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LUXURY OR NECESSITY ?

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EMR innovations: a challenging solution for patient safety improvement

Jocelyne Ziadeh Assaf

Outline

- Introduction
  - Definition (EMR/EHR)
  - Evolution
- Integrated Model for Patient Centered Care
- Advantages of EMR: Improving Patient Care and Patient Safety
- Potential Risks
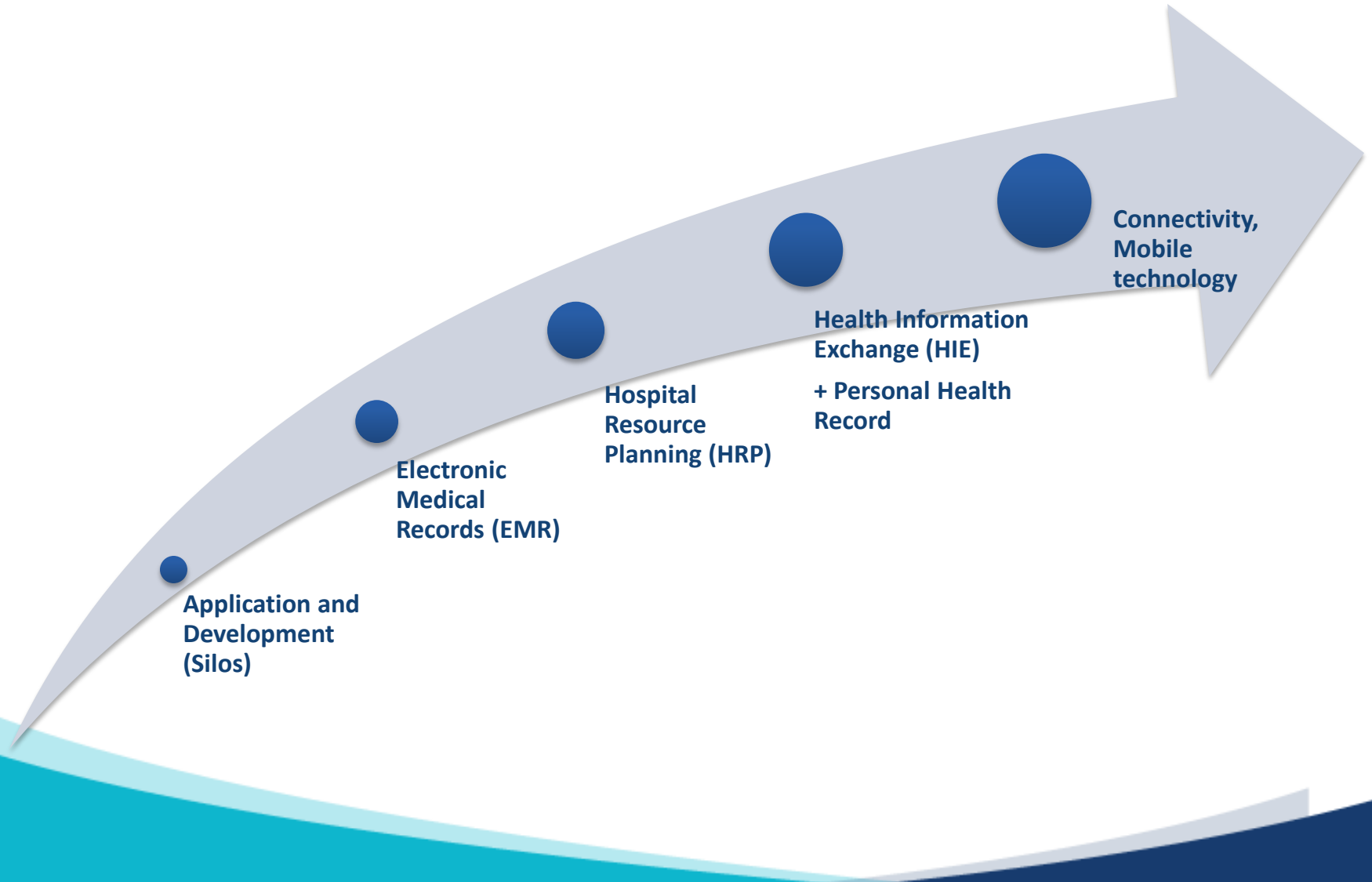- Challenges
- Recommendations

Introduction

Definition: Electronic Health/Medical Record (EHR/EMR)

