

# Implementing Family-Centered Rounds in Hospital Pediatric Settings: A Scoping Review

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## ABSTRACT

**CONTEXT:** The American Academy of Pediatrics and Institute for Patient and Family-Centered Care issued a joint policy statement in 2012 recommending family and nurse participation in rounds as a standard practice.

**OBJECTIVE:** To synthesize available evidence on the state of the implementation of family-centered rounds (FCRs), including identified barriers to stakeholder acceptance and participation in FCRs in pediatric inpatient settings and implementation strategies to increase adherence and related outcomes.

**DATA SOURCES:** PubMed and Medline and the Cochrane Database of Systematic Reviews.

**STUDY SELECTION:** Observational and experimental studies from January 2009 to July 2020.

**DATA EXTRACTON:** Two reviewers independently screened each study to determine eligibility and extract data. Initial evidence quality was evaluated on the basis of study design.

**RESULTS:** A total of 53 studies were included in the final synthesis. FCRs are increasingly accepted by stakeholders, although participation lags. Structural barriers to nurse and family attendance persist. Limited high-quality evidence exists regarding the effectiveness of FCRs and related implementation strategies in improving patient outcomes. The lack of a clear, consistent definition of the elements that combine for a successful FCR encounter remains a significant barrier to measuring its effect.

**CONCLUSIONS:** Standardized research methods for improving the quality and comparability of FCR studies are needed to enhance the existing guidelines for FCR use. Structural changes in care delivery may be required to ensure the rounding process remains amenable to the needs of patients and their families.

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Effective communication among patients, families, and clinicians is associated with improvements in patient safety<sup>1,2</sup> and experience.<sup>3,4</sup> Family-centered rounds (FCRs) (multidisciplinary rounds that occur in patients' rooms in the presence of patients and family members and integrate their preferences in clinical decision-making)<sup>5-7</sup> are designed to improve communication among patients, families, and medical teams.<sup>8</sup> In 2012, the American Academy of Pediatrics (AAP) and the Institute for Patient and Family-Centered Care issued a joint policy statement regarding patient- and family-centered care, recommending as standard practice that the conduct of rounds should occur in the patients' rooms, with nursing staff and family present.<sup>5</sup>

Evidence linking FCR to improvements in patient safety and outcomes is limited.<sup>1,9</sup> Since the joint policy statement, in 2 high-quality systematic reviews, researchers have examined the effects of family presence on rounds and patient and family experiences. In both studies, researchers found limited high-quality evidence regarding the impact of FCRs on patient outcomes.<sup>8,10</sup> In a Cochrane systematic review published in 2012, researchers found 1 unpublished randomized controlled trial in which family-centered care models were compared more generally against standard models for hospitalized children in tonsillectomy care.<sup>9</sup>

Despite stakeholder support, researchers have identified several barriers to adherence to FCR.<sup>7</sup> The AAP policy recommendation provides limited specifics on the design and implementation of FCRs in practice. No high-quality scoping or systematic reviews to date have evaluated successful strategies for implementation of FCRs. Designing an effective FCR intervention requires understanding which components of the intervention produce the greatest effect on patient outcomes. Implementation strategies can then be designed to address barriers to adherence to these key leverage points to improve patient outcomes.<sup>11</sup>

The aims of this scoping review were to synthesize evidence since the AAP policy was developed and issued regarding how health care organizations are designing and implementing FCRs, including variations in the FCR process, content, and outcomes. We sought to understand identified known or suspected barriers to patient, clinical care team, and family acceptance, attendance, and participation in FCRs in pediatric inpatient settings, including strategies designed to increase adherence to FCRs. Finally, the evidence synthesis was used to identify existing knowledge gaps and research priorities in the understanding and use of FCRs in patient care.

