Collaborative Care: Strategic Scheduling of Patient and Family-Centered Rounds

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Abstract

Introduction: Miscommunication among healthcare teams leads to medical errors, increased morbidity and costs, and reduced hospital performance. At a pediatric hospital in the Southwest U.S., patient satisfaction scores for care coordination and communication remain below national benchmarks, underscoring the need for improvement. One crucial factor in team communication is the process of daily rounding. This quality improvement project implemented a schedule-based rounding protocol to enhance communication and improve patient and family satisfaction.

Methods: Using the Iowa Model of Evidence-Based Practice and Goal Attainment Theory, a structured daily rounding schedule was introduced for one hospitalist team on a 49-bed pediatric acute care unit. Participants included attending physicians, residents, and dayshift nurses. Outcome metrics included patient and family satisfaction scores across three phases: pre-intervention, during, and post-intervention. Provider and nursing feedback were assessed through pre- and post-intervention surveys with implied consent. The project was exempt from the internal review board review by the organization and Arizona State University.

Results: Average patient/family satisfaction scores before, during, and after the intervention were 68.5, 63.6, and 69.2, respectively. 71% of providers agreed that schedule-based rounds improved team communication. 71% of nurses agreed that the intervention made attending rounds easier and 79% were present during rounds.

Conclusion: Implementing a structured rounding protocol enhanced communication and nursing participation in rounds. Future efforts should focus on the sustainability and expansion of the initiative to additional teams within the hospital.

Keywords: patient and family-centered rounds, schedule, scheduling tool, communication, quality improvement, satisfaction scores

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Poor communication among healthcare members is a major contributing factor to medical errors, resulting in increased morbidity, mortality, and healthcare costs, and decreased patient and family satisfaction scores. Effective execution of patient and family-centered rounds (PFCRs) has the potential to enhance communication among healthcare team members and patients/families. The implementation of schedule-based rounds for daily rounding may prove beneficial in improving PFCRs.

Background and Significance

Problem Statement

For close to a decade, medical errors have been the third most common cause of death in the United States (Blakeney et al., 2023). These errors increase healthcare costs and resource use, negatively affect hospital performance ratings, and are associated with increased mortality (Gal et al., 2023a). Errors in nurse-physician communication also increase the risk of patient morbidity and mortality (Kulesa et al., 2023). Poor communication among healthcare teams is a major driving force for these issues (Blakeney et al., 2023).

In 2012, the American Academy of Pediatrics (AAP) and the Institute for Patient and Family-Centered Care released a collaborative policy statement on patient and family-centered care. Recommendations included the implementation of family-centered rounds as standard practice (Knighton & Bass, 2021; Wang et al., 2022). The AAP defines PFCRs as collaboration between patients, families, nurses, and other interdisciplinary members, including sharing honest and unbiased data, to support and facilitate care for the child's family (Rubin et al., 2021). However, multiple barriers hinder the implementation of PFCRs. There is extreme variability in the definition and implementation of PFCRs (Dokken et al., 2024). Inconsistencies in the process

of PFCRs lead to inefficiencies in patient care, fluctuating levels of nursing involvement, and inconsistent completion times (Khan et al., 2024). Wang et al. (2022) found that these issues result in delayed implementation of care plans, extended hospital stays, and reduced satisfaction among both families and providers.

Local and National Initiatives

Successful implementation of PFCRs aligns well with national initiatives (Agency for Healthcare Research and Quality, 2022). One aim set forth by the Institute of Medicine (IOM) is patient-centered care, which ensures that patient values guide clinical decisions (Agency for Healthcare Research and Quality [AHRQ], 2022). The Centers for Medicare & Medicaid Services (CMS) National Quality Strategy focuses on areas of engagement and safety, aiming to engage individuals to become partners in their care and minimize preventable patient harm (CMS, 2023). Optimization of PFCRs through evidence-based interventions can improve communication, enhance patient and team member satisfaction, decrease medical errors, and ultimately lead to improved patient safety and care.

Scheduling Tool

Common barriers to the successful implementation of PFCRs cited throughout the literature include the variability in the timing of rounds, RN engagement, and family participation (Kipps et al., 2020; Knighton & Bass, 2021; Kulesa et al., 2023; Ridge et al., 2023; Rubin et al., 2021; Wang et al., 2022). The literature highlights interventions aimed at overcoming these barriers through the implementation of a scheduling tool (Kipps et al., 2020; Wang et al., 2022). Wang et al. (2022) implemented scheduled-based rounds using an EHR-linked scheduling tool that alerted nursing via a secure text messaging system of rounding times. One year after implementation, there was improved efficiency in rounding workflow and RN

presence (Wang et al., 2022). Similarly, Kipps et al. (2020) demonstrated that schedule-based family-centered rounds increased RN attendance by 18%, RN participation by 32%, and family presence by 19%.

Current Practices

PFCRs are not effectively implemented throughout pediatric hospitals in the United States. Rubin et al. (2021) developed a standardized assessment checklist grounded in published guidelines of PFCRs to explore adherence and effectiveness among rounding teams at C.S. Mott Children's Hospital. Overall, medical teams demonstrated poor adherence to many components of published PCFR guidelines, including family involvement, requests to engage in plan development, nursing presence, use of lay language, summarization of medical status and treatment options, and attending physician teaching (Rubin et al., 2021).

Current attitudes regarding PFCRs vary among healthcare team members and families (Patel et al., 2022). Resident physicians place less value than other team members on nurse and family participation, use of lay language, and the family's ability to share their understanding of the plan for their child and diagnoses during rounds (Patel et al., 2022). Gaps between attitudes of clinician types and families suggest multilevel barriers impeding effective PFCRs.

Effective PFCRs

Woldring et al. (2023) conducted a systematic review assessing the evidence on the enhanced benefits of PFCRs from the viewpoints of patients, families, and healthcare professionals. Common findings encompass heightened satisfaction and communication, better comprehension of the care context, and enhanced relationship quality. Families also noted a rise in confidence and a reduction in stress associated with their child's care (Woldring et al., 2023). Other positive outcomes of effective PFCRs include increased RN engagement and intervention

adherence, improved safety, and decreased harm (Kelly et al., 2020; Kipps et al., 2020; Khan et al., 2024; Wang et al., 2022).

Common Themes

The literature review demonstrates the need to improve upon PFCRs practices. Common barriers to implementing PFCRs effectively include timing and procedure variability, inconsistent nurse and family engagement, and lack of resident buy-in. Potential interventions explored throughout literature include a scheduling tool, checklists, implementation of the PFC I-PASS framework, and provider education.

Internal Data

A free-standing pediatric hospital in the Southwest United States has identified barriers to implementing PFCRs. Effective PFCRs will aid in advancing the organization's aim of providing hope, healing, and the best healthcare for children and their families (Phoenix Children's Hospital, 2024). Results from patient experience surveys on one of the acute care units in 2023 demonstrated a gap in effective communication and engagement. One question in the survey surrounds care coordination and asks about good communication between doctors and nurses. Results revealed a continual downtrend in scores that are consistently lower than the National Research Corporation (NRC) average for pediatric hospitals, highlighting the need for improvement.

PICO Question

A literature review led to the clinically relevant PICO question: Among pediatric patients on an acute care medical-surgical floor, how does the implementation of schedule-based rounds affect patient and family satisfaction scores regarding care coordination?

Evidence Synthesis

Search Strategy

To address the PICO question, the latest evidence was exhaustively examined Six databases were extensively searched—Cumulative Index of Nursing and Allied Health Literature (CINAHL) Plus, PebMed, MedLine, EBSCOhost, PubMed Central, and ScienceDirect. These databases were selected for their relevancy, peer-reviewed articles, and valuable contributions to the medical field. The literature review focused on evidence levels one, two, and three.

Keyword Selection

The databases were explored using combinations of keywords relevant to various facets of the PICOT question. The terms used for the population included: *pediatrics*, *pediatric patients*, and *inpatient hospitalization*. Key terms used for the intervention included *patient and family-centered rounds*, *interdisciplinary rounds*, *family-centered rounds*, *I-PASS rounds*, *I-PASS framework*, *schedule-based family-centered rounds, schedule, scheduling tool, scheduled family rounds,* and *communication*. The outcome was specified using the terms: *patient experience scores*, *satisfaction*, *parent satisfaction*, *family satisfaction*, and *patient and family experience*.

Initial and Final Search Yields

The initial search on CINAHL Plus included *pediatric population*, *scheduled family rounds*, and *patient experience*. This combination of terms yielded no results, so the focus was pivoted to include terms such as *family satisfaction* and *patient satisfaction,* yielding less than ten results. Ultimately, the most effective search on this database included the terms *patient and family-centered rounds* combined with *satisfaction* or *survey*, yielding 19-83 results.

The initial search on PubMed included the search terms *patient and family-centered rounds,* yielding 374 results. Refinements included searching *patient and family-centered rounds* with *satisfaction survey*, *satisfaction*, or *patient experience.* This combination yielded 17-95 results.

Initial search terms on MedLine included *patient and family-centered rounds* and *scheduling*, yielding 14 results. A broader search was done that included *patient and family-centered rounds* and *patient experience survey*, yielding 126 results. When *scheduled patient and family-centered rounds* were combined with *satisfaction surveys*, *satisfaction scores*, *patient experience* or *patient experience surveys*, there were three to 88 results.

A search on ScienceDirect yielded the most results, reflecting the broad nature of this database. Each search included the terms *patient and family-centered rounds* and *pediatric.* Initially, these terms were combined with *patient experience scores* and *scheduled rounds*, yielding 374 results. When the terms *patient and family-centered rounds*, *pediatric*, and *scheduled rounds* were combined with *family satisfaction scores* or *parent satisfaction scores*, there were 121 and 197 results, respectively.

The initial search on PubMed Central included *I-PASS rounds*, *pediatric*, and *parent satisfaction*, yielding eight results. The search was broadened to only include *I-PASS rounds* and *pediatric*, yielding 30 results. When these terms were combined with *patient experience scores*, there were only three results.

Initial search terms used on EBSCOhost included *patient and family-centered rounds*, *satisfaction*, and *pediatrics*, yielding 20 results. The most helpful search-terms *pediatric patients*, *communication*, and *parent satisfaction* or *family satisfaction*, yielding 23 and 29 results,

respectively. Grey literature of case studies and non-peer reviewed research studies were viewed for comparison and relevance.

Limitations, Inclusion, and Exclusion Criteria

Inclusion criteria included interventions targeting patient/parent satisfaction improvements and peer-reviewed journal articles. Studies that explored the implementation of a scheduling tool or the I-PASS framework for PFCRs in the pediatric population were preferred. Studies defined “satisfaction” differently, so specific metrics were not defined. Exclusion criteria included studies written before 2019 and studies that did not measure patient/parent satisfaction or added value of PFCRs. Rapid critical assessments were conducted for 25 articles, and a final selection of 10 was made for this literature review. This includes two systematic reviews, two randomized controlled trials, two cross-sectional studies, three interventional studies with pre- and post-intervention, and one effectiveness-implementation hybrid design.

