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Medical Student Outcomes after Family-Centered Bedside Rounds

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Abstract

Objective—Family-centered bedside rounds (FCBR) are recommended to improve trainee education, patient outcomes, and family satisfaction. However, bedside teaching has waned in recent years, potentially leading to less teaching and more concern for trainees. We examined medical students' concerns, teaching evaluations, and attitudes after experiencing FCBR during the pediatric clerkship.

Methods—Data are both cross-sectional and pre- and post-clerkship surveys for 113 (89%) of 127 students. Students reported frequencies of post-clerkship concerns (14 items) and teaching experiences (17 items), with five response options (1=never, 2=rarely, 3=occasionally, 4=usually, 5=always, dichotomized with "frequent" being usually or occasionally). Students reported pre- and post-clerkship attitudes for 4 items on a 7-point scale (1=strongly disagree, 7=strongly agree). Analyses included adjusted means or proportions.

Results—The most commonly endorsed concern was presenting information in a way that was understandable to patients and families with 34.5% of students having this concern frequently. The majority of students frequently experienced 12 of the 17 teaching items. Effective teaching of physical exam skills was the teaching item least often experienced frequently by students (20.3%). Student attitudes about the benefits of FCBR for families were significantly more positive post-clerkship (mean change 0.37 pts, $p < 0.001$), but they remained neutral in their preference for FCBR over traditional rounds without the family present (mean change -0.14 pts, $p > 0.05$).

Conclusions—Although students demonstrate positive attitudes toward FCBR and report frequent occurrence of inpatient teaching elements, findings suggest opportunities for easing student concerns and for using this venue to teach exam skills.

Keywords

medical education; family-centered care; bedside rounds; pediatrics

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INTRODUCTION

Patient-centered care can improve health outcomes^{1–4} and is recognized as a key to quality healthcare.⁵ By definition, patient-centered care focuses on three major tasks of the healthcare encounter⁶—1) establishing a relationship among providers and patients, 2) ensuring optimal information sharing, and 3) deliberating about decisions with the patient to ensure respect for patients' needs and preferences.⁵ In pediatrics, family-centered care acknowledges that because the family is the child's primary support, their perspective and input are important in clinical decision making.⁷ Because family-centered care improves patient satisfaction, resource utilization, and staff satisfaction,^{8–11} it is endorsed by the American Academy of Pediatrics (AAP), the Residency Review Committee for Pediatrics, and the Joint Commission.^{7, 12, 13} The AAP specifically recommends training in family-centered care be provided to all medical students and residents.⁷

To facilitate family-centered care, the AAP suggests standard practice should be to conduct attending rounds in patients' rooms with the family present, so-called family-centered bedside rounds (FCBR).⁷ In addition to benefits for families, patients, and staff,^{14–19} FCBR can improve the educational experience for trainees⁷ through demonstration of communication skills, confirmation of trainee's physical exam findings, and modeling of professionalism and bedside manner.^{20–23} Despite recognized educational benefits, bedside teaching has waned, particularly on adult inpatient services where students receive the bulk of their third year training.^{21, 24, 25} The resulting unfamiliarity with bedside rounding can create discomfort for today's students and faculty when expected to undertake FCBR.^{21, 24} Trainees perceive multiple barriers to bedside rounds, including time management, decreased trainee autonomy, and patient discomfort.^{15, 19, 24, 26, 27} Trainees are also concerned that teaching may be overshadowed by the team's focus on the family during FCBR,^{19, 26} although two intensive care unit-based studies suggest teaching is unaffected by family presence.^{15, 18} Trainees also recognize that attending physicians' knowledge, attitudes, and skills are crucial to the performance of quality bedside rounds.^{24, 27}

Implementation of FCBR as standard practice is hindered by trainee concerns and debate about FCBR's educational value. Because medical student acceptance of FCBR is key to implementation as standard practice during training and thereafter, their experiences with FCBR must be further studied and addressed.^{28, 29} Three main areas of study are needed to understand the impact of FCBR on trainee education. First, understanding sources of concern is essential to overcoming barriers to implementing and sustaining FCBR. Second, understanding FCBR's impact on the educational experience is critical to shaping this curricular component. Last, understanding how current FCBR experiences influence trainee acceptance is important to establishing this practice as a cornerstone of pediatric care. Thus, among medical students on the pediatric clerkship at our children's hospital, we sought to examine: 1) student concerns about FCBR, 2) evaluations of teaching during FCBR, and 3) changes in student attitudes about FCBR.

