APPLIED HEALTH INFORMATICS

Electronic Health Records (EHRs) & Health IT Systems

From Clinical Encounters to Connected Care: How EHRs Transform Healthcare Delivery

Presenter: Chamberlain Nwanne, PhD

Memorial Sloan Kettering Cancer Center

Understanding EHRs Through Healthcare Workflows

Electronic Health Records (EHRs) & Health IT Systems

Week 1: Understanding EHRs Through Healthcare Workflows

Course Theme: From Clinical Encounters to Connected Care: How EHRs Transform Healthcare Delivery

Module Duration: 2 – 4 Hours

Format: Fully Asynchronous

OpenMRS Practice: Required

Office Hour: Week 1 OpenMRS Orientation

Memorial Sloan Kettering Cancer Center | ARGO

Lesson Objectives

By the end of module, learners will be able to:

- ❑ Understand why EHRs exist
- ❑ Understand healthcare as an information system
- ❑ Follow a patient journey through care
- ❑ Understand core EHR functions
- ❑ Navigate OpenMRS
- ❑ Understand health data flow like an informaticist

Memorial Sloan Kettering Cancer Center | ARGO

Before We Begin

Many learners in this course have

- ❑ Never used an HER
- ❑ Never used OpenMRS
- ❑ Worked primarily in paper-based environments

That is perfectly fine. This course assumes no prior EHR experience.

What this course is NOT

This course is NOT:

- ❑ OpenMRS certification
- ❑ EHR administration
- ❑ Software configuration
- ❑ Programming

Memorial Sloan Kettering Cancer Center | ARGO

Important Principle

What This Course IS

This course IS about understanding:

- ❑ Healthcare workflows
- ❑ Information flow
- ❑ Documentation
- ❑ Care coordination
- ❑ Decision-making
- ❑ Digital transformation

The software is simply a tool. The real subject is healthcare information.

Memorial Sloan Kettering Cancer Center | ARGO

What Happens in Healthcare?

Think about your workplace

- ❑ Patients arrive.
- ❑ Providers assess.
- ❑ Tests are ordered.
- ❑ Treatments are given.
- ❑ Reports are generated.

What connects all of these activities? Information.

Memorial Sloan Kettering Cancer Center | ARGO

Healthcare Runs on Information

Healthcare decisions depend on:

- ❑ Patient demographics
- ❑ Clinical history
- ❑ Diagnoses
- ❑ Laboratory results
- ❑ Medications
- ❑ Treatment plans

Without information:

No diagnosis.

No treatment.

No follow-up.

Memorial Sloan Kettering Cancer Center | ARGO

Information Is a Clinical Resource

We often think about:

- ❑ Doctors
- ❑ Nurses
- ❑ Medications
- ❑ Equipment

But information is equally important.

Poor information can harm patients just as much as poor treatment.

Memorial Sloan Kettering Cancer Center | ARGO

Information Problems We See Every Day

Common challenges:

- ❑ Lost records
- ❑ Missing reports
- ❑ Duplicate records
- ❑ Incomplete documentation
- ❑ Delayed information