## METHODS

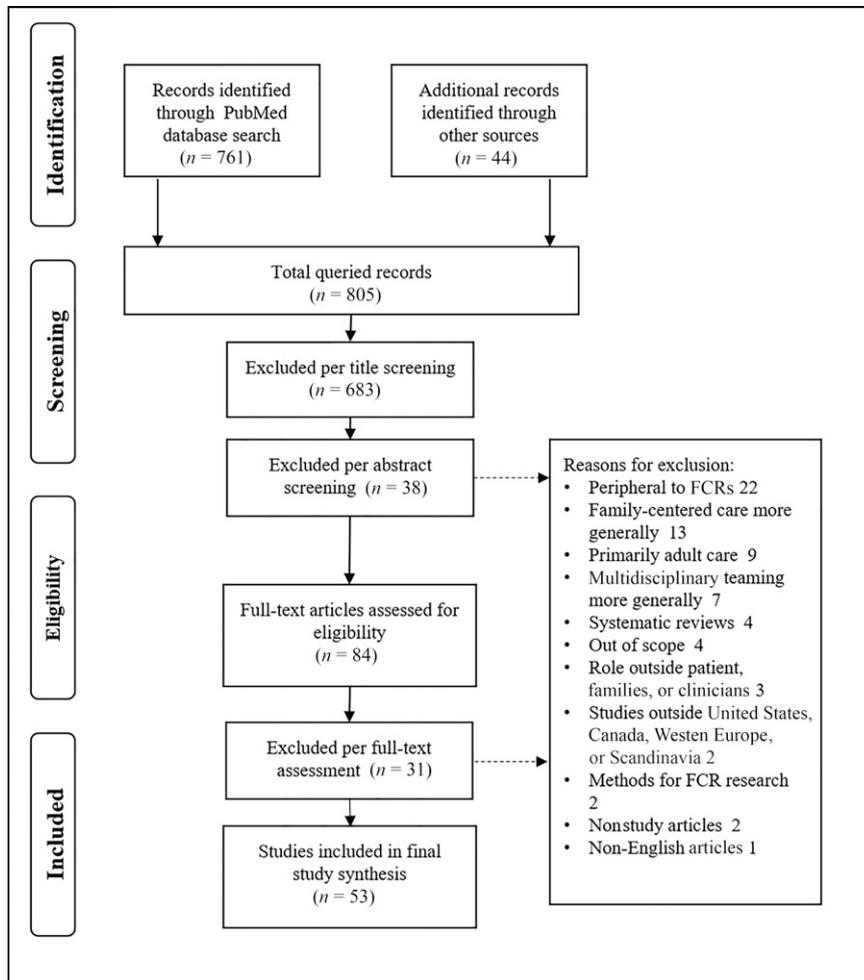
A rigorous scoping review of the peer-reviewed literature was conducted by using the methodologic framework introduced by Arksey and O'Malley<sup>12</sup> and further developed by others.<sup>13-16</sup> A scoping review was the most appropriate choice for conducting this literature synthesis, given the interest in emerging evidence regarding FCR intervention design, barriers to adherence and implementation strategies to increase use, and the mapping, reporting, and discussion of these characteristics within implementation research.<sup>12,17</sup> The Consolidated Framework for Implementation Research (CFIR) was the basis for identifying and categorizing implementation barriers.<sup>18</sup> The context for study was multidisciplinary FCR in pediatric inpatient settings. Study populations include physicians (attending physicians and trainees), medical students, nurses, and other hospital staff, along with the patients who received care and their families. The primary concepts evaluated and synthesized were FCR intervention design, known or suspected barriers to high adherence to FCRs, and implementation strategies designed to increase FCR use. The analytic framework for the scoping review analysis is included in Supplemental Fig 2.

Given the earlier related systematic reviews and the 2012 guidelines,<sup>8,19</sup> study inclusion criteria for the study were

limited to peer-reviewed materials referenced from January 1, 2009, through July 20, 2020, in PubMed and Medline and the Cochrane Database of Systematic Reviews. We included studies released contemporary with the development and 2012 release of the joint policy statement to ensure completeness. Consistent with the analytic framework, we sought to answer 4 questions:

1. What are the nature and scope of studies in which researchers examine implementation of FCRs?
2. How are health care organizations implementing FCRs in practice, including the process, content, technology or other supports, and reported outcomes?
3. What barriers impact the implementation of and adherence to FCRs?
4. What implementation strategies are being successfully deployed and/or tested to introduce FCRs or mitigate barriers to current use?

Study selection included the following PubMed- and Medline-defined article types: case reports, clinical trials, comments, comparative studies, consensus development conferences, evaluation studies, interviews, journal articles, meta-analysis, multicenter studies, observational studies, pragmatic clinical trials, reviews, systematic reviews, and technical reports published in English. Studies were limited to those conducted on health care systems in the United States, Canada, Western Europe, Scandinavia, and Australia and New Zealand, given the highly contextual nature of implementation research and translation and a similar standard of care. The query language was constructed by using the above outlined parameters and run in PubMed for all in-scope literature from October 2009 to July 28, 2020 (Supplemental Table 5). Additional studies identified through the study review process were added to the set of articles to review. A second, more sensitive validation query was run separately for the same time period to assess the completeness of the primary query results. Additional



**FIGURE 1** Preferred Reporting Items for Systematic Reviews and Meta-Analysis flow diagram for implementation of FCRs.

studies identified through this query were added to the study population for assessment. The terms “family” and “rounding” were used to search the Cochrane Database of Systematic Reviews.

