

# BMJ Open Quality Labour after caesarean counselling documentation: a quality improvement intervention on labour and delivery

Elena Hill,<sup>1</sup> Somphit Chinkam,<sup>1</sup> Lilia Cardenas,<sup>1</sup> Ronald Edward Iverson <sup>2</sup>

**To cite:** Hill E, Chinkam S, Cardenas L, *et al.* Labour after caesarean counselling documentation: a quality improvement intervention on labour and delivery. *BMJ Open Quality* 2021;**10**:e001232. doi:10.1136/bmjopen-2020-001232

► Additional supplemental material is published online only. To view, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2020-001232>).

Received 13 October 2020  
Accepted 28 July 2021



© Author(s) (or their employer(s)) 2021. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

<sup>1</sup>Department of Family Medicine, Department of OBGYN, Boston Medical Center, Boston, Massachusetts, USA

<sup>2</sup>Obstetrics and Gynecology, Boston University, Boston, Massachusetts, USA

**Correspondence to**  
Dr Elena Hill;  
[ehill3047@gmail.com](mailto:ehill3047@gmail.com)

## ABSTRACT

**Background** Most women who have had previous caesareans are eligible to have labour after caesarean (LAC), but only 11.9% do so. Studies show the majority of women have already decided about future mode of birth (FMOB) before a subsequent pregnancy. Hence, providing women with LAC counselling soon after birth may help women plan for future pregnancies. Prior to our intervention, our hospital had no method of ensuring that women received LAC counselling after caesarean section. The purpose of this QI initiative was to assess whether formal LAC documentation on labour and delivery (L&D) improves rates of LAC counselling post partum.

**Methods** Our three-part intervention included: (1) surgeon's assessment of LAC feasibility in the operative note, (2) written LAC education for women in discharge paperwork and (3) documentation of LAC counselling in the discharge summary. We implemented these changes on L&D in January 2019. We conducted phone surveys of 40 women after caesarean preintervention and postintervention. Surveys included questions regarding three primary outcomes: whether or not they had received LAC counselling either in the hospital or at a postpartum visit, and whether or not they would pursue LAC as FMOB. Surveys also assessed two secondary outcomes: (1) women's understanding of the indications for surgery and (2) their involvement in the decision process. We used a  $\chi^2$  analysis to assess primary outcomes and a Fisher's exact test to assess secondary outcomes. We also surveyed providers about the culture of LAC counselling at our hospital.

**Results** After our intervention, there was a significant difference between the number of women reporting LAC postpartum counselling (30.77% vs 53.8%,  $p=0.04$ ). There was also a significant difference in the number of women feeling involved in the decision-making process (68% vs 95%,  $p=0.03$ ). Providers reported improved knowledge/confidence around LAC counselling (58%–100%). Providers universally stated that LAC counselling has become more ingrained in the culture on L&D.

**Conclusions** Documentation of LAC counselling improved the consistency with which providers incorporated LAC counselling into postpartum care. Addressing FMOB at the time of pLTCs and documenting that counselling may be an effective first step in empowering women to pursue LAC in future pregnancies.

## INTRODUCTION

The caesarean rate in the USA was 31.9% in 2018: more than double the rate recommended by WHO to reduce maternal and

neonatal mortality.<sup>1</sup> Most women who have had previous caesarean deliveries are eligible for labour after caesarean (LAC), but only a minority do so.<sup>1</sup> The medical and psychological benefits of LAC have been well established in retrospective analyses and are supported by organisations including the American College of Obstetrics and Gynecology, American College of Nurse-Midwives and the National Institute for Health (NIH).<sup>2–5</sup> However, many eligible women still decline LAC.<sup>5</sup>

The reasons for low rates of LAC counselling both at our hospital and nationwide include lack of formal systems for counselling either prior to discharge or at postpartum visits, changes in the acceptability of LAC in recent years, and lack of provider familiarity with counselling patients now that LAC has become more common.<sup>6,7</sup>

