

Scribes in an Ambulatory Urology Practice: Patient and Physician Satisfaction

Simi Koshy, Paul J. Feustel, Michael Hong and Barry A. Kogan*

From the Division of Urology, Department of Surgery (SK, BAK), and Center for Neuropharmacology and Neuroscience (PJF), Albany Medical College, and the Urological Institute of Northeastern New York (MH, BAK), Albany, New York

Abbreviations and Acronyms

EMR = electronic medical record

Submitted for publication November 30, 2009. Study received local institutional review board approval.

Nothing to disclose.

Supplementary material for this article can be obtained at http://www.cmrj.org/index.php?option=com_content&view=article&id=54&Itemid=67.

* Correspondence: telephone: 518-262-3296; FAX: 518-262-4784; e-mail: bkogan@communitycare.com.

Editor's Note: This article is the fifth of 5 published in this issue for which category 1 CME credits can be earned. Instructions for obtaining credits are given with the questions on pages 400 and 401.

Purpose: The increasing use of electronic medical records during the clinical encounter brings not only benefits but also barriers that may affect the doctor-patient relationship and increase the work burden of the physician. We evaluated whether the use of an electronic medical record scribe in an academic urology program would ameliorate these problems.

Materials and Methods: We randomly assigned electronic medical record scribes to the office hours of 5 academic urologists, and using surveys we evaluated patient and physician acceptance and satisfaction.

Results: Patients were accepting of an electronic medical record scribe and satisfaction rates were high (93% vs 87% in the absence of a scribe, $p = 0.36$). Patients were comfortable disclosing urological information in the presence of the scribe. Physicians were dramatically more satisfied with office hours when a scribe was present (69% vs 19%, $p < 0.001$). We were unable to determine whether the presence of a scribe improves productivity.

Conclusions: Electronic medical record scribes in a urology practice may be a practical solution to provide documentation while maintaining or improving the doctor-patient relationship because they increase physician satisfaction and do not detract from patient satisfaction.

Key Words: electronic health records; medical records systems, computerized; patient satisfaction; job satisfaction; physician-patient relations

WIDESPREAD adoption of the electronic medical record is becoming a reality. EMR benefits may include cost savings from more efficient and effective patient encounters, more continuity of care, reduced burden of paper records, and improvement in data quality, readability, availability and information exchange. An EMR also has the potential to improve health care through better adherence to protocol guidelines, decreased medical errors, and improved data monitoring and aggregation.¹

EMR implementation hindrances include large capital investment and fear of a loss of confidentiality.²⁻⁴ In

addition, there is concern regarding a lack of physician acceptance and involvement in adopting an EMR, particularly by those physicians not completely facile with computers. Garrison et al found a correlation between physician skill with computers and patient satisfaction with the visit in that greater computer competency led to enhanced patient satisfaction.⁵ Another study failed to find a difference in patient satisfaction with or without a computer present during the visit.⁶

Some physicians worry that the EMR actually increases time on the part of the physician.⁷ Many doctors

also perceive that use of an EMR threatens their relationship with the patient because attending to a computer interferes with the doctor-patient interaction and/or they believe that typing in front of patients is rude. Supporting this theory Booth et al showed that physicians are unable to use the computer and communicate simultaneously.⁸ Several studies have shown that the use of an EMR results in better medical information exchange but less patient centered interactions,^{9,10} with less attention to the agenda of the patient and less psychosocial discussion. Warshawsky et al described how the work style for physicians using an EMR changes from a conversational style to a blocked pattern.¹¹ Shachak and Reis asserted that the communication between the patient and doctor is a vital component of the encounter with a tremendous impact on satisfaction, adherence, conflict resolution and clinical outcomes.¹

A proposed solution to these challenges is the use of an EMR scribe. The doctor would interact directly with the patient and a scribe would simultaneously enter the information into the EMR. The doctor can later review and make corrections to the data entered by the scribe. Furthermore, the majority of studies on the effects of EMRs have been done in primary care settings. In a urological setting many sensitive genital issues may be discussed and EMR concerns may be different. We implemented EMR in June 2007. In this study we examined EMR scribe use in an academic urology practice, and assessed patient and physician satisfaction related to use of an EMR scribe with patient and physician surveys.

METHODS

Design

The study was conducted at the Urological Institute of Northeastern New York at the Albany Medical Center in Albany, New York, and was approved by our local institutional review board. Before using a scribe physicians were responsible for entering all the medical information into the EMR program. Physicians in our practice varied in how adept they were with computer technology and how they used the computer during patient encounters. Some entered the information throughout the visit while others waited until the end of the encounter to complete the documentation. Most took notes on paper or on the EMR and completed the documentation at a later time. All the physicians in our practice believed that although the EMR had significant advantages, the physician was still left with considerable time and effort dedicated to EMR documentation compared to hand or dictated charting.

