Implementation of Scribes in an Academic Emergency Department: The Resident Perspective

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ABSTRACT

Background Medical scribes have been shown to improve emergency department (ED) throughput, physician productivity metrics, and patient satisfaction by fulfilling primary documentation and nonclinical functions. Little research has been done to date to study the effect of implementing a scribe program in a residency setting.

Objective Our goal was to investigate emergency medicine residents' perception of their educational experience, including interactions with faculty, before and after the implementation of an ED scribe program.

Methods We used a pre-post design to assess residents' perceptions of their educational experience before and after implementation of the scribe program. Residents at a large, urban academic medical center with an Accreditation Council for Graduate Medical Education–accredited, 4-year emergency medicine residency program were surveyed during August 2015 (prior to the implementation of the scribe program) and April 2016 (6 months after implementation).

Results Residents reported improved educational experiences with statistically significant changes in the following areas: increased interaction with faculty due to fewer documentation requirements ($P = .012$); more face-to-face teaching with faculty ($P < .001$); increased faculty supervision for procedures ($P = .016$); and a decrease of delays in patient disposition due to incomplete documentation ($P = .029$).

Conclusions Implementation of an ED scribe program in an urban 4-year emergency medicine residency program led to improvements in residents' perceptions of their education.

Introduction

With increasing evidence showing the utility of electronic health records (EHRs) in improving health care quality, safety, and patient outcomes,[1] a growing majority of emergency departments (EDs) in the United States have implemented an EHR.[2] The use of an EHR creates a new set of challenges, including concerns about the burden of EHR-based clinical documentation, along with potential inefficiencies and disruption of face-to-face encounters with patients.[3] EHR documentation requirements also may reduce faculty time available for teaching residents.[4] One proposed solution to improve physician productivity and satisfaction in the ED is through the use of medical scribes.[5]

A medical scribe assists physicians with primary documentation and nonclinical functions. Studies have suggested that scribes improve ED throughput and increase patient satisfaction.[6,7] The quality reporting program of the Centers for Medicare & Medicaid Services includes efficiency metrics (such as door-to-doctor time and length of ED stay) in its core measures, putting pressure on EDs to comply with new standards.[8]

Studies have assessed the effect of scribes on productivity metrics, yet the impact of scribes on resident education has not been researched extensively. One study conducted at a university medical center found that faculty felt scribes allowed for more teaching time, but found only a modest impact on actual teaching activities, such as case discussions and verbal feedback.[9] The aim of this study was to investigate residents' perception of their educational experience pre- and postimplementation of an ED scribe program.

Methods

The study was conducted in the ED of a large, urban academic medical center, with an annual patient volume of approximately 90 000 patients and an Accreditation Council for Graduate Medical Education–accredited 4-year emergency medicine program.

The ED scribe program was implemented in September 2015. Our medical scribes are typically prehealth students pursuing a health care career track. They undergo 6 to 8 weeks of training in medical terminology, chart documentation, billing

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requirements, risk management, and ED flow, followed by 50 hours of floor training in which they gradually take on responsibility with the guidance of a senior scribe who provides real-time feedback. Scribes do not participate in direct patient contact, handling of bodily fluids, communicating results, or giving medical advice to patients.[10] During our study, scribes were assigned to work 1-on-1 with faculty during peak hours (between 11 AM and 11 PM). There was no formal training in use of the scribes for faculty or resident physicians. The scribes are employed by an outside vendor and paid on a prenegotiated hourly rate. Additional costs to the hospital include a dedicated laptop and mobile workstation for each scribe.

Prior to the implementation of the scribe program, faculty wrote *attending only* notes on their own or *combined* notes with residents (in which the resident provided a history, review of systems, physical examination, assessment, and plan). If a resident was involved in the care of a patient with an *attending only* note, he or she would still be required to document a reassessment and final disposition note on the patient. Since September 2015, scribes have provided medical documentation services to faculty during and immediately following a patient encounter when present in the ED in order to reduce the amount of time faculty spend documenting in either *attending only* and *combined* notes. Faculty continue to cosign any notes written by residents with a written agreement and add additional commentary as necessary. Scribes do not complete any documentation for residents; residents are still responsible for reassessment and disposition notes on all of their patients.

We used a pre-post design to assess resident perceptions of their educational experience before and after implementation of an ED scribe program. The 10-item and 16-item, 5-point Likert-type scale (strongly disagree, disagree, neutral, agree, and strongly agree) pre- and postsurveys were developed by the authors and were not tested prior to use. The pre- and postsurveys were administered in August 2015 and April 2016, respectively. Data were collapsed into 3 categories for analysis: disagree (strongly disagree, disagree); neutral (neither agree nor disagree); and agree (agree, strongly agree). Comparisons between responses before and after the scribe program were done using χ^2 and Fisher's exact tests. P values of $< .05$ were considered statistically significant.

This project was considered exempt by the Weill Cornell Medical College Institutional Review Board.

Results

Anonymous surveys were collected from 47 emergency medicine resident physicians across 4 residency classes. Residents were asked about perceptions of their education 1 month before and 6 months after implementation of the medical scribe program (provided as online supplemental material).

Following implementation of the ED scribe program, there were improvements in all questions about educational experiences (TABLE 1). Residents reported improved educational experiences with statistically significant changes in a number of areas. Improvements were found in interactions with faculty due to fewer documentation requirements for faculty ($P = .012$); in the amount of face-to-face teaching with faculty ($P < .001$); in an increased amount of faculty supervision for procedures ($P < .016$); and in a decrease in delays in patient disposition due to incomplete attending documentation ($P < .029$). Additionally, residents directly attributed improvements in their educational experience and number of patients seen to the introduction of medical scribes into the ED (TABLE 2).

