Why Physicians Switch Electronic Health Record Vendors

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Abstract

Many factors are involved when a physician or health system chooses to switch electronic health record vendors. Reasons for change include system functionality, high cost, poor customer service, company reputation, platform of software, and Meaningful Use certification, among others. The purpose of this review was to identify from the literature the various reasons that lead to switching vendors and the barriers and benefits associated with doing so. The research methodology used was a qualitative literature review, which followed a systematic search approach. From a total of 44 references found, 26 articles were included in the review. System functionality and cost were identified as the two largest deciding factors in switching vendors. Also, shifting regulatory standards, including the Meaningful Use and Physician Quality Reporting System standards, require increased system functionality to fulfill quality reporting measures. This need has led many physicians and health systems to switch vendors to accommodate these requirements. Despite the costs associated with switching electronic health record vendors, many physicians and health systems have decided to switch to receive additional functionality, improve reporting capabilities, and increase platform benefits.

Keywords: challenges; electronic health records; physicians; switch; transition; vendors

Introduction

According to a 2014 study of approximately 1,000 physicians conducted by MPI Group, nearly 70 percent of these providers stated that implementing an electronic health record (EHR) system was not worth doing, even though the government offered up to $27 billion to digitize patient records. Data suggested that nearly two-thirds of physicians would not purchase their current EHR system again because of high costs and poor functionality.[1] In 2014, 45 percent of these physicians spent more than $100,000 on their EHR system, while 77 percent of larger practices spent upward of $200,000. Among physicians in practices with 10 or more physicians, 74 percent stated that functionality would influence their decision to switch to another EHR system.[2]

From the initial implementation of the first EHRs, most providers began using EHRs to fulfill government mandates and receive the financial incentives offered for utilizing the software. By 2013, the EHR adoption rate was 78 percent in ambulatory settings and 59 percent in acute care settings in the United States.[3] In a 2010 survey by the Medical Group Management Association (MGMA), a mere 41 percent of EHR vendors reported that their systems had the functionality requirements to allow providers to fulfill Meaningful Use (MU) criteria, while 61 percent of physician practices stated that MU incentive payments would help establish or upgrade their current EHR systems.[4]

Some vendors have remedied these gaps by providing add-ons and new modules to enhance their systems; however, adding new modules has led to problems in interfacing with other health information systems and has not provided a smooth workflow. Additionally, mergers and acquisitions have resulted in software vendors phasing out older products and replacing them with more complex systems.[5] Therefore, many health systems have replaced the systems originally purchased with more advanced, well-developed software. According to the Healthcare Information and Management Systems Society Analytics Database, 305 hospitals switched EHR vendors and 62 hospitals changed their EHR systems in 2013.[6] This same survey found that the providers most likely to transition EHR systems were smaller practices that were expanding.[7]

When considering transitioning EHRs, providers need to realize that while an EHR is driven by information technology, it will affect all aspects of a healthcare organization.[8] According to Mediani et al. (2012), the full benefit of an EHR system extends beyond processing capacity and includes redesigning workflow and altering the operation, organization, and cultural process to improve business processes and patient care.[9] According to the authors, organizations must define their transition strategy and consider the challenges associated with replacing a legacy system with a new EHR system.

The success of such a transition is dependent on the following: user expectations of the system, system usability including quality and effectiveness of interface design, information quality, ease of use, and user acceptance and ownership of a system (how involved the user is and if the user thinks the system is reliable).[10]

According to Kosiorek (2014), organizations seeking to transition to a new EHR system should define why switching is necessary, how a more mature system would help the organization, and what processes they may be able to improve by using the system.[11] These goals must be balanced against the implications of a transition, such as cost and employee satisfaction.[12]

The purpose of this research review was to analyze reasons why healthcare providers are switching EHRs vendors, assess user satisfaction with replacement systems, and evaluate the cost and implications of transitioning to a new system.

Methodology

The research methodology used was a qualitative literature review, which followed a systematic search approach. This review was divided into three sections:

1. literature recognition and compilation,
2. literature analysis and evaluation, and
3. literature categorization.

The conceptual framework used in this review was adapted from Yao, Chu, and Li (2010) and is illustrated in Figure 1.[13] The authors posited that inefficiency of and/or dissatisfaction with EHR systems can lead to switching and transitioning to new EHR software. The benefits of having new systems is that they can improve satisfaction and functionality, which supports the need to replace EHR systems. Conversely, potential dissatisfaction with and inefficiencies of a new system support the need to upgrade and update legacy systems rather than replacing current systems, which might increase inefficiencies (see Figure 1).

