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Creating effective teams and valuing patient-centered care to change culture and improve equity on labor and delivery: a qualitative study

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Abstract

Background Efforts to reduce cesarean birth overuse have had varied success. De-implementation strategies that incorporate change to organizational characteristics (i.e. culture) can improve adoption and sustainability. This study aimed to identify culture change strategies used by hospitals that achieved significant and sustained cesarean reduction and eliminated racial disparities in cesarean birth.

Methods Hospitals in California and Florida that (1) engaged in quality initiatives to reduce cesarean births; (2) demonstrated at least a 5% cesarean birth reduction; and (3) sustained the reduction for 18 months after participation were invited to participate. Hospitals that reduced also cesarean racial disparity were prioritized for recruitment. Qualitative, semi-structured interviews were performed with leaders, obstetricians, family physicians, midwives, and nurses providing intrapartum care. Reflexive thematic analysis and values coding were used.

Results 35 participants from 6 hospitals (3 in California, 3 in Florida) participated in interviews or focus groups. Nurse-focused strategies included: leadership demonstrating support for proactive labor support (e.g., Spinning Babies, comfort measures, nursing time at bedside); enhanced communication through inter-disciplinary team huddles; clear delineation of roles; and a chain of command that assured nurses could advocate for their patients freely and without retribution. Physician-focused strategies included regular and publicly visible feedback delivered by trusted messengers, drawing attention to successful vaginal births, and highlighting the contributions of labor support. A theme of hiring/retaining for "fit" was articulated at all hospitals, most notably, the hospital that eliminated their cesarean birth racial disparity, where "fit" was conceptualized as empathy, humanism, and a desire to meet community needs.

Conclusions This study identified specific de-implementation strategies for hospitals to change implementation context, namely culture, to achieve and sustain reduction of cesarean birth. Hospitals looking to sustain culture change should adapt strategies to align with existing clinician values, change attitudes through sharing successful vaginal births, and modify beliefs through education from trusted messengers. Strategies to reduce racial disparities should emphasize designing teams that are aware of and prioritize community needs, including hiring staff from the local community, and partnering with community-based organizations.

Keywords Cesarean birth reduction, Culture change strategies

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Background

The United States (US) has persistently poor maternal health outcomes, including severe maternal morbidity (SMM) and mortality [1, 2] and stark inequity in SMM, particularly for Black mothers and birthing people [1, 3]. Between 1970 and 2000, the US cesarean birth rate (hereafter cesarean birth) experienced a fivefold increase and, since, has not declined [4]. When medically indicated, cesarean birth is a life-saving procedure, however, in United States, this procedure is well over the threshold to optimize maternal and neonatal outcomes [5–7]. Cesarean birth is estimated to contribute to 37% of cases of SMM, more than any other clinical risk factor, disproportionately contributing to more SMM for Black mothers and birthing people [8]. Healthy People 2020 set the goal low-risk, first birth cesarean rate of less than or equal to 23.9%; however, that goal was not met, and current trends point to increasing, rather than decreasing rates [9].

Reducing cesarean birth overuse presents a unique quality improvement (QI) challenge, in contrast to other QI initiatives, such as treatment of hypertension [10] or hemorrhage, [11] because it involves addressing overuse rather than underuse or under-detection [12]. Ninety percent of variation in cesarean birth can be attributed to two indications: "fetal intolerance of labor" and "failure to progress," [13, 14] both of which are relatively subjective assessments and likely sensitive to labor and delivery (L&D) context; namely, organizational culture [15]. Considering culture in de-implementation efforts, particularly when trying to reduce inequities, remains an area with a paucity of research [16].

Hospital efforts to reduce cesarean birth have focused on measurement of a key quality metric: cesarean birth in nulliparous, term, singleton, vertex (NTSV) pregnancies, because they are considered a low-risk population [17, 18]. This quality metric varies from 6 to 69% across US hospitals, suggesting ample opportunity for de-implementation [19]. State Perinatal Quality Collaboratives (PQC), using the Institute for Healthcare Improvement's Learning Collaborative model, [20] and the Society for Maternal–Fetal Medicine Guidelines for Labor Management and Support, [20, 21] have had some impact. After 18 months of participation in a statewide quality improvement initiative, 43% of participating California hospitals met the Healthy People 2020 goal of reducing cesarean births to less than 23.9% of all NTSV births with no increase in adverse neonatal outcomes [22]. However, more than half of hospitals that actively participated in efforts to reduce their cesarean birth have not achieved the goal.

Existing implementation science research has demonstrated that changing organizational characteristics, such as culture, enhance the adoption and sustainability of an intervention, ostensibly by improving the fit between the intervention and the context [23, 24]. One potential reason for failure to achieve the cesarean birth goal, despite QI efforts, is failure to change Labor and Delivery (L&D) unit organizational culture to improve fit with de-implementation strategies. [25]. Organizational culture is defined as the interplay of organizational structure, values, climate, task organization, and individual attitudes embedded within an organization's environment [26]. Organizational culture is conceptualized as being part of the inner context of an organization, and determines, in conjunction with climate, an organization's readiness to change [26, 27]. Culture change strategies have been successful in other areas of healthcare, including decreased hospital infection rates, improved outcomes for youth in child welfare systems, and more positive attitudes towards evidence-based practices [28–30]. Indeed, baseline quantitative measures of labor culture have been shown to be predictive of successful cesarean birth reduction at hospitals attempting change [25]. However, full understanding and characterization of the strategies and actions used by successful hospitals to change their culture, and sustain the change, are lacking.