Critical Appraisal and Synthesis of Evidence

The critical appraisal process involved the application of the rapid critical appraisal checklist tool developed by Melnyk and Fineout-Overholt (2019) to relevant studies within the literature review. Ten studies were determined to be of high quality and were included in the final analysis (see Appendix A, Table A1 and Table A2). The evaluation included analysis of study design, settings, variables, assessment tools, findings and implications, bias, and levels of evidence.

These ten studies’ characteristics and findings/themes were then synthesized (see Appendix A, Table A3). Two of the ten studies were qualitative, providing level-one evidence through systematic reviews of literature surrounding FCRs. The remaining eight studies were quantitative and included two randomized controlled trials, two cross-sectional studies, three

interventional studies with pre- and post-intervention, and one effectiveness-implementation hybrid design. The setting was homogeneous, focusing on the inpatient population. Six out of the ten studies focus solely on the pediatric population. Seven of the ten studies used surveys or questionnaires to analyze metrics. Three studies examined the effects of scheduled rounds, while three explored the effects of family presence during rounds. Eight of the ten studies analyzed the family's perception of the chosen intervention. One study examined safety and experience after the implementation of I-PASS rounds.

Discussion

Various studies investigated the implementation of scheduled rounds through different means. Kipps et al. (2020) employed the case manager and fellow to create a daily rounding schedule. Wang et al. (2022) created an electronic health record-linked automatic scheduling tool for daily schedule creation and had the senior resident review and edit it each morning. Bekmezian et al. (2019) created a 0.5 FTE position for a unit coordinator who made the schedule based on a rounding worksheet completed by the senior resident each morning. The creation of a daily rounding schedule by the case manager and fellow demonstrated the greatest effect on family, provider, and nursing satisfaction. Wang et al. did not include metrics for family satisfaction. Although Bekmezian et al. included Press Ganey survey results, these results reflected the hospital as a whole and could not be attributed to changes made on the specific unit. Each study demonstrated a substantial increase in RN attendance and involvement. Each study also used an implementation team with key stakeholders and held weekly check-in meetings to assess progress and challenges during implementation. Process metrics were documented by the resident, case manager, or rounding coordinator during rounds. Each study implemented

standardized schedule adjustments to accommodate last-minute changes, such as rescheduling single appointments rather than being late on all subsequent appointments.

The literature review demonstrates the successful implementation of scheduled family-centered rounds and positive outcomes, including increased RN attendance and patient satisfaction. While implementing an EHR-linked scheduling tool would be the easiest for users, it may be difficult to create at the chosen site given the limited time constraints. The creation of the tool by the senior resident may be the most cost-effective and manageable means of execution. Successful outcome metrics include incorporating a pre- and post-intervention survey for families, providers, and nursing. Weekly meetings also provided helpful insight into successes and challenges associated with the initiative.

Purpose and Rationale

Family-centered rounding is the gold standard for daily inpatient rounding in pediatric facilities due to its positive effects among multiple levels of the healthcare system (Gal et al., 2023b). PFCRs have improved patient and staff communication and satisfaction, reduced harmful errors, and improved rounding efficiency (Gal et al., 2023b). However, variability with PFCRs leads to increased instances of miscommunication among families and healthcare team members, increasing the risk of medical errors and patient harm. It is important to investigate the most effective implementation strategies regarding PFCRs to optimize outcomes for patients, families, and the healthcare system. This paper aims to explore various implementation strategies regarding PFCRs to create a standard for daily rounding that effectively and efficiently supports collaboration between patients, families, nurses, and other interdisciplinary members of the healthcare team.

Theoretical Framework

Imogene King's goal attainment theory (see Appendix B, Figure B1) perfectly guides the application of the presented evidence. Issues in care and the general well-being of patients can be identified through effective communication and trusting relationships between patients, parents, and the healthcare team. It is important for the healthcare team and family to identify goals for the patient. Based on King's theory, nursing facilitates engagement between the nurse and patient/family by exchanging information about their perspectives, allowing both parties to identify issues and goals through purposeful communication (Park et al., 2021). Effective FCRs promote open communication between patients/families and the healthcare team.

The key elements of the goal attainment theory encompass identifying problems through interactions, collaboratively setting goals, exploring methods to achieve those goals, reaching agreement on approaches, and finally, engaging in transactions leading to goal achievement (Park et al., 2021). According to King, goal attainment is achieved through four main elements, including an appropriate patient-nurse relationship, a mutual understanding between the nurse and patient, alignment of goals, and the use of nursing knowledge to establish these relationships and goals (Park et al., 2021). These elements are showcased within the studied interventions and demonstrate increased parent and nursing communication and involvement, leading to improved parent satisfaction and decreased patient harm.

King's model includes three interacting systems: personal, interpersonal, and social (see Appendix B, Figure B1). Perception, self-awareness, development, physical image, spatial awareness, and time perception are elements of the personal system. Interaction, communication, transactional dynamics, roles, and stress constitute the interpersonal system. The social system involves organizational structures, authority dynamics, power distribution, status hierarchies, and

decision-making processes (Park et al., 2021). These interacting systems demonstrate respect for patients and emphasize the exchange of data, goal setting, and patient-centered treatment. The application of goal attainment theory will guide the successful recreation of positive outcomes outlined in the presented evidence.

Implementation Framework

The Iowa Model of Evidence-Based Practice (see Appendix B, Figure B2) guided the implementation of this project due to its structured, problem-solving approach to clinical decision-making. This model integrates high-quality evidence with clinical expertise to improve patient outcomes (Buckwalter et al., 2017). The project began by identifying a practice issue—communication breakdowns during inpatient care—contributing to medical errors and negatively impacting patients, families, and healthcare providers. Improving PFCRs was recognized as a priority within the organization, aligning with the Iowa Model's next step of confirming the topic's relevance at the unit or system level. An extensive literature review yielded strong evidence that incorporating schedule-based rounds and actively involving families during rounds improves communication and satisfaction outcomes. Following the model, an intervention was developed and implemented. Consideration was given to potential barriers, stakeholder engagement, and an evaluation plan. Baseline data were collected before the intervention, and outcome metrics were monitored to assess adoption and effectiveness. As outlined in the Iowa Model, successful adoption led to efforts to integrate the change into routine practice, with ongoing evaluation for sustainability. Finally, results from the project were disseminated to support broader implementation and inform future practice improvements (Buckwalter et al., 2017).

Methods

Ethical Considerations

Four ethical principles guided this project: respect for persons, beneficence, nonmaleficence, and justice. Respect for persons ensures individuals are treated autonomously, and can intentionally make decisions without coercion (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979). This project allowed participants the choice to participate in the initiative. Nurses chose to participate by engaging in rounds. Nurses, residents, and providers were given voluntary, anonymous pre- and/or post-intervention surveys.

This project also adhered to beneficence and nonmaleficence. The Belmont Report incorporates nonmaleficence (no harm) into the principle of beneficence. Beneficence is the obligation to do no harm, maximize benefits, and minimize possible harm (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979). This project ensured residents, providers, and nurses were not prevented from providing optimal patient care because of this initiative. If a patient required medical intervention during rounds, this was the priority rather than adhering to the rounding schedule. Weekly check-ins were completed with healthcare members to address barriers and concerns.

This project also adhered to justice, which is treating all individuals equally and fairly (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979). Patients and families requiring an interpreter were not forced to end discussions early to adhere to the rounding schedule. The scheduling order did not favor patients or nurses. Completed surveys were also kept anonymous to ensure privacy.

Informed consent contains three elements: information, comprehension, and voluntariness (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979). Providers, residents, and nurses were given adequate information regarding the implementation of this initiative through numerous presentations and informational emails. Information comprehension was ensured by allowing participants to ask clarifying questions during presentations and throughout the implementation process. Voluntariness was ensured through anonymous pre- and post-intervention surveys. Completed surveys served as informed consent for participation in data collection.

Setting and Stakeholders

The chosen organization is a free-standing pediatric hospital in the Southwest United States that has offered family-centered, pediatric care for patients with complex medical needs since 1983 (Phoenix Children's Hospital, 2024). This organization employs an expert team of physicians and staff with expertise in more than 75 pediatric subspecialities. The organization's aims include holding a strong reputation for providing superior care for sick and injured children, advancing education for pediatric health providers, and bringing innovation, information, and influence in children's healthcare (Phoenix Children's Hospital, 2024). This organization was chosen for the initiative because its values and aims align with the goals of the project, including the delivery of exceptional patient care and collaboration among healthcare providers and families.

There are numerous stakeholders who will be instrumental in the success of this initiative. Organizational stakeholders include the medical director, director, and manager of the chosen care area. These members are instrumental in the project because their support will aid in gaining support from other medical team members and unit staff members. On a unit level, key

stakeholders include nurses, providers, residents, and families. Nurses played a key role in the successful implementation of scheduled rounds and understanding the effects of the initiative. Nurses also provided valuable feedback with the pre- and post-intervention surveys. Residents were responsible for creating and distributing the daily schedule. Providers and residents were active participants in rounds, directing conversations and managing the inclusion of families and nurses. Patient and family attitudes towards the rounding process may have affected their attitudes toward care coordination and communication, subsequently affecting satisfaction scores.

Participants and Recruitment

The population included dayshift nurses working on the chosen care area, and attending physicians and residents on the hospitalist team at the chosen hospital. For the sake of this project, the term “provider” refers to both the attending physicians and residents. This project excluded patients with specialty services acting as the primary team, such as the endocrinology team, due to the unpredictability of their schedule and the wide range of patients. Patients on other floors were excluded from the project to streamline data collection, facilitate analysis, and support focused implementation on a single unit.

Recruitment included educating nurses and providers on the new rounding process through presentations, formal and informal discussions, and email announcements. Nurses received education during a mandatory education session, and residents and providers received education via email.

Project Description

The chosen evaluation question for this project is “After project implementation, was there an improvement in patient and family satisfaction scores regarding care coordination?” A

secondary evaluation question is "After project implementation, was there an improvement in nursing participation on rounds?" The project design included creating an improvement team, developing surveys, education materials, and a project protocol, implementation of the initiative, data collection and analysis, and dissemination of results. Participants were asked each week about any feedback or concerns.

An initial needs assessment involved analyzing results from patient and family experience survey scores on the chosen unit for the project. Results from 2023 demonstrated a gap in effective communication and engagement. Survey answers demonstrated down trending scores that are consistently lower than the NRC average.

The intervention included the creation of a daily rounding schedule by the senior resident on the day team. Residents were instructed to send the rounding schedule to dayshift nurses by 7:40 a.m. each day using a pre-made template through the hospital's secure texting application. Nurses were encouraged to participate in rounds to the best of their ability. The resident or designated member (i.e. medical student) completed a daily rounding checklist that included the room numbers and corresponding scheduled rounding time, actual rounding time, family participation, nurse participation, and translator use.

Project Timeline

Pre- and post-intervention surveys, the project protocol, and educational materials were created in July 2024. Project education and distribution of pre-intervention surveys took place during the first two weeks of November 2024. Pre-intervention data from patient and family experience scores were collected over the six weeks prior to implementation (October to November 2024). The intervention was implemented over a six-week period from November 18 to December 27, 2024. Data collection and distribution of post-intervention surveys occurred

between January and February 2025. Data analysis and evaluation of project outcomes were conducted in March 2025. Results were disseminated at the project site and educational institution in April 2025.