The Preferred Reporting Items for Systematic Reviews and Meta-Analysis model was used to report results, as noted in Fig 1.<sup>20</sup> One investigator conducted the initial title and abstract screening. A second investigator reviewed the reasons for the exclusion of each article and concurred. The exclusion criteria for the title, abstract, and full-text screening are summarized in Supplemental Table 6. The reasons for study exclusion were summarized on the basis of the first reason identified by the group, with some studies having >1

reason for exclusion. Two investigators extracted data in a charting table for each included study (Supplemental Table 7). The exclusion of full-text review articles required concurrence from both investigators. For presentation purposes, the classification of studies by study aim and design, rounding elements included, identified barriers, and FCR interventions and related implementation strategies were summarized. Our criteria for the classification and presentation of studies are summarized in Supplemental Table 8. Initial evidence quality was assessed by the investigators using the rating system for the hierarchy of evidence for intervention studies originally developed by Melnyk and Fineout-Overholt<sup>21</sup> and is generally consistent with the relative order of study

designs found in other proposed evidence hierarchies.<sup>22</sup>

## RESULTS

A total of 805 studies were identified for review, with 53 studies included in the final study data synthesis (Fig 1). The primary reason to exclude articles during title screening was because of general topic relevance ( $n = 683$ ). Primary reasons for exclusion during the abstract and full-text review included a study scope that was related to FCRs but peripheral to the study aims of this synthesis ( $n = 22$ ), focused on family-centered care more generally but did not specifically address FCRs ( $n = 13$ ), included FCRs primarily for adult care ( $n = 9$ ), or discussed multidisciplinary teaming more generally without referencing FCRs ( $n = 7$ ).

### Nature and Scope of Studies Examining Implementation of FCRs by Scoping Review Aim

Overall, 91% of results ( $n = 48$ ) were from 1- and 2-site studies, with almost all studies ( $n = 49$ ; 92%) conducted in university-affiliated systems only. The majority of studies ( $n = 32$ ; 60%) included inpatient pediatric settings, with 94% of studies conducted in urban locations. Studies were drawn from all regions of the United States, with 5 studies (9%) from Canada<sup>23–25</sup> and Europe.<sup>26,27</sup> Overall, 96% of studies were either observational (64%) or quasi-experimental (primarily quality improvement projects; 32%). The aggregate estimated sample count was ~4000 (range: 2–1224) clinicians and 9500 (range: 5–3106) patients. At least 15 studies (28%) were limited to English-speaking families only,<sup>3,23,28–40</sup> with 3 studies (6%) limited to Spanish-speaking families alone.<sup>41–43</sup> The study characteristics are summarized and referenced with the 4 study aims in Table 1: clinician attitudes and perceptions regarding FCRs, family attitudes and perceptions regarding FCRs, general barrier identification, and implementation strategy development for FCRs. Some included studies may have multiple in-

**TABLE 1** Data Synthesis Study Summary for FCRs (N = 53 Studies)

Primary Scoping Review Aim	Study Count	1- and 2-Site Study, n(%)	US Region or Non-US Location (%)	Approximate Aggregate Sample Size (Range)	Service Context, n (%) <sup>a</sup>	University-Affiliated System, n (%)	Rural or Mixed Setting, n (%) <sup>b</sup>	Nonexperimental Studies, n (%) <sup>c</sup>
Clinicians attitudes and perception of FCRs <sup>3,7,23-27,30,37,39,40, 44-59</sup>	27	24 (89)	Northeast (33); South (19); Midwest (19); West (7); multiple (4); Canada or Europe (19)	2600 (12-310)	Inpatient: 17 (59); PICU: 6 (21); NICU: 3 (10); other: 3 (10)	26 (96)	1 (4)	27 (100)
Patient and/or family attitudes and perceptions of FCRs <sup>3,23,24,26,28-30, 32,33,35,37-43,44,46,49,51-53,55,60,61</sup>	26	26 (100)	Northeast (42); South (15); Midwest (12); West (19); multiple (0); Canada or Europe (12)	2600 (6-375)	Inpatient: 14 (47); PICU: 8 (27); NICU: 1 (3); other: 7 (23)	25 (96)	0 (0)	25 (96)
General barrier identification for FCRs <sup>2,3,7,23-27,29,30,33,36,37,39-51,53-55</sup>	39	34 (87)	Northeast (31); South (18); Midwest (21); West (13); multiple (5); Canada or Europe (12)	Clinician: 2600 (5-310); patient: 2650 (5-461)	Inpatient: 26 (53); PICU: 10 (21); NICU: 3 (6); other: 10 (20)	36 (92)	2 (5)	39 (100)
Implementation strategy development for FCRs <sup>1,31,34-36,38,47,51-56,61,65,66-71</sup>	22	20 (91)	Northeast (14); South (18); Midwest (36); West (23); multiple (9); Canada or Europe (0)	Clinician: 1950; (2-1224); patient: 7800 (13-3106)	Inpatient: 11 (42); PICU: 5 (19); NICU: 1 (4); other: 9 (35)	20 (91)	2 (9)	20 (91)

<sup>a</sup> A given study may have >1 service context identified. Other service contexts include pediatric cardiovascular or neuro ICUs, hematology and oncology services, or combined adult and pediatric inpatient units.