Methods

The aim of this study was to identify and describe the culture change strategies, actions, and tools, used by hospitals that were successful in reducing their NTSV cesarean births through participation in a statewide Quality Improvement Initiative. For this reflexive thematic analysis we used existing quantitative data about cesarean birth to purposively select hospitals meeting eligibility criteria and, then, conducted semi-structured qualitative interviews with perinatal leaders, physicians, midwives, and nurses at the selected hospitals.

Population/Hospital selection

We chose to study hospitals in California and Florida, as these states were the first to undertake formal statewide QI initiatives to reduce cesarean birth through state-based perinatal quality collaboratives (PQCs), starting in 2016 and 2017, respectively. Hospitals with NTSV cesarean birth above the Healthy People 2020 goal ($\geq$ 23.9%) were invited to participate in the PQCs. PQC learning collaboratives used the Institute for Healthcare Improvement's Learning Collaborative model, [31] and clinical guidelines from the American College of Obstetricians and Gynecologists, the Society for Maternal–Fetal Medicine, and the National Partnership for Maternal Safety; [32, 33] establishing a regional

mentoring structure, local champions, resource dissemination, and collaborative learning across hospitals [34].

For this study, hospitals that had "successful" and "sustained" reduction in NTSV cesarean birth were selected. We defined "successful" as reduction in NTSV cesarean birth to less than 23.9% and NTSV cesarean birth reduction of at least 5% from baseline after 18 months of participation. "Sustained" was defined as an annualized NTSV cesarean birth less than 23.9%, after 30 months.

Sampling and recruitment

We used NTSV cesarean birth and hospital characteristic data from the California Maternal Quality Care Collaborative (CMQCC) and Florida PQC (FPQC) stratified by baseline and sustained cesarean birth, geographic location (urban/rural/suburban), patient racial/ethnic distribution, and proportion of publicly insured patients to select hospitals in each state, with the goal of recruiting at total of 6 hospitals. All hospitals in the highest strata for proportion of births to Black and publicly insured patients were prioritized for recruitment, given these groups' disproportionately higher cesarean birth rates; however, after stratification, it became clear that, of the hospitals meeting the "successful" and "sustained" criteria, very few had meaningful proportions of births to Black patients. Of 18 hospitals with > 10% of births to Black patients, only 2 met eligibility criteria. We then broadened our eligibility criteria to include hospitals that had reduced or eliminated their Black-White equity gap in cesarean births regardless of the other criteria. In California, 3 additional hospitals were identified that met this criteria. At the time of recruitment, Florida hospitals were not stratifying their cesarean birth data by race/ethnicity thus hospitals that served larger proportions of publicly insured patients were prioritized in Florida.

The CMQCC and FPQC nurse and physician champions at selected hospitals were contacted to initiate participation. The champions were asked to distribute a recruitment email to all perinatal nurses, midwives, and physicians and to post recruitment flyers on their L&D units. Snowball sampling was used after each interview to identify and recruit additional perinatal clinicians for participation. Interviews were conducted via Zoom videoconferencing (Zoom Video Communications, Inc., 2013) and audio recorded. Recordings were transcribed and de-identified prior to analysis. Participants received a $50 Amazon gift card for participation. The NorthShore University HealthSystem Institutional Review Board approved the study.

Data collection

The research team developed an interview guide (see Supplementary Information) using the theoretical framework underlying an existing quantitative survey of L&D culture [35] and culture change theory [26, 36]. As these existing frameworks highlight the importance of individuals' attitudes and beliefs and unit norms that support clinicians' behaviors, interview questions were designed to elicit how units went about changing these components. The guide included questions to identify and describe specific strategies and actions used to change L&D culture, including (1) specific efforts or activities introduced as part of the QI initiative, (2) teamwork culture, including communication, psychological safety, and changes in team member interactions, (3) leadership actions and how they helped or hindered efforts, (4) incentives and motivating factors used or recommended to be used in the future, and (5) whether and what actions were taken to increase equity, specifically to reduce cesarean birth for Black patients. EWV, FC, and CW, conducted the focus groups/interviews between April 2022 and March 2023.

Data analysis

A coding team (EWV, CW, FC and SV) conducted the data analysis using a combination of inductive and deductive reflexive thematic analysis. We chose reflexive thematic analysis in recognition that, as individuals identifying strongly with the culture being studied, it is important to acknowledge and utilize this frame of reference in a rigorous way. Four investigators are physician researchers (2 family medicine, 1 maternal–fetal medicine, and 1 pediatrician), 1 is a nurse researcher, 2 are public health researchers. One self-identifies as a South Asian woman and 6 self-identify as White women. Codes, derived from existing culture change theory [36–38], were established a priori and used deductively, whereas all other codes were derived inductively. The six phases of thematic analysis were undertaken by EWV, FC, and SV, which included familiarization with the data; coding the data; generating initial themes; developing and reviewing themes; refining, defining, and naming themes; and producing a report [39]. First, each member of the analytic team read over the first two transcripts independently to familiarize themselves with the data. They then met to discuss the transcripts and agree upon the a priori deductive codes. Each member then independently coded the first two transcripts and met to discuss differences in coding and achieve consensus. Codes were added, refined, and changed as needed during the data analysis. EWV, CW, FC and SV coded the

remaining transcripts individually. Weekly sessions were held to review coding, discuss discrepancies, reach consensus, and refine and add codes. Analysis summaries were created for each individual interview and reviewed by all authors. Reflexivity was incorporated throughout the coding and synthesis of the data. Team members kept memos on their own affective reactions to the data, possible interpretations, and connections to their own lived experiences. Both semantic and latent meanings were coded.

