

**UNIT-8**  
**INFORMATION AND DATA**  
**MANAGEMENT**

**PREPARED BY: SALINA THAPA**

# INFORMATION SYSTEM

2

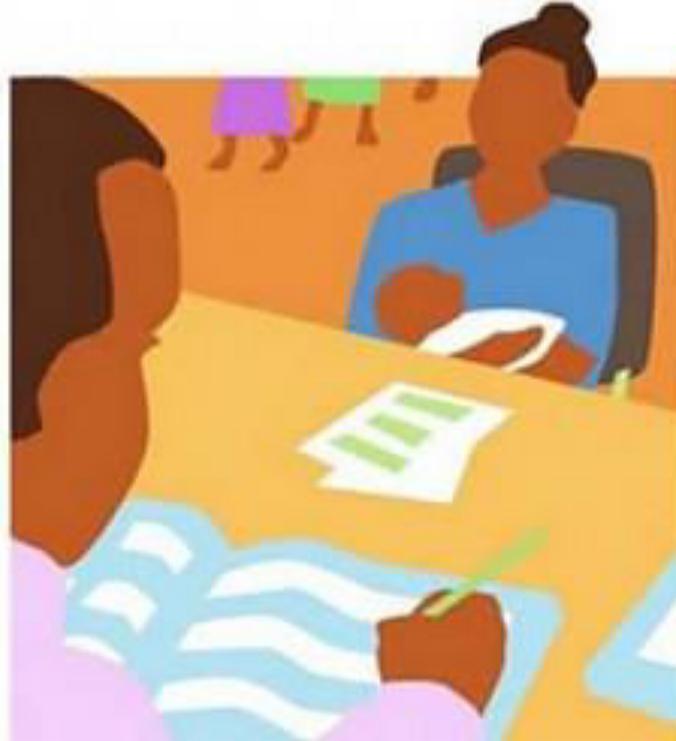
- It is a set of related processed data to the individual managers at various levels in different functional areas.
- It refers to a computer- based system, one that is designed to support the operations, management, and decision functions of an organization.

# MANAGEMENT INFORMATION SYSTEM

3

It is a computerized database of information organized and programmed in such a way that it produces regular reports to the operations for every level of management in a company.

# Health information



# HEALTH INFORMATION

5

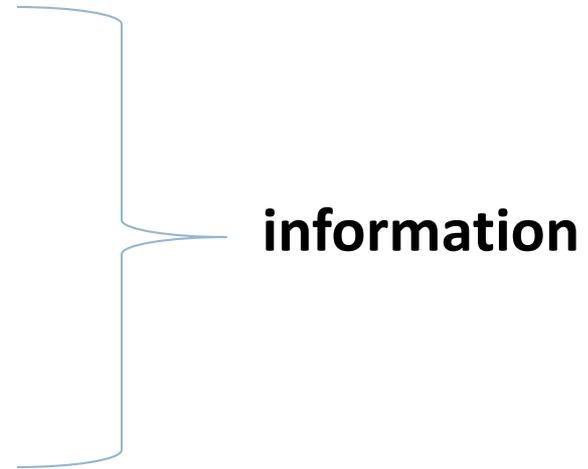
- Health information is an integral part of the national health system.
- It is a basic tool of management and a key input for the progress of any society. A health information system is define as :

*“A mechanism for the collection, processing, analysis, and transmission of information required for organizing and operating health services and also for research and training.”*

