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Authors

Hamline, Michelle Y
Sauers-Ford, Hadley
Kair, Laura R
[et al.](#)

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Parent and Physician Qualitative Perspectives on Reasons for Pediatric Hospital Readmissions

Michelle Y. Hamline, MD, PhD, MAS¹, Hadley Sauers-Ford, MPH, CCRP¹, Laura R. Kair, MD, MAS¹, Pranjali Vadlaputi¹, Jennifer L. Rosenthal, MD, MAS¹

¹Department of Pediatrics, University of California Davis

Abstract

Objective: One in five parents report a problem in their child's hospital-to-home transition, leading to adverse events, dissatisfaction, and readmissions. While several studies have explored parent insights into discharge needs, few have explored perceptions of causes for pediatric readmissions. We sought to investigate factors contributing to pediatric readmissions, from both parent and physician perspectives.

Patients and Methods: We conducted a qualitative study using semi-structured interviews with parents, discharging and readmitting physicians, and subspecialist consultants of children readmitted within 30 days of initial discharge from the pediatric ward at an urban non-freestanding children's hospital. Participants were interviewed during the readmission, asking about care transition experiences during the initial admission and potential causes and preventability of readmission. Data were analyzed iteratively using a constant-comparative approach. We identified major themes, solicited feedback, and inferred relationships between themes to develop a conceptual model for preventing readmissions.

Results: We conducted 53 interviews from 20 patient readmissions, including 20 parents, 20 readmitting physicians, 11 discharging physicians, and 3 consulting subspecialists. Major themes included: 1) Unclear roles cause lack of ownership in patient care tasks, 2) Lack of collaborative communication leads to discordant understanding of care plans, and 3) Incomplete hospital-to-home transitions result in ongoing reliance on the hospital.

CORRESPONDING AUTHOR: Michelle Hamline, MD, PhD, MAS; 2516 Stockton Blvd, Sacramento, CA 95817; Phone: (916) 734-5387; Fax: (916) 456-2236; mhamline@ucdavis.edu.

CONTRIBUTOR STATEMENTS:

Dr. Hamline conceptualized and designed the study, carried out the analysis, drafted the initial manuscript, and approved the final manuscript as submitted.

Ms. Sauers Ford conducted qualitative interviews, coordinated and supervised the data collection, assisted with the analysis, reviewed and revised the manuscript, and approved the final manuscript as submitted

Ms. Vadlaputi conducted qualitative interviews, assisted with the analysis, reviewed and revised the manuscript, and approved the final manuscript as submitted.

Drs. Kair and Rosenthal assisted with the design of the study, assisted with the analysis, reviewed and revised the manuscript, and approved the final manuscript as submitted.

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Conclusions: Clear definition of team member roles, improved communication among care team members and between care teams and families, and enhanced care coordination to facilitate the hospital-to-home transition were perceived as potential interventions that may help prevent readmissions.

INTRODUCTION

Over 16,000 children are discharged from U.S. hospitals each day, transitioning from inpatient care to community-based care provided by parents and primary care providers (PCPs).¹ Currently, pediatric hospital discharge quality remains variable with one in five children experiencing a caregiver-reported adverse event during the hospital-to-home transition.^{2,3} Such adverse events, including difficulty obtaining medications or follow-up, lead to increased readmissions and higher costs. Nationwide, 13% of pediatric patients are readmitted for any cause within 30 days of discharge, with 30% of these readmissions being potentially preventable.⁴ However, since the main factors contributing to pediatric readmission remain uncertain, designing evidence-based interventions to prevent readmission is particularly challenging.⁴

Several studies have qualitatively explored parent and provider insights on discharge readiness in the context of pediatric readmissions at freestanding children's hospitals (FCH).⁵⁻⁸ These studies have emphasized lack of communication and shared-decision making between primary caregivers and hospital care teams as a cause for preventable readmissions. However, over half of pediatric admissions occur at non-FCH and at community hospitals, which differ from FCH in several important ways.⁹ FCH, by definition, are dedicated to caring for children, with specialized resources and leadership focused on delivering pediatric-specific care. Children hospitalized at non-FCH tend to have lower disease severity, shorter length of stay, and higher turnover rates compared to those hospitalized at FCH; all of these factors may introduce unique challenges into hospital-to-home transitions.^{9,10} Since prior qualitative studies were conducted only at FCH located in major urban centers, it is not currently known if readmissions to non-FCH may reflect similar or differing underlying deficiencies. Hence, we sought to further understand potential contributing factors to pediatric readmissions in our non-FCH and to identify potential improvements in the pediatric hospital-to-home transition process that might reduce future readmissions.