The goal of this work was to identify culture change strategies, thus to identify latent cultural meanings, we utilized Edgar Schein's model of organizational culture. This model defines culture as the collection of attitudes, beliefs, values, and norms that exist within an organization to be taught to new members as the correct way to think and act, [37, 38]. We analyzed data through this lens. Codes were categorized by whether they were an attitude, belief, value, or norm. Then, we identified specific actions taken by hospital leaders or clinicians that were used to change these attitudes, beliefs, norms, or adapt strategies to existing values.

Results

Clinicians at 4 hospitals (2 in California and 2 in Florida) participated in focus groups/interviews and the local CMQCC and FPQC clinician champions at two additional hospitals were interviewed for a total hospital representation of 6 hospitals and 35 total participants. Of the hospitals in California, 1 met the original inclusion criteria, and 2 met the expanded inclusion criteria, though only 1 of these had full hospital participation. Table 1 shows participation by hospital and participant characteristics. Participating hospitals included 4 nonprofit corporation-owned hospitals, 1 public safety-net hospital, and 1 government-funded community hospital. One hospital served a rural community, with the remaining 5 urban, and annual birth volumes included small (< 1,000 births), medium (1,000 to 2,499 births), and large (≥ 2,500 births).

Table 2 shows the identified themes (bolded) and subthemes (italicized), classified as an attitude, belief, value, or norm, and the specific actions taken by hospital leaders or clinicians that were used to create the desired attitudes, beliefs, values, and norms.

Table 1 Characteristics of participants in focus groups and interviews

	N	%
Total	**35**	**100**
Family Physician	1	3%
Labor and Delivery Nurse	17	49%
Midwife	4	11%
Obstetrician	7	20%
Other[a]	6	17%
Race/Ethnicity		
Hispanic or Latinx		
Caucasian or White	6	17%
Not Hispanic or Latinx		
Asian	2	6%
Black or African American	4	11%
Caucasian or White	16	46%
Missing	7	20%
Age		
25–29 years	2	6%
30–34 years	3	9%
35–39 years	5	14%
40–44 years	2	6%
45–49 years	3	9%
50 years or older	13	37%
Missing	7	20%
Gender		
Man	1	3%
Woman	27	77%
Missing	7	20%
Hospital[b]		
22	8	23%
112	8	23%
82	8	23%
32	9	26%
42	1	3%
122	1	3%

[a] Other roles included Director, Nurse Manager, Surgical Technologist, Perinatal Manager, and Unit Secretary

[b] Random identifiers were used to protect confidentiality

Theme: being invested in your patients' self-determination, autonomy, and experience is synonymous with being a "good doctor" and "doing a good job" for nurses (Attitude)

Both nurse and physician participants articulated that patient experience was an inextricable part of supporting the labor process. Encouragement and flexibility in labor support, welcoming acceptance of birth plans, and other patient participatory communication of preferences during labor were reported strategies and actions related to patient experience.

Subtheme: using deliberate communication styles that reinforce prioritizing patient experience (Norm)

Participants discussed the importance of not using language that creates fear and, as a result, coercion of patients to agree to specific interventions. "We've all

Table 2 Themes, sub-themes, exemplar quotes, and actions taken by successful hospitals

Theme (A/V/B/N)	*Sub-theme (A/V/B/N)*	Exemplar Quotes	Actions Taken
Being invested in your patients' self-determination, autonomy, and experience is synonymous with being a "good doctor" and "doing a good job" for nurses. (Attitude)		"We get to be a part of these such intimate, once in a lifetime experiences for these women…they'll remember this experience for the rest of their life, and we can impact it so greatly…that is one thing with all of us that really motivates us—for these women to have the best experience…they're able to look back at that experience and not regret anything, and that's my hope when I'm taking care of them, and I express that to all them, and I think that's a lot of the women and moms and grandmothers and sisters and everybody I work with that feels the same way that's super passionate about that."	Leadership encourages (i.e. monitors and provides feedback) and enables (i.e. staffing adequately) labor support Staff are educated on birth plans and how to use them as communication tools Patients are asked their preferences during labor when entering L&D
	Using deliberate communication styles that reinforce prioritizing patient autonomy and experience. (Norm)	"Having providers and nurses that deliver accurate information to these moms, and we don't have any medical staff that use their authority, or that fear factor of, If you don't do this, your baby is going to die, because we've all heard stories of where I just feel like authority can be abused, and information can be twisted." And so, I think that's a really big deal that we don't have that in our hospital"	Clinicians complete shared decision-making trainings Clinical leaders model non-fear-based language in patient interactions
	Ensuring the Built Environment Reinforced the Importance of Patient Experience. (Norm)	"Well, we increased our stock of these supplies. Originally, we only had just maybe one or two birthing balls. And then when we saw that they were effective, now we have a whole slew of every size, and shape, and color imaginable. And we have designated spots that we keep all those things. We started off with one telemetry unit, now we have three. Ideally we actually need more than that. And just promoting the Monica, the wireless unit. And a lot of it is education and encouraging them. When we see these marked successes and staff are seeing that it's making a difference, it's their buy-in. And then on top of that, [our director] has she posts, like I mentioned, the little snippets from patients	Create labor support carts with necessary tools for non-pharmacologic labor support tools (e.g. aromatherapy, blue tooth speakers, peanut balls, massage oils, etc.) Obtain and post on the unit patient feedback regarding the things that made them feel supported during their labor
The interprofessional team effort is the best way to achieve a good patient outcome. (Attitude)		"Every time we did safety rounds, everybody would gather, we'd review the patients, we'd do sort of an SBAR on all of the patients and we talk about it, so that everybody was included in our plan and the reasoning for our plans, and that they could voice and then learn."	