<sup>b</sup> All studies are mixed urban and rural studies. No studies are strictly rural-only studies.

<sup>c</sup> Nonexperimental studies include observational and quasi-experimental studies.

scope study aims and be counted more than once.

In 27 studies, researchers identified clinician attitudes and perceptions of FCRs, with outcomes including adherence to FCR interventions; clinician experience, preferences, and satisfaction with FCRs; and barriers to FCR use, including impact on learner education. The aggregate estimated sample count for these studies was ~2600 clinicians (range: 12-310 clinicians per study). The primary study methods include 22 qualitative descriptive studies (evidence hierarchy rating: VI) in which researchers characterize clinician attitudes and perceptions, along with 5 quality improvement studies (evidence hierarchy rating: IV) regarding the impact of FCRs and related implementation strategies on clinician attitudes regarding FCRs (Supplemental Table 9).

In 26 studies, researchers identified patient and/or family attitudes and perceptions regarding FCRs, with outcomes including participation in FCRs; experience, preferences, and satisfaction with FCRs; and barriers to FCR use and family understanding of the care plan. The aggregate estimated sample count for these studies was ~2600 patients, parents, and family members (range: 6-375 individuals per study). More than 63% of these study participants were included in studies involving English-speaking participants only. A total of 7% of participants were included in studies limited to Spanish-speaking participants only. The primary study methods include 20 qualitative descriptive studies (evidence hierarchy rating: VI) in which researchers characterize patient and family attitudes and perceptions, along with 5 quality improvement studies (evidence hierarchy rating: IV) regarding the impact of FCRs and related implementation strategies on patient and family attitudes regarding FCRs. In a small, controlled prospective cohort study (evidence hierarchy rating: III), researchers measured the effect of FCR training of medical teams on family-reported satisfaction with the encounter,

**TABLE 2** Frequency of Explicitly Detailed FCR Elements in Studies (*N* = 36 Studies)

General	Detailed Elements	<i>n</i> (%)
Participant roles	Multidisciplinary care team <sup>1-3,23-26,28-35,38-41,43,51-59,61,65,67-71</sup>	36 (100)
	Physician trainees and students <sup>1-3,23-26,28-33,35,38-41,43,51-59,65,67-70</sup>	34 (97) <sup>a</sup>
	Nurse <sup>1-3,23-26,28-35,38-41,43,51-59,61,65,67-71</sup>	36 (100)
	Other hospital staff <sup>1,2,23-25,29-34,38-41,43,51-53,55,57-59,61,65,67-71</sup>	30 (83)
Rounding location	Rounds may occur outside the patient's room <sup>3,26,29-32,34,40,43,57,61,69,71</sup>	13 (36)
Rounding process: before rounds	Determine family preferences and invite family attendance at rounds <sup>1-3,23-26,29-33,35,38-41,43,51-53,55-57,59,61,65,67-70</sup>	31 (86)
	Determine the care team approach to sensitive information during rounds <sup>24,40,43,55</sup>	4 (11)
	Coordinate with other clinicians and hospital staff (eg, consultants, specialists, or interpreters) <sup>55,51,61,65,67</sup>	5 (14)
Rounding process: during rounds	Use standard presentation format (eg, roles, speaking order, scripts, or checklists) <sup>1,2,24-26,28,29,31,33-35,38-41,43,51-53,55-57,59,65,67-69,71</sup>	28 (78)
	Opportunities for families to participate during rounds <sup>1-3,23-26,28-35,38-41,43,51-53,55-59,61,65,67,69-71</sup>	34 (94)
	Family preferences integrated into care plan <sup>1,2,23,24,26,29-31,33,34,38-40,43,51-53,55,56,58,59,61,65,67,69</sup>	25 (69)
	Opportunities for the nurse to participate during rounds <sup>1,26,28-31,33-35,38-40,51-57,59,61,65,67-69,71</sup>	26 (72)
	Bedside teaching of trainees occurs during rounds <sup>1,2,24,25,29-31,33,35,39,40,43,51,52,55-59,61,65,67</sup>	22 (63*)
	Daily care plans developed and presented during rounds (eg, daily goals, discharge plans, or orders placed) <sup>1-3,23-26,28-35,38-41,43,51-59,61,65,67-71</sup>	36 (100)
Rounding process: after rounds	Postrounding activities (eg, follow-up with family during the day or midshift huddles) <sup>1,26,35,55,67,69</sup>	6 (17)
Delivery methods	Use of plain language explicitly by the care team emphasized <sup>1,2,26,29-31,35,40,43,55,58,61,69,70</sup>	14 (39)
	Teach-back to residents and/or family used for understanding explicitly referenced <sup>1,26,31,69</sup>	4 (11)
Process artifacts	Written version of daily care plan and/or goals made available to family (eg, paper or whiteboard) <sup>1,28,30,31,33,38,41,51,55,56,68,70</sup>	12 (33)

<sup>a</sup> Limited to university-affiliated site studies (*n* = 35).

including adherence to the FCR protocols (Supplemental Table 9).

