MEDICAL RECORDS AND HEATH INFORMATION 
BASED ON INFORMATION TECHNOLOGY 

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Abstract

Medical Records and Heath Information, Electronic Medical Records, Electronic Health Records, are very important in our future in healthcare. Automation has been peeking its head around the corner at us for some time now, but for the most part, it has only been adopted by the very brave. Most of the early adopters of automated patient records would give them better quality of life as providers. However, the real beneficiaries of automated patient records will be the patients themselves. An integrated Electronic Patient Health Record system could help resolve this lack of information dilemma. The Electronic Patient Health Record model explains how the integration of every department creates a synergy between each departmental system by allowing data to be captured at any location in a physicians’ anywhere in the hospital. A physician’s Electronic Patient Health Record consists of an individual’s health/medical information from “birth to death.” This paper discusses the use and impact of an EHR and the relation to the electronic patient health record model, which defines the electronic patient system and its components. This paper describes a study that determines how many physicians, group practices, and hospitals to determine the relative implementation of medical records and health information base on information technology using an electronic patient health record to improve the quality of patient care.

Keywords: Medical Records and health information, Electronic Medical Record system (EMR), Electronic Health Record system (EHR), and information system.

1. Introduction

Every time a patient receives health care, a record is maintained of the observations, medical or surgical interventions, and treatment outcomes. This record includes information that the patient provides concerning his or her symptoms and medical history, the results of examinations, reports of x-rays and laboratory tests, diagnoses, and treatment plans. Medical records and health informations organize and evaluate these records for completeness and accuracy.

Medical records and health information technicians' duties vary with the size of the facility where they work. In large to medium-size facilities, technicians might specialize in one aspect of health information
or might supervise health information clerks and transcriptionists while a medical records and health information administrator manages the department. In small facilities, a credentialed medical records and health information technician may have the opportunity to manage the department.

The concept of Electronic Health Record (EHR) is a file that contains records and documents about the identity of the patient, examination, treatment, action, and other services that have been provided to the patient. Medical records can also be in electronic form which a complete reference on the subject contained in various Institute of Medicine (IOM) publication. Although in terms of applications, computer-based patient records has been applied since about 40 years ago, but the concept was first revealed in depth in one of the IOM publication in 1991. The report, entitled The Computer-Based Patient Record: An Essential Technology for Health Care. At that time the term was still used computer-based medical records / patients. Since then, along with the development of technology and its application in health care, various concepts emerged by 1990s the term was changed to an electronic medical record and electronic health record. In 2008, the National Alliance for Health Information Technology proposed a standard definition about it, that was that Electronics Medical Records (EMR) was not just changing the paper into a computer.

Electronic medical record is a record of a lifetime of patient medical records in an electronic format on the patient's health information which is written by one or more health care workers integrated in any meetings between the client's health. Electronic medical records can be accessed by computer from a network with a primary purpose of providing or improving health care and service which is efficient and integrated (Potter and Perry, 2009).

Electronic medical record (computer-based medical record) is electronic storehouse of information on health status and health services gained by the patient throughout their lives, saved so that the user can serve many valid records (Shortliffe, 2001). A basic understanding of electronic medical records, electronic health record and personal health record.
<table>
<thead>
<tr>
<th>Electronic health record in one organization</th>
<th>Electronic health record in more than one organization</th>
<th>Electronic health record from various references</th>
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<tr>
<td>Electronic record about someone’s health-related information which is made, collected, managed, used and referred by an authorized doctor or a medical person in a health service organization.</td>
<td>Electronic record about someone’s health-related information which is made, collected, managed, used and referred by an authorized doctor or a medical person in more than one health service organizations.</td>
<td>Health-related information record following national interoperability standard taken from various references but it is managed, shared, and controlled by health organization.</td>
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Source: National Alliance for Health Information Technology (2008, April 28).