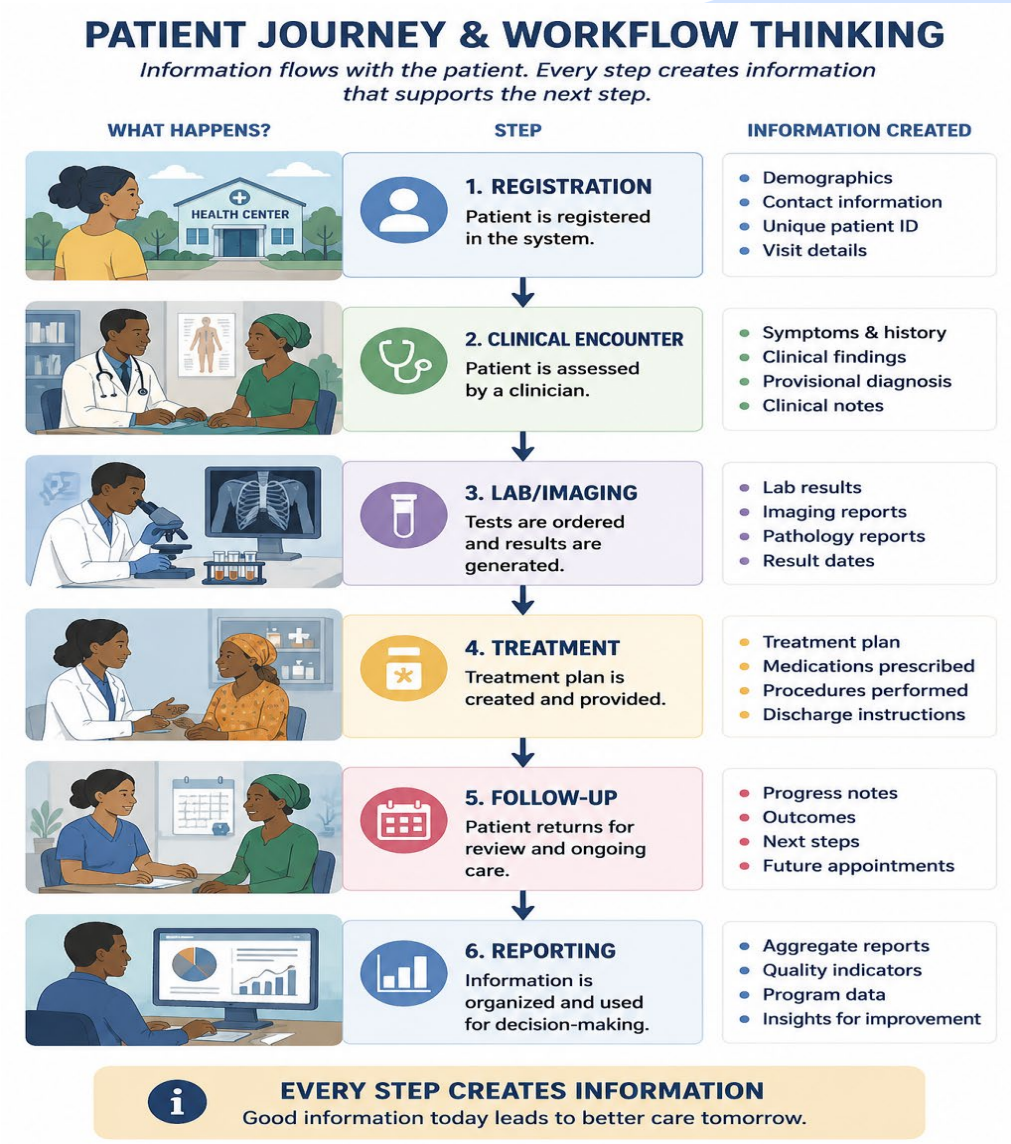
These problems exist in both paper and digital systems.

Memorial Sloan Kettering Cancer Center | ARGO

Patient Journey & Workflow Thinking

Patient
↓
Registration
↓
Clinical Encounter
↓
Lab/Imaging
↓
Treatment
↓
Follow-up
↓
Reporting

Every step creates information.



Memorial Sloan Kettering Cancer Center | ARGO

What is an Electronic Health Record?

Traditional Definition

An EHR is a digital record of patient health information.

But this definition is incomplete.

EHR = More Than a Digital Chart

EHRs support:

- ❑ Clinical care
- ❑ Coordination
- ❑ Reporting
- ❑ Quality improvement
- ❑ Research
- ❑ Population health

Memorial Sloan Kettering Cancer Center | ARGO

Electronic Health Record

Better Definition

An EHR is a system that helps healthcare organizations:

- ❑ Capture information
- ❑ Store information
- ❑ Share information
- ❑ Use information

to support patient care.

Memorial Sloan Kettering Cancer Center | ARGO

Why Were EHRs Created

Paper records create challenges:

- ❑ Hard to find
- ❑ Easy to lose
- ❑ Difficult to share
- ❑ Difficult to report from

EHRs attempt to solve these problems.

Potential benefits of EHRs

- ❑ Better information access
- ❑ Improved coordination
- ❑ Reduced duplication
- ❑ Faster reporting
- ❑ Improved data quality

Memorial Sloan Kettering Cancer Center | ARGO

Why Were EHRs Created

EHRs Do NOT Automatically Fix Problems

Important lesson:

Bad workflows can become bad digital workflows.

Technology alone does not improve care.

People and processes matter.

Memorial Sloan Kettering Cancer Center | ARGO

Understanding EHR Components

Major Components of an EHR

- Registration
  - Identify patients correctly. No patient record exists without registration.
- Clinical Documentation
  - Record what happened during care.
- Orders
  - Includes medication prescribing, diagnostic imaging & labs, consultations & referrals, nursing orders
- Results
  - Supports Laboratory results, Pathology, Imaging
- Reporting
  - Transforms patient data into information. Provides insights, supports researchers and public health programs

Memorial Sloan Kettering Cancer Center | ARGO

Thinking Like an Informaticist

An EHR helps focus our perspectives while working with patient data

- Clinician
  - Can I care for the patient?
- Administrator
  - Can I manage operations?
- Researcher
  - Can I analyze outcomes?
- Informaticist
  - Can I ensure that the right information reach the right person at the right time?