Table 2 (continued)

Theme (A/V/B/N)	*Sub-theme (A/V/B/N)*	Exemplar Quotes	Actions Taken
	The nurses' role is to be at the bedside, supporting patient emotionally and physically to promote vaginal birth, and this role is valued and respected by all team members. (Norm)	"To be an active participant in the care of a successful vaginal delivery, is being hands-on with the patient. Listening to her needs, giving her massages where she needs it, involving the father. 'Dad, come here. I need you to massage mom over here.' Help her breathe, help her talk, help her focus on getting her through the pain and the labor process." "We left the color copy [of the Spinning Babies positions guide] in the physician's room where they do their documentation as well… And I often see it laying on their desk open where they're looking…they'll just usually say, 'Go ahead and spin her or do your spinning magic or whatever.' At first they would laugh…now they laugh, but they're serious."	Maximize staff trained in labor support techniques, and/or specifically Spinning Babies. Include clinical leadership and physicians Highlight success stories of using labor support to achieve succesful vaginal birth, so that team members can vicariously witness results
	Labor support results in improved patient experience and patient outcomes. (Leadership and Physician Attitude)	"[Talking about adequately staffing] People aren't anxious. They have time. They can be with the patient. They can let things… And deciding to wait and waiting to decide are not the same, right? …So you decide to wait, and you can be patient, you're checking in on your patient, she's not ignored. She's reassured. You tell her this is normal. You provide her emotional support."	Adequately staff the birthing unit such that AWHONN guidelines are met, and nurses can spend the majority of their time in the room with the birthing patient
	New team members are intentionally introduced to an inter-professional team-based culture at an early stage. (Norm)	"They start even with that interview process, and our supervisors are explaining to them how we do things in our culture and, 'We're really team led,' and, 'It's a shared governance,' and, 'We're part of all these different initiatives,' I think those are the people that are kind of drawn to our unit more."	Use interviews and orientations as opportunities to acculturate new members to team norms and interprofessional values
	A high-functioning team requires time and space for members to interact both formally and informally. (Attitude)	"The staff can provide support for each other…You can have a couple people taking a break at the same time so they can talk to each other."	Adequately staff the birthing unit such that nurses are enabled to have informal time with their colleagues Create spaces and times where team members are interacting in low-stress or informal environments Consider formal team training programs
A low cesarean rate is desirable and something to be proud of. (Belief)		"[The departmental leaders] are giving you your data for your whole practice. Those doctors that have a very low C-section rate, meet with them, discuss this metric at your monthly meetings, find out what your partners are doing that you're not doing, so that worked really well."	Leadership provides regular individualized feedback regarding cesarean deliveries and lauds those with low rates. This can include making individual provider rates public, but it also can be done with blinded rates

Table 2 (continued)

Theme (A/V/B/N)	*Sub-theme (A/V/B/N)*	Exemplar Quotes	Actions Taken
	Clinical thought leaders demonstrated and modeled the behaviors and practices themselves to other clinicians. (Norm)	"[Giving an example of modeling for a junior nurse] So [mentee], we're going to have you call [the attending physician] and let her know this is what's going on with this patient. Or if [the attending physician] is here, just being in the room at the same time as the two of them and saying, Do you think it would be okay if we started closed leg pushing and see if we can get that baby to come down?" I think sometimes just hearing from somebody that they've worked with before helps. And then modeling for the newer nurse to be able to show her how to have those conversations."	Experienced clinicians, ideally leaders or though-leaders, are on site and practicing alongside more junior clinicians
	Leadership's role is to offer concrete material support and "manage up" the organization to offer visibility to the goal. (Attitude)	"I did a little presentation to the [healthcare organization's medical executive committee] and I said, I need your help. What I'd like to do is the other outcome, quality measures, behavior, patient complaints, patient satisfaction and patient experience in the hospital, all the other metrics that we're using right now, let's include this [cesarean births] as a quality metric that they have to meet."	Birthing unit leadership engages with executive hospital leadership to make sure achieving optimal cesarean rates is incentivized and recognized as important to the organization
	Achieving low cesarean rates results in better patient outcomes. (Physician Belief)	"The nice thing, again, about my hospital is I think we give evidence based care and so if you can just look at the evidence and then that's a much easier way to educate, educate your staff, educate your midwives, educate your doctors, and say, 'This is what the evidence is showing us:'"	Provide educational trainings/grand rounds/journal clubs that highlight safe reduction of the primary cesarean as an evidence-based goal. Reiterate this with ongoing education, using trusted resources and trusted messengers
Achieving equity requires deliberately focusing on enhancing the patient-centeredness of care for minoritized patients, defined as being trauma-informed, humanistic, social determinants of health (SDOH)-responsive, and reflective of the community. (Belief)		"With the knowledge of how particularly black patients and people have been treated throughout time and the harm that has come to them, I try to be like an extra midwife with them. I would say the moment I walk into the room of a black patient, I like to really try to step up my game. And that's not to say that I'm giving less to white patients, but I think that I am trying to give the normal amount to white patients and more to black patients, because these are communities that have just gotten such a small slice of the pie throughout time and I do think that, right now they do deserve more of me. And so, I try to be extra present. I try to explain things much more. I spend more time in the room. I am more cautious about, "Do you have any questions?" And just trying to make sure that I am… And even just in regards to, obviously I'm always asking patients at any time I'm going to touch them or anything like that, but just being extra communicative about those things."	Adequately staff the birthing unit such that clinicians have extra time to spend with patients who may need additional support Train staff in trauma-informed care, recognizing implicit bias, and practicing allyship for social injustice