2. Problem Formulation

Medical records and health information technicians generally obtain an associate degree from a community or junior college. Typically, community and junior colleges offer flexible course scheduling or online distance learning courses. In addition to general education, coursework includes medical terminology, anatomy and physiology, legal aspects of health information, health data standards, coding and abstraction of data, statistics, database quality improvement methods, and computer science. Applicants can improve their chances of admission into a program by taking biology, math, chemistry, health, and computer science courses in high school.

Some employers prefer candidates with experience in a health care setting. Experience is valuable in demonstrating certain skills or desirable qualities. It is beneficial for health information technicians to possess good communication skills, as they often serve as a liaison between health care facilities, insurance companies, and other establishments. Accuracy is also essential to technicians because they must pay close attention to detail. A candidate who exhibits proficiency with computers will become more valuable as health care facilities continue to adopt electronic medical records.

Experienced medical records and health information technicians usually advance in one of two ways -- by specializing or by moving into a management position. Many senior technicians specialize in coding, in cancer registry, or in privacy and security. Most coding and registry skills are learned on the job. A number of schools offer certificate programs in coding or include coding as part of the associate degree program for health information technicians, although there are no formal degree programs in coding. For cancer registry, there are a few formal 2-year certificate programs approved by the National Cancer Registrars Association (NCRA). Some schools and employers offer
intensive 1- to 2-week training programs in either coding or cancer registry.

In large medical records and health information departments, experienced technicians may advance to section supervisor, overseeing the work of the coding, correspondence, or discharge sections, for example. Senior technicians with RHIT credentials may become director or assistant director of a medical records and health information department in a small facility. However, in larger institutions, the director usually is an administrator with a bachelor's degree in medical records and health information administration.

Based on recent study, the definition of electronic health record must be clear in the limits and scope. Is it only about automated medical record, computerized medical records (usually digitally scanned), electronic medical record, electronic health record (EHR) or is it until personal health record? This variety of implementation is not independent of the internal aspects of the organization, and the user's choice and the ability and condition in the health facility.

In general, there is a wide variation in the application of EHR. There are already using the computer but are stand alone to store the patient data. This kind of has also a variety of functions, beginning from which only includes diagnosis, to the one completed with the treatment and even some are completed with the forms of the hygiene condition and household sanitation (which ultimately never be filled out). There is also applying realtime multi-user with a local area network (LAN). Health care facilities can have an electronic patient data records with different conditions.

With the tremendous development of technology, familiarity with higher computer, network infrastructure and communication are getting better, and the demand for more effective, efficient health services, and for patient safety, the innovation, creation and adoption of the EHR/EMR will continue to increase. Therefore, it is often some doubt on the HER/EMR that no electronic system is 100% secure.

### 2.1 Components Medical Records

The important RME component refers to the requirement are as follows:

1. **Record format**
   - Form suitable with the examples of various services as needed.
2. **System performance**
   - Kind like the recall, as well as easy in the data conversion.
3. **Reporting capabilities**
   - The completeness of the document, easy to understand, and standardized reporting
4. **Training and implementation**
   Minimal training to use properly.

5. **Control and access**
   To access for the authorized person but protected from abuse.

6. **Intelligence**
   Such a decision aids system, appropriate punctuation system.

7. **Linkages**
   Associated with a variety of other services, libraries, patient databases and financial.

8. **Record content**
   Includes standardized form and content, according to the code of disease and service purposes.

### 2.1.1 Important Component of Individual Medical Record Usage

1. **Patient Care Delivery (consumers)**
   For patients and families.

2. **Patient Care Management and Support**
   For quality managers, and health and management information of the professionals and administration.

3. **Other**
   Such accreditation, public policy and research.

4. **Patient Care Reimbursement**
   For financial managers and insurance billing.

5. **Patient Care Delivery (Provider)**
   Such as nurses, physicians, and pharmacists.

### 2.1.2 The Use of Medical Records by Institution

1. **Research**
   Diseases and public health research

2. **Education**
   For the education of physicians, nurses, public health

3. **Accreditation**
   Accreditation, institutions, and the professionals

4. **Reimbursement of care**
   For cooperation between the central billing service

5. **Management and review of care**
   For peer review, maintain the quality and utilization review and service management.

