

Lesson plan: Foundations of Health Informatics

Duration: 4 Weeks

Delivery: Hybrid (Asynchronous + Live Sessions)

Credit Equivalent: 2 credits

WEEK 1: What is Health Informatics?

1. Lesson Overview

Learning Focus:

Understanding the basic definition, scope, and importance of health informatics.

Why this matters in LMICs

Many health systems already collect large amounts of health data, but the information is often fragmented or unused. Health informatics helps transform this data into actionable information that improves patient care, research, and health system planning.

Estimated time commitment

6–8 hours total

- Pre-reading: 1 hour
- Lecture content: 2 hours
- Case study discussion: 1 hour
- Live session: 2 hours
- Assignment: 2 hours

Required Materials

- Course reading PDF
- Case study
- Discussion forum

2. Learning Objectives

By the end of this week, learners will be able to:

1. Define health informatics in simple terms
2. Identify major domains of health informatics
3. Explain why health informatics is important in healthcare systems
4. Identify where health data is created in their workplace

Competency alignment:

- WHO Digital Health Workforce Framework – foundational competency in digital health literacy.

3. Pre-Reading

Required Reading (chapters 1 & 2)

Document: Health Informatics – Practical Guide 8th Ed.

4. Core Concept 1

What is Health Informatics?

Health informatics is the **use of information and technology to improve healthcare delivery and outcomes.**

It involves three elements:

People – clinicians, nurses, pharmacists, public health staff

Process – workflows, documentation, communication

Technology – tools used to store and analyze information

Key idea:

Informatics is not about computers. It is about using information effectively.

Example:

A nurse recording vital signs in a paper chart is performing informatics.

Core Concept 2

Domains of Health Informatics

There are several domains:

Clinical informatics

- patient care systems
- clinical decision support

Public health informatics

- disease surveillance
- national reporting systems

Research informatics

- clinical trial data
- research databases

Nursing informatics

- documentation
- care planning

Applied Insight

Health informatics improves:

- patient safety
- care coordination
- disease tracking
- health planning

Example:

Tracking cancer cases helps governments plan screening programs.

5. LMIC Case Study

Case Title: The Missing Patient Record

A patient visits three hospitals for cancer care.

Hospital A: Paper record

Hospital B: Excel spreadsheet

Hospital C: EHR system

None of the systems communicate.

Consequences:

- duplicate tests
- delayed treatment
- incomplete records

Discussion Questions:

1. Where does data fragmentation occur?
2. How could informatics improve this situation?
3. What simple solutions might help?

6. Discussion Forum

Prompt:

List **five places where health data are created in your workplace.**

Examples:

- registration desk
- nursing station
- pharmacy
- laboratory
- billing office

Second question:

What happens to that data after it is recorded?

Reflection question:

What is one data problem in your workplace?

8. Applied Assignment

Assignment Title: Informatics in My Workplace

Write a **500-word reflection** describing:

1. Where data is recorded in your facility
2. How that data is used
3. One problem caused by poor information flow
4. One improvement you would recommend

9. Summary

Key takeaways:

- Health informatics is about **information, not software**
- Data exists in many forms (paper, spreadsheets, EHRs)
- Informatics improves care coordination and safety
- Every healthcare facility already performs informatics activities

Golden Message

“Health informatics is the science of turning health data into better decisions.”

10. Assessment

Weekly Quiz – 10 questions (auto graded)

Topics:

- definition of health informatics
- domains of informatics
- importance of health information

Weight: **5% of course grade**

WEEK 2: Health Systems & Data Flow

Lesson Overview

This lesson explores how information moves through health systems.

Focus:

- patient journey
- data lifecycle
- hybrid systems

Learning Objectives

1. Describe the patient journey through a healthcare system
2. Map the lifecycle of health data
3. Compare paper-based and digital systems
4. Identify data loss points

Pre-Reading

Reading PDF: "The Health Data Lifecycle"

Topics:

- data creation
- data storage
- data sharing
- data use

Core Concept 1

Patient Journey

Steps in healthcare interaction:

1. Registration
2. Clinical assessment
3. Laboratory testing
4. Treatment
5. Follow-up

Data is generated at each step.

Core Concept 2

Health Data Lifecycle

Stages:

1. Data collection
2. Data storage
3. Data processing
4. Data analysis
5. Data use

Poor data management leads to:

- incomplete records
- inaccurate reporting

Applied Insight

Most LMIC systems are **hybrid systems**:

Paper records + spreadsheets + national systems.

LMIC Case Study

Case: Lost Referral Notes

A patient is referred from a rural clinic to a tertiary hospital.

Referral form is missing.

Hospital repeats tests.

Costs increase.

Discussion:

How could data sharing improve this?

Interactive Activity

Draw a **data flow diagram** of your facility.

Applied Assignment

Submit a **simple diagram** showing how patient data moves through your facility.

Summary

Data must **flow effectively** to support care.

Assessment

Quiz + diagram assignment.

WEEK 3: Informatics Workforce & Roles

Lesson Overview

Understanding who works in health informatics.

Learning Objectives

1. Identify informatics workforce roles
2. Describe competencies needed in digital health
3. Recognize interdisciplinary collaboration

Core Concepts

WHO digital health workforce roles include:

- clinical informaticians
- health information managers
- data analysts
- system administrators

LMIC Case Study

Hospital installs EHR but staff lack training.

Result:

System not used effectively.

Interactive Activity

Map informatics roles in your organization.

Applied Assignment

Identify **three roles missing in your health system.**

WEEK 4: Informatics in LMICs

Lesson Overview

Examining real-world informatics challenges and opportunities.

Learning Objectives

1. Identify common barriers in LMIC health informatics
2. Recognize opportunities for innovation
3. Evaluate informatics case studies

Core Concepts

Common barriers:

- limited infrastructure
- workforce shortages
- fragmented systems

Opportunities:

- mobile technology
- open-source platforms
- digital health innovation

LMIC Case Study

DHIS2 national reporting system in Nigeria.

Discuss: Benefits and challenges.

Interactive Activity

Case study debate:

Why do digital health projects fail?

Applied Assignment

Reflection paper: 1000 - 1200 words

“Informatics Challenges in My Setting.”

Summary

Informatics success depends on:

- people
- process
- technology
- leadership

Final Assessment (Topics from all four weeks)

Final Quiz (30%)