It should also be noted that because we are part of an academic training program, residents and students were intermittently in the office and provided some documentation. In addition, 2 mid level providers were shared by the 7 physicians. They also provided some of the documentation for office visits.

Three to 4 scribes (premedical students or first year medical students) were trained for at least 2 weeks before the intervention. Scribe training was not standardized to a particular format, but rather was specialized to fit the unique documentation practices of the physician the scribe was assigned to follow. Of the 7 physicians in the practice who were asked to participate 5 were willing to take part in the study (the subspecialties of those participating included pediatric urology, endourology and urological oncology). All 5 physicians have at least 2 office sessions per week. One specific 4 to 5-hour office session day was chosen for each physician. Thus, 1 session day was performed without a scribe and the following week that same session day included the intervention with a scribe. Although consecutive sessions were planned, the effects of academic travel on the part of the faculty and educational obligations on the part of the students made this setup difficult. Nonetheless the choice of control days vs scribe days was essentially random. The intervention was ongoing from June 2008 through April 2009 with data collection limited only by academic commitments and scribe availability.

The scribe followed the physician into the patient examination room, was introduced to the patient and remained in the room, recording medical information throughout the patient encounter. When the encounter was complete the physician gave the patient a survey and asked the patient to fill it out at the check-out desk before leaving the clinic. At the end of the clinic day all patient surveys were collected from the front desk and later data were analyzed. On control days without a scribe present the physician still asked patients to fill out the same survey at the end of the encounter. Surveys were marked (with a symbol unknown to the patient) to denote scribe vs control days.

If a physician also had a resident for the clinic day the encounters of those patients seen by the resident were considered control. Therefore, for a given scribe day there may have still been control surveys due to the presence of a resident. At the end of the physician's clinic day the physicians were given a physician satisfaction survey to assess opinions on that day's clinic experience with or without the scribe. Most of these surveys were filled out by the physician after completing the documentation from that clinic day. The results were recorded and analyzed in a manner similar to the patient satisfaction surveys.

Assessments

Patient and physician satisfaction surveys were developed to determine whether the use of a scribe would enhance or interfere with the patient/physician acceptance of the EMR. The chi-square test was used to determine the association between the presence of a scribe and the results based on responses from the patient and physician satisfaction surveys. When the expected value of a given survey response was less than 5, Fisher's exact test was substituted as the statistical test of choice. For patient satisfaction responses the results for the categories of comfort, assistant and satisfaction were collapsed into 2×3 tables for statistical testing to obtain a larger frequency of responses.

RESULTS

At the conclusion of the study process 166 scribe patient satisfaction surveys, 321 control patient satisfaction surveys, 29 scribe physician satisfaction surveys and 26 control physician satisfaction surveys were collected. Patients were comfortable having a scribe in the room during the encounter (89% vs 78% of responses were positive, scribe vs control, $p = 0.009$) and the gender or age of the scribe present during the encounter did not seem to have any effect on patient satisfaction (93% and 87% of patients were unconcerned, respectively, $p = 0.36$, table 1). Moreover although not as strongly as overall satisfaction, patients were comfortable disclosing urological problems with the scribe in the room (81% vs 76%, $p = 0.28$) and they perceived it was better for the physician to focus on them as opposed to documentation in the computer. They were quite willing to have the scribe in the room (74% vs 63%, $p = 0.008$). Patient satisfaction with the encounter was unaffected by the presence of the scribe and even tended to be improved compared to controls (93% vs 87% positive responses, $p = 0.36$).

Physicians were impressed with the benefits of the scribe in terms of documentation (93% vs 39% positive responses, $p < 0.001$, table 2). They expressed no concerns about being uncomfortable with the scribe. Overall they were much more satisfied with office hours when the scribe was present (69% vs 19%, $p < 0.001$). However, they did not uniformly report that the scribe was helpful (72% vs 50%, $p = 0.24$).

