Curriculum Development
Centers Program

Awardee of The Office of the National Coordinator for
Health Information Technology

Component 6 - Health Management Information Systems

Unit 3-1
Electronic Health Records

Objectives

- State the similarities and differences between an EMR and an EHR
- Identify attributes and functions of an EHR
- Describe the perspectives of health care providers and the public regarding acceptance of or issues with an EHR
- Explain how the use of an EHR can affect patient care safety, efficiency of care practices, and patient outcomes

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Purpose of a Patient (medical) Record

- "To recall observations, to inform others, to instruct students, to gain knowledge, to monitor performance, and to justify interventions"
                    - Dr. Reiser

Reiser, S. (1991). The clinical record in medicine. Part 1:Learning from cases. Annals of Internal Medicine, 114(10):902-907.

- Legal business record

Electronic Medical Record (EMR)

- Electronic record of health-related information on an individual
  - Within one health care organization

Defining Key Health Information Technology Terms
  http://healthit.hhs.gov/portal/server.pt/gateway/PTARGS_0_10741_848133_0_0_18/10_2_hit_terms.pdf

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EMR Purpose

- Provide an electronic equivalent of an individual's legal medical record
  - Intra-organizational

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Electronic Health Record (EHR)

- Electronic record of health-related information on an individual
  - Across more than one health care organization

Defining Key Health Information Technology Terms
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EHR Purpose

- Provide an electronic equivalent of an individual's health record for use by providers and staff across more than one health care organization
- Support efficient, high-quality integrated health care, independent of the place and time of health care delivery

EMR versus EHR

EMR	EHR
A record of medical care created, managed, and maintained by one health care organization (intra-organizational)	A repository of individual health records that reside in numerous information systems and locations (inter-organizational)
Integration of health care data from a participating collection of systems from one health care organization	Aggregation of health-related information into one record focused around a person's health history, i.e., a comprehensive, longitudinal record
Consulted by authorized clinicians and staff within one health care organization.	Consulted by authorized clinicians and staff across more than one health care organization
Data continuity throughout one health care organization	Data interoperability across different organizations

EHRs Versus Paper Records

- EHRs can make a patient's health information available when and where it is needed
- EHRs can bring a patient's total health information together in one place, and always be current
- EHRs can support better follow-up information for patients

Electronic Health Records at a Glance, https://www.cms.gov/EHRIncentivePrograms/

EHRs Versus Paper Records

- EHRs
  - Can improve patient and provider convenience
  - Can link information with patient computers to point to additional resources
  - Don't just "contain" or transmit information, they also compute with it
  - Can improve safety

Electronic Health Records at a Glance, https://www.cms.gov/EHRIncentivePrograms/

EHRs Versus Paper Records

- EHRs can
  - Deliver more information in more directions
    - While reducing "paperwork" time for providers
  - Improve privacy and security
  - Reduce costs

Electronic Health Records at a Glance, https://www.cms.gov/EHRIncentivePrograms/

Attributes

- Provides secure, reliable, real-time access to patient health record information, where and when it is needed to support care
- Captures and manages episodic and longitudinal electronic health record information

HIMSS Electronic Health Record Definitional Model, Version 1.0,
http://www.providersedge.com/ehdocs/ehr_articles/HIMSS_EMR_Definition_Model_v1-0.pdf

Attributes continued

- Functions as clinicians' primary information resource during the provision of patient care
- Assists with the work of planning and delivering evidence-based care to individual and groups of patients

- HIMSS Electronic Health Record Definitional Model, Version 1.0, http://www.providersedge.com/ehdocs/ehr_articles/HIMSS_EMR_Definition_Model_v1-0.pdf

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Attributes continued

- Supports continuous quality improvement, utilization review, risk management, and performance monitoring
- Captures the patient health-related information needed for reimbursement

- HIMSS Electronic Health Record Definitional Model, Version 1.0, http://www.providersedge.com/ehdocs/ehr_articles/HIMSS_EMR_Definition_Model_v1-0.pdf

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Attributes continued

- Provides longitudinal, appropriately masked information to support clinical research, public health reporting, and population health initiatives
- Supports clinical trials

- HIMSS Electronic Health Record Definitional Model, Version 1.0, http://www.providersedge.com/ehdocs/ehr_articles/HIMSS_EMR_Definition_Model_v1-0.pdf

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HL7 EHR Functions

- Direct care functions
- Supportive functions
- Information infrastructure functions

HL7 EHR System Functional Model http://www.hl7.org/ehr/downloads/index_2007.asp

Direct Care Functions

Subset	Examples
Care management	Identify and maintain a patient record Manage patient demographics Manage problem lists
Clinical decision support	Support for standard care plans, guidelines, protocols Support for medication and immunization administration Orders, referrals, results and care management
Operations Management and Communication	Clinical workflow tasking Support clinical communication Support for provider-pharmacy communication

HL7 EHR System Functional Model http://www.hl7.org/ehr/downloads/index_2007.asp

Supportive Functions

- Clinical Support
- Measurement, Analysis, Research and Reports
- Administrative and Financial

HL7 EHR System Functional Model http://www.hl7.org/ehr/downloads/index_2007.asp

Information Infrastructure Functions

Security	Standards-based Interoperability
Health Record Information and Management	Business Rules Management
Registry and Directory Services	Workflow Management
Standard Terminologies and Terminology Services	

HL7 EHR System Functional Model http://www.hl7.org/ehr/downloads/index_2007.asp

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EHR Acceptance

• Health care provider
  – Increasing momentum for widespread adoption and implementation of EHRs
    • ARRA/HITECH
    • Authorized Testing and Certification Body by the Office of the National Coordinator

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EHR Acceptance

• Public
  – Harris Interactive Survey from 2005
    • Mixed Feelings
      – 45% EHR system important
    • Concern over
      – Privacy
      – Increase rather than decrease of medical errors

http://www.rsna.org/Publications/rsnanews/sep05/ihe.cfm

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Attitudes to EMRs

How much do you agree or disagree with the following statements about electronic health records?"

	2009	2010
Percent answering "Strongly/Somewhat Agree"	%	%
All physicians treating me should have access to information contained in my EMR	78	78
An EMR would be a valuable tool to track the progress of my health	72	71

http://www.harrisinteractive.com/NewsRoom/HarrisPolls/tabid/447/ctl/ReadCustom%20Default/mid/1508/ArticleId/414/Default.aspx

Barriers to Adoption

- Cost of conversion
- Perceived lack of ROI
- Technical and logistical challenges
- Privacy and security concerns

Blumenthal, D. Stimulating the Adoption of Health Information Technology" *New England Journal of Medicine*, http://www.nejm.org/doi/pdf/10.1056/NEJMp0901592

EHR Affect on Patient Care Safety

- Reduces the need to repeat tests
- Reduces the number of lost reports
- Supports provider decision making

EHR Effect on Efficiency

- Improves accessibility of patient information
- Better data capture at the point of care
- Integrates data from multiple internal and external sources
- Facilitates the co-ordination of health care delivery

EHR Effect on Patient Outcomes

- Has the potential to
  - Improve the quality of patient care
  - Help providers practice better medicine
- Provides seamless exchange of information among providers