Discussion

We found statistically significant improvements in residents' perceptions of their education post-implementation of a scribe program in the ED. Consistent with prior literature showing that scribes improve productivity metrics,[7] residents felt that patient dispositions were not as frequently delayed due to incomplete faculty documentation, and noticed that their interactions with faculty were less limited by documentation requirements. Also notable are the perceived increases in faculty supervision for procedures and face-to-face teaching. While causation is not clear, our study suggests that improvements in supervision and teaching are associated with the presence of scribes.

Some areas that did not see significant changes following the use of scribes: faculty availability to answer questions or address concerns, faculty approachability, and the amount of time residents thought faculty spent completing documentation. This could reflect residents' perceptions that these areas have not improved, or it could be due to the study being underpowered to show a significant change.

Limitations of our study include that it was conducted in a single specialty and institution, and results may not be generalizable. The pre- and postsurveys were fielded at different times of the academic year, and residents' reported improvements in education interactions may be due to natural maturation or other factors. We assessed resident perceptions of learning, not objective measures of

TABLE 1
Comparison of Resident Perceptions of Their Education Pre- and Postimplementation of an Emergency Department Medical Scribe Program[a]

Perceptions	Pre, n = 47	Post, n = 47	*P* Value
My interactions with attendings are frequently limited due to attendings' documentation requirements.			.012
Disagree	8 (17)	13 (28)	
Neutral	6 (13)	15 (32)	
Agree	33 (70)	19 (40)	
I have enough face-to-face teaching with the attendings during my shifts.			< .001
Disagree	26 (55)	6 (13)	
Neutral	13 (28)	15 (32)	
Agree	8 (17)	26 (55)	
I have adequate attending supervision for procedures.			.016
Disagree	8 (17)	2 (4)	
Neutral	17 (36)	10 (21)	
Agree	22 (47)	35 (74)	
Attendings are usually available to answer my questions or address my concerns during shifts.			.20
Disagree	4 (9)	0 (0)	
Neutral	7 (15)	8 (17)	
Agree	36 (77)	39 (83)	
Patient dispositions are often delayed due to incomplete attending documentation.			.029
Disagree	7 (15)	11 (23)	
Neutral	4 (9)	12 (26)	
Agree	36 (77)	24 (51)	
I have enough time to have meaningful face-to-face interactions with my patients.			.09
Disagree	24 (51)	14 (30)	
Neutral	7 (15)	12 (26)	
Agree	16 (34)	21 (45)	
The attendings spend more time completing documentation than teaching.			.59
Disagree	4 (9)	2 (4)	
Neutral	8 (17)	11 (23)	
Agree	35 (74)	34 (72)	
I would be able to see more patients if attendings spent less time completing documentation.			.37
Disagree	9 (19)	14 (30)	
Neutral	11 (23)	7 (15)	
Agree	27 (57)	26 (55)	
I find it hard to approach attendings with questions or concerns while they are completing documentation.			.24
Disagree	9 (19)	7 (15)	
Neutral	8 (17)	15 (32)	
Agree	30 (64)	25 (53)	
I believe that reducing the amount of attending documentation requirements would be beneficial to my education as a resident.			
Disagree	0 (0)	N/A	
Neutral	6 (13)	N/A	
Agree	41 (87)	N/A	

Abbreviation: N/A, not available.
Note: Results are presented as frequencies with proportions (n [%]).

learning. Our survey tool was not tested prior to use, and residents may not have interpreted the questions as intended. Finally, our data were collected soon after the implementation of the program and may not reflect a mature, stable system in the interactions of faculty, residents, and scribes.

There are several areas of future study stimulated by these results. We do not know the impact of

TABLE 2
Resident Perceptions of Their Education After Implementation of an Emergency Department Medical Scribe Program[a]

Perceptions	n (%)
My interactions with attendings have improved with the implementation of scribes.	
Disagree	2 (4)
Neutral	5 (11)
Agree	40 (85)
Scribes have had a positive impact on face-to-face teaching of residents by attendings.	
Disagree	0 (0)
Neutral	12 (26)
Agree	35 (74)
Scribes have had a positive impact on the amount of attending supervision for procedures.	
Disagree	0 (0)
Neutral	20 (43)
Agree	27 (57)
Scribes have made attendings more available to answer questions and address my concerns.	
Disagree	0 (0)
Neutral	11 (23)
Agree	36 (77)
Scribes have allowed me to see more patients than I would without them.	
Disagree	4 (9)
Neutral	7 (15)
Agree	36 (77)
Scribes have made it easier to approach attendings with questions or concerns.	
Disagree	3 (6)
Neutral	13 (28)
Agree	31 (66)
Scribes have improved my overall education as a resident in the emergency department.	
Disagree	1 (2)
Neutral	9 (19)
Agree	37 (79)

[a] N = 47.

decreased documentation requirements on resident education, as documentation is an essential skill to learn. We would like to understand the impact of scribes on objective measures of resident learning, and we also would like to explore how the faculty, resident, and scribe interaction is affected by different levels of patient volume in the ED.

Conclusion

Our study found that residents perceived improvements in their education due to the initiation of scribes who support faculty EHR documentation in the ED. Residents perceived that the scribes allowed them to see an increasing volume of patients, with improved supervision.

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