Data Collection Plan

Data collection included anonymous pre- and post-intervention surveys, as well as patient and family satisfaction survey scores before and after project implementation. Nursing survey questions aimed to identify nursing participation during rounds and their perceptions of the value of their involvement. Provider surveys addressed concerns and gathered feedback about the initiative. Specific questions within the patient and family experience surveys were investigated, including items related to care coordination and communication. No demographic data were collected per the project organization's preference.

Data was also collected from rounding checklists, which captured scheduled rounding times, actual rounding times, nurse and family presence, and interpreter use. Room numbers were recorded to distinguish individual patient encounters while maintaining anonymity. This data helped determine adherence to the rounding schedule and involvement of team members in the process.

Outcome Measures

Outcome measures for this initiative included results from the pre- and post-intervention surveys and patient and family satisfaction surveys. Specific outcome measures from the nursing surveys included nursing participation in rounds and their perspective on the value of their input in care planning, coordination of care, and communication within the healthcare team. Patient and family satisfaction scores for questions related to care coordination and engagement were

also used as outcome measures. Analysis focused on the percentage change in families reporting positive experiences.

Instruments

Instruments used for data analysis included self-developed surveys and standardized patient and family satisfaction surveys distributed by the project site. Pre- and post-intervention nursing and provider surveys were distributed via email and with flyers around the chosen unit. The patient and family satisfaction surveys were distributed by the organization and analyzed by the NRC.

Data Analysis Plan

The data analysis plan for this initiative included descriptive statistical analysis. Qualitative data was collected through RN and provider surveys. Feedback and suggestions for improvements to the initiative were analyzed for common themes. Descriptive statistics were used to analyze RN and provider survey results. Aggregate data were examined to identify changes in nurses' attitudes toward rounding, coordination of care, and team communication. A five-point Likert scale was used, and average scores for each survey item were calculated. Descriptive statistics were also applied to patient and family experience survey results across the three project phases.

Budget

Please see Appendix D for DNP project budget.

Results

Outcomes

Patient and Family Satisfaction

Patient and family satisfaction scores regarding care coordination and good communication were collected over 18 weeks in three phases: pre-intervention, during implementation, and post-intervention. All phases were six weeks in length. Scores were counted out of 100 and results with the highest possible rating were given a point. Results reflect data from the overall chosen unit, not only patients/families included in the project.

A one-way ANOVA was conducted to assess whether there were significant differences in patient and family satisfaction scores across the pre-, during, and post-intervention phases. The results indicated no statistically significant differences between the phases ($p > 0.05$).

Descriptive statistics were used to analyze data. The organization sent weekly scores and sample sizes for each phase. Table 1 illustrates patient and family satisfaction score results for the corresponding phase. Over the 18-week period, there were 240 survey results. Pre-intervention results yielded a score of 68.5 (n = 105). During the intervention period, scores declined to 63.6 (n = 71). Post-intervention results yielded a score of 69.2 (n = 64). The benchmark score was only reached three times, with two of those times being before the intervention period, and one time being after the intervention period. Figure 1 shows the weekly scores throughout each phase. See Appendix E for full descriptive statistics.

Table 1: Average Patient/Family Satisfaction Scores by Phase

Intervention Period	Score	*n*
Pre-Intervention	68.5	105
During Intervention	63.6	71
Post-Intervention	69.2	64

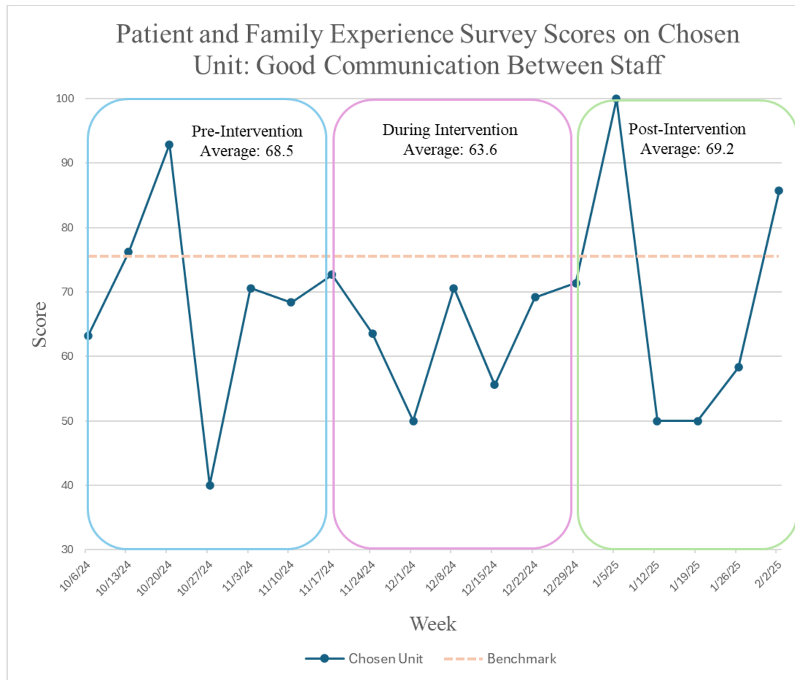

Figure 1: Patient/Family Satsifaction Scores- Good Communication

Pre- and Post-Intervention Nursing Surveys

Survey data were collected from 44 nurses pre-intervention and 34 nurses post-intervention. Descriptive statistics were used to analyze Likert-style survey responses. Mann-Whitney tests were conducted on each question to assess differences between the pre- and post-intervention nursing survey responses. None of the tests yielded statistically significant results ($p > 0.05$). The pre- and post-intervention RN surveys can be viewed in Appendix F.

For the pre-intervention RN survey results, summary statistics were calculated for Attending_Rounds, Difficulty_to_Attend_Rounds, Rounding_Improves_Communication, Calls_Resident_Less, Improves_Coordination_of_Care, Nursing_Concerns_Considered, Feels_Included_in_Decisions, Family_Concerns_Addressed, Helps_Understand_Daily_Plan, and How_Often_Do_You_Attend_Rounds. The observations for Attending_Rounds had an average of 4.52 (*SD* = 1.05, Min = 1.00, Max = 5.00). The observations for Difficulty_to_Attend_Rounds had an average of 3.66 (*SD* = 0.89, Min = 1.00, Max = 5.00). The

observations for Rounding_Improves_Communication had an average of 4.68 (*SD* = 0.88, Min = 1.00, Max = 5.00). The observations for Calls_Resident_Less had an average of 4.41 (*SD* = 0.73, Min = 3.00, Max = 5.00). The observations for Improves_Coordination_of_Care had an average of 4.75 (*SD* = 0.49, Min = 3.00, Max = 5.00). The observations for Nursing_Concerns_Considered had an average of 3.91 (*SD* = 0.68, Min = 2.00, Max = 5.00). The observations for Feels_Included_in_Decisions had an average of 3.70 (*SD* = 0.79, Min = 2.00, Max = 5.00). The observations for Family_Concerns_Addressed had an average of 3.98 (*SD* = 0.46, Min = 3.00, Max = 5.00). The observations for Helps_Understand_Daily_Plan had an average of 4.52 (*SD* = 0.59, Min = 3.00, Max = 5.00). The observations for How_Often_Do_You_Attend_Rounds had an average of 3.50 (*SD* = 0.66, Min = 2.00, Max = 5.00). The summary statistics can be found in Table 2.

Table 2: Summary Statistics Table for Pre-Intervention RN Survey Results

Variable	*M*	*SD*	*n*	Min	Max
Attending_Rounds	4.52	1.05	44	1.00	5.00
Difficulty_to_Attend_Rounds	3.66	0.89	44	1.00	5.00
Rounding_Improves_Communication	4.68	0.88	44	1.00	5.00
Calls_Resident_Less	4.41	0.73	44	3.00	5.00
Improves_Coordination_of_Care	4.75	0.49	44	3.00	5.00
Nursing_Concerns_Considered	3.91	0.68	44	2.00	5.00
Feels_Included_in_Decisions	3.70	0.79	44	2.00	5.00
Family_Concerns_Addressed	3.98	0.46	44	3.00	5.00
Helps_Understand_Daily_Plan	4.52	0.59	44	3.00	5.00
How_Often_Do_You_Attend_Rounds	3.50	0.66	44	2.00	5.00

For the post-intervention RN survey results, summary statistics were calculated for Attending_Rounds, Difficulty_to_Attend_Rounds, Rounding_Improves_Communication, Calls_Resident_Less, Improves_Coordination_of_Care, Nursing_Concerns_Considered, Feels_Included_in_Decisions, Family_Concerns_Addressed, Helps_Understand_Daily_Plan, and How_Often_Do_You_Attend_Rounds. The observations for Attending_Rounds had an average of 4.74 (*SD* = 0.45, Min = 4.00, Max = 5.00). The observations for Difficulty_to_Attend_Rounds had an average of 3.35 (*SD* = 0.85, Min = 1.00, Max = 5.00). The

observations for Rounding_Improves_Communication had an average of 4.79 (*SD* = 0.41, Min = 4.00, Max = 5.00). The observations for Calls_Resident_Less had an average of 4.47 (*SD* = 0.56, Min = 3.00, Max = 5.00). The observations for Improves_Coordination_of_Care had an average of 4.65 (*SD* = 0.49, Min = 4.00, Max = 5.00). The observations for Nursing_Concerns_Considered had an average of 4.09 (*SD* = 0.57, Min = 3.00, Max = 5.00). The observations for Feels_Included_in_Decisions had an average of 3.85 (*SD* = 0.61, Min = 3.00, Max = 5.00). The observations for Family_Concerns_Addressed had an average of 3.91 (*SD* = 0.57, Min = 3.00, Max = 5.00). The observations for Helps_Understand_Daily_Plan had an average of 4.56 (*SD* = 0.50, Min = 4.00, Max = 5.00). The observations for How_Often_Do_You_Attend_Rounds had an average of 3.74 (*SD* = 0.45, Min = 3.00, Max = 4.00). The summary statistics can be found below in Table 3.

Table 3: Summary Statistics Table for Post-Intervention RN Survey Results

Variable	*M*	*SD*	*n*	Min	Max
Attending_Rounds	4.74	0.45	34	4.00	5.00
Difficulty_to_Attend_Rounds	3.35	0.85	34	1.00	5.00
Rounding_Improves_Communication	4.79	0.41	34	4.00	5.00
Calls_Resident_Less	4.47	0.56	34	3.00	5.00
Improves_Coordination_of_Care	4.65	0.49	34	4.00	5.00
Nursing_Concerns_Considered	4.09	0.57	34	3.00	5.00
Feels_Included_in_Decisions	3.85	0.61	34	3.00	5.00
Family_Concerns_Addressed	3.91	0.57	34	3.00	5.00
Helps_Understand_Daily_Plan	4.56	0.50	34	4.00	5.00
How_Often_Do_You_Attend_Rounds	3.74	0.45	34	3.00	4.00

When looking at questions regarding nursing involvement on rounds, particularly at "How often do you attend rounds?", there was a 19% increase in positive results in the post-intervention survey compared to the pre-intervention survey, with average scores of 3.74 and 3.50, respectively.

Post-intervention data showed improved perceptions of communication and collaboration. Nursing feedback from the question, 'Did schedule-based rounds make it easier to

attend?' showed that 71% of nurses agreed or strongly agreed that the intervention facilitated their attendance at rounds. These results are illustrated below in Figure 2.

