BIRTH OPTIONS AFTER CESAREAN

AMONG HISPANIC WOMEN LIVING IN THE UNITED STATES

by
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Abstract

Objective: Hispanic women are more likely to have a repeat cesarean delivery(RCD) than non-Hispanic women. This study examined the relation between ethnicity/race and RCD, whether observed differences in RCD were due to differences in risk factors among women of different ethnicities/races and the perceptions about RCDs among Hispanic and non-Hispanic women with a previous cesarean delivery.

Methods: A retrospective cohort study was performed using 2010-2016 data from 1821 births to women with one previous cesarean birth at a District of Columbia hospital. Logistic regression was used to evaluate the relation between ethnicity and RCD and assess whether measureable risk factors for RCD account for differences by ethnicity. In-depth interviews were conducted in the third trimester and 1-3 days postpartum with 27 Hispanic and non-Hispanic women with one previous cesarean birth at the same facility from October 2016 to May 2017.

Results: The unadjusted odds of RCD were 26% lower for Hispanic women than for non-Hispanic white women; this finding was not statistically significant. Adjustment for demographic factors and anthropomorphic factors had little effect on the odds of RCD. Hispanic women, however had statistically significant higher odds of RCD than non-Hispanic white women as did non-Hispanic black women when adjusting for obstetrical/medical factors. Qualitative findings suggested ethnic/racial differences in women's trust of providers and in their perception of choice in birth options. Both Hispanic and non-Hispanic women stated preferences for vaginal birth after cesarean; no Hispanic women expressed a preference for RCD. Hispanic women reported less trust in their providers and less opportunity to formulate a delivery plan. All Hispanic women, even those in private practice, were delivered by providers whom they had not met.

Conclusions: Ethnic/racial differences in RCD odds were not accounted for by differences in demographic and anthropometric factors; in fact, statistical differences by ethnicity/race were not noted until adjustment was made for obstetrical and medical risk factors. RCD was not a preferred choice of delivery for women across ethnicity/race and Hispanic women reported

distrust in provider recommendations. Interventions about choices of delivery options should consider socio-cultural perspectives to assist Hispanic women to be active participants in decision-making.

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Abbreviations

ACOG	The American College of Obstetricians and Gynecologists
AIC	Akaike Information Criterion
AOR	Adjusted Odds Ratio
BIC	Bayesian Information Criterion
CD	Cesarean Delivery
CHTN	Chronic Hypertension
CI	Confidence Interval
CNM	Certified Nurse Midwife
CPD	Cephalo-pelvic Disproportion
DC	District of Columbia
DR	Delivery Record
EBW	Estimated Birth Weight
EMR	Electronic Medical Record
ERCD	Elective Repeat Cesarean Delivery
FOB	Father of the Baby
GDM	Gestational Diabetes Mellitus
IDI	In-depth Interview
IG	Interview Guide
IRCD	Indicated Repeat Cesarean Delivery
L&D	Labor and Delivery
LGA	Large for Gestational Age
MLR	Multivariable Logistic Regression
MWHC	Medstar Washington Hospital Center
NHANES	National Health and Nutrition Examination Survey
NICU	Neonatal Intensive Care Unit
NISS	Nationwide Inpatient Sample Survey
PNR	Prenatal Record
PPROM	Premature Preterm Rupture of Membranes
PTS	Provider Trust Scale
RCD	Repeat Cesarean Delivery
SCN	Special Care Nursery
SI	Student Investigator
SIN	Study Identification Number
TOL	Trial of Labor
TPS	Trust in Provider Scale
UOR	Unadjusted Odds Ratio
UR	Uterine Rupture
US	United States
VBAC	Vaginal Birth After Cesarean
VD	Vaginal Delivery
VIF	Variance Inflation Factor

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Chapter 1 Introduction

1a. Overview

The cesarean delivery (CD) rate in the United States (US) steadily rose from 20.7 percent in 1996 to reach an all-time high in 2009 of 32.9 percent, reflecting increases in both primary and repeat cesarean deliveries (RCD).[1–4] Despite efforts to reduce non-medically indicated CD, the total cesarean rate in 2016 decreased only slightly since 2009 to 31.9 percent.[4] RCD – which can be clinically indicated[a] (IRCD) or elective (ERCD) – accounts for a third of all CD and presents a greater overall health risk to women than primary cesareans. Each subsequent CD a woman experiences is associated with an increased risk of morbidity.[1,5] Hispanic women are disproportionately at risk because they have the highest rate of RCDs, despite a lower rate of primary cesareans.[6,7]

Many women undergo an ERCD, a RCD performed in the absence of any obstetrical or medical indications.[8] ERCDs are a public health concern because they are related to increased maternal morbidity such as longer recoveries/hospitalizations and increased risk of maternal infection, subsequent birth complications, hemorrhage, need for blood transfusion, deep vein thrombosis, adhesions, maternal mortality, and financial costs.[1,5,9–12] An overall safer and more cost-effective alternative to an ERCD is a vaginal birth after cesarean (VBAC), but national VBAC rates have declined steadily since the mid-1990s.[5,6,9,10,13] In a 22-state analysis of data using 2003 revised birth certificate data, the VBAC rate declined to 8.3 percent in 2007 from a high of 27.3 percent in 1996 – a 70 percent decline.[14] In 2016, the VBAC rate rose to 12.4 percent; comparable 2010-2015 data is not available because not all reporting areas had adopted the 2003 U.S. Standard Certificate of Live Birth.[15]

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[a] There are a range of conditions that indicate a need for an IRCD: fetal asphyxia or acidosis, chorioamnionitis, shoulder dystocia, cephalic-pelvic disproportion, maternal pelvic deformity, eclampsia and HELLP syndrome, genital herpes, umbilical cord prolapse, abnormal placental status (previa, accrete, abruption), or current presentation of uterine rupture. A RCD in the presence of these clinical indications presents less risk and results in better outcomes for women and newborns than undergoing a TOL.

Studies have shown that when compared to non-Hispanic women, Hispanic women are 31-49 percent less likely to have a VBAC.[2,5,6,16,17] Natality data from 50 reporting states and the District of Columbia (DC) in 2016 showed Hispanic women with a lower percentage of VBACs than non-Hispanic black or white women (11.5 versus 12.4 and 12.8 per 100 live births, respectively).[15] The reasons for this discrepancy are not clear, but it is widely recognized that the driving forces behind VBAC rates may not all be clinical in nature.[2,5,6,16,18–23]

Studies to date have explored factors associated with RCD, but most either involved predominantly non-Hispanic white women, been racially rather than ethnically diverse, only included English-speaking women, or taken place outside the US.[8,18,20,22,24–30] The underrepresentation or exclusion of Hispanic American women in these studies means there is limited understanding of why Hispanic women in the US have RCDs, which in turn puts them at greater risk for morbidity. Additionally, the degree to which ERCDs are truly *elective*, that is, the choice of the woman in consultation with her provider, is debatable, particularly among Hispanic women for whom language barriers and cultural factors may impede patient-provider communication.[27,31] Patient preference has been presented as an explanation for why Hispanic women have low rates of VBAC, but few studies exist to support this claim and fewer have explored the role that cultural-related factors (e.g. deferring to professionals; avoidance of verbal confrontation) may play in the decision-making process.[8,27,31,32] Although there is evidence that ethnicity is associated with VBAC rates,[2,5,16,17 3–6] it is not clear whether the reason for differences are due to demographic, anthropomorphic, obstetrical/medical, and health system risk factors, or patient preference.

1b. Specific Aims

This study was conducted with the goal of adding to our understanding of the factors that influence delivery choices for Hispanic women who have experienced a prior CD. The specific aims were to:

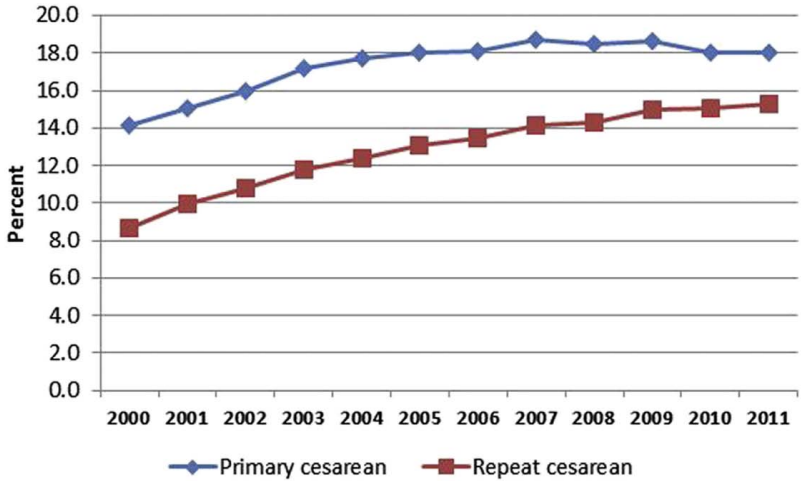
1. assess the relation between ethnicity/race and RCD among women with a previous CD;
2. examine whether risk factors that differ by ethnicity/race explain differences in the odds of RCD and VBAC; and
3. investigate perceptions about VBACs and RCDs among Hispanic and non-Hispanic women with a previous CD.

1c. The Magnitude of the Problem

CD rates in the US rose steadily from the mid-1990s[14] until 2010 when they plateaued at 32.8 percent. While there have been recent decreases in rates, CD rates in 2016 (31.9%) remained well above the rate of 10 percent established by the World Health Organization as associated with reductions in maternal and newborn mortality rates.[3] Although there are currently no recommended rates of RCD in the literature, the Office of Disease Prevention and Health Promotion has established a 2020 RCD rate goal of 81.7%.[45] In 2016, including data from the 50 states and DC, 87.6 percent of women with a previous CD delivered by RCD.[15 33 40] Decreasing VBAC rates (the proportion of women with a prior CD who deliver vaginally) have disproportionately contributed to the rise in CD, more so than the concurrent rise in primary CD rates. An analysis of data from the Nationwide Inpatient Sample Survey (NISS) shows that the increase in RCD between 2000 and 2011 was significantly steeper than that for primary CD: a 6.6 percent increase in RCD versus 3.8 percent in primary CD, $p < .05$ (*Figure 1.1*).[34]

There are ethnic differences in RCD and VBAC prevalence. Despite a lower prevalence of primary CD (20.5, 25.6, and 22.1 per 100 births for Hispanics, non-Hispanic blacks and non-Hispanic whites, respectively), Hispanic women in the US had the lowest rate of VBAC in 2016.[15] The reported rates were 11.5 per 100 for Hispanic women compared to 12.4 for non-Hispanic black and 12.8 for non-Hispanic white women.[15] VBAC rates within Hispanic subgroups also vary. In 2007, the prevalence of VBACs for a 22-state area was lowest for Cuban

FIGURE 1.1. TRENDS IN PRIMARY AND REPEAT CESAREAN DELIVERY: NATIONWIDE INPATIENT SAMPLE, UNITED STATES, 2000-2011.[34]



(2.0%) and Central or South American (6.3%) women and highest for Puerto Rican women (8.2%).[14]

RCDs account for a third of all CDs and present a greater overall health risk to women than primary cesareans.[1,5] With each subsequent CD, there is an increased risk for uterine rupture (4-6 per 1,000 for women with one prior cesarean; 9-30 per 1,000 for women with two or more previous CDs), placental complications, abdominal adhesions, hemorrhage and maternal mortality.[1,2,35] Using NISS data, Creanga and colleagues (2015) found that women with a RCD were more likely to have had a cystotomy, placenta accreta, urinary bladder operation, or wound complications than women who had a primary CD.[34]

Two major factors complicate the decision about undertaking a trial of labor (TOL) to attempt a VBAC: uterine rupture and fetal risk. Uterine rupture is a frequently cited risk associated with TOL.[36,37] A TOL carries an increased risk of uterine rupture when compared to an ERCD (2.9; 95% CI: 1.1, 7.6)[5,38] and may result in uterine rupture in 0.1 to 3.0 percent of deliveries.[35] Using odds ratios computed from a meta-analysis of 11 studies, between 374 and 809 women would have to undergo an ERCD to prevent a single case of uterine rupture.[37] A decision

analytic model that accounted for future pregnancies, patient preferences, infant outcomes and cost demonstrated that for women with one prior CD and no clinical indications for a RCD, a TOL versus an ERCD results in $164.2 million saved and 500 quality adjusted life years gained per 100,000 women.[10] A TOL also results in lower maternal mortality in term pregnancies than an ERCD (1.9 versus 9.6 per 100,000, respectively).[2,5]

Perinatal mortality rates are lower for ERCD than for TOL; ERCD is often considered safer for newborns than a TOL.[12,37] The evidence demonstrating this safety has generally been of poor quality[5] and has not accounted for the infrequent occurrence of adverse neonatal outcomes such as death or cerebral palsy.[13] For instance, in a hypothetical cohort of 100,000 women with one previous low transverse CD, it would take 1591 CDs to prevent one major adverse neonatal outcome (e.g. death, cerebral palsy) at a cost of more than $2.4 million.[13] In one study comparing fetal admissions to the special care nursery (SCN) or neonatal intensive care unit (NICU) among women with a previous CD to those for nulliparous women, significant differences were only found between women who underwent a CD.[39] Women with a previous CD undergoing a RCD had a significantly decreased risk of SCN/NICU admission when compared to nulliparous women undergoing a CD ($p < .01$). Women with a previous CD delivering vaginally were at no greater risk of having a baby admitted to the SCN/NICU than women without a previous CD who also delivered vaginally. Thus, VBACs do not appear to place an infant at increased risk. RCDs, on the other hand, may appear "safer" but only when compared to women having their first CD. Overall, there is less risk associated with TOL than with ERCD for mom, and newborn risks may also be lower, but need further research.[b]

Studies exploring VBAC and ERCD outcomes and risk often do not measure intent – that is, intended VBAC versus intended ERCD.[40] To truly establish the magnitude of ERCD risk among Hispanic women and understand the proportion of women who have a VBAC, studies

[b] RCD, relative to VD, has better implications for pelvic disorders (e.g. urinary incontinence, uterine prolapse), although the long-term follow-up shows this benefit to be temporary.[38]

must assess whether women who do not attempt a TOL have different risk factors than women who attempt a TOL, but have an unsuccessful one. Factors that occur during labor and delivery resulting in a RCD may be related to either medical concerns or patient and provider interactions or preferences. While both scenarios may result in a RCD, using appropriate comparison groups or adjusting for risk factors allows for a more precise understanding of the association between ethnicity and RCD risk.

In their Evidence Report on Vaginal Birth after Cesarean, Guise et al. (2010) noted a highly variable TOL rate (28-70%).[5] Exploring study design and other factors that accounted for the large variability, gestational age and year of study were found to be statistically significant. Based on data from 18 prospective and retrospective cohort studies, the US TOL rate was determined to be 58 percent (95% CI 52, 65).[5] Guise and colleagues (2010) calculated that among studies in the US, 74 percent (95% CI 72, 76) of women who had a TOL delivered vaginally.

1d. Significance of the Research

Study Aims 1 and 2 were addressed using data obtained from electronic medical records (EMR), which included delivery and prenatal records from one urban Level III hospital in DC. A single-site cohort study design provided control for hospital type (urban versus rural; size), state/district liability differences and institutional policies thought to be linked to variation in risk of CD.[5,41–44] EMR data provided information about the intrapartum course not available from other data sources and prenatal records were instrumental in providing data usually missing from delivery records. Data from both records allowed for the evaluation of the relation between ethnicity and RCD (Aim 1) and whether known, measureable demographic, anthropomorphic, obstetrical/medical, and health system factors for CD account for any observed differences in delivery outcomes among Hispanic and non-Hispanic women (Aim 2).[19]

Another significant contribution of this research is the investigation of the perceptions of Hispanic women, including non-English speaking women. The qualitative portion of the study

investigated perceptions of VBACs and RCDs among Hispanic and non-Hispanic women (Aim 3). In-depth interviews were conducted among women with a previous CD at the same Level III urban hospital in DC. Hispanic and non-Hispanic black and white women were interviewed both during their prenatal period and postpartum. Unlike most studies to date, women who did not speak English were not excluded. Topics included previous labor and delivery experiences and how they impact subsequent decision-making; perceived safety of RCDs compared to VBACs; the informed consent process and patient-provider communication; and decision-making support systems (partner, local community, relatives). Also, factors that may play a role in decision-making (cultural norms, previous medical history, perception of provider beliefs) were explored addressing a major gap in the current literature about RCD.

1e. Public Health Importance

The importance of the current study is two-fold. Assessing the relation between ethnicity and RCD as well as possible explanations, particularly modifiable factors, for this relation targets a growing population of US women that may be disproportionately affected by RCDs. The identification of modifiable factors is the first step in creating effective public health policy and programs that target unnecessary RCDs to reduce associated risk and healthcare costs for women.[9,10,13]

Second, the study results may inform healthcare providers on how to better engage Hispanic and non-Hispanic patients in making decisions about childbirth plans by examining their perceptions of VBAC and RCD. The identification of social and cultural factors that affect patient-provider communication may by extension have a broad public health impact on other maternal health concerns facing the growing Hispanic population. Findings from this study may have several public health implications: (1) future reduction in ERCD and related costs to women and (2) patient informed care whereby contextual factors are integrated into healthcare providers' conversations with women about their childbirth decisions.

1f. Organization of the Dissertation

This dissertation is organized by chapters. Chapter 2 presents a discussion of ethnic differences in RCD risk and explanations currently offered in the literature to explain increased rates of CD and RCD among Hispanic women. Additionally, the literature presented in Chapter 2 is used to present a guiding conceptual framework for patient-provider communication about decision-making regarding RCD. Chapter 3 provides a detailed description of the study design and methodology, outlining the quantitative and qualitative research methods of study. Quantitative results from Aims 1 and 2 are presented in Chapter 4. Chapter 5 describes the results of Aim 3, the qualitative research component. Lastly, Chapter 6 provides a summary of the dissertation's findings, strengths and limitations, study implications, and areas for future research.

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Chapter 2: Review of the Literature

2a. Overview

Women with a prior cesarean delivery (CD) have two options for subsequent deliveries: a trial of labor (TOL) to attempt a vaginal birth after cesarean (VBAC) or a repeat cesarean delivery (RCD), either elective (ERCD) or indicated (IRCD). For women with no clinical indication for an IRCD, a TOL is the recommended choice based on available evidence.[1–6] Despite evidence supporting this claim, women with a prior CD continue to be at risk for an ERCD, including Hispanic women living in the United States (US).[c] Reasons for ethnic differences have been proposed, including elevated maternal BMI, gestational diabetes, fetal macrosomia, lack of previous surgical records for provider review, patient preferences and provider preferences. Current studies, however, often underrepresent or exclude Hispanic women with previous CDs, resulting in limited understanding about Hispanic women's risk for ERCDs.

2b. Evidence of Ethnic Differences in RCD Risk

Studies of ethnic differences in CD show variation in the relative risk of cesarean, but the direction and magnitude of this risk has not been consistent across studies. Many studies find an increased rate of CD among Hispanic women relative to non-Hispanic white women[7–12], but the literature on ethnic differences in CD rates has mostly focused on primary CDs, often excluding multiparous women. When multiparous women with previous CD are included in the sample, no distinction is often made for whether or not the CD was medically indicated or elective in nature.[13] One study found that Hispanic women were no more or less likely to have a RCD than non-Hispanic white women, but did show differences among Hispanic subgroups.[14] Given the focus of this research on RCD and the large volume of research on CD, only studies assessing the association between ethnicity and RCD or VBAC that included multiparous women with a previous CD are presented here; where possible, studies that differentiated between IRCD and ERCD are highlighted.

[c] For a snapshot of Hispanics in the US, specifically the Central American population, please refer to *Appendix A*.

The results of three studies indicated higher odds of CD among Hispanic women than non-Hispanic women. The results of a retrospective cohort study (1980-2001) at the University of California, San Francisco Medical Center showed Hispanic women to have a 1.19 (95% CI 1.05, 1.34) greater odds of CD than non-Hispanic white women, adjusting for prior CD, maternal age, gestational age, birth weight, public insurance, chronic hypertension (CHTN), preeclampsia, pre-gestational diabetes, gestational diabetes (GDM), chorioamnionitis, placental abruption, induction of labor and decade of delivery.[9] Women with cephalic, singleton pregnancies of at least 24 completed weeks were included in the study (n= 28,493). The only exclusion criteria were women who had been transferred to the medical center, with placenta previa, or who presented with active herpes simplex virus at the time of delivery; thus, women with prior cesareans were included in the sample. Hispanic women comprised 11.6 percent of the sample and had the highest rate of a previous CD (11.5%) compared to non-Hispanic white, African American and Asian women (8.1%, 10.0% and 8.2%, respectively). Among women with term births with a previous CD (n= 2076), Hispanic women had 1.23 the odds of non-Hispanic white women of delivering by cesarean (95% CI: 0.92, 1.66). The study did not explore whether the CD was clinically indicated or elective and neither provider data nor information about the previous CD was included in the study.

A study of 38,316 births to women with a previous CD conducted in Florida found that Hispanic (ARR: 1.07; 95% CI 1.01, 1.10) and non-Hispanic white (ARR: 1.07; 95% CI 1.03, 1.12) women were at higher risk of ERCD than non-Hispanic black women.[15] Birth records from 2006-2007 were linked with inpatient record files; since social security number was the primary linkage variable, women without a valid social security number were not included in the sample. Thus, many of Florida's births to undocumented immigrant women were likely excluded from this study. Other exclusions included women less than 37 weeks gestation and those with conditions that might require early delivery as defined by the Joint Commission's Conditions Possibly Justifying Delivery < 39 weeks Gestation.[16]

Finally, Kabir and colleagues (2005) conducted a cross-sectional study of all singleton births in the Nationwide Inpatient Sample Survey (NISS) for 2001, of which 371,863 were RCDs.[17] The author defined potentially unnecessary CDs as taking place in the absence of specific indications determined a priori[d]. Hispanic women had the highest percentage of potentially unnecessary CD as compared to non-Hispanic white and black women (67.8% versus 66.3% and 61.9%, respectively). Hispanic women also had 1.07 the odds of non-Hispanic black women (the reference) of receiving an unnecessary RCD (95% CI: 0.99, 1.16). In 2001, the NISS contained data from about 1000 hospitals representing 24 states that reported data on race and ethnicity. While it is not possible to determine whether "potentially unnecessary cesareans" were "clinically unnecessary", the results of the study provide evidence of CDs that "are not supported by documentation of recognized clinical indicators" (p. 718)[17].

Differences in CD risk between foreign and native born Hispanic women have also been documented in the literature. Zlot, Jackson and Korenbrot (2005) found that foreign-born Hispanic women were at significantly higher odds of CD than US-born Hispanic women, but parity was shown to be an effect modifier: multiparous native-born Hispanic women had 2.2 times greater odds of delivering by cesarean than multiparous Mexican-born women (95% CI: 1.1, 4.4).[11] Of significance to the current study, the nativity variable (US- or Mexican-born) had a larger effect on the odds of CD than language spoken (Spanish only/mostly Spanish, bilingual, English only/mostly English), raising the question as to whether culture versus language proficiency plays a larger role in the patient-provider exchange. Data were obtained from the San Diego Birth Center Study conducted from 1994 to 1998. Only women without private insurance were included in the study – an important limitation to generalizability of the study's results.

[d] Indications for primary and repeat cesareans as determined by the authors included the following: breech, dystocia (disproportion, obstructed labor, abnormality of forces of labor, long labor, malpresentation, failed induction of labor), fetal distress (fetal distress, cord prolapse), others (antepartum hemorrhage/placental abruption/placenta previa, intrauterine growth retardation, macrosomia, genital herpes simplex virus, diabetes mellitus/abnormal glucose tolerance, hypertensive disorder, oligohydramnios, chorioamnionitis, fetal central nervous system malformation affecting management, other congenital/acquired anomaly, rupture of uterus, congenital/acquired abnormality of vagina, uterine scar, Rhesus (anti-D) isoimmunization, cerebral hemorrhage/occlusions).

Women were excluded if they had two or more prior CD, CHTN, substance abuse during pregnancy, or missing one or more of the exposure or outcome data resulting in the inclusion of 2102 Hispanic women. While the sample included women with a previous CD, primary and RCD were included together as one variable – cesarean section.

Janevic and colleagues (2014) found similar results in a sample of all singleton live births that occurred in New York City from 1995 to 2003.[18] The authors found that foreign-born Caribbean, Mexican and Central/South American Hispanic women were at higher risk of CD than women of the same ethnic background who were born in the US (1.23, 1.27, and 1.12, respectively). CD risk varied by Hispanic subgroups; Hispanic Caribbean women had the highest relative risk of CD (aRR 1.27; 95% CI 1.24, 1.30) with Mexican (aRR 1.11; 95% CI 1.06, 1.15), Central/South American (aRR 1.13; 95% CI 1.10, 1.17) and African-American (1.20; 95% CI 1.17, 1.23) women still at an elevated risk compared to non-Hispanic white women. This retrospective study linked birth certificate and hospitalization data.[18] Women with missing data or who had 'other' listed as their ethnicity were excluded from the study, resulting in 961,381 records. The authors adjusted for maternal age, maternal education, insurance status, pre-pregnancy weight, parity, birth weight, gestational age, birth year, medical complications (anemia, pre-gestational diabetes, genital herpes, CHTN, lung disease, renal disease, coagulation and cardiac disease) and pregnancy complications (GDM, eclampsia, preeclampsia, breech, placenta abruption, placenta previa, fetal distress, cord prolapse and hypertension).

Edmonds, Hawkins and Cohen (2016) provided additional support for Janevic's findings.[14] Distinct differences in VBAC rates by ethnicity and nativity were found using data from the Massachusetts vital statistics data on all live term VBACs or RCDs among women with a history of at least one prior CD between January 1996 and December 2010 (n= 119,752). US born women had a higher proportion of VBACs than foreign-born women ($p < .01$). Adjusted odds of VBAC also differed by Hispanic subgroups with Dominican (AOR 0.79; 95% CI 0.70, 0.90) and Puerto Rican (AOR 0.87; 95% CI 0.80, 0.95) women having lower odds of VBAC than

non-black, non-Hispanic women. Mexican (AOR 1.19; 95% CI 0.96, 1.47), Colombian (AOR 1.05; 95% CI 0.82, 1.34) and Salvadoran (AOR 1.18; 95% CI 0.97, 1.43) women had higher odds of VBAC than non-Hispanic, non-black women. Overall the authors found differences in VBAC rates among Hispanic subgroups relative to non-Hispanic women, but no differences were found in VBAC rates when all Hispanic women were compared to non-Hispanic white women (AOR 1.04; 95% CI 0.98, 1.11). The Hispanic subgroups made up 0.2 to 5.5 percent of the total sample; thus, the study may have lacked sufficient power to determine differences between subgroups.

Studies noting that Hispanic women are at increased risk of RCD have not been clear as to whether this difference is due to lower odds of a TOL. One of the few studies to explore the relation between preferred and actual mode of delivery was conducted by Selo-Ojeme and colleagues (2008) among a sample of 215 women with one previous CD.[19] Non-white women were more likely to choose a TOL than white women (76.2% versus 59.1% respectively, $p < .001$). Among all women who chose to attempt a VBAC (n= 119), Afro-Caribbean women had three times lower odds of delivering vaginally (OR 0.31; 95% CI 0.14, 0.68). The authors grouped women into four "ethnic" categories: White, Afro-Caribbean, Asian and Other (Chinese, Japanese, Mixed races and not specified). While one of few studies to date to look at preferred versus actual mode of delivery, this unique categorization of ethnicity makes it difficult to compare with results from other studies.

In a retrospective cohort study of VBACs, Hollard et al. (2006) also found no statistically significant differences in TOL rates among Hispanic and non-Hispanic women: Hispanic (45.4%), non-Hispanic white (46.6%), and African American (46.0%) women.[20] However, Hispanic women had 0.37 the odds of a successful VBAC compared to non-Hispanic white women (95% CI: 0.27, 0.50), adjusting for age, labor induction, augmentation, epidural, birth weight, clinic service and history of no previous vaginal delivery.[20] All deliveries from 1997 to 2002 were included in the study that occurred in the four-hospital Memorial Health Care System of Southern California to women with a history of previous CD who were between 24 and 43

weeks gestation and eligible for a TOL, resulting in a sample of 5589 women of which 2575 underwent a TOL. Women were ineligible for a TOL if they had more than one previous CD, a previous vertical uterine incision, prior uterine surgery, multiple gestation, non-vertex presentation, severe preeclampsia, placenta previa, or active genital herpes.

2c. Explanations for Increased Risk of Cesarean and Repeat Cesarean Delivery

Several factors have been proposed to explain why some women may be at increased risk of RCD. This section presents only the factors proposed in the literature to explain why Hispanic women may have an increased risk of RCD.[4,9,20–23] Factors are organized according to the conceptual framework developed for the study (*Section 2e*): demographic factors, factors influencing women (socio/cultural), and factors influencing providers (anthropomorphic, obstetrical/medical, health system). Ethnicity, language, and country of origin (demographic risk factors) were discussed above.

Demographic Risk Factors

Although not often suggested as explanations for Hispanic women's RCD risk, demographic risk factors were explored as important covariates in this study: maternal age, marital status, education, language, year of delivery, and ethnicity/race. Maternal age, marital status, education, race and ethnicity have been proposed in the literature as demographic risk factors for RCD and thus, the related literature will be briefly reviewed.[4,23,24]

Maternal Age

Two population-based retrospective cohort studies[25,26], one multiple site retrospective cohort study[27], and one population-based prospective cohort study[28] found a statistically significant association between increasing maternal age and lower rates of VBAC/TOL (*Appendix B, Table B.1*). Cameron, Roberts, and Peat (2004) examined predictors of VBAC using a sample of 24,590 women from New South Wales, Australia.[25] Only women with one previous CD and no medical or obstetrical complications who had a singleton birth between 1998 and

2001 were included in the study. The authors found that as maternal age increased, so did the odds of a RCD. The study by Knight and colleagues (2013) took place in England and looked specifically at women with one previous CD.[26] Women over 34 years of age had 21 percent lower odds of a successful VBAC than women 24-34 years old.

A prospective study from Sweden also found greater odds of CD with increasing age: Hildingsson and colleagues (2008) found women over the age of 35 to have 2.1 statistically significant greater odds of an elective cesarean delivery than women less than 25.[28] Their sample consisted of 2878 Swedish women who were recruited prenatally between 1999 and 2000. Sriniva et al. (2007) conducted a multiple site study in the US between 1996 and 2000.[27] They too found that women over the age of 39 had 1.18 greater odds of VBAC failure than women aged 21-34 years. Another study conducted in the US, however, found no significant association between age and TOL success.[29] The study included 14,529 women who underwent a TOL and delivered between 1999 and 2002. Women meeting inclusion criteria needed to be at least 37 weeks gestation, have a singleton delivery, and only one previous CD. Age was not included in their modeling analysis so no information on adjusted odds by age was available. The association between age, ethnicity and RCD risk was not specifically explored in the literature.

Marital Status

The evidence supporting an association between marital status and CD risk is limited (*Appendix B, Table B.2*). A study of births occurring in 80 Mexican municipalities along the border region with the US found a higher prevalence of CD among married women.[30] Mexican-born married women had a rate of 49.8 percent whereas unmarried women had a rate of 39.3 percent. US born Hispanic married women also had a higher rate than single women (34.1% versus 29.4%, respectively), but the sampling methodology for the study was unclear (e.g. primary versus repeat cesarean; sample size). Landon et al. (2005) found that unmarried women were at 0.88 lower odds of having a successful TOL than married women ($p < .001$), but marital status was not included in final model of TOL success.[29] Hildingsson et al. (2008) found no

relation of marital status with elective CD.[28] An association between marital status and CD may be due to cultural differences in the role that partners play in the decision-making process when choosing between a TOL or RCD.

Education

While VBAC rates are highest among women with less than a high-school diploma (9.1%) and lowest for women who attended some college or more (7.9%),[31] the evidence regarding maternal education as an independent risk factor for CD is ambiguous (*Appendix B, Table B.3*). Hildingsson and colleagues (2008) found no statistically significant difference in the odds of an elective CD for women with different levels of education.[28] A study in Taiwan found statistically significant greater odds of CD, however, for women with senior (1.32; 95% CI 1.08, 1.60) and junior (1.51; 95% CI 1.08, 2.13) high school attainment as compared to women who attained a college level or higher of education.[32] King (1994) found similar results with 1989 data from New York State; the odds of VBAC increased with increasing years of education.[33] Gholami et al. (2014) found that among 292 Iranian women with a previous CD, women with more than a high school diploma had 3.86 times the odds of preferring a CD than women with less than a high school diploma (95% CI 1.85, 8.05).[34]

Race

Of all the demographic predictors of VBAC, the strongest evidence has been offered for ethnicity and race.[4,23] The two retrospective cohort studies included here showed that African-American women have a reduced likelihood of VBAC.[4,23,27,29,33] (*Appendix B, Table B.4*). While race could be an additional risk factor for Hispanic black women, few studies have stratified Hispanic women by race, perhaps because of limitations related to small sample sizes, a lack of standardization for reporting race separate from ethnicity, or due to the way Hispanic women report this information; that is, they may not report race.

Factors Influencing Providers

Since there are few randomized controlled studies of TOL versus ERCD,[35] current practice is commonly guided by expert opinion and professional consensus which most often are based on the result of retrospective observational studies. The current literature supports offering both a TOL and ERCD to women with one previous low-transverse CD in the absence of indications necessitating a CD (see footnote a).[36–38] The patient is then expected to decide on the final plan of delivery with guidance from her provider. ERCD is preferred for women who present with a BMI >50 [39]; an estimated fetal weight of >4000 g, particularly in women without a previous vaginal delivery; and a high or vertical uterine incision.[6,23,39] These indications for ERCD are based on professional consensus about the increased risk of failed TOL and/or uterine rupture. Literature on the association between RCD and factors thought to influence providers are presented below. Factors include anthropomorphic (maternal height, maternal BMI), obstetrical/medical (macrosomia, gestational diabetes, availability of previous medical records), and health system (provider preferences, payer source, hospital type). While study of provider preferences is beyond the scope of this study, the literature is presented here to provide context.

Anthropomorphic: Maternal Height

Results of an analysis of National Health and Nutrition Examination Survey (NHANES) data from 2007-2010 show lower mean heights for Hispanic women when compared to both non-Hispanic white and non-Hispanic black women regardless of age.[40] Hispanic women 20-39 years of age had mean heights of 158.2 cm[e] as compared to non-Hispanic white and black women (164.8 and 163.6, respectively). Among Mexican-American women specifically, mean height decreased to 157.5 cm. Whether these significant differences impact delivery outcome is not clear.

Study results suggest a relation between maternal height and increased odds of CD (*Appendix B, Table B5)*. Multiple studies have found that maternal heights less than 160 cm are

[e] 2.54 cm = 1 inch. Thus, 158.2 cm = 62.3 inches; 164.8 cm = 64.9 inches; 163.6 cm = 64.4 inches

significantly associated with increased odds of CD, but these studies took place outside the US with non-Hispanic populations of primiparous women.[41–45] The pathway through which maternal height impacts delivery mode is not clear. It is thought that a higher risk of cephalo-pelvic disproportion (CPD), resulting in a failure to progress in labor, is the primary reason for a CD, but it has also been proposed that difficulty in monitoring the progress of labor may result in an increase in CD.[45] Neither Kirchengast (2007) nor Sheiner et al. (2005) found a correlation between shorter stature and CPD and suggest the possibility that providers may be more likely to favor a CD for women of short stature.[41,43] Bolhman and colleagues (2010) found that women less than 155 cm in stature were at increased risk for secondary CD, as defined by those that took place after the onset of regular contractions or rupture of membranes.[44] There was no significant association, however, found between stature and emergency cesarean or stature and planned cesarean. The sample included 5594 deliveries from one hospital in Northern Germany.

Anthropomorphic: BMI

In 2011, Hispanic women had higher percentages of overweight (38%) or obese (31.8%) than non-Hispanic white women (33.9% and 26.2%, respectively), adjusted for age.[46] A review of the literature suggests a relation between maternal obesity (BMI > 35) and an increased risk for CD.[45,47–51] (See *Appendix B, Table B.6*) A higher prevalence of maternal obesity may place Hispanic women at increased risk for CD. However, studies showing the relation between CD and BMI have been predominantly restricted to samples of nulliparous women or multiparous women without a prior CD. To provide background, some of these studies are reviewed below.

Bergholt et al. (2007) found that women with a BMI greater than 35 had 3.8 times the odds of a CD (95% CI: 2.4, 6.2) than women with a BMI less than 25 in their sample of 4341 nulliparous women in spontaneous labor with a single cephalic presentation at term who delivered in a London hospital between 1995 and 2000.[45] The relation between high BMI and increased CD risk remained after adjusting for fetal macrosomia, an expected confounder.

Another single site study of singleton births between 1997 and 2001 also found that among term births, the odds of undergoing a CD increased with increasing BMI. Women with BMIs greater than 30 had 2.4 times the odds of CD than women with BMIs between 19.8 and 25, after adjusting for significant confounding variables (95% CI 2.0, 2.9).[48] The study included multiparous women; exclusion criteria included prior CDs, deliveries prior to 23 weeks of gestation, women with contraindications to labor or vaginal delivery, non-vertex presentations and those scheduled for an elective CD.

Getahun and colleagues (2007) found a similar relation in a retrospective cohort study using 1989-1997 Missouri state birth certificate data (n= 113,789).[49] Women having a second birth with a pre-pregnancy BMI greater than 30 had 1.54 times the odds of undergoing a primary CD (95% CI 1.46, 1.63) than women with a BMI between 18.5 and 24.9. Exclusion criteria included primiparous women, women with one or more pregnancies prior to 1989 or a prior CD, stillbirths, missing maternal weight and height, births at less than 20 weeks gestation and missing VBAC and cesarean data. Models were adjusted for maternal age, race and education, initiation of prenatal care, marital status, average pregnancy weight gain, inter-pregnancy interval, smoking and alcohol use.

Declerq and colleagues (2015) reported consistent findings using birth certificate data from 38 states and the District of Columbia (DC).[47] Low risk women with pre-pregnancy obesity were more likely to have a CD even when controlling for maternal demographics and medical risk factors. The risk of CD increased as maternal pre-pregnancy BMI increased. “Low risk” was defined based on the Healthy People 2020 definition: singleton, vertex presentation, and delivering between 37 to 41 weeks of gestation. Women with prior CD were excluded from the analysis. Hispanic women made up about 31.6 percent of the total sample of 2,157,342 births. O’Dwyer et al. (2011) prospectively examined the differences in CD risk between primi- and multigravidas by BMI.[52] They enrolled 2000 white European women with a singleton pregnancy

in their first trimester of pregnancy between July 2008 and April 2010. Multigravida obese women had a greater risk of CD than primigravida obese women, but the increase was due to elective, rather than emergency CD ($p < .01$).

Ethnicity was considered in Ramos and Caughey's (2005) retrospective cohort study of all women delivering at the University of California between 1981 and 2001 [51]. They found that Hispanic women with BMIs greater than 29 had 1.87 greater odds of delivering by cesarean than Hispanic women with normal BMIs (95% CI 1.25, 2.80), after adjusting for GDM, previous CD, weight gain, maternal age, preterm and post term deliveries, parity and length of labor. Compared to obese white women (BMI greater than 29), obese Hispanic women had significantly greater odds of CD (1.27; 95% CI 1.04, 2.16).

The increased risk of CD also extends to RCD since elevated maternal BMI has been associated with unsuccessful TOLs. Women with a BMI greater than 25 have higher odds of an unsuccessful TOL compared to women with normal BMIs, adjusting for other related factors.[53–58] In a comparative prospective study of 122 Kuwaiti women who were eligible for a TOL, women with a BMI greater than 25 had a 5.01 higher odds of an unsuccessful TOL than women with a BMI less than 25 (95% CI 1.96, 12.74), adjusting for unstated factors.[54]

The National Institute of Health Consensus Development Conference Statement on VBAC (2010) proposed that providers do not have to consider women with elevated BMIs as candidates for TOL[23] This recommendation may contribute to increased RCD risk secondary to provider preference. Provider preferences are considered in the health system factors section below.