In 39 studies, researchers identified clinician and/or family barriers to FCR engagement and adherence. The total aggregate estimated sample count for these studies was 2600 (range: 5–310) clinicians and 2650 (range: 5–461) patients. The primary study methods include 32 qualitative descriptive studies (evidence hierarchy rating: VI) in which researchers identify actual or suspected barriers to clinician and patient FCR use, along with 7 quality improvement studies (evidence hierarchy rating: IV) in which researchers captured information on clinician and patient barriers to FCRs (Supplemental Table 9).

A total of 22 studies were designed to test the implementation of FCRs and related strategies with outcomes, including clinical team and family participation, FCR protocol adherence by clinicians, health care resource use, and family satisfaction. The total aggregate estimated clinician

sample count for these studies was ~1950 (range: 2–1224), and the total estimated patient sample count was ~7800 (range: 13–3106). The primary study methods include 4 qualitative descriptive studies (evidence hierarchy rating: VI) and 16 pre-post and quality improvement studies (evidence hierarchy rating: IV) in which researchers measure the impact of the implementation strategy on adherence or other related outcomes. In 1 small controlled prospective cohort study (evidence hierarchy rating: III), researchers measured the effect of FCR training of medical teams on adherence to the FCR protocols. In 1 cluster-randomized trial (evidence hierarchy rating: II), researchers measured the impact of an implementation strategy on adherence to FCR checklist elements (Supplemental Table 9).

### Designing and Implementing FCRs

Meaningful variation was observed across the studies in defining what constitutes

FCR. In 32% of the total studies (*n* = 17),<sup>7,27,36,37,42,44–50,60,62–64,66</sup> researchers did not define the specific FCR intervention being studied or provided only a high-level definition: most commonly that FCRs involve interdisciplinary rounds with active participation by the patient and family in the development of the care plan. For studies in which researchers provided a detailed description regarding the elements of an FCR intervention (*n* = 36), the most common elements explicitly identified and fully referenced in Table 2 include conduct of daily rounds generally at the patient bedside by using a multidisciplinary team (100%), including physician trainees and/or students (97%) and a bedside nurse (100%), along with other hospital staff (83%). The care team uses a standard presentation format that includes defined roles, speaking order, scripts, or checklists (78%) and specifically includes opportunities for active nurse participation (72%). Before

**TABLE 3** Frequency of Explicitly Identified Barriers to Adherence to FCRs (*N* = 39 Studies)

CFIR Domain	Barrier	<i>n</i> (%)
Individual	Families and patients <sup>2,3,7,23,24,26,29,30,33,36,37,39–43,44,45,48,49,51,53,55,60–62</sup>	26 (67)
	Attending physicians <sup>3,7,24–27,36,37,39,40,48,51,53,56,59,60,62,63</sup>	18 (46)
	Nurses <sup>3,7,23,24,26,27,36,37,39,44,47,48,51,54–56,60,63,68</sup>	19 (49)
	Trainees (physicians and/or students) <sup>3,7,23,25,27,36,39,40,44–46,48,50,51,53,55,57–59,62</sup>	20 (51)
Intervention	Variability of rounds approach (eg, timing, roles, and/or content) <sup>3,7,23,25–27,29,36,40,43,45–48,53,55–62,64</sup>	24 (62)
	Duration and efficiency of rounds <sup>3,7,23–25,27,29,36,37,39,40,45,46,49,53,55–62,64,65</sup>	25 (64)
	Sensitivity to the patient situation <sup>3,7,23–25,27,37,39,40,43–46,49,50,58,62</sup>	17 (44)
	Family concerns about speaking and/or participating in rounds (eg, need for interpreter services or team size) <sup>2,3,7,24,26,27,29,33,37,40,41,43–45,48,49,53,55,58,60–62</sup>	22 (56)
	Trainee discomfort and/or concerns with FCR <sup>3,7,23–27,45,46,49,57–59,61,63</sup>	15 (38)
Inner Setting	Clinician and hospital staff availability (eg, staff workload and/or scheduling conflicts) <sup>7,36,47,53–56,61–63</sup>	10 (26)
	Aspects of physical environment <sup>7,24,25,27,36,37,40,45,53,54,58,62,64</sup>	13 (33)
	Routine alignment and coordination (eg, workflow changes) <sup>2,7,24–27,29,36,37,39,41,44,48,49,53,54,56,58,62,63,65</sup>	21 (54)
	Distractions during rounds (eg, multitasking and/or interruptions) <sup>25,26,36,37,39,40,53,58,62,64,65</sup>	11 (28)
External setting	Family availability and attendance on rounds <sup>7,23,27,29,33,36,39,40,48,51,53,56,58,61,62,75</sup>	16 (41)
Implementation	Poor site planning and execution <sup>63</sup>	1 (3)