Table 2 (continued)

Theme (A/V/B/N)	*Sub-theme (A/V/B/N)*	Exemplar Quotes	Actions Taken
	Hiring for "fit" means preferentially hiring clinicians that focus on humanism and empathy. (Belief)	"The secret of caring for the patient is acknowledging her…Is acknowledging her humanity and her personhood and that she may make decisions you disagree with, but they're her decisions. She has to live with the consequences. You don't have to live with the consequences. She's making those decisions based on the best available information she has to herself at the time, which may not be your information. And if you think she's making a wrong decision, well, then you have to go sit back down and say, Okay, let me understand why you're doing what you're doing and where it's coming from." "We make sure that when we hire staff, we try to find someone that embodies the same vision that we have that we think would be a good fit for our unit. That support the cause and that want to work in the underserved community." "[Discussing interview questions for potential new-hire nurses] we ask about pain management for one. That would let us know about respectful care, if you're giving respectful care, if you're actually listening to the patient. You medicate a patient for pain and an hour later, she's still complaining of the same pain, what would you do? We would expect for them to say, "We would assess that patient to find out where that pain is coming from." We interviewed one person yesterday and she said something that was a red flag to me. She mentioned about drug addicts. Well, does it matter if you're a substance abuser? Pain is pain and so it's subjective. If the patient says she has pain, it doesn't matter if she's on drugs, pain is pain. We want to make sure that we medicate that patient, that we provide respectful care. It doesn't matter what her situation is, we're here to take care of that patient."	Train all clinicians and staff in trauma-informed care Use interview guides or screening questions that assess applicants' orientation to empathy, humanism, and trauma-informed care

Table 2 (continued)

Theme (A/V/B/N)	*Sub-theme (A/V/B/N)*	Exemplar Quotes	Actions Taken
	Addressing SDOH is seen as an essential part of care. (Attitude)	"we will assess if the mom has access to shelter. We do have some moms that are homeless, substance users, where they may need additional resources or maybe some type of rehab services. If they need to be placed in shelters, we do have some babies that go to foster care.We have relationships with DCFS or we collaborate with social services to make sure that our moms receive the care or the resources that they need. We also have Welcome Baby in the hospital, which is the first five, and they offer additional resources that the mom's may need.We just take in the whole consider what the patient may need. We make sure that they receive their follow-up appointments before discharge, so that they do have continuity of care once they leave the hospital."	Train all staff on the importance of both screening for SDOH needs Have resources in place with easy referral work-flows to connect patients to services
	Meeting patient and community needs, and achieving a low cesarean rate, ensures the survival of the birthing unit. (Belief)	"Our efforts were to provide services to the community where they had the option to VBAC, and have a successful vaginal delivery, and have that experience that they didn't have with their first C-section. We created policies and just created a whole culture regarding safe maternal care to the mother and to the infant. Creating policies regarding evidence-based research through ACOG and AWHONN and that's about it, basically."	Leadership assesses community gaps/needs/desires for birth care, communicates this to hospital leadership, and ensures services provided match community needs
	Making sure there is community representation in the clinicians and staff providing care (aka cultural/racial/ethnic/language concordance) is a hiring priority. (Attitude)	we hired people from the community, from competing hospitals, and I've been working there for a long time. People knew me, they were willing to come take a risk. So the hospital, the nursing staff looked a lot like the community there, bilingual. I mean, they're not all bilingual in Spanish, but a lot of them are bilingual in Spanish. Some of them are Black. Some of them came from other hospitals. And then over time, as we work more with the out-of-hospital birth providers, trying to be conscious about incorporating them, there's a collective, there's a couple of different groups that are really focused on South LA that are much more consciously the sisterhood of Black women and Black women need Black providers	Adopt community-engaged, equity-focused hiring practices to meet patients' needs

heard stories of where…authority can be abused, and information can be twisted." (Nurse, Hospital 22).

Subtheme: ensuring that the built environment reinforces the importance of patient experience (Norm)

The built environment (e.g., water therapy, designated spaces for walking) and having resources visible to patients and clinicians (e.g., posters depicting positioning exercises posted on walls, peanut balls, pre-made cards with aromatherapy, Bluetooth speakers for music, massage aids) helped to promote labor support. At two hospitals, midwives were using non-pharmaceutical labor support for their own patients, and when a non-midwife clinician highlighted their practices to other clinicians it gained traction and become incorporated across the L&D unit.

Theme: an inter-professional team effort is the best way to achieve good patient outcomes (Attitude)

Regular, structured communication meetings (e.g., safety rounds) that involved all team members and encouraged open communication were described as an important strategy to achieve good patient outcomes. All team members were encouraged to give their thoughts regarding patients' care, with flattened hierarchies and an expectation of psychological safety. Clinical leadership used these meetings to disseminate evidence-based information to increase team understanding of expected standards of care. At one hospital, these meetings were recorded as a process measure to ensure they happened regularly.