# OBJECTIVES

6

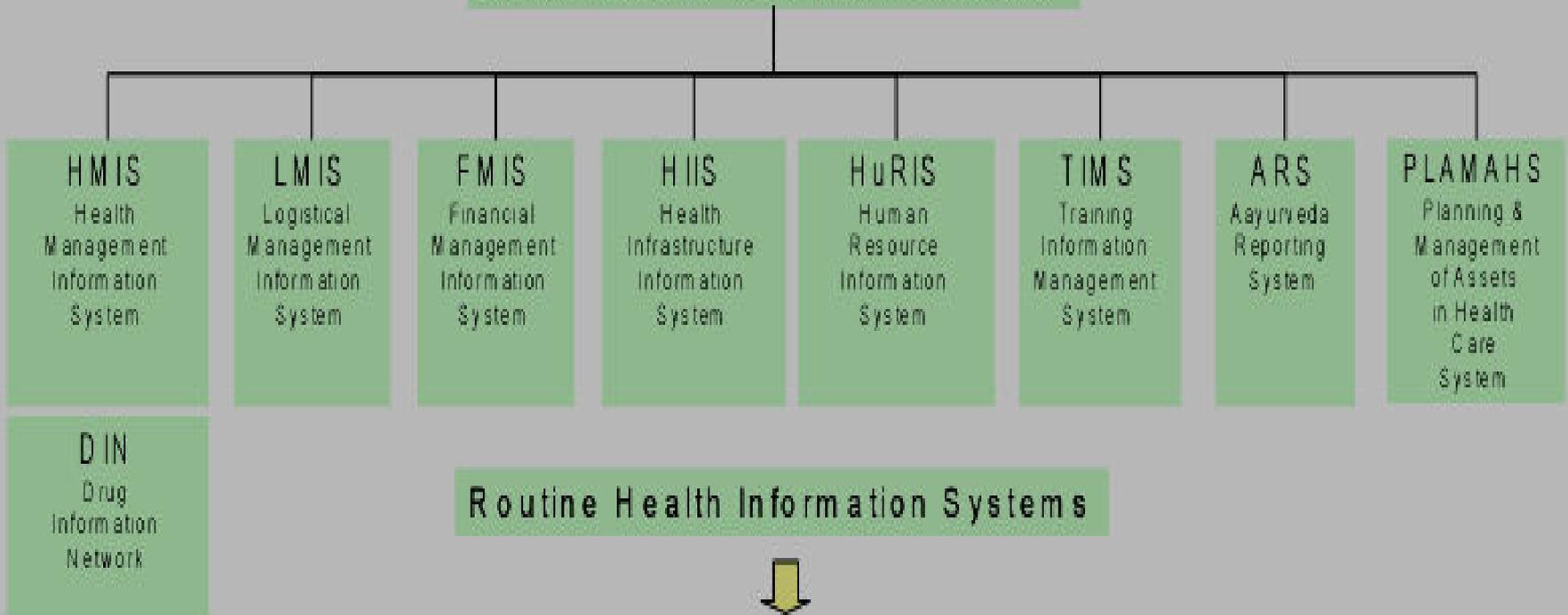
- Provide reliable
- Relevant,
- Up-to- date
- Adequate,
- timely and reasonably complete



# There are 9 MIS within the MoHP:

- Health Management Information System(HMIS)
- Logistical Management Information System (LMIS)
- Financial Management Information System (FMIS)
- Health Infrastructure Information System (HIIS)
- Human Resource Information System (HuRIS)
- Training Information Management System (TIMS)
- Planning and Management of Assets in Health Care System (PLAMAHS)
- Aayurveda Reporting System (ARS)
- Drug Information Network (DIN)

# Health Sector Information System



## COMPREHENSIVE HEALTH SECTOR INFORMATION SYSTEM

Disease Surveillance

Vital Registration

Population Based Information

- Census
- Sentinel Reporting
- Surveys
- Rapid Assessments
- Research

24 October 2021



# HEALTH MANAGEMENT INFORMATION SYSTEM(HMIS)

- HMIS is one of the nine management information systems(MIS) in the Ministry of Health and Population(MoHP).
- The Health Management Information System (HMIS) is based in the MIS Section in the Management Division,Department of Health Services (DoHS) and has been in operation since 1994.
- It manages health service information from the community to the DoHS through predefined process and procedure.

- Therefore, HMIS is an organized system of collecting, storing, processing, recording, reporting and feedback of information.
- Furthermore, it provides up to date, reliable, complete and timely information to the health managers at various levels to make well-informed management decisions about problem, performance and management.
- The ultimate goal of HMIS is to generate quality data and use that data for management decisions to improve health service provision.

