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Is it my turn to speak? An Analysis of the Dialogue in the Family-Physician Intensive Care Unit Conference

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Abstract

Objective—Apply turn analysis to family conferences in the pediatric intensive care unit.

Methods—We analyzed 39 audio-recorded family conferences using the Roter Interaction Analysis System. A turn was defined as a continuous block of uninterrupted statements by a speaker.

Results—Opening turns by the healthcare team (HCT) averaged 207 seconds, compared to 28 seconds for families. Turn density (number of statements/turn) was 6 for the HCT versus 2 for families ($p < 0.0001$). An average of 21 turns (26%) occurred between HCT members, resulting in substantial sections of dialogue excluding the family. Average HCT dialogue reflected a literacy demand of a 9th grade level, whereas family dialogue averaged a 5th grade level ($p < 0.0001$). More HCT turns were related to higher reading level demand ($r = 0.34$; $p = 0.03$) and lower levels of patient-centeredness ($r = -0.35$, $p = 0.03$).

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Conflicts of Interest: Debra Roter is the author of the Roter Interaction Analysis System (RIAS) and holds the copyright for the system. Johns Hopkins University also has rights to some enhancements of the system. Neither Debra Roter nor Johns Hopkins collects royalties for use of the system in research, as is the case for the current study. She is also an owner of the RIASWorks LLC, a company that provides RIAS coding services for non-university projects and it is possible that RIASWorks would benefit indirectly from dissemination of the current research. All other authors report no potential conflicts of interest, including relevant financial interests, activities, relationships, and affiliations.

Informed consent and patient details

I confirm all patient/personal identifiers have been removed or disguised so the patient/person(s) described are not identifiable and cannot be identified through the details of the story.

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Conclusion—The healthcare team can improve the communication experience for families by encouraging and facilitating family engagement in conference dialogue.

Practice Implications—Changing how the healthcare team engages with families during communication events is vital to improving the experience for families. Our data suggests simple adjustments, such as limiting medical jargon and inter-team turns may lead to increased family participation and more family-centered care.

1.0 INTRODUCTION

Communication is essential for family-centered care in the pediatric intensive care unit (PICU) [1–6] and an important opportunity for communication is the family conference.[7–10] The main goal of the family conference is creating a collaborative, shared dialogue [11] in which families and the healthcare team (HCT) express views and ultimately share in decision-making. We know from the literature that physicians often dominate these conversations,[12–15] contributing up to 79% of the verbal content. We also know that the more actively engaged families are during the conference, the more satisfied they are with the communication.[16]

Merriam Webster’s dictionary defines dialogue as an exchange of ideas or opinions on a particular issue by two parties.[17] Is the ICU family conference a true dialogue or does it function more like a carefully orchestrated dance in which there is a leader and a follower, a natural rhythm with repetition and some variation, but a recognizable flow? The literature on turn taking behaviors may give some clues to analyze this interaction.

Turn taking was first described in the sociology literature as the manner in which orderly conversation normally takes place.[18] Sequence and turn design have been described by Heritage and Maynard [19] as the bedrock elements of conversational analysis and related qualitative traditions to address issues of power, knowledge and authority, solidarity and distance, and understanding and misunderstanding.[19–21] Within the medical context, studies of sequence have most often focused on specific content (i.e., diagnosis, bad news, symptom description, treatment negotiation) or function (i.e., interruption, questions, alliance building, and emotional support). Dialogue sequence has also been studied outside of qualitative traditions by using quantitative or qualitative-quantitative hybrid designs to explore antecedents and responses to particular verbal events like patient expressions of concern and clinician responses to these expressions. [22–24]

