BIRTH ISSUES IN PERINATAL CARE WILEY

Implementation strategies within a complex environment: A qualitative study of a shared decision-making intervention during childbirth

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Abstract

Background: Shared decision-making (SDM) may improve communication, teamwork, patient experience, respectful maternity care, and safety during childbirth. Despite these benefits, SDM is not widely implemented, and strategies for implementing SDM interventions are not well described. We assessed the acceptability and feasibility of TeamBirth, an SDM solution that centers the birthing person in decision-making through simple tools that structure communication among the care team. We identified and described implementation strategies that bridge the gap between knowledge and practice.

Methods: We conducted a qualitative study among four hospitals in the United States to understand the acceptability and feasibility of TeamBirth. We interviewed 103 clinicians and conducted 16 focus group discussions with 52 implementers between June 2018 and October 2019. We drew on the Consolidated Framework for Implementation Research to understand acceptability and feasibility, and to identify and describe the underlying contextual factors that affected implementation.

Results: We found that clinicians and implementers valued TeamBirth for promoting clarity about care plans among the direct care team and for centering the birthing person in decision-making. Contextual factors that affected implementation included strength of leadership, physician practice models, and quality

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improvement culture. Effective implementation strategies included regular data feedback and adapting "flexible" components of TeamBirth to the local context.

Discussion: By identifying and describing TeamBirth's contextual factors and implementation strategies, our findings can help bridge the implementation gap of SDM interventions. Our in-depth analysis offers tangible lessons for other labor and delivery unit leaders as they seek to integrate SDM practices in their own settings.

KEYWORDS
implementation science, labor and delivery, quality improvement, shared decision-making, teamwork

1 | INTRODUCTION

In the United States, approximately 80% of preventable adverse medical events are caused by failures of communication and teamwork.[1-3] Patient-practitioner communication is often cited as a major root cause of obstetric sentinel events and other adverse outcomes.[4] Globally, the right to information, informed consent, and respect for the birthing person's choices and preferences during childbirth are considered universal human rights.[5,6] Abiding by the principles of respectful maternity care, including improved communication among care teams and shared decision-making (SDM) with the birthing person, is an essential component of quality of care.[7,8]

Prior research demonstrates that investment in teamwork and communication may improve safety and patient experience.[4-9] A growing body of evidence points to SDM as an effective mechanism to operationalize shared mental models, teamwork, and communication in obstetric care.[10,11] SDM is a joint participation process in which all members of the care team, including the nurse, obstetrician or midwife, birthing person, and their support person(s), collaborate to make decisions about the care plan that are congruent with the birthing person's values and preferences.[10,12-14] SDM may also improve patient satisfaction[12,15] and safety during childbirth,[2,16,17] and reduce anxiety[12] and decisional conflict.[15,18-21] SDM is an important component of patient-centered obstetric care, as birthing people prefer to be decision-makers about their mode of delivery.[22-26] Despite this evidence, SDM is not reliably implemented in most settings, contributing to the implementation gap between knowledge and practice in health care.[27,28] Lack of clinician support, time pressure, and other contextual factors have been cited as key barriers to widespread adoption.[10,14,29,30]

TeamBirth is an SDM solution aimed at reducing these barriers by improving teamwork through mutual trust, structured communication, and shared mental models.[1,31] TeamBirth prompts and supports reliable communication

and SDM across the full care team through a patient-facing planning board, decision aids, and team huddles at key moments throughout labor. The planning board is a dry erase board present in every labor room that structures essential information, which includes the names of the full care team, the birthing person's preferences, care plans, and expectations for when the team will come together again (Appendix S1).[32] Huddles are structured full care team meetings that occur in the birthing person's room at key moments throughout labor, but most importantly on admission, when the care plan is discussed before clinical decision-making. The number of huddles each birthing person experiences is determined by their course of labor. The planning board provides structure for huddles and serves as a visual reminder of decisions. The decision aids provide clinical guidelines and structure for the clinicians and patient to participate in SDM around key decisions for labor admission and assisted delivery.

This paper examines the factors that influenced the implementation of TeamBirth. From June 2018 to October 2019, we conducted a descriptive qualitative study to assess whether TeamBirth would be acceptable and feasible for clinicians in four high-volume community hospitals across the United States. We defined acceptability as stakeholder perception of the value of TeamBirth for improving care and SDM, and feasibility as the ability of clinical teams to implement TeamBirth with high fidelity to the aims and behaviors of the intervention. We use the Consolidated Framework for Implementation Research (CFIR) to assess the acceptability and feasibility of TeamBirth across its five domains (intervention characteristics, outer setting, inner setting, characteristics of individuals, and process) and to identify and describe the contextual factors that affected implementation.[33,34]

By identifying and describing TeamBirth's contextual factors and implementation strategies, our findings help bridge the implementation gap of SDM interventions. Our in-depth analysis offers tangible lessons for other labor and delivery (L&D) unit leaders as they seek to integrate

patient-centered SDM practices in their own settings to improve teamwork, communication, and respectful maternity care.

