RESEARCH ARTICLE

A Quality Improvement Project to Improve Family Recognition of Medical Team Member Roles

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ABSTRACT

OBJECTIVE: Previous studies have shown that inpatients and families in academic settings have a limited ability to recall either their medical team members or the roles of those members. This is an important issue for patient and family satisfaction as well as patient safety. The objective of this study was to increase families' recognition of medical team members' roles.

METHODS: We established a multidisciplinary quality improvement leadership team, measured family recognition of medical team members and their roles, and conducted 2 PDSA (Plan-Do-Study-Act) cycles. The first intervention was standardization of the content and delivery of our verbal team introductions to ensure inclusion of essential elements and family engagement. The second intervention was addition of an informational white board in each patient room. The prospective study included 105 families in the preintervention phase, 103 post-PDSA cycle 1, and 92 post-PDSA cycle 2.

RESULTS: After conduction of 2 PDSA cycles, the recognition of the attending role increased from 49% to 87% ($P = .000$), the resident role from 39% to 73% ($P = .000$), and the medical student from 75% to 89% ($P = .038$).

CONCLUSIONS: The multidisciplinary quality improvement model was effective in improving family recognition of the roles of attending physicians, resident physicians, and medical students. Consistent attention to engaging the families and explaining our roles as well as providing informational white boards are effective interventions to facilitate this process.

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In an academic setting, inpatients and their families are visited by a wide variety of health care providers, including medical students, resident doctors, and attending doctors. Research has shown that 75% of adult inpatients could not name anyone when asked to identify an inpatient physician in charge of their care, and of those who gave a name, only 40% were correct.[1] Some studies have described interventions that showed limited success in improving the recognition of team members and their roles. Appel et al found that handouts with names, roles, and photographs of team members allowed adult patients to recognize 3 team members instead of just 1 of a team of >5.[2] However, this intervention did not improve recall of the roles. Ukana studied families of pediatric patients and found that a handout with photos and role descriptions doubled the recognition of provider roles.[3] Another study, which used photo sheets that included descriptions of team members training, showed improvement in parents' ability to name at least 1 provider from 37% to 82%.[4] This study did not evaluate recognition of roles but did show improvement in patient satisfaction after the use of the intervention sheet.

In our institution, we became aware of a possible additional challenge in helping families recognize providers and their roles. Family-centered rounds (FCRs) are endorsed by the American Academy of Pediatrics and commonly conducted in pediatric wards.[5] Although FCRs provide a more collaborative experience[6] and are viewed positively by families,[7] it is our experience that they may add another element in regard to families having a clear understanding of the role of team members. The recognition of the attending may be particularly difficult because traditionally, senior residents have led FCRs. Before the implementation of FCRs, we were not aware of any question as to who the attending was, perhaps because they alone talked to and examined the patient during bedside patient rounds. Families may not have understood the word "attending," but they seemed to know that this person who came in with the group, talked to them, and examined them was their doctor.

However, after the implementation of FCRs, it was not uncommon for families to mention to nursing that they never saw a doctor during the day. This lack of attending physician identification by families is a significant issue not only for patient satisfaction[4] but also for patient safety as in the Lewis Blackman Hospital Patient Protection Act in South Carolina.[8] The case that prompted this act involved a child who died after parents recognized his worsening condition but did not realize the resident who responded to their concerns was not an attending. This bill includes requirements that the parents be made aware that the attending is the one responsible for the patient's care and that they be able to contact the attending directly.

Because of our concern about the nurse-reported comments from parents that they had not seen a doctor, we conducted a pilot survey in October 2013. This survey, consisting of pictures with a blank for families to fill in the role of the pictured person, revealed that although 81% of families recognized the attending physician's picture, only 44% of families named the attending physician's role correctly. In fact, we received surveys that named the attending as a "nursing student" and "patient care assistant." This came as a surprise because the hospital had previously attempted several interventions similar to those in the literature to address this: handouts explaining the training and roles of team members with their pictures, pictures of team members posted in the hallway, and new nametags identifying the attending physician and residents. Before the preintervention data collection in this study, we changed the terms "attending" to "supervising doctor" and "resident/intern" to "doctor" because the former terms can be confusing to families. We use these new terms for the remainder of the article. To address the fact that the medical team could round without the family realizing their child's doctor was visiting them, an interdisciplinary team was constructed consisting of pediatric hospitalists, resident doctors, medical students, and nurse leaders. The objective of the study was to increase patients' and families' recognition of the health care team members' roles.

