

Electronic Health Record System (EHRS)

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MHA621
Healthcare Informatics

Lecture 3



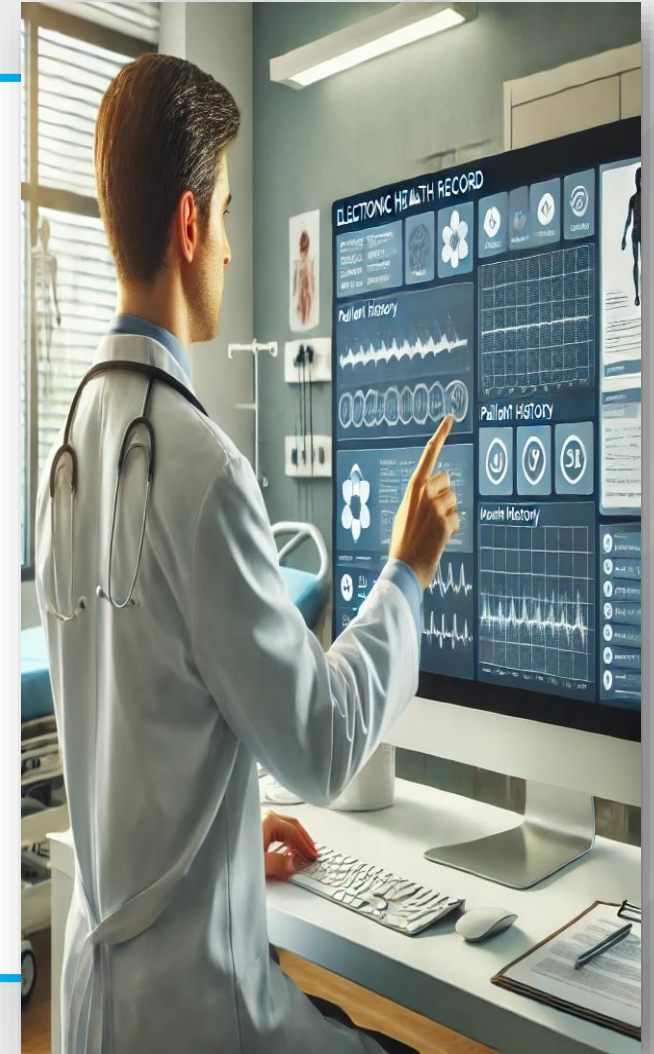
Intended Objectives

1. Understand the role of EHRs in improving healthcare quality.
2. Explore the concept of Meaningful Use (MU) and its impact on healthcare.
3. Discuss the challenges, benefits, and future directions of EHRs.
4. Understand the role of **workarounds** in EHRs usage, their causes, and their potential impact on patient safety and workflow efficiency.
5. Examine the **legal and ethical challenges** associated with EHRs, including issues related to data integrity, discovery in lawsuits, and fragmented documentation accountability.

EHR vs. EMR vs. PHR

- **EHR (Electronic Health Record):** Lifetime record across multiple healthcare providers.
- **EMR (Electronic Medical Record):** Digital version of a patient's chart within a single practice.
- **PHR (Personal Health Record):** Controlled by the patient, accessible by both patient and providers.

Benefits of EHRS



Benefits of EHRS

➤ General Benefits:

- Improved data integrity.
- Increased productivity.
- Enhanced quality of care.



Benefits of EHRS

➤ Benefits for Medical Staff:

- Facilitates comparisons of current and past data.
- Eliminates repetitive data collection.



Benefits of EHRS

➤ Benefits for Healthcare Providers:

- **Improved Reimbursement:** Eligibility for incentives.
- **Enhanced Decision Support:** System-generated prompts for preventive care.
- **Better Reporting Tools:** Trends and clinical graphics available on demand.