2 | METHODS

2.1 | Study setting, population, and implementation process

We partnered with L&D units at four high-volume community hospitals across the United States to pilot TeamBirth (Table 1). These hospitals were selected because of their strong will for change, recognized need for improvement in quality of care (ie, labor management and cesarean birth rates), high capacity for quality improvement (QI) leadership, and ability to support research data collection. They had varied contextual factors that required local adaptation, including labor, delivery, and recovery (LDR) versus labor, delivery, recovery, and postpartum (LDRP) designs; differing degrees of midwifery presence ranging from no midwives to nearly half of practitioners; and varied practice models, including laborist models, private practice models, and hybrid models that incorporate both.

All sites used the same implementation pathway, which included the following steps: identify stakeholders, determine implementation team, draft a budget, develop training and communication plan, train L&D clinicians (nurses, obstetricians, midwives), recruit L&D clinician champions, launch and implement TeamBirth, and support ongoing implementation and training. Early messaging about TeamBirth in two sites (South Shore Hospital [SS] and Saint Francis Hospital [SF]) centered around SDM with the TeamBirth decision aids supporting improved labor management to reduce unnecessary nulliparous, term, singleton vertex (NTSV) cesarean birth (CB) rates and improve patient experience. After receiving feedback that staff were not motivated by CB messaging, we generated buy-in by shifting messaging

across all sites to emphasize improved patient experience. Implementation teams used nonfinancial incentives, such as posting positive feedback in the breakroom, to promote ongoing participation in TeamBirth. Some sites also used financial incentives to encourage participation in research activities. We provided significant coaching resources to support the implementation teams who carried out all TeamBirth activities. This involved weekly coaching calls for their implementation teams for 4-6 months, followed by biweekly and then monthly coaching. Data feedback on process and outcome measures was sent to sites monthly to guide their implementation efforts.

2.2 | Sampling strategy

We sampled 103 clinicians (58 nurses, 37 obstetricians, and 8 midwives) across the four L&D units implementing TeamBirth for qualitative, in-depth, semi-structured interviews (IDIs) between June 2018 and October 2019 (Table 2). Clinicians were purposively sampled by the implementation team at their respective hospital based on their clinical role, shift, and perceived level of engagement with TeamBirth (low, medium, and high). Our sampling strategy aimed to capture diverse perspectives and experiences of TeamBirth throughout project implementation. We deliberately oversampled clinicians with low and medium engagement in order to understand how to improve TeamBirth engagement among these groups. The goal of the IDIs was to capture clinician perspectives of TeamBirth throughout the implementation period, focusing on facilitators, barriers, attitudes, and contextual factors influencing their experience.

We also sampled 52 implementers of TeamBirth across our four project sites for 16 focus group discussions (FGDs) between June 2018 and September 2019 (Table 2). Implementers were those leading the implementation of TeamBirth in their respective hospitals and included clinician champions. Although the roles that comprised

TABLE 1 Site characteristics

Characteristics	South Shore Hospital	Saint Francis Hospital	Overlake Medical Center	EvergreenHealth Medical Center
Location	South Weymouth, MA	Tulsa, OK	Bellevue, WA	Kirkland, WA
Annual delivery volume	3300	4200	3600	4600
NICU level	III	IV	III	III
Number of nurses	82	68	70	112
Number of midwives	17	N/A	10	6
Number of obstetricians	25	30	31	32
% of privately insured patients	71%	54%	85%	82%

Note: Data from this table are from Management Surveys administered by the researchers at each site in 2018.

TABLE 2 Number of FGD and IDI respondents by site and role

Hospital	Focus group discussions		In-depth interviews			
	Total FGDs (N)	Unique FGD respondents (N)	Total IDIs (N)	Nurse	Obstetrician	Midwife
EvergreenHealth	3	13	21	10	10	1
Overlake	3	12	20	12	6[a]	2
Saint Francis	5	14	31	19	12	N/A[b]
South Shore	5	13	31	17	9[a]	5
Total	16	52	103	58	37	8

[a]One Obstetrician from EvergreenHealth and one from South Shore were interviewed at two time points. The duplicates are not included in this count.
[b]Midwives do not practice at Saint Francis Hospital.

TABLE 3 Phases of implementation by site

	Year 1 (2018)				Year 1 (2019)			
	Q1	Q2	Q3	Q4	Q1		Q2	Q3
South Shore	Preparation				Implementation			Sustainment
Saint Francis		Preparation			Implementation			Sustainment
Overlake				Preparation		Implementation		
EvergreenHealth				Preparation		Implementation		

the implementation teams varied by site, most teams consisted of a mix of nurses, obstetricians, midwives, unit leaders, data/quality specialists, and project managers. FGDs ranged from 4 to 12 implementers each, with many implementers participating in all FGDs at their site. The goal of the FGDs was to understand how implementation teams operationalized and socialized TeamBirth on their units over the implementation period.