# Objectives of HMIS

- To collect and manage the health service delivery information for all level of health service delivery outlets including services at the communities by FCHVs and community level health workers.
- To verify, process, analyze the collected data and operate data bank.
- To provide feedback on achievements, coverage, continuity and quality of health services to programs divisions/centers, RHDs, hospitals and district public/health offices.

- 
- ❑ To disseminate health information through efficient methods and technologies.
  - ❑ To publish a comprehensive Annual Report to the Department of Health Services.
  - ❑ To support the planning activities of all health programs.
  - ❑ To help senior managers to develop appropriate health policy guidelines.

# Importance of HMIS

- For periodic revision of objectives
- Identification and allocation of other resources
- Effective and efficient use of resources
- Process implementation
- Performance evaluation of programme
- Timely warning about health process

# Components of HMIS

- Demography and vital events
- Environmental health statistics
- Health status: mortality, morbidity, disability and quality of life
- Health resources: facilities, manpower, bed etc.
- Utilization and non-utilization of health services: attendance, admissions etc.
- Indices of outcomes of medical care
- Financial statistics(cost, expenditure) related to the particular objectives

# Uses of HMIS

- Measurement of the health status of people
- To quantify their health problems and medical and health care needs
- Comparison of health status(Local, National, International)
- Planning and administration and management of health programme.
- Assessment of the attitudes and degree of satisfaction of the beneficiaries
- Surveillance of disease research.

# Current HMIS Status

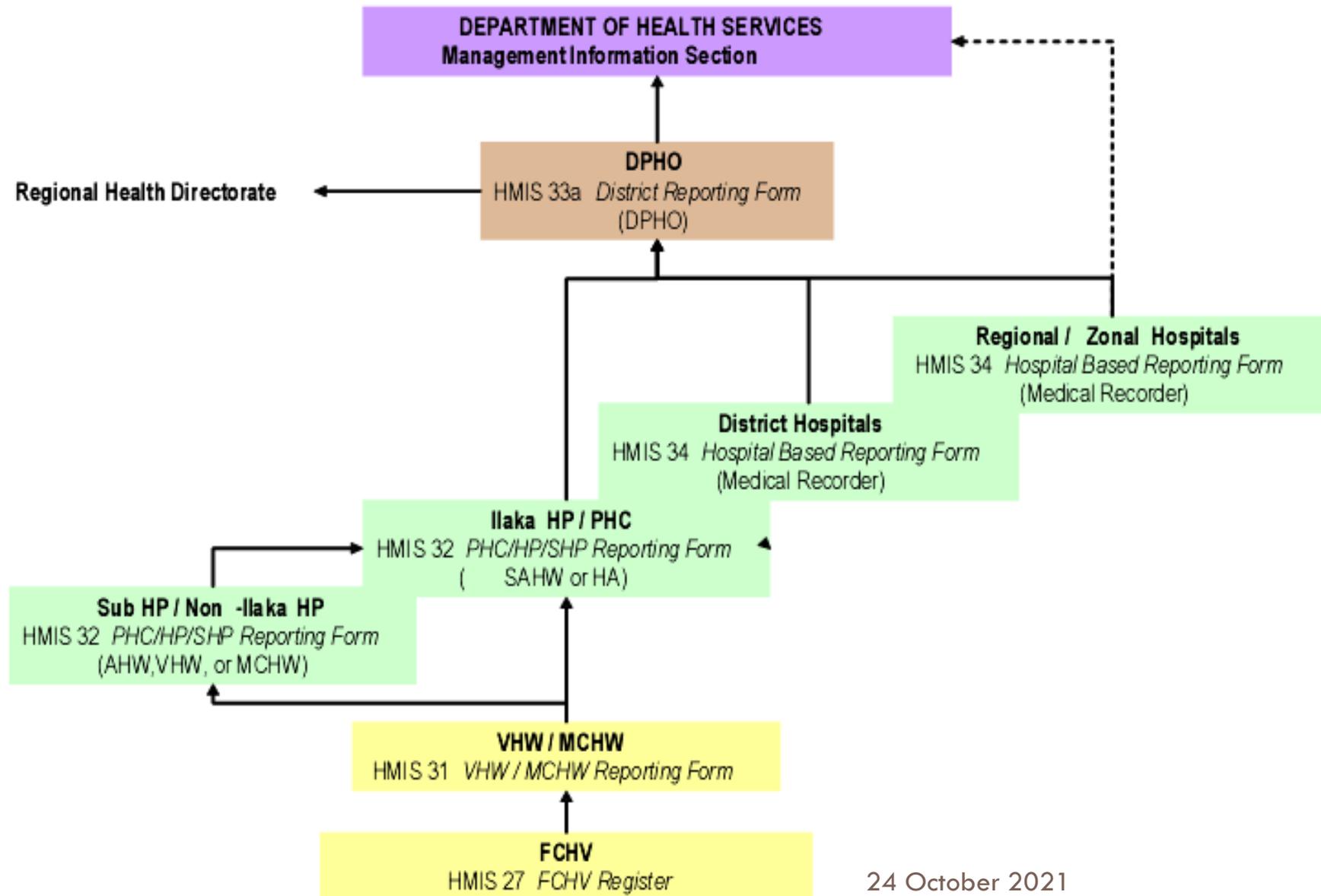
- **HMIS covered in all 77 District:**
- At central level-HMIS Section under Management Division of DoHS
- Data collection on around 800+ variables including major MDG indicators
- 290+ major health indicators are being used to monitor health programs at Local, District, Provincial and Federal Level.
- Responsible persons for HMIS “Statistical Officer and Computer” personnel for public health at federal and provincial, District, Local level and Medical Recorders at Hospital.