Benefits of EHRS

➤ Benefits for Consumers:

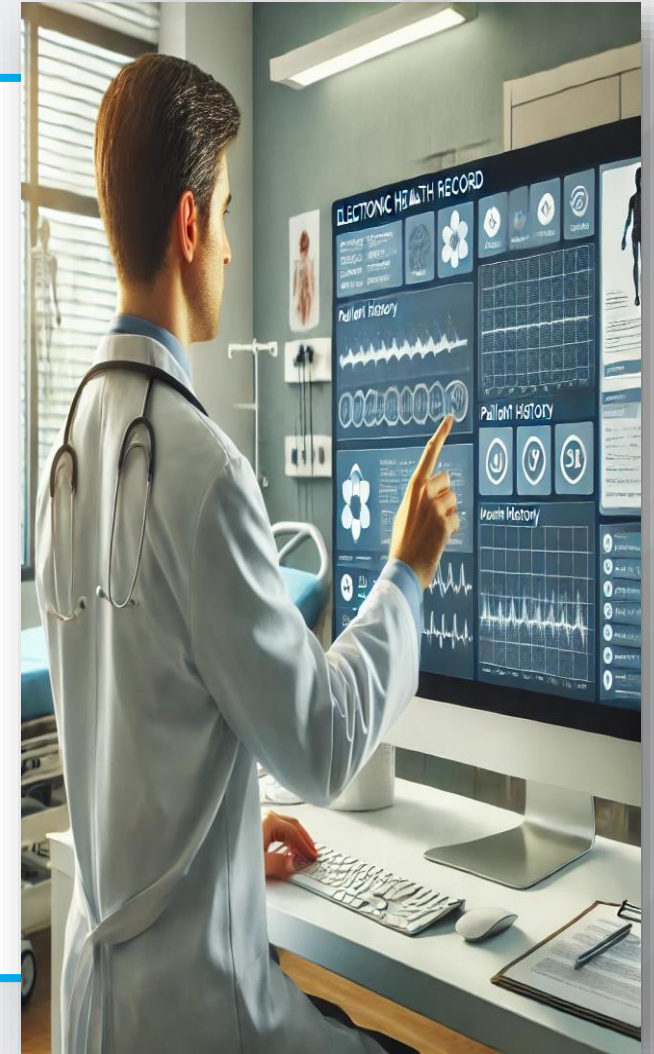
- **Improved Access:** Patients have control over their health information.
- **Increased Safety:** Alerts for medication interactions.
- **Greater Satisfaction:** Quicker turnaround for treatments.

Benefits of EHRS

➤ Benefits for Payer:

- **Supports Pay-for-Performance:** Quality measures are gathered.
- **Disease Management:** Lowers costs for expensive diagnoses.

Meaningful Use (MU) Overview



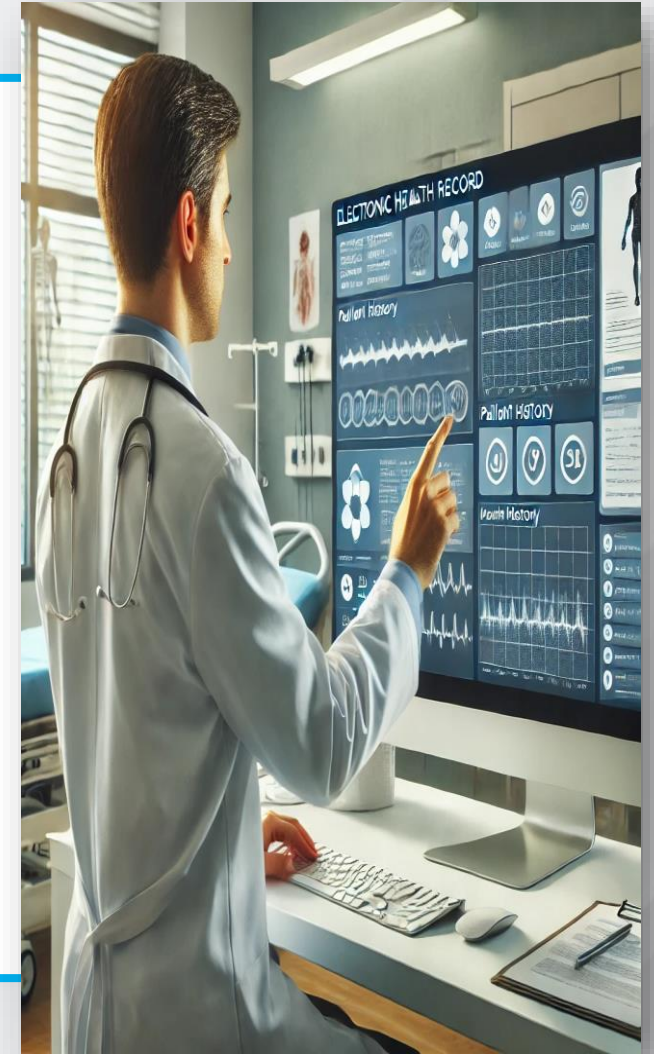
HITECH Act

- **Health Information Technology for Economic and Clinical Health Act (HITECH Act), 2009:** Part of the American Recovery and Reinvestment Act (**ARRA**).
 - **Incentives:** Payments for adopting and using interoperable EHRS.
 - **Goals:** Improve healthcare quality, safety, and efficiency.

