Potential Effects of the Electronic Health Record on the Small Physician Practice: A Delphi Study

by Chad C. Sines, DBA, and Gerald R. Griffin, EdD

Abstract

The Health Information Technology for Economic and Clinical Health (HITECH) Act established the requirement of all medical practices to have certified electronic health records (EHRs). Some primary concerns that have been delaying implementation are issues of cost, revenue impact, and the effect on the patient encounter. Small physician practices (one to four physicians) account for 46 percent of all physicians. The purpose of this qualitative study using a modified Delphi research design was to examine the potential effect of the adoption of the EHR on revenue, unintended costs or savings, and changes in the patient encounter. Fifteen expert panelists completed the three-round survey process. The expert panelists reached a consensus that EHRs would reduce the number of patients seen per day, thereby reducing their revenue. Although the panelists limited their discussion on the effect of patient outcomes, their most dominant concern was the loss of face-to-face time with the patient. They felt that the use of an EHR would reduce the focus on the patient and potentially cause physicians to miss medical conditions. The results of this study indicate an avenue for EHR vendors to develop educational avenues to teach physicians how to optimize the EHR as well as to share success stories that demonstrate improved financial impact.

Keywords: small physician practice, electronic health record, HITECH Act, meaningful use

Background and Significance

"The widespread use of [the] electronic health record (EHR) in the United States is inevitable . . . but inevitability does not mean easy transition."[1] Practices with one to four physicians are more susceptible to the financial effects of large-scale expenditures.[2] Should a practice choose an inferior EHR system, it faces a significant possibility of financial failure. Although savings can accrue in large hospital facilities with increased volume, the savings may have little effect compared to the costs of an EHR system for smaller practices, making the overall financial outcome a negative one. Despite the fact that the majority of hospitals have a basic EHR system, many struggle to meet stage 2 criteria for meaningful use of EHRs.[3] Adoption rates among small physician practices have been significantly slower.[4]

The practice of medicine has risen in complexity, making the practice of medicine more difficult for physicians.[5] High startup costs and unknown future costs continue to be a concern for practices. A reduction in the number of patients can be a significant negative outcome for practices struggling to survive under decreasing Medicare compensation and increasing malpractice costs.

While EHRs tend to reduce the growth of healthcare costs, the true impact on cost reduction is difficult to gauge.[6] Despite the perceived benefits, the main barrier to adoption continues to be the difficulty of using EHR products, indicating the need for systems with simplified interfaces.[7] Ultimately, physicians will need to transition away from paper-based reporting and fully embrace the electronic format.[8] One potential positive aspect of the EHR implementation process that is often overlooked is the ability to uncover and correct process inefficiencies; however, implementation itself can often disrupt processes, leading to concern.[9]

Methods

This study examined the possible effects of the EHR on the small physician practice. The design for this study was chosen because of the incomplete nature of the EHR. The modified Delphi design was selected for this study because it can avoid the ambiguity often seen in the classic Delphi model.[10] Quantitative methods cannot fully ascertain the financial or patient outcomes until, and unless, the government fully implements meaningful use stage 3. Until this occurs, quantitative studies can show only the effect of the current stage, not the complete product. After a final stage 3 fully certified EHR system is in place, quantitative studies would be appropriate.

The criteria for expert panelists focused on four primary needs. First, a pool of US physicians (MDs and DOs) with a practice size of one to four physicians was necessary to understand the EHR's impact on small physician practices in the United States. Second, the study focused on those in a small practice for at least five years to ensure adequate experience in this subset of practices. Third, the requirement of at least one year of experience with a certified EHR ensured that each participant was knowledgeable regarding the features of the EHR and its effect on the small physician practice. Finally, the panel of invited experts included only physicians who were decision makers in their practice. The requirement of a physician who is a decision maker permitted the participant to have a broad understanding of the topic. These individuals were able to expound on the issue from the perspective of both the physician who understands the patient care aspect and a businessperson who recognizes the financial effects of cost and revenue. Fifteen participants from various specialties and geographical locations were selected to participate.

Three rounds of surveys were completed. Participants were given seven days to complete each survey. Each round had a 100 percent response rate. The initial open-ended question was designed to probe for themes to explore in successive rounds. The research question asked of the experts was "How do you believe the implementation of an electronic health record system would affect the management of small physician practices? Consider the entire practice operations, including but not limited to the patients, the physicians, and the financial implications to the practice." Despite suggestions of topics to include in the response, panelists were able to freely choose how to answer the primary question. The freedom to answer the question allowed the researchers to gauge the overall thought process regarding the topic.

