Electronic Medical Records and Nursing Efficiency

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Introduction

Across our nation healthcare organizations are beginning to implement electronic medical records. Electronic medical records (EMRs) are computerized medical records that are taking the place of paper medical records, which have been the standard of clinical documentation for centuries. The advantages of an EMR are many, such as the consolidation of patient medical information into a single record across the healthcare continuum (Robles, 2009). Further, evidence demonstrates that EMRs improve the quality of patient care by improving legibility, enhancing communication among caregivers, decreasing medication errors and improving clinical work flows as well as billing processes (Robles, 2009). In addition to improving quality, evidence also supports that EMRs save physicians time and reduce costs for ambulatory practices (O'Neill, 2007). As more organizations begin to utilize EMRs, questions regarding its impact on the efficiency of nursing arise. Do managers perceive that electronic medical records save their nurses time?

Justification

The futurists identified several emerging trends about the state of health in the twenty-first century (National Center for Healthcare Leadership, 2005). The United States will become part of a global system focusing on wellness and preventive care worldwide; providing patient care via "virtual" centers of excellence around the world. Standard diagnostic care will become largely electronic allowing worldwide access and enabling globalization of the healthcare economy (Microsoft, n.d.). If medical services can be provided remotely they will be, allowing the phenomenon of medical tourism to grow as people facing higher deductibles, or no coverage at all, seek medical procedures at a lower cost.

EMRs are secured electronic files containing a patient's history, medical notes, billing information, and all other pertinent information necessary to construct a complete patient profile (Robles, 2009). EMRs are indicative of a fast paced informational age in which larger quantities of information require a more effective database. There are many benefits of EMRs for nursing, including accessibility to information which can be downloaded directly onto other hardware such as a personal data assistant (PDA).

Most businesses have realized the advantages of using technology to increase efficiency in the work place. Healthcare also realizes the many benefits that information technology offers such as computerizing patient data in order to make more accurate and timely decisions regarding patient treatment and outcomes (Chandra & Paul, 2004). Advantages of the EMR include enhanced patient safety, the ability to enhance documentation and quantify improvements in patient outcomes, as well as improved billing accuracy, reduced duplication, enhanced legibility and increased speed with which orders are carried out (Robles, 2009).

Healthcare organizations all over the nation are beginning to implement EMRs however, this implementation has been met with resistance from both physicians and nurses who see EMRs as an impediment to getting their work done (Chandra & Paul, 2009). Physicians in the United States are reluctant to accept EMRs based on the fear of government interference along with privacy concerns, returns on investment, lack of capital to acquire technology and a preference for hand written notes (Robles, 2009). Nurses on the other hand, work in organizations requiring the use of EMRs and have been directly involved with implementation and in some cases, the design of EMR systems.

Nurses have had to adapt to the change from paper to electronic documentation, not as a choice but as a requirement of employment (Robles, 2009). Young nurses who have grown up

with technology accept this change easily and may even consider an organization not using

EMRs as "behind the times." Many older nurses, with years of experience to adaptation, take the

challenge as a personal responsibility to learn computer skills in order to make the transition

easier. There will always be those however, that cannot accept the change forcing them to quit or

retire early (Robles, 2009).

When EMRs were first implemented, they were viewed as a stumbling block to

efficiently caring for patients. Nurses initially felt that EMRs were more complex and time

consuming than paper charts and both the family and patient felt that too much time was being

spent at the computer and not actually caring for the patient (Robles, 2009). Also, most EMR

processes are based on paper workflows therefore, if the paper workflows are flawed the EMR

workflow will also be flawed. Work flows must be considered when planning for and choosing

an EMR system (Robles, 2009).

Nurses utilize technology in the clinical setting from blood pressure monitors to

thermometers and now, documentation. Nurses will have to adapt as technology continues to

develop. Nursing schools will have to use advanced technology to improve teaching methods in

order to prepare nurses as agents of change who shape practice, not just react to their

environment (Chandra & Paul, 2004). Computerized patient records are an inevitable part of

nursing and healthcare; they will provide clear, concise and accurate documentation reducing

errors and improving patient care. Therefore, it is the responsibility of nurses and nursing

educators to step up to the challenge facing nursing's future (Chandra & Paul, 2004).