Subtheme: nurses' role is at the bedside, supporting patients emotionally and physically to promote vaginal birth, and this role is valued and respected by all team members (norm)

Nurses at all hospitals described their "hands-on" role. Several nurses, who had worked at other hospitals, noted that this was a change from their other workplaces. Leadership reported adequately staffing their units, such that nurses had time at the bedside of their patients. Peer pressure was created by holding collective meetings to "kick off" labor support trainings with an emphasis on how they were going to help patients. Trainings were sponsored by the hospital to eliminate financial barriers to participation, and to demonstrate administration's support. In many instances, both nurses and physicians attended labor support training, which promoted physicians to support nurses in their efforts and actively participate by requesting use of different techniques to help their patients. Additionally, early adopters were given time and responsibility to train others through bedside care teaching and modeling.

Subtheme: labor support results in improved patient experience and patient outcomes (leadership and physician attitude)

Leaders and experienced clinicians reported encouraging their colleagues to adopt labor support by visibly and regularly highlighting positive results from the efforts of nurses and midwives in labor support. As a result, they felt that physicians directly or vicariously witness positive results, reinforcing a positive attitude towards labor support.

Subtheme: new team members are intentionally introduced to an inter-professional team-based culture at an early stage (norm)

Nurses and physicians spoke proudly of the inter-professional team-based structures on their units, reflecting that new hires were often drawn to them for that reason. As one nurse described, "They start even with that interview process, and our supervisors are explaining to them how we do things in our culture and, 'We're really team led,' and, 'It's a shared governance,' and, 'We're part of all these different initiatives,' I think those are the people that are kind of drawn to our unit more."

Subtheme: a high-functioning team requires time and space for members to interact both formally and informally (attitude)

Creating spaces and moments where team members could take breaks from clinical care to share information and challenges informally was reported as an effective strategy. Outside of work relationships between team members were common and seen as productive to creating a more trusting and functional team. Nurses commonly referred to having a clearly delineated and physically present chain-of-command up which to take concerns about patient care. Nurses reported being confident that their nursing leaders would hear their concerns and be their advocates with physician team members. Physicians described the presence of colleagues, specifically laborists, enabled them to ask for a colleague's opinion or help, giving them confidence to continue a labor that they might otherwise have recommended to move to cesarean.

Theme: a low cesarean rate is desirable and something to be proud of (belief)

Leaders reported that making cesarean rates visible to all clinicians and including transparent sharing of both

individual and clinician group rates was important. Furthermore, they reported that meeting with physicians with high cesarean rates and/or their practice leaders to review individual provider rates and fall-out cases (i.e., cesarean deliveries that did not meet clinical guidelines for the designated indication), and charging them to, "find out what your partners are doing that you're not doing." (Physician, Hospital 22) was an effective strategy. Nursing leaders reported creating visible "leader boards" and individually rewarding/recognizing nurses who achieved vaginal births in particularly challenging cases was a successful strategy. Rewards were often simple (e.g., candy bar, small gift card, name listed on bulletin board).

Subtheme: clinical thought leaders demonstrated and modeled the behaviors and practices themselves to other clinicians (norm)

These leaders described examples of reframing clinical scenarios around the success of vaginal birth and using language that very deliberately connected best practices to support vaginal birth as providing the "best care" for patients. They also indicated that being physically present enabled the mentoring of hesitant or less experienced clinicians.

Subtheme: leadership should offer material support and "manage up" within the organization to make the goal more visible to executive-level leaders (attitude)

Leaders described providing funds for training in "Spinning Babies" or similar courses for nurses and physicians as a means of endorsing the importance of effort to change. Additionally, leaders described approaching their hospitals' executive quality boards to make cesarean rates an incentive-tied quality metric.

Subtheme: achieving low cesarean rates results in better patient outcomes (physician Bbelief)

Physicians described prior experiences of either witnessing bad cesarean-related maternal outcomes or hearing stories of mentors' experiences as impacting their practice. "You have to be involved in a really bad section, preferably a really bad scheduled repeat section, that you can't blame on what you did during the labor. And once you've been involved in a really bad scheduled repeat section, you have motivation to avoid that." (Director of Quality, Hospital 112) One obstetrician leader described how she would very deliberately *reframe* a difficult birth by pointing out all the reassuring things she was observing about a newborn to reassure learners, nursing, and pediatric clinicians after a difficult vaginal birth.

Theme: achieving equity requires deliberately focusing on enhancing the patient-centeredness of care for minoritized patients, defined as being trauma-informed, humanistic, social determinants of health (SDOH)-responsive, and reflective of the community (belief)

Participants reflected both on their knowledge of historic harm to Black women acquired through recent trainings, as well as, their approach to enhance the patient-centeredness of care that they provide to Black birthing patients. Specifically, clinicians described using trauma-informed care approaches, non-judgmental care, and care described as being, "an EXTRA midwife." Specific actions that enabled this type of deliberate shift in care included leadership providing adequate unit staffing for nursing to have significant bedside time with patients, and creating understanding of inequity, bias, and racism in healthcare, through educational programs.