# Process of HMIS

- Collection
- Transmission
- Storage
- Retrieval
- Analysis
- Interpretation
- Preparation for utilization
- Preparation of information

# Information flow in HMIS



# Revised HMIS Tools

## **1. Common Tools**

1.1 Master Register

1.2 Health Service Card

1.3 Outpatient Register

1.4 Referral/Transfer Slip

1.5 Defaulter/ Discontinuation Slip



## **2. Infant and Child Health**

2.1 Child Health Card

2.2 Immunization Register

2.3 Nutrition Register

2.4 IMCI Register

2.5 IMAM Child Health Card

2.6 IMAM Register

2.7 IMAM Register Hospital



## **3. Family Health**

3.1 FP Face Sheet

3.2 Pills, Depo Service Register

3.3 IUCD/Implant Service Register

3.4 Sterilization

3.5 Maternal and Newborn Health Card

3.6 Maternal and Newborn Health Service Register

3.7 Safe Abortion Service Register



## **4. Community Services**

4.1 ORC Register

4.2 FCHV Service Register

4.3 Vitamin A Register



## **5. Malaria, Kalazar, Leprosy**

5.1 Malaria, kalazar, Leprosy Sample Collection Form

5.2 Malaria, kalazar, Leprosy Laboratory Register

5.3 Malaria, kalazar, Treatment Register

5.4 Leprosy Examination and Treatment Card

5.5 Leprosy Treatment Register

## **6. Tuberculosis**

6.1 Sputum Sample Collection Form

6.2 TB Laboratory Register

6.3 TB Treatment Card(Health Facility)

6.4 TB Treatment Card(Patient)

6.5 TB Treatment Register

6.6 Smoking Cessation Register

6.7 DR TB Laboratory Register

6.8 DR TB Treatment Register





## 7. HIV/AIDS and STI

7.1 HIV Testing and Counseling Register

7.2 STI Treatment Register

7.3 PMTCT Service Register

7.4 HIV Treatment and Care Register

7.5 HIV Patient Treatment Card

7.6 OST Register (Opioid Substitution Therapy)



## **8. Hospital**

8.1 Admission Register

8.2 Discharge Register

8.3 Emergency Service Register



## **9. Monthly Reporting Form**

9.1 FCHV Reporting Form

9.2 Community Level Health Service Monthly Reporting  
For-Immunization and PHCORC

9.3 PHCC/HP, SHP, Urban Health Clinic Monthly Reporting  
Form

9.4 Public Hospital Reporting Form

9.5 Private and NGO Health Facility Reporting Form

- **HMIS Intranet** is hosted by HMIS to serve easy access to HMIS central data bank thus serving **on demand dynamic** access to raw data, analyzed reports, annual/ monthly trend analysis reports & charts, feedback reports, online data entry/update and communication services etc..
- HMIS Intranet can be accessed using network connectivity with HMIS Server. e.g, wired, wireless, dialup etc.

# STRENGTHS

- ❑ Wide coverage
- ❑ Well established and functioning at regional, districts and below.
- ❑ Powerful tool for assisting in health program monitoring at all levels.
- ❑ Service statistics central database.
- ❑ HMIS intranet
- ❑ Large number of human resources trained on HMIS.
- ❑ Dedicated government staff at central, regional, district level.

# ISSUES/CHALLENGES

30

- Inconsistencies and incomplete reporting.
- Under reporting from hospitals particularly in central level and less reporting from private sector.
- Monthly reporting sheets need to be updated timely.
- Gender specific, marginalized group data not yet fully incorporated in the reporting.
- Training of newly recruited health personnel.
- Manual data collection, less use of computer.
- Timely unavailable due to the geographical reason.