METHODS

Context

The study was conducted on a 48-bed pediatric ward located across two inpatient units within a tertiary care university-affiliated, non-FCH. All patients were cared for by pediatric and family medicine residents and students, supervised by pediatric hospitalists. At least 1 pediatric hospitalist is on-site at all times. Nurses are typically assigned to patients at a 1:4 ratio. Two pediatric case managers and 2 pediatric social workers provide support for patients across all inpatient teams on the pediatric ward. Teams conduct daily rounds involving the patient, family, nurse, students, residents, and attending physician. Daily "discharge rounds" are conducted in a separate, late-morning meeting after rounds and

focus on each patient's anticipated discharge timing and progress toward fulfilling discharge needs. Discharge rounds include the attending physician, senior resident, charge nurse, case manager, and social worker.

Study Design

We conducted a qualitative study using in-depth interviews. To inform development of the interview guide, we reviewed current literature regarding pediatric readmissions.⁵⁻⁸ The interview guide solicited participants' reflections on the following topics: (1) the patient's and family's readiness for discharge on initial admission, (2) barriers encountered in the discharge process, and (3) potential causes and preventability of readmission. The initial interview guide was revised as data were analyzed and new categories of findings developed. Specifically, based on preliminary analyses, interviewers probed more into 2 topics: (1) communication among care providers and (2) communication between care providers and families. Initial interviews were conducted with parents and readmitting hospitalists. As new categories of findings were developed in the initial round of interviews, we modified our sampling strategy to include purposive sampling¹¹ of hospitalists who initially discharged the above patients, as well as consulting subspecialists.

Interviews were conducted in-person or by phone, and were audio recorded and transcribed. Interviews conducted in Spanish were transcribed verbatim, then translated into English for analysis. Interviewers maintained field notes with contextual observations and described verbal and non-verbal cues. Caregiver interviews were conducted during the child's hospital readmission, while physician interviews were conducted during readmission or within 1 week following discharge from the readmission hospitalization. Participants were not compensated. The study site's Institutional Review Board approved the study.

The research team consisted of 3 inpatient hospital medicine pediatricians and two clinical research associates. The team had no relationship to the parent participants (e.g. were not active medical providers for their children), but the physicians were colleagues of the physician participants. All interviews were conducted by the 2 clinical research associates to minimize bias in data collection. Three of these investigators had extensive qualitative research experience. A trained qualitative analyst was consulted during study design and participated in initial stages of data collection and analysis.

Study Population

We initially conducted in-depth interviews with parents or legal guardians and readmitting hospitalists of pediatric patients who were readmitted within 30 days of discharge with a primary diagnosis of asthma, gastroenteritis, dehydration, pneumonia, viral illness, bronchiolitis, seizure, cellulitis/abscess, urinary tract infection, pyelonephritis, or diabetes. These diagnoses were selected as they are common causes of potentially preventable hospitalizations in children at our institution and nationwide (data not shown).^{12,13} We excluded children who were discharged from an intensive care or subspecialty service. All eligible participants were those aged 18 years and older who were English- or Spanish-speaking.

Interviews were conducted between December 2018 and November 2019. Participants were identified through their involvement in the care of readmitted patients and were recruited in-person, via e-mail, or by secure text message. Recruitment was limited to weekdays and non-holidays when a research team member was available to recruit participants. Neither caregiver nor physician participants were excluded based on availability of the corresponding caregiver or physician to be interviewed. Verbal consent was obtained.