- **EMR** "**An application environment composed of the clinical data, repository, clinical decision support, controlled medical vocabulary, order entry, computerized provider order entry, pharmacy, and clinical documentation applications**."
    - The EMR supports the patient's electronic medical record across *inpatient* and *outpatient* environments.
    - The EMR is used by healthcare practitioners to document, monitor, and manage health care delivery within a *care delivery organization (CDO)*.
    - The EMR is *owned by the CDO*

- **EHR "A subset of each care delivery organization's EMR is owned by the patient and has patient input and access that spans episodes of care across multiple CDOs within a community, region, or state"**
    - The EHR is *owned by the patient* or stakeholder
    - The EHR can be established only if EMRs of the various CDOs have evolved to a level that can create and support a robust exchange of information

Source: https://app.himssanalytics.org/docs/WP_EMR_EHR.pdf

EMR Evolution

Application and Development (Silos)

Electronic Medical Records (EMR)

Hospital Resource Planning (HRP)

Health Information Exchange (HIE)

+ Personal Health Record

Connectivity, Mobile technology

Integrated Model for Patient Centered Care

Advantages of EMRs

Attribute	Benefit
Immediate and universal access to the patient record	Increased efficiency (reduced time spent pulling charts, and duplicate history-taking etc..). Increased quality (better information at the point-of-care)
Easier and quicker navigation through the patient record	More efficient point of care assessment and data abstraction
Increased legibility and comprehensiveness, through computer-aided history taking systems and better formatting (templates)	Better quality information to aid clinical decision-making and shared care; fewer errors in patient management (eg mis-prescribing)

Advantages of EMRs

Attribute	Benefit
Secure record keeping	No lost records, fewer unnecessary waits or missed appointments, aiding informed patient care. Patient satisfaction.
Standardization of care among providers within the organization	Through better recording and sharing of information and linkage to CDSS
Reduction of paperwork, documentation errors, filing activities	Removes duplication, reduces processing time, decreases personnel costs
Coding efficiency and efficacy	Improved data quality
Alerts for medication errors, drug interactions, patient allergies	Safer patient care

Advantages of EMRs

Attribute	Benefit
Ability to electronically transmit information to other providers (assessments, history, treatments ordered, prescriptions, etc.)	Fewer delays, more efficient and integrated patient care. Enhanced patient satisfaction.
Availability of clinical data for use in quality, risk, utilization, analyses	Better monitoring of quality and efficiency
Availability of non-clinical data	Easier management of costs, performance and workflow
Availability of data for research	With downstream benefits for patient care

Adapted from: Healthcare Information and Management Systems Society

Examples on safety improvement

- EMRs don't just contain or transmit information; they "compute" it. That means that EMRs manipulate the information in ways that make a difference for patients. For example:

  - A qualified EMR doesn't only keep a record of a patient's medications or allergies, it also automatically checks for problems whenever a new medication is prescribed and alerts the clinician to potential conflicts.

  - Information gathered by a primary care provider and recorded in an EMR tells a clinician in the emergency department about a patient's life-threatening allergy, and emergency staff can adjust care appropriately, even if the patient is unconscious.

  - EMRs can expose potential safety problems when they occur, helping providers avoid more serious consequences for patients and leading to better patient outcomes.

Potential Risks

- Creating new paths to failure.

- Distraction → miscommunication

- Human-Computer Interaction Issues → Erroneous or missing data, delaying treatments

- Limit interactive conversation, and restrict creative thinking. This may depersonalize and weaken the doctor-patient relationship

Potential Risks

- New risks that may lead to harm due to *Poorly designed, implemented, or applied* EMRs (adding steps to accomplish tasks, or presenting data in a non-intuitive format ,dosing errors, auto-populated fields,.)

- Example: Because of *"alert fatigue,"* there is a danger that doctors may *ignore, override, or disable alerts,* warnings, reminders, and embedded practice guidelines. If it can be shown that following an alert or a guideline would have prevented an adverse patient event, the doctor may be found liable for failing to follow it.

Challenges

- Implementation Strategy/Costs

- Patient care time

- Privacy & Security :
  - Potential for breach
  - User access/disclosure
  - Stricter definition of secure

- Availability of data

- Technical Infrastructure (downtime, crashes, viruses..)