METHODS

Evaluation was based on pre- and post-clerkship surveys from 113 third year medical students during the 2008–2010 academic years. The study period included 12 pediatric clerkship rotations each with a 3-week inpatient experience at our 88-bed, state-of-the-art, free-standing children's hospital affiliated with a large, mid-western medical school. The pediatric clerkship represents the only consistent opportunity for the students to experience FCBR during medical school training. During this inpatient experience, faculty (7 hospitalists) round with the care team at the bedside except in rare instances when families prefer not to participate. The attending, a senior resident, two interns, ~4 medical students,

and the patient's nurse are expected to participate in FCBR, with other team members joining as appropriate (e.g., a social worker). FCBR are conducted similarly across the clerkship rotations with students presenting the 3–4 patients under their care daily. A team will typically round on 8–15 patients daily. Routine FCBR elements include use of lay language to describe the child's status, the plans for the hospital day, and discharge criteria. The institution has routinely conducted FCBR for about 3 years with only one formal training opportunity for attendings, residents, and nurses. The study received approval from the school's Institutional Review Board. Completion of the survey implied consent.

Measures

Students provided demographics (age (<30 vs. ≥30), gender, ethnicity (White, Hispanic/Latino, African American/Black, Asian/Pacific Islander or Other) and core clerkships completed previously (Psychiatry, Medicine, Surgery, Primary Care, Obstetrics/Gynecology).

Cross-sectional data included post-clerkship reports of the frequency of FCBR concerns and teaching experiences on a 5-point scale (1=never, 2=rarely, 3=occasionally, 4=usually, 5=always). Students reported 14 concerns drawn from available literature and supplemented by item development with our medical students.^{15, 16, 20, 24, 27} Students assessed teaching with 11 items adapted from the Cook County Inpatient Attending Evaluation to represent direct interaction with students and modeling of desired FCBR behaviors as well as 6 items specific to family-centered care (1 overall item; 1 item representing relationship building, 2 items representing information exchange, and 2 items representing family engagement in decision making).³⁰ For the purposes of analysis, student concerns and teaching experiences were dichotomized to reflect “frequent” (occurring usually or always) or “infrequent” (occurring occasionally or less). Pre- and post-clerkship attitudes were assessed by 4 items (1=strongly disagree, 7=strongly agree).^{15, 20, 24} Negatively-worded items were reverse scored.

Analysis

Student concerns and evaluations of teaching were analyzed as the % reporting frequent occurrence. Probabilities, adjusted for demographics and number of required third-year clerkships completed, were generated using regression techniques with the margins command. Adjustment was performed because outcomes of interest varied significantly with demographics and clerkship experience. Change in attitudes was assessed by examining the adjusted mean change (s.e.) between students' pre- and post-clerkship ratings, accounting for demographics, number of clerkships completed, and pre-clerkship attitude. A two-sided p-value <0.05 was regarded as significant. Analyses were performed in Stata.³¹

RESULTS

Baseline Characteristics

While on their pediatric clerkship, 127 medical students were eligible with 113 (89%) completing pre- and post-clerkship surveys. Students were 58% female, 27% from racial/ethnic minorities, and 11% at least 30 years of age. As expected when surveying medical students at different points in their third year, the number of clerkships completed ranged from 0 (14%) to 5 (10%) with most students having completed 3–4 clerkships (21% and 29%, respectively).

Student Concerns about Family-Centered Bedside Rounds

Post-clerkship, the most common sources of frequent concern included presenting information in a way that was understandable to patients and families (34.5% of students

reported frequent concern) and presenting in front of patients and families during rounds (25.1%). (Table 1) Other common concerns included asking the right questions during pre-rounding (19.7%), being concerned about FCBR because expectations were unclear (19.4%), and being concerned about “pimping” during FCBR (17.2%).

Evaluations of Teaching during Family-Centered Bedside Rounds

Post-clerkship, the proportion of students reporting frequent occurrence of the teaching items ranged from 20.3% to 98.7%. (Table 2) Frequent occurrence was reported by <40% of students for two tasks specifically related to family-centered care—allowing students the opportunity to answer patient and family questions during rounds (37.0%) and helping students develop skills in building relationships with families (39.1%) as well as one item from the Cook County Inpatient Teaching Evaluation—effective teaching of physical exam skills (20.3%).