Meaningful Use (MU) Overview

- **Definition:** A set of standards for EHRs use to improve quality, safety, and efficiency.
- **Purpose:** To ensure EHRs are used effectively to enhance patient care.

Stages of Meaningful Use (MU)



Stages of Meaningful Use (MU)

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- The **Stages of Meaningful Use (MU)** were designed as part of the **HITECH Act** to encourage the adoption and effective use of the **Electronic Health Record System (EHRS)** in the United States. The stages progressively focused on improving the **quality, safety, and efficiency** of healthcare through the use of electronic health data.

Stages of Meaningful Use (MU)

➤ Stage 1 (2011-2012): Data Capture and Sharing

- **Objective:** The primary focus of Stage 1 was to ensure that healthcare providers could collect and **electronically record patient health information**.
- **Key Requirements:**
 1. **Data Capture:** Providers were required to **digitally capture patient demographics**, such as name, age, gender, and health conditions.
 2. **Basic Health Data Sharing:** EHRs needed to be able to electronically **share key clinical information**, such as lab results and medical history, between healthcare providers and patients.

Stages of Meaningful Use (MU)

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- **Key Requirements:**

3. **Computerized Provider Order Entry (CPOE):** Providers needed to use CPOE for medication, tests, and procedures to reduce errors related to handwritten orders.
4. **Clinical Decision Support (CDS):** Basic decision-making support tools were integrated to help healthcare providers make informed clinical decisions.
5. **Electronic Prescribing:** Medication prescriptions must be created and transmitted electronically to pharmacies.

Stages of Meaningful Use (MU)

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➤ Stage 2 (2014-2016): Advanced Clinical Processes

- **Objective:** Stage 2 aimed to build upon Stage 1 by introducing more advanced clinical processes and making greater use of the EHRs for patient care.
- **Key Requirements:**
 1. **Health Information Exchange (HIE):** EHRs had to allow the electronic exchange of patient health information across different organizations (e.g., from one hospital to another or between a hospital and a pharmacy).

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- **Key Requirements:**

- 2. Patient Access to Health Information:** Healthcare providers were required to offer patients electronic access to their health records (e.g., through patient portals).
- 3. Clinical Decision Support (CDS):** More advanced CDS functionalities, including alerts and reminders based on patient data, were to be integrated to help improve clinical care.

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- **Key Requirements:**

4. **Advanced e-Prescribing:** This included sending prescriptions electronically to pharmacies, including controlled substances.
5. **More Quality Measures:** Providers were asked to meet a broader set of quality measures related to patient safety, efficiency, and care coordination.

Stages of Meaningful Use (MU)

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➤ Stage 3 (2017-2018): Improved Outcomes

- **Objective:** Stage 3 focused on achieving improved health outcomes through the full use of EHRs to help drive improvements in care quality, safety, and patient outcomes.
- **Key Requirements:**
 1. **Health Information Exchange (HIE) Expansion:** Further expansion of **data sharing** across organizations and healthcare systems to improve care coordination and management of chronic conditions.

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- **Key Requirements:**

2. **Advanced Clinical Decision Support (CDS):** More sophisticated decision support tools were needed, such as integrating **predictive analytics** and patient data to guide treatment decisions and reduce adverse events.
3. **Patient Outcomes:** Providers were expected to focus on improving **health outcomes** by using **real-time data** to guide clinical decisions and monitor performance.

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- **Key Requirements:**

- 4. **Performance Reporting:** Increased focus on **reporting patient outcomes** and using data to improve quality, such as tracking hospital readmissions or patient safety indicators.

Meaningful Use (MU) Example

➤ Example of Meaningful Use in Practice:

- In the United States, *Kaiser Permanente*, a large healthcare system, effectively implemented EHRs to meet **Meaningful Use (MU)** standards.