Recommendations

- Vendor choice:
  - Smart, flexible, integrated systems:
    - Assessment tools rather than input tools
    - Certified for interoperability: ability to interface
    - Ergonomics
  - Engage the vendor/integrator in a partnership

- Implementation process quality:
  - Engagement of all the healthcare providers (decision making/validation), user education rather than trainings.
  - Change management
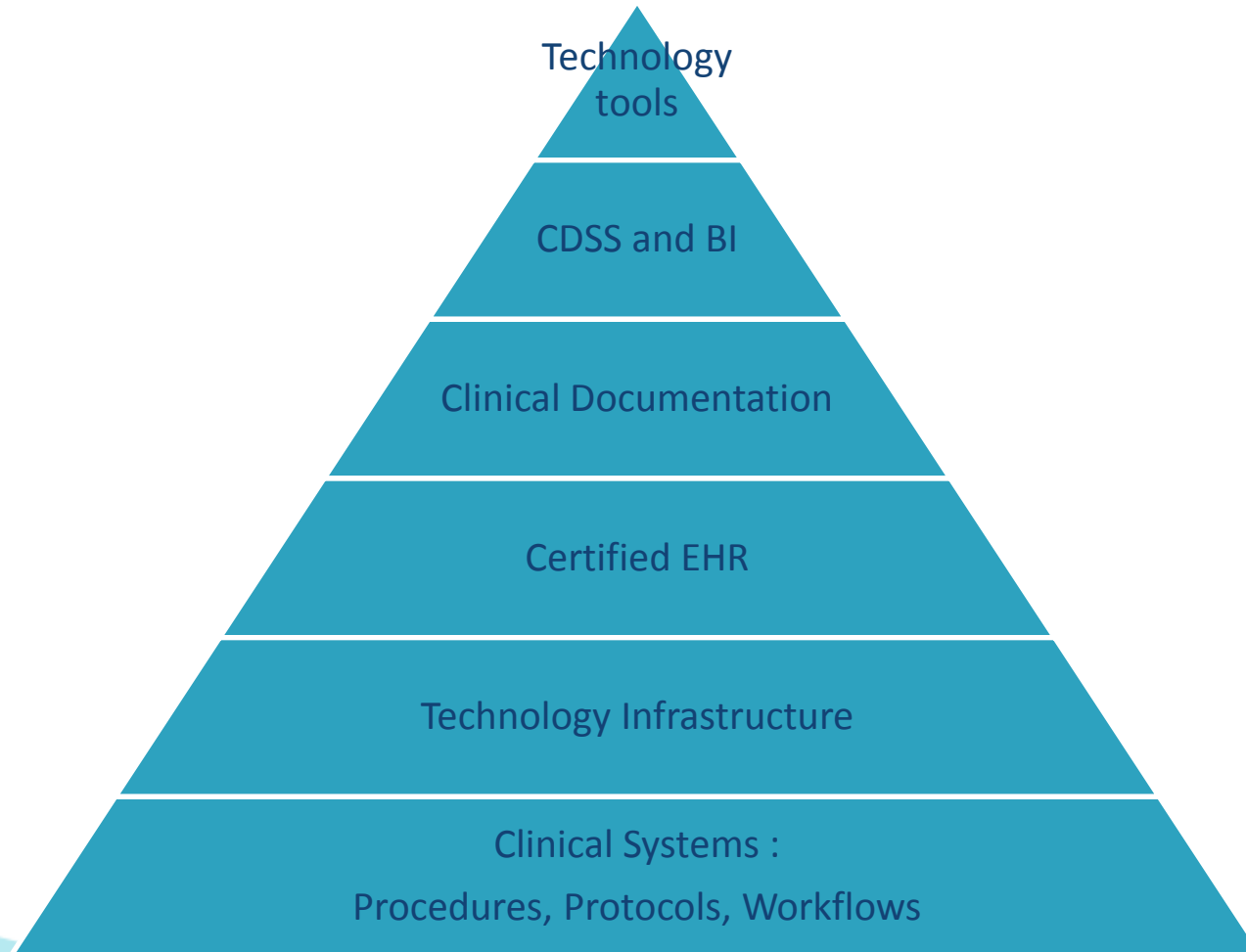 - Communication, Communication& Communication

Recommendations

- Infrastructure readiness: Mobility, business continuity and disaster recovery, security