Analysis

Field notes were incorporated into interview transcripts and reviewed concurrently with each transcript to give additional contextual background to the narrative. Five researchers independently performed open-coding of all interviews, discussed individual results with the group, and together reconciled codes and formulated initial categories from the open-coding process. Data were analyzed in an iterative process; analysis occurred concurrently with data collection to allow adaptation of processes to focus on topics that emerged.^{14,15} The process included the following steps: (1) Individuals open-coded the first 3 interviews; (2) Full group met to discuss findings, distill open coding results into categories, and generate a codebook; (3) Adapted the interview guide based on initial codes; (4) Individual memo-writing and coding of next 3 interviews using the previously developed codebook while remaining open to emergence of new codes; (5) Full group met to compare codes, discuss discrepancies to ensure consensus on application of codes, refine dimensions of existing codes, add new codes, develop tentative categories, and identify theoretical direction. The process was repeated for each following group of 3 or 4 transcripts.

Interviews were conducted until theoretical saturation was reached. At this point, the categories were fully developed and demonstrated conceptual coherence, and the codebook was considered finalized. Original interviews were recoded based on this final codebook. Individuals reviewed the final coded data to identify major themes. The full group then met to discuss and develop consensus regarding major themes, identify relationships between themes, and distinguish specific recommendations from parent and physician participants to develop hypotheses regarding systems-level interventions that may prevent readmissions. These interventions were then organized into a conceptual model for systems that promote successful discharges and prevent readmission. We solicited feedback from participants by email on the preliminary conceptual model and themes to obtain respondent transactional validation.¹⁶ Participants were asked to comment on accuracy of the results in order to obtain high levels of accuracy and consensus between the research team, participants, and data. Additional data validation occurred through analyst triangulation.¹⁷ We used ATLAS.ti to organize and store coding and data analysis.¹⁸

RESULTS

We conducted 53 interviews from 20 readmissions, including 20 caregivers, 20 readmitting physicians, 11 discharging physicians, and 3 consulting pediatric subspecialists (1 dermatologist, 1 neurologist, 1 psychiatrist). All caregivers were parents or foster parents of the readmitted children, including 16 mothers and 4 fathers. Three parents were Spanish-speaking; the remainder were English-speaking. We interviewed 1 parent and up

to 3 physicians for each readmitted child. We interviewed 2 physicians (discharging and readmitting physician) for 8 children in the study and 3 physicians (discharging, readmitting, and consulting physician) for 3 children. Three main themes emerged from qualitative interviews of parents and physicians regarding potential contributors to readmission.

Theme 1: Unclear roles contribute to a lack of ownership over patient care tasks (Table 1)

Many physicians pointed to unclear roles within the physician team contributing to an overall lack of ownership over the discharge process during the index hospitalization. Physician participants felt that it was often unclear who on the physician team was primarily responsible for various patient care tasks.

The multidisciplinary nature of patient care contributed to this lack of ownership. Although involvement of multiple physicians allowed contribution of varying perspectives and expertise, it also resulted in confusion regarding who was responsible for aspects of the discharge process. Both primary team physicians and consulting subspecialists reported that there is often an assumption that patient care-related tasks, such as discharge communication, are completed by someone else on another team. In some cases, this lack of communication at discharge resulted in missed opportunities to prevent readmission through, for example, a call to the subspecialist or PCP for medication-related questions or concern for deterioration.

Primary team physicians, including both discharging and readmitting physicians, also described their tendency to defer to subspecialists when determining diagnoses and treatment plans. At times, they deferred to subspecialists even when they did not understand or agree with the rationale behind subspecialists' decisions. This lack of understanding and lack of involvement in decision-making was perceived to have contributed to the lack of ownership in patient care tasks. Both primary hospitalists and consultants articulated the need for a central "owner" of all discharge communication and related tasks, some specifying that this should be the primary team.

Theme 2: Lack of collaborative communication leads to discordant understanding of care plans (Table 2)

While families did not recognize a lack of ownership in patient care (as described by physicians in Theme 1), parent participants perceived these failures more broadly as poor communication from and within the care team. Parents described receiving conflicting versions of the plan when speaking with different physicians and not knowing which medical provider had the definitive plan. At other times, parents simply felt out of the loop, with minimal communication regarding their child's diagnosis or management overall. Some parents proposed alternative formats for communication, such as multidisciplinary meetings or having a single representative discuss medical plans with the family.