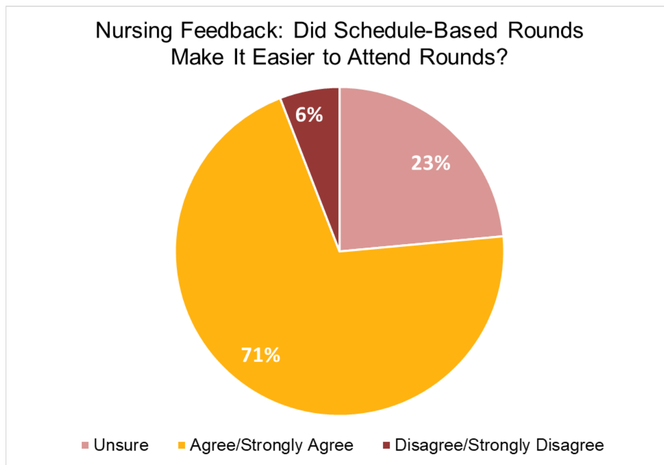

Figure 2: Nursing Feedback on the Impact of Schedule-based Rounds

Post-Intervention Provider Survey

Survey data were collected from seven providers, although eleven providers participated in the initiative. Descriptive statistics were used to analyze Likert-style survey responses. The post-survey provider survey can be viewed in Appendix F.

Summary statistics were calculated for Aided_in_finishing_rounds_in_time, Improved_rounding_efficiency_and_efficacy, Allowed_time_for_teaching_during_rounds, Improved_communication_between_the_medical_team_and_patients_families, and Improved_communication_between_the_medical_team. The observations for Aided_in_finishing_rounds_in_time had an average of 3.00 (*SD* = 1.15, Min = 1.00, Max = 4.00). The observations for Improved_rounding_efficiency_and_efficacy had an average of 3.14 (*SD* = 1.07, Min = 1.00, Max = 4.00). The observations for Allowed_time_for_teaching_during_rounds had an average of 3.57 (*SD* = 0.98, Min = 2.00, Max = 5.00). The observations for Improved_communication_between_the_medical_team_and_patients_families had an average of

2.86 (*SD* = 0.69, Min = 2.00, Max = 4.00). The observations for Improved_communication_between_the_medical_team had an average of 3.86 (*SD* = 0.69, Min = 3.00, Max = 5.00). The summary statistics can be found below in Table 4.

Table 4: Summary Statistics Table for Post-Intervention Provider Survey Results

Variable	*M*	*SD*	*n*	Min	Max
Sets_goal_time_for_finishing_rounds	4.57	0.53	7	4.00	5.00
Aided_in_finishing_rounds_in_time	3.00	1.15	7	1.00	4.00
Allowed_time_for_addressing_nursing_family_concerns	3.71	1.11	7	2.00	5.00
Allowed_time_for_teaching_during_rounds	3.57	0.98	7	2.00	5.00
Improved_rounding_efficiency_and_efficacy	3.14	1.07	7	1.00	4.00
Improved_communication_between_the_medical_team	3.86	0.69	7	3.00	5.00
Improved_communication_between_the_medical_team_and_patients_families	2.86	0.69	7	2.00	4.00
Allowed_more_time_for_patient_care_and_teaching_moments	2.43	0.98	7	1.00	4.00

71% of providers reported improved team communication due to the intervention, with a mean response score of 3.86. This is illustrated below in figure 3.

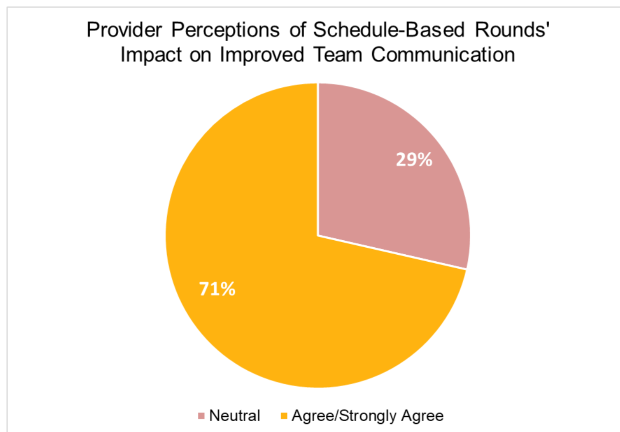

Figure 3: Provider Perceptions of Scheduled Rounds' Impact on Communication

Rounding Checklist Data

Rounding checklist data was collected daily by the senior resident or delegated to a member of the care team, such as the medical student. Data was collected from 127 rounding encounters over the 6-week implementation period. One week of rounding checklist data is missing due to the resident's failure to complete the checklist. Families were present for 85% of

rounding encounters, while nurses were present for 79% of encounters. The rounding encounters were nine minutes on average, with an average delay of four minutes.

Clinical Significance of Findings

The results of this quality improvement initiative demonstrate clinically significant improvements in team communication and nursing participation during rounds, which are essential for enhancing patient care and safety. Although patient/family satisfaction scores remain relatively unchanged, the initiative highlighted the importance of structured communication in fostering a collaborative care environment. These findings highlight the potential for structured rounding protocols to streamline care, improve interdisciplinary collaboration, and improve patient outcomes.

Impact of the Project

The impact of this project can be seen at the patient, provider, system, and policy level. Schedule-based rounding improved communication among the care team, which directly contributes to better patient care and safety. Improvements to team communication may lead to more efficient care, streamlining hospital operations and reducing care delays. Unaffected patient and family satisfaction scores highlight the complexity of patient satisfaction and the need for further exploration of influential factors for patient/family experience metrics to inform hospital-wide policies. Lastly, collaboration was key for successful implementation, highlighting the importance of team-based approaches in improving clinical practice.

Sustainability

The success of this project does not lie only in the creation of positive outcomes for patients and families, but also in the sustainability beyond its completion. This quality improvement initiative identified a multitude of suggestions for innovations regarding patient

and family-centered rounds. To ensure sustainability and expand on the impact of this project, structured schedule-based rounding should be implemented with an extended intervention period for deeper integration and adaptation across various units and teams. The strengths and limitations of this initiative should be considered and refined prior to further implementation. Schedule-based PFCRs can become standardized practice within the chosen organization with a few minor adjustments.

Discussion

Summary of Findings

Schedule-based PFCRs enhance team communication and nursing participation, while patient and family satisfaction scores remain unchanged. These findings highlight the value of structured rounding protocols and team-based approaches to care, as well as the complexity of patient satisfaction. Limitations and barriers should be considered when addressing recommendations for future research.

Limitations and Barriers/Challenges

This quality improvement project encountered several barriers and challenges. Resident buy-in and compliance was challenging. At times, residents had to be reminded to send out the schedule after 07:40 am to ensure the correct nurses were added to the thread. Limited compliance was also evidenced by incomplete checklist data due to inconsistent resident participation, impacting data completeness.

Limited family involvement was also a barrier. Although the original plan included notifying families of scheduled rounding times to encourage participation, leadership decided against this due to concerns about setting unrealistic expectations and potential dissatisfaction if delays occurred.

Another challenge was the limited sample size for provider feedback. While the smaller sample size of providers made it easier to disseminate information, a larger sample size may yield a more comprehensive understanding of provider attitudes and feedback.

Another limitation of this initiative is the use of self-reported data with non-validated tools. The surveys and checklists were created for this project and lack reliability and validity. The self-reported nature of the data introduces bias that may interfere with results.

Other challenges include general logistical and system challenges. These include instances in which the nurse was not present for rounds because she/he was in a procedure or providing care to another patient. Variability in rounding times was influenced by factors such as coordination with other teams, block conference schedules, and patient unavailability due to procedures or imaging. Technological challenges also hindered implementation, with multiple instances where nurses were not included in the rounding text despite being logged in and assigned to their patient's room when the text was sent.

Relation to Current Literature

The findings of the project are consistent with preexisting literature regarding schedule-based rounding improving communication and nursing participation on rounds. Kipps et al. (2020), Wang et al. (2022), and Bekmezian et al. (2019) all found that schedule-based rounds increase nursing involvement. Debay et al. (2023) and Schneider et al. (2023) both found that family involvement in rounds improved family satisfaction. However, both studies included families as participants, whereas this project left families blind to implementation.

Recommendations for Further Study

To expand on the impact of this initiative, the intervention period should be extended and expanded to include multiple units. Additional factors of patient care impacting patient

satisfaction should also be explored. Future research may focus on expanding family involvement through notification of rounding times to encourage involvement. This may demonstrate improvement in satisfaction scores as it has in previous studies.

Conclusion

This quality improvement project aimed to assess the impact of schedule-based PFCRs on patient and family satisfaction with care coordination and communication, with secondary aims to assess the impact on nursing presence during rounds. Findings demonstrate that schedule-based rounds improve team communication and nursing presence, while highlighting the complexity of patient and family satisfaction. Further research is needed to determine additional factors impacting patient and family satisfaction. The results support the value of structured communication protocols in pediatric hospital settings and highlight the importance of collaboration in implementing practice change. Future efforts should focus on sustaining the intervention, expanding to other units, and identifying additional strategies to enhance family engagement and satisfaction.

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Appendix A

Evaluation and Synthesis Tables

Table A1

Evaluation Table for Quantitative Studies

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Bekmezian et al., 2019; Implementing appointment-based family-centered rounds **Country:** USA **Funding:** Unknown **Bias:** Participants conducted interviews regarding rounding experience. Answers were not anonymous due to the nature of set up.	Family-centered care Goal attainment theory	**Design:** Interventional study with pre and post intervention **Purpose:** Improve patient engagement and satisfaction through implementation of AFCRs.	**N=** 52 interviews 407 survey responses. **Demographics:** Demographics of interviewees and survey respondents unknown. Patient population: 44% white, 14% Hispanic or Latino, 16% black, 15% Asian, 25% other race. 12% have preferred language other than English. **Setting:** UCSF Benioff Children's	**IV1:** AFCRs **DV1:** Experience with AFCRs **DV2:** Parent satisfaction **DV3:** Nurse involvement in rounds **Definitions:** Parent satisfaction: duration of interaction with the child, involvement of parents, overall physician evaluation, physician use of clear language.	**Tools:** Press Ganey surveys; Bedside interviews **Validity/ Reliability:** Standardized, validated five-point Likert scale questionnaires.	**Statistical Tests Used:** Interview responses were categorized as positive, negative, or neutral. Press Ganey surveys: Standardized, validated five-point Likert scale questionnaires.	**DV1:** 65% positive experience, 27% negative, 10% neutral **DV2:** Improved, 30-40% to 72% after AFCRs **DV3:** Before the intervention, the duration spent, involvement of parents, and overall physician scores were either equal to or below the national benchmark; Improved	**Level of Evidence:** III **Strengths:** Sustained improvement seen over 6-month period Established buy-in from stakeholders Intervention was chosen by committee Quantitative and qualitative results. **Weakness:** Need for "rounding coordinator", 0.5 FTE position. May not be attainable/sustainable due to cost. Single clinical service implementation, limiting generalizability.