Obstetrical/Medical Factors: Gestational Diabetes

GDM has been proposed as an independent risk factor for CD although with mixed evidence (*Appendix B, Table B7*). Hispanic women have a high prevalence of GDM. In a retrospective cohort study of all deliveries from April 1996 to May 2010 at the University of

North Carolina Women's Hospital, GDM prevalence was highest among Hispanic women (4.9%, 552 of 11,201), followed by African American women (2.6%, 155 of 5,877) and non-Hispanic white women (2.2%, 155 of 5,877).[59] Al-Qahtani et al. (2012) reported preliminary findings suggesting that diabetic patients may have decreased uterine contractility even in the presence of oxytocin that may significantly increase the risk of CD.[63] However, other studies suggest that the elevated risk of CD among women with GDM may stem from modified provider practice in the presence of the diagnosis, rather than from any clinical indication. Gorgal and colleagues (2012) conducted a retrospective cohort study to determine whether GDM is a risk factor for non-elective CD at a Portuguese hospital between January 2004 and November 2007.[62] In the sample of 220 women with GDM and 660 women who were glucose-tolerant, the researchers found no significant differences in cesarean indications between the two groups. Significant differences in the prevalence of macrosomia between the two groups was also not found. Women with GDM, however, had a statistically significant 52 percent increased relative risk of non-elective CD (95% CI 1.06, 2.16), adjusting for maternal age, pre-pregnancy BMI, gestational weight gain, previous CD, gestational age at delivery and birthweight.

Obstetrical/Medical Factors: Fetal Macrosomia

Fetal macrosomia is often given as a reason for a RCD and is a consistent predictor for failed TOL (*Appendix B, Table B.8)*. Fetal macrosomia, as defined by infants greater than 4000 grams, can result in CPD and shoulder dystocia during delivery. If Hispanic women are indeed at greater risk than non-Hispanic white women of having an infant greater than 4000 grams (1.21; 95% CI: 0.83, 1.76) after adjusting for 1-hour oral glucose load results,[59] then fetal macrosomia could be an explanation for an increased risk of CD among Hispanic women. Scifres and colleagues (2015) found that an ultrasound diagnosis of large for gestational age (LGA) was significantly associated with an increased risk of CD (AOR 3.13; 95% CI 2.10**,** 4.67).[60]

Fetal macrosomia is associated with both elevated maternal BMI (OR: 1.2-1.72) and GDM (OR: 3.2-4.8).[48] Studies showing the relation between CD and the interaction of fetal macrosomia, BMI, and GDM have often not included multiparous women with a prior CD. Homko, Sivan, Nyirjesy and Reece (1995) specifically looked at the influence of ethnicity on the development of macrosomia among women with GDM.[61] In their sample of 139 Hispanic and African-American women with GDM, the authors found no significant difference in the odds of CD, but Hispanic women had 2.68 times the odds of African-American women of delivering an infant with macrosomia (95% CI 1.57, 4.59). The association remained significant even when adjusting for BMI and maternal weight gain.

Obstetrical/Medical Factors: Availability of Medical Records

Prior to 2010, the American College of Obstetrics and Gynecologists (ACOG) recommended that prior surgical records be obtained in order to document the direction of the prior uterine scar before a patient is permitted to undergo a TOL.[38] The literature supports that women with documented low transverse uterine scars are at decreased risk for uterine rupture and appropriate candidates for TOL.

One potential explanation for ethnic differences in RCD is a concern about an increased risk with a TOL in a woman with no documentation of a previous uterine scar, regardless of ACOG recommendations. An inability to request prior surgical records from deliveries taking place outside of the US may place non-native Hispanic women at added risk. Gonzalez-Mendez and colleagues (2012) conducted a retrospective chart review in three community health centers that provided the majority of prenatal care in two counties in California with large numbers of Mexican migrants to explore this often cited reason for why Hispanic women may be denied the opportunity to a TOL.[64] Of 355 multiparous Hispanic women, 50 had a history of prior CD in Mexico and 67 a prior CD in the US. There was no significant difference in the number of medical records requests between these two groups of women; 71 percent of records were not

requested in either group. However, of the 13 records requested from Mexican institutions, only 4 percent were received versus 22 percent of those requested from US institutions (n= 10). A major limitation of the study was that non-Hispanic women were not sufficiently represented and the authors were not able to study whether Hispanic women were at greater risk of CD compared to non-Hispanic women due to a lack of previous surgical records. Due to small sample sizes and the limited generalizability of Gonzalez-Mendez's (2012) results, more exploration of this factor is necessary. While lack of previous medical records is mentioned in the literature as a risk factor for ethnic differences in RCD, there is limited evidence to suggest that there are differences in TOL rates among Hispanic and non-Hispanic women.[20]

BMI, GDM, fetal macrosomia and a lack of previous uterine scar documentation are often suggested as explanations for an increased risk of both primary CD and RCD. Six retrospective cohort studies found that elevated maternal BMI is significantly associated with an increased risk of CD. The results of the studies exploring the relation between GDM and risk of CD (two retrospective cohort studies) or macrosomia and risk of CD (one retrospective study) are less definitive; few studies specifically explore lack of previous scar documentation and CD risk (one small, retrospective single-site cohort study). Whether a higher prevalence of these conditions accounts for ethnic differences in RCD among Hispanic women in the US needs further study using a US based population and accounting for the inter-related effects of BMI, GDM and fetal macrosomia. Additionally, including height in analyses is particularly pertinent to the US Hispanic population.

Health System Factors: Payer Source

Most literature assessing the relation between risk factors and RCD includes insurance as a covariate. How insurance type affects odds of RCD is unclear, but women with private insurance have been shown to have higher odds of RCD. Parrish and colleagues (1994) suggest that differences in CD rates by type of insurance may be attributed to differences in distributions of age between these two groups.[65] In their population-based study of singleton births in

Washington state between 1987 and 1990 (n= 225,466), privately insured women were significantly older than women on public insurance. Because of changes in demographic characteristics over two decades, particularly increasing age at first births, this association is important to consider. In a systematic review and meta-analysis of 21 studies (n= 12.9 million women), women with private insurance had a statistically significant 1.13 greater odds of CD than women with public insurance, after adjustment.[66] The authors proposed that financial incentives may be responsible for the difference. Studies examining the specific relation between payer source and RCD were not found.

Health System Factors: Provider Preference and Practice

The literature suggests that provider preferences have an influence on mode of delivery. Despite more recently trained obstetricians reporting a preference for VBACs,[67] concerns over malpractice litigation and acceptable level of fetal risk may negatively affect a providers' preference for a TOL/VBAC.[68,69] Yang and colleagues (2009) found a statistically significant association between malpractice pressure and delivery method, a finding supported by previous literature ($p < .01$). A survey of ACOG fellows showed that a quarter of fellows stopped offering a TOL between 2003 and 2006.[70] Thirty percent of obstetricians surveyed in 2009 by ACOG reported that they stopped offering TOLs or performing VBACs because of the risk of professional liability litigation.[70,71] Durrance and Hankins (2017) examined hospital births linked to physician malpractice claim histories in the State of Florida between 1994 and 2010 (n= 2 million births delivered by 2300 physicians).[72] No statistically significant difference in the rate of primary cesarean was found with a first malpractice report or lawsuit. However, among a subsample of deliveries with one prior CD, a statistically significant reduction in odds of VBAC was found (10%). Thus, state and hospital VBAC accessibility must be considered when assessing RCD risk.[73]

Different providers may have different thresholds of acceptable risk. Confronted with a perceived "precious baby" (e.g. a result of infertility treatment, advanced maternal age), two

thirds (67%, 95% CI: 61, 72) of providers at one Australian hospital lowered their acceptable level of fetal risk – increasing their willingness to recommend a CD.[74] Dweik and colleagues (2014) argue that obstetricians are likely to approach any "precious baby" pregnancies in a defensive way. [75]

Provider type also has been found to affect RCD risk. A study comparing obstetricians (n= 34), family physicians (n= 97) and midwives (n= 50) across Canada found that 52.9 percent of obstetricians agreed that an RCD is a woman's right as compared to 14.6 percent of midwives and 13.6 percent of family physicians ($p < .001$).[76] Differences between midwives (n= 148) and obstetricians (n= 100) were also found in a study conducted in Italy. When presented with a woman who had had one previous CD for failure to progress, 27 percent of obstetricians recommended an ERCD versus 6.8 percent of midwives ($p < .001$).[77] Metz and colleagues (2013) found key provider differences among 3120 women who were determined to be good candidates for TOL.[78] Women who were managed by a family practitioner had lower odds of choosing a TOL than women managed by a nurse midwife (OR 0.58; 95% CI 0.38, 0.87 versus OR 5.02; 95% CI 2.69, 9.38), accounting for place of delivery. The authors suggest that physician preferences and providers' discussions that take place with their patients play a strong role in whether a woman opts for a TOL.

Patient-provider communication is the pathway through which provider type and preferences may indirectly increase risk of ERCD. Several studies suggest that the way in which information is communicated during the consent process affects a woman's decision about whether to undergo a TOL.[70,79] In a cross-sectional study that collected survey information from 66 women with a previous CD who were eligible for a TOL, Renner, Eden, Osterweil, Chan and Guise (2007) found that the information women reported receiving in pregnancy was associated with their childbirth preferences.[80] Women with a RCD were more likely to report not having discussed risks associated with a TOL when compared to women who had a TOL (32.1% versus 2.9%, $p < .004$). Women who chose a TOL reported not having discussed urinary or fecal

incontinence as a risk (65.6% versus 35.7%, p< .021). Of note, 25 of the 66 surveys were completed in Spanish. The authors used language in the analysis because of its correlation with Hispanic ethnicity. Spanish-speaking women did not report receiving less TOL information than English-speaking women. Since only 25 of 66 women were Spanish-speaking, the study may have had insufficient power to determine a difference.

Variability in the way providers communicate information about the benefits or risks associated with TOL and RCD may expose women to different kinds of information, with emphasis placed on different issues based on their provider.[70,76,77,79] The effect of provider preference on RCD risk may be particularly salient when patients perceive their providers as having a preference. Bernstein, Matalon-Grazi and Rosenn (2012) conducted a prospective, observational study among 155 women admitted for delivery between November 2010 and July 2011 who were eligible for TOL. Eighty-six percent of patients who thought their providers preferred an ERCS chose to have an ERCS. Patients who thought their provider preferred a TOL tended to choose TOL (78%). There also was an overall lack of knowledge among women about the two delivery options despite informed consent documentation. The women in the study were older and more highly educated than the US average; knowledge gaps among a less educated and younger population may be wider than those the authors found in their sample.

Women with a lack of knowledge about risks and benefits associated with RCDs may be particularly vulnerable to provider preferences independent of the options available to them, especially for women with an unquestionable trust in the expertise of their providers. Kingdon and colleagues (2009) found that many women in their study saw choice in delivery options as undesirable and agreed that providers "should decide whether a woman has a CS under any circumstances" (893)[81]. Thus, provider trust may in fact play a significant role in ERCD risk through its influence on patient preference, particularly for women with different cultural backgrounds.

Differences in the characteristics of providers may not account for ethnic differences in the risk of CD. In a California study based on data from four hospitals between 1997 and 2002, Chung et al. (2006) examined the effect of delivering provider on the risk of primary CD. In models adjusted for induction of labor, maternal age, birth weight, maternal weight gain, epidural, GDM, parity, preeclampsia, abruption, gestational age, induction*preeclampsia and diabetes*preeclampsia, Hispanic women (n= 12,055) had a higher relative risk of CD than non-Hispanic white women (RR 1.22; 95% CI 1.12, 1.33). When patients were clustered within physician providers, using fixed effects regression modeling, differences in the risk of CD did not change significantly (RR 1.13; 95% CI 1.03, 1.26), although they were somewhat attenuated.

Health System Factors: Hospital Type

Besides the effects of provider preference or practice, differences in hospital types may contribute to differences in RCD risk. Kozhimannil, Arcaya, and Subramanian (2014) found that differences in maternal clinical diagnoses did not explain variation in risk of CD across hospitals.[82] The authors used data from the 2009 and 2010 NISS: analyzing 1,475,457 births in 1373 hospitals and adjusting for age, ethnicity/race, insurance, and various maternal/infant conditions; parity and gestational age were not included. Hospitals were categorized by location, teaching status, and size. The highest average CD rates corresponded to large, urban, non-teaching hospitals. There were statistically significant higher odds of CD at larger hospitals compared to smaller ones ($p < .001$) after adjustment (age, education, ethnicity/race, birthweight, induction, gestational age, shift at birth, pre-existing health risk conditions). All births were included and models also adjusted for state fixed effects.

Findings were supported by Caceres and colleagues (2013) in a study of birth certificate and hospital discharge records for 2004-2006 deliveries in Massachusetts.[83] After adjusting for socio-demographic and clinical factors, hospital level variation in CD delivery rates remained. Only births to nulliparous, term, singleton, and vertex births from 49 hospitals were included (n= 80,371). Another study of nulliparous, term, singleton, and vertex births from 40 Arizona

hospitals found that after adjustment for clinical factors, variation among hospitals also remained.[84] Hospitals without level 3 neonatal nurseries, for profit, and teaching hospitals had statistically significant higher rates of CD. Sebastiao et al. (2016) conducted a study of Florida births to nulliparous women with singletons in a vertex presentation at term gestation with between 2004 and 2011; births by cesarean without labor and after 41 weeks were excluded (n= 412,192).[85] After adjusting for individual level risk factors, only geographic location was statistically significant. The authors also remarked that maternal ethnicity may influence CD risk independent of obstetrical risk factors.

These findings may be particularly relevant when examining RCD since current practice is commonly guided by expert opinion and professional consensus. Shorten and colleagues (2005) in a randomized trial of a mode of delivery decision-aid for Australian patients found no effects on women's preferences related to the intervention.[86] Instead, they discovered that regardless of women's expressed delivery preferences, the resulting type of delivery was consistent with common practice at the study sites. The study enrolled 227 women at six sites: three prenatal clinics and three private obstetrical practices. The authors argue that the finding is indicative of the impact of a place of delivery's culture and practice patterns on women's decision-making.

Factors Influencing Patient

The literature on four socio/cultural factors proposed as influencing mode of delivery was reviewed: patient preference, prior birth experiences, social network and support, and normative cultural values. Due to limited literature on normative cultural values and RCD, a brief section on normative cultural values is presented in *Appendix A*.

Socio/Cultural Factors: Patient Preference

Women with one previous low transverse CD have the option to request an ERCD after being informed of the associated risks and benefits of their decision. Maternal request – also

referred to in the literature as patient preference – is one of the most frequently cited indications for an ERCD. Patient preference for an ERCD may stem from a misconception that CDs are less risky than VD[74,75,81,87–91] or from a desire to avoid pain associated with a VD.[92,93]

Dweik and colleagues (2014) found that the two variables most strongly associated with a subsequent CD were the belief that CD is safer than VD and difficulty conceiving the pregnancy as measured by a longer pregnancy decision-to-conception interval.[75] In 2012, the collaborative effort between the Maternity Center Association and Harris Interactive, resulted in a third national US survey that explored women's maternity experiences through phone interviews and online surveys, the Listening to Mothers Survey.[94] Like Dweik and colleagues, Declercq et al. (2012) found that when mothers were the ones to bring up the issue with their physician of a cesarean as a delivery choice, they did so because they believed that it would be beneficial to them or their baby (87%).

As surgical procedures such as CD become safer and more common, patients may perceive that it is a safe alternative, preferred to the unpredictability associated with a vaginal birth. Tully and Ball (2013) conducted a two-phased qualitative study with postpartum mothers in Northeast England. In phase one (n= 75), women undergoing an ERCD believed a RCD to be the safest option for themselves and their infant. Furthermore, women expressed the idea that a "controlled application" of CD outweighed the uncertainty of harm and "unnecessary stress" associated with a VD (109).[91] Of the 115 women who participated in both phases of the study, 85 percent were White European women; no information was reported about the ethnicity or race of the other women. Inclusion criteria required that women be fluent in verbal and written English. In a sample of 180 Chilean women, safety of both mom and baby were reported as the two most important factors in influencing their decision for delivery.[87]

Kingdon and colleagues (2009) found that at the onset of prenatal care at 24 weeks, and again at 36 weeks, 100 percent of 454 respondents at one English hospital agreed or strongly agreed that they preferred whatever birth option was safest for baby. In a survey of seventy-eight

Australian women who underwent a primary elective CD in 2006, the most important reason for choosing a CD was concern about risks for baby (46%) followed by concern for the pain involved with a VD (11.5%).[90]

Women also have reported a preference for a VD.[75,81,87,93,95–97] In a survey of 488 Hungarian women during their 18th to 22nd week of gestation, 90.5 percent stated that they would choose a VD if given the choice.[75] Two-thirds of parous women who went on to deliver by cesarean had previously stated that they preferred a VD ($p < .001$). In the Kingdon study, 72 percent of women reported at initiation of prenatal care that they would prefer a VD to a CD.[81] By late pregnancy, 80 percent of women reported a preference for VD. Among 240 women receiving prenatal care from the University of California, San Francisco, 90.8 percent stated a preference for VD.[97] Both women with a prior cesarean (n= 41) and those without a medical indication for a CD (n= 116) had clear preferences for VD (82.9% and 87.9%, respectively) and were willing to accept a 59-75 percent chance that their attempt at a VD would end in a CD before opting for an elective CD.

While patient preference has been hypothesized to explain the higher rates of RCD among Hispanic women, the literature provides little evidence to support this claim. In a study of Chilean women's preferences, Angeja and colleagues (2006) found that the vast majority of women preferred vaginal over CD.[87] A Brazilian study with 48 women found that 70.8 percent preferred a VD.[96] In a prospective, cohort study conducted in Argentina by Mazzoni and colleagues (2016), the majority of women also preferred a VD; only 8 percent of women in the public sector (n= 16) and 6 percent of women in the private sector (n= 11) reported a preference for CD.[93] Of note, the main reason cited for preferring a CD was the fear of pain associated with a VD. While Chen, McKellar, and Pincombe's qualitative study focused only on Taiwanese women, the authors also found that avoiding negative outcomes, including pain related to having a VD, was the main factor influencing preference for a CD.[92]

US studies have not generally explored the preferences of Hispanic women and how they may be different from those of non-Hispanic women. Many studies restrict their sample to primiparous women, do not have an ethnically diverse sample, fail to directly measure the women's role in decision-making, do not capture the role that other decision-makers – especially family members – play in influencing a woman's decision,[78,98,99]or do not explore how decisions may change over time during pregnancy.[81]

Interviews in the Listening to Mothers survey, were conducted in English and via phone or online, failing to capture low-income, immigrant and non-English speaking mothers.[94] Zlot (2005), who captured low-income immigrant and non-English speaking women, found that primiparous Mexican-born women who delivered by cesarean regarded this delivery route as "normal" (53%) and even saw themselves as "luckier" than women who had to undergo a VD (11%).[11] Reasons why Hispanic women in Zlot's (2005) study had this perception were not explored, but the authors proposed that women associated VD as more difficult and painful and CD as a symbol of high status.

Socio/Cultural Factors: Prior Birth Experiences

Prior birth experiences, both personal and those of family or friends, have been proposed as factors influencing patient's choice of mode of delivery. In the study by Regan, McElroy, and Moore's (2013) 71.2 percent of women (n= 49) cited that the birth experiences of other women were helpful when deciding on type of birth.[100] The authors did not report the women's ethnicity/race. Studies by Fenwick et al. (2015) and Munro, Kornelsen, and Hutton (2009) show that women are most likely to remember negative birth stories, particularly for women with previous negative experiences.[99,101] Fenwick et al. (2015) conducted a qualitative study with 43 Australian women. They did not include their sampling methodology but described their sample as "highly fearful pregnant women" and thus, findings should be interpreted with caution. Munro, Kornelsen, and Hutton (2009) conducted their qualitative study with 17 primiparous women in Canada who elective to have a CD.[99] The birth stories recounted by the women focused on

positive experiences with CD and negative experiences with VD. Whether there are ethnic/racial differences in how women interpret prior birth experiences and their influence on choice of RCD or VBAC has not been explored. Studies to date have focused on non-Hispanic women or failed to report women's ethnicity/race.

Socio/Cultural Factors: Normative Cultural Values

In Hispanic culture, there are five commonly accepted normative cultural values: *simpatia, personalismo, respeto, familismo, and fatalismo.* A review of the literature did not yield any studies that have explored how these cultural values may affect Hispanic women's experiences with RCD and VBAC. Cleveland and Horner (2012) explored the experiences of mothers with infants in the neonatal intensive care unit with fifteen Mexican-American women in the US using these values as a framework to guide their analysis.[102] The authors remark that the values were all apparent in the experiences of women in their sample, shaping how they perceived their interactions and communication with their healthcare providers. Other studies exploring normative cultural values as they relate to interactions with healthcare providers are related to hypertension, parenting, and sexual risks. Normative cultural values are detailed in *Appendix A*.

2d. Research Questions

While there is substantial literature about the increased risk of RCD and its predictors among women in the US, few studies specifically investigate the association between ethnicity and RCD. Hispanic women have a higher prevalence of RCD but the sources of this variation are not clear. This study may reveal factors contributing to RCD rate disparities among women adjusting for medical and obstetric risks based on ethnicity.

The role of social norms, values, language and beliefs in the communication that takes place when providers inform patients of their delivery options, particularly among Hispanic women, is not well understood. The few studies that have attempted to explore the patient-

provider relationship as it affects RCD risk have failed to capture the US Hispanic patient's perspective. Several factors need to be consider in understanding this process including: exploring the preferences of women of different ethnicities/races; the influence of family members and the role their family plays in medical decisions; what women consider when making a mode of delivery decision; and how women perceive patient-provider dynamics.[103,104]

This study used quantitative methods to examine the relation between ethnicity/race and RCD (Aim 1). Based on the literature review and gaps identified in previous research, the study also assessed if factors often proposed to explain differences in risk of RCD and VBAC among Hispanic and non-Hispanic women account for observed differences in odds of RCD (Aim 2). Lastly, perceptions about VBACs and RCDs among Hispanic and non-Hispanic women were explored using qualitative methods (Aim 3).

2e. Theoretical Considerations

The conceptual framework guiding this study is a comprehensive framework that focuses on factors thought to influence women's decision on mode of delivery, including patient-provider communication, believed to be central to the process (*Figure 2.1*). The framework is based on the conceptual framework of Feldman-Stewart, Brundage and Tishelman's (2005) for patient-professional communication.[105] While the authors originally applied the framework to communication about cancer, it has since been applied to understand communication between women and their providers about first cesarean deliveries.[106] The current study extends the framework to include factors specific to patient-provider discussions that take place when deciding between a RCD or a VBAC, including a patient's culture as an important determinant influencing the decision-making process.[107] The conceptual framework was also informed by Schouten and Meeuwesen's (2005) review of the literature on cultural differences in medical communication.[108]

In the proposed conceptual framework, patient-provider communication is central in determining the mode of delivery – VBAC versus RCD. Underlying the framework proposed by Feldman-Stewart and colleagues is the understanding that each participant in this dyad has their own set of goals and that these goals are "a driving force underlying the communication" (802)[105]. For example, women may have different goals in seeking information about the risks and benefits of RCD versus VBAC. They may desire information to: alleviate fear of pain; stem concerns for an infant's well-being; justify a choice to family or community; and perhaps control a situation that seems out of their control. A provider may disclose information to address goals associated with the intent to provide best possible care or to allay fears associated with previous negative outcomes. In the discussion of delivery plans, providers convey messages to women about the risks and benefits of VBAC and RCD based both on their goals and their perception of the women's goals. Women receive and interpret these messages and, in turn, convey their own messages to their provider.[105] The messages conveyed and received, however, are affected by participants' attributes: needs, skills, values, beliefs, and emotions.

Only those attributes expected to be instrumental in the communication concerning RCD and VBAC are included in this study's conceptual framework. Needs for social affiliation (e.g. professional, cultural, racial, ethnic, familial), recognition by peers, self-respect, autonomy over decisions, power and truth are included in the framework. Other attributes include skills (e.g. education, functional health literacy, limited language proficiency); values (e.g. professional, cultural or racial); beliefs about what is fact; and emotions (e.g. disappointment, frustration, anger, joy, empowerment). In this study only the shaded areas were explored.

The patient-provider communication is influenced by external factors. Patient factors, found in the upper right hand corner of the figure, include patient preference, prior negative or positive birth experiences, and normative cultural values. Seeleman and colleagues (2009) remark that a person's culture – the set of behaviors used to understand the world and how we live in it – influences her perception of healthcare, frames of references, expectations and aspects

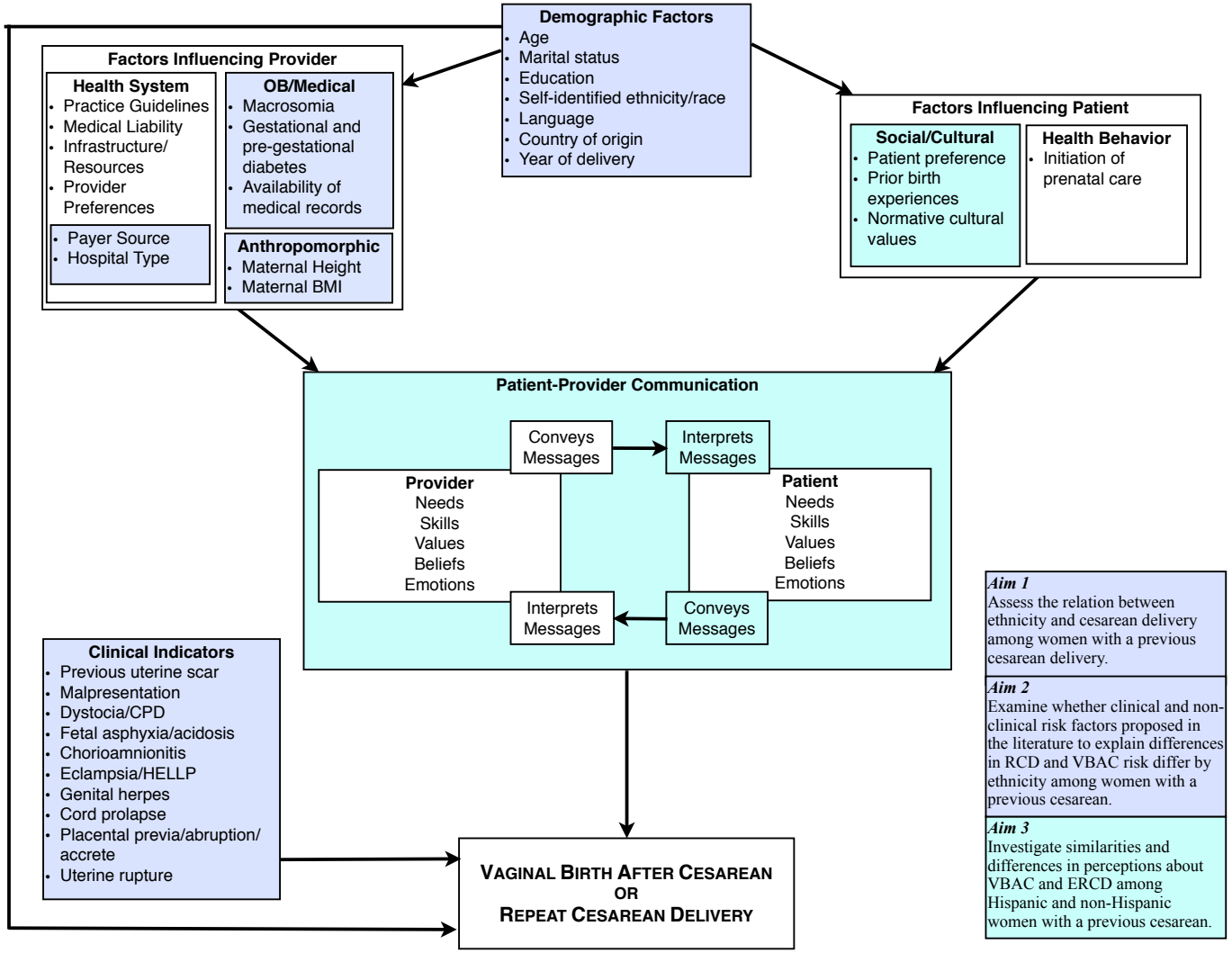
of the patient-provider relationship.[109] For example, individuals from collectivist cultures (e.g. Asian and Hispanic) tend to be more indirect and less assertive in their communication with others than individuals from individualistic cultures (e.g. non-Hispanic white Americans).[108,110,111]

The left side of the framework includes factors reported to influence the context within which providers frame the risks and benefits of VBACs/RCDs. They include a patient's obstetrical (OB)/medical history, anthropomorphic characteristics, and health system factors. Macrosomia, gestational and pre-gestational diabetes, and availability of medical records are included under OB/medical factors. Health system factors include provider preferences, practice guidelines, medical liability, infrastructure/resources, payer source, and hospital type. The current study included information about OB/medical factors, anthropomorphic characteristics and select health system factors (hospital type and payer source).

Demographic factors such as age, marital status, education, self-identified ethnicity and race, language, and country of origin may influence both patients' understanding of the communication exchange and the provider's perceptions of what the patient may or may not understand, as well as directly affect the method of delivery independent of provider and patient perspectives. Year of delivery is included under demographic factors to address secular trends. Evidence-based clinical indications for a RCD are shown in the lower left corner of the model as directly influencing delivery outcome.

The highlighted areas of the model, illustrating study focus areas, were colored to correspond to each aim. Aim 1 assessed the relation between ethnicity/race and RCD among women with a previous CD in one large Level III urban hospital. Aim 2 looked specifically at indicators proposed as explanations for Hispanic women's disproportionate risk of RCD. Aims 1 and 2 were evaluated using electronic medical records linked with prenatal data to assess these relationships.

FIGURE 2.1 CONCEPTUAL FRAMEWORK



Aim 3 builds on Aims 1 and 2 by additionally exploring social and cultural patient factors believed to influence patient-provider communication, by capturing Hispanic women's perceptions about VBACs and RCDs and determining whether their perceptions differ from those of non-Hispanic women. Women with a previous CD were interviewed at 36-38 weeks of pregnancy and again 1-3 days post-delivery. The study protocol allowed the researcher to capture perceptions about VBACs and RCDs and the patient-provider exchange prior to delivery. Additionally, by conducting a second interview after the delivery experience, the researcher explored how the delivery experience may or may not have affected messages that were interpreted and conveyed in the patient-provider exchange that took place prenatally.

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Chapter 3 Study Design and Methodology

3a. Introduction

This study examined the relation between ethnicity/race and repeat cesarean delivery (RCD) (Aim 1), assessed if proposed factors explain any observed differences in delivery outcomes among women of different ethnicity/race (Aim 2) and investigated similarities and differences in perceptions about vaginal births after cesareans (VBACs) and RCDs among Hispanic and non-Hispanic women with previous cesarean delivery (CD) (Aim 3). Aims 1 and 2 were addressed with birth data at one District of Columbia (DC) hospital from January 1, 2010 to October 31, 2016. Aim 3 was addressed with primary data collection using a qualitative approach. The research design and methodology used for each aim are described in this chapter.

3b. Quantitative Data Analysis (Aims 1 and 2)

Specific Aims and Null Hypotheses

Two aims were explored using a quantitative approach. Aim 1 assessed the relation between ethnicity/race and RCD among women with a previous CD. We hypothesized that there is no difference in rates of RCD for Hispanic and non-Hispanic women. Aim 2 examined whether risk factors that differ by ethnicity explain ethnic differences in the odds of RCD. We hypothesized that there are no ethnic differences in RCD, adjusting for specified risk factors.

Study Design

Aims 1 and 2 used a retrospective cohort study design. The retrospective cohort design was suitable for assessing the hypothesized associations and allowed for the evaluation of confounders. The source of data was electronic medical records (EMR), which included delivery and prenatal clinical records, for women with a previous CD who delivered in a seven-year period at one large urban hospital. A single-site cohort study design, while limited in generalizability, provided control for hospital type (urban versus rural; size), state/district liability differences and

institutional policies, all factors that have been identified in the literature as influencing the odds of RCD.[1] The study design also allowed for timely acquisition of data.

Data Source

Data were obtained from Medstar Washington Hospital Center (MWHC), a public, urban, level III, 926-bed general medical and surgical teaching hospital located in DC with a high number of deliveries and diverse patient population. It was selected for several reasons. In addition to its diverse patient population, MWHC meets the American College of Obstetricians and Gynecologists (ACOG) recommendations for providing safe VBACs: readily available operating room and 24-hour anesthesiologist availability.[2] The VBAC rate among women with a prior CD at MWHC in 2014 was 20.5 percent, comparable to the DC VBAC rate in 2013 of 20 percent.[3] The center accepts private and public insurance.

EMR data was obtained from MWHC for Aims 1 and 2. MWHC has had an electronic obstetrics database (Peribirth) since the early 2000s, allowing for standardized EMR data. Every visit to Labor and Delivery (L&D) initiates an electronic record that includes the patient's medical history, prenatal records, and current medical status based on patient self-report. The registered nurse in triage verifies through patient self-report that all medical information is correct. Prenatal records are linked directly if the patient attended one of MWHC prenatal clinics; if not, information is entered manually by the nurse/resident within the first hours of admission to L&D from either records the patient brought to the hospital or from patient self-report. Patients who do not bring prenatal records with them are asked to sign a release of information consent and the records are requested from their prenatal provider and consolidated with the MWHC EMR.

MWHC nurses and nurse managers conduct regular chart reviews to address missing data. Data extracted from the EMR for this study included delivery outcome, ethnicity/race, and various demographic, anthropomorphic, obstetrical/medical, and health system factors thought to

be associated with mode of delivery (see *Independent Variables and Covariates* below). EMR access included prenatal records data which was used to complement data for Aims 1 and 2. Prenatal records data provided more complete information about mothers' ethnicity/race, language, height, prenatal weight, and prior delivery record. Prior to 2013, ethnicity was not reliably reported in MWHC delivery data[4] and linkage to prenatal data permitted an additional level of data checking for this information.

Study Sample

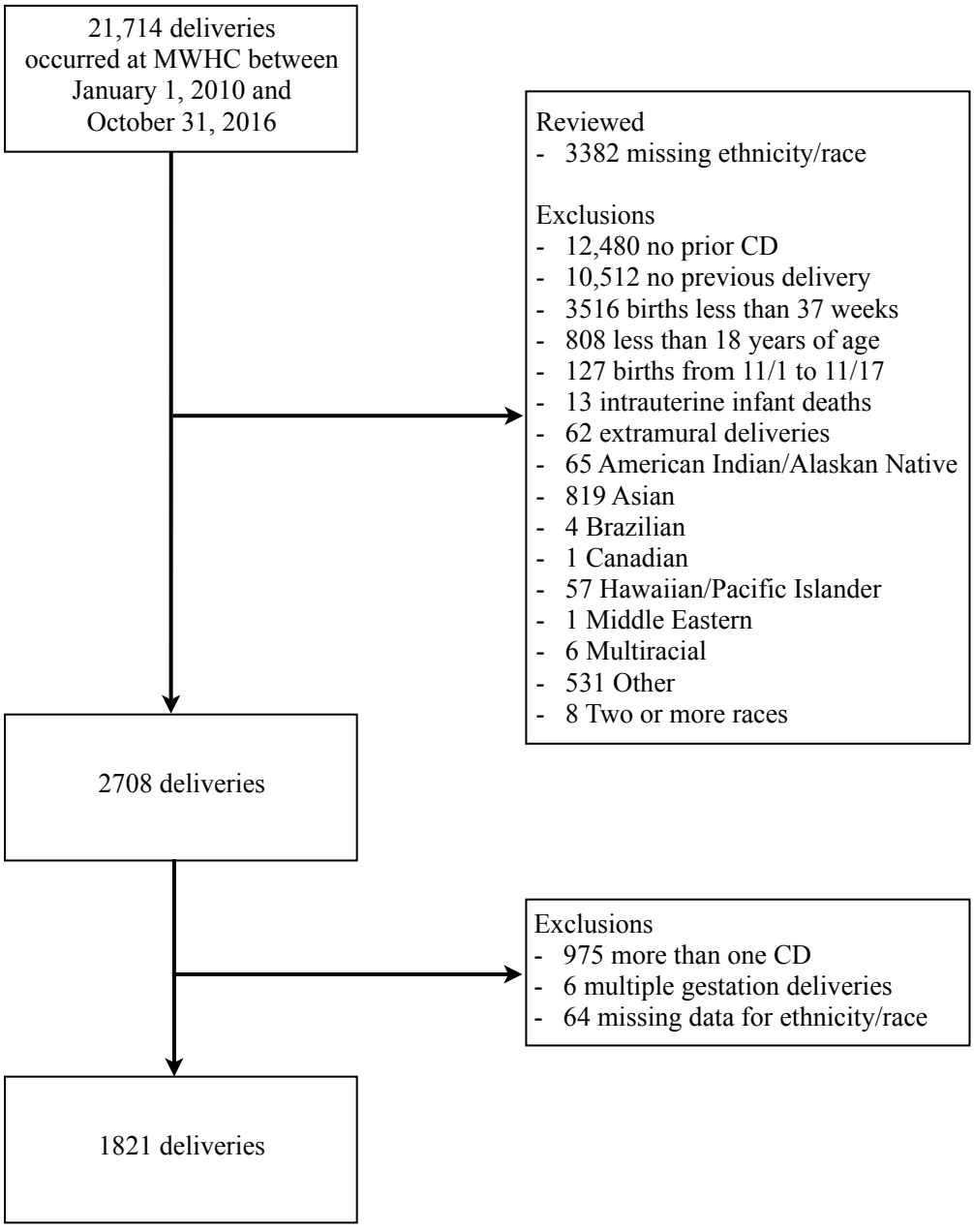
The study sample was restricted to women over the age of 18 with one previous CD who delivered at MWHC from January 1, 2010 to October 31, 2016, regardless of their method of delivery. The sample was further restricted to include singleton deliveries of more than 37 completed weeks. Hispanic women of all races and non-Hispanic black and white women were included to study the association between ethnicity/race and RCD. Hispanic women were not classified by race since most women of Hispanic origin in the US are reported as white.[3]

A total of 21,714 MWHC deliveries occurring between January 1, 2010 and October 31, 2016 were extracted. *Figure 3.1* shows the process of obtaining the final sample for analysis. All prenatal records of observations with missing, *unknown, declined, unreported, other, unavailable, 2 or more races, multiracial,* and *do not use* ethnicity/race were reviewed. Additionally, all prenatal records of women identified as Asian in the EMR (n= 2180) were reviewed prior to exclusion to confirm ethnicity/race. The reason for this careful attention was because many Hispanic women had been misidentified as Asian in hospital EMRs. After reviewing and confirming ethnicity and race variables, exclusions were applied as shown in *Figure 3.1* resulting in 2708 deliveries.

Frequency distributions, cross tabulations, stem and leaf plots, and scatterplots were used to identify data inconsistencies and outliers (for more information see *Data Analysis* section below). This preliminary descriptive and exploratory analysis resulted in 862 additional

exclusions resulting in a final sample of 1821 deliveries for Aims 1 and 2. The primary reasons for exclusions of women from the sample in descending order were that they had no prior CD, no prior delivery, delivered a preterm birth, were Asian or other ethnicity/race or were less than 18 years of age.

FIGURE 3.1 SAMPLE SIZES FOR ANALYSIS



Variables

Table 3.1 shows the study variables included in the analysis for Aims 1 and 2. The dependent variable was dichotomous, whether a woman had a RCD in her current delivery. The primary independent variable was self-reported ethnicity/race. Ethnicity/race in the MWHC EMR is either self-reported at the time of admission or determined based on an assigned code when the woman registers or arrives for delivery. Categories included non-Hispanic white, non-Hispanic black, and Hispanic of all races. All racial and ethnic categories were considered mutually exclusive.

Table 3.1. Summary of Variables

Variable	Source [i]	Categorical Response Categories
Outcome		
Delivery method	DR	No repeat cesarean (reference)
		Repeat cesarean
Independent Variable		
Ethnicity/race	DR PNR	Non-Hispanic white (reference)
		Hispanic (Spanish, other, white, black)
		Non-Hispanic black
Covariates		
Demographic Factors		
Maternal age, years	DR	18-24 (reference)
		25-29
		30-34
		35-54
Marital status	DR	Single (reference)
		Married
Maternal language	DR PNR	English (reference)
		Spanish
		Other
Maternal education	DR	Elementary (reference)
		Secondary
		College or above
Year of delivery	DR	2010 (reference)
		2011
		2012
		2013
		2014
		2015
		2016
Anthropomorphic Factors		
Maternal height, cm	DR PNR	Less than 145
		145-149 (reference)
		150-154
		155-160
		More than 160

BMI (pre-pregnancy) [ii]	DR PNR	Below 25.0 (reference) 25.0-29.9 30.0 and above
BMI (at delivery) [ii]	DR	Below 25.0 (reference) 25.0-29.9 30.0 and above
Obstetrical/Medical Factors		
Parity	DR	2 (reference) 3 4 or more
Delivery interval	DR PNR	Less than 1 year ago (reference) More than 1 year ago
Gestational age, weeks	DR	37.0-40.0 (reference) 40.1-41.0 More than 41.0
Infant birthweight, grams	DR	Less than 2500 2500-3499 (reference) 3500-4000 More than 4000
Gestational diabetes	DR	No (reference) Yes
Pre-gestational diabetes	DR	No (reference) Yes
Induction	DR	No (reference) Yes
Augmentation	DR	No (reference) Yes
Cesarean indication	DR	Elective Fetal Intrapartum Maternal history Maternal
Health System Factors		
Delivery day of the week	DR	Weekday (reference) Weekend
Time of delivery	DR	Day shift, 6 am-5:59 pm (reference) Night shift, 6 pm-5:59 am
Payer source	DR	Public (reference) Private
Provider gender	DR	Female (reference) Male

i Delivery Records (DR); Prenatal Records (PNR).
ii Pre-pregnancy BMI was determined from maternal height and pre-pregnancy weight. Current BMI was determined from maternal height and maternal weight at the time of delivery admission.