<div align="center">Definition of Terms</div>

An electronic medical record or EMR is a computerized record of a patient's clinical,

demographic, and administrative information. The EMR can contain the clinical documentation

of many health care providers, diagnostic test results, billing information and appointment information. For the purpose of this project, efficiency is defined as time saved.

Methodology

The nursing efficiencies obtained by the implementation of the EMR were examined in the literature to establish whether or not managers perceive that EMRs enhance nursing efficiency by saving nurses time. A survey was developed to obtain the desired information from the managers. During the weeks of June 22 and June 29, 2009 six healthcare managers from ambulatory and inpatient settings were interviewed to investigate the managers' perception of the effect of the EMR on nursing efficiency. The survey data and a review of the literature were used to determine whether or not managers perceived that the implementation of an EMR enhanced nursing efficiency. A copy of the survey is located in the appendix.

Review of Literature

Even though the conversion to electronic medical records (EMRs) began over 25 years ago, the healthcare industry lags far behind in its quest to become a paperless industry (Robles, 2009). The United States in particular is lagging in its adoption of EMRs compared with other countries like New Zealand and the Netherlands where their adaptation to EMRs range from 92 to 98 percent (Robles, 2009). EMRs are central to healthcare policy development around the world, however these documents are based on aspirational statements versus detailed, and realistic expectations. According to Clamp & Keen, the existing studies on EMRs are few and do not provide clear evidence about what works, where, and why (Clamp & Keen, 2007). One reason for this lack of research may be the limited availability of methods that accurately document the effects of the EMR on time (Poissant, Pereira, Tamblyn, & Kawashmi, 2005).

The studies retrieved showed that EMRs had a direct effect on behavior and can have a positive influence on communication. Little light has been shed on EMR effects on patient outcomes or its impact on cost. Although modern electronic networks generate lucrative economies no such studies have been conducted on EMRs effects in this context. Further, the studies that have been done on EMR efficiency are conducted in a single setting based on the user's perspective (Poissant et al., 2005). The few reliable studies in existence have shown a causal link between EMRs and work processes by using an experimental study design where comparisons between the use and non-use of EMRs could be observed. Studies capturing the EMRs effects on cost on a large scale have yet to be done. Clamp & Keen (2007) reported that the existing evidence showed nurses using bedside terminals and central station desk tops saved 24.5% and 23.4% respectively on overall time spent on documentation per shift.

The EMR consolidates all patient information in one location and making accessible to all departments caring for the patient (Hamilton, Jacob, Koch & Quammen, 2004). This availability to the patient record increases the efficiency of communication at shift change and patient transfers between nursing units and other facilities. Nurses have found that they were better prepared to understand their patient's needs prior to arrival by having access to patient records in one consistent format. The EMR increases accountability by ensuring thorough documentation and evidence-based decision making. The EMR increased the speed at which orders are implemented allowing nurses to use critical thinking skills effectively and efficiently based on real time data (Hamilton et al., 2004).

Mary O'Brien, president of Highland Park Hospital, conducted a study of a large hospital system that chose to implement EMRs in order to reduce costs, decrease medical errors and increase efficiency. Nine months after the go-live date, 90% of physicians admitting patients to

this system agreed that the EMR made their work easier. Further, patient satisfaction with nursing care was at its highest in six years. Nurses were able to spend more time at the bedside and less time tracking down medical records, physician orders and lab results (O'Brien, 2004).

Hamilton et al. (2004), representing a Florida hospital system, reported that the implementation of the EMR in their setting not only increased the efficiency of nursing but improved the patient care provided by those nurses. One nurse manager from this system stated that the EMR reduced the time she spent documenting patient care by about thirty minutes per patient, per shift. The manager also reported a 50% decrease in time spent following up with the pharmacy regarding patient medications (Hamilton et al., 2004).

In order for the EMR to be time saving, nurses must have adequate training on the system and be supported by organizations willing to be actively involved in problem solving to ensure a smooth transition (Robles, 2009). Once the staff is competent in using the EMR, the time saving features are numerous. Nurses can text-page physicians and receive orders to current problems in real time by using remote access. Improving nursing efficiency regarding non-clinical tasks allows nurses to spend more time at the bedside. Ready access to all pertinent data at their fingertips empowers nurses to make accurate decisions regarding patient care (Robles, 2009). EMRs generate quality data that can be used by accreditation organizations, third party payers, as well as patients in order to assess the healthcare organizations effectiveness, safety and overall performance.