KEY- **AFRC**s: Appointment-based family centered rounds; **DV**: Dependent variable; **FAME**: Family engagement; **FCR**s: Family-centered rounds; **FS-ICU Survey**: Family satisfaction in the intensive care unit survey; **IV**: Independent variable; **ICU**: Intensive care unit; **PHM**: Pediatric hospital medicine; **PICU**: Pediatric intensive care unit; **NICU**: Neonatal intensive care unit

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
			Hospital. Urban, academic quaternary care center, 183 beds. PHM service is non-ICU team. **Exclusion:** Exclusion criteria not specified. **Attrition:** None.				above benchmark after intervention. Physician's utilization of clear language remained relatively unchanged	Press Ganey surveys are representative to entire hospitalization, may not specifically represent rounds. **Feasibility:** May be difficult to replicate exactly due to “rounding coordinator” role. May work if assigned to resident instead. **Application:** Successful implementation of AFCRs can potentially lead to increased nurse attendance during rounds and improved outcome measures, such as patient satisfaction.
Debay et al., 2023; Family participation in cardiovascular intensive care unit rounds: A pilot randomized controlled trial	Family-centered care Goal attainment theory	**Design:** RCT **Purpose:** Assess feasibility of conducting a randomized study on family involvement in ICU rounds and	**N=** 27 (out of 61 approached) **Demographics:** Family members of people admitted to	**IV1:** Family participation in rounds **DV1:** Feasibility of family participation	**Tools:** FS-ICU FAME tool **Validity/ Reliability:** Not stated.	**Statistical Tests Used:** Continuous variables presented as mean +/- standard deviation.	**DV1:** 44% recruitment, 100% uptake, 85% follow-up rate **DV2:** Satisfaction with care	**Level of Evidence:** I **Strengths:** 100% intake rate, 85% follow-up rate Ability to have families participate in-person or virtually

KEY- **AFRC**s: Appointment-based family centered rounds; **DV**: Dependent variable; **FAME**: Family engagement; **FCR**s: Family-centered rounds; **FS-ICU Survey**: Family satisfaction in the intensive care unit survey; **IV**: Independent variable; **ICU**: Intensive care unit; **PHM**: Pediatric hospital medicine; **PICU**: Pediatric intensive care unit; **NICU**: Neonatal intensive care unit

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Country: Canada **Funding:** Michael Goldfarb is supported by Clinical Research Award from Fonds de recherche du Quebec. No other declared funding sources. **Bias:** Blinding was not possible for intervention group of participants, increasing chances of bias.		examine its impact on family satisfaction.	cardiovascular ICU. Intervention/control: Age (52.8/54.4), Female (68.8/81.8), White (68.8/72.7), Living with patient (43.8/54.5), English language (87.5 for intervention). **Setting:** **Exclusion:** Participation of another family member in the study and the inability to communicate in English/French. **Attrition:** 21 participants for follow-up data (85%)	**DV2:** Family satisfaction **DV3:** Family engagement **Definitions:** Feasibility: recruitment rates (# of family members participating per month), uptake (proportion of family members randomized to intervention who participated in one or more rounds), follow-up rate (# of family members that completed follow-up questionnaires).		Differences between groups: t test or analysis of variance Categorical data: compared using chi-square or Fisher exact test	higher among intervention group (87.3 v 74.7). Higher overall satisfaction among intervention group (82.6 v 72.5). Concern and care improved (94.2 v 78.1). Symptom management improved (90.9 v 71.4). Coordination of care improved (90.4 v 68.8). Perceived skill and competence of ICU doctors improved (92.3 v 71.9). All p-values < 0.05. **DV3:** No statistically significant differences in	**Weakness:** Small sample size, limited sampling and generalizability There was an imbalance in the numbers across treatment arms. **Feasibility:** Feasible and can be replicated **Application:** Involving families in rounds is achievable and enhances their satisfaction with care.

KEY- **AFRC**s: Appointment-based family centered rounds; **DV**: Dependent variable; **FAME**: Family engagement; **FCR**s: Family-centered rounds; **FS-ICU Survey**: Family satisfaction in the intensive care unit survey; **IV**: Independent variable; **ICU**: Intensive care unit; **PHM**: Pediatric hospital medicine; **PICU**: Pediatric intensive care unit; **NICU**: Neonatal intensive care unit

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
							family engagement scores.	
Jaberi et al., 2020; Effect of family presence during teaching rounds on patient's anxiety and satisfaction in cardiac intensive care unit: A double-blind randomized controlled trial **Country:** Iran **Funding:** The research and Technology of Rafsanjan University of Medical Sciences **Bias:** Adult population only.	Patient-centered care	**Design:** Double-blind RCT **Purpose:** Investigate impact of attending teaching rounds on patients' anxiety levels and satisfaction in the cardiac intensive care unit.	**N=** 60 **Demographics:** Patient's age: 62.05 +/- 14.06. Family's age: 15.08 +/- 12.38. Family relationship: 48.3% child, 40% spouses, 8.3% mothers, 3.3% fathers. Education level (control v intervention)- under diploma 66.7% v 63.3% **Setting:** Inpatient cardiac ICU **Exclusion:** Patients: < 18 years old, not cognitively able to answer questions,	**IV1:** Family presence on rounds **DV1:** Patient's anxiety level **DV2:** Patient satisfaction **Definitions:** Anxiety level was measured with STAI score.	**Tools:** Spielberger State-Trait Anxiety Inventory (STAI) Self-reported questionnaire SPSS software **Validity/ Reliability:** STAI: 0.86-0.95 Questionnaire: Cronbach's alpha of 0.77-0.63	**Statistical Tests Used:** Kolmogorov-Smirnov test, Chi-square test, independent sample and paired sample t-test. Significance level of 0.05.	**DV1:** In family presence group, STAI score decreased by 7.80 after intervention (P=0.001). STAI score was lower by 5.8 points in this group than family absence group. **DV2:** Average increase in patient satisfaction scores regarding the quality of rounds in the family presence group was 5.97 points higher than in the family absence group.	**Level of Evidence:** I **Strengths:** Double-blind study **Weakness:** Small sample size Impact of confounding factors unknown Only studied in adult population **Feasibility:** Feasible, needs questionnaire and STAI questions. **Application:** FCR can improve satisfaction about various clinical aspects of rounds.

KEY- **AFRC**s: Appointment-based family centered rounds; **DV**: Dependent variable; **FAME**: Family engagement; **FCR**s: Family-centered rounds; **FS-ICU Survey**: Family satisfaction in the intensive care unit survey; **IV**: Independent variable; **ICU**: Intensive care unit; **PHM**: Pediatric hospital medicine; **PICU**: Pediatric intensive care unit; **NICU**: Neonatal intensive care unit

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
			history of hospitalization to cardiac ICU. Family: < 18 years old, history of mental health issues, prior attendance during teaching rounds. Cancellation of ongoing participation in research by patients/families and occurrence of any acute situations. **Attrition:** 0				(P=0.001).	
Khan et al., 2024; Implementing a Family-centered Rounds Intervention Using Novel Mentor-Trios **Country:** USA **Funding:**	Patient and family-centered care	**Design:** Hybrid Type II effectiveness-implementation study **Purpose:** To assess adherence, safety, and experience	**N=** 4577 rounds. 2285 surveys. **Demographics:** 82.6% of patients/families were female. 49% were white. 86.2% English proficient. 75.1% had	**IV1:** PFC I-PASS **DV1:** adherence to I-PASS components **DV2:** resident-reported harm rates **DV3:** patient/family experience scores	**Tools:** Adherence: site providers observed rounds using observation tool Safety climate and resident-reported harms: surveys for residents for	**Statistical Tests Used:** Examined the sociodemographic characteristics of respondents by intervention time-period using x-square tests or Fisher's exact tests.	**DV1:** Improved family participation from 76.5% to 89.5%. Adherence to components improved from 25.5% to 60.8%. Nurse engagement	**Level of Evidence:** III **Strengths:** Large sample size, randomly selected patients for surveys, diverse outcomes measures, from 21 sites. **Weakness:**

KEY- **AFRC**s: Appointment-based family centered rounds; **DV**: Dependent variable; **FAME**: Family engagement; **FCR**s: Family-centered rounds; **FS-ICU Survey**: Family satisfaction in the intensive care unit survey; **IV**: Independent variable; **ICU**: Intensive care unit; **PHM**: Pediatric hospital medicine; **PICU**: Pediatric intensive care unit; **NICU**: Neonatal intensive care unit

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Bias: Participants were mainly female, white, educated, English proficient, health literate. Observation of rounds conducted by providers.		after implementing PFC I-PASS using a novel "Mentor-Trio" implementation approach	adequate health literacy. 64.4% had some college. 89.2% were parents to patient. **Setting:** 21 sites: 14 nested children's hospitals,4 free-standing children's hospitals, 3 general hospitals. **Exclusion:** Not stated **Attrition:** Not stated.		major/minor harms Patient/family experience: surveys including 5-point Likert-scale Children's Hospital Safety Climate Questionnaire. **Validity/ Reliability:** Not stated.	Adherence rates: mixed-effects logistic regression Resident-reported harm rates: mixed-effects Poisson regression	improved from 33.4% to 63%. **DV2:** Unchanged, although there were decreases in overall harms in hospitals with greater nurse engagement (41%) and I-PASS adherence (24.3%). In larger hospitals, harm fell 38.2%. **DV3:** Unchanged, no statistically significant changes.	Pediatric population limits generalizability. Paused data collection during COVID-19 for 3-6 months. Design may limit conclusions about causality. Sample size mainly white, educated, health literate women. **Feasibility:** Feasible, applied to multiple sites successfully. **Application:** Hospitals need to improve patient and family engagement alongside bedside nurses during rounds to enhance patient safety, safety climate, and engagement of patients, families, and staff, thereby increasing self-efficacy, collaborative efforts, and family-centered care.

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Kipps et al., 2020; Schedule-based family-centered rounds: A novel approach to achieve high nursing attendance and participation **Country:** USA **Funding:** Unknown, not stated. **Bias:** Chosen intervention was picked by members of hospital, may increase bias with survey responses and involvement	Patient and family-centered care Goal attainment theory	**Design:** Interventional study with pre and post intervention **Purpose:** Increase RN attendance from < 50% to > 85% and participation from <40% to > 75%. Enhance family presence during rounds, adherence to a standardized presentation format including discussions on checklist items, and heightened satisfaction among the medical team with the rounding process.	**N=** 4110 rounding encounters (578 preintervention, 3532 post). **Demographics:** All cardiology patients on the acute care unit **Setting:** 20-bed pediatric acute care cardiology unit at freestanding academic quaternary care children's hospital **Exclusion:** Encounters that fell on weekends, holidays, or when recorder was not present **Attrition:** 1,963 of encounters fell on weekends,	**IV1:** SBFCRs **DV1:** RN attendance and participation **DV2:** Provider and RN satisfaction **DV3:** Family attendance and satisfaction **Definitions:** RN attendance: present to listen to rounds Participation: delivering patient introduction, overnight events/vitals, concerns.	**Tools:** Likert scale for surveys Pre-implementation and post implementation survey **Validity/ Reliability:** Not stated	**Statistical Tests Used:** Mean RN attendance and mean RN participation	**DV1:** Mean RN presence increased from 69% to 87% (P<0.001). Mean RN participation increased from 48% to 81% (P<0.001). **DV2:** Enhanced round efficiency and improved communication among team and families. The majority of RNs affirmed that participating in rounds facilitated communication with families, comprehension of the care plan, and care coordination. All providers and most RNs	**Level of Evidence:** III **Strengths:** Large sample size. Explores implications of intervention from multiple aspects (families, nursing, providers) **Weakness:** Study conducted at a single institution; findings may not be applicable to broader populations. Hawthorne effect (unrecognized trends could impart biases) due to being done in phases. No implementation of validated tool to assess nurse-physician collaboration. **Feasibility:** Feasible as long as there is designated member to collect data.