Several covariates were chosen based on the review of the literature and the conceptual framework that are thought to be associated with mode of delivery, but are not specific clinical indications for cesarean delivery per se.[6] These covariates were divided into four categories: demographic, anthropomorphic, obstetrical/medical and health system factors. All independent

variables for analysis were categorical or dichotomous; the reference category for each for the logistic regression analysis is shown for each variable in *Table 3.1.* Continuous measures of maternal height, pre-pregnancy weight, and maternal weight at the time of admission were used to calculate pre-pregnancy and current BMI, which were then defined as categorical variables. Final categories included in data analysis were determined after employing methods described in the *Data Analysis* section below.

Some variables listed in the table require further clarification. For marital status, divorced or separated women made up less than 1 percent of the sample and were included in the single category. Other maternal language included French and Aramaic. Elementary maternal education included women with less than 8 years of education; secondary education included years 9 through 12 and high school diploma. Only deliveries after 2010 were included in the analysis to account for ACOG guidelines instituted in 2010.[2] Year of delivery 2016 did not include data for November and December of 2016, which was not available at the time of data extraction. Delivery interval was determined by subtracting the year of previous delivery from the current delivery year. This variable was then dichotomized as less and more than one year.

Gestational age was reported in the EMR based on best OB estimate. The EMR failed to distinguish between insulin and non-insulin dependent diabetes; thus, diabetes was simply coded as present or absent. Preeclampsia and hypertensive disorders were not included in the analysis due to questionable validity of the data for these variables. Only 0.8 percent (n= 14) and 1.3 percent (n= 24) of the sample had documented presence of preeclampsia and hypertension, respectively. It was not possible to extract information from the EMR on whether a trial of labor (TOL) was attempted prior to a RCD. This variable is important for clinically relevant comparisons between those who attempt a VBAC at all and those who opt for an ERCD.[1]

The year, time of day, and day of the week of the delivery were included to adjust for possible temporal trends in delivery preferences. Time of day was categorized based on physician staffing: 6am-5:59 pm and 6 pm-5:59 am. Insurance type was identified as public or private; self-

pay (uninsured) was included in the public category since prenatal and delivery care for the uninsured are covered under Medicaid.

Data Analysis

The first step in the analysis was a descriptive one for all potential study participants (n= 2708). Frequency distributions and cross tabulations were determined for mode of delivery, ethnicity/race, and the covariates using STATA 14.2.[7] Distributions, dispersions, and absolute and relative frequencies for each variable were used to refine covariate categories. Results from these descriptive statistics were used to conduct additional data cleaning, addressing missing, invalid, or improbable values using birth and prenatal records for clarification. True missing values were addressed as outlined below in the *Missing Data* section.

At this stage, sample exclusions were made based on the following criteria: women who were less than 18 years, had no prior CD, and had less than 37 completed weeks of pregnancy. Deliveries taking place outside of labor and delivery, multiple gestations, and women with no recorded ethnicity/race were also excluded. Only the first delivery immediately after the CD was included for women who had more than one delivery during the study period. Stem and leaf plots, centiles, summary statistics, boxplots, and scatterplots were used for the continuous variables (age, height, pre-pregnancy weight, delivery weight, birth weight) prior to deciding on categories for analysis and applying final exclusions. This process resulted in a final sample of 1821 records for analysis.

The relation between covariates and both mode of delivery (RCD or VBAC) and ethnic/racial categories (Hispanic of all races, non-Hispanic black, non-Hispanic white) was then explored using two-sample t-tests, Pearson chi-square tests, and Mann-Whitney two-sample rank-sum tests, where appropriate. RCD rates for ethnicity/race and each covariate were calculated and differences by mode of delivery were explored using two-sample tests of proportions. Alpha levels of 0.05, 0.01, and 0.001 were used to determine statistical significance. Potential effects of

collinearity among covariates were explored using correlation matrixes and variance inflation factors (VIF). All correlations were below 0.50 except for pre-pregnancy BMI and current BMI (0.64). All VIFs were below 2.26 resulting in a mean VIF of 1.28. Pre-pregnancy BMI resulted in a VIF of 1.87 and current BMI 2.26. Removing the current BMI variable, based on correlation results, from the model resulted in a drop of mean VIF to 1.16 with all individual VIFs below 1.39.

For Aim 1, RCD rates and unadjusted odds (UOR) of RCD by ethnicity/race and for each covariate were calculated using simple logistic regression. Logistic regression was deemed an appropriate method for this study because RCD is a dichotomous outcome and the sample included a sufficient number of events per predictor (more than 10).[8–10] UOR of RCD and 95% confidence intervals (CI) were estimated; p levels of 0.05, 0.01, and 0.001 were used to determine adjustment for all potential confounders in subsequent analyses. Multivariable logistic regression (MLR) was then used to assess the relation between ethnicity/race and RCD adjusting for covariates. Variables were added in blocks as illustrated in models 2 through 5 below.

Model 1: Ethnicity/race

Model 2: Model 1 plus demographic factors

Model 3: Model 2 plus anthropomorphic factors

Model 4: Model 3 plus obstetrical/medical factors

Model 5: Model 4 plus health system factors

The MLR model was estimated as follows, where log odds (Y=1) is the log odds of RCD:

Log odds (Y=1) = $ß_0 + ß_1$(Hispanic) + $ß_2$(non-Hispanic black) + $ß_3$(age18-24) + $ß_4$(age25-29) + $ß_5$(age30-34) + $ß_6$(age35-50) + $ß_7$(marital_single) + … + $ß_pX_p$

For example,

$ß_1$ = log odds ratio of RCD for Hispanic relative to non-Hispanic white women (coded 0), adjusting for maternal age, marital status, Xp

$\mathbf{e^{\beta 1}}$ = odds ratio of RCD for Hispanic women relative to non-Hispanic white women (coded 0), adjusting for maternal age, marital status, Xp

The significance of individual variables for RCD was assessed by the Wald coefficient. Regression coefficients were compared across models to determine statistically significant differences. Covariates were included in models if they significantly changed the odds ratio for ethnicity/race by 10 percent or if they had an independent effect on the odds of RCD. The possibility of small-sample bias inherent with logistic modeling was addressed.[11] The Firth method was applied as an alternate to logistic modeling; results were essentially the same, so logistic regression was used in final analysis for ease of interpretation. Covariates stratified by race with cells of 0 to 4 observations were assessed: age, language, education, height, parity, delivery interval, infant birthweight, gestational diabetes, pre-gestational diabetes, labor induction, and labor augmentation. Of concern were the covariates of language, education, height, infant birthweight, labor induction, and labor augmentation. Heights less than 145 cm were combined into the 145-149 cm category; the less than 2500 grams was combined into the 2500-3499 grams birthweight category; and labor induction and labor augmentation also were combined into one variable. Decisions to re-categorized these variables were based on the literature and effects on the odds of RCD.

Three separate analyses were estimated to address small cell sizes for the language covariate; attention was given to this covariate since it was of interest to the primary independent variable of ethnicity/race. In the first analyses, "other" languages were combined with "English" category. A second analysis involved dropping the language variable from the final model. The last analysis included the creation of a new hybrid variable. Observations missing language or with "other" language were dropped from the sample (n= 52) resulting in a final sample of 1752. The ethnicity/race variable was recoded: non-Hispanic white women (reference), English-speaking Hispanic women, Spanish-speaking Hispanic women, and non-Hispanic black women.

Models were examined for fit using Pearson's Goodness of Fit tests, where a non-significant result ($p > .05$) indicated a good fit. Relative fit across models was also assessed using Akaike Information Criteria (AIC) values. Likelihood ratio tests were used to compare simpler models (the full model with different groups of factors removed) to the full model. Model fitting techniques were implemented using complete data since these techniques are not applicable in models that have undergone multiple imputation. The full model was examined for fit and compared to parsimonious models. Effects of covariates on the precision of ethnicity/race estimates were also checked by conducting sensitivity analysis when applicable.

Lastly, a descriptive analysis was conducted among women with recorded RCD indications. Indications were recorded in the EMR as free text in the delivery record. Although indications were expected to be found as free text in provider progress notes, reviewing progress notes was beyond the scope of this study. Again, it was expected that the EMR would include an indication for the RCD, but indications were only available for a subset of women (57.7%); thus, results are presented for descriptive purposes only. Indications were grouped into five categories: elective, maternal history, maternal indication, fetal indication, and intrapartum indication. An indication of *uterine scar* with no further description was coded as elective. The distribution of indications by groups was evaluated.

Missing Data

After the initial extraction of 21,714 birth records, five variables were noted as complete: medical record number (retained only for EMR linking), date of birth (retained only for EMR linking), mother's age, time of delivery (which included date, time and year), and type of delivery. Inclusion criteria (18 years of age or older, at least one previous CD, delivery between January 1, 2010 and October 31, 2016, more than 37 completed weeks of gestation, delivery at MWHC) were applied resulting in 7934 birth records for analysis. Missing data from EMR was then assessed. Missing values ranged from 0.5 percent (delivery providers) to 93.9 percent

(preferred language). Extracted records and delivery/prenatal EMR were then linked using an optimized deterministic linking algorithm with three criteria (medical record number, maternal date of birth, and delivery date) to determine valid links.[12–14] Records were evaluated for missing observations on the variables of previous CD (65.1% missing) and ethnicity/race (1.1% missing). Additionally, EMR for observations with a missing ethnicity/race or an ethnicity/race of *unknown*, *declined*, *unreported*, *other*, *unavailable*, *2 or more races*, *multiracial*, *do not use* or *Asian* were individually reviewed to confirm ethnicity/race. These records were then further evaluated for missing data on other variables. Once all records were individually reviewed, data was de-identified by removing values for medical record numbers and maternal date of birth. This process resulted in 2708 records.

Additional inclusion criteria were then applied for: 18 years or older, only one previous CD, delivery between January 1, 2010 and October 31, 2016, more than 37 completed weeks of gestation, delivery at MWHC, singleton gestations, and women with identified ethnicities/races of Hispanic, non-Hispanic black, and non-Hispanic white. This process resulted in 887 additional exclusions for a final sample of 1821 deliveries. Of these observations, 1487 (81.7%) had complete data for all variables; most variables had missing values under 1 percent (*Table 3.2*). Less than 2 percent of the observations had more than 2 missing variables and only one observation had three missing variables: maternal height, pre-pregnancy weight and current weight (*Table 3.3)*.

Dichotomous variables were created for pre-pregnancy weight, birth weight, and education (all variables missing more than 1% of observations) to investigate whether the missing data was related to other variables, especially mode of delivery and ethnicity/race; Pearson chi-square tests and Fisher's tests were applied. Missing for birth weight was not related to delivery

Table 3.2. Missingness by Variable, n (%)

	Total
Marital status	3 (0.2)
Language	17 (0.9)
Insurance	1 (0.1)
Maternal height	16 (0.9)
Pre-pregnancy weight	95 (5.2)
Weight at admission	12 (0.7)
Birth weight	38 (2.1)
Anesthesia	3 (0.2)
Education	180 (9.9)
Total	365 (20.2)

Table 3.3. Missingness by Number and Type of Variable Missing, n (%)

Variables			Total
Observations missing 1 variable			
Marital status			2 (0.1)
Language			14 (0.8)
Insurance			1 (0.1)
Maternal height			10 (0.6)
Pre-pregnancy weight			79 (4.3)
Weight at admission			5 (0.3)
Birth weight			31 (1.7)
Anesthesia			3 (0.2)
Education			159 (8.7)
Total			304 (16.1)
Observations missing 2 variables			
Marital status	Education		1 (0.1)
Language	Pre-pregnancy weight		1 (0.1)
Language	Education		2 (0.1)
Maternal height	Pre-pregnancy weight		1 (0.1)
Maternal height	Education		4 (0.2)
Pre-pregnancy weight	Weight at admission		3 (0.2)
Pre-pregnancy weight	Birth weight		3 (0.2)
Pre-pregnancy weight	Education		7 (0.4)
Weight at admission	Education		3 (0.2)
Birth weight	Education		4 (0.2)
Total			30 (1.6)
Observations missing 3 variables			
Maternal height	Pre-pregnancy weight	Weight at admission	1 (0.1)

type, ethnicity/race, or any other independent variable. Missing data for pre-pregnancy weight was related to marital status, education, and the year of delivery; missing for education was

related to marital status and age ($p < .05$). More missing pre-pregnancy weights were noted for single women (n= 81), women with a secondary education (n= 65); and deliveries occurring in 2010 (n= 38), 2011 (n= 23), and 2012 (n= 23). Single (n= 108) and women 20 years of age and older (n= 180) were more likely to be missing information on their education status. Of note, diabetic disorders, hypertensive disorders, augmentation of labor, and induction of labor were coded as "1" if present and "0" if absent. The extent to which absence of these diagnoses indicates a true negative or a missing value is unknown, but it is most likely for the disorders.

In order to use as much of the data as possible, multiple imputation techniques were conducted to address missing data; it is a technique that produces high quality results, reflects the uncertainty associated with estimating missing data, is easy to use and produces valid results even with small sample sizes or high rates of missing data.[15] Variables included in the imputer's model were determined after exploratory data analysis, including correlation analysis and t-tests to test if ethnicity/race and mode of delivery differed significantly between women with and without missing information.

Multiple imputation was conducted with a total of 35 imputations generated for eight of the nine variables with missing data (*Table 3.2*) The anesthesia variable was dropped from the imputation model for failure to converge and based on the descriptive data analysis. Analysis of only complete cases yielded estimates different from those generated by MI, suggesting possible bias in estimates. Thus, MI of missing values was used to assess the relation between ethnicity/race and RCD after the performance of previously stated model checking techniques.

3c. Qualitative Data Collection and Analysis (Aim 3)

Specific Aim 3

Aim 3 used a qualitative study design to explore perceptions about VBACs and RCDs among Hispanic and non-Hispanic women with a previous CD using a context-rich perspective.

Overall Objective and Study Design

A social constructivism phenomenological perspective was used to inform the design of Aim 3.[16,17] The conceptual framework for the study informed the structure of the interview guide and on-going results from Aim 3 helped in further refining the framework, as well as in identifying important groups for comparison. Aim 3 used primary data collection with purposive sampling. Women were interviewed pre-delivery (35-39 weeks of pregnancy) and again postpartum (within one to three days of delivery).

Sample

Participants were recruited from the private and public antenatal clinics of MWHC located in DC. The study sample eligibility criteria included women 18 years and older with one previous CD who were eligible for either a TOL or ERCD and who were at least 35 weeks gestation at the time of recruitment. Women had to self-identify as Hispanic, non-Hispanic black or non-Hispanic white; categories were mutually exclusive. Women were excluded if they had multiple gestations. An Antepartum Screening Checklist was developed to determine eligibility of potential participants (*Appendix C)* and administered to each participant prior to conducting the interview.

Purposive sampling was undertaken with inclusion of three groups of women defined by ethnicity/race. The objective of this qualitative study was to explore perceptions about VBAC and RCD and patient-provider communication that takes place when deciding between the two methods of delivery. The sample was limited to women eligible for a TOL, as determined by their provider. An initial sample size of 30 women was proposed – 10 Hispanic women of any race (Hispanic), 10 non-Hispanic black and 10 non-Hispanic white. A total of 27 women were interviewed (9 Hispanic, 10 non-Hispanic black, and 8 non-Hispanic white). Interviews were planned before and after birth; one woman was not interviewed postpartum, resulting in a total of 53 interviews.

Two factors determined final sample size: difficulty in recruitment and data saturation. Identifying Hispanic and non-Hispanic white women meeting inclusion criteria prior to delivery proved difficult. Requiring providers to be the first point of contact with potential participants created a barrier to recruiting these two groups. Despite their support of the study, providers often forgot to ask women meeting inclusion criteria whether they could be contacted by the Study Investigator (SI) for participation. On-going data analysis also indicated a recurrence of subtopics in later interviews; thus, it was determined that data saturation may have been reached.

Screening/Recruitment

Screening took place in three phases. Antenatal clinic schedules were reviewed to identify women with one previous CD who met the ethnicity/race and gestational age criteria. Second, clinic providers were contacted and informed of a potential participant. Lastly, providers shared general study information (*see Study Flyer, Appendix D*) with potential participants at their scheduled appointments, verifying that they were eligible for a TOL regardless of planned method of delivery and asking potential participants if the SI could contact them to inform them about the study.

Women who agreed to be contacted were given the SI's contact information and informed that the SI would be calling them. Clinic providers then informed the SI of participants who had agreed to be contacted. Subsequently, participants were contacted by the SI, either at their next visit or via phone, and provided details about the study using a recruitment script (*Appendix E*). Women expressing interest in participating were screened using the Antenatal Screening Checklist and scheduled for an interview date. Participants were asked to provide written informed consent at the first in-person contact (*Appendix F*).

Recruitment occurred from November 2016 to May 2017. *Table 3.4* shows the outcome of the screening process. All potential participants that were identified as potential respondents and approached by their provider agreed to be contacted by the SI (n=41). The SI was not able to

reach two women (non-Hispanic black) and two women did not meet inclusion criteria (non-Hispanic white). Thus, a total of 37 women were approached. Initially three non-Hispanic black women were excluded because they were more than 37 weeks at the time of screening, but as Hispanic and non-Hispanic white women proved difficult to recruit, the gestational age criteria was relaxed. Three non-Hispanic black women agreed to participate but delivered prior to scheduling their interviews. Three non-Hispanic white women agreed to be screened and were scheduled for an interview, but later cancelled their interview citing difficulties in making time for the interview or "feeling overwhelmed" with obligations of visiting family. One non-Hispanic white woman was mistakenly identified based on erroneous chart information and was excluded after screening for having two prior CDs.

Table 3.4. Recruiting Summary

Potential participants flagged	41
Participants approached	37
Exclusions	
Gestational age > 37 weeks	3
More than one cesarean	1
Total number consented	33
Delivered prior to 37 weeks	3
Declined	3
Total prenatal participants interviewed	27
Follow-up unsuccessful	1
Total postpartum participants interviewed	26

At the end of their antenatal interview, participants were asked to text the SI when admitted to the hospital for delivery. Additionally, a staff nurse was given a list of study participants to check the hospital census Monday through Friday and identify any study participants admitted for delivery. The SI was notified of a participant's hospital admission by the staff nurse via text; no identifying information was transmitted. Four participants were not captured during their postpartum hospital stay: one participant was discharged two hours prior to being interviewed (non-Hispanic black); one participant delivered at Medstar Georgetown

Hospital (non-Hispanic white); and two participants with weekend deliveries were discharged prior to Monday morning (Hispanic). The SI scheduled an interview at the six-week postpartum appointment with the participant who was discharged early. The woman who delivered at Medstar Georgetown Hospital agreed to a phone interview, as did one woman with a weekend delivery. The other woman with a weekend delivery failed to return the SI's calls and was not interviewed. Thus, twenty-six participants provided both antenatal and postpartum interviews and one participant had only an antenatal interview for a total of 53 interviews.

In-depth Interviews

In-depth interviews (IDIs) were conducted to gather data from women with a previous CD about their knowledge of RCDs and VBACs, previous CD experiences and how they affected subsequent decision-making, communication with their providers, decision-making support systems in their family and community, and factors that play a role in decision-making. All interviews were conducted in the participant's preferred language: Spanish or English. A semi-structured interview guide (IG) was used to explore domains under three general headings: perceptions, decision-making and patient-provider communication (*see Appendix G*).

The IG was translated into Spanish by the SI. Native Spanish-speakers from three distinct Spanish-speaking regions (El-Salvador, Colombia and Cuba) reviewed the IG language to ensure that all vocabulary used would address differences in sub-group dialects that might be encountered during the interviews. The IG was tested with two English and one Spanish-speaking woman prior to the beginning of the study to check for any inconsistencies or difficulties in its administration. These IDI's were not recorded or included in the analysis.

Domains under the heading of perceptions included thoughts on their previous CD experience; descriptions of their initial awareness of the TOL/VBAC/ERCD option; how they developed their current opinion of TOL, VBAC and ERCD; and how current perceptions of different modes of delivery are or are not influenced by personal world views (spiritual, religious,

social). A second set of domains explored decision-making: who played a role in deciding between TOL and ERCD; who they felt should play a role in their decision-making and who actually played a role; their partner, family and social support networks and the roles they might have played in their decision-making; what psychological factors (e.g. pain, previous negative or positive birth experiences) may have played a role in their delivery option; and their thoughts on the roles nursing and medical staff played in making a decision about their delivery option. The third area in the IDIs addressed patient-provider communication. Women were asked to share their experiences of the consent process for TOL and ERCD, including whether they felt that limited English proficiency, use of interpreter, and language concordance could affect the process; their perceptions about how their provider communicated the risk and benefits of TOL and ERCD; and thoughts on three normative cultural values that have been identified as important in Hispanic culture -- *respeto, simpatia,* and *familism (Appendix A)*. Three vignettes representing these cultural norms were created and women were asked to provide their thoughts. Normative cultural values were not referred to by name in the interviews.

Women were also administered the Trust in Provider Scale (TPS)[f] at the end of the antenatal interview. The TPS, composed of 11 items in a 5-point Likert scale, measures three aspects of trust: provider dependability, confidence in provider knowledge and skills, and confidentiality and reliability of information received from provider.[18–20] The scale has been tested and shown to have excellent high internal reliability (Cronbach alpha = 0.90) and moderate to good external validity.[18] The scale showed moderate correlation when compared to other scales created to measure trust. TPS scores have also been shown to be highly correlated with overall satisfaction with care. While results from the scale were not used to make any statistical inferences in the current study, they complement qualitative findings by providing context for

[f] The scale is originally named Trust in Physician Scale. Physician was changed to Provider to accommodate those patients who may be delivered by Nurse Midwives or Registered Nurses. The wording of the 11-items was also adapted to correspond with current study (i.e. *medical problems* was changed to *pregnancy*).

women's thoughts about patient-provider communication. The scale was developed to be self-administered, but it was administered by the SI in this study to address concerns with literacy.

The initial structure of the IG was based on current literature and the researcher's field experience. Because it was an interview guide rather than a questionnaire, it was further developed and focused through an iterative process as themes emerged from the data. The final version of the IG is can be found in *Appendix G*. Although the postpartum IG offered a guide for uniformity, postpartum IDIs were adapted to address specific themes that arose from analysis of the first interview. The general postpartum IG can be found in the *Appendix H*.

Data Collection

The SI was responsible for initial and final screening, consenting, and interviewing of all participants. Women were interviewed between 36 and 39 weeks of pregnancy and 1 to 3 days after delivery, with the exceptions noted above. Prenatal interviews were conducted in three different locations: MWHC perinatal office or an empty postpartum room, Medstar Mitchellville perinatal office conference room, or Medstar Foggy Bottom perinatal office consultation room. One prenatal interview was conducted at the participant's home at her request (non-Hispanic white). Two interviews took place in the presence of another nurse while the participant was on a fetal monitor (1 Hispanic, 1 non-Hispanic white). One participant's family was present for her interview, but the interview was conducted in Spanish and the family members present only spoke English. Prenatal interviews ranged from 23 to 63 minutes and were audio-taped with the participant's consent; recordings were password protected and de-identified. All participants agreed to the recording. Following the interview, participants were provided with a hospital parking validation valued at $5. A post interview form was completed for each participant noting important aspects of the interview that were not captured by the audio recording (*Appendix I*).

Prior to conducting the postpartum interview, the participant's first interview was reviewed by the SI and general themes were noted. Topics needing further clarification were also

noted. Postpartum interviews were conducted in three different locations: 23 took place in a private postpartum room at MWHC; 1 took place at the Brentwood Medical Center (non-Hispanic black); and 2 took place via phone (1 Hispanic, 1 non-Hispanic white). All phone interviews were recorded using freeconferencecall.com, which has strict privacy protections in place and was accessible and easy for women to use. Family members were permitted to be present at the participant's discretion and three postpartum interviews were conducted in the presence of a family member; on two occasions, it was the woman's partner and father of the baby (1 Hispanic, 1 non-Hispanic black) and on another it was the woman's mother (non-Hispanic white). Interviews ranged from 17 to 38 minutes and were also audio-taped. At the end of the interview, participants were provided a $15 gift card to Target for their participation and asked if they wanted to be contacted in the future to share results of the study. One participant declined her gift card (non-Hispanic white). Twenty-five women expressed a desire to learn about the study results and their contact information was kept in a separate password protected file.

Following the interview, socio-demographic and clinical information was collected from patient charts. Background information provided by participants was linked with information obtained from EMR to provide a medical context for their experience. Information collected included: maternal age/date of birth; marital status; pregnancy history (parity, term, preterm, abortions, living children); prenatal and delivery provider; gestational age at the time of interview and delivery; time and type of delivery; maternal co-morbidities (e.g. gestational diabetes, hypertension, asthma); length of three stages of labor when available; analgesia/anesthesia; estimated birth weight; actual fetal birth weight; CD indication when applicable; maternal complications and hospitalizations; induction/augmentation and its indication.

Data Analysis

As interviews were completed, audio recordings were transcribed by HomePro Transcribing within two weeks of the interview. Interviews conducted in Spanish were

transcribed in Spanish; the SI is fluent in English and Spanish. Transcripts were reviewed by the SI to insure accurate transcription and transcripts were read multiples times during the data collection and iterative analysis process. Once both interviews were completed for each study participant, a more formal analysis was begun.

An inductive coding process was used to develop a codebook. Two researchers - the SI and a native Spanish speaking doctoral student trained in qualitative analysis - double coded a subset of all interviews (n= 12). Line-by-line coding looked for broad themes in the data using Dedoose Version 7.0.23, a web application for managing, analyzing, and presenting qualitative and mixed method research data.[5] A preliminary codebook based on initial double coding results was developed and all discrepancies between applied codes were discussed and resolved. A second wave of coding resulted in further development of the codebook by clarifying existing code definitions and including in-vivo codes (n= 9). All remaining interviews were then analyzed by both researchers using focused and axial coding to determine sub-topics. Matrices displaying data by ethnic/racial subgroups were developed to identify similarities and differences within and between subgroups.

Throughout the interview process, the IG was adapted to provide clarification and depth on themes emerging from the data; all changes were duly documented to capture the progression of the interview questions and to ensure dependability of the results. A post-interview form was completed for each interview to assist with data analysis, provide information about interviewer-interviewee dynamics and note interviewer reflexivity. These forms were available to the second researcher coding the interviews. Finally, memos were generated when appropriate, noting patterns, themes, representativeness, replication of findings and triangulation of data sources (with patient EMR). Interviews conducted in Spanish were analyzed in Spanish and quotes included in the final write-up were translated to English.

Ethical Considerations

The Johns Hopkins Bloomberg School of Public Health IRB reviewed and approved the study protocol and materials (*Appendix J)*. An IRB Authorization Agreement was submitted to the Medstar Research Institute and approved. Participants were consented and provided an opportunity to ask any questions related to the study. All consent forms were kept in a locked file cabinet at MWHC. Audio recordings, data collection forms, post-interview forms, and transcriptions were all identified with a study identification number (SIN) to maintain confidentiality and stored on a password-protected and encrypted computer. A password-protected electronic file containing participant names was stored on an encrypted flash drive and kept in a locked file cabinet. Only the SI has access to this file.

Loss of confidentiality and the risk of psychological distress were two potential adverse events identified prior to the start of the study. Several mechanisms were set up to ensure confidentiality of participants. To the best of the SI's knowledge, no breaches of confidentiality took place during the recruitment, interview, transcription, or analysis phases of the study. Two participants showed some distress when recounting their past CD experience (non-Hispanic white), but remarked that they were fine with continuing the interview process.

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Chapter 4 Quantitative Results

4a. Introduction

This study examined the relation between ethnicity/race and repeat cesarean delivery (RCD) (Aim 1), hypothesizing no differences on initial comparison. While the literature presents Hispanic women as having higher odds of RCD than non-Hispanic women, we hypothesized that Hispanic and non-Hispanic women have similar odds of RCD in a facility with a vaginal birth after cesarean (VBAC) rate higher than the national average, providing control for hospital type, state/district liability differences and institutional policies. Aim 2 explored whether proposed risk factors explained any observed differences in delivery outcomes among Hispanic and non-Hispanic women. It was hypothesized that there are no differences in the odds of RCD independent of demographic, anthropomorphic, obstetrical/medical and health system risk factors. The results for Aims 1 and 2 are described below after a description of the characteristics of the study sample.

4b. Sample Characteristics

A total of 1821 women were included in the study after exclusion criteria were applied. *Table 4.1* describes the study sample by demographic, anthropomorphic, obstetrical/medical, and health system factors. Non-Hispanic black women accounted for the largest fraction of the total sample (74.6%), followed by Hispanic (18.7%) and non-Hispanic white women (6.7%). The number of deliveries in the sample decreased from 2010 (n= 384) to 2016 (n= 191). The final number in 2016 may be higher than in 2015, but data from November 1, 2016 through December 31, 2016 were not available at the time of the study. There were no clear trends by year and ethnicity/race.

Demographic factors included maternal age, marital status, maternal language, maternal education, and the year of delivery. Most deliveries occurred to women aged 30-34 (28.5%). Teenage women (18-19 years old) made up a very small percentage of the sample (1.4%) with 23

Table 4.1 Demographic, Anthropomorphic, Obstetrical/Medical, and Health System Factors of the Sample, by Ethnicity/Race (January 1, 2010 through October 31, 2016)

Characteristic	Hispanic n (%)	Black [1] n (%)	White [1] n (%)	Total n (%)
Total	340 (18.7)	1359 (74.6)	122 (6.7)	1821 (100.0)
Demographic Factors				
Maternal age, years (mean)	30.9	29.5	33.6	30.0
18-24	47 (13.8)	321 (23.6)	4 (3.3)	372 (20.4)
25-29	90 (26.5)	385 (28.3)	18 (14.8)	493 (27.1)
30-34	109 (32.1)	361 (26.6)	48 (39.3)	518 (28.5)
35-55	94 (27.7)	292 (21.5)	52 (42.6)	438 (24.1)
Marital status				
Single	235 (69.3)	1023 (75.4)	37 (30.3)	1295 (71.2)
Married	104 (30.7)	334 (24.6)	85 (69.7)	523 (28.8)
Maternal language				
English	55 (16.7)	1302 (96.2)	121 (100.0)	1478 (81.9)
Spanish	274 (83.3)	0 (0.0)	0 (0.0)	274 (15.2)
Other	0 (0.0)	52 (3.8)	0 (0.0)	52 (2.9)
Maternal education				
Elementary	113 (37.2)	58 (4.7)	0 (0.0)	171 (10.4)
Secondary	156 (51.3)	755 (61.4)	24 (22.2)	935 (57.0)
College or Above	35 (11.5)	416 (33.9)	84 (77.8)	535 (32.6)
Year of delivery				
2010	65 (19.1)	299 (22.0)	20 (16.4)	384 (21.1)
2011	58 (17.1)	243 (17.9)	24 (19.7)	325 (17.9)
2012	46 (13.5)	207 (15.2)	12 (9.8)	265 (14.6)
2013	59 (17.4)	196 (14.4)	10 (8.2)	265 (14.6)
2014	29 (8.5)	152 (11.2)	18 (14.8)	199 (10.9)
2015	43 (12.7)	132 (9.7)	17 (13.9)	192 (10.5)
2016	40 (11.8)	130 (9.6)	21 (17.2)	191 (10.5)

Anthropomorphic Factors				
Maternal height, cm (feet)				
Mean	157.2 (5.2)	162.7 (5.3)	163.3 (5.4)	161.7 (5.3)
Range	127-187 (4.2-6.1)	127-213 (4.2-7.0)	144-182 (4.9-6.0)	127-213 (4.2-7.0)
Less than 145	10 (3.0)	10 (0.7)	1 (0.8)	21 (1.2)
145-149	33 (10.0)	46 (3.4)	2 (1.7)	81 (4.5)
150-154	92 (28.0)	162 (12.0)	18 (14.9)	272 (15.1)
155-160	100 (30.4)	324 (23.9)	20 (16.5)	444 (24.6)
More than 160	94 (28.6)	813 (60.0)	80 (66.1)	987 (54.7)
Pre-pregnancy BMI				
Mean	28.0	30.5	26.2	29.7
Range	17.8-64.5	13.9-67.5	15.6-49.3	13.9-67.5
Below 25.0	107 (33.8)	343 (26.9)	58 (49.2)	508 (29.7)
25.0-29.9	119 (37.5)	361 (28.3)	38 (32.2)	518 (30.3)
30.0 and above	91 (28.7)	573 (44.9)	22 (18.6)	686 (40.1)
Current BMI				
Mean	32.7	35.3	31.7	34.6
Range	20.4-62.7	17.3-74.4	19.6-50.1	17.3-74.4
Below 25.0	18 (5.5)	74 (5.5)	8 (6.7)	100 (5.6)
25.0-29.9	90 (27.6)	262 (19.4)	46 (38.3)	398 (22.2)
30.0 and above	218 (66.9)	1012 (75.1)	66 (55.0)	1296 (72.2)
Obstetrical/Medical Factors				
Parity				
2	223 (65.6)	1010 (74.3)	114 (93.4)	1347 (74.0)
3	74 (21.8)	206 (15.2)	5 (4.1)	285 (15.7)
4 or more	43 (12.7)	143 (10.5)	3 (2.5)	189 (10.4)
Delivery interval				
Less than 1 year ago	16 (5.2)	82 (6.6)	4 (3.6)	102 (6.1)

More than 1 year ago	292 (94.8)	1160 (93.4)	107 (96.4)	1559 (93.9)
Gestational age at delivery, weeks				
37.0-40.0	284 (83.5)	1130 (83.2)	96 (78.7)	1510 (82.9)
40.1-41.0	51 (15.0)	173 (12.7)	16 (13.1)	240 (13.2)
More than 41.1	5 (1.5)	56 (4.1)	10 (8.2)	71 (3.9)
Infant birthweight, grams				
Mean	3417.4	3342.0	3492.6	3366.1
Range	2248-4911	1614-5741	2255-4834	1614-5741
Less than 2500	3 (0.9)	45 (3.4)	1 (0.8)	49 (2.8)
2500-3499	197 (59.0)	808 (60.8)	64 (53.8)	1069 (60.0)
3500-4000	101 (30.2)	355 (26.7)	35 (29.4)	491 (27.5)
More than 4000	33 (9.9)	122 (9.2)	19 (16.0)	174 (9.8)
Gestational diabetes				
No	297 (87.4)	1281 (94.3)	119 (97.5)	1697 (93.2)
Yes	43 (12.7)	78 (5.7)	3 (2.5)	124 (6.8)
Pre-gestational diabetes				
No	334 (98.2)	1321 (97.2)	122 (100.0)	1777 (97.6)
Yes	6 (1.8)	38 (2.8)	0 (0.0)	44 (2.4)
Labor induction				
No	308 (90.6)	1227 (90.3)	121 (99.2)	1656 (90.9)
Yes	32 (9.4)	132 (9.7)	1 (0.8)	165 (9.1)
Labor augmentation				
No	285 (83.8)	1172 (86.2)	108 (88.5)	1565 (85.9)
Yes	55 (16.2)	187 (13.8)	14 (11.5)	256 (14.1)
Health System Factors				
Delivery day of the week				
Weekday	266 (78.2)	1,134 (83.4)	106 (86.9)	1506 (82.7)
Weekend	74 (21.8)	225 (16.6)	16 (13.1)	315 (17.3)
Time of delivery				
Day shift (6am-5:59pm)	207 (60.9)	886 (65.2)	85 (69.7)	1178 (64.7)
Night shift (6pm-5:59am)	133 (39.1)	473 (34.8)	37 (30.3)	643 (35.3)

Payer source				
Public	252 (74.1)	883 (65.0)	21 (17.2)	1155 (63.5)
Private	88 (25.9)	476 (35.1)	101 (82.8)	665 (36.5)
Provider gender				
Female	244 (71.8)	911 (67.0)	87 (71.3)	1242 (68.2)
Male	96 (28.2)	448 (33.0)	35 (28.7)	579 (31.8)

[1] Non-Hispanic

of the 25 teenage mothers identifying as non-Hispanic black (data not shown). Hispanic women were younger on average than non-Hispanic white women (mean 30.9 years versus 33.6 years), but older than non-Hispanic black women (mean 29.5 years); 27.7 percent of Hispanic women were 35 years or older compared to 42.6 percent of non-Hispanic white women and 21.5 percent of non-Hispanic black women. Most women were single (71.2%); 30.7 percent of Hispanic women were married compared to 69.7 percent of non-Hispanic white women and 24.6 percent of non-Hispanic black women. Among Hispanic women, 83.3 percent spoke Spanish as their primary language. It was not possible to determine how many of these women did not speak English, but 74 percent of women who spoke Spanish reported an elementary or secondary education (data not shown).

A total of 57 percent of the sample women reported having a secondary education. Hispanic and non-Hispanic black women had similar education distributions; and most had a secondary education. Non-Hispanic white women had the highest educational attainment with 77.8 percent with more than 12 years of education. Hispanic women reported the least education; 37.2 percent of the sample had 6 years or less of education. Of note, 10.6 percent of Hispanic women, 11.5 percent of non-Hispanic white women, and 9.6 percent of non-Hispanic black women were missing information on education from their electronic medical record (EMR). Educational attainment information was not found in prenatal records.

Maternal height, pre-pregnancy BMI, and BMI at the time of delivery admission (current BMI) were anthropomorphic factors evaluated in the study. Mean heights were lower among Hispanic women (157.2 cm) and highest among non-Hispanic white women (163.3 cm). Generally, non-Hispanic black women had the highest pre- and current BMI and non-Hispanic white women the lowest. A high percentage of the sample women had BMIs of 30 and above.

Differences by ethnicity/race were less apparent for obstetrical/medical factors, which included parity, interval since last delivery, gestational age, infant birth weight, gestational diabetes, preexisting diabetes, labor induction, and labor augmentation. Most women had only

one birth prior to their current birth (74.0%). Hispanic women had higher parity than both non-Hispanic black and white women. Non-Hispanic white women with a parity of three accounted for only 0.3 percent (n= 5) of the total sample. Most women (93.9%) delivered more than one year since their previous delivery. Deliveries primarily occurred at 37-40 weeks gestation (82.9%); 1.5 percent of Hispanic women delivered at greater than 41.1 weeks of pregnancy compared to 8.2 percent of non-Hispanic white and 4.1 percent of non-Hispanic black women. Infant birth weight was similar across the three ethnic/racial groups. Most infants of the study women weighed 2500-3499 grams (60.0%); 16 percent of infants among non-Hispanic white women weighed more than 4000 grams compared with about 9.5 percent for the other two groups. Overall, the prevalence of gestational diabetes was 6.8 percent and preexisting diabetes 2.4 percent. The prevalence of induction and augmentation methods were 9.1 percent and 14.1 percent, respectively.

Four factors were evaluated as health system factors: day of the week of the delivery, time of day of the delivery, payer source, and provider gender. The decision to include provider gender in the analysis was informed by results from the qualitative in-depth interviews that took place as part of Aim 3. The highest volume of deliveries was on Friday in the seven-year period (18.2%) and the lowest on Saturday (8.6%) (data not shown). Most deliveries occurred during dayshift hours (64.7%). These results did not change when delivery time was categorized by nurses' (7am-7pm and 7pm-7am) versus obstetrician/midwives' schedules. Most Hispanic and non-Hispanic black women had public insurance (74.1% and 65.0%) while most non-Hispanic white women had private insurance (82.8%). Female providers attended most deliveries (68.2%). These results only reflect the gender of the delivery provider, who may not have been the provider managing the pregnancy and labor.

4c. Results of Aims 1 and 2

The overall RCD rate for the sample was 73.6 percent (*Table 4.2)*. MWHC RCD rates trended downward from a high in 2010 (75.3%) to a low in 2015 (71.9%), with a slight increase from 72.5 percent to 75.1 percent in 2013. MWHC rates for 2016 increased slightly to 72.3 percent, reflecting increases for Hispanic and non-Hispanic white women. Hispanic women had the lowest RCD rates for all years except for 2010 when they had a higher rate than non-Hispanic white women (73.9% versus 65.0%). There were only 10 deliveries to non-Hispanic white women that met inclusion criteria for 2013, resulting in a RCD rate of 90.0 percent.

