BRIEF REPORT

The Impact of Parental Presence on Trainee Education During PICU Rounds: A Brief Report

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ABSTRACT

OBJECTIVES: To determine the impact of parental presence on the number and types of educational questions asked of and by medical trainees during PICU rounds.

METHODS: An investigator joined bedside rounds in a 14-bed medical-surgical PICU on 20 weekdays between December 2016 and June 2017. For each patient, the investigator recorded the time devoted to education. Educational questions were recorded verbatim. Questions were categorized as "teaching" (senior team member to a trainee) or "learning" (trainee to a more senior team member) and by content (eg, physiology, imaging, prognosis). Two blinded investigators independently assigned codes to each educational question; discrepancies were resolved to the satisfaction of both.

RESULTS: Data include 151 patient-specific rounding events, involving 92 patients. At least 1 parent attended the entirety of 59/151 rounding events (39%). There were no significant differences between the duration of education or the number of educational questions asked when parents were present (1 minute; 2 questions) versus absent (2 minutes; 2 questions). When parents were present, 20% questions were learning versus 25% when parents were absent. Zero percent of rounding events included ≥1 question about prognosis when parents were present versus 9% when absent ($P = .02$). There was no statistically significant difference in the frequency of questions related to complications of management or social factors.

CONCLUSIONS: Parent participation in rounds did not impact the quantity of education during rounds but did impact the type of educational questions asked, specifically restricting the discussion of patient prognosis.

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In family-centered rounds, the patient and family participate in interdisciplinary work rounds, sharing in the control of the management plan.[1] The American Academy of Pediatrics encourages a family-centered approach to care and recommends that rounds be held with family presence in patients' rooms in an effort to improve transparency of communication and enhance shared decision-making.[2] Qualitative research has indicated that parents consistently prefer family-centered rounds. Families perceive that they have a better chance of hearing new information about their child[3] and that being present on rounds improves their understanding of their child's condition.[4] The majority of parents report that educational discussions on rounds do not increase their anxiety.[5] Furthermore, family-centered rounds have revealed a high level of nonphysician staff satisfaction.[6]

Concerns exist, however, about the impact of family presence on resident education during rounds. Residents have expressed discomfort in asking and in being asked educational questions in the presence of parents.[7,8] In a 2009 study, at least 1 resident reported withholding an educational question because of parental presence in 12 of 145 (8%) rounding events.[4] Studies have revealed that the time spent on teaching does not significantly change when parents are present on rounds, but we are not aware of any study used to examine the impact of parental presence on the types of educational topics discussed during rounding events.[4,9]

We aim to better document the impact of parental presence on the quantity (number of educational questions asked and time spent teaching) and quality (types of educational content and proportion of questions asked by trainees) of resident education during rounds. We hypothesized that trainees would ask fewer educational questions when parents are present on rounds and that parental presence would correlate with fewer questions related to patient prognosis, potential complications of treatments, and social factors.

METHODS

Study Design and Subject Selection

This was an observational study conducted in a 14-bed medical-surgical PICU in a tertiary care children's hospital. In this PICU, care is provided by a single physician team that includes an attending, a fellow, and residents. Data were collected between December 2016 and June 2017. Investigators avoided observing rounds multiple times during the same week to increase the number of different patients involved and to capture different points in the attending and resident rotations. Daily morning rounds are conducted outside the patients' rooms. Rounds include the bedside nurse, the physician team, and medical students. When the patient's parents are at the bedside, a member of the rounding team invites them to join rounds.

Rounding events were observed by 1 of 2 investigators (J.M.L. and D.M.F, both of whom were then pediatric residents but not part of the caregiving team) on 20 different weekdays. Before each observational session, the observer sought permission from the attending physician to observe rounds. The medical team was informed that the observation of rounds was part of a research project. If any member of rounds expressed discomfort, the observer would not observe rounds that day. One of 19 attending physicians requested that the investigator not observe rounds when that individual was the attending physician on service. No other team member expressed concern. The study was approved by the institutional review board with a waiver of parental informed consent.

Evaluation of Rounding Events

A rounding event refers to the portion of rounds spent on 1 specific patient on 1 specific day. The observer used the stopwatch function on a phone with the capability to run multiple timers at once to determine the total time spent on each rounding event and the total time spent specifically on education during the rounding event. When education time was not continuous, the timer tracking education was paused and then restarted when education resumed. Time spent on education was defined as either any time an educational question was being asked or answered or when either an attending or trainee taught a specific topic in a didactic format. The observer decided in real time whether the rounding conversation included educational content; there were no audio recordings captured. Time recordings were rounded to the nearest minute. Patient-specific data collected included age, the current duration of PICU stay, major medical interventions since the last rounding event, and major ICU interventions in use (Table 1). These data were obtained from the verbal presentation during rounds.