2.3 | Data collection

In-depth, semi-structured interviews and FGDs were guided by the CFIR framework, an implementation science framework that includes acceptability, feasibility, and contextual factors for project implementation. Draft IDI and FGD guides were mapped to CFIR to identify gaps. Additional questions were added to the guides based on the CFIR framework when the team determined that the CFIR construct was relevant to the research questions.[34]

TeamBirth implementation timelines were staggered across sites so that the study team could devote sufficient resources to support each site's preparation phase (period when TeamBirth was launched and socialized) and to be able to iteratively incorporate lessons learned into subsequent sites' implementations. The implementation phase is the time period in which the researchers provided consistent implementation support to sites. Sites transitioned to the sustainment phase after regular support from the

researchers ended. Two sites (SS and SF) had longer engagements with TeamBirth (period between preparation through sustainment) and thus more opportunities for data collection (Table 3).

2.3.1 | Preparation phase

Our data collection strategy and aims varied by implementation phase.[35] During the preparation phase, our goal was to capture early learnings to adapt TeamBirth to meet the contextual needs of each hospital. To meet this goal, IDIs and FGDs during the preparation phase were conducted at frequent intervals based on availability of clinicians by means of phone or secure video application (BlueJeans). One hospital (SS) was located in the same state as the researchers, so FGDs were conducted in-person. Two researchers (one interviewer and one note-taker) were present during these IDIs and FGDs. Coordinating frequent IDIs during the preparation phase placed a high administrative burden on site teams, and this approach was not sustainable for the long term.

2.3.2 | Implementation and sustainment phases

During the implementation and sustainment phases, our goal was to capture deep implementation learnings for

future use. To meet this goal, several FGDs and IDIs were conducted in-person at discrete time points (May and September-October 2019) at each hospital, each led by one interviewer. Across all phases, the average length of the FGDs was 75 minutes and the average length of IDIs was 39 minutes. Verbal consent was obtained for each IDI and FGD.

3 | ANALYSIS

3.1 | Preparation phase

We used a rapid qualitative approach for all IDIs and FGDs during the preparation phase to incorporate learnings into implementation.[36,37] IDIs and FGDs were audio-recorded for reference as needed, but not transcribed for analysis. The research team developed a deductive codebook based on the IDI and FGD guides, which were directed by the CFIR framework. Researchers used an Excel spreadsheet to summarize the notes immediately after each IDI or FGD, with each column representing a theme from the codebook and each row representing a new IDI or FGD.

3.2 | Implementation and sustainment phases

During the implementation and sustainment phases, IDIs and FGDs were audio-recorded, transcribed, and coded in NVivo by three researchers (LS, EB, and JM). The summarized notes from the preparation phase were also coded in NVivo to integrate the data from all the phases. The research team used a refined version of the codebook from the preparation phase, which included additional inductive codes that captured emerging themes. Ten percent of interviews were double-coded. Coders reviewed codes weekly and reached consensus through discussion. Once coding was completed, researchers reviewed each code and grouped excerpts into subthemes within each code. Researchers then counted the distribution of responses within each subtheme by hospital and stakeholder group to understand similarities and differences across groups.

4 | RESULTS

We identified 33 parent themes and 95 subthemes. 29 of the 33 parent themes mapped onto the CFIR framework, including the characteristics of individuals, inner setting, outer setting, intervention characteristics, and process

(Appendix S2). The themes that did not map onto CFIR captured reflections on the data collection process and the future of TeamBirth. In this section, we report our findings by CFIR construct, focusing on characteristics of individuals, inner context, and outer context. Two constructs, intervention characteristics and process, contain implementation strategies and are presented as part of Tables 4 ("Considerations for implementation") and 5 ("Examples").

4.1 | Characteristics of individuals

TeamBirth implementation relies on individual values and roles. This section explores how characteristics of individual participants in TeamBirth affected implementation.

4.1.1 | Stakeholder roles

TeamBirth's success hinged on the involvement of, and interactions between, the stakeholders who comprised the care team, which included the birthing person, support person, nurse, and practitioner (either a midwife or obstetrician). See Table 4 for an overview of each care team member's role in TeamBirth interactions, and particular considerations for implementation raised by respondents.

4.1.2 | Perceived value of TeamBirth

Clinicians (defined as nurses, obstetricians, and midwives) and implementers primarily valued TeamBirth for promoting clarity about the care plan. Clarity was achieved through transparent communication, documentation of the care plan on the planning board, and full care team huddles, which led to full team participation and SDM. In particular, clinicians felt that TeamBirth enabled them to provide patient-centered care by increasing patient engagement and participation in the decision-making process. Respondents felt that TeamBirth promoted safety and consistency, reduced patient anxiety, and improved overall patient satisfaction with their childbirth experience.