6. **Health Care Delivery (Inpatient and Outpatient)**
   For service alliance, network services, administrative loading development.
3. Problem Solution

Medical and diagnostic errors often occur because complete patient information is not available at the time of patient care. An integrated Electronic Patient Health Record (EPHR) system can help resolve this problem. An EPHR - “the holy grail of healthcare computerdom,” (1) is a computer-based database of information about an individual's health and care throughout their lifetime, with “the record focused on and around the patient across settings of care, across disciplines, and across time” (2). The EPHR system model integrates patient information into a single record, which allows data to be captured and accessed from any physician's office or other care location.

As we know that a lot of papers used in all administrative works including in medical records. By using the information technology, we all know that computers will make our lives easier, effective and accountable. However, it will make us more adopt at capturing medical information and reporting it in a format that is easily accessible by most of the healthcare world. In addition, it is our goal, through automation, that we reduce papers and the number of adverse events that can be traced back to poor documentation or illegible handwriting. With that as our gold standard of achievement, we will proceed onwards.

3.1 The Advantage of Electronic Medical Record

a) Can minimize human error, as electronic medical records can give a warning and clinic alertness.
b) May be associated with the source of knowledge for health care decision support.
c) Electronic medical records can perform data retrieval biological signals automatically.
d) d. With electronic medical records, we can enter patient data and obtain the advice to take care of the patients.
e) e. With electronic medical records routine data can be directly obtained (in the form of ready to analyze) from the medical record database. While the non routine data may be collected on patient examination time and included in the medical record. (Thede, 2008; Moody, 2004)

Beside those things above, electronic health record has also other advantages such as:

a) Punctuation in decision making, so the service quality will get better.
b) The easiness of data service, so the information delivery is more effective.
c) Database forming that enable a research, simulation, and education of medical and paramedical person. Based on the real data.

d) The efficiency of research and financial use with the inventory system that can minimize the cost of goods storing, order, and stock out and the utility management referring to un important action, procedure and others.

3.2 The Disadvantage of Electronic Medical Record

a) Require a greater initial investment than the paper-based medical records for the procurement of hardware, software, and support costs.

b) The time must be provided by the key person and nurses in learning the system and redesigning workflow takes a long time.

c) Conversion of paper-based medical record into the electronic medical record requires time, resources, determination and leadership.

d) The risk of failure in computer systems

e) Problems in data entry by health officials. (Thede, 2008; Moody, 2004)

4. Conclusion

This Paper reviews the definition of electronic health records, the existing form and prospect of its application in the health service. In general, advances in technology and information systems to be one of the main drivers of why health care facilities adopt HER/EMR. The products of existing legislation also provides an opportunity to implement it. Unfortunately, up to now, various laws and more technical products to ensure quality and accountability HER/EMR still not available. Health information system to ensure health efforts more effective and efficient as well as being the basis of management information as well as registration and reporting in hospitals. HER/EMR applications relies heavily on the leadership in the management of health care facilities and the commitment of the organization to select apply or wait for the formation of a variety of law products with different regulatory consequences.

In conclusion, Medical Records and Health Information (MRHI), Electronics Medical Records, Electronics Health Records system, are very important aspects on keeping documents based on information technology. Whether we choose to implement it for financial reasons, patient safety concerns or because it may be regulated, it is a powerful tool for healthcare providers and institutions. There are many solutions and options, but the underlying consistency is that proper planning and research is critical. We must know our own operations prior to selecting a software solution, so we can compliment our process, rather than be forced to redefine it.

All of the process in medical records should be focused on (1) a computer-based
database of information about an individual’s health and care throughout their lifetime, with “the record focused on and around the patient across settings of care, across disciplines, and across time” and (2) The Electronic Patient Health Record (EHR) system model integrates patient information into a single record, which allows data to be captured and accessed from any physicians’ office or other care location.

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