Doctor Who? A Quality Improvement Project to Assess and Improve Patients' Knowledge of Their Inpatient Physicians

Kathleen Broderick-Forsgren, MD
Wynn G. Hunter, BS
Ryan D. Schulteis, MD
Wen-Wei Liu, BS
Joel C. Boggan, MD, MPH
Poonam Sharma, MD
Steven Thomas, MS
Aimee Zaas, MD, MPH
Jonathan Bae, MD

ABSTRACT

Background Patient-physician communication is an integral part of high-quality patient care and an expectation of the Clinical Learning Environment Review program.

Objective This quality improvement initiative evaluated the impact of an educational audit and feedback intervention on the frequency of use of 2 tools—business cards and white boards—to improve provider identification.

Methods This before-after study utilized patient surveys to determine the ability of those patients to name and recognize their physicians. The before phase began in July 2013. From September 2013 to May 2014, physicians received education on business card and white board use.

Results We surveyed 378 patients. Our intervention improved white board utilization (72.2% postintervention versus 54.5% preintervention, $P < .01$) and slightly improved business card use (44.4% versus 33.7%, $P = .07$), but did not improve physician recognition. Only 20.3% (14 of 69) of patients could name their physician without use of the business card or white board. Data from all study phases showed the use of both tools improved patients' ability to name physicians (OR = 1.72 and OR = 2.12, respectively; OR = 3.68 for both; $P < .05$ for all), but had no effect on photograph recognition.

Conclusions Our educational intervention improved white board use, but did not result in improved patient ability to recognize physicians. Pooled data of business cards and white boards, alone or combined, improved name recognition, suggesting better use of these tools may increase identification. Future initiatives should target other barriers to usage of these types of tools.

Introduction

Effective and reliable communication between patients and physicians is an integral part of the expectations of the CLER (Clinical Learning Environment Review) Program.[1–3] However, since most hospitalized patients cannot identify members of their medical team,[4–6] institutions have become increasingly focused on patient-centered strategies to improve communication. Examples include in-room or in-hand reminders that act as visual aids for patients and have been shown to improve identification of physicians.[5,7–12] Adoption of these interventions by physicians has been slow, potentially due to a lack of awareness among providers of the importance of patient identification, unavailability of tools, forgetting to use them, or time constraints.[5,11]

We sought to determine the impact of an educational audit and feedback intervention on the use of 2 low-cost tools: business cards and white boards. We concentrated on training that would both focus on improving physician awareness of this issue as well as applying reminders to use the tools, because even if people know how to use the tools, they often forget. We hypothesized that through education of physicians, adoption of both of these tools would increase, and this would improve patients' recognition of their physicians.

Methods

This prospective before-after study entailed a pre-education phase (July 2013–September 2013) and an education phase (September 2013–May 2014). The study was conducted on a general medicine service including resident and hospitalist teams. Resident teams consisted of an attending, a third-year resident, 2 interns, and medical students. Hospitalist teams consisted of a single physician.

Generic (not patient-oriented) business cards and white boards were available at the institution for use for approximately 6 months before this study. During both phases of our study, physicians were provided patient-friendly personalized business cards display-

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Editor's Note: The online version of this article contains the survey instrument used in the study.

ing a photograph and contact information. White boards were available in all patient rooms with dedicated space for physician names, role, team type (resident or hospitalist), and plan.

All adult general medicine inpatients were eligible for this study. Subjects were identified by reviewing the electronic health record census lists from 3 medical wards twice per week. Patients were excluded if they had any of the following diagnoses: dementia, delirium, altered mental status, or encephalopathy. After obtaining verbal consent, patients were surveyed once within 48 hours. At the time of the in-person survey, the survey administrator could exclude patients if they were unable to communicate.

The same survey was administered during both periods (provided as online supplemental material). It asked patients to identify at least 1 of their physicians by name. The answer was scored as correct if patients named at least 1 physician. Patients also were provided a laminated sheet with physicians' photographs and were asked to identify their physicians. A correct answer was awarded if patients correctly pointed to 1 of their physicians. The survey noted whether in-room white boards contained correct physician names and teams. Patients were asked if they were given a business card. Perceptions of the importance of knowing physician names were assessed using a 5-point Likert scale. No patient-identifying data were recorded except self-reported level of education.

The intervention consisted of an educational session with audit and feedback as part of a single quality improvement initiative. In the preintervention phase, the white boards and business cards were available for use without further education. During the intervention phase, in-person training was provided to physicians rotating on general medicine services by key hospital medicine faculty leaders. This consisted of a 10-minute PowerPoint presentation during monthly resident orientation meetings and faculty meetings focusing on the importance of patient-provider recognition, the lack of this awareness, and the impact on patient care. The physicians were instructed to use the 2 tools as part of their daily patient care. Additionally, as part of the interventional phase, real time feedback via run charts was given during weekly resident conferences and faculty meetings (less than 5 minutes). Weekly e-mail updates were sent to all physicians rotating on general medicine services as well.

This study was deemed exempt from review by the Duke University Health System Institutional Review Board.