METHODS

Setting

The setting is a children's hospital affiliated with an academic institution and has a 25-bed general pediatric service. The patient referral base includes a 3-state area. The pediatric hospital service has been conducting FCRs since 2010, and the team typically consists of 1 supervising doctor, 2 or 3 senior resident doctors, 2 or 3 intern doctors, 3 or 4 medical students, and the pediatric nurses. At a minimum, the supervising doctor, senior resident, intern, medical student, and nurse assigned to a patient enter the patient's room during rounds. Usually additional medical students and resident doctors not assigned to that particular patient will also be present to listen to the case and discussion. Supervising doctors change weekly, resident doctors change monthly, and medical students change every 2 weeks. Therefore, multiple supervising doctors, resident doctors, and medical students were studied.

Human Subjects Protection

The institutional review board approved this quality improvement (QI) study and allowed the completion of the anonymous survey to serve as consent.

Intervention Planning

The quality improvement (QI) leadership team was established in November 2013 after a pilot survey of 16 families showed low recognition of care team members' roles. The team included 3 pediatric hospitalists, 3 pediatric resident doctors, 1 medical student, and 2 nurse leaders. Members of the team were selected with the vision of having all participants of FCRs represented: supervising doctor, resident doctors, medical students, and nurses.

The team created an aim statement[9]: 80% of the families would recognize the roles of the supervising doctor, resident doctors, and medical students after implementation of ≥1 QI interventions. The team identified key drivers[10]:

1. Clarity of verbal introductions and descriptions of team roles during FCRs
2. Family's attention/engagement during the introductions and descriptions

3. Family's understanding of language used to describe the team member roles
4. Family's expectations of a supervising doctor (eg, is in a white coat; is the obvious leader in the room)
5. Readability/clarity of nametags
6. Accessibility of picture and written role

Interventions were planned to address each key driver (Fig 1).

Plan-Do-Study-Act Cycle 1 Intervention

The team held brainstorming sessions to select which interventions to implement for the first Plan-Do-Study-Act (PDSA) cycle. The decision was made to begin by changing 2 aspects of the introduction done during FCRs. Previously, the senior resident doctors had led the introduction and the supervising doctor would just observe the interaction. Parents were often not looking at the supervising doctor while they were being introduced. Therefore, the first modification was that the supervising doctor would lead introductions, and a script was developed to standardize the process across weeks with different supervising doctors (Fig 2). The supervising doctors did not read the script verbatim but followed the spirit of the script by ensuring they included the elements of the script, which were as follows: (1) They were the supervising doctor and were in charge, (2) the residents were in fact doctors who had completed medical school and were in the process of receiving additional training in the field of pediatrics, and (3) the medical students were not yet doctors and were in medical school to become doctors.

Second, the supervising doctor was directed to ensure that the family was engaged and interactive in the process. For example, if the family appeared to be inattentive, we recommended making conversation and assuring eye contact or calming a crying child before starting FCRs. We thought this would allow us to make a connection with the family while facilitating the hearing and understanding of our introductions and descriptions.

PDSA Cycle 2 Intervention

Our second intervention was placement of whiteboards in the patient room with a picture of the supervising doctor, which is labeled as such, and space to write the

