Physician and Nurse Perceptions of Gentle Cesarean Birth.

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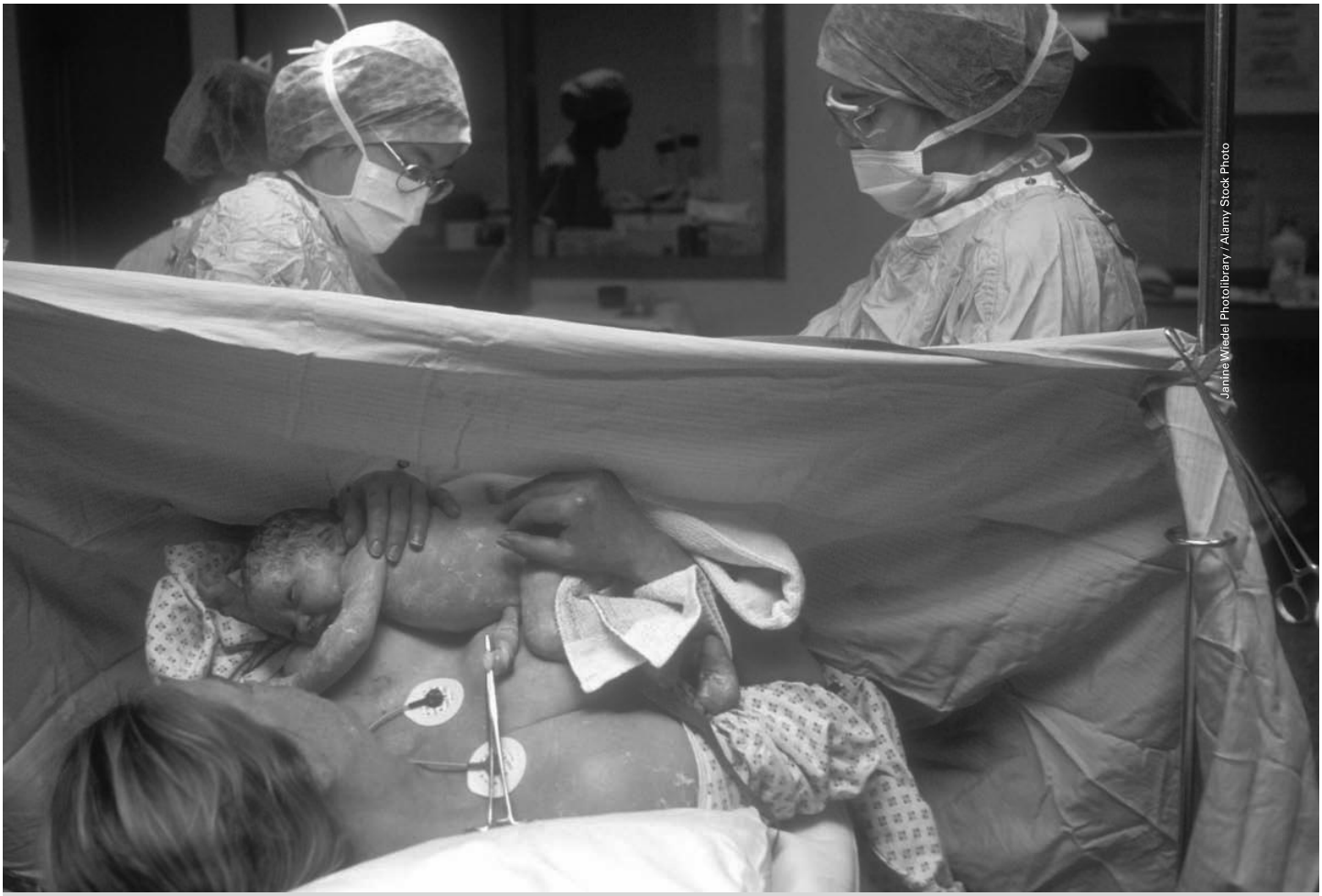
Published In/Presented At