Physician participants agreed that poor communication was problematic, both with families and within the care team. They related poor communication within the care team with the lack of ownership described in Theme 1. While they described communication with families as often inadequate, they struggled to develop constructive solutions to overcome this.

Both parents and physicians felt that this lack of communication contributed to discordant understanding of diagnoses, anticipated disease course, and care plans between parents and physicians. At times, parents described their child's diagnosis as ambiguous or incomplete, while the corresponding physicians seemed to think the diagnosis was straightforward. Poor communication was also associated with a sense of mistrust in the healthcare system, as families could not understand why more exhaustive testing was not completed, while physicians described the diagnosis as uncomplicated and not requiring further workup. Families related that they felt they were not being taken seriously or that their physicians should have been more thorough.

Theme 3: An incomplete hospital-to-home transition results in reliance on the hospital for ongoing care (Table 3)

A final theme, common to both parents and physicians, was an incomplete transition from hospital-to-home that resulted in ongoing reliance on the hospital. Challenges in making the transition from hospital-to-home resulted in families calling the hospital directly or returning to the hospital when problems arose. Both parents and physicians viewed the hospital as a default plan for unexpected needs or if outpatient follow-up care fell through.

This default was thought to result from 2 main root causes: (1) a lack of reliability of outpatient follow-up and (2) excluding the PCP from the discharge process. Both parents and physicians commented on challenges in accessing outpatient care following discharge. Physicians elaborated that these delays often resulted from insurance denials and full outpatient clinics. Certain outpatient services were described as particularly difficult to access, including mental health and pain management. Several parents and physicians described hypothetical scenarios in which a closer connection to an outpatient physician could have prevented readmission. For example, some participants proposed that being able to contact a subspecialist by phone or through telehealth would have allowed them to avoid a return visit.

Failure to include the PCP in the discharge process also contributed to the default of returning to the hospital. Physicians reflected on a failure to recruit the patient's PCP in navigating the patient's disease process. They hypothesized that improved involvement of the PCP on discharge, including a call or videoconference, may have helped recruit the PCP in ongoing management and prevented readmission.

Without a dependable follow-up plan and knowing the PCP was not fully informed regarding the hospital course, care teams felt obligated to offer the hospital as a resource for families after discharge. Many caregiver participants stated they had been told by members of the hospital care team that they should call or return to the hospital for any issues following discharge, without instructions on when it was more appropriate to contact a PCP or seek other outpatient care.

Conceptual Model:

Based on the above themes and drawing from parent and physician recommendations highlighted throughout the analysis, we developed a conceptual model for potential systems-level solutions to promote hospital discharges that prevent readmissions (Figure 1). From

Theme 1, we hypothesize that clarity of roles will increase ownership in patient care-related tasks to help prevent readmission. From Theme 2, we anticipate that improved collaborative communication will directly improve parental understanding of care plans, in addition to supporting clear roles within the care team and facilitating a complete hospital-to-home transition, ultimately reducing readmissions. And finally, from Theme 3, a complete hospital-to-home transition will help encourage follow-up with the appropriate outpatient providers, improving utilization of outpatient services (when appropriate) after discharge and helping to prevent readmission.

DISCUSSION

Parent and physician interviews uncovered 3 themes regarding potential contributing factors to pediatric hospital readmissions: 1) unclear roles contribute to a lack of ownership over patient care tasks prior to discharge, 2) lack of collaborative communication among the family, specialist, and primary team leads to discordant understanding of care plans, and 3) an incomplete hospital-to-home transition results in reliance on the hospital for ongoing care. While the first of these themes is unique, the second and third themes are shared with prior qualitative studies analyzing potential contributors to readmission at FCH. As such, our findings suggest that non-FCH and FCH have similar deficiencies that contribute to readmissions. This study is also unique in that we further expanded upon these themes and participant insights to generate a conceptual model that describes hypotheses regarding potential system-level improvements and specific interventions to help prevent future readmissions. Participants felt that readmissions may be prevented by clear definition of team member roles, improved communication among physicians and between care teams and families, and enhanced care coordination to facilitate the hospital-to-home transition. Given the similarities in the themes identified with prior studies in FCH, this conceptual model may be broadly applicable to help prevent readmissions in hospitals that care for children nationwide.