Attitudes about Family-Centered Bedside Rounds

Prior to the clerkship, students displayed slightly positive attitudes when asked about FCBR’s benefits for patients/families and for the care team (mean=5.42 (s.d.=0.13)) and (5.28(0.13)), respectively). (Table 3) Student attitudes about the effectiveness of bedside teaching were also somewhat positive at baseline (mean 5.48(0.14)). Students were fairly neutral (4.38(0.13)) in their preference for FCBR over “sit down” rounds without the family present. At the conclusion of the clerkship, student attitudes remained positive toward FCBR, and were significantly more positive with regard to the benefits of FCBR for patients and families (mean change 0.37 points; $p<0.001$).

DISCUSSION

Study findings demonstrate that although student concerns about FCBR do occur, key aspects of inpatient and family-centered care are taught frequently. Further, a relatively short FCBR experience improves student attitudes about its value for families, but does not significantly improve existing positive attitudes about the value for the team, nor does it result in students preferring FCBR over traditional “sit down” rounds. However, given the endorsements of FCBR by multiple organizations governing pediatric education, the important question is not really which type of rounds is preferred, but how can we improve the medical student experience during FCBR. Our study’s individual item responses identify which concerns occur most frequently and which teaching items are most often neglected, allowing tailoring of FCBR curricula for students and for faculty development.

Post-clerkship, frequent concern occurred for less than 20% of students across 12 of 14 survey items. However, because concern about an experience can lead to avoidance and ultimately limit learning opportunities,³² strategies to address student concerns about FCBR are needed. At least two such strategies might be considered. First, in the clerkship orientation, students could participate in a discussion of the rationale for the Institute of Medicine’s recommendation to transition from traditional medical care models to patient-centered care. Second, students could receive specific curriculum designed to address common concerns through discussion and mastery experiences in a safe learning environment. According to a pediatric hospitalist (M. Ottolini, MD MPH, personal communication, September 2009), at least one leading children’s hospital has implemented such a curriculum. Third, attending physicians and senior residents could be made aware of common student concerns and implement specific strategies to allay these worries.

Our findings suggest specific targets for addressing student concerns. Students’ most frequent concerns revolved around presenting during FCBR in general and being able to

present information in a way that was understandable to patients and families. Curriculum could be developed to include common strategies to present information in an understandable fashion (e.g., eliminating use of medical jargon) while also providing opportunities to practice presenting before doing so in front of a family. Also, informing families about the roles of various team members and emphasizing the focus on helping students learn could explicitly set parent expectations and perhaps diffuse student anxiety. Other frequent concerns centered on not being prepared for rounds because they did not gather the right information during pre-rounding or did not understand what was expected of them during FCBR. While concerns about pre-rounding may be salient for both FCBR and sit down rounds, students may benefit from opportunities to pre-round with residents or attendings to ensure they gather pertinent, accurate information that meets expectations. Lastly, given the relative frequency of student concerns about pimping, team leaders should be cautious about repeated probing of students during FCBR as the additional stress of the family's presence may make this teaching method seem abusive³³ in this setting.³⁴

Despite studies in which trainees were concerned teaching would decline with bedside rounds,^{19, 26} the students' reports of teaching activities are quite encouraging. Attendings achieved high marks for modeling respect and sensitivity, while also explicitly discussing clinical reasoning with both the team and patients/families. Attendings did not fare as well on teaching physical exam skills, with only ~20% of students reporting frequent occurrence. Reasons for limited physical exam teaching might include concerns about patient comfort and time constraints. A focused examination and orienting or asking permission of the patient/family could alleviate these barriers.^{22, 27}

Relatively few students experienced frequent teaching about key family-centered care tasks like building a relationship with patients and families or answering patient/family questions. Also, while attendings and residents frequently modeled many desired FCBR behaviors, few students experienced help with their own skill development or opportunities to practice skills. These findings suggest that despite strong institutional support of FCBR, attendings and senior residents leading the ward teams may not be actively teaching the skills necessary to achieve family-centered care. Rather than assuming all attendings possess the knowledge and skills to lead FCBR, institutions may need to provide faculty with opportunities to learn from organizations leading the way in FCBR to ensure positive experiences for all trainees.^{19, 35} Alternatively, students may not recognize when attendings and residents help to build their FCBR skills unless explicitly labeled as a "teaching point."