> It's a lot more open dialogue in general from patient, provider, nursing provider, really putting more transparency in your decision making. Just more information available to the patient and the nurse so that everyone can contribute their two cents to the conversation.

TABLE 4 Care team roles and considerations for implementation

Care team member	Role in TeamBirth interactions	Considerations for implementation
Birthing person	The birthing person was at the center of their L&D experience. They were involved in care discussions and decision-making, and were encouraged to be an active part of the team, ask questions, and use TeamBirth tools, such as the planning board, to understand their care plan and labor progress, and to communicate their preferences to clinicians on their care team "…I think it's been really empowering to the patient to feel like they do have a voice and that they can use that voice in communicating sort of what they want….I feel like I've heard patients say, you know, I just felt so much more informed. I felt like I had a say in what was happening." (Nurse, Saint Francis Hospital)	• The birthing person's personal desire to be involved in the birth process may affect their level of engagement in TeamBirth. Clinicians perceived that most, though not all, birthing people had a strong desire to understand their own birth story and felt that TeamBirth tools facilitated this • TeamBirth may be beneficial for birthing people who are anxious about labor and delivery. Clinicians noted that many birthing people came in with birth plans. TeamBirth allowed birthing people to share their birth plans with the entire care team in a transparent way, which they felt eased patients' anxiety • TeamBirth may be beneficial for birthing people who are primiparous and who have a long labor, as planning boards created opportunities to educate patients about their labor progress in a structured way • Socialization of TeamBirth during prenatal care may improve shared decision-making during labor and delivery
Support Person(s)	Support person(s) were often "advocates" and "coaches" for the birthing person. They were often involved in the birthing person's decision-making, which involved asking questions and talking through decisions with the birthing person's clinicians "… We had one patient that spoke at the dinner, I think…she didn't remember much about the white board updating but her husband was like, "No. It was constant, like you were doing it all the time'. So…she relied on him to kind of…keep up with what's going on…" (Implementer, South Shore Hospital)	• Support people may be most engaged in TeamBirth when they are included in huddles and asked to support the birthing person by writing on the planning board
Nurse	Nurses were seen as the "glue" for keeping other staff and practitioners motivated and engaged, and for facilitating TeamBirth behaviors. Nurses often initiated huddles and use of decision aids and the planning board, taking on the role of educator to ensure that birthing people understood what was happening and why decisions were being made. Nurses often assumed the roles of patient advocate and coach, for example, by providing birthing people with an opportunity to express their concerns and desires and by writing the birthing people's preferences on the planning board for other care team members to see "The majority of our physician colleagues need prompting to sort of stay on task with the board… It's not that they're not speaking to the patient or answering the patient's questions. It's just that that board being updated, I feel like a lot of times, I'm like, 'Oh, while we're all here, let's quickly update our board or let's review the board'." (Nurse, South Shore Hospital) In addition to participating in TeamBirth interactions, charge nurses often took the lead in socializing TeamBirth across the unit and observing huddles to provide feedback	• The TeamBirth model was seen as compatible with the nursing philosophy of patient-centered care. Messaging around patient-centered care can motivate engagement among nurses • Newer nurses may be more open to adopting TeamBirth than tenured nurses. Across all clinician groups, understanding who are the early versus late adopters on a unit can inform socialization and implementation strategy • Nursing leaders (such as charge nurses and nurse managers) can provide less-experienced nurses with support, such as scripts and modeling, for initiating huddles and difficult conversations with practitioners

(Continues)

TABLE 4 (Continued)

Care team member	Role in TeamBirth interactions	Considerations for implementation
Practitioner (obstetrician and/or midwife)	The practitioner played the role of the medical expert and driver of the care plan during TeamBirth interactions. Their involvement was often linked to major interventions or changes to the care plan "I think if it's a major change in the course that could potentially change the delivery, the course of delivery and how we're going to get to that vaginal birth...[the] provider needs to be there." (Nurse, Overlake Medical Center & Clinics) **Obstetrician**: Obstetricians were the most common practitioner type at the pilot sites. Obstetricians who were highly engaged in TeamBirth often initiated huddles, particularly at key decision points (eg, induction, breaking water) but were less likely than nurses to write on the planning board **Midwife**: Midwives were described as having strong communication skills and good relationships with patients and nurses, making them advocates for their patients' needs among obstetricians "In midwifery care, the goal is for the patients to already be in a trusting relationship with us, knowing that their views and desires, and hopes, and concerns have already been heard. And so that trust is already established." (Midwife, EvergreenHealth Medical Center)	• A practitioner's individual labor management style, practice model, and past clinical experiences can affect TeamBirth adoption • Identify practitioner champions early on who practice well in a team-based model and value patient engagement to promote TeamBirth among their peers

And putting all of that together to make the right plan for that particular patient's labor.
(Obstetrician, Saint Francis Hospital)

When specifically asked about harm, the majority of respondents did not perceive any harm associated with TeamBirth for patients or clinicians. A few respondents speculated that TeamBirth could take time away from other clinical activities, overwhelm patients with information, divulge sensitive patient information on the planning board, or cause frustration and anxiety if the patient's expectations about labor and delivery were not met, but they did not report personally experiencing these harms.