Table 1. Patient satisfaction responses to survey questions

	% Scribe (No.)	% No Scribe (No.)	p Value
Comfort:*			
Excellent/very good	89 (179)	78 (222)	0.009†
Neutral	10 (20)	18 (52)	
Fair/poor	2 (3)	4 (11)	
Disclosure:			
Extremely	5 (11)	5 (13)	0.28
A little	14 (28)	19 (55)	
Not at all	81 (163)	76 (217)	
Gender:			
Yes	7 (15)	15 (42)	0.02†
No	93 (187)	85 (243)	
Age:			
Yes	3 (6)	7 (21)	0.04†
No	97 (196)	93 (264)	
Assistant:*			
Extremely/very willing	74 (149)	63 (179)	0.008†
Neutral	25 (51)	32 (92)	
Not willing/very unwilling	1 (2)	5 (14)	
Satisfaction:*			
Excellent/very good	93 (187)	87 (248)	0.36
Neutral	7 (14)	12 (33)	
Fair/poor	1 (1)	1 (4)	

* Survey results collapsed into 3×2 tables to conduct statistical analysis.

† Statistically significant for the 5% level.

Table 2. Physician satisfaction responses to survey questions

	% Scribe (No.)		% No Scribe (No.)		Significance Test
Documentation difficulty:*					
Extremely/very difficult	0	(0)	15	(4)	<0.001†
Difficult	7	(2)	46	(12)	
Not difficult/easy	93	(27)	39	(10)	
Comfort during history:					
Very uncomfortable	0	(0)	0	(0)	
Somewhat uncomfortable	3	(1)	0	(0)	
Not at all uncomfortable	97	(28)	8	(2)	
Not applicable	0	(0)	92	(24)	
Comfort during physical examination:					
Very uncomfortable	0	(0)	0.00	(0)	
Somewhat uncomfortable	10	(3)	0.00	(0)	
Not at all uncomfortable	90	(26)	8	(2)	
Not applicable	0.00	(0)	92	(24)	
Office hrs:*					
Excellent/very good	69	(20)	19	(5)	<0.001†
Good	21	(6)	46	(12)	
Fair/poor	10	(3)	35	(9)	
Scribe help:					
Very much	72	(21)	50	(13)	0.24
A little	24	(7)	42	(11)	
Not at all	3	(1)	8	(2)	

* Survey results collapsed into 3×2 tables to conduct statistical analysis.

† Statistically significant for the 5% level.

DISCUSSION

In our practice patients were not put off by the presence of the scribe, and in general they were comfortable and satisfied with the visit even with a scribe. Physicians recognized a large improvement in the ease of documentation and were much more satisfied with office hours when a scribe was present.

The presence of a scribe did not seem to affect the experience of the patient in a significant way. Most patients were comfortable with the scribe and believed that it did not affect their ability to disclose medical information. Several studies have documented that without a scribe the use of an EMR brought into the room during the encounter resulted in less patient centered interaction.^{9–11} The use of a scribe seems to have prevented this effect in our practice. An alternative to the scribe is for the provider to do the documentation after the visit but this puts an increased burden on the provider. Urology is a particularly sensitive field of medicine with many discussions centering on urinary and sexual function. Our results show more than 80% of patients were comfortable disclosing this information in the presence of a scribe. Overall patient satisfaction tended to be higher in patients seen with a scribe than in those seen without a scribe.

The biggest benefit of the scribe appeared to accrue to the physician. There was a large difference in ease of documentation and a dramatic improvement

in satisfaction with the clinic experience. To our knowledge there are no other studies with which to compare our results but our findings were striking. In addition to the obvious benefit of reduced time spent on documentation by the physician, there is most likely a side benefit that the physician can fully focus on the interpersonal relationship with the patient. It is interesting that the improvement in physician satisfaction with a scribe seemed to be independent of the style of physician practice, subspecialty or physician computer skills. Ventres et al discovered that a disadvantage of the EMR in the clinic visit was that physicians, especially with set templates on the program, often used the encounter as a data gathering session rather than as a time to listen to the patient's own narrative.¹² As physicians used the computer more they became more of a data gatherer. It was only when the physician's focus on the computer was decreased that the interview became more patient centered. Based on the comments of 1 of the scribes from our study the scribe intervention allowed the physician to key in more on the patient narrative and how the specific health problem affected daily life as opposed to trying to get the patient to address a specified checklist.

During the research study process it became evident that there were significant variations in scribe ability not only initially but throughout the study. In addition, there were significant improvements in the abilities of individual scribes over time. Based on our experience in this study it is recommended that scribes be given more than 2 weeks of training with the EMR as well as with the individual physicians with whom they work. Our scribes were medical and premedical students, and we would guess that a scribe with less medical expertise might have a longer learning curve. The optimal type of background for a scribe remains to be determined.