Yearly MWHC RCD rates were lower than comparable United States (US) RCD rates for the same years. US rates decreased from a high of 90.8 percent in 2010 to 88.1 percent in 2015. Stratifying by ethnicity/race, US RCD rates were higher than MWHC rates; Hispanic women showed the highest RCD rates as compared to non-Hispanic black and white women. The largest difference in RCD rates by ethnicity/race between MWHC and US samples was seen among Hispanic women: 28.5 percentage points higher. US data for 2016 was not yet available.

Table 4.2 Trends in Repeat Cesarean by Year and Ethnicity/Race, MWHC and US (2010-2016)

	MWHC				US[3]			
Year	All (%)	Hispanic (%)	Black[i] (%)	White[i] (%)	Total (%)[ii]	Hispanic (%)	Black[i] (%)	White[i] (%)
2010	75.3	73.9	76.3	65.0	90.8[iii]	91.9	89.9	90.6
2011	73.5	62.1	77.4	62.5	90.3[iv]	91.5	89.3	90.0
2012	72.5	56.5	75.9	75.0	89.8[v]	90.9	88.8	89.5
2013	75.1	61.0	78.6	90.0	89.4[vi]	90.4	89.0	89.1
2014	73.4	58.6	76.3	72.2	88.7[vii]	89.7	88.5	88.4
2015	71.9	60.5	75.8	70.6	88.1[viii]	89.2	87.9	87.8
2016[ix]	72.3	70.0	73.1	71.4	---	---	---	---
Overall[x]	73.6	63.8	76.4	70.5	89.5	90.6	88.9	89.2

[i] Non-Hispanic

[ii] US total rates include other races not shown and origin not stated. Women under 18 years of age and deliveries below 38 weeks gestation were also included.

[iii] Data excludes: Alabama, Alaska, Arizona, Arkansas, Connecticut, Hawaii, Maine, Massachusetts, Minnesota, Mississippi, New Jersey, Rhode Island, Virginia, West Virginia, Wisconsin. Virgin Islands, Guam, American Samoa.

[iv] Data excludes Alabama, Alaska, Arizona, Arkansas, Connecticut, Hawaii, Maine, Mississippi, New Jersey, Rhode Island, Virginia, West Virginia. Virgin Islands and American Samoa.

[v] Data excludes Alabama, Alaska, Arizona, Arkansas, Connecticut, Hawaii, Maine, Mississippi, New Jersey, Rhode Island, West Virginia. Virgin Islands and American Samoa.

[vi] Data excludes Alabama, Arizona, Arkansas, Connecticut, Hawaii, New Jersey, Rhode Island, West Virginia. Virgin Islands and American Samoa.

[vii] Data excludes Connecticut. American Samoa. 96% of all births.
[viii] Data excludes Connecticut. American Samoa.
[ix] Data for MWHC only available from January 1, 2016 until October 31, 2016. US data not available.
[x] Overall rates are for 2010-2015.

Unadjusted Odds Ratios (Aim 1)

Ethnicity/Race

RCD rates and unadjusted odds ratios (UOR) for ethnicity/race and other covariates are presented in *Table 4.3*. Hispanic women had the lowest RCD rate, 63.8 percent; non-Hispanic black and white women had RCD rates of 76.4 percent and 70.5 percent, respectively. The rates did not differ significantly by ethnicity and race. Hispanic women had lower odds of a RCD than non-Hispanic white women (0.74; 95% CI: 0.47,1.16); non-Hispanic black women had higher odds of RCD than non-Hispanic white women (1.35; 95% CI: 0.90, 2.04); neither difference was statistically significant. Due to a proportionally small sample of non-Hispanic white women (6.7%), the association between race and RCD was also explored limiting the sample to only non-Hispanic black and Hispanic women. Non-Hispanic back women had 1.83 times the odds of a RCD than Hispanic women (95% CI 1.42, 2.36; $p < .0001$) (data not shown).

Rates for Covariates

The highest rate of RCD occurred among women 35 years and over (76.3%) while the lowest was among women aged 25-29 years (72.2%). RCD rates were similar by marital status, 74.4 percent for single and 71.5 percent for married women. However, non-Hispanic white women showed the largest difference in RCD rates by marital status: 86.5 percent for single women and 63.5 percent for married women (data not shown). RCD rates for Hispanic and Non-Hispanic black women did not vary significantly by marital status. Differences in RCD rates by language were statistically significant ($p < .001$). English speaking women had a rate of 76.1 percent compared to 61.0 percent for Spanish speaking women. Women who spoke other languages (French and Arabic) had a RCD rate of 69.2 percent. RCD rates varied significantly by educational attainment ($p < .001$); women with more than 12 years of education had the highest RCD rates (78.7%).

Table 4.3 Rates and Unadjusted Odds of RCD by Demographic, Anthropomorphic, Obstetrical/Medical, Health System Factors (January 1, 2010 through October 31, 2016)

Characteristics	RCD Rates % (n)	Unadjusted Odds Ratios (95% CI) n= 1821
Demographic Factors		
Ethnicity/race		
Non-Hispanic White	70.5 (86)	1.00
Hispanic	63.8 (217)	0.74 (0.47, 1.16)
Non-Hispanic Black	76.4 (1038)	1.35 (0.90, 2.04)
Maternal age, years		
18-24	73.4 (273)	1.00
25-29	72.2 (356)	0.94 (0.70, 1.28)
30-34	73.0 (378)	0.98 (0.72, 1.32)
35-50	76.3 (334)	1.16 (0.85, 1.60)
Marital status		
Single	74.4 (964)	1.00
Married	71.5 (374)	0.86 (0.69, 1.08)
Language	***	
English	76.1 (1125)	1.00
Spanish	61.0 (167)	0.48 (0.37, 0.63) ***
Other	69.2 (36)	0.71 (0.39, 1.29)
Education level	***	
Elementary	63.2 (108)	1.00
Secondary	72.5 (678)	1.56 (1.11, 2.19) *
College or Above	78.7 (421)	2.14 (1.47, 3.10) ***
Year of delivery		
2010	75. 3 (289)	1.00
2011	73. 5 (239)	0.91 (0.65, 1.28)
2012	72. 5 (192)	0.86 (0.61, 1.23)
2013	75.1 (199)	0.99 (0.69, 1.42)
2014	73.4 (146)	0.91 (0.61, 1.34)

2015	71.9 (138)	0.84 (0.57, 1.24)
2016	72.3 (138)	0.86 (0.58, 1.27)
Anthropomorphic Factors		
Height, cm		
Less than 150	80.4 (82)	1.00
150.0-154.9	72.8 (198)	0.58 (0.33, 1.00)
155.0-160.0	72.8 (323)	0.66 (0.39, 1.12)
Greater than 160.0	74.4 (734)	0.71 (0.43, 1.19)
Pre-pregnancy BMI ***		
Below 25.0	68.7 (349)	1.00
25.0-29.9	71.2 (369)	1.13 (0.87, 1.47)
30.0 and above	79.9 (548)	1.82 (1.40, 2.37) ***
Current BMI ***		
Below 25.0	67.0 (67)	1.00
25.0-29.9	65.3 (260)	0.90 (0.56, 1.43)
30.0 and above	77.4 (1003)	1.73 (1.12, 2.68) *
Obstetrical/Medical Factors		
Parity ***		
2	79.4 (1070)	1.00
3	63.5 (181)	0.45 (0.34, 0.59) ***
4 or more	47.6 (90)	0.24 (0.17, 0.32) ***
Delivery interval		
Less than 1 year ago	68.6 (70)	1.00
More than 1 year ago	74.2 (1156)	1.31 (0.85, 2.02)
Gestational age at delivery, weeks ***		
37-40	76.3 (1152)	1.00
40.1-41	61.7 (148)	0.50 (0.38, 0.67) ***
41.1 or more	57.8 (41)	0.42 (0.26, 0.69) ***
Infant birth weight, grams		
Less than 3499	72.8 (814)	1.00

3500-4000	73.1 (359)	1.01 (0.80, 1.29)
More than 4000	82.2 (143)	1.74 (1.15, 2.61) **
Gestational diabetes		
No	73.3 (1243)	1.00
Yes	79.0 (98)	1.38 (0.88, 2.15)
Pre-gestational diabetes		
No	73.4 (1304)	1.00
Yes	84.1 (37)	1.92 (0.85, 4.33)
Labor induction	***	
No	75.9 (1256)	1.00
Yes	51.5 (85)	0.34 (0.24, 0.47) ***
Labor augmentation		
No	79.2 (1239)	1.00
Yes	39.8 (102)	0.17 (0.13, 0.23) ***
Health Factors		
Day of the week of delivery	***	
Weekday	77.0 (1,160)	1.00
Weekend	57.5 (181)	0.40 (0.31, 0.52) ***
Time of delivery	***	
Day shift (6am-6pm)	80.4 (947)	1.00
Night shift (6pm-6am)	61.3 (394)	0.39 (0.31, 0.48) ***
Payer source	***	
Public	69.6 (804)	1.00
Private	80.6 (536)	1.81 (1.44, 2.28) ***
Provider gender	***	
Female	69.7 (866)	1.00
Male	82.0 (475)	1.98 (1.55, 2.53) ***

* $p < .05$ ** $p < .01$ *** $p < .001$

High RCD rates were found among women with heights below 150 cm, but the results were not significant by maternal height. All other anthropomorphic factors were significantly related to RCD at $p < .001$ (pre-pregnancy and current BMI). Women with BMIs of 30 and above, pre-pregnancy and at delivery, had the highest rates of RCD (79.9% and 77.4%, respectively).

Parity, gestational age, labor induction and labor augmentation were all significantly associated with RCD at $p < .001$. Women whose current birth was their second had the highest RCD rate (79.4%). RCD rates trended downward with higher parities; women with parities of 4 or more had the lowest RCD (47.6%); this finding was expected since the sample included women with only one prior cesarean delivery (CD), and women with more than one prior birth had a vaginal delivery in at least one of these births. There was no association between delivery interval and delivery method.

Women with deliveries at 37-40 weeks gestation had a high RCD rate (76.3%). Like parity, gestational age trended downward such that women who delivered at more than 41.1 weeks gestation had the lowest RCD rate (57.8%). This finding may reflect differences in management such that women who choose not to schedule an ERCD would be more likely to go past their due dates. Hispanic women with gestations of more than 41.1 weeks had higher RCD rates (80.0%) than non-Hispanic black (62.5%) or white women (20%) (data not shown). Sixty percent of non-Hispanic white women with gestations of more than 41.1 weeks were seen by certified nurse midwives (CNM) versus 10.7 percent of non-Hispanic black women and 0 percent of Hispanic women.

The highest RCD rates occurred among women with infant birth weights of more than 4000 grams (82.2%) and the lowest RCD were among women with infants weighing less than 3499 grams (72.8%). Among women with birth weights of more than 4000 grams, Hispanic women had significantly higher rates of RCD (87.9%) than non-Hispanic white (57.9%) women; non-Hispanic black women had rates similar to those for Hispanic women (84.4%) (data not shown). Non-Hispanic white women whose babies weighed over 4000 grams were also more

likely to have a CNM attend their delivery (31.6%) than non-Hispanic black (6.6%) or Hispanic (0%) women (data not shown). It is not possible to determine how many women with RCD were managed by CNMs since delivery records primarily reported the delivering provider and delivering providers for RCD are required to be obstetricians. No differences in RCD among women with and without gestational and pre-gestational diabetes were found. Women who underwent labor induction or augmentation had lower rates of RCD (51.5% and 39.8%, respectively) than those who did not (75.9% and 79.2%), mostly likely because women undergoing labor induction or augmentation are less likely to have an ERCD.

All health systems factors were found to be significant at $p < .001$ levels. RCD rates during the week were higher than on the weekends (77.0% versus 57.5%, respectively). Non-Hispanic white women had a particularly high RCD rate of 75.0 percent on Saturdays, but there were few observations in this category (n= 8, 0.4%; data not shown). Hispanic women when compared to non-Hispanic black women had significantly lower RCD rates on both weekend days (35.3% and 47.5% on Saturday and Sunday vs 64.7% and 63.3%, respectively). Day shift RCD rates (80.4%) were higher than night shift rates (61.3%). Women with private insurance had a higher rate of RCD (80.6% vs 69.6%), a trend that was seen across all ethnic/racial categories. Publicly insured Hispanic women had the lowest (59.1%) while privately-insured non-Hispanic black women had the highest RCD rates (83.0%).

Differences in Repeat Cesarean Deliveries by Race Adjusting for Risk Factors (Aim 2)

Aim 2 explored ethnic/racial differences in the odds of RCD after adjusting for RCD risk factors. It was hypothesized that there are no ethnic/racial differences in RCD after adjustments for risk factors. A total of seven models were explored, each adjusting for a set of a priori characteristics identified from the literature as associated with RCD.

Model 1 in *Table 4.4* shows the unadjusted odds ratio for RCD for ethnicity/race and the covariates. Model 2 includes the odds ratios for ethnicity/race adjusting for demographic factors

(age, marital status, language, education, year of delivery). The odds ratio for Hispanic women changed direction after adjustment for these variables; it was 67 percent greater than for non-Hispanic white women, but the odds were not statistically significant, nor did they differ significantly for non-Hispanic black women.

Anthropomorphic factors included maternal height, pre-pregnancy BMI, and current BMI. Current BMI was not included in modeling analysis because of collinearity. Adjustment for the other two variables did not alter the relation of ethnicity/race with the odds of an RCD (Model 3). The AOR for Hispanic and non-Hispanic black women were not significant although both decreased (AOR 1.49 and 1.32, respectively).

Obstetrical/medical factors were added in Model 4. They initially included parity, delivery interval, gestational age, infant birth weight, pre-gestational diabetes, gestational diabetes, and induction/augmentation of labor. Although pre-existing diabetes was initially included in the analysis, it was dropped from the analysis based on the bivariate findings and the review of the literature, as was interval since last delivery. The AOR increased for both Hispanic and non-Hispanic black women resulting in a statistically significant relation between ethnicity/race and RCD ($p < .05$ and $p < .001$, respectively), although precision was somewhat lost as noted by wider confidence intervals (95% CI 1.13, 6.11 and 1.38, 3.72), possibly due to small cell sizes for some factors. Variations on Model 4, adjusting for individual obstetrical/medical factors, showed that the variables of parity and induction/augmentation of labor were of significance in explaining differences in AOR by ethnicity/race (see Section 4d below).

Model 5 included the health care/provider factors (day of the week of delivery, time of delivery, payer source, and provider gender). Results for Model 5 were like those for Model 4. The AOR was increased for Hispanic and non-Hispanic black women and both remained statistically significant ($p < .05$ and $p < .001$, respectively). Hispanic women had a 2.71 odds of RCD and non-Hispanic black women a 2.43 odds of RCD compared to non-Hispanic white women. Maternal ages 30-34 (AOR 1.55; $p < .05$), maternal ages 35-50 (AOR 1.93; $p < .01$),

Table 4.4 Unadjusted and Adjusted Odds Ratios of Repeat Cesarean Delivery, (n= 1821)

Characteristic	Model 1 Unadjusted OR (95% CI)	Adjusted OR (95% CI)			
		Model 2	Model 3	Model 4	Model 5
Demographic Factors					
Race					
Non-Hispanic White	1.00	1.00	1.00	1.00	1.00
Hispanic	0.74 (0.47, 1.16)	1.67 (0.79, 3.51)	1.49 (0.70, 3.16)	2.62 (1.13, 6.11) *	2.71 (1.14, 6.45) *
Non-Hispanic Black	1.35 (0.90, 2.04)	1.50 (0.97, 2.32)	1.32 (0.85, 2.06)	2.27 (1.38, 3.72) ***	2.43 (1.45, 4.08) ***
Maternal age, years					
18-24	1.00	1.00	1.00	1.00	1.00
25-29	0.94 (0.70, 1.28)	0.98 (0.72, 1.34)	0.93 (0.68, 1.28)	1.22 (0.86, 1.73)	1.28 (0.89, 1.84)
30-34	0.98 (0.72, 1.32)	1.07 (0.78, 1.48)	1.00 (0.72, 1.39)	1.54 (1.06, 2.24) *	1.55 (1.06, 2.27) *
35-50	1.16 (0.85, 1.60)	1.27 (0.89, 1.81)	1.21 (0.85, 1.74)	1.98 (1.30, 3.03) ***	1.93 (1.25, 2.99) **
Marital status					
Single	1.00	1.00	1.00	1.00	1.00
Married	0.86 (0.69, 1.08)	0.78 (0.60, 1.01)	0.79 (0.61, 1.03)	0.70 (0.52, 0.94) *	0.67 (0.49, 0.91) **
Maternal Language					
English	1.00	1.00	1.00	1.00	1.00
Spanish	0.48 (0.37, 0.63) ***	0.49 (0.25, 0.97) *	0.50 (0.25, 0.99) *	0.37 (0.17, 0.80) *	0.42 (0.19, 0.91) *
Other	0.71 (0.39, 1.29)	0.73 (0.39, 1.34)	0.87 (0.47, 1.62)	0.76 (0.37, 1.56)	0.78 (0.38, 1.63)
Maternal Education					
Elementary	1.00	1.00	1.00	1.00	1.00
Secondary	1.56 (1.11, 2.19) *	1.16 (0.78, 1.72)	1.16 (0.78, 1.73)	1.06 (0.68, 1.66)	1.06 (0.67, 1.67)
College or above	2.14 (1.47, 3.10) ***	1.66 (1.05, 2.62) *	1.69 (1.06, 2.68) *	1.29 (0.76, 2.17)	1.16 (0.68, 1.99)
Year of Delivery					
2010	1.00	1.00	1.00	1.00	1.00
2011	0.91 (0.65, 1.28)	0.90 (0.64, 1.26)	0.90 (0.64, 1.28)	0.87 (0.59, 1.27)	0.87 (0.58,1.28)

2012	0.86 (0.61, 1.23)	0.86 (0.60, 1.23)	0.87 (0.60, 1.25)	0.78 (0.51, 1.17)	0.81 (0.53, 1.23)
2013	0.99 (0.69, 1.42)	0.95 (0.66, 1.38)	0.94 (0.65, 1.37)	0.90 (0.59, 1.37)	0.86 (0.55, 1.33)
2014	0.91 (0.61, 1.34)	0.85 (0.57, 1.26)	0.85 (0.57, 1.26)	0.71 (0.45, 1.12)	0.74 (0.47, 1.16)
2015	0.84 (0.57, 1.24)	0.79 (0.53, 1.19)	0.78 (0.52, 1.17)	0.74 (0.47, 1.17)	0.75 (0.47, 1.20)
2016	0.86 (0.58, 1.27)	0.81 (0.54, 1.22)	0.82 (0.55, 1.23)	0.78 (0.50, 1.22)	0.78 (0.49, 1.23)
Anthropomorphic Factors					
Height, cm					
Less than 150.0	1.00		1.00	1.00	1.00
150.0-154.9	0.58 (0.33, 1.00)		0.60 (0.34, 1.06)	0.77 (0.41, 1.44)	0.77 (0.41, 1.45)
155.0-160.0	0.66 (0.39, 1.12)		0.57 (0.33, 0.99) *	0.69 (0.38, 1.26)	0.68 (0.37, 1.25)
More than 160.0	0.71 (0.43, 1.19)		0.56 (0.33, 0.96) *	0.63 (0.35, 1.13)	0.61 (0.34, 1.11)
Pre-pregnancy BMI					
Below 25.0	1.00		1.00	1.00	1.00
25.0-29.9	1.13 (0.87, 1.47)		1.08 (0.82, 1.41)	1.24 (0.92, 1.69)	1.20 (0.88, 1.64)
30.0 and above	1.82 (1.40, 2.37) ***		1.68 (1.28, 2.21) ***	1.76 (1.30, 2.39) ***	1.71 (1.25, 2.34) ***
Obstetrical/Medical Factors					
Parity					
2	1.00			1.00	1.00
3	0.45 (0.34, 0.59) ***			0.40 (0.29, 0.55) ***	0.42 (0.30, 0.58) ***
4 or more	0.24 (0.17, 0.32) ***			0.17 (0.12, 0.26) ***	0.19 (0.13, 0.28) ***
Gestational Age at Delivery, weeks					
37-40	1.00			1.00	1.00
40.1-41	0.50 (0.38, 0.67) ***			0.62 (0.44, 0.88) **	0.64 (0.46, 0.91) *
41.1 or more	0.42 (0.26, 0.69) ***			0.56 (0.32, 0.99) *	0.72 (0.40, 1.30)
Infant Birth Weight, grams					
Less than 3499	1.00			1.00	1.00
3500-4000	1.01 (0.80, 1.29)			1.03 (0.78, 1.36)	1.08 (0.81, 1.44)
More than 4000	1.74 (1.15, 2.61) **			1.87 (1.16, 3.02) **	1.82 (1.12, 2.96) *

Gestational Diabetes			
No	1.00	1.00	1.00
Yes	1.38 (0.88, 2.15)	1.86 (1.09, 3.19) *	1.89 (1.09, 3.28) *
Induction/Augmentation			
No	1.00	1.00	1.00
Yes	0.17 (0.13, 0.21) ***	0.17 (0.13, 0.22) ***	0.19 (0.14, 0.25) ***
Health System Factors			
Day of the Week of Delivery			
Weekday	1.00		1.00
Weekend	0.40 (0.31, 0.52) ***		0.56 (0.42, 0.75) ***
Time of Delivery			
Day shift (6am-6pm)	1.00		1.00
Night shift (6pm-6am)	0.39 (0.31, 0.48) ***		0.56 (0.44, 0.72) ***
Payer Source			
Public	1.00		1.00
Private	1.81 (1.44, 2.28) ***		1.32 (0.97, 1.78)
Provider Gender			
Female	1.00		1.00
Male	1.98 (1.55, 2.53) ***		1.83 (1.38, 2.42) ***

* $p < .05$ ** $p < .01$ *** $p < .001$

pre-pregnancy BMI of 30.0 and above (AOR 1.71; p< .01), birth weight over 4000 grams (AOR 1.82; p< .05), gestational diabetes (AOR 1.89; p< .05), and provider gender (AOR 1.83; p< .001) were associated with increased odds of RCD.

In model 5, married women had lower odds of RCD than single women (AOR: 0.67; p< .01). Spanish speaking women had a 58 percent lower odds of a RCD (95% CI 0.19, 0.91; p< .05) and parity showed a strong decreasing trend in odds of RCD with increasing parity. Women who delivered at between 40.1 and 41.0 weeks of gestation had lower odds of experiencing a RCD (AOR 0.64; p< .05), an association that remained significant after adjusting for all other factors. The use of induction and augmentation methods was associated with lower odds of RCD (AOR 0.19) and remained significant (p< .001). Women who delivered on Saturday or Sunday were at 44 percent lower odds of experiencing a RCD (p< .001). Women delivering during the night shift also had significantly lower odds of RCD than women delivering during the day (95% CI 0.44, 0.72; p< .001). After adjusting for all other covariates, payer source was no longer found to be significant. Women who had a male provider had 83 percent greater odds of delivering by RCD (95% CI: 1.38, 2.42; p< .001).

Akaike Information Criteria (AIC) analysis indicated that model 5 had the lowest AIC of all models and thus, the best fit for the data. Likelihood ratio tests also favored model 5, showing the saturated model as having the lowest AIC. Results from the Pearson's Goodness of Fit test showed that model 5 had the best fit with a p value of 0.99. An additional check of McFadden's R-squared showed a value of 0.2, indicating an excellent model fit for model 5.[1] Various parsimonious models were also compared to the fully saturated model 5. Omission of variables that were not significant after adjustment was considered; these variables included education, delivery year, height, and payer source. Based on the literature review and conceptual model, education, delivery year, and payer source were retained. Maternal height was also retained due to minimal differences in model fit analysis results comparing Model 5 to parsimonious models.

4d. Sensitivity Analyses

Logistic regression modeling revealed that when obstetrical/medical factors were added in Model 4 there was a significant effect on the relation between ethnicity/race and odds of RCD. Separate analyses were run to examine individual obstetrical/medical factors. The first analyses involved adding health systems factors before obstetrical/medical factors (*Table 4.5, Model 6*). There were no significant changes in adjusted odds of RCD by ethnicity/race. Addition of gestational age, birth weight, and gestational diabetes also resulted in no differences in parameters or significance (*Appendix K, Models 9-11*). Parity and induction/augmentation methods, however, did result in significant changes on the relation between ethnicity/race and

Table 4.5 Sensitivity Analysis, Obstetrical/Medical Factors, n= 1821

Models	Hispanic	Black[i]	White[i]
Model 1	0.74 (0.47, 1.16)	1.35 (0.90, 2.04)	1.00
Model 2[ii]	1.67 (0.79, 3.51)	1.50 (0.97, 2.32)	1.00
Model 3[iii]	1.49 (0.70, 3.16)	1.32 (0.85, 2.06)	1.00
Model 4 [iv]	2.62 (1.13, 6.11) *	2.27 (1.38, 3.72) ***	1.00
Model 5 [v]	2.71 (1.14, 6.45) *	2.43 (1.45, 4.08) ***	1.00
Model 6 [vi]	1.70 (0.76, 3.80)	1.55 (0.96, 2.50)	1.00
Model 7 [vii]	2.35 (1.03, 5.35) *	2.01 (1.23, 3.27) **	1.00
Model 8 [viii]	2.25 (0.97, 5.23)	1.91 (1.16, 3.15) **	1.00

* p < .05 ** p < .01 *** p < .001

[i] Non-Hispanic.

[ii] Adjusted for all demographic covariates.

[iii] Adjusted for all demographic and anthropomorphic covariates.

[iv] Adjusted for all demographic, anthropomorphic, and obstetrical/medical covariates.

[v] Adjusted for all covariates.

[vi] Adjusted for all demographic, anthropomorphic, and health system covariates.

[vii] Adjusted for parity and all demographic, anthropomorphic, and health system covariates.

[viii] Adjusted for induction/augmentation methods and all demographic, anthropomorphic, and health system covariates.

odds of RCD. The precision of the odds ratio estimates for both Hispanic and non-Hispanic black women improved. Adjustment for parity and all demographic, anthropomorphic, and health system covariates (*Model 7*) resulted in statistically significant increased odds of RCD for both women compared to Model 3. Odds ratio for Hispanic women was 2.35 (95% CI 1.03, 5.35) and for non-Hispanic black women 2.01 (95% CI 1.23, 3.27). Adjustment for induction/augmentation

methods and all demographic, anthropomorphic, and health system covariates (*Model 8*) resulted in increased odds of RCD for both women compared to Model 3, but only non-Hispanic black women had statistically increased odds of RCD (AOR 1.91; 95% CI 1.16, 3.15). Hispanic women had 2.25 greater odds of RCD (95% CI 0.97, 5.23).

Language also had a significant effect on the relation between ethnicity/race and odds of RCD. Three separate analyses were run to address small cell sizes for the language covariate.[2] The first analyses (combining other and English language) resulted in no differences in parameters or significance (data not shown). A second analysis involved dropping the language variable from the final model. The estimate precision for Hispanic women improved, but results were no longer statistically significant. The odds ratio for Hispanic women was 1.37 (95% CI 0.76, 2.49). There were no changes to the odds of RCD for non-Hispanic black women.

The last analyses involved creating a hybrid variable that combined ethnicity/race. Women with missing or "other" data for language were dropped, resulting in a total of 1752 observations. Women were then categorized as Hispanic English-speaking, Hispanic Spanish-speaking, non-Hispanic black and white; all non-Hispanic black and white women in the sample spoke English. Results are shown in *Table 4.6*. Ethnicity/race by language was not found to be statistically significant with RCD (Model 1a). Adjusting for demographic covariates (age, marital status, education, and year of delivery) did not alter the relation of ethnicity/race with the odds of an RCD (Model 2a). AORs for all groups were not significant although all increased. Adjustment for anthropomorphic factors (height, pre-pregnancy BMI) also had minimal effect on the relation to RCD (Model 3a). As with the previous analysis with the full sample, obstetrical/medical factors significantly altered the relation between ethnicity/race and RCD (Model 4a). AORs increased for both Hispanic groups and non-Hispanic black women compared to non-Hispanic

Table 4.6 Sensitivity Analysis, Language, n= 1752

Models	Hispanic English Speaking	Hispanic Spanish Speaking	Black[v]	White[v]
Model 1a	1.52 (0.72, 3.21)	0.66 (0.42, 1.05)	1.38 (0.92, 2.09)	1.00
Model 2a[i]	1.69 (0.78, 3.66)	0.82 (0.48, 1.37)	1.50 (0.96, 2.32)	1.00
Model 3a[ii]	1.54 (0.71, 3.34)	0.74 (0.43, 1.25)	1.30 (0.83, 2.03)	1.00
Model 4a[iii]	2.88 (1.21, 6.85) *	0.99 (0.55, 1.79)	2.23 (1.36, 3.66) **	1.00
Model 5a[iv]	2.91 (1.21, 7.01) *	1.01 (0.55, 1.86)	2.20 (1.32, 3.66) **	1.00

* p < .05 ** p < .01 *** p < .001
[i] Adjusted for all demographic covariates (except language).
[ii] Adjusted for all demographic (except language) and anthropomorphic covariates.
[iii] Adjusted for all demographic (except language), anthropomorphic, and obstetrical/medical covariates.
[iv] Adjusted for all covariates (except language).
[v] Non-Hispanic

white women, resulting in a statistically significant relation with RCD for both Hispanic English-speaking women and non-Hispanic black women. There was a significant increase in the width of confidence intervals for Hispanic English-speaking women estimates (95% CI: 1.21, 6.85). Model 5a adjusted for all covariates except language. Covariates that were found to be statistically significant in Model 5 were also statistically significant in Model 5a. Hispanic English-speaking women and non-Hispanic black women were at statistically significant greater odds of RCD than non-Hispanic white women (AOR 2.91 and 2.20, respectively). Results for Hispanic Spanish-speaking women were not statistically significant.

4e. Indications for Repeat Cesarean Delivery

An analysis of the indications reported in the medical record for RCD was also undertaken. There were 1341 RCD during the study time-period of which 57.7 percent (n= 774) had recorded indications for RCD. Of the 774 women with recorded indications, 14.2 percent had two indications and 1.8 percent, three recorded indications. Women with and without recorded indications for a RCD were compared; they differed significantly on ethnicity/race, language, pre-pregnancy BMI, parity, birth weight, induction/augmentation, and year of delivery. A descriptive analysis is shown in *Table 4.7.*

Elective repeat cesarean delivery (ERCD) was noted for 33.9 percent of the women with reported indications for RCD. Nine indications were categorized under maternal history and accounted for 4.9 percent of RCD. Indications of short interval refer to pregnancies less than one year apart; there were 9 cases of RCD with short intervals. There was only one recorded delivery with an indication of no previous records documenting the direction of the uterine scar; the first CD took place in Bolivia.

Maternal indications were categorized into 12 separate diagnoses. There were three RCD with an indication for postdates that were included under the category of elective; these deliveries occurred at 41.1 weeks, 41.2 weeks, and 41.4 weeks of gestation. The RCD with an indication of premature preterm rupture of membranes (PPROM) occurred at 37.2 weeks of gestation. The most frequent indications for RCD among all women (n= 774) were fetal in nature (45.7%). Non-reassuring fetal heart tracing was the primary fetal indication for RCD. Fifteen RCD had indications of IUGR, which included: less than 2499 grams (n= 7), 2500-3499 grams (n= 7), and missing birth weight (n= 1). Macrosomia was indicated for 23 RCD: more than 4001 grams (n= 15), 3500-4000 grams (n= 5), and 2500-3499 grams (n= 3). Indications for RCD were provided for 56.2 percent of Hispanic women, 57.4 percent of non-Hispanic black women, and 65.1 percent of non-Hispanic white women (data not shown). Rates of ERCD for all women in the sample with RCD, including those missing indications, were 18.9 percent for Hispanic women, 19.7 percent for non-Hispanic black women, and 16.3 percent for non-Hispanic white women.

4f. References

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2. Allison, Paul. "What's the best r-squared for logistic regression." *Statistical Horizons*. Accessed Fall 2017. https://statisticalhorizons.com/r2logistic.

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Table 4.7 RCD Indications, n= 774

RCD Indication Groups	RCD Indication from EMR	First Recorded Indication n (%)	Second Recorded Indication n (%)	Third Recorded Indication n (%)	Total with Recorded Indication n (%)
Elective		261 (33.7)	1 (0.9)		262 (33.9)
Maternal History					38 (4.9)
	Incision: classical or T	13 (0.7)			
	Short Interval	8 (0.4)	1 (0.9)		
	Myomectomy	5 (0.3)			
	Fetal demise in utero	3 (0.2)		1 (7.1)	
	Cardiomyopathy	2 (0.1)	1 (0.9)		
	Fibroid		1 (0.9)		
	No previous records	1 (0.1)			
	Shoulder Dystocia	1 (0.1)			
	Uterine anomaly		1 (0.9)		
Maternal Indication					111 (14.3)
	Hypertension	41 (2.3)	14 (12.8)	2 (14.3)	
	HIV	25 (1.4)			
	Placental abruption	3 (0.7)	4 (3.6)		
	Diabetes	5 (0.3)	3 (2.7)	1 (7.1)	
	Cholestasis	3 (0.2)			
	Herpes Simplex	3 (0.2)			
	Placenta previa	3 (0.7)			
	Postdates	3 (0.2)			
	Cephalo-pelvic disproportion		1 (0.9)		
	Premature preterm rupture of membranes		1 (0.9)		
	Rheumatic Fever	1 (0.1)			
	Unfavorable cervix	1 (0.1)			
Fetal Indication					354 (45.7)
	Non-reassuring fetal heart tracing	186 (10.2)	33 (30.0)		
	Malpresentation	46 (2.6)	6 (4.6)		
	Anomalies	17 (0.9)	3 (2.7)	3 (21.4)	

	Macrosomia	17 (0.9)	6 (5.5)		
	Intrauterine Growth Restriction	13 (0.7)	2 (2.7)		
	Oligohydramnios	15 (0.8)	3 (2.7)		
	Polyhydramnios	2 (0.1)			
	Biophysical Profile 2/8		1 (0.9)		
	Immature amnio at 36 weeks	1 (0.1)			
	Meconium	1 (0.1)			
Intrapartum Indication					129 (16.7)
	Protracted/arrested dilation or descent	76 (4.2)	21 (19.1)	7 (50.0)	
	Chorioamnionitis	9 (0.5)	3 (2.7)		
	Suspected uterine rupture	7 (0.4)	3 (2.7)		
	Failed forceps/vacuum	2 (0.1)			
	Cord prolapse		1 (0.9)		
Total		774 (100.0)	110 (100.0)	14 (100.0)	

Chapter 5 Qualitative Results

5a. Introduction

This chapter presents the results from the in-depth qualitative interviews that were conducted to address Aim 3: to investigate perceptions about vaginal births after cesareans (VBAC) and repeat cesarean delivery (RCD) among Hispanic and non-Hispanic women with a previous cesarean delivery (CD). Based on a review of the literature, four areas were explored: 1) previous and current labor and delivery experiences; 2) perceived safety of RCD compared to VBAC; 3) patient-provider communication surrounding mode of delivery; and 4) factors and support systems women considered when making their decision. Four overall themes emerged through inductive coding and are presented below after a description of study participants: 1) factors affecting women's preferences for mode of delivery; 2) knowledge of RCD and VBAC processes, risks, and benefits; 3) decision-making factors; and 4) perception of choice.

5b. Characteristics of Study Participants

A total of 27 women were interviewed: nine Hispanic women of any race (Hispanic), ten non-Hispanic black women (black), and eight non-Hispanic white women (white). A summary of characteristics of study participants can be found in Table 5.1. Most Hispanic women were foreign-born (88.9%), representing Mexico, El Salvador, the Dominican Republic, and Honduras. One black woman was born in a foreign non-Latin country. The range of ages for participants was similar across groups (26 to 40 years of age) with one older outlier each among black (44 years of age) and white (52 years of age) women. Hispanic women tended to be younger (median age of 29), less formally educated (55.5% with less than 12 years of education) and on public insurance (77.7%). White and black women in the sample were older (median age of 38.5 and 36.5, respectively), had a higher level of formal education (all but one black woman had some college or above), and were privately insured (100% and 70%, respectively). Hispanic and black women were evenly distributed across three categories of marital status: single not living with the

father of the baby (FOB), single living with the FOB, and married; only two women reported not having a relationship with the FOB. White women all self-identified as married.

Median height among Hispanic women (154.9 cm) was markedly lower than for both black and white women, both with medians of 165.1 cm. Mean pre-pregnancy BMI was highest among black women (34.2) and lowest among white women (26.2). Black women had the highest percentage of BMIs 30 and above, 60 percent versus 25 percent of Hispanic and white women. Among Hispanic women, 55.6 percent had a diagnosis of gestational diabetes (GDM) versus 20 percent of black women. No white women had GDM. Birth weight ranged from 2207 to 4607 grams with infants of Hispanic women having the highest mean (3512 grams) and those of black women the lowest (3335 grams); it showed a wide range for white and black. Birth weight means for white and black women were noticeably different than the birth weight means for Hispanic women.

Table 5.1. Characteristics of Study Participants

	Hispanic (n=9)	Black (n=10)	White (n=8)	Total (n=27)
Foreign-born, n (%)	8 (88.9)	1 (10.0)	0	9 (33.3)
Maternal age, years				
Mean	31.1	35.4	38.9	35
Median	29	36.5	38.5	35
Range	26-39	27-44	29-52	26-52
Education level, n (%)				
Less than 12 years	5 (55.6)	0	0	5
High school	2 (22.2)	1 (10.0)	0	3
Some college	2 (22.2)	4 (40.0)	0	6
College or above	0	5 (50.0)	8 (100.0)	13
Marital status, n (%)				
Single	3 (33.3)	4 (40.0)	0	7 (25.9)
Living with baby's father	3 (33.3)	3 (30.0)	0	6 (22.2)
Married	3 (33.3)	3 (30.0)	8 (100.0)	14 (51.6)
Height, cm (feet/inches)				
Mean	154.6 (5'1")	164.6 (5'5")	164.1 (5'5")	161.4 (5'4")

Median	154.9 (5'1")	165.1 (5'5")	165.1 (5'5")	160 (5'3")
Range	142.2 - 162.6 (4'8" –-5'4")	157.5 - 175.3 (5'2" - 5'9")	154.9 - 172.7 (5'1" - 5'8")	142.2 – 175.3 (4'8" - 5'9")
Pre-pregnancy BMI, n (%)				
Mean	27.3	34.2	26.2	29.6
Range	20.4 - 33.0	19.5 - 48.5	20.6 - 41.6	19.5 - 48.5
18.5-24.9	2 (25.0)	2 (20.0)	5 (62.5)	9 (34.6)
25-29.9	4 (50.0)	2 (20.0)	1 (12.5)	7 (26.9)
30 and above	2 (25.0)	6 (60.0)	2 (25.0)	10 (38.3)
Payer source, n (%)				
Public	7 (77.7)	3 (30.0)	0	10 (37.0)
Private	2 (22.2)	7 (70.0)	8 (100.0)	17 (63.0)
Delivery method, n (%)				
VBAC	5 (55.6)	7 (70.0)	0	8 (29.6)
RCD	4 (44.4)	3 (30.0)	8 (100.0)	19 (70.4)
RCD indications, n (%)				
IUGR[i]	0	0	1 (12.5)	1 (3.7)
NRFHT[ii]	1 (11.1)	2 (20.0)	1 (12.5)	4 (14.8)
Breech	1 (11.1)	0	1 (12.5)	2 (7.4)
Protractive Descent and/or Arrested Dilation	1 (11.1)	1 (10.0)	2 (25.0)	4 (14.8)
Elective	1 (11.1)	5 (50.0)	3 (37.5)	9 (33.3)
Parity, includes current delivery, n (%)				
2	3 (33.3)	4 (40.0)	8 (100.0)	15 (55.6)
3	5 (55.6)	4 (40.0)	0	9 (33.3)
4	0	1 (10.0)	0	1 (3.7)
5	1 (11.1)	1 (10.0)	0	2 (7.4)
Previous vaginal deliveries, n (%)				
0	3 (33.3)	4 (40.0)	8 (100.0)	15 (55.6)
1	5 (55.6)	4 (40.0)	0	9 (33.3)
2	0	2 (20.0)	0	2 (7.4)
3	1 (11.1)	0	0	1 (3.7)
Previous VBAC	3 (33.3)	1 (10.0)	0	4 (14.8)
Labor induction, n (%)	1 (11.1)	4 (40.0)	1 (14.3)	6 (23.1)
Labor augmentation, n (%)	1 (11.1)	2 (20.0)	0	3 (11.5)
Birth weight, grams				
Mean	3512	3335	3360	3395
Mode	3537	3214	3564	3318
Range	2802 - 4247	2485 - 4607	2207 – 4185	2207 - 4607
Gestational diabetes, n (%)	5 (55.6)	2 (20.0)	0	7 (25.9)

[i] IUGR (intrauterine growth restriction)
[ii] NRFHT (non-reassuring fetal heart tracing)

Women in the study mostly delivered via RCD (70.4%); 44.4 percent of the women had a previous vaginal delivery (VD) (n= 12) and of these twelve women, four had experienced a previous VBAC. *Table 5.2* provides a detailed summary of delivery plans and outcomes. Four Hispanic women delivered by RCD despite a preference reported at the prenatal interview for VBAC. All but three black women delivered by their stated preferred method. All white women had a RCD, although five of the eight women had stated a VBAC preference. Women in all three groups reported having scheduled a date for their RCD even when their stated preference and plan was for a VBAC – 3 Hispanic women, 2 black women, and 3 white women. Only Hispanic women (n= 5) reported not having discussed their delivery options with their providers at the time of their first interview.