Mercier, R. J., & Durante, J. C. (2018). Physician and Nurse Perceptions of Gentle Cesarean Birth. *MCN. The American journal of maternal child nursing*, *43*(2), 97–104. https://doi.org/10.1097/NMC.0000000000000404



Physician and Nurse Perceptions of GENTLE CESAREAN BIRTH

Abstract

Background: Protocols for neonatal care and mother–baby interaction at cesarean birth frequently differ from those at vaginal birth. There is increasing interest in adopting family-friendly or gentle protocols for women having cesarean birth. Current evidence suggests challenges in achieving interdepartmental cooperation and consensus are potential barriers to implementing gentle cesarean protocols.

Purpose: To describe how care providers' professional role and characteristics may affect perception about gentle cesarean birth techniques and inform specific concerns about protocol changes.

Study Design and Methods: A cross-sectional survey with mixed-methods analysis incorporating quantitative and qualitative conventional content analysis was used. A structured survey was distributed via email to all care providers on the labor and birth unit, including attending physicians, resident physicians in training, fellows, labor nurses, respiratory therapists, and operating room technicians. Quantitative responses were analyzed with bivariable tests and logistic regression to describe associations between provider attitudes and provider characteristics. Open-ended responses were analyzed with conventional content analysis to develop a model describing influences on overall provider attitudes.

Results: Physicians and nurses generally have positive attitudes on benefits of gentle cesarean techniques. Their perceptions overall are informed by the balance of concerns about patient safety and logistical challenges versus perceived benefits of the techniques. On an individual level, care provider demographic and professional characteristics of gender and prior experience affected attitudes more than their specific role in patient care.

Clinical Implications: Most labor and birth care providers have positive attitudes about gentle cesarean birth. Implementation of such programs should prioritize patient safety, educate physician and nurses about potential benefits for patients, and use experienced physicians and nurses as ambassadors to increase acceptance.

Key words: Breastfeeding; Cesarean birth; Gentle cesarean; Interprofessional relations; Mother–child relations; Peripartum period.

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In 2016 in the United States, 31.9% of births were via cesarean (Martin, Hamilton, & Osterman, 2017). During vaginal birth for healthy mothers and babies, generally there is a calm environment with partner support and minimal postnatal separation; however, the experience for women having a cesarean birth is frequently different (Smith, Plaat, & Fisk, 2008). At most cesarean births, the mother and partner will not observe the moment of birth, and the newborn is passed to a labor nurse or pediatric care provider, undergoes evaluation, and is wrapped prior to the family holding their baby. The mother is frequently not allowed to hold her baby and breastfeeding initiation may be well over an hour after birth. Women who have experienced cesarean birth have lower rates of breastfeeding initiation and duration, and early separation is not beneficial for the mother and baby dyad (Bystrova et al., 2009; Erlandsson, Dsilna, Fagerberg, & Christensson, 2007; Rowe-Murray & Fisher, 2002).

Hospital protocols that result in early mother–baby separation in an uncompromising perioperative (operating room [OR]) environment are intended to promote safety. Babies born via cesarean have higher rates of complications in the immediate postpartum period (Hansen, Wisborg, Uldbjerg, & Henriksen, 2007; Ramachandrappa & Jain, 2008) and are at higher risk of admission to the neonatal intensive care unit (Geller, Wu, Jannelli, Nguyen, & Visco, 2010; Kolås, Saugstad, Daltveit, Nilsen, & Øian, 2006). However, all cesareans are not equal. Risk of neonatal complications is lower in cesareans that are not performed for urgent or emergent reasons and babies born via cesarean at 39 weeks and above are less likely to experience respiratory issues. Some studies have indicated that risk for these babies is closer to that of those born vaginally (Morrison, Rennie, & Milton, 1995; Zanardo et al., 2004; Zanardo, Simbi, Vedovato, & Trevisanuto, 2004).