Taking a different analytic approach from conversational and discourse analysis, Roter and colleagues examined speaker turns in terms of dialogue structure, such as turn frequency, interactivity, density, duration, and pacing, as well as broad language correlates of turn taking associated with information processing challenges experienced by individuals with restricted literacy. This approach was first used in a preliminary test of a conceptual framework of oral literacy demand in simulated genetic counseling sessions, and found that high turn density and low interactivity (number of turns per minute) were related in a systematic way to standard indicators of literacy demand such as general language complexity, Flesch-Kincaid reading level, and use of passive voice.[25] Additional analysis showed study subjects with restricted literacy (below 8th grade level) assigned to watch

videos of the genetic counseling sessions learned more from sessions characterized by greater dialogue interactivity and less dense, shorter counselor turns. Interestingly, learning was not related to the more traditional measures of reading grade level, passive voice, use of genetics jargon or general language complexity, suggesting that interactivity was a more sensitive indicator of oral literacy demand at least within the genetic counseling context.[26]

A second exploration extended this type of analysis to primary care physicians' performance with simulated patients.[27] More frequent, briefer turns were related to positive simulated patient ratings of affective demeanor, interpersonal satisfaction and collaborative decision-making; furthermore, turn interactivity was associated with a patient-centeredness score derived from the simulated patient visit communication coded with the Roter Interaction Analysis System (RIAS).

In prior analysis of family conferences by our group, we described 39 conference conversations in terms of session length and the verbal balance between families and the healthcare team. We found that the conferences averaged 45 minutes in length and were dominated by the medical team, who contributed 73% of the dialogue, of which the majority was medically-focused content. Moreover, we found a positive relationship between RIAS-based measure of patient-centeredness, which balances psychosocial and biomedically-focused talk, and parental satisfaction with the conference.[15] The current study extends our earlier analysis of these 39 family conferences in a number of important ways. First, turn analysis was applied within the context of family conferences with the goal of exploring the nature of turn exchange among multiple speakers representing the health care team and the patient's family. Second, turn analysis was designed to determine the relationships between the turn structures, oral literacy demand features (i.e., the Flesch-Kincaid grade equivalent reading level and Flesch reading ease score based on analysis of family conference transcripts), and patient-centeredness of family conference communication coded with the RIAS.

2.0 METHODS

2.1 Study Design and Setting

We conducted a single-center, prospective cross-sectional study examining the dialogue between clinicians on the HCT and family members during the PICU family conference. Our unit is a 44-bed mixed medical-surgical PICU of an urban, tertiary medical center in the United States. In our PICU, family conferences are convened at the discretion of the PICU attending or at the request from family members.

2.1.1 Study Procedure and Data Collection—From April 2012 to August 2014 English-speaking parents of children in the PICU making a treatment decision, defined as a decision to initiate, escalate or withdraw medical interventions, for their child were eligible for enrollment. The PICU attending physician on service was approached daily by a study team member to determine if he/she anticipated conducting a family conference. Written informed consent was obtained from all participants in the family conference. This study was approved by our Institutional Review Board.

We collected demographic and clinical data of the patients from the medical record. Family demographic data were collected using a family survey administered immediately after the family conference. Conference data included the length and purpose of the conference and participants (including the number of participants and the clinical discipline). Participants were coded as family members or HCT members. The HCT was further classified as clinicians and non-clinicians. For the purpose of this study, we only analyzed dialogue between clinicians and family members. In this study, “HCT” is defined as the clinicians on the healthcare team. Family conferences were audio-recorded and transcribed.

2.2 Construction of Turn Variables

The RIAS [28] was used to characterize the HCT and family dialogue and the construction of the turn variables. The RIAS is a widely used quantitative coding tool for assessment of medical communication with high levels of coding reliability and predictive validity.[29,30] The RIAS unitizes speech as the smallest statement to which a meaningful code can be assigned, generally a complete thought (herein referred to as a statement) expressed by each speaker throughout a recorded medical visit. In this study, the RIAS was used to analyze the verbal contribution of all participants in a PICU family conference.