Memorial Sloan Kettering Cancer Center | ARGO

Thinking Like an Informaticist

Informaticists connect:

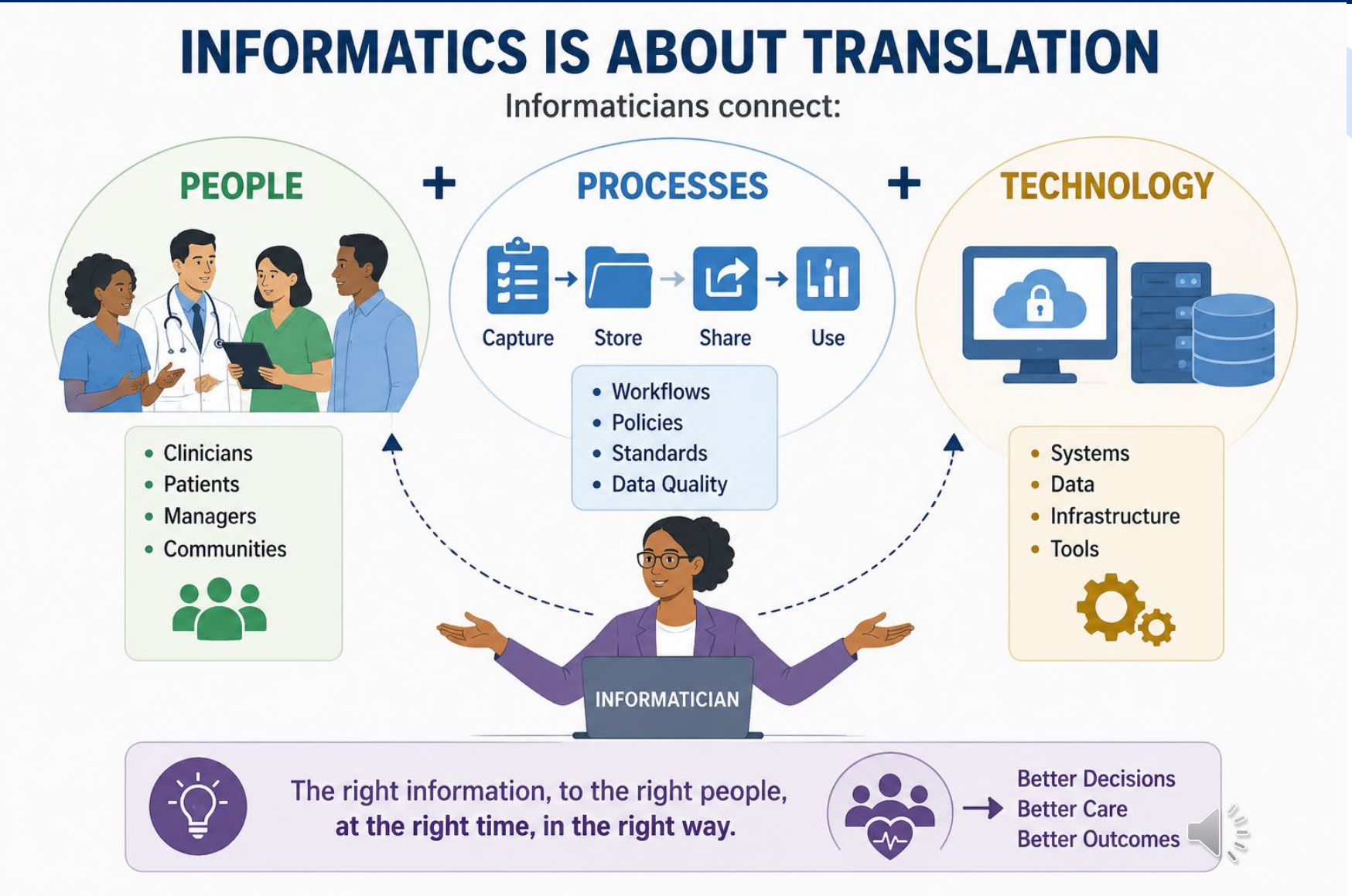
People

+

Processes

+

Technology



LMIC Reality Check

Digital Health Is Not Always Fully Digital

Many organizations use:

- ❑ Paper records
- ❑ Spreadsheets
- ❑ WhatsApp
- ❑ Hybrid systems

This is normal.

Common LMIC Challenges

- ❑ Limited computers
- ❑ Limited internet
- ❑ Workforce shortages
- ❑ Training gaps
- ❑ Multiple parallel systems

A Good System Is Not Necessarily a Complex System

The best systems:

- ❑ Fit local workflows
- ❑ Solve real problems
- ❑ Are sustainable

Memorial Sloan Kettering Cancer Center | ARGO

Key Takeaways

Healthcare is an information system, but technology alone is not enough.

EHRs support workflows.

Workflows create information.

Information drives decisions.

Successful digital health requires: People + Processes + Technology

An EHR is more than software.

It supports:

- ❑ Care
- ❑ Communication
- ❑ Reporting
- ❑ Improvement

An EHR is not simply a digital record.

It is a tool that helps transform information into action, supports continuity of care, and enables healthcare systems to learn, improve, and serve patients more effectively.

Memorial Sloan Kettering Cancer Center | ARGO

Memorial Sloan Kettering
Cancer Center

END