Table 5.2 Relationship Between Antenatal Preference and Actual Mode of Delivery

Antenatal Preference	Actual mode of delivery[i]	Hispanic	Black	White	Total
VBAC (n= 19)	VBAC	4	3	0	7 (36.8)
	ERCD	1	1	4	6 (31.6)
	IRCD	3	2	1	6 (31.6)
ERCD (n= 6)	ERCD	0	4	2	6 (100.0)
	VBAC	0	0	0	0
	IRCD	0	0	0	0
Undecided (n= 2)	VBAC	1	0	0	1 (100.0)
	ERCD	0	0	1	1 (100.0)
Total		9	10	8	27

[i] Vaginal birth after cesarean (VBAC); Elective Repeat Cesarean Delivery (ERCD); Indicated Repeat Cesarean Delivery (IRCD), included non-reassuring fetal heart rate and breech position.

5c. Factors Affecting Mode of Delivery Preference (Theme 1)

During the prenatal interviews, all women were asked to recall their delivery preference for their first cesarean delivery. All Hispanic women (n= 9) and most white and black women (n= 6 and n= 7, respectively) recalled a preference for a VD. Only three women in the sample stated a preference for a CD with their first delivery (2 black and 1 white).

Two women in the sample stated no preference for their mode of delivery with their previous delivery. One stated that it was important to simply leave the process up to God and accept whatever method was necessary (Black Eight). Another did not think that the process through which one birthed a baby was of any importance.

> Like now my identity is tied up in being a mother, but I don't feel like my identity is tied to going through any particular set of, of steps. Like honestly, if I could outsource this entire process and just like receive the baby that would be great. (White Four)

When asked about preference for their current pregnancy, all but four women stated the same preference for the delivery as for their first CD. The two women who had stated no preference for their first delivery expressed a desire and plan to have a RCD for their current pregnancy. Two women, who had preferred a VD with their initial pregnancy, expressed being undecided with their current pregnancy; one woman (white) had a scheduled RCD and the other (Hispanic) had not discussed her plan of delivery with her provider at the time of her prenatal interview at 36 weeks.

Women also were asked about the advice they would give to another woman who was undecided about her mode of delivery. Women differed by ethnicity/race in terms of what they would recommend to another woman in a similar situation. Four of the eight Hispanic women who answered this question would recommend a VBAC even before having had the experience themselves. Two felt it would be up to the woman to choose although one also recommended a VBAC. One had no opinion; one felt that it was the doctor's decision. All but one white women, who had no stated opinion, felt that it was up to women to make their own decision (n= 7). Nine black women remarked on this question. Five black women felt that it was a women's choice because she was the only one that had to live with the consequences of the decision. One black woman felt that it was the doctor's decision; another black woman recommended VBAC; and another felt that while it was the woman's choice, she would still recommend a VBAC. One black woman who declined to answer during her prenatal interview recommended a cesarean during her

postpartum interview: “I have to recommend the Cesarean, 'cause I don't know what vaginal feel like.” (Black Six)

Women’s reasons for their delivery preferences were grouped into seven topics: natural birth; previous recovery experiences; baby safety and health; predictability; risks and benefits; the perceived role of pain; and birth stories. Birth stories, both personal ones and ones shared by family and friends, was also a common thread throughout the other themes.

Vaginal Deliveries are Natural

More than a third of the women preferred a VBAC because they felt that it was more natural than a CD, regardless of age or education. More Hispanic than black or white women referred to vaginal births as natural, and the way things were intended to be. Six Hispanic women and four black women specifically used the word “natural” to describe their preference for VBAC.

> A natural one also has its risks and it also hurts, but the recovery is a lot easier, and it's natural! Natural, the word says it: na-tu-ral. (Hispanic Two)

> I'll always say it's [cesarean] not natural. Something about it, that we weren't designed to have someone cut the baby out of you. I'm looking at everything, and I think it's [vaginal] more natural. It's supposed to be that way, but if it isn't, I am glad that it [cesarean] is available, but I prefer to do it the other way. (Black Ten)

Even women who initially stated a preference for CD described a desire to experience a VBAC as the natural way to birth.

> I wouldn't mind pushin' my baby out. It's nothin' like experiencin' what women was sought to really do, and was have babies. So, get cut is-is the easy way out, because of your pelvis and stuff down there, but a natural way of havin' a baby is through the vagina. (Black Six)

Women often cited the difficulties with their previous cesarean recovery (see Previous Experiences section below) as evidence that VD were more “natural”. Despite never having experienced a VD, many women believed VD recoveries to be quicker and easier. One woman commented more specifically on how unnatural CDs felt: “I remember thinking for a long time that I didn't...that it just wasn't even like a birth that it's like an extraction.” (White Three)

Women from all three groups described themselves as being “incomplete” without the experience of a VD. Women related accounts full of emotional and mental angst from both external and internal sources.

> Like you're not a complete woman once you don't have a baby vaginal which is not true.... I'm very emotional when somebody tells me that and I don't like it at all. Then I'm just like what if I'm not really woman enough and then I'm like no. I can't let that get to my head, but it's still kind of there.... (Hispanic One)

> It's just like part of being a woman. Like saying "Hey I can give birth" and like I wanna go through the process and try the natural thing, it's not like I'd be heartbroken if I wasn't able to but like I wanna at least try. ...it's just like the body's function, so let it do what it was created to do. (Black One)

> ... there's certainly a piece of it where you feel like you didn't...you didn't like do everything you were...experience everything you were supposed to experience and that process is, I don't know sort of like an incomplete woman without it. (White Three)

As the recruitment process progressed, other women were specifically asked their thoughts about whether mode of delivery was related to their fulfillment as a woman. Many women felt that being a mother was more integral to their experience as a woman than the actual method through which motherhood was achieved (4 Hispanic, 4 black, 3 white).

> But no, I don’t believe that, I believe that as a woman you can fulfill your potential as much with a normal or vaginal, in the end the most important thing is having him in our stomach the nine months; that is what makes us a woman.[g] (Hispanic Three)

> Regardless, you gave birth to a baby, even if you got cut or vaginal. That's still your child, that's still your baby. You carried that baby nine months. Nine months alone you build comfort with that child, the feeling, the movement, the pain, the aches, the non-sleeping, the cravings, being sick, whatever it may be, you build that bond with that baby already. (Black Six)

Even women who felt strongly about having a VD resisted the idea that their preference was influenced by their perception of a woman’s role.

> I think I am even guilty of thinking that, and that was, I would say why it didn't occur to me that I was gonna have a Cesarean. I mean, I really thought you know, it's totally fine not to be supportive of other people having them, but I definitely wanted to have a vaginal birth, because it's like this quintessential experience that

[g] Pero no yo no creo eso, yo pienso que uno como mujer se podría realizar tanto como si lo tiene uno normal o vaginal, al fin y al cabo, lo más importante es tenerlo en nuestro estómago los nueve meses, es lo que nos hace mujer.

> only women can have.... And I do have some regrets that it may be an experience that I never have. (White Eight)

Sentiments of guilt and failure at not having experienced a VD were expressed by all women, regardless of ethnicity/race. One woman remarked that a CD was not a birth story as much as it was a medical procedure (White Three). Another felt compelled to apologize for having had a CD: "I have found myself sometimes apologizing that I've had a baby and not a contraction ... my water never broke, I've never really experienced labor, I sometimes felt kind of guilty that I've had that." (White Two)

Previous Recovery Experience.

Women with a preference for VBAC repeatedly cited the belief that a VD offered an easier recovery period (4 Hispanic, 6 black, 5 white). Three women (1 black and 2 white) who had expressed a preference for a RCD also described VDs as having easier recovery periods compared to cesareans. One elaborated on the difficulties experienced with a CD recovery:

> It is, um between the catheter, trying to get up go to the bathroom, it was a lot. It was a lot trying to bond with the baby with tubes and everything. Thank God I have a very supportive family. But it was a lot. If I had to do it by myself, I don't think I could have done it without my family's help, so it would have been very very difficult. (Black Five)

Women did not only refer to the immediate recovery period, but also the extended recovery necessary with a CD. One woman pointed out that she could not afford to take the extra time off from work that recovering from a CD would require: "...that's not an option that's good for me and my family because financially it'll kinda sink us." (Black Two) Other women commented on how difficult it was to care for a newborn and other children after a CD. One woman felt torn between the difficulty she anticipated with a RCD recovery and the fear of the recovery pain potentially associated with a VD.

> So, if you don't sit on firecrackers then you are moving around faster. And I think that--I did definitely think about that--for this one because I've got this two-year-old who is very physical and he jumps all over me all the time and I was scared to death about how to handle this. But, the fear of it being like so ripped up that

> you can't really walk and you're sitting on ice packs for six weeks, that was just, that doesn't help either. (White Two)

The influence that pain or the anticipation of pain has on delivery preference is further explored below.

Baby Safety and Health.

One Hispanic, two black, and five white women expressed the perception that a VBAC was safer and healthier for babies than a RCD and the reason they preferred VBAC. When probed for specific ways the vaginal route was safer or healthier, three white women mentioned immunity conferred by the baby's passage through the birth canal, two women (black and white) said VDs allowed for better bonding, and two women (Hispanic and white) simply reiterated that VDs were safer for baby.

> And you know and again this kind of emerging research about kind of what a vaginal delivery may mean in terms of the development of you know immunity in your child and so, I think that really is I think perhaps you know over time I suspect there will be additional research um that-that comes out to kinda show the perhaps the benefits of having women um deliver vaginally whenever possible. And frankly I think it's in general the safest option. (White One)

Predictability.

All women with a stated preference for a RCD remarked that their preference was related to both convenience and a need to feel that the situation was under control. Many women anticipated that the experience of a RCD would be relaxing and they welcomed the predictability a scheduled date afforded them.

> The only reason I have a planned C-section this time is because my husband works like crazy and more than likely he's not going to be able to be there for the delivery. Which means, again, I'd prefer my mother to be there with me but she's got a complex schedule herself and she doesn't live in this area so... the benefit of a planned C-section is that you have a date that you can plan around, you know, work around if the baby stays in there that long. (Black Eight)

> It's what you know, it's, you can schedule it, you can get your child care lined up, and have all this, you can pick your doctor, you get an extra day in the hospital, and you get control of the situation and it allows you to tie your tubes so that it's not like a separate process. (White Two)

One Hispanic woman, despite an indicated preference for a VBAC, remarked that cesareans were more relaxing than VDs because they occurred in the absence of labor and delivery pain.

> In the labor, it would be faster without pain. Since they give you anesthesia, then, you don't feel so much pain, only in the moment, and so, I think that it is more relaxed to see the labor, because so, you are conscious and are looking at everything they do, that is the only benefit.[h] (Hispanic Eight)

A scheduled RCD also afforded women an experience they were familiar with having gone through a cesarean in the past. Even women with a preference for VBAC remarked that there was more anxiety associated with a VBAC plan than if they had chosen a RCD.

> I'd like to know what to expect. I like to have a plan and you know, it's so, being familiar, you know ... the second C-section would be something I'm familiar with. (White Seven)

Perceived Role of Pain in Labor and Delivery

Pain played a motivating role in women's preferences for delivery. The perception of the role that pain plays in the labor and delivery process varied among the women. Some women felt that a RCD was a preferred method of delivery because it allowed them to avoid the pain of labor and delivery (black and white women).

> Hell yeah, but I ain't doing it. I don't know, I like C-section because I mean, for one, I ain't busting my coochie open, and two, I just... your baby comes out and you know that your baby's safe. I think it's worth it, because you get to feeling of how long you carry that baby, the pain. I don't want to feel that pain. It was painful and discomfort enough to carry a baby. (Black Six)

Other women acknowledged that while there would be more pain with a VD, it was pain that was part of the process and was welcomed as such (Hispanic women).

> For me it's better to have a vaginal. For me it is like, like, I don't know, I like it more, because... because you... you feel better. Yes... I prefer to feel pain to not have a surgery.[i] (Hispanic Nine)

Birth stories were a prime source of information about VD pain for women without the experience of a VD prior to their first cesarean.

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[h] En el parto, en qué sería más rápido sin dolor. Como a uno lo anestesian, entonces, pues uno no siente tanto dolor, solamente en el momento, y pues, pienso que es más relajado mirar el parto, porque pues, uno está consciente y está mirando todo lo que le hacen, ese es el único beneficio.

[i] Para mí es más mejor tener un vaginal. Para mí es como, como, no sé, me gusta más, porque… porque uno… se siente uno mejor. Sí …Yo prefiero sentir dolores. A que no tener la cirugía.

> I have heard so many horror stories about when they're pushin' out big babies and they had to have stitches. ...I was more so scared of the risk of pushing. Um...just the horror stories that everyone gave me about... I had a girlfriend that had a baby that was about nine pounds, a girl. She pushed it and she said "My daughter split me from front to back". I said, "Oh how do I endure that?" (Black Five)

> My older sister ... the labor that she had been so desperate to do, was such a painful experience that she did not ever want to do that again. Very scary. To me, the birth stories I listen to them and I'm like, I don't know how people do this, I don't know how people do this, I don't know how people do this, I don't know I'd do this, I don't know how I'd do this. (White Two)

The pain associated with VDs came through in many of the birth stories recalled by the women, but how women responded to these stories varied once again on the role women felt pain played in delivery. In a postpartum interview, after a successful VBAC, one Hispanic woman remarked that she was surprised to find out that the VBAC was not as bad as the birth stories had implied it would be.

> Some true, and some positives, and some negatives, because I have heard many things that are true, but also, you know, people also exaggerate more than needed, because I found the vaginal birth, oh, like not so out of this world, because, you know, it's complicated, but now that I have experienced it... it's a strong thing, but not, it's not as if the world is going to end on you.[j] (Hispanic Four)

Birth Stories

Women with an expressed preference for RCD tended to remember birth stories where VD were described as long, painful, and with negative outcomes. Sometimes only one or two stories were enough to influence a woman's preference.

> I think the feedback I got, I mean, they were fine but you know, all the, you know, I still have a little bit of leakage when I sneeze and laugh, that was more my Aunt. Uh my work colleague friend um who is actually the same age as me and has two kids through a vaginal delivery, has already had a repair done. Um so that was good enough for me. (Black Nine)

Despite their importance in shaping preferences, birth stories were often not as respected as research and practice particularly for white women.

[j] Algunas verdad, y algunas positivas, y algunas negativas, porque ya he escuchado muchas que han sido verdad, pero también, usted sabe la gente también exagera más de la cuenta, porque yo me encontraba el parto vaginal, ay, no una cosa del otro mundo, porque, usted sabe, es complicado, pero ahora que lo viví... es una cosa fuerte, pero tampoco, no es que se le va a acabar el mundo a uno.

> I was talking to other women um and, this mom forum, it's all local women and so some I know, some I don't, but...um...they all seemed to jump into the horror stories of, you know, what could happen with a VBAC and that it's not the safest option. And I was like, well why would my doctor say that....And so, it was more just their personal stories not so much of the numbers and the research and the practice. (White Seven)

5d. Knowledge of RCD and VBAC Processes, Risks, and Benefits (Theme 2)

Women were asked about their knowledge concerning RCD and VBAC process, risks, and benefits and the sources of this knowledge. Apart from two women who planned for primary cesareans with their first deliveries, women described having very little knowledge about CD prior to their first CD. Most women could not recall if they had had any conversations about the risk of a primary cesarean with their providers. One woman describes how she simply did not focus too much on the idea of a cesarean because she figured she would not be needing one (Black One).

Knowledge of Cesarean and VBAC Risks and Benefits

Despite having had a previous CD, most women could not list many of the known risks associated with RCD. Of all the risks mentioned – longer recovery period, infection, adhesions, blood loss, reopening of the incision site, weakened stomach muscles – women were most likely to mention a longer recovery period (3 Hispanic, 3 black, 2 white) and the risk of infection (2 Hispanic, 2 black, 3 white). Only Hispanic women mentioned the reopening of the incisional site (n= 3) and one white woman mentioned weakened stomach muscles. One black woman mentioned adhesions in passing, but downplayed the risk of adhesions when compared to the risk of uterine incontinence associated with VDs: “of course, there’s pain, immediate pain with a C-section, you can have issues with adhesions I get that but I just felt like it was just kinda better to [have a RCD].” (Black Nine). She was the one woman in the sample that requested an elective primary cesarean. Another white woman vaguely referenced adhesions but was not clear on the actual risk associated with them.

> The midwife was laying out... she talked about, there's a more little risk with each C-section, something related to scar tissue but I can't remember why, but nothing

> that really concerned me except if I want to have a third, she kept saying if I want to have a third child.... (White Three)

Hispanic (n= 8) and black (n= 6) women more often stated that they did not know of any risks associated with a RCD.

Five risks associated with VBACs were reported by women in the sample: uterine rupture (2 Hispanic, 4 black, 4 white), perineal tearing and associated incontinence (3 black, 2 white), baby getting stuck (1 Hispanic, 1 black, 1 white), hemorrhage (1 black, 2 white), and baby having the cord wrapped around the neck (1 Hispanic, 1 white). Although uterine rupture was the most widely known risk factor of VBAC, women were often not able to provide more detail on the implications of that risk.

> Only thing I know that could possibly happen is that like the stitching; when I had the cesarean the first time, can like break or kind of come apart. So, I don't know what that actually leads to, like what health issues or what has to be done after that if it was to happen.... (Black Four)

Six Hispanic women stated that they did not know of any risk factors associated with VBAC compared to one white and three black women. Many Hispanic women were unable to provide any risk factors associated with VBAC, but simply stated that it was natural and thus, there were no risks associated with it. Of the four Hispanic women who had not had a discussion of birth options with their providers, only two stated that they knew of no risks. The other two women gave uterine rupture as a risk, stating that they “had heard say”. Four other Hispanic women stated that they knew of no risks factors associated with VBAC and of these, only one could recall RCD risks.

Most Hispanic and black and women recalled information specifically related to the method they preferred. For example, those with a preference for VBAC were better able to discuss the benefits of VBAC. White women generally spoke at greater length about the benefits associated with each method of delivery and how this knowledge helped them shape their

preferences and decision. There were no changes in ability to recall risks and benefits between pre- and post-delivery interviews.

Sources of Knowledge

Women struggled to recall their sources of delivery information. Most women mentioned receiving information from their provider. Other sources of information included nurses during prenatal visits, books, family and friends, and the internet. There were ethnic/racial differences in terms of the primary source of information. Fewer Hispanic women reported receiving their information from their providers than black and white women.

The prior cesarean experience was also a source of knowledge for some women. One white woman remarked how her previous experiences helped shape her current birthing experience.

> So I feel like this time around we were a lot more organized and knowledgeable and together... because we had gone through the first experience where rupturing the membranes seemed sort of pushed to the Pitocin which pushed to the decelerations which pushed to the C-section so we all sort of backed off on that… (White Five)

When asked which of their sources they found most helpful, most women stated their doctors (2 Hispanic, 4 black, 7 white). This finding may be related to a woman's trust in her provider's expertise (explored under Theme Three). One Hispanic woman found the internet most helpful because it allowed her to compare stories and information posted by other women (Hispanic Five). Most Hispanic women, however, remarked that their mom, husband, or family were the most helpful source of information about their options and the risks and benefits associated with the option they selected. One white woman also thought the internet was most helpful because it was more comprehensive, whereas her encounters with her doctor were too brief for one to have an in-depth discussion (White One).

Prenatal Discussions with Providers

Four of the nine Hispanic women reported not having had any discussions with their current providers about their options, but all Hispanic women reported discussing their plan with their families (husbands and mothers, sometimes also close relatives).

> An example, the doctor tells me something and then I discuss it with them [mother, husband, close family], I can speak with all of them, but also like I listen more to my mom and my husband....[k] (Hispanic Four)

All the white and black women in the sample reported having discussed their delivery options with their providers at the time of the prenatal interview. All black and white women who reported being in a relationship also discussed their plans with their partners and some women in each group also reported discussions with their mothers. This finding is in keeping with one of the cultural norms the study explored: *familism (See Appendix A)*. Most women when presented with the *familism* scenario, regardless of ethnicity or race, agreed that the opinions of their family and friends were important, but that the final decision lay with the women undergoing the birth.

> Regardless if it is the doctor, if it is my mom, who is in... let's say, who is in that situation, the one that is going to experience, will be me, not them.[l] (Hispanic Three)

> It's different because I have to go through the issue. They don't but when it comes to things like finances and my daughter because they are my parents and they are her grandparents I value their opinion on that. (Black Three)

Three women in the sample referenced discussions of VBAC success calculations during their prenatal period; all three discussions took place with the same provider (1 black, 2 white). Another woman was told the percentage of VBAC success when she showed up for her scheduled RCD, but it did have an impact on her decision to follow through with the established plan (White Four).

[k] Un ejemplo, la doctora me dice a mí algo y yo se lo consultó a ellos [mother, husband, close family], yo puedo hablar con todos, pero también yo escucho como más a mi mamá y a mi esposo....

[l] Independientemente de que sea el doctor, sea mi mamá, la que está en… digamos, la que está en ese problema, o la que va a pasar, soy yo, no ellos

Women recalling their first cesareans remarked that they had been unfamiliar with the cesarean process and its implications because they had planned on having a VD. Subsequently, during their delivery when the option of a CD was brought up, there was no time for questions.

> My main concern was get my baby. ...and I'm pretty sure they went over it [cesarean], because it was Doctor D at the time, and he is amazing, amazing. And he would go through everything with me, and I know that they did, but ... I wasn't asking questions. I was just like, 'Well, you-you need to do what you need to do.' (Hispanic Seven)

One woman remarked that despite being told about the risks associated with her VBAC preference, she could not recall the actual information because she chose not to.

> I don't remember that part [risks associated with VBAC] either. I was told, I just tried to list the positive part because that [first cesarean] experience was so bad for me, I still want to do the vaginal. Even if there are risks, I prefer to do that. (Black Ten)

Most Hispanic women in the sample received their prenatal care in a community clinic setting under public coverage. Thus, most delivered with the MWHC attending obstetrician and resident at the time of their delivery and not with the provider from whom they had received prenatal care and with whom they had discussed delivery plans prenatally. One Hispanic woman shared that she had not had much discussion with her provider but that the provider had scheduled her for a RCD anyways, giving her instructions about how to make her preference known at the time of the delivery.

> She said that she made the appointment here in the hospital, but that I should come, and she said for the cesarean. And she said: "So you can go to the appointment, if you don't want, the doctors will not do anything that you don't want, so you explain what it is you, what it is you want, but in my opinion, that is the best option." That's what she said.[m] (Hispanic Nine)

5e. Decision-Making Factors (Theme 3)

All women were asked about decisions regarding delivery mode that took place during their first cesarean and their current delivery independent of their original preference. Women remarked on who should be involved in the decision-making and who should ultimately make the

[m] Ella dijo que me hizo la cita aquí al hospital, pero que yo viniera, y me dijo para la cesárea. Y ya me dijo: "Pues puedes ir a esta cita, si tú no quieres, los doctores no van a hacer nada si tú no quieres, tú les explicas que es lo que tú, qué es lo que tú quieres, pero para mí, esa es la mejor opción". Así me dijo.

decision of how to deliver. Twenty-two of the 27 women said they would consult with their partners/FOB, but that the final decision lay with them and not their husbands/FOB. Two black and one Hispanic woman stated that the decision would lie solely with them, without input from anyone else, since they were the ones undergoing the consequences. Two women (1 Hispanic, 1 black) did not elaborate on the question. Most Hispanic women (n= 7), one black and one white woman stated that their mother's input was also important when making decisions during labor. Two subthemes that factored into decision-making during delivery were identified: safety of the baby and the patient-provider relationship.

Safety of the Baby

Women all agreed that the safety of the baby was paramount in guiding their decision-making during labor. Despite preferences or stated plan, the entire sample agreed that if they were told that the baby's health might be in jeopardy, they would all choose to have a CD.

Some women were not clear exactly how their baby's health might be in jeopardy, but the fear of a potentially negative outcome was enough. One woman recounts not having an option to decline her first CD because she was fearful for the baby's health.

> Because I had been there so long, it wasn't an option. They just said hey, we've, we've scheduled you for six AM .... Yeah, I was just like what, what, what, nothing, there's nothing I can do? They said we tried it all, we need to go ahead and take him before something happens. So, the way that it was said to us, wasn't an option, we have to do it. There was no let me think, no. (Black Ten)

During the postpartum interviews the struggle of having to choose a RCD when a VBAC was planned was clear from some women's testimony.

> So, they felt like the baby's not passing from eight centimeters, and if you keep tryin' then he's gonna hurt himself more. And I got really emotional about it. ...I tried, you know, but I didn't know, and I did have a repeat C-Section, but I was really emotional about it. (Hispanic One)

The extent to which a baby's health might have been in jeopardy was not always clear when comparing women's accounts with the electronic medical record (EMR) account.

Patient-Provider Relationship

The role of the patient-provider relationship as a decision-making factor in delivery was explored related to: the length of the relationship, trust in providers, influence of provider preferences and biases, and cultural norms.

Length of provider relationship

Most black and white women (7 and 6, respectively) used the same practice for their current prenatal care as they had for their first cesarean. Of these women, all had private insurance except for one black woman. Among Hispanic women, only three used the same practice and only one had private insurance. There were differences among women regarding delivering with the same provider who provided prenatal care. All but one white woman delivered with the practice or provider she saw prenatally. The one exception delivered with the provider who performed her first cesarean delivery. Her current prenatal provider, who was going to be out of town for the delivery, made the arrangements, an example of personalized care. Half of the black women delivered with different providers including two with private insurance. During one prenatal interview, a black woman with public insurance shared what it meant for her to establish a prenatal plan with her prenatal provider knowing that she would deliver with different providers:

> Yeah, because to them my life is in their hands. So, I can't get on the phone and call Dr. X and be like well page her, or text her, or e-mail her, you know what I'm saying? Dr. X is over there and I'm dealing with all these doctors, you know what I'm saying? So, now I have to get acquainted with them. I have to ask them questions, they going to be asking me questions, and we just have to feel each other. Bottom line. (Black Seven)

All nine Hispanic women delivered with different providers even the two who had private insurance. The two women, who attended a private practice with numerous physicians for their prenatal care, stated that they did not know their delivering provider. Both women also stated that they explicitly trusted both the hospital and the providers so having a provider they had

never met before did not impact their experiences (Hispanic Five and Hispanic Seven). One woman says:

> I'm very comfortable with this hospital and I trust this facility very much. So, I wasn't nervous about in that, being a different provider. I mean it would have been nice of course to have Dr. X there just because she's been with me since the beginning. (Hispanic Seven)

Trust in Providers

The women's trust in providers was examined using the Provider Trust Scale (PTS) which looked at three dimensions of trust: competence, dependability and confidentiality. The dimension of competence was measured using five statements (*Table 5.3*). Most women trusted their provider's judgements about their medical care enough to always try to follow the provider's advice (mean scores of 3.8 and 4.0). More black and white women than Hispanic women felt that what their provider told them must be true (40% and 50% versus 22.2%, respectively). Overall mean scores for competence were lower for Hispanic women (3.4) than for black and white women (3.6 and 3.7, respectively).

Table 5.3 Competence, mean score (% who agreed or strongly agreed)

Competence	Hispanic	Black	White
I trust my provider so much I always try to follow his/her advice	3.8 (77.7)	4.2 (80.0)	3.8 (62.5)
If my provider tells me something is so, then it must be true.	2.7 (22.2)	3.3 (40.0)	3.1 (50.0)
I sometimes mistrust my provider's opinion and would like a second one.	2.1 (11.1)	2.0 (0.0)	2.3 (25.0)
I trust my provider's judgments about my medical care.	4.2 (77.8)	4.3 (100.0)	4.5 (87.5)
My provider is well-qualified to manage pregnancies like mine.	4.0 (66.7)	4.4 (90.0)	4.6 (87.5)

Dependability was also measured with five statements (*Table 5.4*). Most women felt their providers cared for them as a person, although Hispanic women had a higher mean score (2.4 versus 1.3 for black women and 1.6 for white women). The one dependability question that showed differences between the three groups of women was whether they trusted their provider to tell them if a mistake was made concerning their treatment. While most black (90.0%) and white

(75.0%) women agreed or strongly agreed with this statement, only slightly more than half of the Hispanic women did (55.6%). Mean scores for black and white women on this question were also higher than Hispanic women although not considerably so (4.0 and 4.4 versus 3.8). Overall mean scores for dependability were higher for Hispanic women (3.2) than for black and white women (3.0 and 3.1, respectively).

Table 5.4 Dependability Statement, mean score (% who agreed or strongly agreed)

Dependability Statement	Hispanic	Black	White
I doubt that my provider really cares about me as a person.	2.4 (33.3)	1.3 (0.0)	1.6 (12.5)
My provider is usually considerate of my needs and puts them first.	3.9 (77.8)	4.2 (90.0)	4.4 (87.5)
I feel my provider does not do everything s/he should for my medical care.	2.1 (22.2)	1.5 (10.0)	1.4 (12.5)
I trust my provider to put my medical needs above all other considerations when treating my pregnancy.	3.8 (77.8)	4.2 (90.0)	3.6 (62.5)
I trust my provider to tell me if a mistake was made about my treatment.	3.8 (55.6)	4.0 (90.0)	4.4 (75.0)

The last dimension, confidentiality, was one item: I sometimes worry that my provider may not keep the information we discuss totally private. Three Hispanic women were undecided or disagreed with the statement resulting in a mean score of 2.1 for the group. All the black women and all but one white women disagreed or strongly disagreed with this statement. Mean scores among black women (1.1) were like those of white women (1.3).

Generally, white and black women reported trusting more in providers' expertise and this translated to a trust in their provider: "she's an expert and I trust her a lot more than ... other women and this mom forum." (White Seven) This finding needs to be framed within the context of each group's access to providers. Most black and white women used the same practice for their current prenatal care as they had for their first cesarean. This continuity may have led to women who were satisfied with their first outcome and trusted their provider, returning to the same provider for their subsequent delivery. As one woman put it: "...there would be doctors that I would expect more pushback from if I changed my mind, but I would not have stuck with those doctors." (White Four)

Provider Preferences and Biases

Eight women from each group were asked to comment on their perceptions of their provider's preferences. There were some differences based on ethnicity/race in their responses. Three of the eight Hispanic women felt that their providers did not have a preference. One woman felt that her experience with her providers did not reflect the general belief that providers preferred a CD because it was faster and more profitable (Hispanic Seven). Four women felt their providers preferred a RCD, believing that the motivation behind the preference was because CDs are easier to do and easier to schedule. One woman, who wanted a VBAC, remarked that her provider scheduled a RCD regardless "for the baby's welfare"[n]. (Hispanic Nine).

Six white women felt their providers did not exhibit a preference in their interactions, but four felt that it would not be surprising for other providers to prefer RCD because RCD "equals more control; vaginal more uncertainties" (White Two). Of the women who felt their provider had a preference, one women thought her provider preferred VBAC and another felt that she was "dissuaded from thinking" she could have a VBAC because of her age.

Among black women, four felt that their provider did not have a preference based on their interactions, while others believed that perhaps their providers preferred RCD because they "just like C-section" (Black Six) or were not "convinced that a VBAC is the way to go." (Black Nine) One woman felt that perhaps it was related to RCD being easier and more profitable for providers (Black Ten).

A perceived bias was noted in a few interviews based on the provider's gender. One woman expressed the thought that male physicians were more "interventionists" than female physicians.

> It was more that he was emphasizing, significantly emphasizing the risks of the VBAC and you know asking more than any of the other women doctors have you know, well do you wanna schedule the C-section. So, the next, my next visit was with the second male doctor and I said I felt really pressured by that, I you know didn't feel comfortable and he said, "I totally understand that's really fine, you

[n] Por el bien del bebe.

> know we can just play it by ear". He called me the next morning said, "I'm just gonna put it on the books ok".... (White Five)

Another woman expressed feeling more comfortable with female providers because male providers might not be able to "relate". She remarked that the male provider did not think to give her information on all of her options: "but to hear, it wasn't a foreign word, but you got to have a C-section, six o'clock, let's go... they [female providers] gave me both options ahead of time, so I'll be able to process it better. So, that whatever happens, I'm prepared." (Black Ten) Not all women agreed. Most other women in the sample did not see differences between providers based on gender. One woman had two very different experiences that she described during her prenatal interview:

> She encouraged me, "oh, you know, your healthy and you, your blood pressure's great, the baby's healthy, I would not worry, you know, size is not really that big of an issue, you know, you could give it a try and I don't care if you've had a C-section, it's healthier for you and the baby to try to have this vaginally." (White Six)

> He looked at my chart and when he saw that I had a C-section, he's like, "you should probably just go ahead and schedule another C-section, if you want to try, you can try but if I were you".... (White Six)

During her postpartum interview, however, she reported that she had delivered with a male provider and her experience was not what she expected based on her prenatal interactions.

> I always feel more comfortable with female OBGYNs, or obstetricians, but because of his personality, he's more loose, and laid back, and just like his own kind of person. That was kind of refreshing, it wasn't all like, here's the stats, here's the, we're gonna go through with this, and what's the game plan? He was just much more um, like an everyday kind of a guy that you could talk to, and so, I think that was that made a big difference....(White Six)

No differences were noted between provider gender and delivery outcome based on the delivery data for the sample. There were eight female and four male providers in the sample. Of the eight VBACs among the sample women, three were performed by female providers, three by male providers, and two were of unknown gender.

Cultural Norms

Three Hispanic cultural norms thought to impact the patient-provider dyad were explored with all three groups by presenting them with scenarios that illustrated the three norms: *familism, respeto*, and *simpatia (See Appendix A)*. *Familism* was explored in the Theme Two section above. *Respeto* is a norm often seen in some cultures where posing a question to an authority figure can be construed as disrespectful. The 'nod of the head' in response to a physician's comments, for instance, may represent a gesture of respect, rather than understanding or agreement. Twelve women stated that respect should be shown to everybody, not just people in authority and that disagreeing with individuals was not a sign of disrespect. Five Hispanic women agreed with the norm scenario remarking that "doctors do know more than the patient" (Hispanic Five) and that one should "show them respect, and support the decision that the doctor makes." (Hispanic Two) Only two black women agreed with the norm, one of them stating: "I'm not the one who's the expert here, and I do trust that they [providers] have my and the baby's interest at heart... if that's what you all think then okay good, because I don't know." (Black Eight) Three white women agreed with the premise of the norm, but again the agreement stemmed more from viewing the provider as an expert than from a societal expectation of respect for the title.

> If I came in and the nurse was like, I'm the charge nurse and I really believe that you should just deliver this baby. It would be hard for me to say no, because she's the expert. I mean like, this is the expert and I would trust that experts know what's right. (White Two)

Simpatia is closely related to *respeto*. It presents itself as a patient who may avoid asking her provider questions about a procedure about which she is uncertain, preferring politeness over perceived confrontation. For Hispanic women, the norm of *simpatia* did not seem to play a large role in their interactions with their providers (n= 6). Two women stated that they would avoid asking their doctor too many questions to avoid conflict. One woman stated she would not question the doctor because "the doctor is the one that knows" (Hispanic Six) while another

stated she would simply seek out another provider rather than clarify a position with an existing one.

> If you don't share the same opinion, it is better to leave it up to the provider. Not good, nor bad, nor to make any problems. In my mind, I think I would leave it as is, I wouldn't say no, nor yes, and would look for another doctor. I would find another doctor, with other opinions. To avoid an argument.[o] (Hispanic Eight)

One woman remarked on how her approach to disagreeing with providers had changed in the six years since her last cesarean. Whereas now she would feel more comfortable disagreeing with her provider's recommendation, for her first delivery she would not have verbally disagreed: "you just didn't think that you had that power to do that." (Hispanic Five)

All black women disagreed that this cultural norm pertained to them. There were a few women who could see *simpatia* playing a role in social or political discussion, but never when it came to health-related subjects.

While all white women agreed that they would not avoid asking their providers questions, four stated that it would create a difficult situation for them if they did not agree with their provider. Two women mentioned how important it was for them to have the right support people with them so that their support people could advocate on their behalf when they felt uncomfortable doing so. It was equally as important to avoid having the wrong support people: "I was actually afraid to call any doulas because I didn't think any of them would let me have a C-section if I decided I wanted one." (White Two) Generally, more Hispanic women agreed that cultural values of *simpatia* and *respeto* play when interacting with their providers.

5f. Perception of Choice (Theme 4)

Women were asked about their perception of choice for both their first cesarean delivery and their current experience. There were differences by ethnicity/race in women's perception of choice. Three Hispanic women remarked that they felt they were presented with a choice about

[o] Si uno no comparte la misma opinión, pues es mejor dejarlo al médico. Ni bien, ni mal, ni para entrar en problema. A mi pensamiento, pienso que lo dejaría así, no le diría ni no, ni sí, y buscaría a otro doctor. Buscaría a otro doctor, otras opiniones. Para evitar una discusión.

delivery mode for their first cesarean. Three of the six Hispanic women who felt they had no choice, said "yes" because they felt the baby's health was in jeopardy: "I felt that it could, it could have, come out naturally. Well I mean. It would, it would have jeopardized the baby. So, I don't feel it was another choice but to say yes." (Hispanic Five) The indications for their first cesarean deliveries were: non-reassuring fetal heart tracing, postdates, and no indication - records not available.

All white women felt that they always had a choice in mode of delivery, for both their initial and repeat cesarean. Even in cases where the cesarean birth was medically indicated for a non-reassuring fetal heart rate, women did not feel they were stripped of their choice.

> There was no option in my head. Whether I felt like coerced or unempowered; I felt absolutely unempowered because of what was happening with my body but not because of the medical process. I don't remember thinking they're forcing me to do this.... (White Three)

Some white women shared stories of providers pushing one method over another. One woman recounted being told by her current prenatal provider that she "should probably just go ahead and schedule another C-section" (White Six). Another woman shared her experience with her first cesarean at a different hospital:

> I had asked at what point do we need to just decide to do a C-section. And the doctor and the resident who were on at that time had been like you know basically chewed me out for saying maybe this needs to be a C-section. And you know we don't do elective C-sections here at Hospital X. (White Four)

The same woman also recalled key differences between providers' approach early in her current pregnancy. While one provider pushed a certain mode of delivery, the other clearly gave her a choice. This woman ended up switching her prenatal care to the second provider.

> And that doctor started trying to really pressure me to agree to do a VBAC ... and that pressure made me very uncomfortable.... Then my [other] doctor brought it up I think in the second trimester, but was much more kind of you know... if you want to try for a VBAC, you can do a VBAC. If you, because of the complications last time or whatever reason, are more comfortable just doing another cesarean, it's up to you. Do you have a preference? And I said yes. (White Four)

Six black women felt they had a choice in delivery mode with their first cesarean delivery, although the words one woman chose to recount her stories gave the impression that the choice had been made by others: "they decided that having a C-Section was the best course of action to get the baby out. And so, then I had a C-section. I mean, I guess I could have [said no] but I would not have." (Black Eight) Four black women felt that they had no choice in determining whether they should have a cesarean or a VD. Their stories give the impression that it was not so much that a choice was not provided, but that they were left out of the discussion that motivated the recommendation.

> Me personally, I feel like I didn't have no decision, no part in, you know, I feel like they made all the decisions on their own. And that's something that I didn't like because I feel as though I should have been a part of the decision making. (Black Seven)

Another woman who said she had not been given a choice clarified that they "were in the middle of the process of trying to get him out and he wasn't cooperating" (Black Two), thus the lack of choice was motivated by circumstances related to the baby. During the postpartum interviews, all black women remarked on feeling that they had control over which mode of delivery they ultimately experienced.

