



Electronic Medical Record Position Paper
December 2014

Purpose:

The purpose of this Electronic Medical Record (EMR) position paper is to present an overview of the electronic medical record along with these important processes that should be considered when selecting an electronic medical record system. Oregon Nurses Association's (ONA) Cabinet on Nursing Practice & Research prepared this position paper for the ONA membership by direction of the ONA Board of Directors.

The document presents:

1. Assumptions that should be considered;
2. Terminology common for EMR preparedness;
3. Importance of nurses in designing the EMR;
4. The process for selecting an EMR;
5. Components to look for in an EMR; and
6. Resources to help in the process of selecting the EMR.

This paper is not intended to be all encompassing of the process when selecting an EMR, but instead intends to present important aspects that should be considered.

Assumptions

The following assumptions should be considered:

- a. The EMR is not a replacement for verbal communication between health care providers (HCPs).
- b. The EMR is not a paper chart in electronic form; it's an opportunity to build on improvements for the patient experience.
- c. No EMR is perfect; there will always be pitfalls and opportunities for improvement.
- d. The patient comes first. The computer is never the patient.
- e. The EMR can provide possible solutions for some problems that exist in the US health care system (e.g., fragmentation).
- f. Nurses use an increasing variety of technology in daily practice, a reality that will continue.
- g. Nurses are critical to the design and maintenance of an EMR because of their presence in the patient experience. An EMR that is absent of nurses involvement in the planning and maintenance will likely be ineffective or result in undesirable outcomes such as insufficient documentation, errors and wasted time.**

Terminology

Information technology (IT) has become an engrained part of the health care environment. The nurse is a key player on the *interdisciplinary team*, a group made up of direct care providers, and in many roles of informatics as it pertains to the application to work flow. An experience base of direct patient care coupled with this technology generates efficient *evidence based practice* (EBP) for quality patient focus. In the future it will be imperative that nurses remain active in the planning, implementation and evaluation of new information technology into the clinical arena to continue to improve on processes for better patient outcomes. Part of this responsibility is for nurses and the IT department to understand the terminology that is utilized for clear communication. For clarification, in this paper the *electronic health record* (EHR) and *electronic medical record* (EMR) will be considered interchangeable terms. In the process of developing an EMR the *configuration*, the building of the foundation of the software navigation, is defined by *parameters*, identified statistical historical data from research, and *indicators*, a measurement that can be used to index information (McGonigle & Mastrian, 2009).

The focus surrounding *meaningful use* is to improve quality of care, advance patient safety, increase consumer satisfaction, decrease medical errors, implement an EMR and decrease health care costs (Fear, 2011). There are three considerations around meaningful use. Part one surrounds creating standards, specifications and certification criteria for Health Information Technology (HIT), part two is implementation of HIT through EMR grants, loans and incentives for meaningful use and part three is improvement of health information privacy and security (Netsmart, 2011).

Importance of the Nurse in Designing an EMR

The business of health care involves a constant flow of information. The information contained in an EMR is used by various team members who use the information in vastly different ways and with different goals. The transition from paper charts to EMRs can be a difficult one, especially for inpatient nurses. Users with vastly different responsibilities include:

- Business departments use EMR for billing purposes.
- Other departments primarily use EMR to input data (lab, x-ray, etc.).
- Pharmacy uses EMR to receive medication orders, to review clinical information about patients and to create medication administration records (MARs).
- Nurses and Physicians use the EMR as a documentation and clinical decision making tool, requiring access to information from all of these sources (with the possible exception of the data used to manage the business of the institution).

Physicians use clinical information to make diagnoses, define goals of treatment and plan interventions to treat these diagnoses. This process is often linear and episodic. Nurses constantly monitor and respond to changes in the patient, and determine if the goals of treatment are being met. This process is more circular and fluid, with frequent assessment of data from a variety of resources (data flow sheets for vital signs, medications records, lab data, process notes, etc.). The nursing process is an illustration of the frequent assessment, planning, intervention and evaluation the nurse performs. In order to deliver safe patient care, the nurse needs to be able to visualize cause and effect relationships in his/her patient care delivery, with frequent access to information from many sources within the EMR (Huryk, 2012). Patient care and safety can be enhanced or compromised by how easily patient information can be

accessed and visualized. The system must allow nurses to have multiple windows open at the same time, and to visualize information from various parts of the EMR at the same time.