Our conceptual model proposes a need for clarity of roles within the physician team, helping physicians take ownership for discharge-related tasks. Notably, this specific issue has not been raised in prior qualitative studies addressing pediatric discharge processes and readmissions,^{6,7} but was noted in an article addressing discharge education and communication of discharge instructions in an Internal Medicine patient population.¹⁹ This suggests that the issue may variably affect different organizations, patient types, or settings. A 2019 systematic review addressing “patient ownership” identified 3 predominant factors influencing the level of responsibility that physicians take for their patients.²⁰ Specifically, logistical concerns (e.g. duty-hour restrictions), personal characteristics, and social or organizational expectations surrounding such responsibility were identified as key contributing factors. Thus, prior literature supports participant insights that setting an organizational expectation that the primary team retain responsibility for discharge-related tasks may be helpful in improving ownership.

The need to improve communication between families and hospital care teams has permeated the readmissions literature.⁵⁻⁸ Family-centered rounds (FCR) has improved family-reported staff communication, increased family understanding and confidence in the

care team, enhanced safety of handoffs and transitions, and reduced adverse events.^{21–23} However, our institution engaged in FCR throughout the study period, suggesting that additional interventions to improve communication are needed. One potential cause for these ongoing difficulties may be that family preference for the format of communication with their care teams varies.^{24–26} Therefore, communication methods that are effective for some families may not be as effective for others. For example, some study participants suggested incorporating multidisciplinary team meetings, while others preferred a single team member be designated as solely responsible for family communication.

Our work also shares with prior studies a need to ensure a complete hospital-to-home transition, with specific care coordination tasks perceived to potentially prevent readmissions. Scheduling of outpatient follow-up care prior to discharge was one proposed intervention. Notably, the utility of scheduled hospital follow-up visits has recently been called into question.²⁷ Although several observational studies have noted increased readmission rates in children who received posthospitalization PCP follow-up, the majority of studies, including several randomized controlled trials, show that scheduled posthospitalization follow-up care is overall effective in reducing re-utilization rates.²⁸ Future work should focus on delineating the specific patient populations for whom scheduled follow-up is effective, such as in children with specific diagnoses or requiring subspecialty care.

Another intervention that was proposed to ensure a complete hospital-to-home transition was communication with the patient's PCP on hospital discharge. Although written discharge summaries are routinely routed to PCPs within 48 hours of discharge, participants viewed this as insufficient. Both our study participants and PCPs in prior studies have emphasized the value of 2-way communication, such as phone calls or email, to communicate key discharge-related needs.²⁹ More recently, "warm handoffs" via videoconference have also been explored as a means of engaging patients, families, PCPs, hospitalists, and subspecialists in a joint telehealth visit to ensure shared understanding, allow for remote assessment by PCPs, and facilitate handoff of discharge-related tasks.^{30,31} Leveraging telehealth in this way may further allow PCPs to track patients' progress longitudinally starting at hospital discharge and to either provide reassurance regarding a patient's clinical status or make recommendations regarding next steps in the patient's care.

This study was limited to parents, discharging and readmitting physicians, and consulting subspecialists at a single non-FCH and is therefore not necessarily generalizable to other participants or contexts. We did not collect demographic information on participants to preserve anonymity. Other perspectives may have been uncovered through inclusion of different caregiving roles, such as nurses or PCPs, or of participants who represent other sociodemographic characteristics. This study focused on several of the most common pediatric diagnoses, so is not necessarily generalizable to other diagnoses. Although interviews were conducted by research assistants who were not part of the healthcare team, we cannot guarantee that presence of the interviewer or the timing of interviews during readmission did not bias participant responses. This design may have limited participants' willingness to openly respond to questions while their child remained hospitalized. We considered the possibility of bias in the researchers' interpretation of interview responses,

but attempted to circumvent this by utilizing the constant-comparative approach and by obtaining respondent transactional validation.