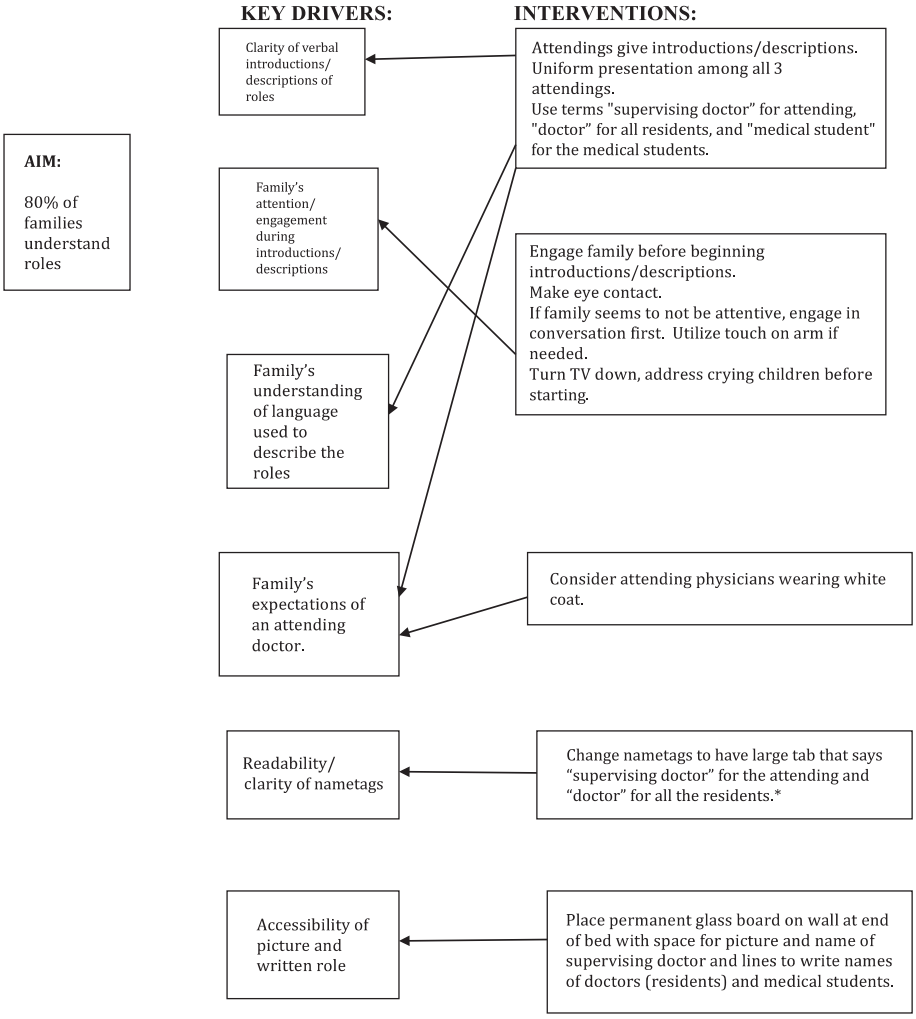

FIGURE 1 Key driver diagram used by QI leadership team. *Possible interventions for future PDSAs.

Hi, I am Dr. _____. I am the supervising doctor. I am the doctor in charge of the team of doctors that will be caring for _____ (child's name). The other doctors are training to be pediatricians. They have completed medical school. Dr _____ and Dr _____ are looking after _____ (child). The other members of our team are medical students in medical school to become doctors. The medical student looking after your child is _____. The other members of the team are doctors and students that didn't see your child this morning but still want to learn about him/her.

FIGURE 2 Standardized script used by supervising doctor during FCR introductions.

name of the supervising doctor as well as spaces to write the names of the resident doctors and medical students. The medical students were responsible for writing these names on the board during rounds. During PDSA cycle 2, we continued the interventions of PDSA cycle 1 so that the data reflect the effects of the combination of the introductions and the whiteboards.

Assessment

An anonymous survey was developed and used pictures to assess the families' recognition of care team members and their roles before any intervention and following PDSA cycle number 1 and then again after PDSA cycle number 2 (Fig 3). Survey packets were organized to include pictures of only the specific members who took care of a patient (ie, the 1 supervising doctor, the 2 resident doctors, and 1 medical student assigned to see the patient that day). It asked the following 2 multiple-choice questions for each care team member:

1. Do you recognize this person?
2. What is his or her title/role?

Baseline data were collected for 8 weeks. PDSA cycle 1 was started in May 2014, and post-intervention surveys were subsequently administered for 6 weeks. PDSA cycle 2 was started in December 2014 with postintervention surveys being administered for another 6 weeks. During the baseline data collection period, 2 weeks were excluded. During PDSA cycle number 1 and 2, 1 and 2 weeks were excluded, respectively. Excluded weeks were the result of FCRs having not been the rounding method used by the weekly supervising doctor or holidays in which FCRs were not done.

Surveys were distributed daily after the completion of FCRs, ~30 minutes after the team had rounded. Survey packets were given to families after the first time they participated in FCRs. This was done to ensure everyone had participated in FCR once and heard the introductions just 1 time.