Subtheme: hiring for "fit" means preferentially hiring, or internally developing, clinicians who focus on practicing with humanism and empathy (belief)

Several participants at hospital 112 discussed both the importance of hiring and onboarding new clinicians to fit with the desired culture. They articulate the need to find and/or acculturate individuals who embody a shared vision of serving the underserved community, prioritizing respectful care, and maintaining a non-judgmental attitude during care in difficult situations. Use of specific interview questions to elicit applicants' attitudes, beliefs, and norms of behavior, and including clinical vignettes, descriptions of personal stories, and requesting a physician's individual cesarean birth rate were reported as ways to assess "fit". As one nursing manager described while discussing interview questions for potential new-hire nurses, "We ask about pain management for one. That would let us know about respectful care, if you're giving respectful care, if you're actually listening to the patient. You medicate a patient for pain and an hour later, she's still complaining of the same pain, what would you do? We would expect for them to say, "We would assess that patient to find out where that pain is coming from." We interviewed one person yesterday and she said something that was a red flag to me. She mentioned…drug addicts. Well, does it matter if you're a substance abuser? Pain is pain and so it's subjective. If the patient says she has pain, it doesn't matter if she's on drugs, pain is pain. We want to make sure that we medicate that patient, that we provide respectful care. It doesn't matter what her situation is, we're here to take care of that patient."

Subtheme: addressing SDOH is seen as an essential part of care (attitude)

Participants described the importance of personally making sure that patient needs for housing, food, and other social services were met before discharge, as well as being knowledgeable about available programs and resources. Having both clinical and social work leadership at the hospital create and support on-site services and infrastructure for patients is important. Additionally, nursing and obstetric leadership articulated the importance of including SDOH as an essential part of safety rounds and assuring that SDOH issues are discussed as frequently as clinical issues. Welcoming community members (e.g., doulas, family members, and home birth midwives) into the hospital environment and involving them in patient's care was another effective strategy.

Subtheme: meeting patient and community needs and achieving a low cesarean rate ensures the survival of the birthing unit (belief)

Participants suggested that lowering their cesarean rate met the needs and/or desires of the community. At Hospital 112, offering vaginal birth after cesarean and offering midwife services to a population that traditionally did not have access to such services, achieved their goal of a low cesarean rate, which also allowed the L&D unit to remain open by increasing demand for services and fulfilling the hospital's community needs-driven mission. Participants articulated the importance of hospital administrators who created the vision, values, and goals of the hospital to achieve.

Subtheme: making sure there is community representation among clinicians and staff providing care (aka cultural/racial/ethnic/language concordance) as a hiring priority (attitude)

Leadership articulated the importance of deliberately seeking to hire clinicians and staff representative of the community (e.g., Spanish language skills, self-identified as Black or Latino, familiarity with the struggles faced by patients).

Discussion

In this study of de-implementation strategies that produce culture change in hospitals that achieved successful and sustained reduction of NTSV cesarean birth, specific attitudes, beliefs, and norms were created and reinforced with deliberate actions by existing leaders and team members. Strategies to reduce inequity strongly emphasized individual clinicians' practice of humanistic, trauma-informed care, meeting patients' SDOH needs, and developing a team that included members of the local community. The role of a non-hierarchical, communicative team structure was a strong common theme. These findings concur with prior research that has demonstrated that positive experiences at work, including interpersonal relationships and leadership engagement in supportive behaviors, and inclusiveness and openness, all lead to greater psychological safety, which in turn increases team members' learning behaviors and speaking up [40]. In the context of preventing non-medically-indicated cesarean birth, nurses in our study used their comfort with speaking up to be strong advocates for their patients; garnering more time to labor before moving forward with surgery. Physicians used their psychological safety to feel comfortable asking for, and utilizing, team members' input to try and avoid a labor dystocia.

The process of achieving culture change

Schein's theory of culture change involves a sequential system of an organization's culture "unfreezing," changing, and then "refreezing" into the new cultural norm [41]. In the stories of change described by participants, a common sequence of events occurred, starting with some sort of "kickoff" event or seminar from a trusted messenger, followed by training, changes to the built environment, and feedback of data to hold people accountable and celebrate successes. However, similar processes have been used without significant success in many hospitals trying to achieve similar results [22]. Novel findings from this study suggest the importance of using strong messaging in the information provided and behaviors modeled; using transparency and shared feedback, including sharing cesarean rates and reviewing fall-out cases; celebrating successes about the value of supportive labor; equating investment in patients' self-determination, autonomy, and experience with "doing a good job"; and creating supportive teams of nurses, midwives, and physicians who communicate and learn from each other effectively and freely without fear.

Learning from sub-cultures was an important part of the change process, as many of the attitudes, beliefs, and practices that were used to support vaginal birth were already present on units but marginalized, as exclusive to midwives or to a single nurse or doctor. "Othering" is a theory of how individuals engage with other individuals that are somehow different from them, whether it be in a way that encourages interaction and understanding ("inclusionary Othering") or encourages distance and marginalization ("exclusionary Othering") [42] .In this study, leadership's response to the sub-culture most often included inclusionary Othering, which created consciousness raising and sharing of power, rather than suppression and marginalization. When leaders and clinicians from the dominant culture used strategies that encouraged interaction and understanding, sub-culture

members felt integrated and valued within the larger culture and were willing to share their skills with others on the unit, benefiting all. In this way, the existing medical obstetrical model could, for example, co-exist with and benefit from the midwifery model of care [43]. External forces, including statewide Perinatal Quality initiatives, professional societies, and regulatory organizations, can also impact which practices and behaviors are categorized as "Other"; for example, when labor management guidelines [32] and strategies to limit intervention in birth [44] specifically aiming to safely reduce cesarean births are published in trusted journals, presented to L&D units by trusted experts through a PQC leader or speaker's bureau, or included in Healthy People goals [45].