Many interventions aiming to increase women's engagement in the decision process for future mode of birth (FMOB) have been studied, including use of Vaginal Birth After Caesarean calculators for risk stratification and educational campaigns.<sup>7–9</sup>

Literature suggests that the strongest predictors of a woman's FMOB is the counselling given by her prenatal provider.<sup>6,10</sup> One study found that women were significantly more likely to choose the FMOB recommended by their provider.<sup>11</sup> Another found that the presence of an 'opinion leader', or a clinician that championed LAC education, was one of the variables that actually influenced the rates of successful LAC.<sup>11</sup> Having documentation for LAC in the women's chart was shown to influence providers when counselling women for LAC.<sup>12</sup> Thus, counselling by medical professionals plays a key role in a woman's decision around FMOB.<sup>11,12</sup>

We, therefore, hypothesised that counselling women about LAC prior to discharge and again at postpartum care—and documenting that counselling—may help encourage conversations around LAC. Because our institution had no formal method for ensuring

that women received LAC counselling prior to discharge, we designed an intervention to standardise LAC counselling documentation on labour and delivery (L&D). We hoped that a system of documentation would increase LAC counselling early after delivery and would ultimately empower women in their decisions surrounding FMOB.

## METHODS

### Study site

The study site is an academic tertiary-care medical centre and the safety net hospital for the city of Boston. The patient population served is racially and ethnically diverse with 40% identifying as non-Hispanic black, 35% Hispanic, 10% non-Hispanic white, 5% Asian and 10% other. Eighty-five per cent are publicly insured. Pregnant women receive prenatal care either at affiliated community health centres (60%) or based at the hospital itself (40%). At least half of women are seen by certified nurse-midwives and nurse practitioners. L&D follows a collaborative model with nurse midwives, family physicians and obstetrician-gynaecologists practicing on one team.<sup>13</sup> The caesarean birth rate was 31% in 2017 and 18% of those were primary low transverse cesarean section (pLTCS) sections. Thirty-two per cent of women with pLTCS attempted LAC, of which 21% were successful in having a vaginal birth.<sup>13 14</sup>

### Study design

We began our QI project in January 2018. We designed a quality improvement project on L&D. First, we conducted a preintervention analysis including two parts: phone surveys with women who underwent pLTCS at Boston Medical Center (BMC) in 2017, as well as an electronic survey of our providers. Using this data, (particularly the feedback of providers from the preintervention provider survey about what documentation changes were most feasible based on their current workflow), we designed a three-part intervention to document LAC counselling prior to discharge. Our three-part intervention included: (1) surgeon's assessment of LAC feasibility in the operative note (online supplemental appendix C), (2) written LAC education for women in their discharge paperwork (online supplemental appendix D) and (3) documentation of LAC counselling in the discharge summary (online supplemental appendix E). A year after the documentation changes (January 2019), we conducted a postintervention chart abstraction to see what percentage of charts were correctly documented. We also repeated phone surveys with women and electronic surveys with providers at this time.

### Preintervention patient phone surveys

The team interviewed via phone 40 women who underwent pLTCS at BMC in 2017. Women were selected randomly from a list of all pLTCS in 2017. The only eligibility criteria were either a primary language of English or Spanish. All women gave verbal consent to participate in the survey. Survey questions (online supplemental

appendix A) included questions about women's understanding of the indications for their surgery, their perception of their own involvement in the decision process, whether or not they had received LAC counselling from a provider either in the hospital or at a postpartum visit, and whether or not they would pursue an LAC with a future pregnancy. Surveys were conducted in both English and Spanish by a bilingual provider based on women's preferred language. Both quantitative and qualitative data were collected.

### Preintervention provider surveys

We surveyed 48 obstetric, family medicine and midwifery providers via online survey (online supplemental appendix B) about current practices of LAC counselling and documentation on L&D.

### Postintervention chart abstractions

We conducted chart abstractions of all women who underwent pLTCS from January 2019 to March 2020 to document what percentage of charts contained all three components of LAC documentation.