Surveys were distributed by a mixture of third- and fourth-year medical students during the time they were on the inpatient team. During PDSA cycle 1 data collection, a second-year medical student also participated as part of a summer project. The medical students were trained to give families a standardized explanation of the survey. Families were given ~30 minutes to complete the survey and then the student returned to collect the survey. Multiple-choice options for the role of the team member included supervising doctor, doctor, medical student, nurse, patient care assistant, and nursing student because these were all terms that patients had written in as the role on our previous pilot study. Although nurses do participate in FCRs, we did not choose to question the families about their recognition of the nurse or the nurse role. This was because our QI team was formed to address the issue of families saying they had not been visited by their doctor.

Survey questions left blank or with multiple answers circled were counted as incorrect. Both questions had to be answered to be counted. Even if they answered the first question as "yes" but did not answer the role question, the role was counted as incorrect.

Data Analysis

Before undertaking our study, we performed power calculations to estimate the necessary sample size to detect a 20% difference between our pre- and postintervention groups in regard to role recognition. We used a 2-tailed α of .05 with power of 80%. Using these parameters, the estimated sample size was 82 patients in each study group.

All survey responses were categorical. We used the χ^2 test (or Fisher's exact test when appropriate) to examine statistical significance in our pre- and postintervention groups. All data were analyzed by using Stata 13 (College Station, TX).

RESULTS

Recognition of Team Member by Picture

The recognition of the supervising doctor's picture was 85% in the preintervention phase and 89% after the change in introductions in PDSA cycle number 1. This increased to 100% after the addition of whiteboards in PDSA cycle number 2 (Table 1). Recognition of the resident doctors' pictures increased from 89% to 90% after cycle 1 and to 98% after cycle 2. The medical student's picture recognition was 98% before interventions, 92% after cycle 1, and 97% after cycle 2.

Recognition of Team Member Role

The recognition of the supervising doctor role was 49% in the preintervention phase and 68% after the change in introductions in PDSA cycle number 1. This increased to 87% after the addition of whiteboards in PDSA cycle number 2 (Table 2, Fig 4). Recognition of the resident doctor's role increased from 39% to 69% after cycle 1 and

Do you recognize this person?

a) YES

b) NO

What is her title/role?

a) Supervising doctor

b) Doctor

c) Medical student

d) Nurse

e) Patient care assistant

f) Nursing student

g) Other

FIGURE 3 Sample survey to assess families' recognition of care team members and their roles.

to 73% after cycle 2. The medical student role recognition was relatively high initially at 75% and remained steady at 76% after cycle 1 but showed a significant increase after cycle 2.

DISCUSSION

Our study demonstrated a sustained increase in family recognition of medical team member roles. PDSA cycle number 1 implemented alterations in FCR introductions including allowing the supervising doctor to lead and explain titles (supervising doctor, doctor, and medical student) with a focus on parental attention. The recognition of the role of team members significantly improved as the supervising doctor and resident doctor increased 19% and 30%, respectively. Medical student recognition only increased 1% after this intervention. The large difference in baseline recognition between groups is possibly due to the time allotted per patient seen. For example, a medical student might see 3 or 4 patients in the amount of time a resident is allotted to see 10.

In PDSA cycle number 2, we placed whiteboards in patient rooms containing pictures of the supervising doctor and spaces to write the names of the resident doctor and medical student. Medical students would fill out these spaces at the beginning of rounds. Recognition of the supervising doctor role increased another 19%, the resident doctor by 4%, and the medical student by 13%.

Our QI leadership team decided to focus our aim statement on increasing role recognition because it seemed we already had a high level of picture recognition. However, as the majority of previous research focused on picture recognition, we felt it would be important to monitor this aspect for any improvement as well.

Research shows that patients feel it is important for them to know their physician's level of training and role, but the majority of patients do not actually know this information.[11,12] There have been a number of attempts to improve this problem. Unaka et al used a face sheet with team members' pictures and role description and found that this intervention significantly increased the caregivers' understanding of each person's responsibility (from 25% to 50%), although this suggests 50% of caregivers still lacked understanding.[3] We had used a similar strategy before this study, which consisted of a handout of roles and photos of team members as well as posting pictures of team members in a public lobby area. Interestingly, our baseline data were similar to the data obtained by Unaka et al after their intervention.

Our interventions have encouraged our team members to take notice of the attentiveness of both the patient and their family members during rounds. The changes we made to increase attentiveness, such as making small talk until you have everyone's attention or waiting to begin until the child is no longer crying, are simple and time-efficient. As a result, patients and their families are more informed and more familiar with the team members. Anecdotally, we also noticed that families seemed much more friendly with our team when we used these methods. For example, during the introduction of a resident doctor, we would often say how much time they had left until they would complete their training to become a pediatrician. At this point, parents usually were smiling and congratulating the doctor.