During their current delivery experience, only two Hispanic women still felt that they were not given a choice in their decision-making about the delivery. One woman described asking whether there was any method to turn her breech baby and being told by her provider that he "was going to do absolutely nothing."[p] (Hispanic Six) Like the black women's experience, not being sufficiently informed of why the decision was taking place gave women the perception that they had no choice in the matter. Despite a stated preference for VBAC, four Hispanic women delivered by RCD (*Table 5.5*). All but one had a medical/fetal indication for the RCD. All white women delivered by RCD although five of the eight women had stated a VBAC preference. Four of the five women had a medical/fetal indication for the RCD.

[p] No iba a hacer absolutamenta nada.

Women who felt empowered in their choice described their interactions with their providers in similar ways. They remarked that providers reemphasized throughout the delivery that it was the woman's choice to continue with her preferred plan: "What I could appreciate is that pretty much from the beginning of the time that I entered and got admitted, you know everybody from the doctors to the nurses was clear about indicating that you know, it's ultimately my decision, you know the parents the decision about they want this delivery process to look." (Black Eight) Women also expressed appreciation for providers who presented the facts and then left them alone to discuss the information with their partners.

5g. Summary

The in-depth interviews yielded a rich source of data on women's perceptions of VBAC and RCD safety, preferences for delivery after previous cesarean delivery, portrayal of discussions with providers and family/friends about delivery options, and thoughts on their communication with their providers. Four overall topics were identified: factors affecting women's preferences for mode of delivery; knowledge of RCD and VBAC process, risks, and benefits; decision-making factors; and perception of choice. Notable findings include:

- Most women had a stated preference for VBAC (19 of 27 women). Women within each group also preferred VBAC (8 Hispanic, 6 non-Hispanic black, and 5 non-Hispanic white). One Hispanic and one non-Hispanic white woman were undecided. Four non-Hispanic black and two non-Hispanic white women preferred a RCD.
- About half of Hispanic women would recommend a VBAC to another woman in a similar situation; most non-Hispanic black and non-Hispanic white women remarked that it was up to each woman to decide what was best for her.

Table 5.5 Stated Preference for Delivery and RCD Indications

	Stated Preference	Route of Delivery	Participants' stated RCD Indication	RCD Indication stated in Electronic Medical Record
Black	VBAC	VBAC	n/a	n/a
	VBAC	VBAC	Induction for NRFHT	NRFHT
	VBAC	RCD	"They told me it was best that I had the C-section. Also 'cause they didn't want him to get him to get stuck."	Elective
	VBAC	RCD	"They saying that he wasn't agreeing with the Pitocin, it wasn't working in my best favor, they was just like, let's just go ahead and take the baby."	NRFHT
	RCD	RCD		Elective
	RCD	RCD		Elective
	VBAC	RCD	"They was saying that his heart rate start going down, you know what I'm saying? Everything so in my head I'm like okay, that's a little concern for me.... So, I was like you know what? Nuh-uh, call doctor, tell him I wanna sign a form. For a Cesarean. Because now I'm thinking safety for me and him which is normal for that."	Protracted/arrested descent
	RCD	RCD		Elective
	RCD	RCD	"No, I'm not gonna try, I'm just gonna... I think I had my mind set up about the C, yeah."	Elective
	VBAC	VBAC	n/a	n/a
Hispanic	VBAC	RCD	"I was already eight centimeters dilated, but they had told me that the baby's heartbeat kept dropping, and it had like spaces where it-he was probably playing with the cord, or maybe the cord was around his neck, so they were concerned about that. And they told me that, for some reason, he couldn't come down because my cervix to the inside was swollen."	Protracted/arrested descent
	VBAC	RCD	"So, the baby's heartbeat was beating at 170 and never coming down, and we lasted about a half hour like that until 7, until 8, and it didn't want to come down nothing. They gave me a treatment like an IV, or something like that, and nothing. So, then	NRFHT

			they told me that they had to do it, because they couldn't send me home in that condition."[q]	
	VBAC	VBAC	n/a	n/a
	Undecided	VBAC	n/a	n/a
	VBAC	VBAC	n/a	n/a
	VBAC	RCD	"Well, I asked if there was some method that the doctor could do, turn, or exercises that I could do ... and they said yes but that I had to speak to the doctor since I had various ... because of the sugar.... And then, nothing, the doctor decided not to, that he was not going to do absolutely anything about that, since I had other risks."[r]	Breech
	VBAC	RCD	"I thought I was gonna go in on Sunday cause I was feeling um...like contractions. Um, but it just, nothing happened. So, just you know, I knew Monday was it. You know that was the plan and...and um, there was no changes."	Elective
	VBAC	VBAC	n/a	n/a
	VBAC	VBAC	n/a	n/a
White	VBAC	RCD	"I pushed for about two hours and just could not get my son's head through my birth canal. Kind of akin to what happened last time, ended up having um, to you know, at that time after two hours of pushing I knew I couldn't go on any further I was done."	Protracted/arrested descent
	RCD	RCD		Elective
	VBAC	RCD	"They were concerned enough to allow me to go and go back home and not...not have the C-section that...or not be induced that day, but, um, they wanted twice weekly monitoring and I just decided that I didn't want to go through that. I find the monitoring to be really stressful."	IUGR
	RCD	RCD		Elective
	VBAC	RCD	"I got to I think about um eight to nine centimeters and the same thing happened, that happened with my first son. Um, it was kind of one of those things where there was a lip in the cervix that like they were kind of like it could go away but it also feels like	Protracted/arrested descent

[q] Entonces, estaba el heartbeat, el corazón, latiendo a 170, entonces nunca bajó, ahí duramos media hora, hasta las siete, hasta las ocho, y no quería bajar nada. Me pusieron un tratamiento, como suero, o algo así, y nada. Entonces, de ahí me dijeron que había que hacerlo, porque no había seguridad de mandarme a la casa así, con esa condición.

[r] Bueno, yo les dije que si había, eh, algún método que pudiera hacer el médico, enderezar, o ejercicios que yo pudiera hacer para… pues me dijeron que sí, pero que tenían que hablar con el médico, ya que pues, por varias… por la azúcar.... Entonces, pues nada, el médico decidió que no, que no iba a hacer absolutamente nada ante eso, ya que tenía otros riesgos.

			it's harder than normal and we can't really push it out of the way. If you want we can totally keep trying and go for this and I kind of said I don't want to be here twelve hours from now in the same spot. Let's go for the C-section."	
	Undecided	RCD	"I totally went to ten, and they had me pushing, and it was just the beginning of pushing. He was going down, but I guess they go back up after they're pushing. Um, he was posterior, so he was having a hard time coming out.... Um, and so they said his heartbeat started getting erratic, yeah. And um, Dr. came in, and he said um, you know, we're not, we're not getting the baby's heart rate down, he's posterior, and, and I was exhausted, and he said I think we should just go ahead and do a C-section. I was so exhausted at that point, I said okay."	NRFHT
	VBAC	RCD	"When they took me over to get the induction started, they did a sonogram first to double check his position and he was no longer in position. So, we had a C-section."	Breech
	VBAC	RCD	"I was just thinking well if we are likely gonna have a C-section, why not just schedule a C-section and go as long as they'll let me possibly go. Hopefully, I'll just go into labor naturally.... So, she (the OB) did check me, but I was barely um dilated so we just continued with our plan (scheduled cesarean)."	Elective

- Women frequently described vaginal deliveries as “natural” with easier and quicker recoveries. Women from all three groups also described themselves as being “incomplete” or less of a woman without the experience of a VD.
- All women stated that baby safety and health took precedence over any personal preferences for delivery mode.
- Predictability of delivery date and time and the avoidance of pain were cited among all groups as reasons to prefer a CD.
- There were ethnic differences in perceptions of the role pain in labor and delivery. Hispanic women described pain as a natural part of labor preferable to surgery. More non-Hispanic black and white women felt that pain was an aspect of labor and delivery that they preferred to avoid. Women with a preference for RCD cited the avoidance of pain as a motivating factor.
- Birth stories played an important role in motivating women’s preferences and as a potential source of knowledge (especially among Hispanic women).
- Women struggled to recall the risks associated with RCD. More women were able to cite risks associated with VBAC, but six of the nine Hispanic women stated that they could not recall any risks associated with VBAC compared to one non-Hispanic white and three non-Hispanic black women.
- There were ethnic/racial differences on which sources of knowledge women found most helpful. Most Hispanic women cited their family as helpful sources of information. Only two Hispanic women stated that their doctors were the most helpful source of information; seven non-Hispanic white and four non-Hispanic black women cited their doctors.

- Four Hispanic women did not recall any provider discussions about their options for delivery. All non-Hispanic white and black women recalled discussing options with their providers.
- Three Hispanic women used the same practice for their current delivery that they used for their first cesarean, but three other women remarked that their first cesareans did not occur in this area. Most non-Hispanic black and white women used the same practice for their current delivery that they used for their first cesarean delivery.
- Hispanic women were less likely to trust their provider's medical judgement or believe that something must be true because their provider told them so. While non-Hispanic white women were the least trusting of their providers, they expressed greater willingness to challenge situations of mistrust, unlike Hispanic women.
- Three Hispanic women, four non-Hispanic black women, and two non-Hispanic white women felt that their providers had no preference for delivery. Only eight women of each group were asked to share their perceptions of provider's preferences.
- Some women perceived male providers as more "interventionists" than female providers – quicker to suggest the scheduling of a RCD.
- Of three cultural norm vignettes presented to women, more notable ethnic/racial differences were noted with *simpatia*. Hispanic women were generally less willing to question their providers in a desire to avoid an argument.
- Differences in perceptions of choice were seen by ethnicity/race. Hispanic women perceived having little choice in informing their healthcare decisions.

Chapter 6 Study Conclusions and Implications

6a. Introduction

Studies have shown that Hispanic women are 51-69 percent more likely to have a repeat cesarean delivery (RCD) when compared to non-Hispanic women.[1–6] United States (US) birth data for 2010-2016 show Hispanic women as having the highest overall rate of RCD compared to non-Hispanic black and white women (90.6% versus 88.9% and 89.2%, respectively), although the differences are relatively small. While there is evidence that ethnicity is associated with RCD rates,[2–5] it is not clear if the reason for differences are due to demographic, anthropomorphic, obstetrical/medical, health system risk factors, or patient preference.

The objective of this study was to examine the association between ethnicity/race and RCD and the factors that may explain this association, including an exploration of women's personal perceptions about RCD and VBAC. It is one of the first studies to quantitatively and qualitatively focus on birth options among US Hispanic women with one prior cesarean delivery (CD) and assess their perceptions of patient-provider communication in planning a delivery after a previous cesarean. This chapter presents a discussion of quantitative and qualitative findings and the study's strengths, limitations, and implications for future research and practice.

6b. Summary and Discussion of Findings

Main Findings for Aims 1 and 2

Findings suggest that Hispanic women have higher odds of RCD after adjusting for anthropomorphic, obstetrical/medical, and health system factors, even when delivering in a facility with a VBAC rate higher than the national average. This study examined the relation between ethnicity/race and RCD (Aim 1) and whether proposed factors explained any observed differences in delivery outcomes among Hispanic and non-Hispanic women (Aim 2), using data from electronic medical records at a large, urban hospital in the District of Columbia (Medstar Washington Hospital Center, MWHC). A single-site cohort study design provided control for hospital type (urban versus rural; size), state/district liability differences and institutional

policies.[7–9] The study sample was restricted to women over the age of 18 with a previous CD who delivered after 37 completed weeks of pregnancy between January 1, 2010 and October 31, 2016, regardless of their method of delivery. Only women identified as Hispanic of any race (Hispanic), non-Hispanic black or non-Hispanic white were eligible for inclusion; ethnic/racial categories were mutually exclusive. Births with missing information on ethnicity/race, intrauterine infant deaths, births of multiples and births that occurred out of the hospital were excluded resulting in a total of 1821 deliveries.

Non-Hispanic black women accounted for the largest percentage of the total sample (74.6%), followed by Hispanic (18.7%) and non-Hispanic white women (6.7%). Hispanic and non-Hispanic black women were generally single, on public insurance, with similar distributions of parity, and had similar rates of labor induction/augmentation. Hispanic women were younger (mean age 30.9 years), more likely to be single (69.3%), of higher parity (34.5% with parities above 2), and less educated (37.2% with an elementary education) than non-Hispanic white women (mean age: 33.6 years; 30.3% single; 93.4% with parities of 2; 77.8% with college or above). Spanish-speaking women accounted for 15.2 percent of the total sample, but 83.3 percent of Hispanic women. More non-Hispanic black and white women were taller than 160 cm than Hispanic women (60.0% and 66.1% versus 28.6%). Non-Hispanic black women also tended to have higher pre-pregnancy and current BMIs than Hispanic and non-Hispanic white women. Hispanic women had fewer deliveries after 41 weeks (1.5%) than non-Hispanic black and white women (4.1% and 8.2%, respectively) and higher rates of gestational diabetes (12.7% versus 5.7% and 2.5%).

Hispanic women in the sample had a lower rate of RCD than non-Hispanic black or white women (63.8% versus 76.4% and 70.5%, respectively); they had a 26 percent lower unadjusted odds of RCD and non-Hispanic black women had 35 percent higher odds of RCD than non-Hispanic white women, although results were not statistically significant. Adjustment for demographic factors altered the direction of RCD odds for Hispanic women (AOR 1.67),

although the relation remained statistically insignificant. Anthropomorphic factors did not alter the relation of ethnicity/race with RCD despite ethnic/racial differences in height and BMI. Odds of RCD slightly decreased for both Hispanic and non-Hispanic black women after adjustment for the anthropomorphic factors, but findings were not statistically significant.

After adjusting for obstetrical/medical factors, Hispanic and non-Hispanic black women had statistically significant higher odds of RCD than non-Hispanic white women (AOR 2.62; $p < .05$ and 2.27; $p < .001$, respectively). The odds of RCD also increased for both Hispanic and non-Hispanic black women after adjustment for health system factors, but negatively affected the precision of the estimates. Hispanic women experienced the highest odds of RCD among the three groups of women: they had 2.71 significantly greater odds of RCD than non-Hispanic white women (95% CI: 1.14, 6.45; $p < .05$). Sensitivity analysis of obstetrical/medical factors (*Model 9)* revealed that parity and induction/augmentation methods were important drivers in ethnic/racial differences in RCD odds, resulting in statistically significant greater odds of RCD for both Hispanic (AOR 3.03; 95% CI 1.29, 7.12) and non-Hispanic black women (AOR 2.47; 95% CI 1.48, 4.12). Hispanic women in our sample were more likely to have higher parities than either non-Hispanic black or non-Hispanic women (12.7% versus 10.5% and 2.5%, respectively) and were more likely to undergo induction/augmentation of labor. Reasons for the increased odds of RCD for Hispanic women after adjustment for parity and induction/augmentation methods are not clear, but may be related to RCD indications or non-clinical factors.

Although comparisons to previous studies must be considered in reference to variations in data sources and covariates used for adjustment, our findings of higher adjusted odds of RCD among Hispanic women living in the US are consistent with studies evaluating ethnic/racial differences in CD. Generally, AORs in the literature were lower and estimates more precise, likely due to our smaller sample size relative to previous work. Bryant and colleagues (2009) conducted a retrospective cohort study of 28,493 women in one California medical center and found that Hispanic women had a 1.19 significantly greater odds of RCD than non-Hispanic

white women (95% CI: 1.05, 1.34).[4] Their sample included some women with gestations of 24-36.6 weeks; when it was limited term deliveries (n= 2076), the AOR (1.23) was no longer significant. Our findings were in keeping with odds of RCD among multiparous native-born Hispanic women in Zlot et al. (2005) (AOR 2.2; 95% CI 1.1, 4.4).[12]

A study conducted using inpatient records linked with birth records from 2006-2007 found Hispanic women to have a greater risk of RCD (ARR 1.07; 95% CI: 1.01-1.10) than non-Hispanic black women, but not non-Hispanic white women (ARR 1.07; 95% CI: 1.03, 1.12).[9] Kabir and colleagues (2005), using National Inpatient Sample Data, found that Hispanic women had a 1.07 greater odds than non-Hispanic black women of receiving an unnecessary RCD, but results were not significant.[10] Hollard et. al (2006) restricted their analysis to women experiencing a trial of labor and found no differences in trial of labor (TOL) rates between Hispanic and non-Hispanic women, but Hispanic women had significantly greater odds of RCD than non-Hispanic white women.[5]

Three other studies explored the association between CD and foreign- versus native-born Hispanic women contrasting results.[11–13] One study included only women with public insurance and combined primary and RCD into one variable.[12] Another found that foreign-born Hispanic women had lower odds of RCD than native-born Hispanic women.[13] Edmonds and colleagues found significant differences in odds when Hispanic women were divided into subgroups based on country of origin, with some subgroups having higher and others lower odds of RCD.[13] Janevic et al. (2014) found similar results, with Central/South American women at greater relative risk for CD (aRR 1.13; 95% CI: 1.10, 1.17).[11] Our study was not able to include nativity or country of origin for analysis as originally intended, but our electronic medical records showed 83.3 percent of our Hispanic sample as Spanish-speaking, often noting the requirement of an interpreter.

Adjusting for language altered the direction of the relation between ethnicity and RCD considerably. A sub-analysis of language revealed that Spanish-speaking Hispanic women had

lower rates (61.0%) and odds of RCD (UOR 0.66) than English-speaking Hispanic women (78.2%; UOR 1.52) (n= 1752). When maternal language was removed from the final model in the full sample analysis, Hispanic women still had greater odds of RCD than non-Hispanic white women (AOR: 1.37), but results were no longer significant (95% CI: 0.76, 2.49). This finding is like the AOR by broad racial/ethnic categories reported by Edmonds et al. (2017), which did not adjust for language.

Findings for Covariates and Repeat Cesarean Delivery

Unadjusted odds ratios were also calculated for each covariate to explore their association with RCD. Age, marital status, and maternal education are demographic factors frequently cited in the literature as associated with RCD. In this study, maternal age and marital status were not initially associated with delivery mode, but once adjustment was made for obstetrical/medical and health systems factors, (Models 4 and 5), older women had significantly greater odds than younger women and married women lower odds than single women of RCD. As expected, women aged 30-34 years had 1.55 greater odds and women aged 35-50 years 1.93 greater odds of RCD than 18-24 year olds. Married women had 33 percent lower odds of RCD than single women. Higher maternal educational attainment was initially significant, but after adjustment for obstetrical/medical and health system factors, it was no longer significantly related to mode of delivery. Maternal language was also significantly associated with RCD: Spanish-speaking women had 58 percent lower odds of RCD than English-speaking women after adjustment for other covariates; no non-Hispanic black or white women identified as Spanish-speaking.

Multiple studies have found an increased risk of RCD with increasing maternal age[8] and maternal educational attainment.[14–16] Hildingsson (2008), in a prospective population-based cohort study among 2878 Swedish women between 1999 and 2000, found that the odds of CD increased significantly with increasing maternal age, after adjustment for common covariates.[17] Knight (2014) and Srinivas (2007) found similar results.[18,19] The literature suggests that older

women are less likely to be offered a VBAC and are subsequently at higher risk for a RCD, as suggested by the results from our qualitative study.

The literature on the association of marital status to delivery mode is unclear. Three studies addressing marital status and CD risk were included in the literature review, but have major limitations (see *Chapter 2: Literature Review*). The results of a study of births in the US border region with Mexico (n= 80) showed a higher prevalence of CD among married women,[20] as did Landon et al. (2005) in their study of 14,529 women attempting a VBAC between 1999-2002;[21] 57.8 percent of Landon's sample was married. Hildingsson and colleagues (2008) found no relation between CD and marital status nor between CD and education, but their sample of Swedish women were predominantly married (94.8%) and highly educated (40.0% had a college/university education).[17]

This study also explored anthropomorphic factors such as maternal height, pre-pregnancy BMI, and BMI at admission to labor and delivery (current BMI) during pregnancy in relation to RCD. No association was found between maternal height and the odds of RCD, contrary to previous studies showing that maternal heights less than 160 cm were associated with increased odds of CD. [22–27] In our study, Hispanic women had mean heights below 160 cm, but adjustment for height did not influence the odds of RCD for Hispanic women (results not shown). Maternal height may play a larger role in the decision process for a primary cesarean since the studies reported in the literature took place with nulliparous women. Providers at MWHC may also have higher thresholds for obstetric intervention and be more willing to discuss a TOL option with women of short stature.[28,29]

Women with pre-pregnancy or current BMIs above 30 had statistically significant greater odds of RCD ($p < .0001$). After adjusting for all covariates, current BMI was no longer statistically significant (results not shown). Women with pre-pregnancy BMIs greater than 30, however, had 1.71 higher odds of RCD ($p < .001$). Our finding for pre-pregnancy BMI is consistent with the literature. Studies by Getahun and colleagues (2017) and Declerq and

colleagues (2015), while excluding previous CD from their samples, found statistically significant greater odds of CD with increasing pre-pregnancy BMI.[30,31] Current BMI, because it also includes fetal weight, was omitted for the analysis; it may be the reason for our findings on current BMI.

Parity, gestational age, birth weight, gestational diabetes, and the use of induction and augmentation of labor were obstetrical/medical factors explored in this study. All factors were significantly associated with odds of RCD in the fully adjusted model. Women at higher gestational ages had lower odds of a RCD. It is unclear whether this finding was related to provider preference; for example, providers with higher thresholds for obstetric intervention may be more inclined to allow women with a previous CD to go past 40 weeks of gestation.
As expected, women with higher parities had lower odds of experiencing a RCD and parity was an important covariate in our final model (*Model 5)*. This finding was a result of limiting the sample to women with one previous CD; women with parities of higher than 2 would have experienced a previous vaginal delivery (VD) which is thought to result in a better chance of a successful trial of labor.

The findings showed decreased odds of RCD for women undergoing an induction or augmentation of labor. Multiparous women are more likely to have a successful TOL secondary to having had a previous delivery, and less likely to undergo induction or augmentation of labor, but women who elect a RCD are unlikely to undergo induction or augmentation of labor. Both groups were included in our study and the analysis did not adjust for TOL. The literature on the role that induction and augmentation play in mediating the risk of RCD is unclear.[32] A systematic review and meta-analysis of randomized controlled trials of induction of labor versus expectant management identified 157 eligible studies.[33] Results showed that the risk of CD after an induction of labor was significantly lower than the risk of expectant management. Studies from 1975 to 2010 were included but study site was not specified in the review, so variability in recommendations over time and practice need to be considered when interpreting results. Additionally, the authors were unable to account for maternal age or other potential confounders.

Adjustment for demographic, anthropomorphic, and induction/augmentation factors resulted in Hispanic and non-Hispanic women having increased odds of RCD compared to non-Hispanic white women. Hispanic and non-Hispanic black women were more likely to experience induction/augmentation of labor than non-Hispanic white women.

Our qualitative interviews raised some concerns about induction of labor, specifically with the use of Pitocin (data not shown). Women perceived that Pitocin was responsible for causing fetal distress which led to their first cesarean. When discussing the possibility of undergoing an induction for the current delivery, women frequently stated that they preferred to schedule a cesarean than to have to undergo an induction with Pitocin. Women who experienced long inductions leading up to their primary cesareans also expressed trepidation at facing a similar situation in the current birth. Women interviewed in Tully and Ball's (2013) study at a tertiary-level hospital in Northeast England did not mention induction as a contributing factor to their CD, but all women who experienced labor prior to an unscheduled CD described the labor as "wasted effort" and reported deciding to schedule a CD to avoid "having to go through what I did last time."[34]

In this study, women with gestational diabetes (GDM) had an 89 percent significantly increased odds of RCD, after adjusting for other covariates; 6.8 percent of the study sample had a documented diagnosis of GDM, with higher rates among Hispanic women. The mechanism through which GDM may affect the odds of RCD is not clear. It has been suggested that there may be biological differences between diabetic and non-diabetic women: Al-Qahtani et al. (2012) reported findings suggesting that diabetic women have decreased uterine contractility in the presence of oxytocin that may increase their risk of CD.[35] Other studies suggest that the elevated risk stems from modified provider practice in the presence of the diagnosis, rather than from any clinical indication. Current ACOG recommendations suggest "individualized" late preterm (37.0) or early term (39.6) delivery with poorly controlled pre-gestational and gestational diabetic women. We were not able to measure the level of pre-gestational or gestational diabetic control

among women in our study. One study conducted in a Portuguese hospital between January 2004 and November 2007 found no differences in cesarean indications between women with and without GDM.[36] Women with GDM, however, had 52 percent greater odds of a non-elective CD that was statistically significant even after adjustments for covariates. In some studies, GDM has been linked to a 50 percent increased risk of non-elective CD.

Macrosomia (birth weight greater than 4000 grams) was a risk factor for RCD. Birth weights greater than 4000 grams had 1.82 greater odds of RCD after adjustment for all covariates ($p < .05$). Although data about estimated birth weight (EBW) may gauge the impact of perceptions about fetal size on decisions concerning mode of delivery, over 90 percent of women had missing data on EBW. RCD indications were also missing for a large percentage of the sample women (42.3%), preventing additional analysis of fetal macrosomia as an indication for RCD. Scifres and colleagues (2015) found that an ultrasound diagnosis of large for gestational age was significantly associated with an increased risk of CD.[37] Women with an LGA diagnosis were more likely to be delivered between 36.0 and 37.6 weeks.

Availability of records about previous CD was proposed as an obstetrical/medical factor related to Hispanic women's increased odds of RCD;[1,5] data on availability of previous records was missing in our study. The documentation of previous cesarean scar may not be as important for deliveries occurring after 2010. In 2010, guidelines about VBACs released by the American College of Obstetricians and Gynecologists (ACOG) stated that missing previous CD records was no longer a contraindication to offering a TOL.[38]

All health systems factors were associated with increased odds of RCD. Results about the time and day of the week of the delivery need to be interpreted with caution since RCD are usually scheduled on weekday dayshifts. While attempts were made to discern whether the RCD was elective or medically indicated, a large proportion of the sample had missing data about indications in the electronic medical record. Without this information or the ability to discern whether a RCD was scheduled or unscheduled, it is difficult to interpret the results for time of day

or day of the week. Women with private insurance had significantly higher odds of RCD (UOR 1.81; 95% CI: 1.44, 2.28); however, after adjustment for all other factors, the relation was no longer significant. Women who delivered with a male provider had 1.83 greater odds of RCD than women who delivered with a female provider ($p< .0001$). Provider gender was based on the delivery provider and not necessarily the provider managing the labor up to delivery.

How insurance type affects odds of RCD is unclear. Results from our study were not statistically significant, but consistent with prior literature, women with private insurance had greater odds of RCD. Parrish and colleagues (1994) suggested that differences in CD rates may be attributed to distributions of age.[39] Our results did not support this finding. Women with private insurance remained at increased odds of RCD after adjustment for age (AOR 1.81; 95% CI 1.43, 2.28; $p< .0001$). In a systematic review and meta-analysis of 21 studies (n= 12.9 million women), women with private insurance had 1.13 statistically significant greater odds of CD than women with public insurance, after adjustment for confounders.[40] While the authors propose that financial incentives may be responsible for the difference, this association is not clear. At MWHC reimbursement is higher for CD, but providers often do not see the difference because reimbursement occurs as a package that includes prenatal care, postnatal care, hospitalization, and other costs.

Results of the Qualitative Study (Aim 3)

In depth interviews were conducted pre-delivery (after 35 weeks of pregnancy) and on average one to three days after delivery with Hispanic and non-Hispanic women at the same facility. Recruitment occurred from November 2016 to May 2017. Women were eligible for inclusion if they self-identified as Hispanic, non-Hispanic black, or non-Hispanic white (categories were mutually exclusive); had one previous CD; planned on delivering at MWHC; had no contraindication to a TOL; and were over 18 years of age. Women carrying more than one fetus were excluded. Interviews were conducted in the women's native language and by the same

interviewer; they ranged in length from 17 to 63 minutes. Topics explored included women's perceptions about VBAC and RCD safety, previous CD experience, preferences for current pregnancy, plans for delivery, discussions with providers and family/friends about delivery plans and preferences, and thoughts on three normative cultural values. Additionally, women were administered the Trust in Provider Scale at the end of their antenatal interview.

Twenty-seven women were interviewed before delivery: 9 Hispanic women, 10 non-Hispanic black women, and 8 non-Hispanic white women. Twenty-six women were interviewed a second time after delivery; one Hispanic woman was not captured during her postpartum hospital stay. One Hispanic women was native-born. Three Hispanic women spoke and understood written English. Hispanic women were younger, less educated, more likely to be unmarried, of low stature, and publicly insured as compared to non-Hispanic black and white women. They also had higher mean birth weights than non-Hispanic black and white women. All Hispanic and non-Hispanic white women were currently involved with the father of the baby, although only three Hispanic women self-identified as married compared to all non-Hispanic white women. All non-Hispanic black women except one (who self-identified as a widow) had partners, but only three self-identified as married. Hispanic and non-Hispanic black women had similar distributions of parity and previous vaginal deliveries. Five Hispanic women had a diagnosis of gestational diabetes versus two non-Hispanic black women and no non-Hispanic white women. Four Hispanic, three non-Hispanic black women, and all non-Hispanic white women delivered by RCD.

The qualitative interviews revealed additional topics about the relation between ethnicity/race and RCD. Themes were organized into four overall topics: factors affecting women's preferences for mode of delivery; knowledge of RCD and VBAC process, risks, and benefits; decision-making factors; and perception of choice.

Patient preferences for Hispanic and non-Hispanic women were very similar: all but six women (4 non-Hispanic black and 2 non-Hispanic white) preferred VBAC over CD. VD was the

preferred method because it was perceived as a more natural process, with an easier recovery period, and offered a level of safety for the baby that a cesarean delivery did not. Predictability of delivery date and time and the avoidance of pain were cited among all groups as reasons to prefer a CD. Birth stories also played a large role in shaping women's preferences. Women familiar with birth stories they perceived as traumatizing were more likely to have negative perceptions about the mode of delivery attributed to the story. Birth stories were not explored with all women in the sample; it was a topic that arose from early analysis of the first interviews and was subsequently explored with women who were sampled later in the study.

While findings were in keeping with studies of the preferences of English, Chilean, Argentinian, and Brazilian women showing that the clear majority of women preferred vaginal over CD,[12,41–43] our study reached different conclusions than one of the only US studies of low-income, low-risk Hispanic women. Zlot, Jackson, and Korenbrot (2005) conducted a US study with 2102 primarily Mexican Latinas in San Diego County.[12] They reported that 53 percent of primiparous women who had CD, preferred a CD as a normal, less difficult and painful process. The authors speculated that women viewed CD as a symbol of high status.

Our study qualitatively examined whether women's preferences about mode of delivery changed from pregnancy to the postpartum, between 35 and 39 weeks of gestation and again in the immediate postpartum period. Generally, preferences reported by the study women did not change from late in pregnancy to the immediate postpartum. Women who preferred VBAC prenatally, but had a RCD, expressed a preference for VBAC during their second interview, often coupled with regret at not having had the experience. All women who expressed a preference for RCD prenatally received a RCD. Women were also asked to recall preferences for their first delivery. All but four women stated the same preference; two women with no preference for their first delivery stated a current preference for a RCD and two with previous VD preferences were undecided for their current delivery.

These results are contrary to those presented by Kingdon and colleagues (2009)[44] who challenged the notion that informed consent is a linear process. They reported qualitative data to support the idea that patient preference for delivery is a dynamic process that changes throughout pregnancy, influenced by a woman's social, partner, and family network. Women in our study remarked that partners and family were consulted (25 of 27 women) about delivery options, but did not credit partners or family for formed preferences. Our results may differ from Kingdon and colleagues (2009) for several reasons. First, their study sample included only primigravid women. It is possible that women with prior deliveries have more stable preferences which may be influenced by their prior experience. Secondly, their sample was much larger (153 interviews were conducted versus 53); it is possible that we did not fully reach saturation on all themes. Lastly, interviews conducted earlier or throughout pregnancy may have captured a more dynamic process of forming preferences among the women in our study, but the stability of preferences for VBACs even when the preference was not fulfilled among some women suggests that views may not change much. Regan, McElroy, and Moore (2013) found that about half of women in their sample of 49 decided on the type of birth they wanted before they were pregnant.[45] Women in Regan's study were primigravid and more educated than our sample.

While women's knowledge about RCD and VBAC was not measured in this qualitative study, women were asked to recall the risks and benefits of RCD and VBAC, particularly those discussed during their current prenatal care. Many women were unable to discuss the risks and benefits of either method at length, only recalling benefits of their preferred option. This lack of information is not necessarily a reflection of whether discussions of risks and benefits took place, since provider perspectives and progress notes documenting visit discussions were not accessed. Most non-Hispanic black and white women recalled discussing their delivery options with their providers, but not necessarily the details of the discussion: one woman remarked that since she planned on not having a cesarean, she did not particularly focus on the RCD discussion. Four Hispanic women, however, recalled no such discussions with their provider (two had VBACs and

two had medically-indicated RCD). All four women were Spanish-speaking, but remarked that their providers spoke Spanish (even if non-native) or had access to interpreter services.

Regardless of ethnicity/race, women expressed that fetal well-being was the most important factor when deciding between a VBAC and RCD; eight women felt that VBAC was safer and healthier for babies than RCD. Women who had a previous experience with a failed induction process expressed a desire to avoid a drawn out and exhausting induction process even if they preferred a VBAC, stating that they would then opt for a scheduled cesarean delivery. This perspective was expressed by only by non-Hispanic black and white women; all Hispanic women remarked that they would only decide to have a RCD if their provider suggested that it was the safer or only option. Our study findings were consistent with findings from the Kingdon (2009) study of 454 respondents at one English hospital, who agreed or strongly agreed that they preferred whatever birth option was safest for baby.[44]

There were ethnic differences in perceptions of the role pain in labor and delivery. Among Hispanic women pain was mostly described as a natural, even if unwelcomed, part of labor and delivery. Avoiding pain was a motivating factor for women with a stated preference for RCD. Even among some women with a stated preference for VBAC, the expectation of pain associated with VD was a source of anxiety. In our study, however, more so than the avoidance of pain, women seemed to place importance on avoiding a drawn out and exhaustive induction process, especially for those who had a previous experience with a failed induction process. While studies have found that two variables strongly associated with a RCD are the belief that a CD is safer than a VD and a desire to avoid pain with a VD,[28,29,34,43,44,46–51] these did not seem to be motivating factors for the women in the sample. Even women with a desire to avoid pain stated a preference for VBAC, expressing self-doubt that they would be strong enough to tolerate the pain, but willing to try. Our findings may be due to our sample of women with one prior CD.

The patient-provider relationship as a decision-making factor was explored in depth, albeit only from the patient's perspective. Differences in the length of the provider relationship

were noted between the three groups of women. While most non-Hispanic black and white women (7 and 6, respectively) delivered with the same practice they used with their previous delivery, only three Hispanic women reported doing so. All but one non-Hispanic black woman and one Hispanic woman had private insurance. All ethnic/racial groups included women who received their prenatal care at private practices; five non-Hispanic black and all non-Hispanic white women delivered with a private prenatal practice. No Hispanic women interviewed delivered with their prenatal provider, even two who attended private practices attended by the non-Hispanic black and white women in the sample. Both women preferred a VBAC; one who had a scheduled RCD despite preference, delivered by RCD and the other had a VBAC.

Perceptions of provider preferences and biases were also explored with women from each group. About half of women in each group felt that their providers did not have preferences or biases for one method over another. A few women, however, noted differences between female and male providers they had seen prenatally. They remarked that male physicians appeared more "interventionists" than female providers – quicker to suggest the scheduling of a RCD. In the quantitative analysis, women with male providers at delivery had significantly greater odds of RCD than those delivering with female providers. The relation remained statistically significant after adjusting for insurance (public or private) type. This finding is an area of interest for further exploration.

A study area of inquiry was how social and cultural norms, values, and beliefs may influence preferences for mode of delivery. The belief that a vaginal delivery is natural and that labor pain is part of the process was expressed by more Hispanic women than non-Hispanic black or white women. However, there were no major differences between Hispanic and non-Hispanic women when presented with three vignettes that illustrated three cultural norms often attributed to Hispanic patients. The values reflected in two of the three vignettes (those representing the norms of *familism* and *respeto)* were widely accepted by all women. When presented with the third vignette (the willingness to agree with a provider's opinion to avoid conflict representing the

norm of *simpatia*), all women seemed to disagree. At other times during the interviews, however, some women (most Hispanics and one non-Hispanic black) remarked that they would agree with providers simply to avoid conflict, Hispanic women through silent compliance and the non-Hispanic black woman through silent non-compliance: "[the provider] wanted me in there by the 27th... and I was like well I'm not going ... I'll go when he's [the baby] ready to come." (Black Seven)

The Trust in Provider Scale was used to assess three dimensions of trust: competence, dependability and confidentiality. The reasons for women's responses were not always clear, but as a standardized approach, the scale was administered without further discussion at the end of the first interview. Hispanic women were less likely to trust their provider's medical judgement or believe that something must be true because their provider told them so. Only 33.3 percent felt that their provider was well-qualified to manage their pregnancies, but they were also less willing to seek out a second opinion. Hispanic women were also the least likely to trust that their provider would admit to a mistake. Overall scale results showed non-Hispanic black women as the most trusting of their providers and Hispanic and non-Hispanic white women the least, but non-Hispanic white women were willing to challenge situations of mistrust unlike Hispanic women.

6c. Strengths and Limitations

The current study has several limitations; those concerning the quantitative study (Aims 1 and 2) are discussed first, followed by limitations of the qualitative study (Aim 3). First, it was not possible to account for all confounders that may play a role in explaining the association between ethnicity/race and mode of delivery. Country of origin or years in the US was not captured by the current study. Previous studies have found that nativity may play a role in the odds of CD. Including nativity or years in the US as covariates in our study may have helped explain our findings about the relation between language, ethnicity and RCD. Additionally, informed by Aim 3, it is possible that length of labor, particularly with the use of

induction/augmentation methods, could impact the mode of delivery and differences by ethnicity/race. Women in the qualitative interview expressed an unwillingness to go through a long induction process. It is possible that length of prior labor, not captured by the current study, could have led to women to schedule an ERCD rather than undergoing a TOL.

Limitations with missing data are also a concern despite the application of multiple imputation techniques and triangulation of records. Education, pre-pregnancy weight, and birth weight were variables that may have been affected by missingness, although in all cases less than 10 percent of the data was missing (9.9%, 5.2%, and 2.1%, respectively). RCD indications were missing from a large portion of records which constrained our ability to determine if the RCD was elective or medically-indicated. This distinction is important when exploring factors to explain the increased odds of RCD among Hispanic women, and understanding findings related to some obstetric interventions such as induction and augmentation which are unlikely to occur with elective procedures. It also has been hypothesized that Hispanic women have increased odds of RCD due to a preference for RCD; thus, drawing a distinction between women who experienced a failed TOL and women who had a scheduled RCD would be important in understanding the findings.

Third, while a one-site study design was considered a strong methodological approach, it limits generalizability. For instance, Hispanic women delivering at MWHC may reflect populations from select countries, primarily those from Central America. Thus, results may not be applicable to Hispanic women from other from other countries. Lastly, comparisons across ethnic and racial groups may have been affected by inadequate cell sizes for specific factors, especially among non-Hispanic white women whose demographic characteristics were markedly different than those of Hispanic and non-Hispanic black women and for whom small cell sizes may have also led to wide confidence intervals and imprecise estimates.

Limitations related to Aim 3 should be noted. First, Aim 3 did not capture providers' perspectives about their discussions with women concerning VBAC and RCD or about their

interactions during labor leading to the delivery. Secondly, women were informed that interviews would take no longer than 40 minutes. While some women were able to continue the interview if it extended beyond 40 minutes and allow it to end at a natural point, others had planned for only a limited amount of time which was not sufficient for exploring many of the context rich themes that arose. Lastly, difficulties in recruitment led to women being interviewed past 36 weeks of gestation; the interval between first and second interview was thus shortened for some women.

Several strengths of the study addressed limitations identified in the current literature. The study design is a particular strength: a single-site cohort study. By limiting data collection to one urban hospital which frequently offers TOL/VBAC to its patients, the study controls for hospital type (urban versus rural; size), state/district liability differences, and institutional policies – all factors that have been identified in the literature as associated with delivery route. Study methods were also strong. The study sample was defined by clearly stated inclusion and exclusion criteria. EMR data for Aims 1 and 2 provided maternal risks and pregnancy complications not otherwise available with other data sources and prenatal records were used to address otherwise missing data. The thorough review of the data, with extensive comparisons between data in the EMR and prenatal records for completeness and accuracy, resulted in more complete data. MWHC serves a diverse population of women which contributed to the ability to obtain a sample for the three ethnic/racial groups. The large volume of deliveries at MWHC also assisted in attaining a sufficiently large sample of women with one previous cesarean delivery.