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
			holidays, or when recorder was not present				felt there was adequate time to conduct rounds for each patient. **DV3:** No significant alteration in family attendance during rounds until implementation of daily notification, then improvement was seen 66-85%, P<0.001. Better understand during rounds (83-93%).	Survey questions supplied. **Application:** SBFCR increased RN attendance and engagement during rounds, encouraged family presence, enhanced provider satisfaction with rounds, and upheld bedside education.
Patel et al., 2022; Family, nurse, and physician beliefs on family‐centered rounds: A 21‐site study	Patient and family-centered care	**Design:** Cross-sectional **Purpose:** To comprehend the beliefs, attitudes, and practices of	**N=** 1647 **Demographics:** majority of patient/family respondents were female, proficient in	**IV1:** Survey given to family/nurse/attending/resident **DV1:** Patient/family participation on rounds was "very"	**Tools:** 26-question survey about FCR elements. Likert scales were used for interpretation. **Validity/**	**Statistical Tests Used:** Mixed effects logistic regression Least squares estimates and 95% confidence	**DV1:** Patient/family: 89% Nurse: 93% Attending: 92% Resident: 80% **DV2:**	**Level of Evidence:** VI **Strengths:** Large sample size, multiple institutions, survey from multiple members of healthcare

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Country: USA **Funding:** Patient - Centered Outcomes Research Institute, Grant/Award Number: DI - 2017C3 - 9232 Principal Investigator: Dr. Christopher Landrigan **Bias:** Social desirability bias Multiple providers and conductors of the study are advocates and consultants for I-PASS Patient Safety Institute.		patients, families, and clinicians regarding FCRs in order to aid implementation endeavors.	English, and possessed sufficient health literacy, and with some college education. Most attending physicians had more than 6 years of experience while the nursing experience was evenly distributed. **Setting:** Twelve university-based and nine community-based teaching hospitals. Twenty sites were general pediatric units, one subspeciality. **Exclusion:** Those not	or "extremely important" **DV2:** Nurse participation on rounds was "very" or "extremely important" **DV3:** Doctors participate on rounds was "very" or "extremely important" **DV4:** Easy to understand language on rounds was "very" or "extremely important" **DV5**: Patient has chance to share their understanding of plan on rounds was "very" or "extremely important"	**Reliability:** Not stated	intervals (95% CI). Pairwise comparison tests for differences in beliefs by role with a Bonferroni adjustment for multiple comparisons.	Patient/family: 86% Nurse: 92% Attending: 87% Resident: 77% **DV3:** Patient/family: 96% Nurse: 98% Attending: 99% Resident: 98% **DV4:** Patient/family: 87% Nurse: 91% Attending: 88% Resident: 78% **DV5:** Patient/family: 93% Nurse: 93% Attending: 85% Resident: 78%	team, single-blind design for families. **Weakness:** Conducted at pediatric university-based and community-based teaching institutions-limits generalizability Survey methodology is limiting due to recall and social desirability bias. Survey questions were brief and may not assess full beliefs **Feasibility:** Feasible, demonstrated at multiple centers. **Application:** Barriers to FCR include divergent beliefs/attitudes between physicians and nurses and families on the purpose of rounds. The disparity in beliefs/attitudes and actual practice among all team member groups indicates the

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
			participating in FCR **Attrition:** 334					presence of structural barriers hindering the adoption of an inclusive FCR practice involving nurse and family participation.
Schneider et al., 2023; Effects of participation in interdisciplinary rounds in the intensive care unit on family satisfaction: A cross-sectional study **Country:** Brazil **Funding:** H*ospital Moinhos de Vento* - Porto Alegre (RS), Brazil. **Bias:** 78.5% of participants were female. Possible selection bias as members who willingly	Family-centered care Goal attainment theory	**Design:** Cross-sectional **Purpose:** Investigate if family participation in rounds affects family satisfaction	**N=** 107 **Demographics:** Patients with planned d/c from ICU. Family members > 18yo who spoke Portuguese/had no evident cognitive limitations in responding, one respondent per patient. Sex: 21.5% male, 78.5% female. Parent of patient: 10.3% Surrogate decision-maker: 79.4%. **Setting:** Adult, mixed ICU of a tertiary hospital	**IV1:** Family presence during rounds **DV1:** General satisfaction **DV2:** Satisfaction with care **DV3:** Satisfaction with decision-making **Definitions:** Family members: individuals who visited patient in ICU, regardless of relationship	**Tools:** Family Satisfaction in the Intensive Care Unit (FS-ICU) survey, two subscales: satisfaction with care and satisfaction with decision-making subscales. **Validity/ Reliability:** Cronbach's alpha for two subscales was 0.90 (satisfaction with care) and 0.84 (satisfaction with decision-making). 95% confidence level for median differences.	**Statistical Tests Used:** Chi-squared tests to compare categorical variables between study groups. Sample distribution was tested using the Kolmogorov-Smirnov test. Wilcoxon-Mann-Whitney test was used to compared FS-ICU score medians	**DV1:** Family members who attended rounds expressed significantly higher overall satisfaction. (90.75 v 92.90) **DV2:** Presence of family members correlated with heightened satisfaction regarding decision-making (86.25 v 75). **DV3:** No significant differences in satisfaction	**Level of Evidence:** VI **Strengths:** Consistent findings with similar studies. Demonstrates satisfaction associated with inclusion of family members during rounds. **Weakness:** Did not control family presence, possible selection bias. Analyses did not take into account variables related to clinical conditions, which could potentially influence family satisfaction. Single-center study, reducing external validity of results. Reserve causation is possible since main exposure variable and outcomes were

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
participated in rounds likely had different relationships with staff and different understanding.			in Southern Brazil. **Exclusion:** patients who stayed in ICU for less than 12 hours, family members of patients who passed. **Attrition**: 11				with care scores among the groups..	assessed at the same time. Adult-only study, application to pediatrics unknown **Feasibility:** May be beneficial to focus on multicenter studies **Application:** Reinforces importance of targeting development of safe and effective ways to include families in rounds to improve satisfaction and provide support.
Wang et al., 2022; Improving efficiency on a pediatric hospital medicine service with schedule-based family-centered rounds.	Family-centered care Goal attainment theory	**Design:** Interventional study with pre and post intervention **Purpose:** Investigate if schedule-based family centered rounds would improve efficiency and increase nursing presence	**N=** 360 encounters (baseline data). 2846 encounters for postintervention **Demographics:** Average census was 10 patients. 11% used an interpreter. **Setting:**	**IV1:** Schedule-based FCRs **DV1:** % of encounters within 30 minutes of scheduled time **DV2:** nursing presence **DV3:** % of rounds completed by 11:20am	**Tools:** Electronic tablet was used to fill out a Research Electronic Data Capture (REDCap) form hosted at Standford. **Validity/ Reliability:** Unknown, not stated.	**Statistical Tests Used:** Overall comparisons between pre and postintervention was made using t test for continuous variables and chi-squared test for categorical variables.	**DV1:** Encounters started within 30 minutes of scheduled time for a median of 83% of encounters at first to 96% at the end. **DV2:** Nursing presence	**Level of Evidence:** III **Strengths:** Established buy-in from multiple stakeholders. Scheduling tool was easy to use and quickly adopted **Weakness:**

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
Country: United States **Funding:** No external funding. **Bias:** Unable to blind those participating in rounds (providers, residents, nursing). This may affect allotted time and how rounds were carried out.			Free-standing children's hospital in northern California. Pediatric Hospital Medicine service with acute care patients. **Exclusion:** **Attrition:** 0	**Definitions:** Within 30 minutes of scheduled time: +/- 30 minutes			started at 79% and ended at 94%. **DV3:** The percentage of rounds ending by 11:20am increased from median of 0% to 57% for six months and ended at 86%.	Creation of half-time coordinator role, which may not be feasible in other settings. The hospital had many complex patients, affecting rounding times and ending on time. Unable to track if nursing provided families with info about scheduled rounds and timeframes. Unable to collect preintervention data for > 8 weeks. Data was not collected on patient/family experience so this outcome cannot be assessed. **Feasibility:** Potentially not feasible if reproduced exactly as this study was done, especially considering the addition of the part-time round coordinator role.

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice; Generalization
								Application: improved efficiency of rounding workflow and bedside nursing presence.

Table A2

Evaluation Table for Qualitative Studies

Citation	Theory/ Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Themes Studied/ Definitions Research Questions (RQ)	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/ Quality of Evidence; Decision for/ Application to practice; Generalization
Segers et al., 2019; The impact of family centred care interventions in a neonatal or paediatric intensive care unit on parents' satisfaction and length of stay: A systematic review **Country:** USA **Funding:** Not stated	Family-centered care	**Design:** Systematic review **Method:** Searches done in Cinahl, Cochrane, Embase, and PubMed from February 2016 to October 2017 **Purpose:** Investigate the influence of interventions centered on family care on parental satisfaction and the duration of	**Sample:** 17 studies were reviewed. **Demographics:** 12/17 studies investigated parents' satisfaction and 7/17 investigated length of stay. Overall quality of included studies was weak to good. Designs used in the 17 included studies, were quasi experimental, cross sectional, randomized	• Effects of improved collaboration with professionals on parental satisfaction • Effects of parental and professional collaboration on length of stay **Definitions:** Satisfaction: patients'/parents' needs, experiences in care and	**Data Collection:** Selection and presentation of results was carried out using PRIMSA guidelines. **Data Dependability:** Two researchers evaluated the methodological quality of each article using the McMaster tool for quantitative studies. A score of 12 or higher was good quality, score of 9-11 was	Descriptive synthesis. The included studies were systematically and independently reviewed using the PRISMA review protocol. A narrative summary of the study, organized by various outcomes such as length of stay and parental satisfaction, was conducted. Additionally, a best-evidence synthesis was	(1) A notably higher level of parental satisfaction was observed in seven out of the twelve studies that implemented an intervention to improve collaboration with professionals. (2) In one study, a connection was discovered between physicians' patient-	**Level of Evidence:** I **Strengths:** Two researchers independently assessed the methodological quality. **Weakness:** Generally moderate quality of studies Studies did not provide a precise description of the satisfaction concept. Only studied in the pediatric and ICU setting **Feasibility:** Demonstrates multiple examples of high-quality