A turn was defined as a continuous block of uninterrupted statements by a single speaker. Back channels, statements suggesting active listening such as “hmmm”, “yes” or “I see,” that do not result in a floor change are not considered turns.[26] We compared number of turns, length of turns, and turn density (defined as number of statements/turn excluding back channels) between the HCT and families. We also quantified the number of intra-group turns (i.e., speech turns between 2 HCT members or 2 family members) as compared to inter-group turns (i.e., speech turns between HCT members and family members). Lastly, we analyzed the length of the opening statement made by the HCT and family members. The opening statement was defined as the first statement made by either a HCT member or family member excluding introductions. We collected data on which participant spoke first and the length of the response.

2.3 Oral literacy burden

Oral literacy burden was assessed through language complexity and readability of family conference transcripts using the Microsoft Word “grammar summary statistics”. These statistics include percentage of passive sentences within the transcript and the Flesch Reading Ease Score, both indicators of plain-language, and the Flesch-Kincaid Reading Grade Level Score used to estimate the educational grade equivalent necessary to read and understand a piece of text.[31] A Reading Ease score of 60–70 is considered indicative of “plain English” and a Reading Grade Level below 6th grade is considered most appropriate for communication with the general public.[32] As in earlier work, the application of these statistics to medical dialogue has been shown to reflect a distinct dimension of oral literacy burden.[25] The grammar statistics were used on the family and healthcare team sections independently.

2.4 Patient-centeredness score

An additional outcome measure generated from RIAS included a patient-centeredness score, which is a ratio comparing psychosocially-focused and socio-emotional elements of exchange on the numerator to medically focused elements on the denominator, as detailed in our earlier publication [15] and others [27,33,34]. More specifically, the numerator includes family codes (all questions, psychosocial and lifestyle information, and emotional talk) plus medical team codes (psychosocial and lifestyle questions, psychosocial and lifestyle information and counseling, emotionally responsive statements, and partnering and activation statements). The denominator includes family codes (medical information and questions) plus medical team codes (medical and therapeutic regimen information and counseling, medical questions, and instructions and orientations). A patient-centeredness score of greater than one has been associated with a more patient-centered encounter.[35,36] We used *Pearson's* correlation to assess the relationship between the patient-centeredness score and number of physician turns.

3.0 RESULTS

3.1 Family Conference Demographics

There were 39 HCT-family conferences. Demographics of the patients and their families for whom family conferences were held reveal the majority of diagnoses fell into the hematologic/oncologic (33%) and respiratory categories (28%) and parents' highest educational attainment varied widely from less than college (28%) to post-graduate training (20%, Table 1).

Family conference attendees are shown in Table 2. The patient's mother was present in 37 conferences (95%) and the patient's father was present in 29 conferences (74%). All conferences (100%) included the attending physician, and most family conferences included a consultant physician (90%) and a social worker (90%). Consultant physicians included physicians in the following departments: neurology, hematology, oncology, bone marrow transplant, pulmonology, genetics, and surgery. On average, there were 2.8 family members per conference and 6.2 HCT members per conference.

3.2 Opening Statements

The average length of the conference was 45 minutes, with the HCT speaking an average of 32 minutes (73%) and parents 12 minutes (27%). Opening statements, defined as the first statement made by either the HCT or the family after introductions, were always (100%) made by a member of the HCT. Of the HCT members, the PICU attending physician most commonly opened the encounter (32 conferences, 82%), with an average length of 207 seconds of uninterrupted speech (range 25–759 seconds), most frequently to provide medical updates, followed by family opening responses averaging 28 seconds (Figure 1). In 30 conferences (77%), family opening responses provided a medical response to the physician's statement or question, such as "I want to know the results of the MRI", and in 9 conferences (23%) the family opening response was a question, for example "So, he's pretty much going to be in the state he's at now?" In only one of the 39 conferences was a family response to

opening statement longer than a HCT opening; in 11 (28%) conferences the HCT opened with greater than 5 minutes of interrupted speech.

3.2 Turn Density

Moving beyond the opening statements, the dialogue components of the family conferences are presented in Table 3. The average number of turns between HCT and families were not significantly different (67 versus 53, $p=0.1$), but the turn density (number of statements per turn) was significantly different (6 for the HCT versus 2 for families, $p<0.0001$). An average of 21 turns (26%) occurred between two or more members of the HCT resulting in substantial sections of dialogue that excluded the family. Figure 2 gives a graphical representation of the density of the HCT speech compared to that of families during one family conference.