TABLE 1 Percent Recognition of Team Member Picture

	Preintervention (Baseline)	Post-PDSA Cycle 1	Post PDSA Cycle 2	P^a
Supervising doctor	85% (105)	89% (103)	100% (92)	.000
Resident doctor	89% (198)	90% (181)	98% (148)	.002
Medical student	98% (81)	92% (62)	97% (63)	1.000

Numbers in parentheses represent sample size (*n*).
[a] *P* value comparing post-PDSA cycle 2 to preintervention.

TABLE 2 Percent Recognition of Team Member Role

	Preintervention (Baseline)	Post-PDSA Cycle 1	Post-PDSA Cycle 2	P^a
Supervising doctor	49% (105)	68% (103)	87% (92)	.000
Resident doctor	39% (198)	69% (181)	73% (148)	.000
Medical student	75% (81)	76% (62)	89% (63)	.038

Numbers in parentheses represent sample size (*n*).
[a] *P* value comparing post-PDSA cycle 2 to preintervention.

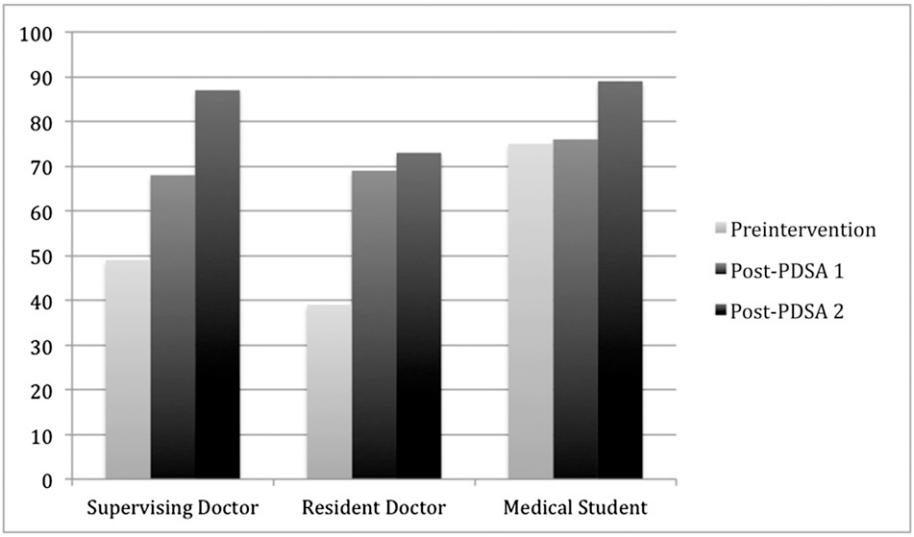

FIGURE 4 Percent recognition of team member role.

We acknowledge a number of limitations in our study: (1) the inability to control for bias from health care team members because members were aware of the changes in presentation and survey; (2) the use of a novel, unproven data collection instrument for assessment of family recognition of a provider's role without assessing whether they understood what this role entails; (3) lack of control for possible confounding variables (ie, socioeconomic status, age of parents, education level of parents); and (4) recall bias because we did not control for acuity level and families of sicker children may be more likely to remember the attending physician because they are more concerned.

Our study fills a gap in the literature by building on the success already attained. Our pilot survey data and preintervention data are similar to that attained after interventions in previous research. This is likely because we had already implemented handouts similar to those described in previous studies. In addition, our first PDSA cycle addresses the verbal engagement and actual introduction we use with the family, whereas previous research only considered handouts.

We do not want to limit the progressive independence of our senior resident doctors because this is essential to their development and a pillar of Accreditation Council for Graduate Medical Education guidelines.[13] We may at some point return to having senior residents do the introductions. However, using only the 3 hospitalists was an easier way to ensure uniformity than using all senior residents. If we do return to this method, we will educate all residents in the technique of engaging the family.

CONCLUSIONS

Although we did not meet our goal of 80% recognition of the role of resident doctors, we did meet our aim statement for the supervising doctor and medical students after the 2 PDSA cycles. Our next intervention will include nametags emphasizing the role of each member. Given the success of the initial PDSA cycles, we have plans to implement the introduction changes on a larger scale, including teams in PICU and NICU.

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