Stage 1: Literature Recognition and Compilation

The literature search was conducted using the search engines and academic databases accessible through Marshall University Libraries. Six databases were used: ProQuest, Academic Search Premier, EBSCOhost, Springer Link, PubMed, and Google Scholar. In the search, the keywords "EHR" and "vendor" and were combined with the terms "physician" or "transition" or "switch" or "challenges" or

"barrier" as inclusion criteria. The search was limited to articles published in English, between 2006 and 2018, to keep the review current.

Stage 2: Literature Analysis and Evaluation

The primary step in establishing the relevancy of literature was to review the abstract of each article. If the material provided specific information concerning the explanation of or relating to the switching of EHR systems, an article was determined to have satisfied the inclusion criteria. The literature search was performed by P.A, M.S, and K.S. and was validated by A.C., who acted as the second reader to make sure that the articles selected met the inclusion criteria. From a total of 44 references found, 26 articles were included in the review.

Stage 3: Literature Categorization

In conducting this literature review, we identified three topic categories related to switching EHRs into which the literature could be categorized: *EHR—Dissatisfaction with Current Systems, EHR—Satisfaction with Replacement Systems*, and *Cost and Implications of Replacing an EHR.*

Results

EHR—Dissatisfaction with Current Systems

In an EHR survey performed by the American College of Physicians, 34 percent of polled providers were dissatisfied with the EHR's ability to decrease workload, 32 percent had not returned to their normal productivity two years after implementing an EHR system, and 37 percent were dissatisfied with the ease of use (see Table 1).[14] Because of the dissatisfaction, in another survey of 1,000 physicians, 63 percent of physicians reported they would not purchase their same EHR again and 67 percent would switch their EHR.[15] Dissatisfaction with EHRs overall increased 10 percent between 2010 and 2012, and 39 percent of providers in 2012 would not recommend their current EHR system to another provider, compared with 24 percent in 2010.[16]

In a different study, nearly half of providers thought that the cost of their system was too high, with 65 percent of respondents reporting financial losses due to implementation of their EHR system.[17] When asked about the future outlook for their EHR systems, 38 percent doubted that their current system would be viable within five years, while 74 percent thought that the vendor of the system would still be in business after five years.[18]

Finally, in a survey of EHR providers' practices in 2013, the following were cited as desired in new replacement systems: better interoperability and interfaces to other software, better connectivity and network setup, and new functionalities, such as the ability to accept information into the EHR from mobile devices. Additionally, between 17 percent and 31 percent of practices planned to switch EHRs.[19] (See Table 1.)

EHR—Satisfaction with Replacement Systems

In another survey of providers who had transitioned from one system to another, only a small majority (64 percent) reported being more satisfied with the new EHR system. Those who were satisfied with their workload, satisfied with the transition process, and used the Internet daily were more likely to be satisfied with the EHR. Furthermore, areas of dissatisfaction were health maintenance and adherence to clinical practice guidelines.[20] (See Table 1.) In addition, another survey reported that the intended use of the EHR depended on many factors, emphasizing that human and social factors indirectly determine attitudes toward technology acceptance by influencing the perception of usefulness. Furthermore, age, specialty, and experience affected physicians' intention to use the EHR.[21] Age, rather than gender, appeared to be driving attitudes toward and perceptions of EHRs, meaning that younger practitioners experienced more satisfaction with the EHR. The study, which sampled physicians and advanced care providers between 30 and 59 years of

age, estimated that specifically, for each additional year of age, physicians' overall attitudes toward EHRs decreased by nearly one half a scale point.[22]

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One physician who changed EHRs stated that the cost of his replacement EHR exceeded the $44,000 MU reimbursement. However, the MU capability forced the practice to focus on interoperability that improved the transition of care process by speeding up communication.[23] Another physician practice saw its rejected claims reduced by 85 percent because of improved scrubbing mechanisms after transitioning to a new revenue cycle management application.[24]

In a case study, 17 physicians practicing in ambulatory clinics transitioned from an older EHR with minimal clinical decision support (CDS) capability to a system with more robust CDS for e-prescribing. Of those 17 providers, 47 percent of physicians who responded were very or somewhat satisfied with implementation, while 40 percent were somewhat or very dissatisfied. Only 33 percent of physicians thought the new system was safer in e-prescribing than their prior system, even with the increased CDS features.[25]