Recognizing that traditional standard practices may not be needed for all cesareans, some providers have begun promoting changes to cesarean birth protocols that resemble those recommended at vaginal birth. These protocols are known by several names including *Newborn-Friendly*, *Family-Friendly*, *Family-Centered*, or *Gentle* cesarean techniques. There is no uniform definition of gentle cesarean birth, but these techniques may include some or all of the following aspects. The OR environment may be made more patient-centered. The obstetrician may allow the fetal head to deliver through the abdominal incision in a more hands-off manner. The mother and partner may observe the moment of birth through clear or lowered drapes, the partner may cut the cord near the operative field, and the mother may hold her newborn skin-to-skin and initiate breastfeeding while in the OR. Nursing tasks may be done with the mother or partner holding their baby and the baby is only separated from the mother if there is a medical indication (Armbrust, Hinkson, von Weizsäcker, & Henrich, 2016; Schorn, Moore, Spetalnick, & Morad, 2015; Tillett, 2015; Wisner, 2016).

Several authors suggest that gentle cesarean protocols do not compromise neonatal or maternal outcomes, and may have benefits (Stevens, Schmied, Burns, & Dahlen, 2014). A gentle cesarean protocol including delayed cord clamping, visualization of the birth, and immediate skin-to-skin contact was associated with similar Apgar scores when compared with traditional techniques (Armbrust et al., 2016), and early skin-to-skin contact was associated with improved temperature regulation and no increase in respiratory distress (Gouchon et al., 2010; Nolan & Lawrence, 2009). Early skin-to-skin contact with mother or partner in the OR has been shown to increase breastfeeding rates (Erlandsson et al., 2007; Hung & Berg, 2011; Stevens et al.) and may improve bonding and communication (Bystrova et al., 2009; Velandia, Matthisen, Uvnäs-Moberg, & Nissen, 2010). Gentle cesarean protocols may improve maternal satisfaction with the birth experience (Armbrust et al.; Moran-Peters, Zauderer, Goldman, Baierlein, & Smith, 2014; Smith et al., 2008) and allowing early contact and breastfeeding may reduce mothers' perception of pain (Sundin & Mazac, 2015).

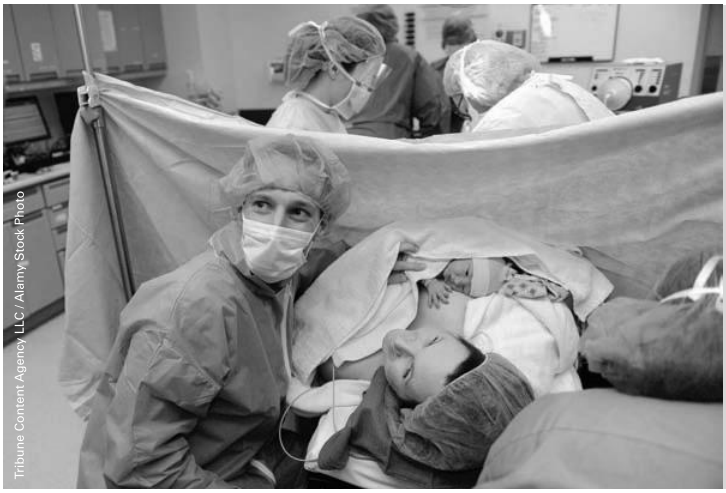
At many cesarean births, neonatal outcomes may be improved by early skin-to-skin contact and breastfeeding.

Care during cesarean birth is multidisciplinary, involving obstetricians, nurses, pediatricians, respiratory therapists, OR technicians, and anesthesiologists. Each care provider may have different priorities and perspectives on how changes could affect their activities or the mother and baby. Several initiatives to promote gentle cesarean techniques report interprofessional differences as a challenge to changing routines for cesarean birth (Brady, Bulpitt, & Chiarelli, 2014; Magee, Battle, Morton, & Nothnagle, 2014; Smith, Moore, & Peters, 2012). Therefore, it is critical to understand concerns of all care providers about gentle cesarean techniques to enhance the likelihood of a successful change in practice.