Computer screens are most useful to nurses if they display information that can be seen quickly, error free and with little effort. The small screens used in most settings make it difficult to visualize and analyze large amounts of information at one time. Access to the EMR is especially problematic when the clinical situation is rapidly changing (such as an emergency) where multiple team members may need access to the same information, and clinical decisions must be made quickly (Miller et al., 2009).

This process of accessing information necessary for safe patient care is further complicated for the inpatient nurse because the nurse is usually caring for multiple patients, or caring for one or two patients who have complex and often rapidly changing care needs. Nurses' input to EMR designers about how nurses utilize clinical information to inform our care decisions needs to occur during the design process.

Process for Selecting an EMR

The Healthcare Information and Management Systems Society (HIMSS, 2010) published an article that addressed primary considerations when selecting an EMR for an organization. Within the publication seven points were identified which include:

1. Engagement of end users from the start of the process.
2. Take into consideration the goals that are needed to support EBP.
3. When preparing the request for proposal (RFP) to the vendors, include questions addressing specific usability components.
4. Access any survey data that has been compiled surrounding the proposed EMRs that are being considered.
5. Choose two to three software EMR solution finalists to perform usability testing from scenarios that are created from the interdisciplinary team.
6. Include site visits to other similar organizations that have already implemented the EMR as a part of their practice.
7. Upon completion of the above process, discuss findings, concerns and alternatives with the vendors that are being considered.

Other areas specific to nursing:

1. Access/visualization of information in a way that enhances clinical decision-making.
2. Ability to add modules to the EMR that are specific to a clinical setting, e.g., checklists for a specific type of procedure (dialysis, open heart procedures, etc.).
3. A MAR that provides safety information (e.g., should the nurse administer the medication or should it be done by another professional, e.g., pre-op antibiotics that should be administered in the pre-op area). Consideration might be given to Clinical Decision-Support Systems (CDSS). According to Alexander et al. 2015, a CDSS is defined as "Computer systems designed to impact clinical decision making about individual patients at the moment those decisions are made."
4. Consider if the EMR program available from the vendor within the time frame needed by the institution?
5. An article by Stone and Yoder (2012) contains a list of specific questions that nurses might use in evaluating a potential EMR for their clinical setting. (ONA was unable to

obtain permission for use of the list in this position paper, please see references to see how to access the article and list.)

Components to Look for in EMR

The HIMSS EHR usability task force also compiled 9 components to consider when evaluating an EMR for your organization that include:

1. *Simplicity* – The screens being used are easy to read and free of unnecessary information.
2. *Naturalness* – The flow of the system matches the workflow of the interdisciplinary team.
3. *Consistency* – All parts for navigating through different screens have the same easily understood components.
4. *Forgiveness and Feedback* – Appropriate interventions from the software solution to intervene to prevent against accidental deletion and/or alarm alerts.
5. *Effective Use of Language* – The EMR utilizes terminology that is a part of the everyday use of the interdisciplinary team.
6. *Efficient Interactions* – Limiting the amount of steps that are needed to enter information into the system and providing appropriate shortcuts.
7. *Effective Information Presentation* – Screens should have aesthetic visual appeal to include font size, use of colors and white shading.
8. *Preservation of Context* – When completing an entry the software solution should be limited in the amount of interruptions and/or alarms.
9. *Minimize Cognitive Load* – The system should have automatic functionality so the end user is able to concentrate on the care of the patient and not data entry.

Resources

Books

- Rocket Surgery Made Easy: The Do-It-Yourself Guide to Finding and Fixing Usability Problems. Steve Krug, 2010
- Don't Make Me Think: A Common Sense Approach to Web Usability, 2nd ed. Steve Krug, 2006

Websites

- HIMSS EHR usability page – publications and presentations on EHR usability by HIMSS members http://www.himss.org/ASP/topics_FocusDynamic.asp?faid=358
- Usability.gov – a government website containing good information on usability <http://www.usability.gov/>

Organizations

- Usability Professionals Association (UPA) <http://www.upassoc.org/>
- Human Factors and Ergonomics Society (HFES) <http://www.hfes.org/web/Default.aspx>

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