Meaningful Use (MU) Overview

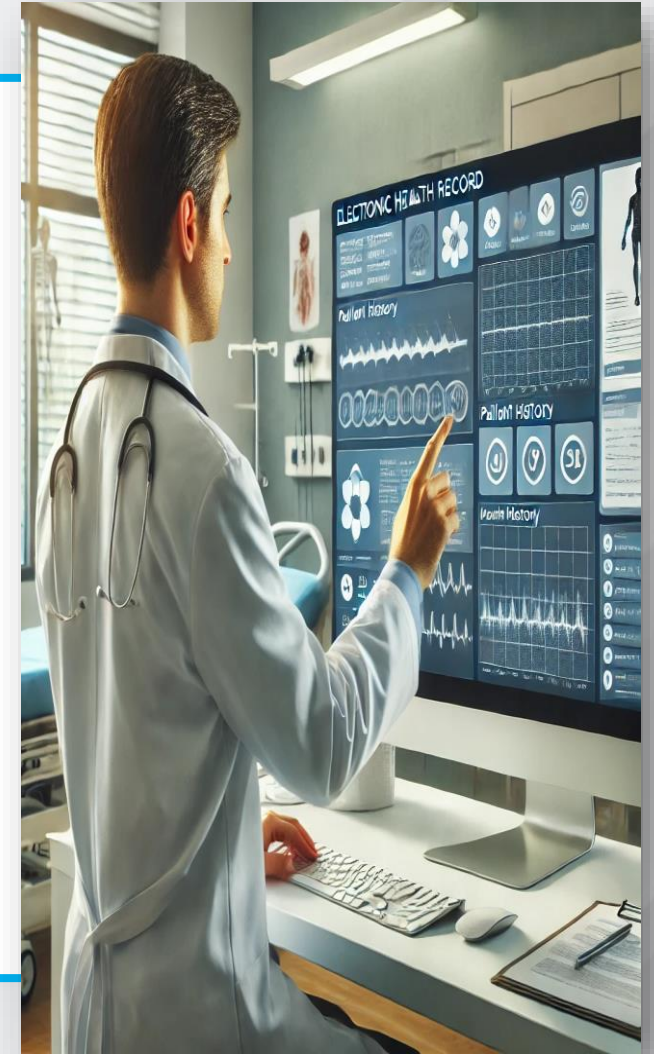
- **Kaiser Permanente** used electronic prescribing (**e-prescribing**) and **clinical decision support systems** to reduce medication errors. **For instance:**
 - **Drug-allergy alerts and interaction warnings** in the EHRs helped prevent adverse drug events.
 - **Patient portals allowed individuals to view their medical records**, request medication refills, and schedule appointments, improving engagement and care coordination.

- **Stage 1:** Focused on the **basics** of data capture, sharing, and technology integration.
- **Stage 2:** Expanded on **interoperability** and **patient engagement**, using technology for advanced clinical processes.
- **Stage 3:** Focused on improving patient outcomes, using **data-driven decisions** to enhance healthcare quality.

*“Each stage built upon the previous one, gradually increasing the sophistication of **health IT systems** to ultimately improve healthcare delivery and patient care outcomes.”*



Workarounds in EHRS Use



Workarounds in EHRs Use

➤ Definition:

- **Workarounds** are **alternative methods** or variations in standard procedures that healthcare providers use to address **limitations** or challenges in the **EHRs**.
- While they can help complete tasks, they may introduce inefficiencies or risks to patient safety.

Common Workarounds

1. Double Documentation:

- Providers document the same information in both the EHRS and paper records due to system downtime or user preferences.
- **Impact:** Increases workload and risk of discrepancies between records.