4.2 | Inner and outer settings

A diverse set of contextual factors influenced the acceptability and feasibility of TeamBirth. We present contextual factors organized by CFIR constructs, which are grouped by inner and outer settings. We define the inner setting as factors within the individual L&D units and private practices that work within each hospital. These constructs examine feasibility (organizational readiness and structural characteristics) and acceptability (implementation climate). We define the outer setting as factors that influence implementation from outside the hospital setting. Outer setting constructs explore feasibility and include cosmopolitanism and external policies and incentives. In Table 5, we present the implementation strategies associated with each construct that emerged from interviews, along with the most commonly cited examples. We further expand on these contextual factors in the text.

4.2.1 | Inner setting

Organizational readiness for implementation
As with other QI initiatives, leadership commitment and regular data feedback were key components of supporting TeamBirth implementation.[38] Leadership mandates and resource mobilization were seen as key facilitators for implementing and incorporating TeamBirth for the long term into hospital culture. Patient feedback was reported as particularly helpful for promoting buy-in and engagement with TeamBirth. For example, some clinicians who were initially hesitant reported that positive patient feedback (gathered through rounding or patient feedback surveys) motivated them to continue using TeamBirth because of the impact on patients' experiences.

TABLE 5 Contextual factors and implementation strategies

Contextual factors[a]	Implementation strategies	Examples
Inner setting *Factors within the individual L&D units and private practices that work within each hospital*		
Organizational readiness for implementation Tangible and immediate indicators of organizational commitment and readiness to implement TeamBirth	**Leadership commitment:** Leadership must prepare for, promote, and support TeamBirth implementation **Regular data feedback:** Implementation teams should incorporate regular data feedback into implementation. Data feedback (particularly of patient experience measures) serves to garner buy-in and improve TeamBirth implementation	• Have a visible presence from an executive sponsor in meetings and on the unit throughout the implementation period can improve buy-in and sustainability • Allocate the resources necessary for implementation, including human resources; materials, such as planning boards, markers, decision aids, and speakerphones if applicable; and time and space for training • Motivate teams using data on patient experience, which can be collected through formal metrics (eg, patient surveys, HCAHPS scores) or received as verbal feedback during daily rounds (by charge nurses and leadership) from patients reflecting on the experience before discharge. Patient experience surveys were noted by implementation teams as being particularly motivating to clinicians • Share positive anecdotes and small wins, especially related to patient experience (eg, at department meetings) • Use data from frontline clinicians and patients, such as input from a suggestion box or survey results, to inform adaptation of TeamBirth to the hospital's particular context
Structural characteristics Structural characteristics of labor and delivery units, including practice models, hierarchies, and staffing ratios	**Local adaptation for structural characteristics:** Implementation teams should adapt TeamBirth for situations or contexts in which the practitioner is not present on the unit, when units are understaffed, and when units are busy	• Prioritize huddles with the full care team at key moments (eg, admission, change in care plan, emergencies, and before delivery). Huddles at key moments were perceived by some to reduce overall work burden a. Meet with an abridged care team (eg, nurse, birthing person, support person) for more regular updates (in between "key moments.") • When the practitioner is not physically present on the unit, use speakerphones as a virtual alternative to an in-person huddle • Use the planning board to communicate with other clinicians (eg, when covering other patients, during shift change) when there is not time to huddle

TABLE 5 (Continued)