### Postintervention Patient phone surveys

We conducted phone surveys with 40 women who had delivered via pLTCS after January 2019 once our intervention had been implemented. Questions were the same as they were for the preintervention group (online supplemental appendix A).

### Postintervention provider survey

We interviewed 20 providers via online survey on their perceptions of the feasibility and efficacy of the new documentation system (online supplemental appendix B). The surveys included quantitative and qualitative responses.

### Data analysis

We performed  $\chi^2$  and Fisher's exact tests as appropriate. Data were analysed using SAS V.9.4 (SAS Institute).

### Patient and public involvement

Patients were not directly involved in the design of the study. Hospital providers were asked their opinions in the preintervention provider surveys and their responses contributed to the ultimate design of our intervention.

## RESULTS

### Patient demographics

Demographic characteristics of preintervention and postintervention groups were similar (table 1). The average age of the pre and post intervention groups was 31 years old 29 years old, respectively. Spanish speakers represented 28% of the preintervention group and 33% of the postintervention group. Women who received their prenatal care at BMC obstetrics department represented 50% and 55% of the participants in the preintervention and postintervention groups, respectively, with the other 50% of patients receiving their care at affiliated community health centres. Women in both groups received

**Table 1** Patient demographics

	Preintervention group (N=40)	Postintervention group (N=40)
Average age	31	29
English as primary language	28%	33%
Prenatal care at Boston Medical Center	50%	55%
Prenatal care at community health centre	50%	45%

prenatal care from multispecialty providers, including midwives, family physicians and obstetricians.

### Chart abstraction

During the year-long intervention, 450 pLTCS were performed at BMC. Of those charts, 100% contained documentation from the surgical provider in the operative note about the opportunity for LAC in a future pregnancy. Forty-four per cent of charts contained all three elements of proper documentation, including discharge instructions for patients and documentation of LAC counselling in the discharge summary.

### Patient survey results

Results of the patient surveys are displayed in table 2. Of the primary outcomes for the study, there was a statistically significant increase in the number of women reporting postpartum LAC counselling after the intervention (30.77% vs 53.8%,  $p=0.04$ ). There was also an increase in the number of women reporting that they received postpartum counselling in the hospital prior to discharge, although this was not statistically significant (37% vs 50%,  $p=0.3$ ). There was no significant difference between women's preference for FMOB (70% vs 66.67%,  $p=0.77$ ).

Of the secondary outcomes, there was a statistically significant difference in the number of women who felt

involved in the decision to have a pLTCS (68% vs 95%,  $p=0.03$ ). There was no significant difference in the number of women reporting that they understood the indication for their pLTCS (88% vs 95%,  $p=0.43$ ).

### Provider survey results

Prior to the intervention, 58% of providers stated that they did not routinely counsel women about LAC. After the intervention, 10% reported they did not counsel. Prior to the intervention, most providers thought that less than 50% of women left the hospital understanding their options for FMOB. After the intervention, the majority of providers thought that greater than 50% of women left the hospital understanding the options for FMOB. Eighty-five per cent of providers thought operative note documentation was useful in informing their LAC counselling. Forty per cent of providers thought the documentation had improved their ability to counsel women about LAC. Fifty per cent said that documenting LAC counselling in the discharge summary helped them to remember to counsel patients at their postpartum visits. One hundred per cent of respondents reported confidence in providing LAC counselling to patients. In addition, qualitative comments were collected. Among those, providers stated:

we are more proactive now about counseling moms who desire LAC

I think it has been a great intervention...I do think it [reminds] me to counsel them at their postpartum visits and I appreciate that that information is in the op note – that is extremely important

[This documentation] will be very valuable for us when the patient returns with the next pregnancy and we are considering LAC.