rounds, families are formally invited to attend (86%) and encouraged to actively participate during rounds (94%). A daily care plan that might include daily goals and discharge plans is developed and presented by the care team during the rounds (100%), with family preferences integrated into the plan (69%). Bedside teaching of trainees occurs (63%). The use of plain language by the clinical care team is explicitly emphasized during the clinical encounter (39%) to increase family understanding. A written version of the daily care plan (eg, paper or whiteboard) is made available to families (33%). Studies were focused primarily on FCR activities before and during rounds. In 6 studies (17%), researchers included elements that occur after the FCR.

Given the variation in what constituted FCRs in these studies, measuring the incidence of adherence to FCRs or improvement in adherence across studies was difficult. In 14 studies, researchers reported family attendance rates in FCRs, with rates ranging from 17% to 94% (median rate: 57.5%).\* In 6 studies, researchers reported nurse attendance rates ranging from 36% to 90% (median rate: 73.5%).<sup>1,37,47,53,54,67</sup>

\*Refs 1–3, 7, 24, 34, 39, 51–53, 60, 64, 65, 67.

### Barriers to Implementation of FCRs

Multifactorial barriers to consistent, high use of FCRs were grouped by CFIR and included individual, intervention, inner-setting (organization), and external-setting barriers, as summarized and referenced in Table 3.

#### Individual

Physicians and students believe that FCRs promote strong alliances with patients and families, allow for better information exchange and collaboration with families, and improve patient satisfaction overall. This is tempered by a persistent perception by some clinicians that FCRs are less efficient than traditional rounds and not superior for trainee development. Low self-efficacy also limits trainee engagement in FCRs, with trainees expressing concern with having to learn in front of family members. Nurse attitudes regarding FCRs and the desire to participate in FCRs remain positive, with the perception that FCRs promote stronger alliances with patients and families. Patient and family attitudes regarding participation in FCRs remain positive in both limited-English proficient (LEP) and non-LEP families. However, evidence exists that some families do not want to attend FCRs or lack confidence to participate,

given language or other barriers to engagement.

#### Intervention

The results of this work suggest meaningful variation in when and how FCR is conducted within and between hospitals, with variation driven by organizational differences and the priorities of each attending physician. Other variations include differences in timing, role definition, and content on rounds. The use of FCRs has been associated with a statistically significant increase in the duration of rounding, by an average of 1.0–1.5 minutes,<sup>39,67</sup> which in aggregate may meaningfully impact daily routines for clinicians and nurses, although study results vary.<sup>1,52,61</sup> However, at least 1 research team suggested that a well-executed FCR that produces a clear understanding of the daily care plan may reduce communications later in the day.<sup>67</sup> The duration of FCRs remains difficult to compare across studies, given the variation in the FCR interventions deployed. Given that rounds are often physician driven, interventions do not always provide a mechanism to notify nurses and families that rounds are beginning. Team size is also a potential barrier, given both physical constraints and feelings of intimidation families may

have with larger team sizes in the room. Studies of LEP families suggest that FCR is less effective for LEP families without the aid of interpreter services.

The introduction of FCRs can also take the focus away from the education and training of new clinicians, an important goal of rounding in university-affiliated institutions. Trainees express discomfort with FCRs for training, including concerns regarding a loss of empathy when being taught in front of the family. Trainees, in particular, do not view the patient room as the ideal environment for sharing sensitive information.

### Inner Setting

The routine alignment and coordination of FCRs with existing organization infrastructure and workflows remains a challenge in deploying FCRs. Availability is one of the primary barriers to nurse presence on FCRs. Clinician workload and scheduling conflicts among nurses remain a considerable challenge to nurse attendance. Barriers to nurse engagement and full participation include the need to multitask during rounds to address the needs of other patients, failure by the attending or resident to actively engage nurses in the FCR conversation, and sufficient time being given to the nurse to present. Interpreter services are not always provided for LEP families at the

designated rounding time because of poor internal planning and interpreter availability, limiting family engagement during FCRs.

### External Setting

The clinical care team's approach to scheduling rounds can impact family availability at the designated rounding times.