Categorization of Educational Questions

The observer recorded verbatim the text of all questions that she considered to be educational or possibly educational, noting the role (eg, resident, medical student, etc) of the person posing the question and the person to whom the question was posed. Investigators erred on the side of recording more rather than fewer questions to minimize the number of educational questions that were not analyzed. When necessary, the observer recorded context to clarify the intent of the question.

Using a set of questions collected during a pilot phase of the study (not included in the final analysis) the 3 investigators developed a set of question types, which are shown in Fig 1. All 3 investigators categorized the pilot set of questions individually and then reviewed the items together to develop a shared mental model of the categorization scheme. Questions regarding the patient's medical history, hospital course, medication reconciliation, or laboratory values or questions regarding how to place orders were not considered educational questions; these questions were not further analyzed. Questions asked by parents to the medical team were also excluded. Multipart questions were counted as a single question if there was no pause for response between question parts.

Educational questions were divided into 2 categories: "teaching" questions (asked by a more senior to a more junior team member) and "learning" questions (asked

TABLE 1 Characteristics of Study Patients at the Time of Their First Observed Rounding Event

Patient Characteristics	Parents Present Throughout	Parents Absent Throughout	Parents Present for a Portion	*P* (Present Versus Absent)
	n = 39	*n* = 50	*n* =3	
Patient age, y, median (IQR)	4.8 (0.7–14.8)	3.65 (1.0–13.4)	1.27 (0.03–6.5)	.88
First presentation on rounds, *n* (%)	11 (28)	15 (30)	1 (33)	1.00
PICU LOS, y, median (IQR)[a]	3 (1–15)	7 (2–22)	2 (1–8)	.35
CPR or ETI since last rounding event, *n*	1 (ETI)	1 (CPR)	0	1.00
Interventions in place, *n* (%)				
Mechanical ventilation	14 (36)	17 (34)	2 (67)	.85
Central venous line	18 (46)	13 (26)	0	.08
Arterial line	14 (36)	16 (32)	1 (33)	.69
Chest tube	2 (5)	1 (2)	0	.44
ECMO	0	3 (6)	0	.12
CVVH	0	2 (4)	0	.21
ICP monitor	0	0	0	—

CPR, cardiopulmonary resuscitation; CVVH, continuous veno-venous hemofiltration; ECMO, extracorporeal membrane oxygenation; ETI, endotracheal intubation; ICP, intracranial pressure; IQR, interquartile range; LOS, length of stay; —, not applicable.

[a] Represents LOS in the PICU during the first captured rounding event.

by a more junior to a more senior team member). Parental presence was recorded on a per-question basis because some parents were present for a portion, but not the entirety, of a rounding event.

Categorization of educational questions was performed independently by 2 investigators blinded to parental presence or absence. Any discrepancies were resolved to the satisfaction of both blinded investigators by evaluating the question together and discussing the previously established definitions. Questions could be assigned to >1 category. In addition, the blinded investigators noted any questions that they categorized as potentially alarming or distressing to parents (eg, "What else am I worried about?").

Statistical Analysis

Categorical data were compared by using χ^2 analysis. Continuous variables were analyzed by using Mann–Whitney *U* tests for single comparisons or Kruskal-Wallis tests when the comparison involved >2 groups.

RESULTS

Rounds were observed during 151 rounding events involving 92 different patients. At least 1 parent was present for all of rounds in 59 of 151 rounding events (39%); parents were present for a portion of 11 of 151 rounding events (7%), and parents were absent in 81 of 151 rounding events (54%). In rounding events when parents were present, 5 of 70 (7%) involved both parents, 53 of 70 (76%) involved only a mother, 9 of 70 (13%) involved only a father, and 3 of 70 (4%) involved family members other than the parents.

Patient characteristics are represented in Table 1; no characteristic was significantly associated with parental presence. Parental presence did not differ on the basis of the specific time during morning rounds at which the rounding event occurred.

There were no statistically significant differences between the duration of rounding events nor the duration of the educational component of rounds when parents were present throughout or absent throughout (Table 2).

A total of 736 individual questions were recorded; 650 of those 736 questions were determined to be educational by blinded investigators. Quantification of questions asked in the presence and absence of parents is shown in Table 2. Parental presence did not impact the proportion of learning versus teaching questions; when parents were present, 47 of 241 (20%) questions asked were learning compared with 100 of 407 (25%) when parents were absent ($P = .15$).