The purpose of this study was to investigate providers' perceptions of gentle cesarean techniques. For purposes of this study, provider is defined as all healthcare professionals involved in the birthing process including obstetricians, anesthesiologists, labor nurses, respiratory therapists, OR technicians, neonatal physicians, and nurse practitioners. The goal was to determine whether provider comfort, perceptions, and beliefs varied according to the providers' practice specialty, professional role, or demographic characteristics.

Study Design and Methods

A cross-sectional, mixed methods study including a structured survey and open-ended responses was conducted at an urban academic hospital with approximately 2,000 births annually, a cesarean rate of about 30% and primary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Physicians and nurses feel that gentle cesarean techniques may improve mother–baby bonding, and reduce stigma around unplanned cesarean birth.

cesarean rate of 17%. Providers who participate regularly in cesarean birth were identified through consultation with leaders in the departments of obstetrics, anesthesia, nursing, and pediatrics. The target group was identified as anesthesia residents and attending physicians, obstetric residents and attending physicians, labor and birth nurses, pediatric attending physicians, neonatal nurse practitioners, respiratory therapists, and OR technicians. All active faculty and staff (215 target participants) were invited to participate via email with a link to the survey. Three email reminders were sent over the course of 6 weeks. The survey was completed anonymously via an online program and results were tabulated in a protected computer database. This study was approved with exempt status by the medical center's institutional review board.

Survey Development and Content

The researchers developed an institutional-based survey. Gentle cesarean techniques considered feasible at this institution but which were not already part of routine care (e.g., observation of the birth, partner cutting the cord, immediate or delayed skin-to-skin contact, and breastfeeding in the OR) were chosen as survey topics. Questions on perceived benefits and potential barriers to providing gentle cesarean were written to reflect those previously described in the literature. A draft version of the survey was reviewed by four nurses and four physicians, and revisions made for clarity and content over two rounds of review.

The final survey contained a brief introductory paragraph describing gentle cesarean birth. Participants were asked their gender, department and professional role, and length of time practicing on labor and delivery. They then completed the four-part survey. (Survey questions are summarized in Table 3.) The first three sections quantified provider knowledge, beliefs, and prior experience with gentle cesarean birth using a four-point Likert scale (strongly agree, somewhat agree, somewhat disagree, strongly disagree). The final portion invited open-ended responses on each of the specific gentle cesarean techniques.

Data Analysis

Quantitative data were analyzed using Stata version 12. Quantitative outcomes were converted from a Likert scale into binary variables for analysis. Chi-square or Fisher exact tests were used to test associations between provider responses and demographic and professional variables. Logistic regression was then used to model associations between responses and respondent characteristics. Full models were run including all demographic and professional characteristics for the questions where binary analysis suggested associations. Likelihood ratio testing was performed to assess for interaction and confounding among variables. Logistic regression models were then reduced to relevant variables and confounders to precisely identify likely associations. Analyses considered associations significant at $p < 0.05$.

Data from the open-ended responses were analyzed using conventional content analysis with an inductive approach and emergent coding (Cho & Lee, 2014; Drisko & Maschi, 2016; Hsieh & Shannon, 2005; Mayring, 2000). Emergent coding was used as researchers did not have a priori theoretical framework. Responses were read by all investigators, and emergent themes were identified. The texts of responses were then coded by these themes. Coding was checked for agreement and any discrepancies were resolved by consensus. The themes most frequently mentioned by providers were identified as recurrent themes. Memos were developed and written to identify the connections between the coded responses and recurrent themes. These themes were then summarized in a conceptual model.

Results

Quantitative Analysis

Of the 215 invited participants, 20 emails returned undeliverable. Eighty-eight responses, each over 98% complete, were received over 6 weeks from November to

Table 1. Department and Role of Survey Participants

Department and Role	Total Recruited (*N* = 215)	Response Received (*N* = 88)	Response Rate by Department	% of Total Respondents by Department
Obstetrics	50	28	58%	33%
Attending		14		
Resident		14		
Anesthesiology	80	29	36%	33%
Attending		16		
Resident		13		
Pediatrics	33	15	45%	17%
Attending		3		
Nurse practitioner		7		
Fellow		2		
Respiratory therapist		3		
Labor and delivery	52	16	31%	18%
Nurse		15		
OR tech		1		