### Strategies to Mitigate Barriers and Increase FCR Use

In 22 studies, researchers referenced some form of FCR intervention that was implemented and tested by using  $\geq 1$  implementation strategies, usually designed to increase stakeholder attendance and participation in FCRs. The most common implementation strategies (Table 4) deployed before rounds included changes in care team education, formal rounding coordination and prompting, and team and family communication. During rounds, the most common strategies tested included the use of a standard presentation format for rounding (including defined participant roles, scripts, and/or checklists) to promote consistency and standardization, various visual displays to encourage family attendance and engagement in rounds, and structured observations to measure

improvement and provide coaching and mentoring of the care teams. The feasibility of telehealth capabilities was tested to support family attendance and participation in rounds. In limited studies researchers discuss postrounds strategies to increase clinician and family communication throughout the day.

### DISCUSSION

With the results of this evidence synthesis, we highlight several important findings, including existing knowledge gaps and research priorities in our understanding and use of FCRs in patient care.

Limited high-quality research exists regarding the effectiveness of FCRs and related implementation strategies. Since the AAP issued its statement, in 2 high-quality systematic reviews, researchers focused on aspects of FCRs, highlighting a paucity of robust studies designed to measure implementation and clinical effectiveness outcomes.<sup>8,10</sup> In our review, we noted a large number of small, mostly single-site quality improvement studies (see Table 1) and only 1 randomized controlled trial. No standardized methods exist for guiding the development of a robust evidence base in FCR.

To further develop guidelines for FCR use, standardized research methods for enhancing the quality and comparability of FCR studies are needed. The lack of

**TABLE 4** Frequency of Explicitly Identified Implementation Strategies for FCRs (*N* = 22 Studies)

Timing	Implementation Strategy	<i>n</i> (%)
Before rounds	Care team education <sup>1,31,38,47,51–53,55,56,61,65,67–69</sup>	14 (64)
	Formal rounding coordination and prompting (eg, rounds scheduling or use of coordinator) <sup>47,51,53–56,61,67–69</sup>	10 (45)
	Communications to care teams <sup>1,31,38,51,53,55,56,61,65,67</sup>	10 (45)
	Education and communications with families <sup>1,31,35,38,51,55,56,61,65,67,69</sup>	11 (50)
	Formal leadership engagement <sup>53,55,56,61,65,67–69</sup>	8 (36)
	Use of preround huddles <sup>31,67–69</sup>	4 (18)
During rounds	Standard presentation format for rounding (eg, role definition, scripts, and checklists) <sup>1,31,34–36,38,52–56,65,67–70</sup>	16 (73)
	Use of visual displays <sup>1,51,56,67–70</sup>	7 (32)
	Telehealth enabled capabilities <sup>66</sup>	1 (5)
	Mobile workstations <sup>38,52,56,65,69</sup>	5 (23)
	Clinician assistant used to minimize disruption <sup>67,71</sup>	2 (9)
	Structured observations <sup>1,51–53,55,56,61,67,69,71</sup>	10 (45)
	Information resources (clinical content) to facilitate rounds <sup>68</sup>	1 (5)
After rounds	Midshift huddles <sup>1</sup>	1 (5)

A particular study may use multiple strategies.

standardized methods for conducting FCR research aimed at improving patient outcomes limits study comparison and the generalizability of results. Consistent with research in other fields,<sup>72</sup> standards that enhance the quality and comparability of FCR studies are needed, including a methodologic framework broadly defining the key baseline, treatment, and outcome data and measures and minimal criteria for conducting experimental and observational FCR studies. Standards should recommend, when appropriate, the use of robust study designs for causal inference, including cluster-randomized designs<sup>73</sup> and hybrid effectiveness-implementation trials<sup>74</sup> that measure both the impact of the FCR intervention on critical patient outcomes and success of implementation strategies on adherence by using standardized trial end points. When reporting study results, published best practices for reporting quantitative,<sup>75</sup> qualitative<sup>76</sup> and mixed-methods studies<sup>77,78</sup> should be consistently applied.

The lack of a clear, consistent definition of the elements that combine for a successful FCR encounter remains a significant barrier to measuring effects. Almost one-third of the studies in the scoping review synthesis provided a minimal definition of the FCR intervention that was being evaluated in the study. When it was defined, the elements associated with FCRs varied considerably in both type and frequency, as noted in Table 2, with the emphasis on activities performed before and during rounds. In the simplest FCR approaches, researchers included ensuring that the family was invited to the existing rounds process, when they were available.<sup>48,49</sup> In more complex approaches, researchers outlined clear roles for participation for physicians, nurses, and families and what should be done before, during, and after rounds, the content, and order of presentation on rounds and artifacts generated from the rounds experience.<sup>1,28,34,55,68,69</sup> In engineered solutions, researchers often included active intervention to increase nurse and family attendance and participation as well.<sup>47,48,67-69</sup> No high-quality evidence surfaced in our scoping

review that revealed that more complex FCR designs resulted in better patient outcomes. Different FCR approaches have measurably different demands on both the medical team and family. A more robust evidence base is needed to determine the minimally necessary set of core elements required to achieve desired clinical outcomes. Multidisciplinary involvement in FCRs, including clinical team engagement with system engineers, implementation scientists, biomedical informaticists, and representative patients may be useful<sup>79</sup> to develop operational standards for what constitutes a successful FCR, starting with the most common elements summarized in Table 2.