Contextual factors[a]	Implementation strategies	Examples
Implementation climate Work culture within L&D units before and during TeamBirth implementation	**Teamwork and communication culture:** Units should promote a culture of teamwork, communication, and psychological safety to enable TeamBirth implementation	• Assess your site's culture of teamwork and communication. Consider challenges your site may face because of hierarchy and power dynamics and develop implementation strategies to address these dynamics • In hierarchical cultures, support nurses to initiate huddles by training, modeling, and sensitizing TeamBirth among nurses and practitioners (eg, inviting peers to "try" TeamBirth to encourage engagement)
	Learning climate and receptivity to culture change: Leadership and implementation teams should support a learning climate and receptivity to culture change by regular and transparent feedback opportunities for frontline staff and building prompts into the system	• Nurture a learning climate over time by integrating QI into practice (eg, making QI projects a standing agenda item in regular staff and unit meetings) • Foster a culture of continuous improvement by creating learning loops to inform improvements (eg, assign a staff member or manager to listen to and incorporate clinician feedback about TeamBirth into implementation) • Add visual or other reminders within the labor and delivery rooms, such as notes on the unit phones, to remind the care team to huddle
	Compatibility of TeamBirth messaging with clinicians' norms and values: Implementation teams should emphasize TeamBirth's compatibility with clinicians' preexisting norms and values around teamwork, communication, and patient experience to motivate participation	• Provide clear and consistent messaging about TeamBirth as an intervention to improve patient experience and shared decision-making. Although TeamBirth was initially framed as a project to reduce NTSV CB rates, clinicians did not find this messaging compelling. We shifted messaging across all sites to focus on improved patient experience. This better reflected our study's primary aim and aligned more with clinician values • Educate on the connections between improving teamwork and communication and improving patient satisfaction and health outcomes • Adapt the "flexible" components of TeamBirth (eg, language and format of the planning board, timing of the huddles) to local context to promote compatibility
Outer setting Factors outside the hospital setting that affect TeamBirth implementation		
Cosmopolitanism The degree to which TeamBirth implementation teams are networked with other TeamBirth implementers	**Relationships with other implementation sites:** Implementation teams should seek opportunities for knowledge exchange with other TeamBirth implementers. Cosmopolitanism (or being part of a larger community) enables teams to share best practices and lessons learned	• Provide opportunities to mentor and/or share knowledge with other implementation sites • Implementing partners should provide in-person support when possible
External policies and incentives External policies, mandates, regulations, and guidelines that affect TeamBirth implementation	**External policies and incentives:** Implementation teams should be aware that external policies and incentives (like insurance payment schemes) can influence the willingness of hospital leadership and clinicians to adopt TeamBirth	• Assess external pressures from other health systems' stakeholders (eg, insurance companies)

[a]Contextual factors are adapted from CFIR constructs.[34]

Initially, I was kinda hesitant, and this is so awkward, it puts me out of my comfort zone. But then when you hear some of the patients' statements over in postpartum....it just was like, 'Okay, well, this isn't just silly, it's working in some way. The patient seems more involved in their care'.... So it made you feel like, 'Okay, we can continue to do this', versus I think if we didn't have the results we did, I think it'd be very hard to continue or make that part of your practice.

(Nurse, Saint Francis Hospital)

Structural characteristics

Practice models. Practitioner practice model was an important contextual factor that influenced the availability or willingness of the practitioner to participate in TeamBirth. Clinicians from all four sites reported that the private practice model was a challenge for implementing TeamBirth with fidelity, as practitioners were often expected to see patients in the clinic while managing labor of patients in the hospital (sometimes miles away), making it difficult to huddle during the day (while at clinic) and at night (while home).

It's super easy if the practitioner is there in-house to say, 'Hey, can you come to the bedside and do a huddle?' versus [when] they're at the office and, 'Can I interrupt your office hours and do [a huddle] on the phone?'

(Nurse, Overlake Medical Center)

To make TeamBirth more feasible within this practice model, most sites adopted remote "speakerphone huddles" to allow practitioners to participate in huddles while they were not present on the unit. Although some obstetricians reported that speakerphone huddles could be "disruptive," nurses reported a reduced workload for obstetricians because of fewer calls from the nurse when the team was well coordinated through the TeamBirth structure.

The doctor is getting less phone calls from us and then the patient is feeling that empowerment to be a part of it. And then the nurses aren't the go between, which is, I think, what always used to be usual.

(Nurse, EvergreenHealth Medical Center)

In addition, some sites adapted TeamBirth so that the direct care team huddled only at key moments when the practitioner was more likely to play a role (eg, admission, change in care plan, emergencies, and before delivery), whereas an abridged care team (eg, nurse, birthing person, support person) gathered for more regular updates.

Nursing ratios and staffing. Nursing availability also emerged as an important contextual factor for TeamBirth. Some hospitals reported severe nursing shortages, which made it difficult for nurses and practitioners to align their schedules long enough to huddle and fill out the planning board as a team. TeamBirth huddles and planning boards were reportedly used less often when units were busy because of high patient volume.

Usually I do try to go in with the nurses. But sometimes they are busy...I don't always do [the huddle] with the nurses and the patient together. I don't have time to wait 'cause I have to keep going.

(Obstetrician, South Shore Hospital)

However, a couple of clinicians reported using the planning board to communicate with other clinicians if they did not have time to huddle.