- Information security: authorizations/profiles

- Continuous auditing and Outcome analysis

- Most importantly: Clinical systems readiness
  - Procedures/Protocols
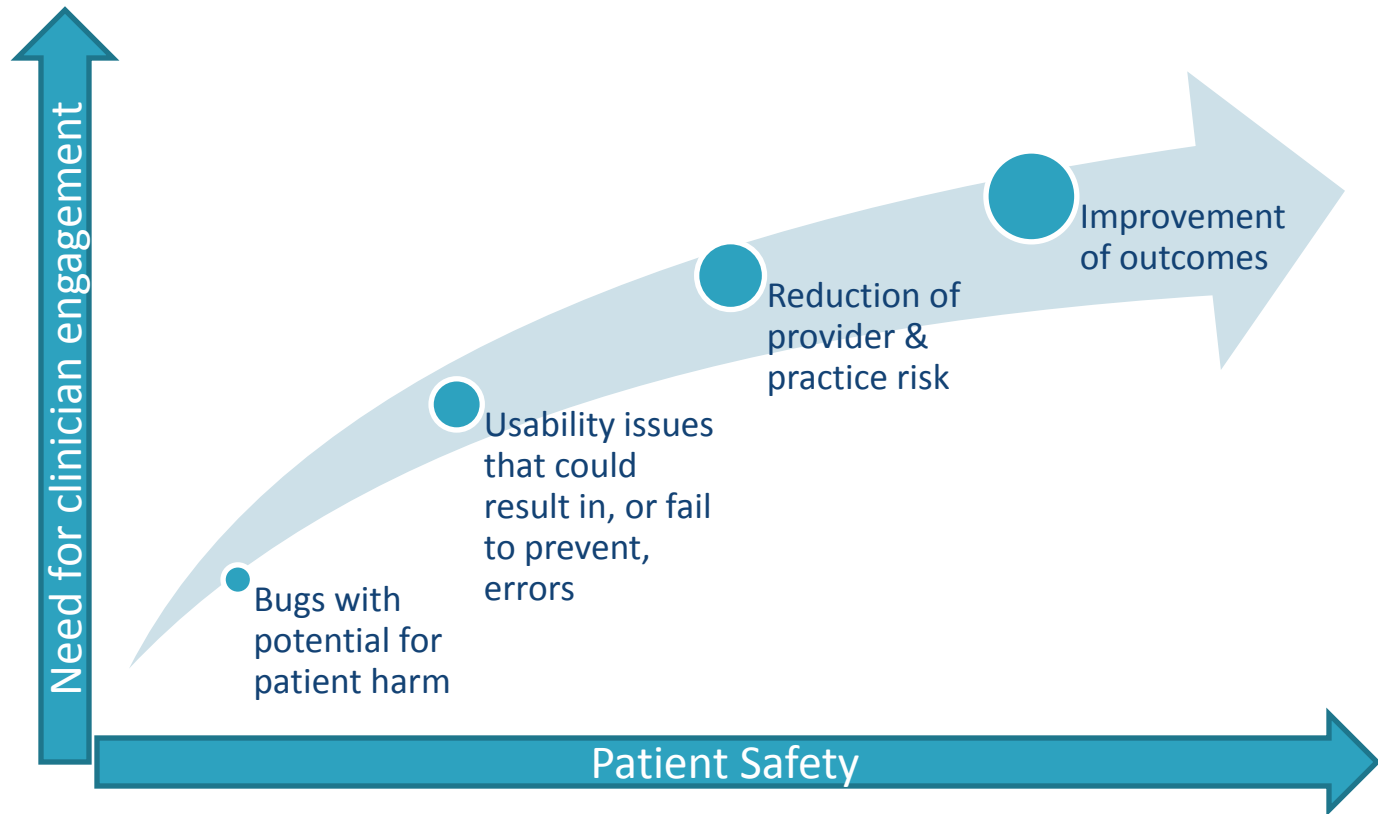 - Guidelines with decision driven flowcharts
  - Workflows

EMR: A building process

Technology
tools

CDSS and BI

Clinical Documentation

Certified EHR

Technology Infrastructure

Clinical Systems :
Procedures, Protocols, Workflows

EMR: Provider Learning Curve

- Provider learning curve /Adoption/Engagement

Need for clinician engagement (vertical axis)

Patient Safety (horizontal axis)

Bugs with potential for patient harm

Usability issues that could result in, or fail to prevent, errors

Reduction of provider & practice risk

Improvement of outcomes

"Productivity in the healthcare system cannot increase without patient safety first being assured. A key benefit to establishing an EHR system is a corresponding increase in patient safety."

Philip Hassen, President,

International Society for Quality and Safety in Health Care

Q&A