CONCLUSION

Qualitative interviews with parents and physicians of recently readmitted children found that unclear roles within the healthcare team, lack of collaborative communication, and an incomplete hospital-to-home transition were perceived to contribute to readmissions. Participants suggested that readmissions may be prevented by clear definition of team member roles, improved communication among physicians and between care teams and families, and enhanced care coordination to facilitate the hospital-to-home transition. Based on this conceptual model, a primary team ownership model, incorporation of family preferences into communication, scheduled outpatient follow-up prior to discharge, and interactive communication with PCPs on hospital discharge were perceived as potentially effective interventions to reduce future readmissions.

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CONCEPTUAL MODEL FOR SYSTEMS THAT PREVENT READMISSIONS

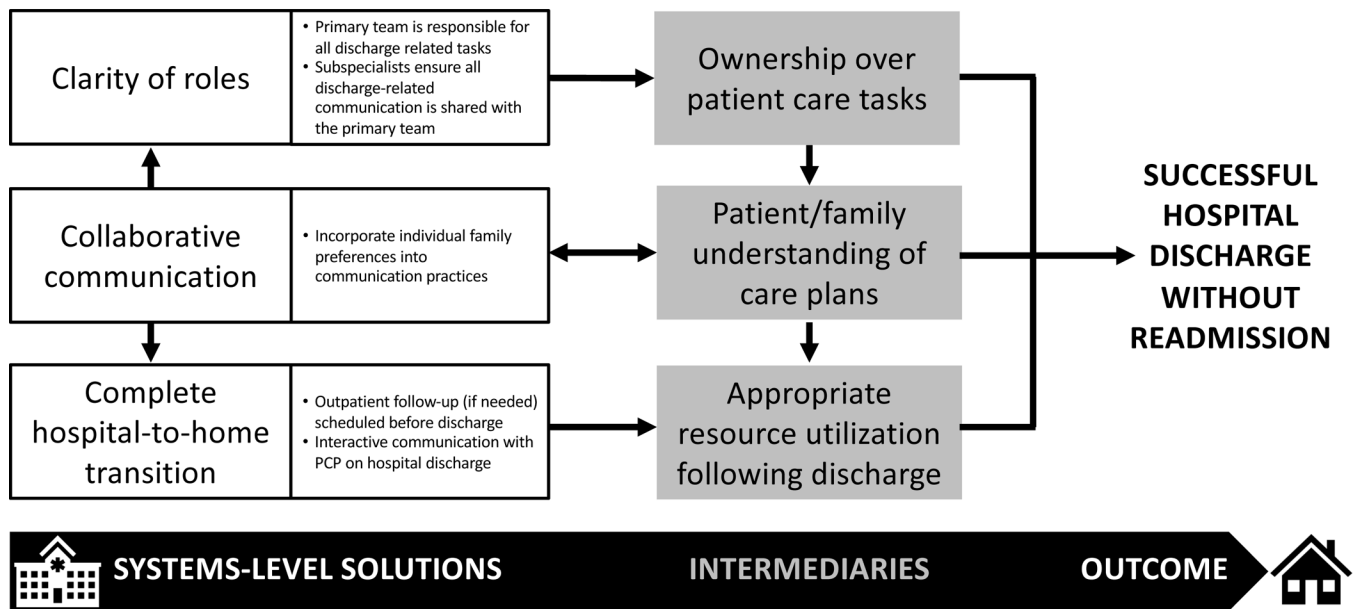


FIGURE 1: A conceptual model for systems that promote successful hospital discharge, with proposed systems-level solutions and specific interventions on the left (white boxes) and potential intermediaries in the middle (gray boxes).