Rates of business cards and white boards were quantified overall and by study phase. Bivariate associations between business card/white board use, length of stay, self-reported patient educational level, importance of physician identification, team assignment, and study period were measured using chi-square (categorical covariates) or Kruskal-Wallis (continuous) statistics. Multivariate logistic regression models were used to determine the odds ratios of each of the 2 tools after adjusting for study period, team assignment, and patient education. Analysis was performed by SAS version 9.3 (SAS Institute Inc, Cary, NC).

What was known and gap
Effective and reliable communication between patients and physicians is an integral aspect in ensuring the quality and safety of care.

What is new
An educational audit and feedback intervention improved use of business cards and white boards.

Limitations
Single institution study reduces generalizability; nonrespondents may have introduced bias.

Bottom line
Increased use of white boards and business cards resulted in improved patients' ability to name physicians, but did not affect face recognition.

Results

A total of 378 patients were surveyed, with 107 in the pre-educational phase and 271 during the educational phase. Patient demographics were similar in both phases (TABLE 1). Overall, 86.0% (296 of 334) of patients thought it was important or very important to know their physicians' names.

The educational audit and feedback intervention increased white board use (72.2% versus 54.5%, $P < .01$), but not business card use (44.4% versus 33.7%; $P = .07$; TABLE 2). There was no statistical difference in the rates of physician identification by any means of recognition (name or photo recall) between the 2 periods (70% before versus 59.2% after, $P = .10$, and 40% before versus 41.9% after, $P = .82$, respectively).

Patient recognition of provider names was low in patients who received neither business cards nor had a white board in their room (TABLE 3). Using pooled data from both study periods, we found that patients were more likely to identify physicians by name if they received either 1 tool or both tools (OR = 1.72 for business cards; OR = 2.15 for white boards; OR = 3.68 for both; $P < .05$ for all; TABLE 3). This effect persisted after adjusting for patient education level and team assignment. For photograph identification, 41 patients were excluded due to visual deficits. Patient recognition of provider photographs was not significantly associated with business card and white

TABLE 1
Clinical Demographics[a]

	None (N = 69)	Business Card (N = 45)	White Board (N = 143)	Both (N = 106)	*P* Value
Length of stay					.93[b]
N	67	44	137	105	
Mean (SD)	1.8 (0.8)	1.8 (0.7)	1.8 (0.8)	1.9 (0.8)	
Median (IQR)	2.0 (1.0,2.0)	2.0 (1.0,2.0)	2.0 (1.0,2.0)	2.0 (1.0,3.0)	
Level of education					.17[c]
Grade or high school	40 (63.5%)	26 (63.4%)	88 (63.8%)	50 (49.0%)	
Postsecondary	23 (36.5%)	15 (36.5%)	50 (36.2%)	52 (51.0%)	
Importance of identification					.035[c]
Highly agree	52 (81.3%)	38 (92.7%)	118 (90.8%)	80 (79.2%)	
Little agree	12 (18.8%)	3 (7.3%)	12 (9.2%)	21 (20.8%)	

[a] This includes patients in both pre-educational and educational phases by tools used. Missing data not included in analysis.
[b] Kruskal-Wallis test.
[c] Chi-square test.

board use (or use of both). Even after adjusting for the educational level or team assignment of patients, there was still no association between photograph recognition and business card and white board use.

As the patient's level of education increased, patients were more likely to be able to identify physicians by name. In contrast, patients' ability to identify physicians by photograph did not change. Patients on resident teams were more likely to identify physician photographs (72.5% with residents versus 47.3% with hospitalists; OR = 2.77; $P < .001$). Patients on hospitalist teams were similar in name identification (40.3% versus 44.6%; OR = 0.82; $P = .39$).

Discussion

In this quality improvement initiative, we investigated the effect of physician education and audit and feedback methods on utilization of business cards and white boards and the impact on physician recognition. The intervention significantly improved physician utilization of white boards but not business cards. There was no statistically significant change in patients being able to identify their physicians after the educational audit and feedback intervention. Using pooled data, we found that use of both tools was associated with improved naming ability but not with improved photograph recognition. This suggests that with increased use of business cards and white boards, these tools could improve patient identification of physicians.

These results are similar to prior studies.[5,7–12] Unlike prior studies, the ability of patients to identify providers by photograph was not affected.[7–12] Differences in the photograph identification sheet or the layout of the business card could partially explain this unique finding. Alternatively, baseline photographic recognition was high (more than 50%), leaving less room for improvement.

TABLE 2
Physician Use of Business Cards and White Boards Before and After Educational Intervention Periods[a]

	Pre-Education Phase (N = 107), n (%)	Education Phase (N = 271), n (%)	Total (N = 378), n (%)	*P* Value
White board				.001
Yes	54 (54.5)	195 (72.2)	249 (67.5)	
No	45 (45.5)	75 (27.8)	120 (32.5)	
Business card				.07
Yes	31 (33.7)	120 (44.4)	151 (41.7)	
No	61 (66.3)	150 (55.6)	211 (58.3)	
No. of interventions				.010
0	24 (27.9)	45 (16.7)	69 (19.4)	
1	46 (53.5)	134 (49.8)	180 (50.7)	
2	16 (18.6)	90 (33.5)	106 (29.9)	

[a] Missing data not included in analysis.