Figure 1 reveals the proportion of rounding events during which at least 1 question of each question type was asked. When parents were present throughout the rounding event, at least 1 question about prognosis was included in 0 of 59 (0%) rounding events, compared with 7 of 81 (9%) when parents were absent throughout the rounding event ($P = .02$). Questions related to complications of management were asked during 12 of 81 (15%) events when parents were absent, compared with 7 of 59 (12%) rounding events when parents were present ($P = .6$). Questions related to psychosocial and/or social factors were asked during 1 of 81 (1.2%) rounding events when parents were absent compared with 1 of 59 (1.7%) rounding events when parents were present ($P = .8$). Questions that did not relate directly to prognosis or complications but that were categorized by blinded investigators as "scary or potentially upsetting" were separately analyzed. When parents were present, 5 of 59 (8%) rounding events included at least 1 question that was categorized as potentially upsetting, compared with 14 of 81 (17%) when parents were absent ($P = .19$).

DISCUSSION

In our study, parental presence on PICU rounds did not significantly impact the quantity of trainee education on rounds. Our study revealed that parental presence did not impact the number of educational questions asked by or to trainees. However, with our data, it is suggested that parental presence does impact the type of educational questions asked during rounds, specifically restricting the discussion of patient prognosis.

A conscious or unconscious choice to restrict education about patient prognosis in the presence of families is understandable because prognosis is perhaps better discussed with parents when in a less time-pressured setting. In a qualitative study by Stickney et al,[10] health care providers cited efficiency of communication with parents as a benefit of