Potential contributors to readmission theme #1 with subthemes and example quotations from physicians

TABLE 1:

Theme #1: Unclear roles contribute to a lack of ownership over patient care tasks.	
SUBTHEMES	SUPPORTING QUOTATIONS
Assumption that events/tasks are completed by someone else	If we had made it clear for them to call back earlier, I think some of this could have been avoided...I think it's one of those things that, because there's multiple teams, sometimes there are things that we take for granted that we don't think to say. And they may have taken certain things for granted and not said it. [Consultant #17]
Primary team defers to specialist	The diagnosis we came up with was pyelonephritis, which is kidney infection. That was based on the interpretation of a CT ¹ scan by the radiologist who assured me that that's definitely what the finding was. We actually got an ultrasound that showed something that corroborated their thoughts on the CT scan as it being pyelonephritis. We could have done an MRI ² which was eventually done on her second admission and proved that she didn't have pyelonephritis. But the radiologist, I've thought about this one a little, they were very clear that I should not do an MRI and that it was pyelonephritis. I didn't fully believe that. But I work in a team sport, and they're the experts... [Discharging Provider #19]

¹CT = computed tomography

²MRI = magnetic resonance imaging

Potential contributors to readmission theme #2 with subthemes and example quotations from parents and physicians

TABLE 2:

Theme #2: Lack of collaborative communication leads to discordant understanding of care plan.	
SUPPORTING QUOTATIONS	
Poor communication within the care team	I find that there can be a communication breakdown when it's just resident to resident, because they don't know enough to question things enough. And then sometimes I worry that subspecialty residents don't want to be called back, don't - want to sound like they know what they're talking about. And so even if you do question them a little bit, they'll say like, well, this is what we talked about... And so, if you don't take it to that next level where you actually call their attending, it may not go back up their ladder to get actual feedback. [Discharging Provider #11]
Poor communication with families	We sat there for hours and didn't know anything. So, I like to be updated because you're in the hospital, you're worried, you're worried about what's going on. You see your kid is sick and the nurse is just passing by you and not saying anything and you're kind of like what's going on? [Parent #3]
Family does not understand the diagnosis and care plan	We didn't know what we were treating, so the primary pediatrician said it could be upper respiratory, lower respiratory infection. So, we had antibiotics for that. It could be asthma, so Albuterol. And because of what she heard as far as the wheezing there was a steroid involved. [Parent #1]

Potential contributors to readmission theme #3 with subthemes and example quotations from parents and physicians

TABLE 3:

Theme #3: An incomplete hospital-to-home transition results in a reliance on the hospital for ongoing care.	
SUBTHEMES	SUPPORTING QUOTATIONS
Default plan for unexpected needs is back to the hospital	I was instructed to call this floor basically and talk to the nurse or any of the charge nurses that were working if my son had another elevated fever or anything like that. [Parent #10]
Lack of outpatient access due to insurance	I think this is a chronic issue that sometimes patients get diagnosed with things, and then they go home. And then there's a gap between when they can get seen in clinic. If they can even get seen in clinic. We've a few patients whose insurance doesn't allow them to be seen here. And then they really have a gap. Because they're sort of out there, floating. [Consultant #17]
Lack of outpatient access due to full clinic	I called and the only appointment they had was the 28th, which I asked them if they had something sooner. And I even called them yesterday and told them like look, my daughter has gotten a transfusion. She has a really high fever... But they wouldn't see us. [Parent #3]
Lack of phone number to reach outpatient providers	I suppose if they perhaps had had a really early neurology appointment and if they had access to neurology by phone, they may have been able to make a phone call when she started having more seizure activity and have the medicine changed. [Readmitting Provider #6]
Lack of care coordination	I think it takes a lot of effort to try to find mental health and other services in the outpatient setting. And there isn't a whole lot readily available for our children... There's not a pain service. You know, we struggled a lot with trying to find somebody to help with regard to pain... I mean those are the things that we could wrap the patient in to prevent rehospitalization. [Readmitting Provider #19]
Discharge processes do not involve the PCP ¹	I could have probably done a better job making sure that we clearly gave anticipatory guidance about RSV ² and what that might look like and communicating with the PCP, and just helping to leverage the PCP as an outpatient person who could help navigate - who could help the family get through managing RSV without requiring a bounce back. [Readmitting Provider #9]

¹ PCP = primary care provider

² RSV = respiratory syncytial virus