Implementation climate

Teamwork and communication culture. All stakeholder groups identified the culture of teamwork and communication as a key enabling factor for implementing TeamBirth. Psychological safety is an important prerequisite for teamwork around patient safety and communication.[39] At hospitals where we noted less psychological safety, some nurses felt "uncomfortable" initiating huddles, citing examples of when huddles created tension with practitioners. This dynamic sometimes led to "prehuddles," in which nurses and practitioners initially met without the birthing person to get "on the same page" before huddling as a full care team. Despite these challenges, several clinicians noted that TeamBirth enabled a better environment for teaming by creating space for "sharing control" between nurses, practitioners, and birthing people. Respondents also noted that TeamBirth helped to empower nurses and give them more of a voice in patient care.

It makes the patients be collaborative and part of the process. Years ago, patients had no say. I've been doing this for a long time and [it] used to be [that] the doctor and the nurse would walk in the room and go, 'we're going to do this, this and this'. And they'd have no say. Now they have a say.

(Nurse, South Shore Hospital)

I think it [TeamBirth] makes the nurses feel like they're also on an even playing field with

us. They could ask us questions about what we're choosing and they can make great recommendations. I don't think nurses at every hospital feel that way.

(Obstetrician, EvergreenHealth Medical Center)

Learning climate and receptivity to culture change. An existing culture of learning and QI increased receptivity to TeamBirth implementation. Clinicians described culture change as a "slow creep," requiring time to break old habits and adopt new practices across an entire unit, especially when they were busy.

We haven't been doing it long enough to make it standard work...I feel like [we] just need another six months and it would become just standard work. [I] think a year and half to break bad habits is what it takes.

(Implementer, EvergreenHealth Medical Center)

Several strategies emerged that enabled behavior change, for example, visible senior leadership support, continuous and transparent feedback loops (eg, creating space for clinicians to provide feedback and having a mechanism in place to respond to feedback), local adaptation, and visual cues to remind clinicians to huddle all facilitated adoption of TeamBirth behaviors.

Compatibility of TeamBirth messaging with clinicians' norms and values. Respondents almost unanimously perceived that TeamBirth aligned with their norms and values around communication, teamwork, and shared decision-making. The compatibility of the messaging of TeamBirth with these values was important for motivating behavioral change. Some clinicians, particularly obstetricians, did not buy into TeamBirth's original messaging about reducing unnecessary NTSV Cesarean birth rates, whereas others felt motivated (and some pressure) to reduce their CB rate. TeamBirth was ultimately reframed to emphasize its value as a teamwork and communication intervention to improve patient experience, which resonated more with clinicians. Respondents across all sites also noted ways in which TeamBirth either aligned with their existing practices, such as dry erase board use and multidisciplinary teamwork, or the way they aspired to practice, such as including birthing people in decision-making.

Overall I think [TeamBirth is] helpful in slowing us down a little bit to really make sure that we're providing the human part of the care, like the communication, and not just the

medical care. And I think most providers value the human part and the communication. You know, we all think most providers value good communication with the patients, but when you're in the middle of running around doing a bunch of stuff, you don't always remember to prioritize it. And I think that at the end of the day...when you know you've communicated well with your patients, you end up feeling better about what you're doing.

(Obstetrician, South Shore Hospital)

The majority of implementers perceived TeamBirth as easy to incorporate into the existing workflow. To further facilitate compatibility, sites adapted the tools to fit their unit while maintaining the TeamBirth core design and practice principles.

We've also changed from 'Maternal' 'Fetal' to 'Mom' 'Baby' [sections on the labor and delivery board]. We really did not like 'Next Assessment' because it automatically prompted a conversation of, you know, we're continuously ongoing assessing you, it's not like we're assessing again in 2 to 3 hours. So we modified that to say 'Next Huddle'.

(Implementer, Saint Francis Hospital)

However, some obstetricians reported feeling that they were already strong communicators, knew their patients' preferences, or had low cesarean birth rates. They similarly felt that huddles could be time-consuming and/or redundant, with the planning boards failing to provide additional information outside the chart.

If everything's going fine, you know, it's hard for me to feel like, 'Hey, let me take five minutes to put me on speaker phone', but I mean if it helps, I'm okay with it. [It] can be a little like, 'Okay, was that really necessary?'

(Obstetrician, Saint Francis Hospital)

4.2.2 | Outer setting

Policies, relationships, and events external to the hospital setting also affected implementation, though examples varied considerably across sites. Some external factors were seen as a positive influence. For example, relationship-building and mentorship between implementation teams across hospitals were seen as important for scaling TeamBirth. A few stakeholders mentioned that positive media coverage of the project generated buy-in

among clinicians, hospital leadership, and patients. In some settings, external policies (such as anticipation of reimbursement changes among insurance companies) motivated participation in TeamBirth. In other cases, external priorities were seen as a challenge to implementation, such as licensing and accreditation visits, which redirected efforts away from implementing TeamBirth.