The role of physicians

Physicians are often cited as the main resistors to changing practice [46]. It is argued that fear of liability, fear of bad outcomes, competing time demands, and entrenchment in the way one was originally trained, are too powerful to overcome with new evidence [46]. It is important to note that the physician participants in this study all practiced in states with standard malpractice laws that had not undergone any major tort reform during the study period. Notably, physicians often discussed competing attitudes and beliefs about cesarean birth by reflecting on both personal and vicarious experiences of other physicians of catastrophic birth events and attendant fear of experiencing similar outcomes. This vicarious experiencing of traumatic events is supported by prior research documenting impactful unit reactions to catastrophic individual events on L&D [47]. Personal fears of vaginal birth have been strongly associated with physicians' individual [48] and unit cesarean rates [15]. Mitigating the impact of adverse events on clinicians may lie, in part, in the deliberate use of story-telling around difficult labors that ended in successful vaginal births to allow clinicians to vicariously witness positive results. Additionally, supportive chains of command, trusting peer relationships, and the availability of nonjudgemental peer-to-peer consultation were all strategies used at these successful hospitals, and may have mitigated physicians' reactions to vicarious or witnessed traumatic events. These findings underscore the importance of having resources readily available to actively support clinical teams after traumatic events [49, 50].

Prioritizing trauma-informed care

In terms of changing organizational culture to better fit the intervention [24], these data demonstrate that a different type of care model was being prioritized at successful and sustained hospitals, namely, a trauma-informed care approach. Key principles of trauma-informed care include: safety, trustworthiness and transparency, peer support, collaboration and mutuality, empowerment, voice, and choice, and understanding cultural, historical, and gender issues [51]. Birthing patients characterize safety as both emotional and physical wellbeing which are seen as an inextricable single concept, rather than the more biomedical focus on physical health [52]. This shift in focus of a hospital's culture towards being truly invested in respecting patients' autonomy and self-determination, creating team structures that were inclusive, mutually supportive, and redistributing power and responsibility for ensuring patient well-being, and focusing on how language was crafted for transparency and choice are all demonstrations of trauma-informed care. PQCs, patients, and community members may more often refer to these care practices as respectful care [53], which conceptually shares significant overlap with trauma-informed care [54].

Implications for improving equity

Achieving equity required additional strategies to change culture to improve intervention fit. At one hospital that closed its equity gap there was a uniquely strong focus on hiring clinicians with non-judgmental, humanistic, and empathic care traits that also understood the cultural and historical issues impacting their patients' experiences. This hospital screened applicant nurses by ascertaining alignment with the mission of serving a particularly underserved and vulnerable community and whether they integrated trauma-informed care practices in their patient care. Participants from this hospital expressed a strong understanding of implicit bias and racism, and how these factors impact their patients' experiences in accessing the healthcare system. This common understanding and mission led to deliberate enhancements in care, particularly for Black birthing patients, around using trauma-informed care practices, addressing SDOH, and staffing a unit with clinicians and staff reflective of the community itself. In working towards specific goals, such as reduced cesarean births or improving birth equity, hiring managers may first need to define the requisite values, attitudes, and beliefs and then develop screening tools to screen for these desired values, attitudes, and beliefs.

Limitations

This study has limitations. As only two states had completed their efforts with enough follow-up time to assess sustainability at the start of this study, our findings are limited to 3 hospitals in California and 3 hospitals from Florida. Additionally, only 2 hospitals, 1 of which had representation from multiple roles, and 1 of which had

participation from a single clinical champion, had data on their Black-White cesarean equity gaps thus conclusions about strategies to improve equity are largely based on a single hospital.

Conclusion

Strategies that produce change in an organization's culture, thereby improving the fit between intervention and context, involve attention to the manner, timing, and persistence of actions that impact personal attitudes and beliefs, and organizational values and norms. Creating psychologically safe spaces, supportive peer and leadership relationships, and prioritizing labor support as an essential nursing role, facilitated an environment where transparent data sharing, fall-out case reviews, and sharing of successful vaginal birth stories could be implemented effectively to redefine supporting vaginal birth on these units. Trauma-informed care, as a focus of both patient care and organizational structures, was pervasive at these successful and sustained hospitals. Leadership's role in the process is essential. However, the findings also illustrate the important roles of sub-culture representatives, and experienced, respected clinicians in effecting change. Whether pre-existing within a unit but needing visibility and resources, or requiring hiring from outside, individuals that embody the desired culture need to be identified and given resources, endorsement, and time by leadership to effect change.

Abbreviations

US	United States
SMM	Severe Maternal Morbidity
QI	Quality Improvement
NTSV	Nulliparous, Term, Singleton, Vertex
L&D	Labor and Delivery
PQC	Perinatal Quality Collaborative
CMQCC	California Maternal Quality Care Collaborative
FPQC	Florida Perinatal Quality Collaborative
SDOH	Social Determinants of Health

Supplementary Information

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Supplementary file 1.

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Authors' contributions

EWV, AB, AL, and JH designed the study. EWV, FC, CW, and SV collected, cleaned, and performed initial coding of the data. All authors contributed to data synthesis after initial coding was complete. EWV and SV drafted the manuscript. All authors reviewed the manuscript and approved the final version.

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Data availability

The datasets generated and/or analyzed during the current study are not publicly available due to the sensitive nature of the dataset, the risk of reidentification of human subjects if shared publicly, and the lack of participant consent to publicly share data.

Declarations

Ethics approval and consent to participate

This study adhered to the Declaration of Helsinki as approved by the NorthShore University HealthSystem (now Endeavor Health) Institutional Review Board. This study was approved under expedited review with a waiver of signed consent. Participants gave informed consent verbally prior to their interviews, which was documented by the study team using a coded identifier.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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