Cost and Implications of Replacing an EHR

According to Eastaugh (2013),[26] the cost of an EHR extends beyond the initial cost of acquisition and annual maintenance and includes ongoing license fees, upgrade fees, and staff full-time equivalents (FTEs) to support the application, totaling approximately $10 million dollars per 100 licensed fees in 2012. These are annual fees per provider license. Many systems require each provider to have a valid license in order to utilize the EHR. These are normally purchased in bulk based off of how many providers an organization employs. Upgrades and enhancements can cost between 20 and 49 percent of the original price of the EHR software and are often required to fulfill quality-reporting criteria required by the Centers for Medicare & Medicaid Services (CMS). A 350-bed hospital spent $2.3 million per year in EHR system costs, FTE support costs, and upgrade fees.[27] In another estimate, EHR plans required an initial investment of $15,000 to $30,000 per physician for software, hardware, implementation, and training. In addition to that cost, there was an expected 15 to 18 percent annual software support fee to account for upgrades and licenses.[28]

For an EHR implementation for five physicians, 611 hours were needed for preparation of the system, and 134 hours were required per physician to train and prepare the physicians to use the system. The total cost for the implementation was $162,000, with an additional $85,550 in maintenance fees during the first year, 2006.[29]

Additional concerns related to switching EHRs have included physician resistance to the new system, availability of technical training and support, and sufficient protection of patient information.[30]

Because of the increasing number of mergers and acquisitions of EHR vendors, healthcare professionals must also be aware of the benefits and challenges that arise when needing to replace a current EHR system if the vendor has undergone such changes. According to Kalorama, a healthcare market research publisher,[31] mergers and acquisitions are not new to the health information technology (IT) market; however, there has been a growing trend in the attempt to reach more providers and patients through these methods. In 2016, about 1,100 companies were involved in some way in the EHR marketplace, but competitors have been consolidating with a surge of mergers and acquisitions.[32] Furthermore, in 2016, 632 vendors supplied certified health IT to 337,432 ambulatory healthcare professionals participating in the Medicare EHR Incentive Program alone. Of those 337,432 providers, more than 75 percent used 2014 certified edition technology. Epic Systems, eClinicalWorks, Allscripts, NextGen Healthcare, and athenahealth supplied 2014 certified technology to 60 percent of all providers that reported 2014 edition technology.[33] Private companies such as Capterra publish rankings with comparisons of vendors in terms of number of customers, users, and social media followers, which provide a market score and a ranking to each EHR vendor.[34] Additionally, this same company has provided detailed software comparisons of these vendors in terms of pricing and technical capabilities such as charting (Epic does not have this tool), handwriting recognition (most vendors, including

Allscripts, Epic, and Cerner, have not incorporated it), voice recognition (most vendors have this tool), e-prescribing, being MU-certified (e.g., Allscripts and Epic are not MU certified), HIPAA compliance (most vendors are compliant), having patient portals, and many other technical features.[35]

Therefore, depending on the method of acquisition, healthcare professionals may run the risk of being unable to retrieve data, experiencing a stop in customer support, or even facing higher prices.[36] Because of the fast-paced nature of changes in the industry, the numbers of mergers and acquisitions are constantly changing.[37]

Discussion

This literature review demonstrates that providers are choosing to switch EHRs for many reasons, including inefficient workflows, lack of reporting capabilities, mergers and acquisitions with larger health systems requiring more complex systems with greater interoperability, and the need to interface with other systems. Shifting regulatory standards require new functionality to fulfill quality reporting measures, including MU requirements and the Physician Quality Reporting System. These transitions can have a significant cost, which must outweigh the opportunity cost of staying with a former system; these organization-wide changes will not only affect the physicians and care providers but can have long-lasting effects on the entire health system.

Switching can result in positive and negative outcomes. The cost of switching systems can seem excessive, often in the millions, when the cost of the new system is coupled with the cost of its implementation; however, health systems must remember that the benefit to the patient is the main priority. Some practices have found that the functionality of the new system increases the level of care the patients receive by speeding up communication. Others have seen benefits for the hospital in terms of a reduction, often by half, in rejected claims.[38]

The most obvious negative outcome and a significant barrier to adoption related to switching EHRs is the cost. As noted in a study described by Verdon, almost two-thirds of respondents reported losses due to the implementation of an EHR system. Almost half of the individuals believed that the cost was unjustified and that the EHR system was too costly.[39] This finding helps to illustrate some of the frustration with switching to a new EHR: if a health system does not believe that the cost is worth incurring or believes that the system will not receive a return on the investment, providers are less likely to get on board with switching to a new EHR, even if it would provide easier or better patient care.