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Citation	Theory/ Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Themes Studied/ Definitions Research Questions (RQ)	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/ Quality of Evidence; Decision for/ Application to practice; Generalization
Bias: Only studied in the pediatric and ICU setting Only included studies published in English. Non-English-speaking populations or contexts may consequently not be full represented in this review.		hospitalization for patients admitted to either a pediatric intensive care unit or a neonatal intensive care unit.	control trial, observational and cohort, pre-post studies. **Setting:** 13 studies conducted in NICU and 4 in PICU **Attrition:** None	perception of care. Length of stay: time between admission and discharge	moderate, and < 9 was weak.	carried out, differentiating between three levels of evidence: (1) strong evidence: consistent findings in multiple (two) high quality studies; (2) moderate evidence: consistent findings in one high quality study and at least one low-quality study, or consistent findings in multiple low-quality studies; (3) insufficient evidence: only one study available or inconsistent findings in multiple (two) studies.	centered communication styles and parental satisfaction.	studies yielding significant results that may be replicable. **Application:** Enhanced collaboration between parents and professionals may lead to increased parental satisfaction. Therefore, integrating parent-professional collaboration, particularly in decision-making processes, should be incorporated into care models for both pediatric and neonatal intensive care settings.
Woldring et al., 2023; The added value of	Family-centered care	**Design:** Systematic review	**N=** 4 systematic reviews (covering 67 single studies)	• Satisfaction • Added value for patients	**Data Collection:** Selection and presentation of	Descriptive synthesis. The included	(1) All four reviews report family	**Level of Evidence**: I

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Citation	Theory/ Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Themes Studied/ Definitions Research Questions (RQ)	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/ Quality of Evidence; Decision for/ Application to practice; Generalization
family-centered rounds in the hospital setting: A systematic review of systematic reviews. **Country:** USA and Canada **Funding:** Not stated **Bias:** Only included studies published in English. Non-English-speaking populations or contexts may not be fully represented in this review due to the predominance of studies conducted in the USA and Canada, potentially	Goal attainment theory	(observational and survey studies, RCTs, quasi-experimental, qualitative, mixed methods, quality improvement, pre- and posttest) **Purpose:** Synthesize evidence on the additional benefits of FCRs as perceived by patients, families, and healthcare professionals.	**Demographics:** Systematic reviews that included family presence in rounds and outcomes focused on added value of FCRs, and written in English. **Setting:** One review: 19 single studies were carried out in adult and pediatric critical/non-critical care. One study focused on adult ICU, one adult inpatient internal medicine. All other studies were in the pediatric population (28 and 29 studies in pediatric non-critical care). **Exclusion:** No family involvement, no	• Added value for family members **Definitions:** Satisfaction-communication and interaction, situational understanding, inclusion in the decision-making process, and relationships	results was carried out using PRIMSA guidelines. **Data Dependability:** AMSTAR was used to assess methodology of included reviews. Scores 0-4 were low, 5-8 average, 9-12 high quality.	systematic reviews were systematically and independently reviewed using the PRISMA review protocol. A table was developed with variables extracted from selected reviews. After extracting and categorizing the data, the research team deliberated on the findings and synthesized categories related to the identified 'added values.'	presence during rounds increases satisfaction among patients, families, and professionals. (2) None of the reviews clearly reported patient's perspective. Single study of Lewis et al. noticed children want to be able to hear rounds. (3) Improved communication and interaction between family and healthcare team. Provides opportunity to ask questions. Increased situational awareness and knowledge of care plan and conditions.	**Strengths:** Provides overview of best available evidence across different healthcare settings. Provides quality appraisals for included studies and only included studies with higher ratings. **Weakness:** Included studies exhibited too much heterogeneity in methodology and outcome measures, rendering meta-analyses unfeasible. No universally accepted measure for evaluating FCR outcomes. Clear conclusion should be drawn with caution. No analysis to determine possible downside of FCRs. **Feasibility:** Demonstrates multiple examples of high-quality studies yielding significant results that may be replicable.

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Citation	Theory/ Conceptual Framework	Design/ Method/ Sampling	Sample/ Setting	Major Themes Studied/ Definitions Research Questions (RQ)	Measurement/ Instrumentation	Data Analysis	Findings/ Themes	Level/ Quality of Evidence; Decision for/ Application to practice; Generalization
limiting the generalizability of findings.			outcome added value of FCRs **Attrition:** None				Inclusion in decision-making can result in sense of partnership. Family felt included and respected. Comfortability increased confidence and reduced stress.	**Application:** FCRs appear to enhance satisfaction among patients, their families, and healthcare professionals, with satisfaction correlating with enhanced communication and interaction, better comprehension of the situation, and improved relationships within the care context.

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Table A3

Synthesis Table

Study										
Author and year	Bekmezian et al., 2019	Debay et al., 2023	Jaberi et al., 2020	Khan et al., 2024	Kipps et al., 2020	Patel et al., 2022	Segers et al., 2019	Schneider et al., 2023	Wang et al., 2022	Woldring et al., 2023
Design/Level of evidence	PPI/III	RCT/I	RCT/I	EIH Type 2/III	PPI/III	CS/VI	SR/I	CS/VI	PPI/III	SR/I
Sample										
Sample size	52	27	60	2285	4110	1647		107	360	
# of studies							17			4
Pediatric patients (<18yo)	X			X	X	X	X		X	X
Adult patients (>18yo)		X	X					X		X
Nurse input					X	X				X
Provider input					X	X				X
Family input	X	X		X	X	X	X	X		X
Patient input			X							
Setting										
Inpatient	X	X	X	X	X	X	X	X	X	X
Measures and Measurement Tools										
Nurse input					X	X				X
Provider input					X	X				X
Family input	X	X		X	X	X	X	X		X
Bedside Interviews	X									
Surveys/Questionnaire	X	X	X	X	X	X		X		
Observations				X					X	
Interventions										
Scheduled rounds	X				X				X	
I-PASS rounds				X						
Family presence		X	X					X		
Surveys regarding FCR						X				
Outcomes/Themes										
Parent satisfaction		🡅		●			🡅*	🡅		🡅*

KEY- **EIH**: Effectiveness-implementation hybrid study; **CS**: Cross-sectional; **ICU**: Intensive care unit; **PPI**: Pre and post-intervention study; **RCT**: Randomized control trial; **SR**: Systematic review; 🡅: Increased; 🡅*: Trend, no supporting linear quantitative data; ●: No significant changes

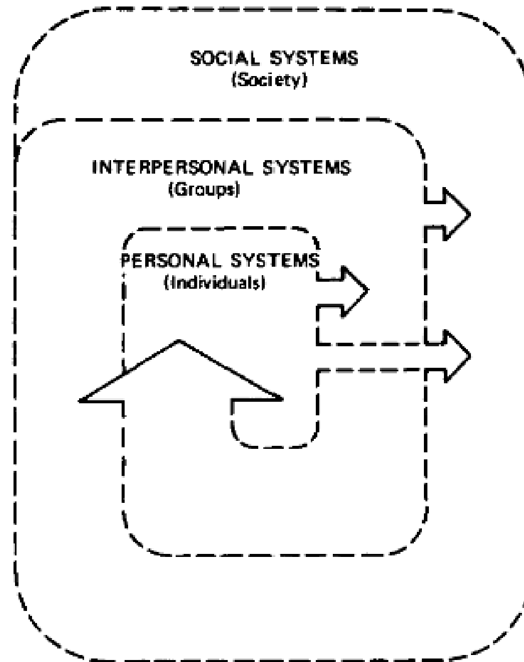
	Study									
Author and year	Bekmezian et al., 2019	Debay et al., 2023	Jaberi et al., 2020	Khan et al., 2024	Kipps et al., 2020	Patel et al., 2022	Segers et al., 2019	Schneider et al., 2023	Wang et al., 2022	Woldring et al., 2023
Family involvement	↑	●		↑	↑			↑		
Positive/Negative experience	65% positive, 27% negative									
Patient's anxiety level			↓							
Patient satisfaction			↑							
Adherence to I-PASS				↑						
Parent/Provider Communication					↑		↑*			↑*
Understanding during rounds					↑					↑*
Harm rates				↓ (With greater nurse involvement, greater I-PASS adherence, and larger hospitals)						
Provider satisfaction										↑*
Nurse satisfaction										↑*
Nurse involvement	↑			↑	↑				↑	
Symptom management		↑								
Barriers to FCR		Lack of buy-in		Competing time-demands (multiple tasks)	Lack of nursing or parental notification	Diverging beliefs/attitudes between nurses, families, and physicians. Lack of staffing or parental availability	ICU admission			

KEY- **EIH**: Effectiveness-implementation hybrid study; **CS**: Cross-sectional; **ICU**: Intensive care unit; **PPI**: Pre and post-intervention study; **RCT**: Randomized control trial; **SR**: Systematic review; ↑: Increased; ↑*: Trend, no supporting linear quantitative data; ●: No significant changes

Appendix B

Models and Frameworks

Figure B1
Goal Attainment Theory

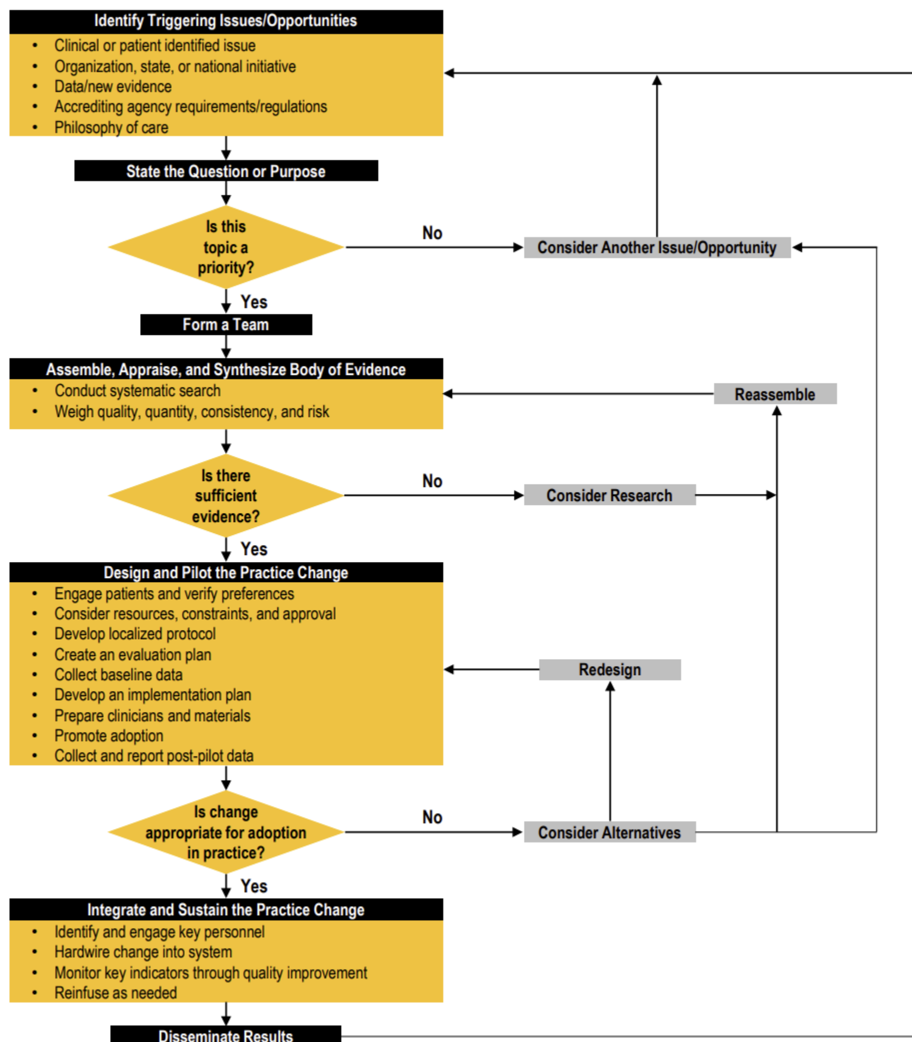


Note. Dynamic conceptual systems. From *A Theory of Nursing: Systems, Concepts, Process* (p. 11), by I.M. King, 1981, Wiley Publishing. Copyright 1981.