A caveat of our study is the application of this intervention in an academic medical setting. Patients in our office setting are often forewarned that students and residents may be present during their visit. Thus, they might be more accepting of the presence of a scribe. There also is a potential bias associated with the use of encounters with residents as a control group. That said, this likely makes the improvement in physician satisfaction that we found even more striking. Finally the presence of a scribe could be seen as a negative element, limiting the educational experience for the student/resident or a positive, helping the educational experience by freeing the physician to teach. We unfortunately did not ask about this issue so we have no data to support one result or the other. Another potential limitation of the study is the use of an assessment tool that is not validated. Because we were unable to find a suitable existing satisfaction tool that appropriately

addressed the unique issues associated with an EMR scribe, we were forced to devise a tool that specifically focused on those concerns. We believe the tool we devised is sufficiently straightforward to be valid.

Although all physicians in the practice were offered the opportunity to participate in this study, the only female physician (who also has a high percentage of female patients) chose not to participate. Unfortunately this limits the generalizability of the study to female patients and to female physicians. It should be noted that several scribes were women and male patients expressed no concern with the scribe being a woman. Nonetheless the majority of patients participating in this study were male (or children) and we cannot evaluate whether a practice with mostly female patients would benefit less from a scribe.

The most obvious disadvantage to hiring a scribe is the additional cost of staff. It is possible that the presence of a scribe might allow a practitioner to see more patients than would otherwise be possible. Although our intention was to check this possibility, it was not feasible in our study model to schedule differently on scribe vs nonscribe days due to variations in physician and scribe availability. However, even if there is no increased productivity, the advantages of reduced physician time needed for documentation and the strikingly improved physician satisfaction may well justify the increased cost. It should be noted that our study does not suggest that a scribe may be the ultimate solution in improving physician and patient satisfaction with the EMR during an encounter. Ventres et al found that the unique practice style of the physician (informational, interpersonal, management) influences the manner in which he/she uses the EMR during the patient encounter.¹³ Thus, practices should address other related issues such as physician computer skills and behavioral style, better EMR system design and interventions in education.

CONCLUSIONS

Based on our findings EMR scribe use in an academic urology setting improves physician satisfaction and does not detract from patient satisfaction. It remains to be seen whether the improvement in satisfaction will justify the additional expense or whether the presence of a scribe will allow a physician to be more productive.

ACKNOWLEDGMENTS

Scribes Joshua Lennon, Michael Hong and Simi Koshi, and Drs. Hugh Fisher, Ronald Kaufman, Barry Kogan, Badar Mian and Mark White participated in this research study process.

REFERENCES

1. Shachak A and Reis S: The impact of electronic medical records on patient-doctor communication during consultation: a narrative literature review. *J Eval Clin Pract* 2009; **15**: 641.
2. Gadd CS and Penrod LE: Dichotomy between physicians' and patients' attitudes regarding EMR use during outpatient encounters. *Proc AMIA Symp* 2000; 275.
3. Loomis GA, Ries JS, Saywell RM Jr et al: If electronic medical records are so great, why aren't family physicians using them? *J Fam Pract* 2002; **51**: 636.
4. Russell SC and Spooner SA: Barriers to EMR adoption in internal medicine and pediatric outpatient practices. *Tenn Med* 2004; **97**: 457.
5. Garrison GM, Bernard ME and Rasmussen NH: 21st-century health care: the effect of computer use by physicians on patient satisfaction at a family medicine clinic. *Fam Med* 2002; **34**: 362.
6. Legler JD and Oates R: Patients' reactions to physician use of a computerized medical record system during clinical encounters. *J Fam Pract* 1993; **37**: 241.
7. Likourezos A, Chalfin DB, Murphy DG et al: Physician and nurse satisfaction with an Electronic Medical Record system. *J Emerg Med* 2004; **27**: 419.
8. Booth N, Robinson P and Kohannejad J: Identification of high-quality consultation practice in primary care: the effects of computer use on doctor-patient rapport. *Inform Prim Care* 2004; **12**: 75.
9. Makoul G, Curry RH and Tang PC: The use of electronic medical records: communication patterns in outpatient encounters. *J Am Med Inform Assoc* 2001; **8**: 610.
10. Margalit RS, Roter D, Dunevant MA et al: Electronic medical record use and physician-patient communication: an observational study of Israeli primary care encounters. *Patient Educ Couns* 2006; **61**: 134.
11. Warshawsky SS, Pliskin JS, Urkin J et al: Physician use of a computerized medical record system during the patient encounter: a descriptive study. *Comput Methods Programs Biomed* 1994; **43**: 269.
12. Ventres W, Kooienga S, Vuckovic N et al: Physicians, patients, and the electronic health record: an ethnographic analysis. *Ann Fam Med* 2006; **4**: 124.
13. Ventres W, Kooienga S, Marlin R et al: Clinician style and examination room computers: a video ethnography. *Fam Med* 2005; **37**: 276.