Besides the cost, other negative issues also arise with switching. As noted previously, 47 percent of providers were satisfied or somewhat satisfied with a new system, compared with 40 percent of providers who were dissatisfied with the transition. The change is not guaranteed to make everyone happy. A reduction in workload, usually by 50 percent, is also prevalent in the implementation phase of switching EHRs, which can lead to reduced reimbursement and wages, estimated at 50 to 60 percent, for the health system and providers.[40]

Different strategies and challenges arose in regard to switching EHRs. Physician resistance, training, and protection of patient information continue to be issues in EHR implementation, whether a practice is switching to a new EHR system or implementing one for the first time. Providers will need to plan accordingly in order to manage these issues when switching. One study found that managing expectations, making the case for quality, recruiting physician champions, ensuring communication, acknowledging the problems, providing good training, improving functionality if possible, owning the fact that there are competing interests, allowing time to adapt to the new system, and promoting the positive change are the best strategies for implementing an EHR system.[41] One physician who completed a transition advised that important things to consider during the process included the following: reviewing the scope of the contract and ensuring that it includes everything the practice will need, determining what data will be converted or migrated, building a cash reserve to cover lost operation costs during the transition, having a clear transition and deployment strategy, acknowledging the learning curve and frustration while learning the new system, accounting for the loss of productivity, and adapting workflows to the new system.[42] A Finnish survey found that about 50 percent of EHR users reported a

severe perceived risk level related to extended EHR unavailability.[43] This factor has been a major concern about future EHR adoption because it can be related to prolonged downtime of EHR systems, which can affect many operations within a hospital or hospital systems, thus raising safety concerns and decreasing users' satisfaction, particularly in the emergency room, operating room, and intensive care unit. Loss of trust in the EHR system may increase the chances of switching vendors.

This literature review could have been limited by the quantity of databases searched, the search strategy undertaken, and publication bias, which may have influenced the choice of articles to review. There was a significant lack of data specifically regarding switching EHRs as opposed to the first implementation of an EHR in a healthcare setting. Furthermore, each health system varied in size and implementation strategy, making it difficult to compare cost and complexity of one health system's EHR transition with that of another health system. Researcher bias may also have been an issue given that the researchers searched for and evaluated the articles to establish their relevancy to this review. Future research should examine the results attributable to switching EHR vendors. Expansion of this literature review to a systematic review and meta-analysis is recommended.

The implication for the US healthcare system brought about by switching from legacy systems to new EHR systems is mainly the cost involved. Switching costs include not only software and hardware upgrades, but also repeat training for staff and initial loss of productivity due to unfamiliarity with the system. The incentive monies are not high enough to cover the expense, and as a result the cost of care may rise. In order to meet the data-sharing requirements and other requirements still being defined by CMS, provisions of $44,000 per eligible health provider, paid out in stages, were established and may be paid out upon successfully meeting the requirements of the legislation.[44] These costs could lead to higher copayments and higher premiums for patients and may make it more difficult to receive care.

The other practical implication is in fact a good one. With new systems, there may be a better likelihood of interoperability, and even though numerous EHRs are available, the market has matured enough for a few big names to rise to the top. With more health systems switching to some of the more widely utilized EHRs, the interoperability issues of the past may be easier to overcome with more interfaces being built and potentially with the new FHIR (Fast Healthcare Interoperability Resources) standards being implemented by the vendors.

Conclusion

Physicians switch EHRs for a variety of reasons, including dissatisfaction with their current system, inefficient workflows, mergers with other health systems, and the need for greater interoperability and functionality. Switching has proven to be a costly endeavor, but in view of the lack of value provided by their former EHR systems, many healthcare systems have chosen to move forward with switching vendors despite the possibility of not receiving an immediate return on the investment. Each health system will need to do a full evaluation of their current state and desired end state to determine if switching vendors is advantageous.