December 2015 for a response rate of 41%. There was no systematic pattern to missing data. Response rates were similar across all specialties and professional roles (Table 1). A majority of respondents were women, and about half of respondents reported some prior knowledge or experience with gentle cesarean techniques (Table 2). Overall, providers across specialties had very positive beliefs about the benefits of gentle cesarean for the mother and baby (Table 3). However, 63% to 66% of providers expressed negative beliefs that the techniques could compromise safety and interfere with care of either the baby or mother, and almost 80% thought techniques would be difficult to implement. The majority said they would be comfortable with each technique in the OR.

Data were analyzed to determine whether provider perceptions and beliefs about gentle cesarean techniques varied by specialty or professional role (Table 3). Initial unadjusted analysis suggested variation in several beliefs. Anesthesiologists had greater concern that techniques would interfere with care of the mother. Pediatric physicians and nurse practitioners and labor and delivery nurses were the least comfortable with immediate skin-to-skin. Obstetricians and anesthesiologists were least comfortable having the cesarean birth observed.

Several participant characteristics varied across specialties, and therefore had potential to confound the relationship between beliefs and professional role. Anesthesiologists were more likely to be male (63% of anesthesiologists were male vs. 0% of labor nurses, 14% of obstetricians, and 26% of pediatric providers, $p < 0.01$), labor nurses and pediatricians were more likely to have greater than 5 years working experience (83% and 73% respectively vs. 10% and 26% for obstetricians and anesthesia providers, $p < 0.01$), and obstetricians and nurses were more likely to report prior experience with the techniques (75% vs. 26%–50%, $p < 0.01$).

After accounting for confounding, professional role was not the major provider characteristic underlying variation in most responses; gender and experience on labor and delivery had more significant impact (Table 4). Women were significantly more likely to believe gentle cesarean was important and good for newborn wellbeing. Participants with prior knowledge of gentle cesarean birth were significantly less likely to predict increased operative time, whereas those with prior participation were less likely to predict interference with maternal care. Participants who had worked longest on the labor unit were less likely to express comfort with immediate skin-to-skin contact in the OR.

Table 2. Demographics and Prior Knowledge

Characteristic	*n* (%)
Gender	
Male	25 (29%)
Female	63 (71%)
Experience working on L&D	
<2 years	20 (22%)
2–5 years	27 (31%)
5–10 years	8 (9%)
>10 years	33 (38%)
Had prior knowledge	48 (54%)
Had participated in techniques	40 (47%)

Table 3. Care Provider Beliefs and Perceptions of Gentle Cesarean by Practice Specialty[#]

Survey Question	Response[*] *N* = 88 *n* (%)	Obstetrics *n* = 28	Pediatrics *N* = 15	Anesthesia *n* = 30	Labor Nurses *n* = 16	*P*-value[**]
Positive Beliefs						
Techniques are important in general	80 (91%)	26	14	25	15	0.28
GC is good for infant wellbeing	76 (86%)	26	13	22	26	0.05
GC is good for bonding	83 (94%)	27	14	27	15	0.53
GC helps us achieve baby-friendly goals	82 (93%)	28	14	25	15	0.05
GC improves patient satisfaction	86 (98%)	28	15	8	15	0.27
GC is good for hospital reputation/public relations	84 (95%)	28	15	27	14	0.24
Patients would like to have GC available	83 (94%)	28	14	26	15	0.12
Negative Beliefs						
GC will be difficult to implement	68 (77%)	17	11	20	7	0.15
GC may compromise safety	55 (63%)	17	11	20	7	0.46
GC may interfere with care of the mother	57 (65%)	18	5	26	8	**0.03**
GC may interfere with care of infant	58 (66%)	18	10	21	9	0.92
GC may increase risk of infection	35 (40%)	14	7	12	2	0.18
GC may increase patient or partner stress	41 (47%)	15	6	15	5	0.57
GC may increase duration of cesarean	44 (50%)	12	6	23	3	**<0.01**
Comfort with Specific Aspects						
Mother/partner observing all/part of procedure	69 (78%)	19	14	21	15	**0.03**
Partner cutting cord	59 (67%)	17	10	21	11	0.87
Immediate skin-to-skin in OR (no initial pediatric assessment)	63 (72%)	27	10	17	9	**<0.01**
Delayed skin-to-skin in OR (pediatric assessment first)	81 (92%)	28	12	27	14	0.13
Breastfeeding in OR	74 (84%)	28	12	22	12	**0.04**