24 October 2021

# DHIS(District Health Information System)

- A free and open source District Health Information Software was adopted as the national standard system for the capture, storage, analysis and reporting of routine data. This was commonly referred as the District Health Information System(DHIS).
- The purpose of DHIS is to document data that are routinely collected in all public health facilities in a country using the system

# Vision of DHIS

- A comprehensive and integrated District Health Information System(DHIS) which provides comprehensive, timeous, reliable and good quality evidence for tracking and improving health service delivery and contribution to the development of a National HMIS.



# Objectives of DHIS

- Strengthening, monitoring and evaluation as well as the use of information in policy and programme planning through the regulation and standardisation of the collection and dissemination of health data.
- Clarify the main roles and responsibilities for each administrative level and each category of staff in the mechanism for ensuring data competencies, data quality and data use at all levels of the health system.

# Key Achievements of DHIS

- The DHIS software has gradually expanded to cover hospital data, Emergency Medical Service(EMS) data, Client Satisfaction Surveys(CSS), Core standards and measure of quality of care, survey data sets and data sets related to infrastructures and populations.
- It provides a large proportion of the information used for planning, budgeting, health service management, monitoring and evaluation at all levels of the Health Care System.

# TMIS(Training Information Management System)

- Training is one of the priority program of MoHP.
- National Health Training Center(NHTC) is responsible for planning, implementation and evaluation of all health training.
- NHTC was established in 1993 AD under the department of Health Services(DoHS), Ministry of Health and Population(MoHP) to coordinate and manage all health training under the Ministry of Health.
- NHTC is an apex body responsible to organize and manage training for all levels of health service providers.

- 
- In its training network, it has 5 regional training centers(Dhankuta, Pathalैया, Pokhara, Surkhet and Dhangadhi) and one sub-regional training center in Sapahi, Dhanusha.
  - It tailors to training needs of all departments, divisions, and centers of the MoHP, thus contributing to meet the targets envisioned in the National Health Policy 2071, National Health Strategies(NHSS;2015-2020) and Sustainable Development Goals 2030.

# Strategies of NHTC

- Assessing, standardizing and accrediting training and training site.
- Developing and standardizing training packages
- The institutional capacity development of all training units.
- Conducting pre-service, in-service, orientation, refresher, long-term and short-term training as per national requirements.
- Develop links with professional career development organizations.
- Strengthening the Training Information Management System(TIMMS) and training rosters.

# Purposes of TIMS

- Central HR planning and capacity building
- Maintain the quality of data and its proper use in HR planning.
- Minimize duplication of trainees and all the data
- Well management of training activities.

