ELECTRONIC HEALTH RECORDS

Prof. Yasser Mostafa Kadah – www.k-space.org

Introduction

- Electronic health records (EHR) is the most commonly accepted term for software with a full range of functionalities to store, access, and use patient medical information
- As medical care became more complex, doctors realized that in certain situations the patient's complete health history would not be accessible to them
- Availability of comprehensive medical information when needed brought innovation of storing patient information electronically
  - Improvement of patient medical care was and is the catalyst for EHR
- Affordability of both hardware and software, and reliability of internet and intranet technologies and wireless connectivity have enabled many independent physicians to take advantage of EHR in recent years

Related Terms and Acronyms

- EMR - Electronic Medical Record
  - Software that lacks a full range of higher-end functionalities
- CPR - Computer-Based Patient Record
  - Lifetime patient record including all information from all specialties and available to all providers
- EPR - Electronic Patient Record
  - Focuses on the patient's most relevant (not all) medical information
- CCR - Continuity of Care Record
  - Health provider-oriented core set of most relevant and timely data (CCR is subset of EHR)
- PHR - Personal Health Record
  - Patient access via internet to store and update personal medical information and make inquires

Benefits of EHR

- Better clinic information and accessibility
  - Doctor can access past medical history, family medical history, immunization records, etc.
- Patient safety
  - Up-to-date information such as test results, routine and current medications, and allergy information are crucial for informed medical decision making
- Better patient care
  - Alerts/notices to better standard practice guidelines and diagnostic/treatment protocols
- Efficiency
  - Minimization of paper cost (including storage/retrieval), time savings for clinical staff that allow streamlining of their jobs , and lower healthcare costs with better patient care

Barriers to EHR

- Lack of standards for EHR systems
  - Compatibility, interoperability, data security/privacy, downtime, clinical support
- Unknown cost and return on investment
  - Additional income vs. costs of EHR software, hardware, implementation, maintenance, training, etc.
- Difficulty to operate
  - Doctors perceived that it took more time for data entry than handwriting
- Significant changes in clinical processes
  - Adapting to new ways of operation for entering and locating information can be difficult initially
- Lack of trust and safety
  - Concerns about security of electronic record (e.g., alteration without doctor's consent or knowledge)
  - Concerns about safe storage (loss of data due to power outages, computer crashes, viruses, etc.)

EHR Standards

- 1996: Health Insurance Portability and Accountability Act (HIPAA) began to establish standards for accountability and criteria for the protection and confidentiality of health information that was transported electronically
- 2003: Next significant step was conducted by Consolidated Health Information (CHI), which released EHR standards in 2003
- 2005: U.S. Department of Health and Human Services (DHHS) commissioned the nongovernment organization known as the Certification Commission for Health Information Technology (CCHIT) to credential EHR programs

- Other international agencies/societies continue to promote use of EHR and guide healthcare providers toward utilizing these programs to promote better patient care

HIPAA Standard Core Regulations

- Password management
- Unique user identification
- Access authorization
- Accounting of disclosures of Protected Health Information (PHI)
- Security and data backup and storage
- Auditing abilities
- Code sets
- Health Information Technology for Economic and Clinical Health (HITECH) Act

Consolidated Health Informatics (CHI) Standards

- Twenty Consolidated Health Informatics standards were voluntarily adopted by vendors to promote interoperability between health information systems
  - Health Level Seven (HL7)
  - Digital Imaging Communications in Medicine (DICOM)
  - National Council on Prescription Drug Programs (NCPDP)
  - Laboratory Logical Observation Identifier Name Codes (LOINC)
  - Systematized Nomenclature of Medicine Clinical Terms (SNOMED-CT)
  - HIPAA's Transaction and Code Sets
  - The Human Gene Nomenclature (HUGN)

Institute of Medicine Core Functions of EHR

- Guidelines for key capabilities and functions that should exist in quality EHR program
  - Health Information and Data—Complete patient data must be present
  - Patient Support—Home monitoring of patients, patient education, and telehealth
  - Results Management—Management and ordering of lab tests results and radiology results
  - Administrative Processes—Scheduling, billing, medical claims, authorizations, and referrals
  - Order Entry/Management—Entry of orders and prescriptions
  - Reporting and Population Health—Automated reporting to government agencies
  - Medical Decision Support—Drug prescribing and dosage, disease screening, diagnosis and treatment, and care quality improvement
  - Electronic Communication and Connectivity—Accessing information between specialists, primary care physicians, radiology, laboratories, and
  - pharmacies

Certification Commission for Health Information Technology (CCHIT)

- Mission is to accelerate the adoption of health information technology by creating an efficient, credible, and sustainable product certification program
  - Bringing an official recognition and approval requested from both private sector and government
  - Such industry standards–based criteria for EHRs will promote their use and confidence in their use
- CCHIT certification means the product has met three basic requirements
  - Functionality—ability to carry out specific tasks
  - Interoperability—compatibility and communication with other products
  - Security—ability to keep patients' information safe
- EHR vendors are required to display the term "CCHIT Certified®" and the year of certification when marketing their software

Reference

- Byron R. Hamilton, Electronic Health Records, second edition, McGraw-Hill, 2011