The objective of round one was to determine the most common themes to explore in successive rounds (see Table 1). The purpose of round two was to gauge the degree of consensus on each theme. Common themes were assessed with the use of a five-point Likert-type scale (with 1 representing "strongly disagree" and 5 representing "strongly agree") to determine agreement (see Table 2). Typical percentages for consensus in the literature range from 51 percent[11] to 70 percent[12] and greater than 80 percent.[13] For the purpose of this study, consensus was determined to have been reached with 80 percent agreement or disagreement as determined by the sum of the somewhat and strongly agree/disagree categories. Panelists reached consensus on all themes in round two (see Table 2). The results from round two were presented as a qualitative survey in round three for discussion of consensus as well as outliers. Panelists were asked to discuss the potential reasons behind the stated themes, the degree of consensus, and their opinion on each theme. The purpose of round three was to generate robust discussion on the outcomes, including the development of additional insights into each theme.

Results

Panelists voiced two primary concerns in the study: a decrease in patient volumes and a decrease in patient face-to-face time (see Table 1). Although other concerns were mentioned, these concerns were the most frequently cited. Panelists shared that practices could see significant decreases in the number of patients seen per day, with most indicating that volumes may never return to the previous levels. One panelist summed it up by stating that "the EHR will allow fewer patients to be seen per day and that will decrease revenue." Several panelists stated that their practice had already seen a decrease, and some cited a significant decrease, with the reason being increased data entry time compared with traditional dictation. At no point in the study did any panelist state that their practice saw an increase in volume.

A reduction in face-to-face time was a serious concern related to the quality of patient care. According to one panelist, "the EHR will [reduce] the amount of time the physician has to focus on the patient as more time [is being] devoted to data entry than patient observation." Panelists shared that more time was spent entering data into the EHR product than was spent dialoguing with and assessing the patient. Panelists stated that both they and their patients seemed less satisfied with the visit despite the fact that the total visit time was much longer than it was before implementation of the EHR.

Panelists were worried that there would be an increased number of small practice closures due to cost concerns as well as the increased burdens placed on physicians. One panelist noted a recent decision to close their practice and move to a hospital system because they felt their small practice was no longer viable. Others mentioned colleagues who had retired or joined another practice or hospital to avoid the complications and cost of the EHR. Small practice closure was a concern for some who felt not enough was known about future cost increases and reductions in patient volumes to fully understand how viable small practices would remain.

On a positive note, the panelists felt that given sufficient software features and transfer protocols, the cost for medical record management could potentially decrease. Examples of features mentioned were automated processes, streamlined record transfers, and optimized patient portals. Panelists shared that providing a better system for remote access as well as the potential to interact with the patient via a portal system had the potential to improve patient care and possibly reduce unneeded visits for questions that could be handled via messaging. Panelists were also optimistic that automated systems that would check for allergies, drug reactions, and incorrect dosages could reduce negative outcomes. Medical coding for reimbursement was seen as having the potential to improve with a quality EHR system.

Security issues relating to hacking and data mining evolved in later rounds as panelists were concerned that technology and legislation had not caught up with the potential security concerns. Several indicated that breaches could result in significant loss of privacy at a level previously unseen. One panelist referenced breaches affecting a single system and extrapolated from that to the potential results of a breach within an interconnected system.

Discussion

Cost is a significant concern for physicians when it comes to implementing an EHR solution.[14] With meaningful use still an uncertainty, panelists felt that the initial first-year cost would be significant but that costs would decrease over time. With an unknown future cost, the EHR implementation may be too much for smaller practices without the financial resources of larger facilities.[15]

The expert panelists were concerned that the EHR would decrease patient volumes because of increased documentation times during the visit. It was also felt that the patient's experience was affected by reduced face-to-face times because the physician was concerned with data entry as opposed to focusing on the patient. The literature suggests that employing medical scribes for data entry could increase productivity as well as lead to patient and physician satisfaction.[16] More research will need to be conducted on the costs and benefits of medical scribes in the small physician practice.

