports Health Workers, in**
 - Understand health needs (based on approaches like CNAA)
 - Prioritizing clients (Estimate requirements (based on Demographic profile, morbidity profile, coverage and /or Expectations)
- **Support Program Managers, for**
 - Assessing quality & Coverage
 - Allocating resources
 - Reducing wastage and duplication



- **Support Policy makers, to**
 - Assess cost-effectiveness
 - Decide content & mode of service delivery
 - Develop norms:
 - Financial
 - Infrastructure
 - Staffing
 - Logistics



Reporting Formats under NRHM

Institutions	Reporting Format
Sub centre	Form No. 6
PHC	Form No. 7
CHC/FRU/UFWC	Form No. 8
Block level	Form No. 9 A
District level	Form No. 9



Thank You

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