### DISCUSSION

After a yearlong intervention standardising LAC counselling documentation on L&D, patients reported receiving more counselling about their options for FMOB. The qualitative responses from providers

**Table 2** Women's self report on receiving LAC counselling in the hospital, LAC counselling at a postpartum visit, preference for FMOB, self-reported understanding of C section indications and feelings of being involved in decision-making process between pre and post intervention groups

	Preintervention (n=40)	Postintervention (n=40)	P value
LAC counselling prior to discharge	15 (38.46%)	20 (50%)	0.3*
LAC counselling at a postpartum visit	12 (30.77%)	21 (53.85%)	0.04*
Women reporting feeling that their indication for C-section was explained to them†	35 (87.5%)	38 (95%)	0.43
Women reporting feeling involved in the decision to have a C-section†	27 (67.5%)	36 (90%)	0.03
Women's state preference for FMOB	28 (70%)	20 (66.67%)	0.77*

Data missingness: LAC counselling (1), postpartum counselling (2), FMOB (10).

\*P values are estimated with  $\chi^2$  test.

†Fisher's exact test.

FMOB, future mode of birth; LAC, labour after caesarean.

reaffirmed that this documentation helps them to improve their LAC counselling.

The team learnt some valuable lessons about implementing quality improvement projects in this setting. First, we found that compliance of providers with proper documentation was much improved when the electronic medical record made it mandatory for a provider to fill out the comment box regarding 'FMOB' in the operative note or adding 'LAC birth' to a list of drop-down options on the discharge summary template before they are able to finalise the note. Prior, providers would often forget to comment on LAC in the operative note or in the discharge summary. Once we made this counselling a 'mandatory' field in the electronic medical record, adherence to the documentation increased drastically.

In addition, we found that having a 'provider champion', or a provider that was particularly committed to these changes, to send emails and talk with other providers about the importance of the intervention helped to encourage a real change in culture on the labour floor. This supports the conclusions of prior studies on effective 'provider-centred' interventions to increase LAC.<sup>11</sup>

### Limitations

The long-term goal of this work is to increase women's ability to safely and confidently LAC. While this study did not show a statistically significant difference in women's desire to LAC, we imagine this is largely because of the short duration of follow-up (only 1 year after the intervention was implemented, during which time only 44% of the charts included all three components of adequate LAC documentation). Because of this short duration, we have not yet been able to study whether or not these women do in fact chose LAC with subsequent pregnancies.

In addition, we did not control for other variables that might influence a woman's decision—specifically the type of provider the patient saw (nurse midwife, family physician or obstetrician) or for the prenatal clinic where they received care (either at one of our community health centres or at the hospital-based clinic, all of which have slightly different prenatal care practices. We also did not collect ethnicity data, which may correlate to the cultural and social circumstances that prompt women to elect one FMOB over another. In addition, because study staff were fluent in English in Spanish, only patients that were English or Spanish speakers were included in the study. Only two women were excluded from the study, as their first language was Haitian Creole. This may mean that the cultural beliefs that contribute to a women's decision to LAC or not were not represented in our study sample.

In spite of these limitations, qualitatively both patients and providers agreed that the changes in documentation have increased the frequency and consistency of conversations about FMOB.

### Future directions

This quality improvement project to standardise documentation of LAC counselling for all women undergoing pLTCs at our hospital has increased the consistency with which women received LAC counselling. Now that this is part of our routine documentation, we believe there will be a sustainable change in the culture surrounding LAC on our L&D floor. A documentation system like this could easily be implemented on other L&D floors in other hospitals. We hope that this will eventually translate into more women feeling empowered to choose their FMOB and to increase the safety and feasibility of offering women LAC.

**Acknowledgements** We wish to acknowledge Olivera Vragovic for her assistance with data analysis.

**Contributors** EH, MD/MPH, was the principal investigator for this study. She personally conducted all interviews and data collection, completed data analysis and was responsible for the writing of this manuscript. SC, CNM MPH DNP, served as a mentor and helped to revise the manuscript. LC, MD, is family medicine faculty at Boston Medical Centre and assisted with manuscript revision. REI, MD/MPH, is the head of the department of Obstetrics and Gynaecology at Boston Medical Centre and served as a mentor and assisted with manuscript revisions. EH is the guarantor.