<div align="center">Results</div>

Six nurse managers were surveyed, three from outpatient facilities and three from inpatient facilities. The average age of nurses who reported to the nurse managers are in their mid 40s. Figure 1 illustrates the results of our data; 67% of the managers reported an

overwhelming score of 8 on a scale of 0 to 10, 10 being the most efficient, regarding their

perceived effectiveness of EMRs on nursing efficiency. One nurse manager rated their perceived

efficiency a 10 and another responded with a score of 5, (note this nurse's facility had not

implemented the EMR in its entirety). Five out of the six managers or 83% reported that their

goals were met related to their perceived effectiveness of the EMRs. Another 83% reported

EMRs had a perceived positive effect on their nursing efficiency.

Figure 1

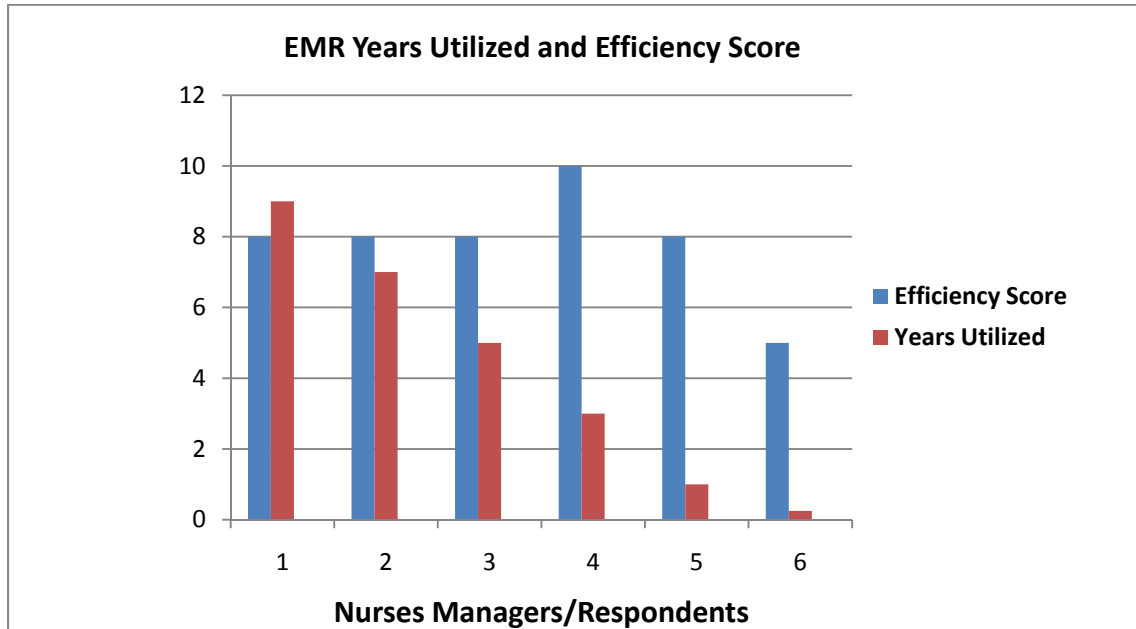| Respondent	1	2	3	4	5	6
Years Utilized	9	7	5	3	1	.25
Time Saved /Minutes	60	30	90	30	36	0
Efficiency Score	8	8	8	10	8	5
Goals Met	No	Yes	Yes	Yes	Yes	Yes
Positive Effect	Yes	Yes	Yes	Yes	Yes	No

Figure 2

Figure 2 describes the length of time EMRs have been in use paired with the perceived efficiency score from the survey. Figure 3 displays in a chart graph, the perceived time saved. Respondent number 6 perceived no time saved since their organization just started the implementation process. The data varied from the respondents and ranged from 0 to 90 minutes in perception of time saved. The average perceived time saved per shift was calculated at 41 minutes. Not only did the respondents perceive the EMRs as efficient, but some unexpected benefits have evolved including monitoring compliance with processes in EMRs that didn't exist with paper, improving computer skills, streamlining work schedules, and improving the communication process vertically and horizontally. The respondents also reported that utilization of EMRs increased patient safety, decreased errors, improved nursing and physician documentation, and enhanced communications and efficiency.