TABLE 3
Provider Identification Based on Tools Utilized[a]

	None (N = 69), n (%)	Business Card (N = 45), n (%)	White Board (N = 143), n (%)	Both (N = 106), n (%)	*P* Value
Identify by name					< .001[b]
Yes	14 (20.3)	21 (46.7)	62 (43.7)	55 (52.4)	
No	55 (79.7)	24 (53.3)	80 (56.3)	50 (47.6)	
Identify by photograph					.55[b]
Yes	30 (53.6)	22 (57.9)	80 (66.1)	58 (63.7)	
No	26 (46.4)	16 (42.1)	41 (33.9)	33 (36.3)	

[a] This includes patients in both pre-educational and educational phases by tools used. Missing data not included in analysis.
[b] Chi-square test.

As tools have been shown to improve a patient's ability to identify the names and roles of providers, identifying ways to increase their usage of these tools is warranted. Solely providing tools is not sufficient enough to ensure adoption, as our study showed a low baseline uptake (54% for white boards, 33% for business cards). This mirrors other studies demonstrating low utilization.[5,11] While other studies have looked mainly at the effect of these tools on patient awareness, we aimed to improve the low utilization through physician education.

Use of the 2 tools combined with physician education may serve as a simple template to improve a patient's ability to identify the names and roles of providers, a key CLER metric.[1,2] The personalized business card easily fit into lab coats, and the white boards were available in every patient room. Both tools are easy to use, of high value, and relatively low cost ($0.05 per business card).

While physician training increased the use of white boards, it did not increase business card use. Our training was time- and cost-efficient and provided during existing weekly conferences and e-mails. The finding of no change in physician identification may be partly due to the continued low usage of tools even after the intervention. Thirty percent of patients did not have updated white boards in their room, and more than half did not receive business cards. As almost all residents and faculty on the general medicine service received the educational intervention, factors other than lack of knowledge were responsible for the low use of business cards. In informal debriefings, residents reported several barriers to the use of tools—including forgetting to bring the cards, lack of time, unavailability of markers for the white boards, or feeling uncomfortable using business cards as a resident. Our institution plans to address these factors by increasing accessibility of business cards and white board markers, assigning medical students' responsibility to writing on the board, and further exploring residents' reluctance to use business cards.

There are several limitations to this study. It is a prospective, before-after study from a single institution and may not be generalizable. The tools were available to physicians prior to educational intervention, and some physicians already actively used them prior to the intervention, which may have affected the postintervention data. The use of these tools was voluntary. Physician traits such as good bedside manner or a memorable face may have confounded the results. We did not track patients' response rate; this may have biased the sample toward patients more willing to participate. While we adjusted patient education and team assignment, there may have been other confounders. Future studies should target barriers to the uptake of white boards and business cards as tools to facilitate patient identification of their physician.

Conclusion

Effective patient-physician communication is an important part of high-quality patient care and is a focus of the new ACGME accreditation system through the CLER program. Tools including patient-centered business cards and in-room white boards can improve patient identification of physicians. Making these tools available and providing low-cost physician training should increase utilization of these tools, and through that, improve patients' identification of their physician.

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Kathleen Broderick-Forsgren, MD, is a Resident, Duke Medicine Residency Program, Department of Medicine, Duke University Medical Center; **Wynn G. Hunter, BS,** is a Medical Student, Duke University School of Medicine; **Ryan D. Schulteis, MD,** is Assistant Professor of Medicine, Department of Medicine, Duke University Medical Center, and Assistant Professor of Medicine, Department of Medicine, Durham Veterans Affairs Medical Center; **Wen-Wei Liu, BS,** is Biostatistican, Department of Biostatistics and Bioinformatics, Duke University School of Medicine; **Joel C. Boggan, MD, MPH,** is Assistant Professor of Medicine, Department of Medicine, Duke University Medical Center, and Assistant Professor of Medicine, Department of Medicine, Durham Veterans Affairs Medical Center; **Poonam Sharma, MD,** is Assistant Professor of Medicine, Department of Medicine, Duke University Medical Center; **Steven Thomas, MS,** is Biostatistician, Department of Biostatistics and Bioinformatics, Duke University School of Medicine; **Aimee Zaas, MD, MPH,** is Program Director, Duke Medicine Residency Program, Department of Medicine, Duke University Medical Center, and Associate Professor of Medicine, Department of Medicine, Division of Infectious Disease, Duke University; and **Jonathan Bae, MD,** is Associate Chief Medical Officer for Patient Safety and Clinical Quality, Duke University Health System, and Assistant Professor of Medicine, Department of Medicine, Duke University Medical Center.

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Corresponding author: Jonathan Bae, MD, Duke University Medical Center, DUMC 100800, Durham, NC 27710, 919.681.8263, fax 919.668.5394, jon.bae@duke.edu

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