**Funding** The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

**Competing interests** None declared.

**Patient consent for publication** Consent obtained directly from patient(s)

**Ethics approval** This project was given exempt status as a quality improvement study by Boston Medical Centre's Institutional Review Board. All study participants gave verbal informed consent to participate in the study.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data availability statement** All data relevant to the study are included in the article or uploaded as online supplemental information.

**Supplemental material** This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

**Open access** This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

### ORCID iD

Ronald Edward Iverson <http://orcid.org/0000-0001-8453-2327>

### REFERENCES

- 1 Nilsson C, Lundgren I, Smith V, *et al*. Women-centred interventions to increase vaginal birth after caesarean section (VBAC): a systematic review. *Midwifery* 2015;31:657–63.
- 2 Black M, Entwistle VA, Bhattacharya S, *et al*. Vaginal birth after caesarean section: why is uptake so low? insights from a meta-ethnographic synthesis of women's accounts of their birth choices. *BMJ Open* 2016;6:e008881.
- 3 Martin J, Hamilton B, Osterman M. Birth final data for 2018. National vital statistics reports, 68 (13), 2019. Available: [https://www.cdc.gov/nchs/data/nvsr/nvsr68/nvsr68\\_13-508.pdf](https://www.cdc.gov/nchs/data/nvsr/nvsr68/nvsr68_13-508.pdf)

- 4 Practice Bulletin No. 184: vaginal birth after cesarean delivery. *Obstet Gynecol* 2017;130.
- 5 Knight HE, Gurol-Urganci I, van der Meulen JH, Meulen J, *et al.* Vaginal birth after caesarean section: a cohort study investigating factors associated with its uptake and success. *BJOG* 2014;121:183–92.
- 6 Horey D, Kealy M, Davey M-A, *et al.* Interventions for supporting pregnant women's decision-making about mode of birth after a caesarean. *Cochrane Database Syst Rev* 2013:CD010041.
- 7 Khunpradit S, Tavender E, Lumbiganon P, *et al.* Non-clinical interventions for reducing unnecessary caesarean section. *Cochrane Database Syst Rev* 2011;363.
- 8 Fraser W, Maunsell E, Hodnett E, *et al.* Randomized controlled trial of a prenatal vaginal birth after caesarean section education and support program. childbirth alternatives post-caesarean Study Group. *Am J Obstet Gynecol* 1997;176:419–25.
- 9 Gilbert SA, Grobman WA, Landon MB, *et al.* Elective repeat cesarean delivery compared with spontaneous trial of labor after a prior cesarean delivery: a propensity score analysis. *Am J Obstet Gynecol* 2012;206:311.e1–311.e9.
- 10 Bernstein SN, Matalon-Grazi S, Rosenn BM. Trial of labor versus repeat cesarean: are patients making an informed decision? *Am J Obstet Gynecol* 2012;207:204.e1–204.e6.
- 11 Lundgren I, Smith V, Nilsson C, *et al.* Clinician-centred interventions to increase vaginal birth after caesarean section (VBAC): a systematic review. *BMC Pregnancy Childbirth* 2015;15:16.
- 12 Kurtz Landy C, Sword W, Kathnelson JC, *et al.* Factors obstetricians, family physicians and midwives consider when counselling women about a trial of labour after caesarean and planned repeat caesarean: a qualitative descriptive study. *BMC Pregnancy Childbirth* 2020;20:367.
- 13 Boston Medical Center. *Bmc OBGYN quality improvement report*, 2018.
- 14 Boston Medical Center Maternity Care Guidelines. “Counseling Women on Modes of Birth After Cesarean Section”, 2018. Available: [http://www.bumc.bu.edu/obgyn/files/2019/01/BMC\\_OBGYN\\_VBAC\\_FINAL\\_10.2018.pdf](http://www.bumc.bu.edu/obgyn/files/2019/01/BMC_OBGYN_VBAC_FINAL_10.2018.pdf)