The qualitative study had many strengths. The same researcher conducted all 53 interviews and was not directly involved in the women's care. Additionally, the researcher conducting the interviews was a native English and Spanish speaker, allowing the interviews to capture the perspective of Hispanic women with limited English proficiency, a perspective often lacking in the literature. This approach also allowed the analysis of interviews to take place in the women's original language and allowed for understanding subtle differences in language that may be lost when using translation by a third party. Lastly, women's perspectives and plans for

delivery were captured before delivery with a prenatal interview and perspectives during the delivery experience were captured with the postpartum interview. The second interview also allowed for the clarifications of any perspectives or themes that arose from primary analysis.

6d. Policy and Practice Implications and Areas for Future Research

Findings from this study suggest that Hispanic women have higher odds of RCD than either non-Hispanic black or white women, adjusting for demographic, anthropomorphic, obstetrical/medical and health system factors. Qualitative interviews revealed ethnic/racial differences in perspectives concerning birth options after cesarean: preferences for delivery and the role of pain, choice in healthcare decisions, knowledge about risks and benefits, trust in providers' recommendations, and opportunities for establishing delivery plans. This section discusses policy and practice implications of these findings, highlighting areas for future research.

The quantitative aims revealed that EMR provides a rich source of data. However, missing data on RCD indications did not allow for an analysis of elective versus medically indicated RCD or trial of labor, which could explain some of the findings related to labor induction and augmentation. This presents an important policy implication, since national data may not fully capture underlying ethnic/racial differences. Instituting hospital policies that allow for more complete data on indications would facilitate future research to clarify differences between elective and medically indicated RCD.

Our findings suggest that Hispanic women have increased odds of RCD, a relation affected by language: Spanish-speaking Hispanic women had lower odds of RCD than English-speaking Hispanic women, after adjustment for covariates. Other studies have argued that more detailed ethnic data is necessary to understand underlying differences in CD rates. A more precise and standardized collection of patient race, ethnicity, country of origin, years in the US when applicable, and native language among delivering institutions with large populations of Hispanic

women would be important in any multi-faceted approach to understanding and addressing ethnic/racial differences in RCD rates.

Policy changes to facilitate studies using EMR data at the local level could have an impact on provider practices. Chaillet and colleagues (2007) conducted two focus groups with 75 percent of obstetricians from three hospitals in Canada.[52] Obstetricians remarked that local evidence was necessary to effectively change their practices "because they wanted to validate the transferability of the guidelines in their own practices." An audit and feedback process as proposed by Lomas et al. (1991)[53] would allow obstetricians to systematically review hospital, prenatal practice, or provider VBAC rates. Additionally, a systematic review of RCD rates by provider would further inform our findings on the relation between RCD odds and provider gender by considering additional provider characteristics such as provider age and years of experience.

An important factor in program implementation is stakeholder buy-in and thus, consultation with providers (e.g. obstetricians, midwives, nurses) would be essential to identify barriers to proposed changes and establish stakeholder buy-in. The perspectives of providers were not explored in this study. Obstetricians in Chaillet's study[52] suggested that the identification of opinion leaders, another recommendation from the Lomas study, within the facility would improve acceptance of new recommendations or processes and the adoption of recommended research-based practice guidelines.

Aim 3 revealed important ethnic/racial differences about the perception of mode of delivery choice. Non-Hispanic white and black women both felt that they had a choice in deciding between a VBAC and RCD. The same was not the case for Hispanic women; this finding may reflect that the consent process needs to be reexamined to account for differences in communication that go beyond basic translation or differences in literacy. The consent process should also account for differences in provider trust that may be related to ethnic/racial differences and affect a woman's interpretation and understanding of the information presented.

A second opinion has been suggested as a facilitator for encouraging VBACs and could perhaps be expanded to include cases where a RCD is recommended, allowing a personalized opportunity to review the risks and benefits of each method.[54] A formalized second opinion process could address differences in provider trust among women of different ethnicities and races.

All Hispanic women who provided interviews failed to deliver with their prenatal providers, even women with private insurance who attended private practices. Whether this finding points to an underlying ethnic difference in the patient-provider relationship needs to be further explored. Most Hispanic women in the sample received their prenatal care in a community clinic setting under public coverage. Thus, more coordination of care between community prenatal clinics and delivering hospitals is needed.

Few women seemed able to recall with clarity having discussions about the risks and benefits of RCD and VBAC; the extent to which they occurred was not captured in this study and presents an area of future research. Four Hispanic women denied having discussions with their current prenatal provider about their options of birth mode. Most non-Hispanic white women could discuss risks and benefits of VBAC and benefits of RCD. Hispanic and non-Hispanic black women, however, were only able to discuss benefits associated with their delivery preference. All women were unable to recall detailed discussions. Education programs and decision aids have been proposed as non-clinical interventions aimed at increasing VBAC rates with little effect.[54] However, statistically significant differences in knowledge scores were found among women receiving a decision-aid intervention and those receiving usual care. Any decision-aid intervention would need to consider ethnic/racial differences we found in our study. Written information presents challenges in communities with low literacy.

Hispanic women in our study found information from family and friends more useful than that provided by their providers and birth stories were found to be important in forming all women's preferences for delivery. Alternate methods of providing Hispanic women with information on birth options based on these findings could include the use of *promotores de salud*

(community health educators), information presented via the use of *telenovelas* (dramatized stories in Spanish), and group prenatal care. While many studies have shown the use of *promotores* to successfully increase health education in Hispanic communities, the use of *promotores* to inform women's preferences for delivery has not been explored. The literature on the use of *telenovelas* for health education is less abundant and has many limitations, but some studies found that *telenovelas* were useful in improving knowledge and attitudes about dementia, home care services, and alcohol use in the Hispanic community.[56,57,58] Group prenatal care could also facilitate discussions of birth options after cesarean among women of similar gestational ages, facilitated by a practitioner (obstetrician, midwife, nurse practitioner) and a program facilitator (registered nurse, nurse practitioner). Few studies have examined the relation of group prenatal care and CD. A study by Risisky and colleagues (2018) examined whether women who utilize CenteringPregnancy, a model of group prenatal care, experience lower rates of elective CD.[55] They found that women in Centering had 89 percent lower odds of elective CD than women in traditional care after adjustment for age and smoking. The study had significant limitations, however. All women attended a midwifery practice and women self-selected to Centering. Additional studies exploring the effects of alternate methods of prenatal education on ethnic differences in RCD rates are needed.

6e. Concluding Remarks

This dissertation explored the association between ethnicity/race and RCD. After adjusting for obstetrical/medical and health system factors, Hispanic and non-Hispanic black women had higher odds of RCD than non-Hispanic white women; adjustment for demographic and anthropomorphic factors did not appear to alter the relation of ethnicity/race with RCD. This study also presented a perspective often missing from the current literature: personal perspectives of non-native Hispanic women currently living and receiving obstetrical care in the US. Qualitative findings revealed minor differences by ethnicity or race in women's preferences for

birth options after cesarean: most women preferred VBAC. Findings provided evidence to support that Hispanic women have a strong preference for VBAC deliveries, but may not have the opportunity to establish a plan for VBAC with their delivery providers. All Hispanic women in the study delivered with providers they had not previously met. Some ethnic/racial differences in patient-provider relationships were noted: Hispanic women, while complying with provider recommendations, revealed distrust in those recommendations along with a perception of having little choice in informing their healthcare decisions. Most Hispanic women cited family, rather than their providers, as the most helpful source of information about their options for delivery.

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Appendices

Appendix A: Hispanics in the US

There are significant differences between Hispanic subgroups in terms of normative cultural values, population growth, structure, education, English proficiency (EP) and socio-economic status (SES). None of these demographic and SES characteristics have been specifically shown to increase the odds of RCD among Hispanic women. It is, however, important to consider these differences when designing the methodology of a study and interpreting its results. A brief snapshot of Central Americans in the US is presented since they are the predominant subgroup of Hispanics that will comprise the study sample. For the purposes of this study, Hispanic origin countries will be categorized into the following groups: Mexico; Central America (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama); South America (Argentina, Bolivia, Chile, Colombia, Ecuador, Peru, Uruguay, Venezuela); and the Caribbean (Cuba, Puerto Rico and Dominican Republic).

Normative Cultural Values

Five normative Latino cultural values significant in clinical settings have been identified: *simpatia, personalismo, respeto, familismo,* and *fatalismo. Personalismo* and *fatalismo* were not explored in this study. (Flores, 2000). A patient who values *simpatia* (kindness) may avoid asking her provider questions about a procedure that she is uncertain of, preferring politeness over perceived confrontation. Deferring to a person of authority, such as a physician, could simply be a sign of *respeto* – respect. For instance, "... posing a question to an authority figure can be construed as disrespectful. The 'nod of the head' in response to a physician's instructions or comments may therefore represent a socially required gesture of respect, rather than understanding or agreement" (Flores, 2000, 16). Lastly, *familismo*, a result of a collectivistic culture, is the belief that the needs of the group outrank those of the individual. (Flores, 2000) The opinions of others, especially those of family and close family friends, are highly valued. These normative cultural values are important to consider when presenting medical information

to native-born acculturated Hispanics versus native and foreign-born non-acculturated Hispanics, irrespective of the family's country of origin. Of note, Central Americans made up 49 percent of the foreign-born population from Latin America living in DC in 2010. (Acosta and de la Cruz, 2011)

Population

Central American-born immigrants in the US experienced the fastest growth between 2000 and 2010 from among the various regions of Latin America (51% versus 41% for South America, 28% for Mexico and 26% for the Caribbean). (Zong and Batalova, 2015) Of the 4.6 million self-identified Central Americans residing in the US in 2009, 63.2 percent were born in Central America (excluding individuals born in Central America to at least one U.S.-born parent or who were native-born U.S. citizens at birth) and over one third (36.1%) were U.S. citizens at birth. (Zong and Batalova, 2015) Salvadorans made up 41 percent of this population followed by Guatemalans (28%) and Hondurans (16%). (Zong and Batalova, 2015) In the District of Columbia 43.1 percent of residents were identified as Latin American and of these, the majority were Central Americans (19.4%) with Salvadorans making up 12.5 percent. (Zong and Batalova, 2015)

English Proficiency (EP)

Central American immigrants have lower levels of EP and educational attainment than other immigrant groups in the US. The term "limited English proficient" (LEP) refers to any person age 5 and older who reported speaking English "not at all," "not well," or "well" on the American Community Survey (2013) questionnaire. (Terrazas, 2011) Central Americans reported the highest level of LEP among Hispanic subgroups (68%), second only to Mexicans (72%); while 17.5 percent reported speaking no English at all. (Zong and Batalova, 2015) LEP rates also vary by country of origin: 71.5 percent of Salvadoran immigrants are LEP versus 26.7 percent of

Panamanians. Central American immigrants aged 25 and older are also more likely than other foreign-born immigrants to not have attained a high school diploma (49% versus 30%, respectively). (Terrazas, 2011)

Socio-Economic Status

Central American immigrants are more likely to live in poverty when compared to other immigrant groups in the US. About 23 percent of Central American immigrants lived in a household with an annual income below the federal poverty line in 2011, more than the entire foreign-born (20%) and the native born (15%) population. (Terrazas, 2011)

Appendix B: Literature Review

Table B.1 Demographic Risk Factor: Age

Author, Year Study Design	***Variable***	***AOR***	***95% CI***
Cameron, 2004 Population-based retrospective cohort study (Australia, 1998-2001)	*Odds of TOL Success* [i]		
	<30 years	1.00	Reference
	30-39 years	0.86	0.77, 0.95
	>= 40 years	0.59	0.43, 0.82
Hildingsson, 2008 Population-based prospective cohort study (Sweden, 1999-2000)	*Odds of an Elective Cesarean Delivery* [ii]		
	<25 years	1.0	Reference
	25-35 years	1.6	1.04, 2.53
	> 35 years	2.1	1.15, 3.83
Landon, 2005 Multi-center prospective cohort study (US, 1999-2002)	*Odds of TOL Success* [iii]		
	<= 17 years	0.84	0.57, 1.25
	18-34 years	1.0	Reference
	>= 35 years	1.0	0.91, 1.10
Knight, 2014 Population-based retrospective cohort study (England, 2004-2012)	*Odds of VBAC Attempt* [iv]		
	<24 years	1.15	1.10, 1.20
	24-34 years	1.00	Reference
	>34 years	0.75	0.71, 0.78
	Odds of VBAC Success [v]		
	<24 years	1.23	1.17, 1.29
	24-34 years	1.00	Reference
	>34 years	0.79	0.77, 0.82
Srinivas, 2007 Multiple site retrospective cohort study (US, 1996-2000)	*Odds of VBAC Attempt* [vi]		
	15-20 years	1.80	1.40, 2.31
	21-34 years	1.00	Reference
	35-39 years	0.72	0.62, 0.83
	> 39 years	0.65	0.49, 0.85
	Odds of VBAC Failure [vii]		
	15-20 years	0.73	0.62, 0.87
	21-34 years	1.00	Reference
	35-39 years	1.10	0.99, 1.23
	> 39 years	1.18	0.98, 1.42

[i] Adjusted for hospital level of birth, number of previous deliveries, birthweight.
[ii] Adjusted for preferred mode of delivery, parity, marital status, education, native language, residential area, BMI, fetal weight, smoking status, medical diagnosis, previous mode of delivery, emergency CD, depression.
[iii] No information on adjustments provided; assumption is that these are unadjusted odds.
[iv] Adjusted for ethnicity, deprivation, year of first birth, birth interval, type of CS at first birth, pre-existing conditions, characteristics of second pregnancy, birthweight.
[v] Adjusted for ethnicity, deprivation, year of first birth, birth interval, type of CS at first birth, pre-existing conditions, characteristics of second pregnancy, birthweight.
[vi] Adjusted for prior vaginal delivery, augmented or induced labor and gestational age at delivery, insurance type, hospital type, number of prior cesareans, twin pregnancy, birth weight >4000.
[vii] Adjusted for prior vaginal delivery, augmented or induced labor and gestational age at delivery, hospital type, birth weight >4000, pre-eclampsia, diabetes.

Table B2 Demographic Risk Factor: Marital Status

Author, Year Study Design	***Variable***	***AOR***	***95% CI***
Hildingsson, 2008 Population-based prospective cohort study (Sweden, 1999-2000)	*Odds of an Elective Cesarean Delivery* [i]		
	Not married or cohabiting	0.88	Not married or cohabiting
	Married or cohabiting	1.00	Married or cohabiting
Landon, 2005 Multi-center prospective cohort study (US, 1999-2002)	*Odds of TOL Success* [ii]		
	Unmarried: yes	1.1	Unmarried: yes
	Unmarried: no	1.0	Unmarried: no
McDonald, 2015 Prevalence study (Mexico & US, 2009)	Descriptive analysis: see text		

[i] Adjusted for preferred mode of delivery, parity, marital status, education, native language, residential area, BMI, fetal weight, smoking status, medical diagnosis, previous mode of delivery, emergency CD, depression.
[ii] No information on adjustments provided; assumption is that these are unadjusted odds.

Table B.3 Demographic Risk Factor: Education

Author, Year Study Design	***Variable***	***AOR***	***95% CI***
Gholami, 2014 Population-based retrospective cohort study (Iran, 2011)	*Odds of Preference for CD*		
	< diploma	1.0	Reference
	> diploma	3.73	1.8-7.74
Hildingsson, 2008 Population-based prospective cohort study (Sweden, 1999-2000)	*Odds of an Elective Cesarean Delivery* [i]		
	Elementary school	1.0	Reference
	High school	1.1	0.57-1.98
	College or university	1.0	0.55-1.97
Hsu, 2008 One-site retrospective cohort study (Taiwan, 1996)	*Odds of CD* [ii]		
	Junior high school and below	1.51	1.08-2.13
	Senior high school	1.32	1.08-1.60
	College and above	1.00	Reference
King, 1994 Population-based retrospective cohort study (US, 1989)	*Odds of VBAC vs. RCD* [iii]		
	< 12 years	1.00	Reference
	12	1.15	0.99-1.34
	13-15	1.36	1.16-1.60
	16	1.59	1.32-1.93
	>=17	2.00	1.64-2.45

[i] Adjusted for preferred mode of delivery, parity, marital status, education, native language, residential area, BMI, fetal weight, smoking status, medical diagnosis, previous mode of delivery, emergency CD, depression.
[ii] Adjusted for age, birthweight, parity, insurance, sources of admission, occupation, infant sex, Pe-Ji score.
[iii] Adjusted for age, birthweight, gravidity, presentation, medical risk factors, race/ethnicity, income, payment source, level of care, hospital ownership, teaching hospital, professional liability.

Table B.4 Demographic Risk Factor: Race

Author, Year Study Design	***Variable***	***AOR***	***95% CI***
Landon, 2005 Multi-center prospective cohort study (US, 1999-2002)	*Odds of TOL Success* [i]		
	African American	0.69	0.63-0.75
	Hispanic	0.65	0.59-0.72
	Other/unknown	0.71	0.60-0.84
	Caucasian	1.0	Reference
King, 1994 Population-based retrospective cohort study (US, 1989)	*Odds of VBAC* [ii]		
	White	1.00	Reference
	African American	0.80	0.70-0.93
	Hispanic	0.61	0.51-0.73
	Other non-white	1.28	1.00-1.69

[i] No information on adjustments provided; assumption is that these are unadjusted odds.
[ii] Adjusted for age, birthweight, gravidity, presentation, medical risk factors, race/ethnicity, income, payment source, level of care, hospital ownership, teaching hospital, professional liability.

Table B.5 Anthropomorphic Risk Factor: Maternal Height

Author, Year Study Design	***Variable***	***AOR***	***95% CI***
Bergholt, 2007 Single site retrospective cohort study (England, 1995-2000)	*Odds of CD* [i]		
	< 1.60	4.1	2.8-6.1
	1.60-1.65	2.3	1.5-3.3
	1.65-1.70	1.5	1.0-2.3
	> 1.70	1.0	Reference
Bohlmann, 2009 Single site retrospective cohort study (Germany, 1995-2008)	*AOR not shown*		
Kirchengast, 2007 Single site Retrospective cohort Study (Austria)	*Odds of CD* [ii]		
	< 1.45	6.18	1.79-21.29
	1.45-1.49	4.20	2.71-6.51
	1.50-1.54	2.78	2.18-3.58
	1.55-1.60	1.38	1.18-1.61
	> 160	1.00	Reference

McGuinness, 1999 Single site retrospective cohort study (Zealand, 1994-1998)	*AOR not shown*		
Sheiner, 2005 Population-based retrospective cohort study (Israel, 1988-2002)	*Odds of CD* [iii]		
	With short stature	1.7	1.6-1.9
	> 1.55	1.0	Reference
Stulp, 2011 Population-based retrospective cohort study (UK, 2000-2001)	*AOR not shown*		

[i] Adjusted for first trimester BMI, gestational age, maternal age, birthweight, oxytocin, epidural
[ii] Adjusted for prepregnancy weight, prepregnancy BMI, distantia spinarum, distantia cristarum, birth weight, birth length, acromial circumference, head circumference, diameter frontoocipitalis, newborn weight status, apgar
[iv] Adjusted for previous CD, suspected IUGR, PROM, failed induction, CPD, failure to progress, malpresentations

Table B.6 Anthropomorphic Risk Factor for CD: Maternal BMI

Author, Year Study Design	***Variable***	***AOR***	***95% CI***
Declercq, 2015 Population-based retrospective cohort study (US, 2012)	Underweight (BMI <18.5)	0.81	0.79-0.83
	Normal weight (BMI 18.5-24.9)	1.0	Reference
	Overweight (BMI 25.0-29.9)	1.33	Not reported
	Obese 1 (BMI 30.0-34.9)	1.61	1.60-1.63
	Obese 2 (BMI 35.0-39.9)	1.86	1.83-1.88
	Obese 3 (BMI >40)	2.21	2.18-2.25
Paramsothy, 2009 Population-based retrospective cohort study (Washington, state)	Interpregnancy BMI change <-1	0.55	0.27-1.15
	-1 to 0.9	1.0	Reference
	1-1.9	1.35	0.74-2.46
	2.29	1.28	0.67-2.43
	>3	1.74	1.04-2.91
Bergholt, 2007 Single site retrospective cohort study (England, 1995-2000)	First trimester BMI <25	1.0	Reference
	First trimester BMI 25-30	1.6	1.1-2.3
	First trimester	1.9	1.3-2.8

	BMI 30-35		
	First trimester BMI >35	3.8	2.4-6.1
Getahun, 2007 Population-based retrospective cohort study (US, 1989-1997)	Second prepregnancy BMI <18.5	1.03	0.95-1.11
	Second prepregnancy BMI 18.5-24.9	1.00	Reference
	Second prepregnancy BMI 25 to 29.9	1.16	1.10-1.23
	Second prepregnancy BMI >30	1.54	1.46-1.63
Ramos, 2005 Single site retrospective cohort study (US, 1981-2001)	Latina BMI 19.8-26	1.00	Reference
	Latina BMI>29	1.87	1.25-2.80
Ehrenberg, 2004 Single site retrospective cohort study (US, 1997-2001)	BMI 19.8-25	1.0	Reference
	BMI 25.1-30	1.5	1.3-1.8
	BMI >30	2.4	2.0-2.9

Table B.7 Obstetric Risk Factor for CD: Gestational Diabetes

Author, Year Study Design	***Variable***	***AOR***	***95% CI***
Al-Qahtani (2012) Human myometrium (UK)	*AOR not shown*		
Ehrenberg, 2004 Single site retrospective cohort study (US, 1997-2001)	*Odds of CD* [i]		
	BMI <19.8	0.80	0.64, 0.99
	BMI 19.8-25	1.0	Reference
	BMI 25.1-30	1.34	1.18, 1.63
	BMI > 30	2.03	1.72, 2.40
Gorgal (2012) Single site retrospective cohort study (Portugal, 2004-2007)	*RR of CD* [ii]		
	Presence of GDM	1.52	1.06, 2.16

[i] Adjusted for nullliparity, macrosomia, induction, BMI, diabetes, black race

[ii] Adjusted for maternal age, pre-pregnancy BMI, gestational weight gain, previous cesarean section, gestational age at delivery, and birthweight

Table B.8 Obstetric Risk Factor for CD: Fetal Macrosomia

Author, Year Study Design	***Variable***	***AOR***	***95% CI***
Homko, 1995 Single site prospective cohort study (US, 1991-1995)	*AOR not shown*		
Scifres (2015) Single site retrospective cohort study (US, 2009-2012)	*Odds of CD* [i]		
	Birth weight (kg)	1.30	0.83, 2.03
	Ultrasound dx of LGA	3.13	2.10, 4.67

[i] Adjusted for ultrasound diagnosis (dx) of large for gestational age (LGA), maternal age, maternal BMI, nulliparity, maternal race, chronic hypertension, birth weight, hypertensive disorders of pregnancy, and induced birth

Appendix C. Antepartum Screening Checklist

Screening Checklist for Birth Options Study
Donna Strobino, Principal Investigator
Roxanne Mirabal-Beltran, Student Investigator

Antepartum Screening Checklist

Study candidates should be able to answer yes to all the following questions:

1. Patient is over 18 years of age.
2. Patient will be 36 weeks gestation between September and May of 2017.
3. Patient has had no more than 1 previous cesarean delivery.
4. Patient does NOT have placenta previa.
5. Patient does NOT have a confirmed classical or T-incision uterine scar or is highly suspect of having a classical or T-incision uterine scar.
6. Patient does NOT have a history of prior uterine rupture.
7. Patient does NOT have a history of extensive transfundal uterine surgery.
8. Patient is NOT carrying more than 1 fetus.
9. Patient does NOT have a contraindication to vaginal delivery.

Appendix D. Study Flyer

Approved: 14Jul2016
IRB No.: 7257

HAS YOUR PATIENT HAD ONE PREVIOUS CESAREAN?

We would like to invite her to take part in a research study that will
explore her perceptions about the delivery options available to women with a previous cesarean.

Participation includes an in-depth interview at 36 weeks and in the postpartum period, each about 45 minutes long.

Study candidates should be able to answer yes to all of the following questions:

1. Patient is over 18 years of age.
2. Patient will be 36 weeks gestation between September and December of 2016.
3. Patient has had no more than 1 previous cesarean delivery.
4. Patient does NOT have placenta previa.
5. Patient does NOT have a confirmed classical or T-incision uterine scar or is highly suspect of having a classical or T-incision uterine scar.
6. Patient does NOT have a history of prior uterine rupture.
7. Patient does NOT have a history of extensive transfundal uterine surgery.
8. Patient is NOT carrying more than 1 fetus.
9. Patient does NOT have a contraindication to vaginal delivery.

If you have a patient that meets eligibility requirements and has expressed verbal interest in participating, please forward her name, phone number and/or email address to

Donna Strobino, principal investigator, in care of
Roxanne Mirabal-Beltran, student investigator: Roxanne.Mirabal@Medstar.net

Gracias por su interes en el Estudio sobre Cesareas!

Por favor llame a

Roxanne Mirabal-Beltran

para programar su entrevista o para qualquier pregunta sobre el estudio.

240-505-3828

Thank you for your interest in the Cesarean Study!

Please call

Roxanne Mirabal-Beltran

to schedule your interview or for further questions related to the study.

240-505-3828

Appendix E. Recruitment Script

Approval Date: 14Jul2016
Approved Recruitment Script Version No.: 1
PI Name: Donna Strobino
IRB No. 7257

Confirmation of Eligibility and Scheduling Script
IRB00007257
(Participants referred by clinic staff)

Hello! Could I speak to _____?

Hello Ms. _____. My name is Roxanne and your name and number were given to me by [Clinic Staff/Office]. Thank you for agreeing to have me contact you and tell you a bit more about a study that I am working on with the Johns Hopkins Bloomberg School of Public Health and the Washington Hospital Center/Upper Cardozo Clinic (specify as appropriate). The study will help us learn about how women make decisions about delivery options and how women feel about the communication that takes place with their provider about their options.

We are looking for Hispanic and non-Hispanic women with one previous cesarean who have options for delivery with their current pregnancy to participate in two interviews that will last about 45 minutes. The first interview will take place before or after your 36 week appointment. The second one either at the hospital 2-3 days after you have your baby or at your 6 week postpartum appointment. Your participation is completely voluntary. After completing the second interview, you will receive a $15 gift card to Target.

Do you have any questions? Are you interested in being screened to make sure you are eligible?

[No.] Thank you. I appreciate you letting me tell you more about the study. Let me give you my phone number in case you change your mind at any time and would like to participate. Please feel free to contact me at 240-505-3828 before you are 36 weeks pregnant. Have a great day!

[Yes.] Thank you. I appreciate your time in advance. Let me ask you a few questions to make sure you are eligible and so that I can better schedule your interview.

1. Are you over the age of 18?
    a. No – STOP and say "Thank you for your interest, but you are not eligible to participate at this time."
    b. Yes - Continue to next question

2. When is your due date? [Determine gestational age.]
    a. More than 36 weeks – STOP and say "Thank you for your interest, but you are not eligible to participate at this time."
    b. 36 weeks September-December 2016 - Continue to next question

3. Are you planning on delivering your baby at the Washington Hospital Center?
    a. No – STOP and say "Thank you for your interest, but you are not eligible to participate at this time."
    b. Yes – Continue to next question

4. How many c-sections have you already had?
    a. If more than 1 – STOP and say "Thank you for your interest, but you are not eligible to participate at this time."
    b. If 1 – Continue to next question

5. How many babies are you carrying with this pregnancy?
    a. If more than one – STOP and say "Thank you for your interest, but you are not eligible to participate at this time."
    b. If one – Continue to next question

<u>If eligible:</u>

1. That makes you about _____ weeks pregnant right now.
2. I will then be scheduling your interview the week of _____ either before or after your appointment.
3. Is there another number you prefer to be contacted at? [Verify a working telephone number and email address.] I will contact you that week to set up a time.
4. I will see you soon. Thank you.

	Approval Date: 14Jul2016 Approved Recruitment Script Version No.: 1 PI Name: Donna Strobino IRB No. 7257

Documento de Confirmación de Elegibilidad y Programación de Entrevista
Español
IRB00007257
(Participantes referidos por el personal de la clínica)

Hola! Pudiera hablar con la Señora _____?

Buenas Señora _____. Yo soy Roxanne. La Señorita _____ me dio su nombre y teléfono. Gracias por estar disponible de participar en este estudio. Estoy trabajando con la Escuela de Salud Pública de Johns Hopkins Bloomberg y el hospital/clínica Washington Hospital Center/La Cardozo (specify as appropriate) en un estudio para aprender acerca de cómo las mujeres toman decisiones sobre opciones de parto y de cómo las mujeres se sienten acerca de la comunicación que se lleva a cabo con su proveedor de salud prenatal con respecto a esas opciones.

Estamos buscando mujeres hispanas y no hispanas con una cesárea anterior que tienen opciones de parto con su embarazo actual. Les estamos pidiendo que participen en dos entrevistas que durarán unos 45 minutos cada una. La primera entrevista se llevará a cabo antes o después de su cita de 36 semanas. La segunda entrevista se llevará a cabo en el hospital 2 o 3 días después de tener a su bebé o en la cita de post-parto de las 6 semanas. Su participación es totalmente voluntaria. Después de completar la segunda entrevista usted recibirá una tarjeta de regalo de Target de $15.

Tiene alguna pregunta? Está usted interesada en ver si eres elegible para participar en ser entrevistada?

[No.] Gracias. Le agradezco por permitirme decirle mas sobre el estudio. Si en cualquier momento cambia de opinión y le gustaría participar, por favor siéntase libre de ponerse en contacto conmigo a este número (240-505-3828) antes de 36 semanas de embarazo. Que tenga un buen día!

[Sí]. Gracias. Agradezco de antemano su tiempo. Permítame hacerle algunas preguntas para evaluar si usted es elegible para participar y poder también programarle mejor su entrevista.

1. ¿Usted tiene mas de 18 anos de edad?
    a. No - PARE y diga: "Gracias por su interés, pero no es elegible para participar en este momento".
    b. Si - continúe con la siguiente pregunta

2. ¿Qué fecha le dieron para el nacimiento de su bebé? [Determine la edad gestacional.]
    a. Más de 36 semanas – PARE y diga: "Gracias por su interés, pero no es elegible para participar en este momento"
    b. 36 semanas entre septiembre y diciembre 2016 - continúe con la siguiente pregunta

3. ¿En qué hospital planea usted tener a su bebé?
    a. Otro lugar fuera del Washington Hospital Center – PARE y diga: "Gracias por su interés, pero no es elegible para participar en este momento".
    b. Washington Hospital Center – continúe con la siguiente pregunta

4. ¿Cuántas cesáreas ha tenido?
    a. Si más de una – PARE y diga: "Gracias por su interés, pero no es elegible para participar en este momento".
    b. Si una – continúe con la siguiente pregunta

5. ¿Cuántos bebés está llevando en este embarazo?
    a. Si más de uno - PARE y diga: "Gracias por su interés, pero no es elegible para participar en este momento".
    b. Si uno - continúe con la siguiente pregunta

Si es elegible:

1. Usted tiene cerca de _____ semanas de embarazo.
2. Le estaré programando su entrevista para la semana de _____ antes o después de su cita prenatal.
3. Hay otro número al que usted prefiere ser contactada? [Verifique el número de teléfono y la dirección de correo electrónico]. Me pondré en contacto con usted esa semana para coordinar la hora.
4. La veré pronto. Gracias.

Appendix F. Consents

Approval Date: 14Jul2016
Approved Consent Form Version No.: 1
PI Name: Donna Strobino
IRB No. 7257

JOHNS HOPKINS BLOOMBERG SCHOOL OF PUBLIC HEALTH

INFORMED CONSENT DOCUMENT

Study Title: Birth Options After Cesarean Among Hispanic Women Living in the United States

Principal Investigator: Donna Strobino

IRB No.: IRB00007257

PI Version Date: Version 4, July 18, 2016

What should you know about this study?

- You are being asked to join a research study.
- This consent form explains the research study and your part in the study.
- You are a volunteer. You can choose not to take part. If you join, you may quit at any time. There is no penalty if you decide to quit the study.

Why is this study being done?

This study is being done to learn more about how pregnant women of different ethnic backgrounds make decisions about delivery options. We want to understand how women feel about the communication that takes place with their provider about those delivery options. We will include approximately 30 women in this study.

Why you are being asked to participate?

You are being asked to participate in this study because you meet the eligibility criteria:

- You will be 36 weeks pregnant during the time of study recruitment.
- You are over the age of 18.
- You have had no more than 1 previous c-section.
- You do NOT have placenta previa.
- You do NOT have a confirmed vertical uterine scar from your previous c-section.
- You do NOT have a history of prior uterine rupture.
- You do NOT have a history of extensive uterine surgery.
- You are NOT carrying more than 1 baby.
- You are able to have a vaginal delivery.

What will happen if I join the study?

The study involves talking to an interviewer when you are 36-37 weeks pregnant and again after you deliver. The first interview will take place during your 36th week of pregnancy. You will also be contacted by phone beginning at 38 weeks of gestation to see if you have delivered and if you have, we will schedule a second interview once you have your baby at a day and time convenient for you.

Each interview will last about 45 minutes. Interviews will take place in a private space and will be audio taped. Information you share will not be put in your medical records or shared with your provider.

Approval Date: 14Jul2016
Approved Consent Form Version No.: 1
PI Name: Donna Strobino
IRB No. 7257

JOHNS HOPKINS BLOOMBERG SCHOOL OF PUBLIC HEALTH

DOCUMENTO DE CONSENTIMIENTO INFORMADO

Titulo: Estudio de opciones de parto después de cesárea entre mujeres hispanas que viven en los Estados Unidos

Investigadora Principal: Donna Strobino

IRB No.: IRB00007257

Fecha Versión PI: Versión 4, 18 de julio, 2016

¿Qué debe saber usted acerca de este estudio?
Se le solicitó participar en un estudio de investigación.
Este formulario de consentimiento explica el estudio de investigación y su papel en el estudio.
Usted es una voluntaria. Usted puede elegir no participar. Si decide participar, usted puede salirse en cualquier momento. No hay penalización si decide salirse del estudio.

¿Por qué se está haciendo este estudio de investigación?
Este estudio está siendo realizado para aprender más acerca de cómo las mujeres embarazadas de diferente culturas toman decisiones sobre las opciones de parto. Quisiéramos entender cómo las mujeres se sienten acerca de la comunicación que se lleva a cabo con su médico con respecto a esas opciones. Aproximadamente 30 mujeres serán incluida en este estudio.

¿Por qué se le está pidiendo que participe?
Se le está pidiendo que participe es en este estudio porque usted cumple con los criterios de elegibilidad:

Usted tendrá 36 semanas de embarazo durante el tiempo de contratación del estudio.
Usted tiene más de 18 años de edad.
Usted no ha tenido más de 1 cesárea previamente.
Usted no tiene placenta previa.
Usted no tiene una cicatriz uterina vertical confirmada de la cesárea previa.
Usted no tiene un historia médica de ruptura uterina.
Usted no tiene una historia extensa de cirugía uterina.
Usted no esta embarazada con más de 1 bebé.
Usted pudiera tener este parto vaginal.

¿Qué ocurrirá si participo en el estudio?
El estudio consiste en hablar con una entrevistadora cuando tenga 36-37 semanas de embarazo y nuevamente después del parto. La primera entrevista se llevará a cabo durante las 36 semana de su emabarzo. También será contactada por teléfono empezando a las 38 semanas de gestación para ver si ha tenido el bebé y si ha tenido el bebé, programaremos una segunda entrevista después de tener su bebe en un día y hora conveniente para usted.

If you decide to participate in this study, you may be asked about:

- Your thoughts about the options you have for delivery after having had a previous c-section.
- When you started discussing your birth options.
- Who you discussed your options with.
- Discussions that you had with your prenatal provider.
- Your feelings about the discussions you had with your prenatal provider, family, and/or friends.
- What and who is involved in making decisions about your delivery.
- Your hopes for your delivery.
- What happened during labor.
- Your discussions with your providers during labor.

We WILL NOT collect information on your address, social security, or ID numbers and all of the medical information necessary for the study will be identified with a study number. No one outside this study will be able to link your name and your study number.

We will remove your personal identifying information from all interview recordings and other information you provide. You will not be identified in any way when the results are made public. While the published study may include quotes from your interview, no identifiers will be used with the quotes with the exception of your age, ethnicity and type of delivery that you had. The audio file will be destroyed once it has been transcribed.

If interested, we can contact you after the study is finished to share what we learned. We would love to hear your thoughts about what we found, but once the study is over and you have participated in your second interview, you do not have to agree to be contacted in the future.

What are the risks or discomforts of being in the study?
We do not think that participating in the interview will cause you any harm or worry. If some of the questions make you feel uncomfortable or upset, you can always skip them. If you do not answer some of the questions, you can still take part in the study.

What are the benefits of being in the study?
There is no direct benefit to you from being in the study. However, your participation will help us learn more about how women make their delivery decisions and may help women in the future who are also faced with the same decision.

Will I get paid for being in this study?
If you have been recruited from Upper Cardozo Clinic, you will be provided with a $10 travel expenses stipend after you complete your first interview.
Regardless of recruitment site, after completing your postpartum interview, you will receive a $15 gift card to Target.

What about confidentiality?
All research studies carry some risk that the information about you may become known to people outside of a study. We will make every effort to keep your personal information private, with the exception of information that we must report for legal or ethical reasons, such as suspected child abuse or neglect or suspected elder abuse or neglect. We will be collecting information about you during the study but you

will be assigned a study number and all interview information will be kept in a password-protected file and computer with no identifiers. Identifying information linking you to your study number will be stored in a locked cabinet accessible only to the investigator and separate from the data. All recordings will be destroyed once they have been transcribed. Transcripts of those recordings will be kept for five years after publishing findings from the study.

Protecting subject privacy during data collection.
Your interview will take place in a private space with no one else present in the room. If you prefer the presence of your partner or other family member, that will be your decision to make. The information you share will not be shared with your provider. We will use a study number on the data collection tools and audio recording. Your name will be stored separately from all research data in a locked cabinet accessible only to the investigator. This file will be destroyed one year after all analysis is complete.

What are the costs?
There are no costs for you to be in this study.

What happens if you leave the study early?
You may leave the study at any time. If you decide to leave the study, the information that has already been collected may still be used, but no new information will be collected.

Authorization for Disclosure of Protected Health Information for Research
We are asking you to authorize the disclosure and use of your private health information for this research study. By signing this authorization, you agree that the following health care providers may release your private health information to us for use in this research study:

_____

Your private health information that we may use for this research includes: race, ethnicity, age, insurance type, your medical history before and during pregnancy and information about your labor and delivery.

The people who may receive or use your private health information are only the researchers and their staff.

The Health Care Providers listed above are required by the Federal Privacy Rule to protect your private health information. By signing this Authorization, you permit them to release your information to the researchers for use in this research study. The researchers will try to make sure that everyone who needs to see your private information for this research keeps it confidential, but we cannot guarantee this.

There are people outside of the research team to whom we may be required to give study information. These include study safety monitors and legal compliance staff. All these people must also keep your information confidential.

You do not have to sign this Authorization, but otherwise you may not join the study. It is your choice.

Your Authorization does not have an expiration date; it will continue as long as the research continues. You may change your mind and take back this Authorization at any time. If you take it back, the

researchers may still use the private health information they have collected about you to that point. To take back the Authorization, you must contact the researcher.

Who do I call if I have questions or problems?
For questions or complaints about the study, contact the principal investigator, Donna Strobino, at dstrobi1@jhu.edu or the study coordinator, Roxanne Mirabal-Beltran, at rbeltra1@jhu.edu.

Call or contact the Johns Hopkins Bloomberg School of Public Health IRB Office if you have questions about your rights as a study participant. Contact the IRB if you feel you have not been treated fairly or if you have other concerns. The IRB contact information is:

Address:	Johns Hopkins Bloomberg School of Public Health 615 N. Wolfe Street, Suite E1100 Baltimore, MD 21205
Telephone:	410-955-3193
Toll Free:	1-888-262-3242
E-mail:	JHSPH.irboffice@jhu.edu

What does your signature on this consent form mean?
Your signature on this form means:

- You have been informed about this study's purpose, procedures, possible benefits and risks.
- You have been given the chance to ask questions before you sign.
- You have voluntarily agreed to be in this study.

Print name of Adult Participant	Signature of Adult Participant	Date

Print name of Person Obtaining Consent	Signature of Person Obtaining Consent	Date

Authorization for Release
of Protected Health Information for Research

Medical Record Release Form

Principal Investigator: Donna Strobino
JHSPH IRB Study No.: IRB00007257
Study Title: Birth Options After Cesarean Among Hispanic Women Living in the United States

Participant Name: _____

Date of Birth: _____

We are asking you to authorize the disclosure and use of your private health information for this research study.

The people who may receive or use your private health information include the researchers and their staff. The Health Care Providers listed below are required by the Federal Privacy Rule to protect your private health information. By signing this Authorization, you permit them to release your information to the researchers for use in this research study. The researchers will try to make sure that everyone who needs to see your private information for this research keeps it confidential, but we cannot guarantee this.