5 | DISCUSSION

Successful implementers of QI initiatives understand the sources and dimensions of complexity and develop intentional strategies to address them during implementation.[33] When implementing a team-based intervention like TeamBirth, one of the most important CFIR sources of complexity to consider is the multitude of stakeholders engaged and the dependencies of the interactions between them.[33] For TeamBirth, this complexity is especially salient. Unlike most QI initiatives where the patient has a passive role in the improvement efforts and the clinicians are the primary focus, TeamBirth involves active engagement and participation of the patient in QI; they have a role on the team and a voice in the SDM process. Patient feedback, both formal and informal, was the most important component of clinician engagement and support for TeamBirth. This additional critical stakeholder and the uncommonness of their involvement in these types of QI processes has implications for both feasibility and acceptability of implementation.

For TeamBirth, the dimensions of feasibility that are most complex when implementing among patients and clinicians include the CFIR constructs of the individual, structural, and intervention characteristics. Clinician practice models and stakeholder characteristics require different strategies to facilitate implementation. Local adaptation was a key facilitating factor that allowed TeamBirth to overcome these sources of implementation complexity by identifying intervention characteristics that are "core" components and necessary for implementation fidelity and those which are "flexible," allowing for adaptation to local contextual factors. This delineation supports successful integration with workflows and sustainable implementation. For example, huddles are a "core" feature of TeamBirth; however, each L&D unit adapted the format of huddles (in-person vs. speakerphone) based on the practice model and the availability of the practitioner on the unit. The fidelity of TeamBirth implementation was primarily analyzed using patient-reported data from surveys administered postpartum; a large majority of patients surveyed reported experiencing huddles (A. Weiseth et al, unpublished data, October 2020). Implementation teams should conduct small-scale testing with both clinicians

and patients to identify what adaptations are needed to align TeamBirth with local context while maintaining TeamBirth's fidelity with core principles of team-based, patient-centered care, communication, and shared decision-making.[40-42]

The acceptability of TeamBirth and other team-based QI interventions among patients, clinical teams, and implementers is often dependent on the implementation climate, unit culture, and power dynamics before and during implementation. These types of interventions are best supported by well-designed, formal, and multidisciplinary implementation teams[1,40,41] that have a strong knowledge of their implementation climate and can leverage proven implementation strategies to mitigate sources of friction. Investing in unit culture can reap enormous benefits.[31]

Units with a healthy, preexisting culture of teamwork and communication can anticipate higher acceptability of TeamBirth and can use this approach to help ensure positive team practices are happening reliably. Psychological safety is also an important prerequisite for teamwork around patient safety and communication and should be assessed when considering implementation of a team-based solution.[39] Although the literature most commonly considers psychological safety within professional or clinical teams, with TeamBirth, that ability to take interpersonal risks must be extended to the patient as well. Units without that culture may face greater barriers to acceptability among patients and clinicians, but can address this by intentionally leveraging multidisciplinary leadership and champion support to promote culture change and empower birthing people, their support people, and nurses to engage in SDM. Our findings are consistent with other studies on the impact of unit culture on patient outcomes in obstetrics.[43-48] Furthermore, establishing and reinforcing a culture of teamwork and communication through TeamBirth can not only provide a strong foundation for sustaining the intervention but may also provide a foundation for bundles and other initiatives that require teamwork for implementation and may have opportunities to more intentionally engage patients as well.[49]

5.1 | Strengths and limitations

These findings should be interpreted within the context of the broader mixed-methods study and are limited by the sample of hospitals studied (A. Weiseth et al, unpublished data, October 2020). The sites implementing TeamBirth were diverse in geography across the United States, practice models, and unit culture, but were similar in size and did not fully represent the racial and ethnic diversity of the United States as a whole. Had TeamBirth been implemented in a greater variety of hospital settings and among

more diverse populations, we would likely have encountered additional sources of complexity and learnings on SDM, implicit biases, and communication challenges among teams.

The study also used a flexible study design, inspired by the concept of adaptive design, with changes based on the stage of the project and feedback from the participating sites.[35,50] Although this allowed data collection to be optimized for the study goals and feasibility, the timing of data collection varied across the four participating sites. For the IDIs, we intentionally oversampled late adopting clinicians to understand the challenges and opportunities for improvement in the intervention and implementation, so our results may overly represent the views of these clinicians and not be fully representative of the experience of the average clinician or implementation team participating in TeamBirth.

5.2 | Conclusions

This in-depth analysis allowed us to identify and describe key contextual factors and implementation strategies for TeamBirth, an SDM intervention. Findings indicate that TeamBirth can be adapted to meet local needs while maintaining its core principles of team-based, patient-centered care, communication, and SDM. SDM could be one mechanism to implement the underlying principles of respectful maternity care.[5,6] Implementers of TeamBirth or other SDM interventions can use these findings to facilitate implementation and overcome complexities in their own settings.

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