# Process of TIMS

- Forms generated from TIMS are hand written at Training Sites on the day of training.
- Completed forms are send via courier to NHTC to be entered onto the TIMS database.
- Data is entered and checked for duplication.
- Training certificate is printed through TIMS signed by authorities and sent back to the participants.

# Activities of TIMS

- Preparing and updating the individual profile of training coordinator, trainer and trainees.
- Entry and maintaining of all the data related to training activities at the central and regional level through NHTC.
- Distribution of training certificate
- Updating all the training activities
- Cross-checking of training duplication of participants.



# Limitations of TIMS

- It is not a web-based process.
- It is difficult to migrate previous data onto the current TIMS software.
- One should follow up of training not conducted regularly and hence not included.
- Training conducted by other than NHTC is not maintained.

# IMIS(Integrated Management Information System)

- Integrated Management Information System(IMIS) manages health service information from Local Level to the Department of Health Services(DoHS) Level.
- It provides the basic information for planning, monitoring and evaluation of the health system at all levels.

- Before the integration of all health programmes, various health projects used their own information system using separate recording and reporting tools. Separate (specific) health programme recording/reporting resulted in lack of uniformity and standardization, duplication, need more resources and unnecessary information collection. Therefore, to address those issues integrated health management information system (IHMIS) was established in 1993.

# The major functions of IMIS are:

- Facilitate the Ministry of Health and Population(MoHP) to develop national-level policies, plans, regulations, guidelines, standards and protocols related to integrated information system.
- Timely update and making information digital friendly for effective management and health information.
- Develop, expand and institutionalize existing health sector information system such as HMIS, LMIS, HIIS etc. as an integrated information system.
- Identification and revision of sector-wise health indication for national level health information.

- 
- Develop periodic and annual health reports and disseminate the funding based on rigorous analysis and existing health information.
  - Facilitate capacity building of health personnel for the institutionalization of an integrated information system at different levels.
  - Coordination and cooperation with the provincial and local level government for health related information management system development and implementation.

- 
- Facilitate division of DoHS for developing annual work plan and budget.
  - Prepare and document monthly, trimester and annual progress of various activities conducted by divisions under DoHS and need-based reporting to MoHP.
  - Provide support to MoHP on behalf of DoHS for development of the overall plan.
  - Improve online data entry mechanisms in all districts and hospitals and gradually extend online data entry to below districts level health facilities.

- 
- Establish a uniform and continuous reporting system from government and non-government health service providers so that all health services provided by the government and non-government providers are reported and published.
  - Verify, process and analyze collected data and operate a databank.
  - Provide feedback on achievements, coverage, continuity and quality of health services to program divisions and centers, RHDs, Hospitals, DHOs and DPHOs.

- 
- Disseminate health information through efficient methods and technologies.
  - Improve the information management system using modern information technology.



# IMIS in the Health includes the following sectors:

- Health Management Information System(HMIS)
- Logistical Management Information System (LMIS)
- Financial Management Information System (FMIS)
- Health Infrastructure Information System (HIIS)
- Human Resource Information System (HuRIS)
- Training Information Management System (TIMS)
- Planning and Management of Assets in Health Care System (PLAMAHS)
- Aayurveda Reporting System (ARS)
- Drug Information Network (DIN)

# LMIS(Logistic Management Information System)

- A Logistics Management Information System(LMIS) is a system of records and reports- whether paper-based or electronic- used to aggregate, analyze, validate and display data(from all levels of the logistic system that can be used to make logistics decisions and manage the supply chain.
- LMIS is also one of the Management Information Systems in the health sector of Nepal.

- Logistics Management Division(LMD) was established under the Department of Health Services in 2050/51(1993), with a network of central and five regional medical stores as well as district-level stores.
- The major function of LMD is to forecast, quantify, procure, store and distribute health commodities for the health facilities of the Government of Nepal. It also involves repair and maintenance of bio-medical equipments, instruments and transportation vehicles.