3.3 Oral Literacy Burden

Table 3 also shows the percentage of passive sentences was similar between the groups (4 and 3, HCT and families, respectively), indicating this dialogue was conversational rather than formal. However, the average HCT dialogue reflected a literacy demand of roughly a 9th grade level equivalent to easily understand, whereas family dialogue was at an average of 5th grade level ($p<0.0001$).

Lastly, we analyzed the relationship between number of HCT turns and reading level and patient-centeredness. We found that more HCT turns were related to higher reading level demand (Pearson's correlation = 0.34; $p=0.03$), suggesting as members of the HCT increase turns between HCT members, the complexity of speech increases. An increased number of HCT turns also was associated with lower levels of patient-centeredness ($r = -0.35$, $p=0.03$).

4.0 DISCUSSION AND CONCLUSION

4.1 Discussion

To our knowledge, this is the first study to evaluate turn taking behaviors in pediatric critical care family conferences. The ICU is a unique setting in which many speakers are engaged in an emotionally charged, high stakes exchange attempting to come to a treatment consensus. In our study, we found that ICU family conferences included more than twice as many HCT members as family members, including trainees (i.e., medical students, residents and fellows) who do not typically speak during the conferences. We do not know how their presence may have influenced family comfort in the meeting. While we recognize our obligation as a teaching hospital to expose trainees to this important aspect of family care delivery, we worry intimacy may be lost as the number of conference participants balloons. We hope future work in this area will evaluate these questions with the aim of assuring there are no unintended consequences for family members in these circumstances. Also training programs may need to be creative in finding solutions that provide adequate clinical exposure for trainees without impacting the family's experience. Simulation has been used in a variety of settings to teach trainees and an increased use of this technology for teaching communication skills may be warranted.

As we reported in a previous study analyzing the same clinical encounters as in this dataset [15], we found the HCT members verbally dominated the conversation. In this study, a further analysis of the interaction demonstrated that the opening statements set the tone for these interactions; the HCT statements averaged some 3.5 minutes, quite a long block of uninterrupted speech, especially when considered in light of the family opening statements, which averaged 28 seconds. During these opening statements discussions eliciting the family's perspective were dwarfed by physician's providing dense medical information. Long blocks of dense medical information may be challenging for families to process the information being delivered and can inhibit their motivation to participate and take a turn later in the conversation.

Turn exchanges reflected HCT dominance in conference exchanges. Approximately one-quarter of the dialogue was between HCT members, in effect sidelining families as observers rather than engaged participants for a substantial portion of the conference. Turn analysis also showed HCT turns were not only long, but reflected language that indicated greater complexity than language used by families during their turns. Additionally, a negative correlation between the HCT number of turns and patient-centeredness score suggests limiting the amount of HCT member to HCT member turns isolates the family and leads to a less patient-centered interaction.

Our goal in family centered care is to ensure families are able to participate in informed treatment decision-making, a process that demands understanding of complex and distressing information. The family conference is an opportunity for the HCT to help families make sense of this information in as supportive and sensitive context as possible. Our analysis suggests missed opportunities to enhance both family engagement in these conferences, and their overall patient-centeredness. By shifting from monologue-heavy interactions to more interactive exchanges that encourage greater family participation in the treatment discussions that are so critical, we may positively alter the family's experience.

4.1.1 Limitations—The generalizability of study findings is limited in several ways. First, we acknowledge we did not collect data regarding the family's evaluation of the healthcare communication during family conferences was appropriate or not, regarding turn length, turn density, and complex language. Second, the study population was limited to English-speaking families. Although this represents the majority of our patients in the PICU, it does not necessarily represent the dialogue patterns of non-English speaking families and the complexity added by the presence of medical interpreters. Third, we realize the communication between the HCT and families captured at family conferences occur outside of conversations that take place at the bedside and during family-centered rounds and we cannot gauge their influence. Fourth, as a single-center study we cannot confirm how the components of dialogue during family conferences vary amongst HCT members and families at different institutions. Future studies should attempt to answer these questions.