[#]Practice specialty designations are: obstetrics includes obstetricians; pediatrics includes pediatricians and pediatric nurse practitioners; anesthesia includes anesthesiologists.

[*]Response is agreement with statement as "agree" or "somewhat agree" on Likert scale

[**]*p*-value reflects differences between departments overall

GC=gentle cesarean

Qualitative Analysis

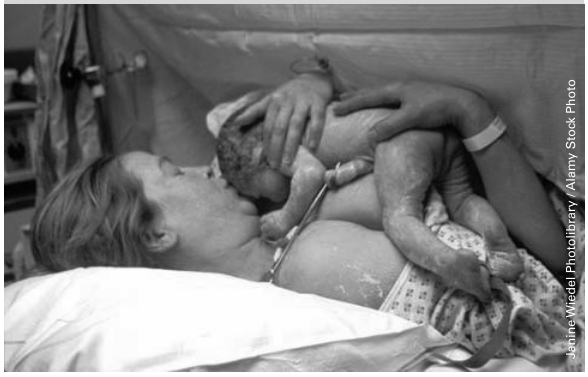
The open-ended portion of the survey provided space for participants to comment on the overall concept of gentle cesareans as well as each individual technique. In the initial analysis, responses on each aspect of the gentle cesarean displayed similar unifying themes regardless of the specific technique in question. Therefore, these data were approached as a model on overall provider perception of gentle cesarean techniques, rather than a commentary on each aspect.

Responses were organized broadly into categories of provider concerns and provider positives (Figure 1). Two dominant themes unified all providers' concerns across all aspects of the techniques: *patient safety* and *logistic concerns* on implementation of changes. There was interplay between these concerns; questions of logistics frequently indicated concern over how to accomplish the techniques safely. The dominant theme underlying provider positive responses was potential benefit to mother and baby. The relative balance of concerns and perceived benefits is likely to drive the overall provider perceptions of gentle cesarean techniques.

Provider Concerns: Safety

Infection: Many providers expressed concern that some gentle cesarean techniques could increase the risk of infection. This was most prominent on the partner cutting the umbilical cord. One labor nurse noted *this would require the partner to be scrubbed…we should not ignore sterile aseptic technique*; an obstetrician stated *please do*

Little is known about what influences physicians' and nurses' perceptions of implementing baby-friendly or gentle cesarean techniques in the surgical suite.



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not let people contaminate our surgical fields. Concerns about infection were also prominent on drape movement during surgery. Concerns of contamination with a lowered drape were not limited to the sterile operative field; one anesthesiologist noted there are risks of *bodily fluids splashing mom, partner, and anesthesia staff*.

Emotional Trauma to Patient or Partner: Several providers expressed concerns that observation of the surgery could be emotionally disturbing to the mother and her partner. As one labor nurse stated, *not everyone can handle the sight of … what it takes to take a baby out*. Many providers expressed more concern about reaction of the partner than that of the patient. Multiple anesthesiologists expressed concern that they would need to provide care to the partner in this event of partner instability.

Newborn Assessment: Many providers expressed concern that aspects of gentle cesarean could compromise immediate newborn assessment. Delayed skin-to-skin contact and breastfeeding following pediatric assessment was considered *most appropriate* and a *good idea*. Labor nurses and pediatric physicians and nurse practitioners were much less supportive of immediate skin-to-skin; one respondent called the notion *foolish*. One pediatrician noted, it is *difficult to predict…which babies will end up with difficult transitions*, whereas another worried that *too many c-section babies take their first breath, and then decide not to take another*.