Common Workarounds

2. Use of Paper Records:

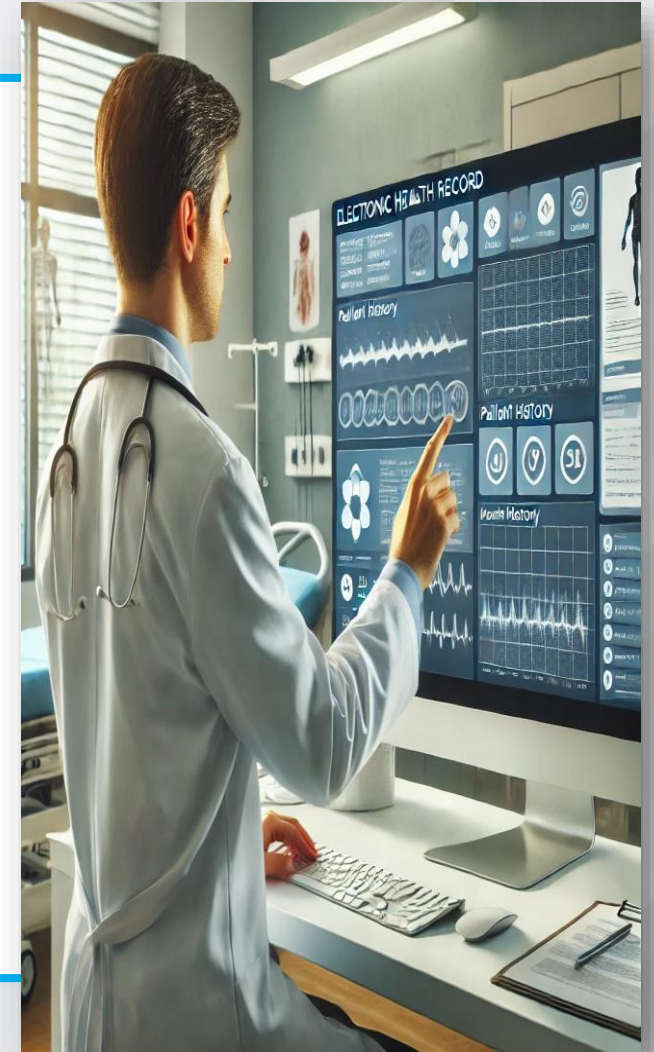
- Clinicians may rely on paper-based notes when the EHRs is unavailable or too complex to use in real time.
- **Impact:** Leads to delayed or incomplete transfer of data into the system, reducing the value of the EHRs.

Common Workarounds

3. Manual Verification of Electronic Data:

- **Rechecking or reconciling** electronic data with paper records or other sources to ensure accuracy.
- **Impact:** Adds time and effort, potentially slowing down clinical workflows.

Legal Aspects of EHRS



Legal aspects in EHRS

1. Discovery in Lawsuits:

- **Definition:**

- Discovery is the process during a lawsuit where relevant information is shared between parties.
- **With EHRS**, this includes retrieving and presenting electronic health records as evidence in legal proceedings.

Legal aspects in EHRS

➤ Challenges with EHRS in Legal Contexts:

A. Volume of Data: EHRS generate vast amounts of data, making it harder to filter and identify relevant information for legal cases.

Legal aspects in EHRs

➤ Challenges with EHRs in Legal Contexts:

B. Metadata Analysis: EHRs contain metadata (e.g., timestamps, user activity logs), which can reveal when and by whom patient data was accessed or altered. This is crucial in **malpractice lawsuits** but can complicate legal proceedings.

Legal aspects in EHRS

➤ Challenges with EHRS in Legal Contexts:

C. Evolving Standards: Legal guidelines on the admissibility and authenticity of electronic records are continually being updated, requiring institutions to stay compliant.

Legal aspects in EHRS

2. Documentation Issues:

A. Multiple Data Entry Sites: In EHRS, data entry occurs at various points (e.g., nursing stations, provider notes, pharmacy systems), creating a disjointed record trail.

- **Impact:** It becomes challenging to determine who entered, edited, or failed to update specific information.

Legal aspects in EHRS

2. Documentation Issues:

B. Fragmented Accountability: When documentation spans multiple users and departments, assigning responsibility for errors (e.g., incorrect orders, delayed updates) becomes complex.

➤ **Legal Implication:** Lack of clear accountability can lead to disputes during malpractice cases.

Wrap Up

1. **EHR Overview:** EHRs enhance data integrity, care quality, and decision-making, differing from EMRs (single practice) and PHRs (patient-controlled).
2. **HITECH Act and MU:** The HITECH Act established **Meaningful Use (MU)** to promote EHR adoption, progressing through stages of data sharing, clinical processes, and improved outcomes.
3. **Benefits:** EHRs offer improved care quality, decision support, patient access, and cost efficiency for providers, patients, and payers.

Wrap Up

4. **Challenges:** Barriers like interoperability issues, high costs, and inadequate training lead to workarounds that can undermine efficiency and safety.
5. **Legal and Ethical Aspects:** EHRs pose legal challenges, including metadata management, discovery in lawsuits, and accountability in multi-user systems.
6. **Future Directions:** Innovations in interoperability, predictive analytics, and public health integration are essential to advancing EHRs and improving patient outcomes.



Thank You