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Figure 1

Research Framework
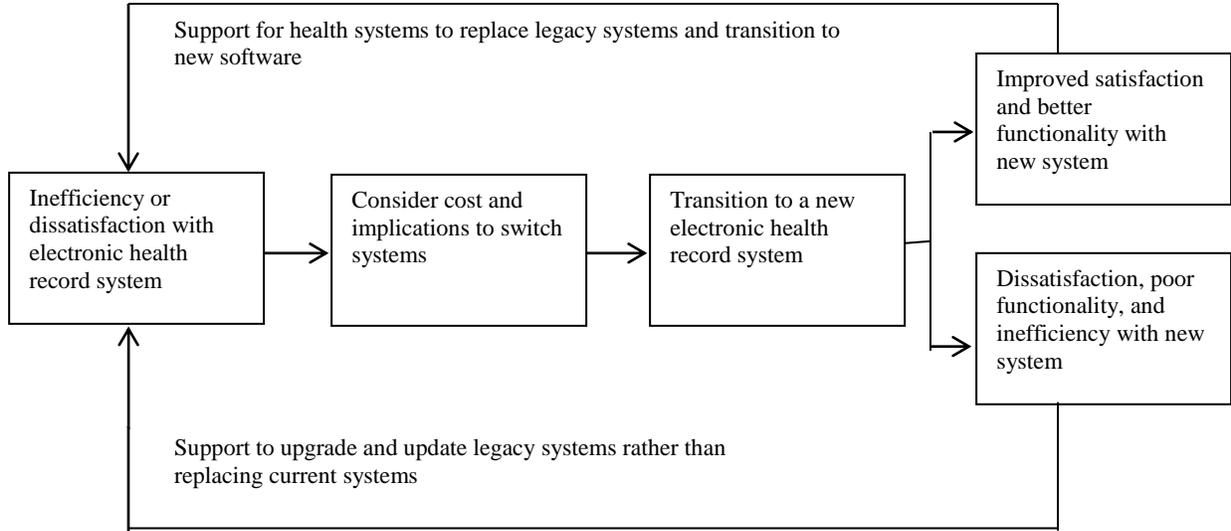
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Table 1

Summary of Selected Studies of Physician Electronic Health Record (EHR)
Adoption Factors and Satisfaction

Report	Study Design and Participants	Outcome Measures	Result Highlights
Verdon (2014)	Survey done in 2013 with 960 respondents, conducted by MPI Research and *Medical Economics* Physician makeup: 32% family practice, 16% internal medicine, 33% specialty	Physician satisfaction Financial impact Patient care	70 percent of physicians feel the EHR has not been worth the cost (79 percent in practices with >10 physicians) 73 percent would not purchase their current EHR system 67 percent dislike functionality of their EHR system 65 percent thought their EHR system results in financial losses 69 percent thought health care has not improved
Brown-Wilson Group (2013)	Survey of 17,000 EHR adopters	Percentage of EHR adopters considering a switch in systems Physician satisfaction with current EHR Whether the EHR meets the practice's needs	17 percent to 31 percent of medical practices were considering a switch from their first-choice EHR Survey indicated that many EHR vendors were preoccupied with backlogged implementations and product development had not been a priority 80 percent reported that the EHR does not meet needs 79 percent indicated that the medical practice had not adequately assessed provider needs before choosing their EHR system 77 percent thought their current EHR system was not well suited for their practice setting 44 percent stated that vendors were unresponsive to practice needs Deterrents to change: mergers and acquisitions, training, lack of value, executive pushback
Verdon (2013)	Survey by American College of Physicians	Physician satisfaction Likelihood of purchasing same system again	34 percent of providers were dissatisfied with the EHR's ability to decrease workload 32 percent had not returned to their normal productivity after implementation 37 percent of providers were dissatisfied with ease of EHR use 37 percent of physicians would not get the same system again

Pfoh et al. (2012)	Cross-sectional survey of 197 providers transitioning to a new EHR system	Physician satisfaction	64 percent reported being more satisfied with new EHR system Physicians who used the Internet daily were more likely to be satisfied Physicians with satisfaction with workload and quality of life were more likely to be satisfied with EHR system Barriers to satisfaction: maintaining problem and medication lists, tracking health maintenance information, referring to clinical practice guidelines, and ordering lab and radiology tests
Palojoki et al. (2016)	Cross-sectional, web-based survey of 2,864 EHR users in a hospital district in Finland	Perceived risk level	About 50 percent of users reported a severe perceived risk level related to extended EHR unavailability, particularly in the emergency room, operating room, and intensive care unit 40 percent of severe perceived risk was related to system-to-system interface errors, failure to find or use the most recent data, EHR time measurement errors, and incomplete orders

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