Provider Concerns: Logistic

Physical Space: Several providers expressed concern about space limitations in the OR. In considering skin-to-skin contact and breastfeeding, providers noted that in the OR, *space is at a premium*. Several nurses noted that there may not be room for the nurse or pediatrician to easily step in and monitor the baby as needed.

Staffing: Many providers expressed concern that implementing cesarean techniques would add extra responsibilities, and staffing would be inadequate. Even though there are two nurses at every cesarean birth, labor nurses were concerned that without a dedicated staff member immediately next to the mother, it might be unsafe for the mother to hold her newborn and breastfeed without assistance. Several anesthesiologists were concerned that these responsibilities would devolve to them, and could detract from their medical care of the mother.

Physician Stress/Liability: Several obstetricians voiced concerns that some aspects of gentle cesarean could increase stress and pressure on them. One obstetrician feared she would become increasingly anxious *with a difficult delivery of the fetal head with the patient watching*. Several physicians, both obstetricians and anesthesiologists, expressed concern about an increase in liability for adverse events. One physician stated *proceed with caution; lawyers love these measures*.

Provider Positives: Benefits to Mother and Baby

Although the open-ended responses were dominated by provider concerns, many providers did take the opportunity to comment on which techniques they supported and why. Providers did not express any perceived benefits to themselves or their colleagues; any perceived benefit was consistently framed in terms of outcomes for the mother and baby.

Bonding: Improvement in mother–baby bonding was frequently cited as a reason to support skin-to-skin contact and breastfeeding in the OR. Several labor nurses felt this was *beneficial for baby health and important for bonding*. Others noted it could help with milk supply as well as reduce stress on the baby.

Mitigation of Stigma: Although the survey inquired specifically about uncomplicated and scheduled cesare-

Table 4. Adjusted Analysis: Association of Care Provider Characteristics with Specific Beliefs

Specific Belief	Characteristics	OR (CI)*
GC techniques are important in general	Female gender	8.4 (1.59–45.04)
GC techniques are good for infant's wellbeing	Female gender	4.9 (1.19–19.89)
GC techniques will prolong the duration of cesarean section	Have prior knowledge	0.37 (0.12–0.78)
GC techniques will interfere with care of mother in the OR	Have participated prior	0.31 (0.11–0.85)
Comfortable with immediate skin-to-skin in the OR	Have worked >5 years	0.49 (0.29–0.83)

*each OR calculated in model adjusting for provider role, gender, prior experience, knowledge, and length of working experience on labor and birth unit

ans, several providers introduced the concerns of cesareans performed for arrest of labor or other unplanned indications. Providers noted that having the cesarean mimic the vaginal birth experience as closely as possible could reduce negative feelings about the birth experience. As one respondent said, *it would hopefully take away some of the stigma and feelings of failure with moms who have unplanned c-sections*.