(King, 1981).

Figure B2

Iowa Model of Evidence-Based Practice



Note. From "Iowa model of evidence-based practice: Revisions and validation," by Iowa Model Collaborative, 2017, *Worldviews on Evidence-Based Nursing,* 14(3), 10.1111/wvn.12223. Used/reprinted with permission from the University of Iowa Hospitals and Clinics, copyright 2015. For permission to use or reproduce, please contact the University of Iowa Hospitals and Clinics at 319-384-9098.

(Iowa Model Collaborative, 2017).

Appendix C

Tools and Instrumentation

SOS Survey Items and Corresponding Concepts of Collective Mindfulness

Concept[24–26]	Definition[24–26]	SOS Survey Item(s)
Preoccupation with failure	Operating with a chronic wariness of the possibility of unexpected events that may jeopardize safety by engaging in proactive and preemptive analysis and discussion	When giving report to an oncoming nurse, we usually discuss what to look out for We spend time identifying activities we do not want to go wrong
Reluctance to simplify interpretations	Taking deliberate steps to question assumptions and received wisdom to create a more complete and nuanced picture of ongoing operations	We discuss alternatives as to how to go about our normal work activities
Sensitivity to operations	Ongoing interaction and information-sharing about the human and organizational factors that determine the safety of a system as a whole	We have a good "map" of each other's talents and skills We discuss our unique skills with each other so we know who on the unit has relevant specialized skills and knowledge
Commitment to resilience	Developing capabilities to detect, contain, and bounce back from errors that have already occurred, but before they worsen and cause more serious harm	We talk about mistakes and ways to learn from them When errors happen, we discuss how we could have prevented them
Deference to expertise	During high-tempo times (ie, when attempting to resolve a problem or crisis), decision-making authority migrates to the person or people with the most expertise with the problem at hand, regardless of their rank	When attempting to resolve a problem, we take advantage of the unique skills of our colleagues When a patient crisis occurs, we rapidly pool our collective expertise to attempt to resolve it

SOS indicates Safety Organizing Scale.

Note. From "The Safety Organizing Scale", by Vogus and Sutcliffe, 2007, *Medical Care*, 45(1), 46–54. 10.1097/01.mlr.0000244635.61178.7a.

Appendix D

DNP Project Budget			
	Activities	**Cost**	**Total**
Direct Costs			
	Creation of provider and nurse education materials	$0	
	Creation of online pre- and post- intervention survey	$0	
	Creation of digital advertisement for project implementation for "Quick Tip" email alerts for nurses	$0	
	Creation of "How To" guide for unit secretaries (HUC)	$0	
	Refreshments for nurses during education sessions at unit-based council (UBC) and staff meeting (1 UBC meeting, 3 staff meetings = 4 meetings)	$100	
	Print "How To" guide for unit secretaries (1 flyer at $0.12 each)	$0.12	
	Intellectus Statistics consulting	$99	
	Thank you cards and snacks for providers and nurses	$80	**$279.12**
Indirect Costs			
	Resident education (2 sessions at 30 minutes per session, ≈ 4 residents per session = **8 residents**, average resident hourly wage $32 x 30 minutes = **$16 per resident**)	$128	
	Nursing education (4 sessions at 15 minutes per session, ≈ 25 nurses per session = **100 nurses**, average RN hourly wage $35 x15 minutes = **$8.75 per RN**)	$875	
	Provider education (1 session for 30 minutes, ≈ **8 providers**, average provider hourly wage $116 x 30 minutes = **$58 per provider**)	$464	
	Unit secretary education (1 session for 15 minutes, **2 HUCs**, average HUC hourly wage $19 x 15 minutes = **$4.75 per HUC**)	$9.50	
	Rented conference room for UBC and staff meetings for nursing education ($115/hour for 1 hour)	$115	
	Meetings with site champion (5 hours at average $67/hour)	$335	
	Meetings with project mentor (10 hours at average $45/hour)	$450	
	Meeting with unit educator (3 hours at average $41/hour)	$123	
	Meeting with clinical nurse attending (2 hours at $52/hour)	$104	**$2,603.50**
			$2,882.62
Potential Funding			
The creation of educational materials, refreshments and snacks, thank you cards, and Intellectus Statistics consulting will be personally funded by the student. This includes the student's personal time and $279.12. The remaining $2,603.50 may be potentially funded by the project site's Family Advisory Council, the project site's Patient Experience Executive Committee, the American Academy of Pediatrics, and the National Association of Pediatric Nurse Practitioners.			
Costs vs. Savings			
The potential cost savings stems from improved communication between the healthcare team and families, resulting in decreased medical errors and subsequent expenses to remedy these errors. The potential revenue stems from increased patient and family satisfaction scores because of this project initiative. Increases in patient and family satisfaction scores will increase overall hospital ratings, leading to an increase in patients and families seeking care at this project site.			

Appendix E

Patient and Family Satisfaction Survey Results

Table 1: Summary Statistics Table of Patient and Family Satisfaction Survey Results for Pre-Intervention Phase

Variable	*M*	*SD*	*n*	Min	Max
Score	68.55	17.32	6	40.00	92.90

Table 2: Summary Statistics Table of Patient and Family Satisfaction Survey Results During Intervention Phase

Variable	*M*	*SD*	*n*	Min	Max
Score	63.62	9.08	6	50.00	72.70

Table 3: Summary Statistics Table of Patient and Family Satisfaction Survey Results for Post-Intervention Phase

Variable	*M*	*SD*	*n*	Min	Max
Score	69.23	20.40	6	50.00	100.00

Appendix F

RN and Provider Surveys

Pre-Intervention RN Survey

1. By agreeing to participate, you are giving consent to participate in the project.
    a. I agree to participate.
2. I feel it is important for me to attend rounds.
    a. Strongly Disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree
3. I find it difficult to attend rounds.
    a. Strongly Disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree
4. Attending rounds improves my communication and relationships with the rest of the care team.
    a. Strongly Disagree
    b. Disagree
    c. Neutral
    d. Agree

   e. Strongly Agree

5. On days that I attend rounds, I call the resident less often to clarify the plan of care or orders.
   a. Strongly Disagree
   b. Disagree
   c. Neutral
   d. Agree
   e. Strongly Agree
6. Attending rounds improves my ability to coordinate care for my assigned patients.
   a. Strongly Disagree
   b. Disagree
   c. Neutral
   d. Agree
   e. Strongly Agree
7. During rounds, I feel that my concerns and input are considered and valued.
   a. Never
   b. Rarely
   c. Occasionally
   d. Most of the time
   e. Always
8. During rounds, I feel included in the decision-making process regarding the patient's plan of care.
   a. Never

   b. Rarely
   c. Occasionally
   d. Most of the time
   e. Always

9. I feel that the medical team adequately addresses the family's concerns and questions during rounds.
   a. Never
   b. Rarely
   c. Occasionally
   d. Most of the time
   e. Always
10. Attending rounds helps me understand the medical team's daily plans for my patients.
   a. Never
   b. Rarely
   c. Occasionally
   d. Most of the time
   e. Always
11. How often do you attend rounds?
   a. Never
   b. Rarely
   c. Occasionally
   d. Most of the time
   e. Always

Post-Intervention RN Survey

1. By agreeing to participate, you are giving consent for you to participate in this project.
    a. I agree to participate.
2. I feel it is important for me to attend rounds.
    a. Strongly Disagree
    b. Disagree
    c. Unsure
    d. Agree
    e. Strongly Agree
3. I find it difficult to attend rounds.
    a. Strongly Disagree
    b. Disagree
    c. Unsure
    d. Agree
    e. Strongly Agree
4. Attending rounds improves my communication and relationships with the rest of the care team.
    a. Strongly Disagree
    b. Disagree
    c. Unsure
    d. Agree
    e. Strongly Agree

5. On days that I attend rounds, I call the resident less often to clarify the plan of care or orders.
    a. Strongly Disagree
    b. Disagree
    c. Unsure
    d. Agree
    e. Strongly Agree
6. Attending rounds improves my ability to coordinate care for my assigned patients.
    a. Strongly Disagree
    b. Disagree
    c. Unsure
    d. Agree
    e. Strongly Agree
7. During rounds, I feel that my concerns and input are considered and valued.
    a. Never
    b. Rarely
    c. Occasionally
    d. Most of the time
    e. Always
8. During rounds, I feel included in the decision-making process regarding the patient's plan of care.
    a. Never
    b. Rarely

   c. Occasionally
   d. Most of the time
   e. Always

9. I feel that the medical team adequately addresses the family's concerns and questions during rounds.
   a. Never
   b. Rarely
   c. Occasionally
   d. Most of the time
   e. Always

10. Attending rounds helps me understand the medical team's daily plans for my patients.
    a. Never
    b. Rarely
    c. Occasionally
    d. Most of the time
    e. Always

11. How often do you attend rounds?
    a. Never
    b. Rarely
    c. Occasionally
    d. Most of the time
    e. Always

12. Schedule-based rounds has made it easier for me to attend rounds.
    a. Strongly disagree
    b. Disagree
    c. Unsure
    d. Agree
    e. Strongly agree
13. Please share any feedback regarding the schedule-based rounding initiative and suggestions for changes or improvements.

Provider Post-Intervention Survey

1. By agreeing to participate, you are giving consent for you to participate.
    a. I agree to participate.
2. In general, I set a goal time for finishing rounds.
    a. Never
    b. Rarely
    c. Occasionally
    d. Most of the time
    e. Always
3. Schedule-based rounds aided in finishing rounds by the goal end time.
    a. Never
    b. Rarely
    c. Occasionally
    d. Most of the time
    e. Always

4. I feel that schedule-based rounds allowed enough time for nursing and family concerns to be adequately addressed.
    a. Strongly Disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree
5. Schedule-based rounds allowed an adequate amount of time for teaching moments during rounds.
    a. Strongly Disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree
6. Schedule-based rounds improved rounding efficiency and efficacy.
    a. Strongly Disagree
    b. Disagree
    c. Neutral
    d. Agree
    e. Strongly Agree
7. I feel that schedule-based rounds improved communication between the medical team (providers, residents, and nursing).
    a. Strongly disagree

   b. Disagree
   c. Neutral
   d. Agree
   e. Strongly agree

8. I feel that schedule-based rounds improved communication between the medical team and patients/families.
   a. Strongly disagree
   b. Disagree
   c. Neutral
   d. Agree
   e. Strongly agree
9. Schedule-based rounds allowed for more time to be spent providing patient care and/or for teaching moments outside of rounding times.
   a. Strongly Disagree
   b. Disagree
   c. Neutral
   d. Agree
   e. Strongly Agree
10. Please share any feedback regarding the schedule-based rounding initiative and suggestions for changes or improvements.