In studies, researchers have not established that use of FCR leads to tangible improvements in clinical decision-making and, ultimately, better patient outcomes. Study outcomes emphasized patient and clinician experiences and preferences, barriers, participation levels, and adherence and satisfaction levels by using FCRs. However, limited studies in our scoping review revealed whether the use of FCR leads to improvements in clinical decision-making and, by extension, improvements in patient health outcomes. Justice et al<sup>70</sup> found that use of visual displays with patient daily goals during rounds was associated with increased team agreement on the daily patient care goals. Cameron et al<sup>3</sup> found that at least 1 member of the clinical team self-reported learning new, pertinent information from the parents during 57% of the studied rounding events. However, in the same study, at least 1 clinician noted in 32% of the rounding events that family participation limited discussion. Rosen et al<sup>52</sup> found that FCR affected medical decision-making discussions in 90% of cases. FCR has been associated with improvements in family knowledge of discharge goals and medications, varying by language spoken.<sup>2</sup> FCRs have been associated with ability to discharge before 3:00 PM and reductions in study completion time for MRIs and EEGs.<sup>80</sup> Regarding health-related outcomes, in at least 2 studies, researchers found improvements in safety, one patient-reported<sup>31</sup> and the

other in which researchers used 2 blinded reviewers to validate and categorize evidence of errors from 4 sources: daily independent chart review, reports from clinical teams and families, and a review of hospital incident reports.<sup>1</sup>

The schedule and education goals for rounding remain largely physician-centered and not family-centered by design. The rounding process is the principal mechanism in FCRs for engaging families in the decision-making regarding their child's care. However, in our study, we noted a median family attendance rate of 57.5% across studies in which researchers reported this information. Although some families place a high value on participating actively in FCRs,<sup>28</sup> that is not true for all families.<sup>3,32</sup> The timing of rounds in most organizations remains physician driven, on the basis of their availability, and may change with little advance notice.<sup>56,67</sup> This presents scheduling challenges for nurses, families, and others that want to attend rounds but may not have the flexibility needed because of important competing demands.<sup>7,37,47,53-56,62,68</sup> Interpreters as well may not be available, impacting active participation by LEP families in their children's care.<sup>43,53</sup> Another principal purpose of rounding in teaching hospitals is the education of physician learners.<sup>25,57</sup> Not all families are interested in the clinical details of their child's care or may find the rounding experience uncomfortable or intimidating in the presence of large groups.<sup>26,29,31,41,45</sup>

To increase family engagement in the clinical decision-making process, researchers may need to organically reassess the best approaches to achieving this goal, with FCRs as 1 of several mechanisms available to help families accomplish this. If use of the rounding mechanism remains the most feasible approach, we recommend that more research is needed to make the design of rounds more family centered. Scheduled rounds are associated with increased participation by the clinical care team and families and should be considered.<sup>61,67</sup>

Telehealth use can enable nurse and family participation and access to interpreters.<sup>48,66,81</sup> This has been particularly helpful, given the restrictions necessary in response to the novel coronavirus disease 2019 pandemic.<sup>82</sup> Other family-centered solutions that meet their needs should be considered, in an effort to optimize care for all patients. More systemic, structural changes in health care organizations, including staffing and workflow redesign, may require senior leadership engagement, including an assessment of the costs and benefits of more substantial changes in the design of the existing rounding process, to increase engagement.

The lack of standardized study disclosure methods described above limited our ability to fully capture and report all study characteristics. To reduce the risk of misstatement, criteria for classification and presentation of studies were developed and used for coding purposes (Supplemental Table 8) along with the use of 2 reviewers. Despite this, some subjectivity may remain in how to best interpret and classify individual study data for presentation.

## CONCLUSIONS

Family-centered approaches to care, including FCRs, are increasingly accepted by patients, families, and clinicians, although participation lags. To further develop guidelines for FCR use, standardized research methods for enhancing the quality and comparability of FCR studies are needed. This includes agreement on a clear, consistent definition of the elements that combine for a successful FCR encounter. This may require re-examining the original intent of FCRs to ensure the rounding process remains the best mechanism to achieve these goals. Structural changes in care delivery may be required to ensure the rounding process remains amenable to the needs of patients and their families.

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## Implementing Family-Centered Rounds in Hospital Pediatric Settings: A Scoping Review

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