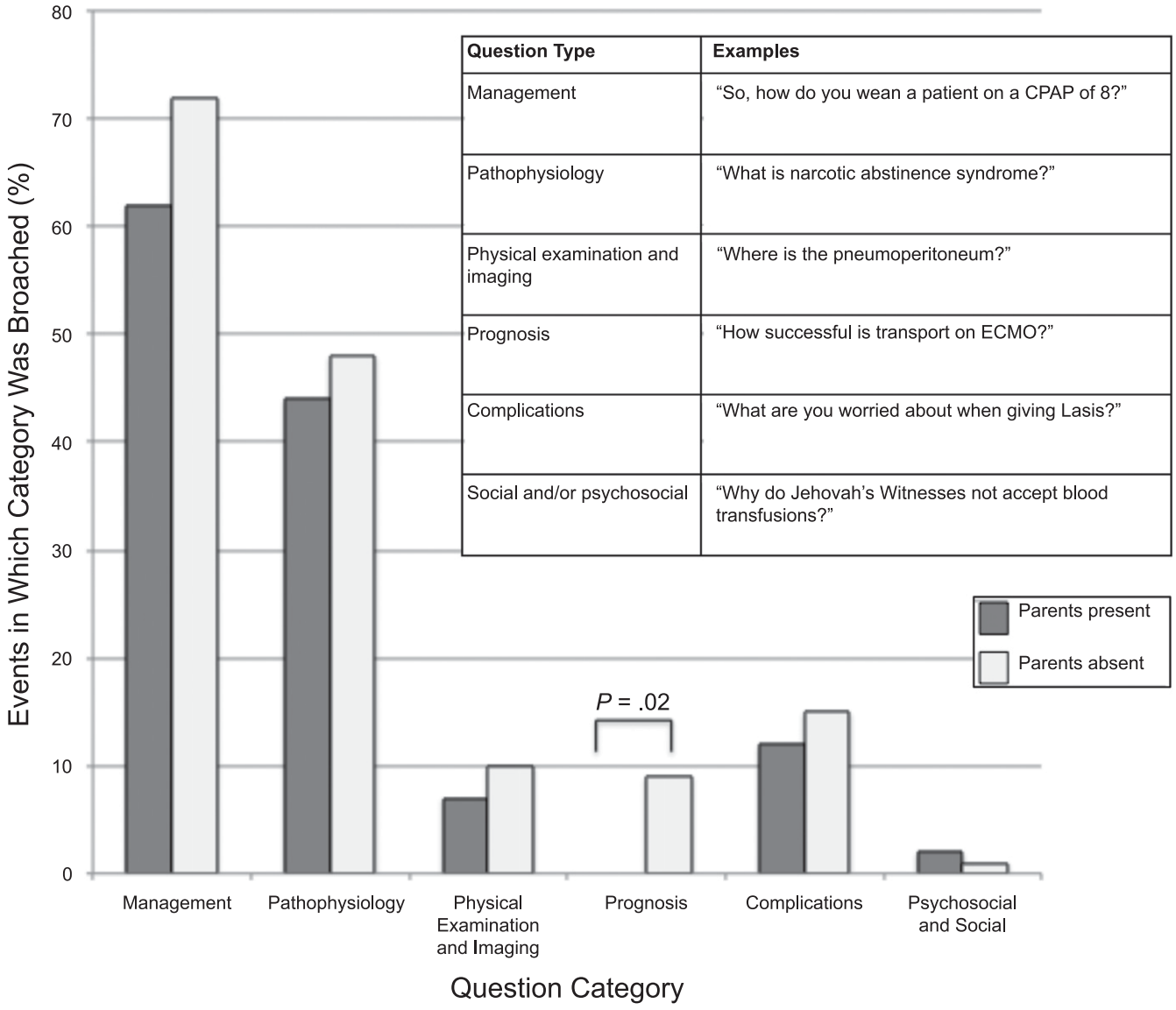

FIGURE 1 The bar graph represents the percentage of rounding events that included at least 1 question in a given category. The inset displays question categories and an example of each question category captured during data collection. Data include only events during which parents were either present or absent throughout the rounding event. A single question could be included in 2 different categories. CPAP, continuous positive airway pressure; ECMO, extracorporeal membrane oxygenation.

parental presence on rounds. Levin et al[11] suggest that as practiced, family-centered rounds may be inherently flawed because providers' desire for efficient and focused rounds competes with families' desire for complete information provided in a manner that they can understand. These studies, together with our findings, may reveal that physicians should identify a separate time for private conversations with families rather than rely on rounds to keep parents informed.

In a quantitative study, Berkwitt and Grossman[12] examined parent's attitudes regarding family-centered rounds. They report that a major theme that influenced parent's attitude both positively and negatively was the content included in the rounding event. Stickney et al[10] also examined parents' goals on family-centered rounds, which included understanding the child's current status and care plan and having an overview of events and transparency from the care team. A logical next step may be to solicit what educational content parents would be comfortable hearing on rounds and to appropriately tailor trainee education on family-centered rounds.

Bedside rounds should only be 1 component of the trainee's educational curriculum. Attending physicians should consider reserving time at the end of rounds for trainees to ask any questions that they avoided asking in the presence of patients' parents. Additionally, if it is determined that

TABLE 2 Duration of Rounding Event, Educational Component of Rounds, and Number of Educational Questions Asked per Rounding Event

Characteristic	Parent Present, median (IQR)	Parent Absent, median (IQR)	*P*
	n = 59	*n* = 81	
Duration of rounding event, min	12 (5–17)	11 (6–16)	.69
Duration of education on rounds, min	1 (0–3)	2 (0–2)	.19
No. educational questions asked	2 (0–4)	2 (0–4)	.23

Rounding events in which parents were present for a portion of the event are not included in this analysis. IQR, interquartile range.

certain topics should be restricted on family-centered rounds, a different venue should be identified to discuss this content.

We hypothesized that parental presence would also limit questions about psychosocial issues and about potential complications of treatments. Our data do not support these hypotheses. This finding may reflect attending physicians' increased comfort in discussing psychosocial issues and complications of treatments with families on rounds. Modeling conversations about psychosocial issues and treatment complications is important for trainees. Physician educators should be reassured that in our study, this educational content was not excluded from family-centered rounds.

Several factors limit the interpretation of our data. Foremost is the possibility that the presence of an observer on rounds changed the dynamics of rounds. To minimize the impact that observer presence had on our primary outcome, the institutional review board granted us permission to describe the study in general terms to the medical team, and the investigators attempted to remain unobtrusive. We do not think that the presence of an observer would differentially affect educational content on the basis of parental presence. A second major source of potential bias is the fact that the observer was clearly not blind to the presence or absence of parents. The observers attempted to be completely consistent in their approach to timing educational content and recording questions, but we cannot rule out the possibility that our data collection could have been affected by confirmation bias.

The study is further limited by the possible presence of unmeasured confounders. It is conceivable that the educational style of the attending physician correlates with the likelihood that parents are invited to or choose to join rounds, or it is conceivable that parents who choose to attend rounds differ meaningfully from those who choose not to attend rounds in ways we did not measure. Authors of a previous study did not find any significant family characteristics that influenced parental presence on PICU rounds, including demographic factors and illness severity.[13] Additional unmeasured confounders may include how long the medical team had been on service, trainee level of education, patients' diagnoses, and the acuity in the PICU. Lastly, the single-center nature of the study and the fact that a convenience sample was used may limit the generalizability of our findings.

Our study has implications for both physician educators and inpatient attending physicians in academic institutions. In our study, the quantity of trainee education on rounds was not impacted by parental presence on family-centered rounds. Because family-centered rounds have become the standard of care in pediatrics, it is reassuring to know that trainees receive the same amount of education in the presence of parents. We also identified that trainee education regarding prognosis was restricted when parents attended family-centered rounds. Authors of future studies should aim to identify educational content that families are comfortable with hearing on family-centered rounds to determine if restricting education on prognosis and other sensitive issues is necessary.

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