Of particular concern was the risk of practice closure due to excessive costs and technical concerns. Despite the fact that this appeared to be a lower-level concern initially, panelists agreed that it was a valid concern. One physician in a single-physician practice who did not participate in the survey emailed that

he had recently closed his practice and moved to a hospital setting to avoid the complications of EHR implementation. He cited a lack of technology understanding and stated that he felt the costs to employ others would be too much for his small practice to sustain. One participant indicated that he was considering a transition from a small practice to a hospital setting to have a more known future. A third physician, not in the panel, emailed that he had retired recently and that he felt that "we have reached the end of the single-physician practice" because increasing demands, such as the need for the EHR. He voiced concern that rural areas such as his would no longer be offered the kind of service predominant in a small practice. Panelists stressed the concern over the loss of the small physician practice, although it did not rank high on the list of the most common concerns. Another panelist also mentioned having recently left a small practice for a larger one for financial concerns.

Panelists felt that vendors did not provide realistic outcome scenarios, leading several panelists to state that vendors were simply salespeople and were not concerned with how the technology would affect physicians. Improvements in patient volumes as a result of specialized training remain a viable research interest. Vendors may reap better sales outcomes if they shift their focus from sales to implementation. Knowing the concerns of physicians, vendors can tailor demonstrations, literature, and product implementation to address critical areas of concern.

Conclusion

Many small-practice physicians are clearly worried. The unknown impact of the EHR on their practice has small-practice physicians unsure of their future and the future role of small physician practices. With physician shortages continuing to mount, the financial future of the healthcare practice has become a paramount concern of practitioners.[17] The panelists expressed concerns consistent with those stated in literature. Physicians were worried about how the EHR would change how they performed their craft and how it would affect their revenue.

Prior research has suggested that EHR success is, in part, dependent on positive attitudes among staff.[18] This study suggests that attitudes surrounding the EHR are less than positive, with many physicians in small practices experiencing grave concern about the future of their practice. Acknowledging these concerns allows vendors an opportunity to change their approach and steer the EHR in a more positive direction.

The concern regarding a decrease in patient volume directly translates to a decrease in potential income. One panelist summed up the concern by sharing that a colleague "went from seeing 30 patients a day to a maximum of 12" before finally leaving to join a larger practice. While this decrease may be mitigated through the use of medical scribes, it remains to be seen if the decrease will offset the cost of the medical scribe. If not, the future of the small physician practice is less than ideal.

Physicians may need to consider positioning the medical scribe as a permanent part of the medical practice. Medical scribes can assist in the inputting of data, which could increase efficiency. This setup could potentially increase the number of patients seen as well as increase physicians' face-to-face time with patients. Additional research into the effect of the medical scribe on both finances and patient care in a small physician practice is needed.

The results of this study also suggest an opportunity for vendors to directly address patient concerns. EHR vendors should capitalize on two main categories: reduced patient volumes and decreased face-to-face time with the patient. Both results are potentially the result of inexperience, processes that need to be optimized, and users who do not fully understand the technology. Vendors should consider developing specific training aimed at small physicians and presenting case studies showing positive outcomes. Vendors will need to accept that small physician practices may need specialized training because the practices will likely not have the resources to hire an expert to optimize the system.

Even with a strong government push for the use of the EHR, physician and patient acceptance and participation will be critical to its ongoing success. At present, neither party is fully on board with the new direction of healthcare delivery, although each remains vitally important. Despite the investments in EHRs and the increase in their adoption, patient engagement continues to lag.[19] If both parties remain

discouraged, long-term success remains uncertain. The overarching concerns of decreased patient volume and face-to-face time give vendors and government agencies a clear target to focus on. This change in approach may allow small physician practice owners to maintain their practices as the EHR evolves.

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Notes

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Table 1

Thematic Analysis in Round One

Response	Number of Participants with Response	Percentage of Participants with Response
Face-to-face patient time reduced	8	53%
Fewer patients seen per day	7	47%
Initial income decrease, then increase	6	40%
Force small physician practices out of business because of cost	5	33%
Data mining/privacy concerns	4	27%

Table 2

Extent of Agreement with Thematic Findings

Response	Strongly Disagree (%)	Somewhat Disagree (%)	Neutral (%)	Somewhat Agree (%)	Strongly Agree (%)	Likert Mean[a]
Face-to-face patient time reduced	0.0	6.7	0.0	20.0	73.3	4.60
Fewer patients seen per day	0.0	6.7	6.7	20.0	66.7	4.47
Initial income decrease, then increase	6.7	0.0	6.7	26.7	60.0	4.33
Force small physician practices out of business because of cost	0.0	6.7	13.3	26.7	53.3	4.27
Data mining/privacy concerns	6.7	0.0	13.3	33.3	46.7	4.13

[a] 1 = strongly disagree, 5 = strongly agree.