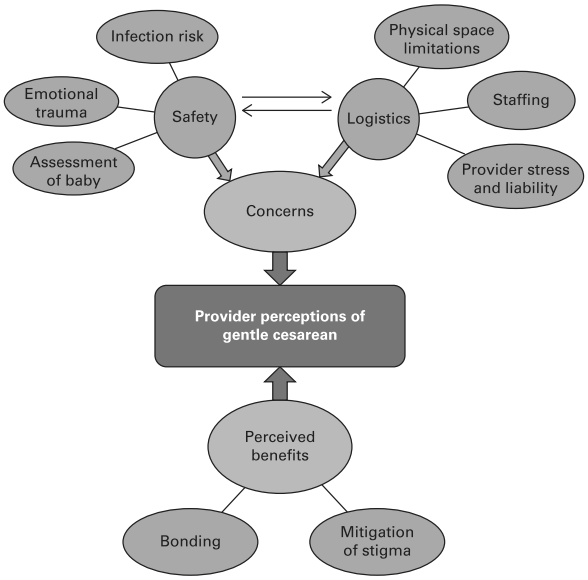
Clinical Implications

Overall, labor and birth care providers have positive perceptions on incorporating gentle cesarean techniques into practice. Although some have reservations and concerns about safety and logistics, most acknowledge potential benefits to the mother and newborn. Results revealed some previously underappreciated relationships between provider characteristics and perceptions toward gentle cesarean. Prior studies describing the implementation of such programs have noted the need to address the concerns of each specialty involved; nurses, pediatricians, and anesthesiologists (Brady et al., 2014; Magee et al., 2014). Our study found demographic and professional characteristics including gender, duration of experience on labor and delivery, and prior familiarity with different cesarean techniques may have a strong influence on provider perceptions and beliefs. These factors may be more significant than identity by professional role.

In general, healthcare providers are more likely to support a change or initiative if they believe it is beneficial, worthwhile, and feasible. Prior reports of gentle cesarean protocol initiation have reported the importance of staff training though education, simulation, and stepwise implementation (Grassley & Jones, 2014). Our findings may provide guidance on areas of focus to those attempting to implement gentle cesarean techniques on their own labor and birth units. Education and outreach efforts should provide explicit education on the documented benefits of the techniques to all providers, as education that emphasizes clinical evidence about safety may provide reassurance to reluctant providers. As providers with experience in the techniques are more likely to have comfort with the techniques, they could be recruited as ambassadors of a program to provide credible reassurance about safety and feasibility. All care providers should be reassured that there will be flexibility in each case to decide which techniques to apply and that all members of the team will have a voice in the decision. A brief review of the gentle cesarean plan could be added to the routine time-out process prior to each cesarean birth to ensure provider comfort and agreement in each case.

Given provider concerns about staffing and space challenges, those who attempt to implement a gentle cesarean program should address these concerns. Prior studies have reported the addition of a nurse to assist with skin-to-skin greatly increased nursing comfort with the practice (Schorn et al., 2015). Our study supports the notion that successful change will need to realistically account for potential staffing increases or redistribution, and may involve alteration of the physical environment within the OR. An institution should consider tracking and reporting safety outcomes and in order to provide feedback. As most providers recognize potential maternal benefits, tracking and reporting patient satisfaction may provide reinforcement of the value of such programs.

Figure 1. Conceptual Model of Influences on Provider Perceptions



This study has several strengths. The survey targeted practitioners from all the departments involved in labor and birth care. The wide range of experience and diversity of providers allowed consideration of factors that may influence provider perceptions. Use of mixed methods provided both quantified data on associations while also using qualitative and narrative data to give depth to the survey.

Limitations include a relatively small sample from a single labor and delivery unit in an academic center that may not reflect concerns at other practice environments. We did not study how these perceptions may translate into practice. Future research should address these questions in other settings, increase sample size and validity by investigating across multiple institutions, and consider a longitudinal approach to follow providers through the transition to measure the change in attitude and support over time.

Support for mother and baby-friendly practices in the labor and birth setting appears to be rising, and patients may increasingly request this. To meet this need, obstetric and neonatal practices will need to continue to evolve. When providers believe in the benefits, and that change can be achieved safely, they will be more likely to support such initiatives. Identification of key personnel, provision of education, and solicitation of feedback on concerns

Suggested Clinical Implications

- Experienced labor care providers of all specialties are supportive of changes to standard cesarean birth practices to become more mother and baby friendly.
- Experienced labor nurses should serve as champions in the introduction of new cesarean birth protocols.
- Education of all labor and birth care providers should emphasize safety and maternal and neonatal benefits of gentle cesarean birth protocols.
- In attempting to implement new gentle cesarean protocols, maternity unit leaders must acknowledge and address nurses' concerns about safe staffing and needed changes to the OR environment.

may be key to the success of gentle cesarean initiatives. As one of our respondents stated, *The biggest challenge can be overcoming mind-set.* ✣

Acknowledgment

The authors acknowledge the generous support of Ann Phalen, PhD, APRN, NNP-C for her assistance with analysis and editing of the manuscript.

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The authors declare no conflicts of interest.

DOI:10.1097/NMC.0000000000000404

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