Figure 3
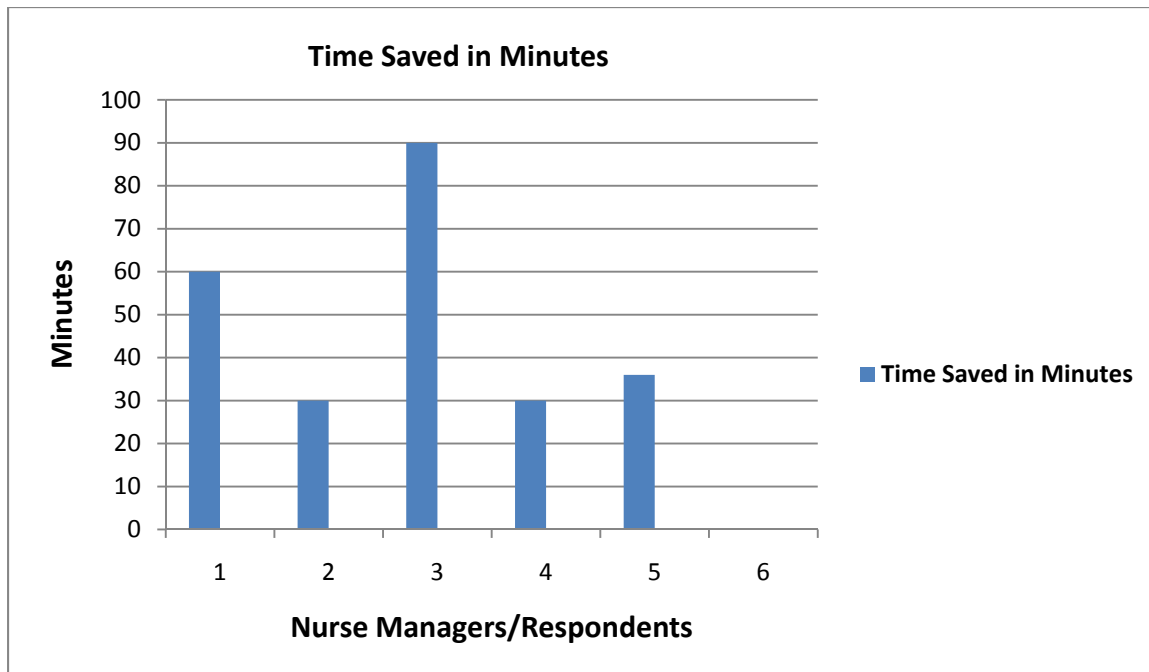
Conclusion

The current United States administration has committed billions of dollars for implementation of EMRs in the hopes of improving the quality of healthcare delivered in our country. In response to evolving healthcare initiatives and the availability of funding for technology, the utilization of EMRs continue to grow as the economy changes and transforms the technology of healthcare. In correlation to our findings, an average time saved of 41 minutes, as perceived by nurse managers, will equate to hundreds of hours saved depending on the facility. According to the study, the perceived efficiency and benefits of the EMR system can have positive ramifications on US healthcare which will facilitate management processes and functions. This implication of efficiency measured in time saved can be applied in all healthcare management areas. In the immediate future, we may only be able to see part of the spectrum of benefits that EMRs provide, yet in the long run the benefits could be far more than the healthcare realm could ever imagine.

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APPENDIX

Survey

Practice Name: Date:
Interviewee: Interviewer:

Type of Setting: Inpatient   Outpatient   Type of Practice/Specialty:

When did you implement the electronic medical record? (year)

Did you implement the product in its entirety or by function? (ex. scheduling, billing, documentation)

How much time was provided for nurses for training prior to implementation?

Generally speaking, how did the nurse's feel about implementing the EMR?

Estimate the computer skills of your nurse's prior to implementation?
 Percent that were beginners (not comfortable)
Percent that were intermediate (average level of comfort)
Percent that were advanced (very confident and comfortable)

Estimate the average age of the nurses in your department?

What were your goals /expectations for the EMR?   Where they met?

Any unexpected benefits? How long after implementation did you realize these benefits?

In terms of nursing efficiency, efficiency defined as time saved, in your opinion, has the EMR had a
positive effect on nursing efficiency?   In what way?

How many minutes were your nurses saving one month post EMR implementation per shift? (If the EMR
took more time, please capture that data.)
Three months?
Six months?
Now?

On a scale of 0-10, 0 being no satisfaction and 10 being as satisfied as possible, how would you rate your
satisfaction with the impact the EMR has made in nursing efficiency?