The positive impact of this short clerkship experience on attitudes about the value of FCBR for families was encouraging and parallels the views of staff and families about the value of bedside rounding.¹⁴⁻¹⁹ However, the experience did not engender stronger beliefs about the value of FCBR for the team nor a greater preference for FCBR over traditional "sit down" rounds. Other studies have also found trainees did not prefer bedside rounding over traditional rounds, especially with limited exposure.^{15, 24} Addressing the identified shortcomings of the FCBR experience could allow students to recognize direct benefits of FCBR and perhaps even accept FCBR over traditional rounds. Faculty development is also critical for developing successful FCBR, as exemplary clinical teaching is challenging at baseline and teaching during FCBR further challenges attendings to be comfortable teaching while being observed by families.^{21, 24, 27}

Student reports of concerns, attitudes, and teaching experiences may not reflect actual events or experiences, but could be validated through recordings of FCBR or even perceptions of families or healthcare team members. Family perceptions of students' interactions on rounds represent an area for future research. Because most students had not experienced FCBR previously, assessing pre-clerkship concerns or teaching during FCBR was not feasible

because students had no basis on which to respond. Although students did not prefer FCBR over traditional rounds, our data cannot compare student experiences with FCBR to their experiences with traditional rounds. Yet, even if students have similar concerns with sit down rounds, we should still strive to optimize their FCBR experience to achieve the standard of care in pediatrics now and in the future.

In addition, generalizability to other training sites is not demonstrated, although our findings parallel those of prior studies. For example, student experiences may reflect a relatively new FCBR teaching model at our institution, although our staff have received formal training about FCBR and have been providing FCBR consistently for three years. Further, findings may not be unique to our institution, because FCBR is new to many institutions, as evidenced by the continued popularity of this topic in workshops at the Pediatric Academic Societies' annual meeting³⁶ and the recency of publications describing this practice.¹⁹ Further, medical student views may not reflect the views of other trainees such as residents,²⁷ whose perspectives are also important. Lastly, positive attitudes toward FCBR at baseline may have created a ceiling effect, reducing our ability to detect significant change. However, we did find significant improvements in one of the four attitude items. Whether students' recognition of FCBR's benefits for families will translate to provision of family-centered care in practice is unknown.

Our results suggest that while students better recognize the benefit of FCBR for patients and their families over the course of the clerkship, they were not more convinced of the value of FCBR for the healthcare team, nor are they enthusiastically endorsing FCBR over traditional rounds. Our findings offer specific targets to improve students' experiences, alleviate their concerns, and improve teaching during FCBR. Once institutions, attendings, and other FCBR leaders address these issues while building upon students' recognition of the benefits of family-centered care, students may begin to internalize this new philosophy and practice their medicine as a true collaboration with patients and families.

WHAT'S NEW

Despite concerns that trainees may initially respond negatively to FCBR, students demonstrated overall positive attitudes and gained appreciation of FCBR's benefits for patients/families. Specific opportunities were identified to enhance students' FCBR experiences and support FCBR as standard of care.

Abbreviations

FCBR	family-centered bedside rounds
AAP	American Academy of Pediatrics

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Table 1

Adjusted proportions and 95% confidence intervals (CI) of students reporting usual or more frequent concerns about family-centered bedside rounds (n=113)*

	Percent (CI)[‡]
I was concerned about presenting information in a way that was understandable to patients and families during family-centered bedside rounds.	34.5 (25.8–43.3)
I was concerned about presenting in front of patients and families on family-centered bedside rounds.	25.1 (17.1–33.1)
I was concerned about not asking patients the "right" questions <i>while pre-rounding</i> for family-centered bedside rounds.	19.7 (12.3–27.0)
I was concerned about family-centered bedside rounding because I was unsure of what was expected of me.	19.4 (12.0–26.8)
I was concerned about being "pimped" during family-centered bedside rounds.	17.2 (10.2–24.3)
I was concerned about being contradicted by patients and families on family-centered bedside rounds.	16.1 (9.3–22.9)
I was concerned about my physical exam findings on pre-rounds not matching the attending and/or resident's physical exam findings during family-centered bedside rounds.	15.6 (8.9–22.3)
During family-centered bedside rounds, I feared being embarrassed about not knowing the answer to questions intended to test my medical knowledge.	15.1 (8.5–21.7)
I was not at ease with presenting on family-centered bedside rounds.	13.8 (7.3–20.5)
I was concerned about other team members observing my interactions with patients and families during family-centered bedside rounds.	11.0 (5.1–16.8)
I was not at ease with examining patients on family-centered bedside rounds.	9.7 (4.0–15.4)
I was concerned about other team members discovering my weaknesses during family-centered bedside rounds.	8.3 (3.2–13.5)
I was not at ease with answering questions from attendings and/or residents on family-centered bedside rounds.	8.1 (3.0–13.2)
I did not feel good about my overall performance on family-centered bedside rounds.	7.7 (2.9–12.5)