- In order to systematize the management of logistics, the Logistic Management Information System(LMIS) unit was established in LMD in 1994.
- LMIS unit just started online Inventory Management System in 2 central Warehouses, 5 Regional Warehouses and 75 District Warehouses in 2073/74.
- After the restructure of Nepal's governance in the federal structure, the **logistic management division was demolished** and its functions are being carried out through logistic management section under Management Division of Department of Health Services.



Major functions of Logistic Management Section are collection and analysis of quarterly(three monthly) LMIS reports from all the health facilities across the country; preparation, reporting and dissemination of information to:

- Forecast annual requirements of commodities for public health program including family planning, maternal, neonatal and child health, HIV and AIDS commodities, vaccines and essential drugs.

- 
- Help to ensure demand and supply of drugs, vaccines, contraceptives, essential medical and cold chain supplies at all levels.
  - Quarterly monitor the national pipeline and stock level of key health commodities.

# Goal of LMS

---

- Quality health commodities available at health facilities and community level round the year.

# Overall objectives of LMS

- To plan and carry out the logistics activities for the uninterrupted supply of essential medicines, vaccines, contraceptives, equipments, HMIS/LMIS forms and health commodities(including repair and maintenance of bio-medical equipment) for the efficient delivery of healthcare services from the health institutions of government of Nepal in the country.



# Strategies of LMS

- Logistics planning for forecasting, quantification, procurement, storage and distribution of allied commodities.
- Introduce effective and efficient procurement mechanisms like e-Bidding, e- Submission
- Use of LMIS information and real data in decision making.
- Strengthen physical facilities at the Central, Provincial and District Level for the storage and distribution of health commodities.

- Promote online Inventory Management System and Non-Expendable/Expendable Items Inventory System in Central, Provincial and Districts Stores.
- Auctioning of non-functional and cold chain equipments/furniture, vehicle etc.
- Repair and maintenance of bio-medical, cold chain equipment/instruments and transportation vehicles
- Capacity building of required human resources on logistics management regarding public procurement, e-Bidding, e-procurement and Online Inventory Management System at Central, Provincial and district levels.

- 
- Implement effective Pull System for year-round availability of essential drugs and other health commodities at all levels.
  - Formation of Logistics Working Group at Central and Provincial Levels.

# Major Activities of LMS

- Plan for the efficient management on , procurement, storage, distribution and transportation of health commodities to all health facilities for the delivery of healthcare services based on LMIS.
- Store, re-pack and distribute medicines, vaccines, contraceptives equipment and allied commodities.
- Formation of 9 members Logistics Working Group(LWG) at Central Level to solve logistics issues.

- 
- Manage to print and distribute HMIS/LMIS forms, stock books and different forms required for all health institutions.
  - Support on implementation and functioning of Web-Based LMIS.
  - Conduct Capacity Building on Public Procurement Act and Regulations with coordination of Public Procurement Monitoring Office to Provincial and Local Level Managers and storekeepers.

- Capacity building of health workers and office assistant of all Level on Standard Operating Procedures(SOP) in Effective Vaccine Management(EVM).
- Disposal, de-junking and auctioning of unusable equipment, materials and other health commodities.
- Coordination with partner INGOs and NGOs like UNICEF, Lifeline Nepal for strengthening cold chain capacity through support in disaster-resilient cold chain equipment as well as repair and maintenance of refrigerators and freezers.

- Manage to maintain the bio-medical equipment, materials and other health commodities.
- Implement and monitor Pull System for Contraceptives, vaccines and essential drugs in the districts.
- Coordinate with all development partners supporting health logistics management.
- Supervise and monitor the logistics activities of all medical stores.
- Implement the Telemedicine program in the Hill and Mountain Districts.

# Common Challenges

- Poor recordkeeping: Incomplete or not updated stock and consumption records
- Poor reporting: late, incomplete and poor quality reports
- Data not moving up or down the system: facilities not submitting to districts, districts not sending reports to central, central not providing feedback to districts and facilities
- Data not used for decision making