4.2 Conclusion

An important element of family-centered care is high quality communication during family conferences. The HCT can improve the experience for families by encouraging and

facilitating greater family engagement in conference dialogue by inviting patients into blocks of physician-to-physician turns and assuring that plain language principles are used.

4.3 Practice Implications

We know the family-HCT interaction has been described as less than ideal across many institutions across the globe. In a more granular analysis of turn-taking behaviors, we have shown practical ways the HCT can change the flow and synchrony of the conversation to encourage family participation and promote increased understanding of the information being discussed. When sharing in a HCT-family conference the following behaviors should be considered: (1) limit the opening monologue, (2) consider the relevance to the family of each HCT member attending the meeting, (3) short, less dense turns, (4) use open-ended questions to include the family, (5) reduce inter-team turns, and (6) limit the use of medical jargon. We hope this practical guidance can reset the synchrony between the family and healthcare team to encourage matching of affective behaviors, timing, and complexity of speech and optimize family centered care during critical illness.

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Highlights

- We audio-recorded conferences between the healthcare team and family members
- Turn analysis and literacy burden were applied to intensive care unit conferences
- The healthcare team's turns are dense and with a high oral literacy burden
- 1/4 of the turns during the family conference are between healthcare team members
- More healthcare team turns are associated with less patient-centeredness

Figure 1.
Length of Opening Statements per Conference: Health Care Team (HCT) vs. Families

Figure 2.
Example of Dialogue Exchange in a Single Family Conference

Table 1**Patient and Family Demographics and Patient Clinical Characteristics**

Patient	n=39 (%)
Sex, male	24 (62)
Age, months (median, IQR)	23 (12 - 102)
Race	
African American	25 (64)
Caucasian	9 (23)
Asian	2 (5)
Other	3 (8)
Diagnosis	
Hematologic/Oncologic	13 (33)
Respiratory	11 (28)
Shock/Trauma	8 (21)
Other	7 (18)
Parents	n=58 (%)
Mother	34 (58%)
Age, years (mean, IQR)	37.6 (29.3 – 49.3)
Education Level	
Less than College	16 (28)
Some College	15 (26)
Bachelor's Degree	15 (26)
Post-Graduate Degree	12 (20)

IQR, interquartile range

Table 2

Family Conference Participants

Family Members	n=39 (%)
Mother	37 (95)
Father	30 (77)
Other Family Member	16 (41)
Average Number Family Members/Conference (IQR)	2.8 (2 – 3)
Health Care Team Members	n=39 (%)
PICU Attending Physician	39 (100)
Consultant Physician	35 (90)
Social Worker	35 (90)
Bedside Nurse	21 (54)
Case Manager	19 (49)
Palliative Care	6 (15)
Complex Care	8 (21)
Other ^a	16 (41)
Average Number Health Care Team Members/Conference (IQR)	6.2 (5 – 8)

^a Other: medical students, physical therapists; nurse practitioners; respiratory therapists; child life specialists; ombudsman; chaplain

Table 3

Dialogue Components of the Family Conference

Dialogue Component	Healthcare Team	Family	P value
Talk time in minutes (mean, SD)	32 (16)	12 (8)	<0.0001
Number of turns per conference (mean, SD)	67 (41.2)	53 (33.7)	0.10
Turn density (number of statements/turn, mean, SD)	6 (3.4)	2 (0.8)	<0.0001
Percentage of passive sentences (mean, SD)	4 (2.4)	3 (3.0)	0.113
Flesch Reading Ease Score ^a (mean, SD)	71 (6.1)	84 (10.3)	<0.0001
Flesch-Kincaid Grade Level Score (mean, SD)	9 (1.9)	5 (3.1)	<0.0001

^aIncreased scores indicate an easier text to read; a score of 60–70 is considered “plain English”