* Adjusted for clerkship experience, age, gender, and race

[‡] 5-point scale; 1=Never, 2=Rarely, 3=Occasionally, 4=Usually, 5=Always

Table 2

Adjusted proportions and 95% confidence intervals (CI) of students reporting usual or more frequent teaching during family-centered bedside rounds (n=113)*

	Percent (CI) [†]
<i>Inpatient teaching items</i>	
Attending physicians treated patients and families with respect.	98.7 (95.9–1.0)
Attending physicians treated me with respect.	92.8 (87.5–98.0)
Attending physicians were sensitive to the emotional, economic, social, and cultural aspects of patients' illnesses.	90.1 (84.6–95.5)
Attending physicians reviewed the care plan of each patient with the team every day during family-centered bedside rounds.	84.7 (78.0–91.3)
During family-centered bedside rounds, the attending physician and/or senior resident was explicit about his/her reasoning when discussing clinical decisions with the care team.	78.4 (70.8–86.1)
During family-centered bedside rounds, the attending and/or senior resident was explicit about his/her reasoning when discussing clinical decisions with patients and families.	71.1 (62.6–79.6)
Attending physicians modeled incorporating the best evidence from the literature with the unique circumstances and preferences of patients and families.	68.4 (59.7–77.0)
Attending physicians expected me to incorporate the best evidence from the literature with the unique circumstances and preferences of patients and families.	60.3 (51.1–69.5)
Attending physicians encouraged me to be an active decision-maker in patient care.	53.4 (44.0–62.8)
Attending physicians effectively taught interviewing and communication skills during family-centered bedside rounds.	51.4 (41.9–60.8)
Attending physicians effectively taught physical examination skills during family-centered bedside rounds.	20.3 (13.0–27.5)
<i>Family-centered care specific tasks</i>	
Attending physicians encouraged me to consider patients and families as active decision-makers in their care.	63.3 (54.3–72.3)
Attending physicians and/or residents helped me develop my skills in family-centered bedside rounding.	59.4 (50.1–68.7)
Attending physicians and/or residents helped me develop my skills in communicating information to patients and families.	48.7 (39.2–58.3)
Attending physicians and/or residents helped me develop my skills in engaging patients and families in the decision-making process about their care.	48.6 (39.2–58.1)
Attending physicians and/or residents helped me develop my skills in building relationships with patients and families.	39.1 (30.2–48.1)
Attending physicians gave me the opportunity to answer patient and family questions during family-centered bedside rounds.	37.0 (28.0–46.1)

* Adjusted for clerkship experience, age, gender, and race

[†] 5-point scale; 1=Never, 2=Rarely, 3=Occasionally, 4=Usually, 5=Always

Table 3

Adjusted pre-clerkship mean (s.e.)* and mean change (s.e.)[†] over the clerkship in attitudes about family-centered bedside rounds (n=113)

	Pre-clerkship mean (s.e.)[‡]	Mean change (s.e.)
Family-centered bedside rounds are beneficial for patients and families.	5.42 (0.13)	0.37 (0.12) [§]
Family-centered bedside rounds are beneficial for the care team.	5.28 (0.13)	−0.11 (0.14)
Bedside teaching sessions are an effective means of learning the skills important to becoming a quality physician.	5.48 (0.14)	−0.13 (0.16)
I prefer family-centered bedside rounds over "sit-down" rounds.	4.38 (0.13)	−0.14 (0.15)

* Adjusted for clerkship experience, age, gender, and race

[†] Adjusted for pre-clerkship attitude, clerkship experience, age, gender, and race

[‡] 7-point scale; 1=strongly disagree, 7=strongly agree

[§] p<0.001