There are people outside of the research team to whom we may be required to give study information. They include the sponsor of the study, study safety monitors, government regulators and legal compliance staff. All these people must also keep your information confidential.

You do not have to sign this Authorization, but otherwise you may not join the study. It is your choice.

Your Authorization does not have an expiration date; it will continue as long as the research continues. You may change your mind and take back this Authorization at any time. If you take it back, the researchers may still use the private health information they have collected about you to that point. To take back the Authorization, you must contact the researcher.

I hereby give my consent for:

_____
Name of doctor(s) and/or health care provider(s)

_____
Address of doctor(s) and/or health care provider(s)

To provide information from my medical records between:

September 2016 and December 2016

My health information may be sent to:

Address: Medstar Washington Hospital Center
Roxanne Mirabal-Beltran
c/o Fetal Testing Office, Women's Services
110 Irving Street, NW
Washington, DC 20001
Telephone: 240-505-3828
E-mail: Roxanne.Mirabal@Medstar.net

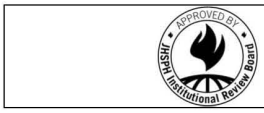
Participant's Printed Name | Participant's Signature | Date

If legal representative or proxy, sign below and state relationship/authority:

Legal Representative/Proxy's Printed Name | Legal Representative/Proxy's Signature | Date

Relationship/Authority

NOTE: A COPY OF THE SIGNED AUTHORIZATION MUST BE KEPT BY THE PRINCIPAL INVESTIGATOR; A COPY MUST BE GIVEN TO THE PARTICIPANT; AND IF APPROPRIATE A COPY OF THE SIGNED AUTHORIZATION MUST BE PLACED IN THE PARTICIPANT'S MEDICAL RECORD.



Approval Date: 14Jul2016
Approved Consent Form Version No.: 1
PI Name: Donna Strobino
IRB No. 7257

JOHNS HOPKINS BLOOMBERG SCHOOL OF PUBLIC HEALTH

DOCUMENTO DE CONSENTIMIENTO INFORMADO

Titulo: Estudio de opciones de parto después de cesárea entre mujeres hispanas que viven en los Estados Unidos

Investigadora Principal: Donna Strobino

IRB No.: IRB00007257

Fecha Versión PI: Versión 4, 18 de julio, 2016

¿Qué debe saber usted acerca de este estudio?
Se le solicitó participar en un estudio de investigación.
Este formulario de consentimiento explica el estudio de investigación y su papel en el estudio.
Usted es una voluntaria. Usted puede elegir no participar. Si decide participar, usted puede salirse en cualquier momento. No hay penalización si decide salirse del estudio.

¿Por qué se está haciendo este estudio de investigación?
Este estudio está siendo realizado para aprender más acerca de cómo las mujeres embarazadas de diferente culturas toman decisiones sobre las opciones de parto. Quisiéramos entender cómo las mujeres se sienten acerca de la comunicación que se lleva a cabo con su médico con respecto a esas opciones. Aproximadamente 30 mujeres serán incluida en este estudio.

¿Por qué se le está pidiendo que participe?
Se le está pidiendo que participe es en este estudio porque usted cumple con los criterios de elegibilidad:

Usted tendrá 36 semanas de embarazo durante el tiempo de contratación del estudio.
Usted tiene más de 18 años de edad.
Usted no ha tenido más de 1 cesárea previamente.
Usted no tiene placenta previa.
Usted no tiene una cicatriz uterina vertical confirmada de la cesárea previa.
Usted no tiene un historia médica de ruptura uterina.
Usted no tiene una historia extensa de cirugía uterina.
Usted no esta embarazada con más de 1 bebé.
Usted pudiera tener este parto vaginal.

¿Qué ocurrirá si participo en el estudio?
El estudio consiste en hablar con una entrevistadora cuando tenga 36-37 semanas de embarazo y nuevamente después del parto. La primera entrevista se llevará a cabo durante las 36 semana de su emabarzo. También será contactada por teléfono empezando a las 38 semanas de gestación para ver si ha tenido el bebé y si ha tenido el bebé, programaremos una segunda entrevista después de tener su bebe en un día y hora conveniente para usted.

Cada entrevista durará aproximadamente 45 minutos. Las entrevistas ocurrirán en un lugar privado y serán audio-grabadas. La información compartida no se colocará en sus registros médicos y no será compartida con su proveedor.

Si usted decide participar en este estudio, es posible que se le pregunte sobre:

- Sus reflexiones acerca de las opciones de parto que usted tiene después de haber tenido una cesárea.
- Cuando empezó a conversar de sus opciones para el parto.
- Con quién habló de sus opciones.
- Las conversaciones que tuvo con su proveedor prenatal sobre las opciones.
- Sus sentimientos acerca de las conversaciones que tuvo con su proveedor prenatal, familia, y/o amistades.
- Qué y quién está implicado en la toma de decisiones sobre su parto.
- Sus esperanzas para su parto.
- Lo que sucedió durante el trabajo de parto.
- Sus conversaciones con sus proveedores durante el trabajo de parto.
- Si su expectativas sobre su parto se cumplieron.

No vamos a recoger información sobre su dirección, número de seguridad social o números de identificación. Toda la información médica necesaria para el estudio será identificada con un número de estudio que no se vinculará con su nombre. Nadie afuera de este estudio podrá conectar su nombre con su numero de estudio.

Eliminaremos su información personal de identificación de todas las grabaciones de la entrevista y otra información que usted proporcione. Usted no será identificada en ninguna manera cuando los resultados se publiquen. El estudio publicado puede incluir frases de su entrevista, pero no se utilizarán identificadores con las frases, con excepción de edad, raza y el tipo de parto que usted tuvo. La grabación de la entrevista será destruida después de ser escrita.

Si está interesada, podemos ponernos en contacto con usted después de que el estudio termine para compartir lo que hemos aprendido. Nos encantaría conocer su opinión acerca de lo que hemos encontrado, pero una vez que el estudio esté terminado y que usted haya participado en la segunda entrevista, usted no tiene que aceptar ser contactada en el futuro.

¿Cuáles son los riesgos o incomodidades de estar en el estudio?
No creemos que participar en la entrevista le cause ningún daño ni preocupación. Si algunas de las preguntas que le haremos la hacen sentir incómoda o preocupada, siempre puedes elegir no contestarlas. Aunque no conteste algunas de las preguntas, usted todavía puede participar en el estudio.

¿Cuáles son los beneficios de estar en el estudio?
No hay ningún beneficio directo para usted por estar en el estudio. Sin embargo, su participación nos ayudará a aprender más acerca de cómo las mujeres deciden sobre sus opciones de parto y podría ayudar a las mujeres que también se enfrentan con la misma decisión en el futuro.

Me pagarán por estar en este estudio?
Si usted fue contactada para participar en este estudio en la Cardozo, le daremos $10 para cubrirle los costos de trasnporte al hospital Washington Hospital Center después de completar la primera entrevista.

Después de completar la segunda entrevista después de su parto, usted recibirá una tarjeta de regalo de Target de $15.

¿Qué acerca de la confidencialidad?
Todos los estudios de investigación llevan algún riesgo de que la información acerca de usted pueda ser conocida por personas fuera del estudio. Haremos todo lo posible para mantener su información personal privada con la excepción de cualquier información que tengamos que reportar por razones legales or éticas, como el abuso de niños o de personas mayores. Estaremos recogiendo información sobre usted durante el estudio, pero se le asignará un número de estudio y toda la información de la entrevista se mantendrá en un archivo sin identificadores localizado en una computadora, los dos protegido por contraseña. Información que la vincula a usted con su número del estudio será almacenada en un gabinete cerrado con llave sólo accesible a la investigadora y no estará junto con los datos. Todas las grabaciones serán destruidas después de ser escrita. Las transcripciones de las grabaciones se conservarán por cinco años después de la publicación de las conclusiones del estudio.

Protegiendo la privacidad del participante durante la recolección de datos.
Su entrevista se llevará a cabo en un lugar privado sin nadie más presente. Si usted deseara que su compañero u otro familiar esté presente, esa será su decisión. La información que usted proporcione no será compartida con el proveedor. Utilizaremos un número del estudio en las herramientas de recolección de datos y en la grabación de audio. Su nombre se almacenará separado de todos los datos de investigación en un gabinete cerrado con llave sólo accesible a la investigadora. Este archivo será destruido un año después de que todo el análisis esté completo.

¿Cuáles son los costos?
No hay costos por participar en este estudio.

¿Qué sucede si dejo el estudio antes de que termine?
Usted puede abandonar el estudio en cualquier momento. Si decide abandonar el estudio, la información que ya se ha recogido aún puede ser utilizada, pero ninguna nueva información será recopilada.

Autorización para la divulgación de información protegida de salud para la Investigación
Estamos pidiéndole que autorice la divulgación y el uso de su información de salud privada para este estudio de investigación. Con la firma de esta autorización, usted acepta que los siguientes proveedores de cuidados de salud pueden divulgar su información de salud privada a nosotros para su uso en este estudio de investigación:

_____

Su información de salud privada que podemos utilizar para esta investigación incluye: su raza, su origen, su edad, el tipo de seguro, su historia médica antes y durante el embarazo y la información sobre el trabajo de parto y el parto.
Las personas que pueden recibir o usar su información de salud privada solamente son los investigadores de este estudio y su personal.

Los proveedores de cuidado de salud enumerados anteriormente están obligados por reglas federales a proteger su información de salud privada. Con la firma de esta autorización usted les permite liberar su información a los investigadores para su uso en este estudio de investigación. Los investigadores tratarán de asegurar que todo aquel que necesite acceso a la información para esta investigación la mantenga confidencial, pero no podemos garantizarlo.

Hay personas fuera del equipo de investigación que pueden ver su información de salud privada como monitores de seguridad y personal de cumplimiento legal. Todas estas personas están obligadas a mantener su información confidencial.

No tiene que firmar esta autorización, pero sin su firma, no podrá participar en el estudio. Es su decisión.

Su autorización no tiene fecha de vencimiento; continuará vigente mientras la investigación continúe. Usted puede cambiar de parecer y retirar esta autorización en cualquier momento. Si usted retira su autorización, los investigadores aún pueden usar la información de salud privada que han recogido sobre usted hasta ese punto. Para retirar la autorización, póngase en contacto con la investigadora.

¿Dónde puedo llamar si tengo preguntas o problemas?
Para preguntas o quejas acerca del estudio, póngase en contacto con la investigadora principal, Donna Strobino, al dstrobi1@jhu.edu o la coordinadora del estudio, Roxann Mirabal-Beltran, al rbeltra1@jhu.edu.

Llame o póngase en contacto con la Oficina de IRB de la Escuela de Salud Pública Johns Hopkins Bloomberg si usted tiene preguntas acerca de sus derechos como participante del estudio. Póngase en contacto con el IRB si usted siente que no ha sido tratada de forma equitativa o si tiene otras preocupaciones. La información de contacto del IRB es:

Dirección: Escuela de Salud Pública Johns Hopkins Bloomberg
615 N. Wolfe Street, Suite E1100
Baltimore, MD 21205
Teléfono: 410-955-3193
Teléfono gratuito: 1-888-262-3242
Correo electrónico: JHSPH.irboffice@jhu.edu

¿Qué significa su firma (o huella digital/marca) en este formulario de consentimiento?
Su firma en este formulario significa:

- Que usted ha sido informada sobre el propósito de este estudio, y también los procedimientos, beneficios y riesgos posibles.
- Que se le ha dado la oportunidad de hacer preguntas antes de firmar.
- Que usted ha acordado participar voluntariamente en este estudio.

Nombre del Participante	Firma del Participante	Fecha

Nombre de la persona obteniendo consentimiento	Firma de la persona obteniendo consentimiento

Fecha

	Approval Date: 14Jul2016 Approved Consent Form Version No.: 1 PI Name: Donna Strobino IRB No. 7257

Autorización para revelar
información de salud protegida para Investigación

Medical Record Release Form

Investigadora Principal: Donna Strobino
JHSPH IRB Study No.: IRB00007257
Título de Estudio: Estudio de opciones de parto después de cesárea entre mujeres hispanas que viven en los Estados Unidos

Nombre del Participante:	_____
Fecha de nacimiento:	_____

Le estamos pidiendo que autorice la divulgación y el uso de su información de salud privada para este estudio de investigación.

Las personas que pueden recibir o usar su información de salud privada incluyen las investigadoras y su personal. Los proveedores de salud que se enumeran a continuación están obligados por la Regla Federal de Privacidad a proteger su información de salud privada. Con la firma de esta autorización usted les permite liberar su información a las investigadoras para su uso en este estudio de investigación. Las investigadoras tratarán de asegurar que todo aquel que necesite consultar su información privada para esta investigación la mantenga confidencial, pero no podemos garantizarlo.

Hay personas fuera del equipo de investigación que pueden ver su información de salud privada. Ellos pueden incluir monitores de seguridad y personal de cumplimiento legal. Todas estas personas están obligadas a mantener su información confidencial.

No tiene que firmar esta autorización, pero sin su firma, no podrá participar en el estudio. Es su decisión.

Su autorización no tiene fecha de vencimiento; continuará vigente mientras la investigación continúe. Usted puede cambiar de parecer y retirar esta autorización en cualquier momento. Si usted retira su autorización, los investigadores aún pueden usar la información de salud privada que han recogido sobre usted hasta ese punto. Para retirar la autorización, póngase en contacto con la investigadora.

Doy mi consentimiento a:

	Approval Date: 14Jul2016 Approved Consent Form Version No.: 1 PI Name: Donna Strobino IRB No. 7257

_____

Nombre de proveedor de salud

_____

Dirección de proveedor de salud

de proporcionar información de mis registros médicos entre: septiembre de 2016 y diciembre de 2016

Mi información de salud puede ser enviada a:

Dirección: Medstar Washington Hospital Center
Roxanne Mirabal-Beltran
c/o Fetal Testing Office, Women's Services
110 Irving Street, NW
Washington, DC 20001

Teléfono: 240-505-3828

Correo electrónico: Roxanne.Mirabal@Medstar.net

Nombre del participante	Firma del participante	Fecha

Si es un representante legal o apoderado, firme abajo e indique su relación/autoridad

Nombre del representante legal	Firma del representante legal	Fecha

_____

Relación/Autoridad

Nota: una copia de la autorización firmada debería ser conservada por la investigadora principal; una copia debe ser entregada a la participante y, si apropiado, una copia de la autorización debe ser colocada en el registro médico del participante.

Appendix G. Antepartum Interview Guide

Participant ID:
_____
Interview Date:

Birth Options After Cesarean Among Hispanic Women Living in the United States
IRB00007257
(Antepartum Interview)

Introduction and Background
Just to review, I am conducting a study to understand your perceptions about your birth options after having a cesarean delivery and the communication that occurs about future childbearing plans between providers and their patients. The perspective and experience of women has been underrepresented, so through this research I hope to better understand your perspective or thoughts about the information you currently have or will have about your birth options. Only by understanding these issues will we be able to make an effective impact on patient care and the options available to patients.

This first interview will take about 45 minutes. Let's get started! I would like to ask you both open and closed ended questions regarding your thoughts and experiences in this regard. I will first begin with a few background questions.

Question	Response
How many weeks pregnant are you?	
What is the highest level of education that you have completed?	
How old are you currently?	
How tall are you? (measure).	
How much did you weigh before pregnancy? Currently?	
How would you identify your race?	
How would you identify your ethnicity?	
What is your place of birth?	
Are you married? Single? Divorced? Living with the father of the baby?	
What year was your last cesarean delivery?	
Where did it take place?	
Are you delivering with the same provider this time?	
Did you attend birthing classes?	
Do you have the same insurance this time? What is the insurance you currently have?	

Okay. I will now ask you some open-ended questions. Remember that because they are about your perceptions, there are no right or wrong answers. You can refuse to answer any question you like, but all your answers will be confidential.

The interview has three sections: thoughts about your last cesarean delivery, your current birth plans, and then some general questions.

A. PREVIOUS BIRTH EXPERIENCE

Let's talk about your experience with your last cesarean delivery.

A1. Tell me about what happened with your last cesarean. Let's start from the time you were admitted to the hospital and go to the time you delivered.

Probes:

- Thinking back to your original plan before you delivered, how was it different from what ended up happening?
- Tell me about what was happening when the decision to have a [vaginal birth after cesarean/trial of labor/repeat cesarean] took place. Who was with you at the time? How long did it take to make the decision? Who asked you to make the decision?
- Describe to me what your pain experience, if any, was like.
- What was the reason for the cesarean?
- How did you feel about having a cesarean?

A2. Now I want to learn more about the moment you decided to have a cesarean. Did anyone play a part in helping you decide to have a cesarean? This could be people such as your partner, the father of the baby, your family, friends, or even people from your job or church.

Probes:

- Tell me more about _____'s role in the decision-making. How did that make you feel?
- Was there anyone you would have wanted to ask, but didn't?

A.3 After you had the cesarean, what were your thoughts about what it would mean for your next pregnancy?

Probes:

- Can you tell me about what your provider or your nurses might have told you about your next delivery after having a cesarean?
- What have your partner/family told you?

B. CURRENT PREGNANCY

Let's shift to now. You say that you are _____ weeks pregnant.

B1. What do you think about having a vaginal delivery after having had a cesarean?

Probes:

- Safety for mom.
- Safety for baby.
- Risks and benefits.
- What your provider/support network will think.

B2. What do you think about having a cesarean after having had a previous one?

Probes:

- Safety for mom.
- Safety for baby.
- Risks and benefits.

- What your provider/support network will think.

B3. Let's talk about the conversations you have had about repeat cesareans/trial of labor/vaginal birth after cesarean.

Probes:

- What do you know about repeat cesarean deliveries?
- Tell me about what a trial of labor involves.
- How about a vaginal birth after cesarean?
- Tell me about the conversations you have had about these options with your provider.
- How about with your support network (partners, family, friends, others)?
- Have you done any research on your own? Give me some examples
- Which of these discussions or sources of information did you find the most helpful? The least helpful?
- Do you think the way a woman delivers has an impact on her role as a woman? Tell me about that.
- Tell me about the birth stories that you are familiar with. How would you characterize them?

B4. Thinking more about what will happen with this baby, tell me about your current delivery plans.

Current Plan Probes:

- Who have you shared your plans with?
- Tell me about the process of making your plan. Who helped you make the plan? How did their participation make you feel?
- What are some of the reasons you decided on a cesarean/TOL?
- When you think of having a cesarean/TOL, what do you feel?
- I want you to consider how important it is to you to deliver by cesarean/VBAC. What would it mean to you if you have a VBAC/cesarean instead?
- If you decided to have a _____ instead, how do you think your provider would react? Your partner? Your family? Your friends?
- What greater beliefs (like religion, culture, spiritual) do you think played a role in your decision? How?

No Plan Probes:

- When do you see yourself deciding?
- Is it important for you to make this decision before you go into labor? While in labor? Doesn't matter.
- Let's talk about who you might talk to before making the plan.
- What greater beliefs (like religion, culture, spiritual) do you think will play a role in your decision? How?

C. CULTURE/ETHNICITY

Now I'm going to ask you about some values that are important in some cultures. Listen to each description carefully so that you can share your thoughts about them.

C1. [Simpatia] Okay. Here is the first one: not wanting to disagree with someone that says something that you may not agree with. When someone says something that you

don't agree with, you simply agree to avoid conflict. When I describe this to you, what are your thoughts?

Probes:

- Describe to me what this would look like to you?
- Tell me about a time you disagreed with your provider. What did you do?
- Thinking about your culture and family, do you see this value of agreement when you interact with them. Give me an example.
- Explain to me if you think this value of agreement has a role in your communication with your provider. How so?

C2. [Respeto] Here is another one: respect must be shown to people of importance. When I describe this to you, what are your thoughts?

Probes:

- Describe to me what showing respect to someone of importance would look like to you?
- List for me some people you would consider to be of importance.
- Tell me about a time you might have shown respect to someone of importance. What did you do?
- Thinking about your culture and family, do you see anyone demonstrating this value of respect? Give me an example.
- Explain to me if you think this value of respect has a role in your communication with your provider. How so?

C3. [Familism]. Okay. The last one: the needs of the group are more important that the needs of the individual. The opinions of family and close family friends are very important when making any decision. When I describe this to you, what are your thoughts?

Probes:

- Tell me a little about the role you think family should play in making medical decisions.
- List for me which family members you would include when making family decisions about delivery.
- How do you think providers should involve other family members when discussing medical decisions with their patients?

C4. Let's picture another woman in a situation such as yours. She has had a previous cesarean and is ____ weeks pregnant. You have just met her for the first time and she asks you what she should do... whether she should have a repeat cesarean or a trial of labor. Tell me what you would say to her.

Probes:

- Now imagine the woman was your sister. How would the advice you give her be the same or different?

C5. There are many reasons why a woman would have a repeat cesarean. What are some of those reasons?

Probes:

- Do you think that a woman's race makes a difference to whether or not she has a repeat cesarean delivery?
- A woman's ethnicity?
- Whether or not she speaks English at all or not well?

- Do you think providers prefer a woman have a repeat cesarean rather than a vaginal birth after cesarean?

Thank you so much for your valuable insights. Now I would now like to ask you a few, quick, close-ended questions and we will be all finished. Close-ended means that you simply tell me a number that matches your feeling on the question, without discussion. Again, nothing you share here will be shared with your provider.

Trust in Providers:
Using this scale of 1 to 5, with 1= strongly disagree and 5= strongly agree, please tell me your thoughts about the following statements:

1. I doubt that my provider really cares about me as a person.

Strongly Disagree		Undecided		Strongly Agree
1	2	3	4	5

2. My provider is usually considerate of my needs and puts them first.

Strongly Disagree		Undecided		Strongly Agree
1	2	3	4	5

3. I trust my provider so much I always try to follow his/her advice.

Strongly Disagree		Undecided		Strongly Agree
1	2	3	4	5

4. If my provider tells me something is so, then it must be true.

Strongly Disagree		Undecided		Strongly Agree
1	2	3	4	5

5. I sometimes distrust my provider's opinion and would like a second one.

Strongly Disagree		Undecided		Strongly Agree
1	2	3	4	5

6. I trust my provider's judgments about my medical care.

Strongly Disagree		Undecided		Strongly Agree
1	2	3	4	5

7. I feel my provider does not do everything he/she should for my medical care.

Strongly Disagree		Undecided		Strongly Agree
1	2	3	4	5

8. I trust my provider to put my medical needs above all other considerations when treating my pregnancy.

Strongly Disagree		Undecided		Strongly Agree
1	2	3	4	5

9. My provider is well-qualified to manage pregnancies like mine.

Strongly Disagree		Undecided		Strongly Agree
1	2	3	4	5

10. I trust my provider to tell me if a mistake was made about my treatment.

Strongly Disagree		Undecided		Strongly Agree
1	2	3	4	5

11. I sometimes worry that my provider may not keep the information we discuss totally private.

Strongly Disagree		Undecided		Strongly Agree
1	2	3	4	5

I sincerely thank you for your time! I will be contacting you again to ask you a few more questions about your experiences. I know that it can be difficult to find the time to talk about your experiences with me right after having a baby. If the time comes for your postpartum interview and you prefer a different time or place, please let me know. I look forward to speaking to you then!

Guía de Entrevista

Participant ID:

_____

Interview Date:

Opciones Sobre el Modo de Parto Para Mujeres Hispanas Viviendo En Los Estados Unidos Que Han Tenido Una Cesárea
IRB00007257
(Entrevista a Las 36 Semanas)

Introducción y Antecedentes

Solo para repasar, estoy llevando a cabo un estudio para entender sus percepciones acerca de sus opciones de parto después de tener un parto por cesárea y la comunicación que se produce sobre los planes futuros de procreación entre proveedores y sus pacientes. La perspectiva y la experiencia de las mujeres ha sido insuficientemente representada, por lo que a través de esta investigación espero entender mejor su perspectiva o pensamientos acerca de la información que actualmente tiene o tendrá sobre sus opciones de parto. Sólo mediante la comprensión de estas cuestiones vamos a ser capaces de hacer un impacto en el cuidado del paciente y las opciones disponibles para los pacientes.

Esta primera entrevista tomara aproximadamente 45 minutos. ¡Vamos a empezar! Quisiera hacerle una serie de preguntas acerca de sus pensamientos y experiencias sobre sus opciones de parto. Primero voy a empezar con algunas preguntas en general.

Pregunta	Respuesta
¿Cuántas semanas de embarazo tiene?	
¿Cuál es el nivel más alto de educación que ha completado?	
¿Qué edad tiene actualmente?	
¿Cuánto mide de altura?	
¿Cuánto pesaba antes de este embarazo? ¿Actualmente?	
¿Con que raza usted se identifica?	
¿Con que origen étnico se identifica?	
¿En donde nació usted?	
¿Está usted casada? ¿Soltera? ¿Divorciada? ¿Vive con el padre del bebé?	
¿En qué año fue su último parto por cesárea?	
¿En dónde fue su último parto por cesárea?	
¿Tiene el mismo proveedor de cuidado prenatal con este embarazo?	
¿Tiene el mismo seguro esta vez? ¿Cuál es el seguro que tiene actualmente?	
¿Has tomado clases de parto?	

Bueno. Ahora voy a hacerle algunas preguntas que requieren repuestas más largas. Recuerde que debido a que son acerca de sus percepciones, no hay respuestas correctas o incorrectas. Puede negarse a contestar cualquier pregunta que usted quiera, pero todas sus respuestas serán confidenciales.

La entrevista tiene tres secciones: pensamientos acerca de su último parto por cesárea, sus planes actuales de trabajo de parto y parto, y luego algunas preguntas generales.

A. EXPERIENCIA DEL NACIMIENTO ANTERIOR

Hablemos de su experiencia con su último parto por cesárea.

A1. Dígame lo que sucedió con su última cesárea. Empecemos desde el momento en que fue ingresada en el hospital hasta el momento que tuvo su cesárea.

Sondas:

- Contemple el plan original que usted tenia para su trabajo de parto y lo que realmente ocurrió en su parto. ¿Cómo fue diferente?
- Dígame que estaba sucediendo cuando la decisión de tener un [parto vaginal después de una cesárea / prueba de trabajo de parto / repetición de cesárea] se llevó a cabo. ¿Quien estaba con Usted en el momento? ¿Cuánto tardó en tomar la decisión? ¿Quién le pidió que tomara la decisión?
- Descríbame si tuvo experiencia de dolor. ¿Como fue esa experiencia?
- ¿Cuál fue el motivo de la cesárea?
- ¿Cómo se sintió acerca de tener una cesárea?

A2. Ahora quiero aprender más sobre el momento en que decidió tener una cesárea. ¿Alguien jugo un papel en ayudarle a decidir de tener una cesárea? Estas podrían ser personas como su pareja, el padre del bebé, su familia, amigos, o incluso las personas de su trabajo o iglesia.

Puntos para explorar:

- Cuénteme más sobre el papel que jugo _____ 's en la toma de la decisión. ¿Cómo le hizo sentir eso?
- ¿Hubiera querido preguntarle a alguien, pero no lo hizo?

A.3 Después de haber tenido la cesárea, ¿cuáles fueron sus pensamientos acerca de lo que significaría para su próximo embarazo?

Puntos para explorar:

- ¿Me pudiera contar acerca de lo que el proveedor o las enfermeras le dijeron sobre su próximo parto después de haber tenido una cesárea?
- ¿Qué le dijo su pareja / familia?

B. EMBARAZO ACTUAL

Vamos a cambiar de tema ahora. Usted dice que tiene _____ semanas de embarazo.

B1. ¿Qué piensa usted acerca de tener un parto vaginal después de haber tenido una cesárea?

Puntos para explorar:

- Seguridad para mamá.
- Seguridad para bebé.
- Riesgos y beneficios.
- ¿Que pensara su proveedor/red de apoyo?

B2. ¿Qué piensa usted acerca de tener una cesárea después de haber tenido una anterior?

Puntos para explorar:

- Seguridad para mamá.

- Seguridad para bebé.
- Riesgos y beneficios.
- ¿Que pensara su proveedor/red de apoyo?

B3. Hablemos de las conversaciones que ha tenido acerca de cesáreas repetidas/prueba de trabajo de parto y el parto vaginal después de una cesárea.

Puntos para explorar:

- ¿Qué sabe acerca de cesáreas repetidas?
- Dígame lo que implica una prueba de trabajo de parto.
- Dígame lo que implica un parto vaginal después de haber tenido una cesárea.
- Cuénteme acerca de las conversaciones que ha tenido sobre estas opciones con su proveedor.
- ¿Y con su red de apoyo (compañeros, familiares, amigos, etc.)?
- ¿Usted ha buscado información sobre estas opciones? Deme algunos ejemplos de la información que usted ha encontrado.
- ¿Usted piensa que el método de tener un bebe define su role como mujer?
- ¿Cuál de estas discusiones o fuentes de información le parecieron más útiles? ¿Y las menos útiles?
- Dígame de las historias sobre parto que usted ha escuchado. ¿Como las describieras?

B4. Pensando más acerca de lo que ocurrirá con este bebé, cuénteme sobre sus planes actuales de parto.

Planes Actuales, puntos para explorar:

- ¿Con quien ha compartido sus planes?
- Háble me sobre el proceso de elaboración de su plan. ¿Quien le ayudó a realizar el plan? ¿Cómo le hizo sentir su participación?
- ¿Cuáles son algunas de las razones por las que decidió tener una cesárea repetida/un trabajo de parto?
- ¿Cuándo usted piensa en tener una cesárea repetida/trabajo de parto, como la hace sentir?
- Quiero que considere cuán importante es para usted tener un parto vaginal después de cesárea/cesárea repetida. ¿Qué significaría para usted si tuviera_____ en lugar de _____?
- Si decide tener una _____ en lugar de _____, ¿cómo cree que reaccionaría su proveedor? ¿Su pareja? ¿Su familia? ¿Sus amistades?
- ¿Qué creencias (como la religión, la cultura, lo espiritual) cree que jugaron un papel en su decisión? ¿Cómo?

No Planes Actuales, puntos para explorar:

- ¿Cuándo se va a decidir?
- ¿Es importante para usted tomar esta decisión antes de entrar en trabajo de parto? ¿Mientras estés en el trabajo de parto? No importa.
- Con quién usted quisiera hablar antes de hacer el plan.
- ¿Qué creencias (como la religión, la cultura, lo espiritual) cree que jugaran un papel en su decisión? ¿Cómo?

C. CULTURA / ETNICIDAD

Ahora voy a preguntarle sobre algunos valores que son importantes en algunas culturas. Escuche cuidadosamente cada descripción de modo que usted pueda compartir sus pensamientos acerca de ellos.

C1. [Simpatía] Bien. Aquí está la primera: no discrepar con alguien que dice algo con lo cual usted no está de acuerdo. ¿Cuándo alguien dice algo con lo cual usted no está de acuerdo, simplemente lo acepta por evitar conflicto? Cuando le describo a usted estos pensamientos, ¿qué opina?

Puntos para explorar:

- Descríbame como seria para usted discrepar con alguien que dice algo con lo que usted no está de acuerdo.
- Descríbame una vez que usted no estuvo de acuerdo con su proveedor. ¿Qué hizo?
- Pensando acerca de su cultura y familia, ¿usted ve merito en este valor de acuerdo en sus interacciones con ellos? Deme un ejemplo.
- Explíqueme si usted piensa que este valor de acuerdo juega un papel en su comunicación con su proveedor. ¿Cómo así?

C2. [Respeto] Aquí este otro valor: se debe mostrar respeto a personas de importancia. Cuando le describo a usted estos pensamientos, ¿qué opina?

Puntos para explorar:

- Descríbame lo que usted piensa es mostrar respeto a alguien de importancia.
- ¿Quienes son algunas personas que usted considera de importancia?
- Cuénteme acerca de alguna ocasión en donde le toco mostrar respeto a alguien de importancia. ¿Qué hizo?
- Pensando acerca de su cultura y familia, ¿Ha visto a alguien demostrar este valor del respeto? Deme un ejemplo.
- Explícame si usted piensa que este valor del respeto juega un papel en la comunicación con su proveedor. ¿Cómo así?

C3. [Familismo]. Bueno. El último valor: las necesidades del grupo son más importantes que las necesidades del individuo. Las opiniones de familiares y amigos íntimos son muy importantes a la hora de tomar cualquier decisión. Cuando le describo a usted estos pensamientos, ¿qué opina?

Puntos para explorar:

- Cuéntame un poco sobre el papel que deben desempeñar los familiares en las decisiones médicas.
- ¿Cuales miembros de la familia incluiría al tomar decisiones familiares sobre su parto?
- ¿Cómo cree que los proveedores deben involucrar a otros miembros de la familia cuando se habla de decisiones médicas con sus pacientes?

C4. Vamos a imaginarnos otra mujer en una situación como la suya. Ella ha tenido una cesárea anteriormente y tiene _____ semanas de embarazo. Acaba usted de conocerla por primera vez y ella le pregunta qué debe hacer con su parto... le pregunta si ella

debería tener una cesárea repetida o un trabajo de parto para tratar por un parto vaginal. Dígame ¿Qué le diría a ella?

Puntos para explorar:

- Ahora imagine que la mujer es en realidad su hermana. ¿Cómo sería diferente o igual el asesoramiento que le diera?

C5. Hay muchas razones por las cuales una mujer tendría una cesárea repetida. ¿Cuáles son algunas de las razones?

Puntos para explorar:

- ¿Cree que la raza de una mujer hace una diferencia si tiene o no una cesárea repetida?
- ¿Su etnicidad?
- ¿Si no habla inglés o no lo habla muy bien?
- ¿Usted piensa que los doctores prefieren hacer cesárea que parto vaginal?

Muchas gracias por su valiosa información. Ahora me gustaría hacerle unas preguntas bien rápidas y acabaremos pronto. Con estas preguntas, me va a indicar el número que coincide con lo que usted siente sobre la pregunta, sin discusión. De nuevo, nada de lo que comparta aquí será compartido con su proveedor.

La confianza en los proveedores:
Mediante esta escala de 1 a 5, con 1 = totalmente en desacuerdo, 5= totalmente de acuerdo, por favor dígame su opinión sobre las siguientes afirmaciones:

1. Dudo que mi doctor realmente se preocupe por mí como persona.

Totalmente en desacuerdo		Indecisa		Totalmente de acuerdo
1	2	3	4	5

2 Mi doctor generalmente es considerado con mis necesidades y las pone en primer lugar.

Totalmente en desacuerdo		Indecisa		Totalmente de acuerdo
1	2	3	4	5

3. Confío en mi doctor tanto que yo siempre trato de seguir sus consejos.

Totalmente en desacuerdo		Indecisa		Totalmente de acuerdo
1.	2	3	4	5

4. Si mi doctor me dice que algo es así, entonces debe ser verdad.

Totalmente en desacuerdo		Indecisa		Totalmente de acuerdo
1	2	3	4	5

5. Yo a veces desconfió de la opinión de mi doctor y deseo una segunda opinión.

Totalmente en desacuerdo		Indecisa		Totalmente de acuerdo
1	2	3	4	5

6. Confío en los juicios de mi doctor sobre mi atención médica.

Totalmente en desacuerdo		Indecisa		Totalmente de acuerdo
1	2	3	4	5

7. Siento que mi doctor no hace todo lo que él/ella debería por mi atención médica.

Totalmente en desacuerdo		Indecisa		Totalmente de acuerdo
1	2	3	4	5

8. Confío en que mi doctor poner mis necesidades médicas por encima de todas las demás consideraciones sobre el tratamiento de mi embarazo.

Totalmente en desacuerdo		Indecisa		Totalmente de acuerdo
1	2	3	4	5

9. Mi doctor está bien cualificado para manejar embarazos como el mío.

Totalmente en desacuerdo		Indecisa		Totalmente de acuerdo
1	2	3	4	5

10. Confío en que mi doctor me diga si se cometió un error acerca de mi tratamiento.

Totalmente en desacuerdo		Indecisa		Totalmente de acuerdo
1	2	3	4	5

11 A veces me preocupa que mi doctor no mantenga la información que necesitamos discutir totalmente privada.

Totalmente en desacuerdo		Indecisa		Totalmente de acuerdo
1	2	3	4	5

¡Gracias sinceramente por su tiempo! Me pondré en contacto con usted de nuevo para hacerle unas cuantas preguntas más acerca de sus experiencias después que haya tenido su bebe. Yo sé que puede ser difícil encontrar el tiempo para hablar acerca de sus experiencias conmigo, justo después de tener un bebé. Si llega el momento de su entrevista en el posparto y prefiere otra hora o lugar, por favor, hágamelo saber. ¡Espero poder hablar con usted pronto!

Appendix H: Postpartum Interview Guide

Participant ID: _____
Interview Date: _____

Birth Options After Cesarean Among Hispanic Women Living in the United States
IRB00007257
(Postpartum Interview)

Introduction and Background
Hello once again. Thank you so much for agreeing to this second part of the study which will take about 45 minutes. Just as a reminder, I am conducting a study to understand your perceptions about your birth options after having a cesarean delivery and the communication that occurs about future childbearing plans between providers and their patients. Some of these questions may sound familiar. You do not have to answer them in the same way you did last time. Again, everything you say will be confidential and you can refuse to answer any question at any time.

Let's start with the background questions.

Question	Response
How many weeks pregnant were you when you delivered?	
How much are you currently weighing?	
Are you married? Single? Divorced? Living with the father of the baby?	
Did you deliver with the provider you had during your prenatal visit?	
Have there been any changes to your insurance since the last time we spoke?	
Has there been any changes to your medical condition since the last time we spoke?	

Like last time, the interview has three sections: thoughts about your current delivery, thoughts since our last meeting, and it closes with some general questions.

A. CURRENT BIRTH EXPERIENCE

Let's talk about your experiences with this current delivery.

A1. Tell me about what happened with this delivery. Let's start from the time you were admitted to the hospital and go to the time you delivered.

Probes:

- Thinking back to your original plan before you delivered, how was it different from what ended up happening?
- Tell me about what was happening when the decision to have a _____ took place. How long was your labor? Who was with you at the time? How long did it take to make the decision? Who asked you to make the decision?
- Describe to me what your pain experience, if any, was like.
- How did you feel about having a _____?
- How involved were you in the final decision?

A2. Now I want to learn more about the moment you decided to have a _____. Did anyone play a part in helping you decide? This could be people such as your partner, the father of the baby, your family, friends, or even people from your job or church.

Probes:

- How would they have felt if you had had the opposite outcome?

A3. What are your thoughts about what having a _____ delivery now may mean for next time if you were to have another baby? Let's just pretend you will have another baby!

Probes:

- Can you tell me about what your provider or your nurses said about your next delivery?
- What are your thoughts about safety for mom? Safety for baby? Risks
- and benefits?

B. PRIOR PERCEPTIONS

Let's shift now to talk a little about our last discussion. At that time, you were _____ weeks pregnant.

B1. You shared then that you had/had not decided whether you would have a vaginal delivery or a cesarean with this pregnancy. How do you feel about what ended up happening?

Probes:

- How important is it that it did/did not happen the way you planned?

B2. Tell me about any conversations that took place about repeat cesareans/TOL/VBAC since that last time we spoke.

C. CULTURE/ETHNICITY

So now, I'm going to ask you some questions that require you to give me your opinion... and just as a reminder, there are no right or wrong answer. I don't expect you to say anything specific and your answers are totally confidential.

C1. Do you think that other women experiencing what you experienced in your labor and delivery would have had the same outcome? Tell me more about that.

C2. Last time, you gave me a list of the many reasons for a woman to have a repeat cesarean. [Show list]. What would you add to the list? Remove?
Probes:

- You previously said that a woman's race did/did not make a difference as to whether or not she has a repeat cesarean delivery? How has that opinion changed or not changed based on your experience now?
- How about a woman's ethnicity?
- Whether or not she speaks English at all or not well?

Thank you so much for your valuable insights. Now I am going to ask you the same questions that I did last time about your trust in providers. Remember that these are close-ended questions which means that you give me a number that matches your feeling on the question, without discussion. Again, you do not have to give the same answer you gave me last time. Instead, simply tell me about how you feel about the question right now, at this moment in time.

Trust in Providers:
Using this scale of 1 to 5, with 1= strongly disagree and 5= strongly agree, please tell me your thoughts about the following statements:

1. I doubt that my provider really cares about me as a person.

Strongly Disagree		Undecided		Strongly Agree
1	2	3	4	5

2. My provider is usually considerate of my needs and puts them first.

Strongly Disagree		Undecided		Strongly Agree
1	2	3	4	5

3. I trust my provider so much I always try to follow his/her advice.

Strongly Disagree		Undecided		Strongly Agree
1	2	3	4	5

4. If my provider tells me something is so, then it must be true.

Strongly Disagree		Undecided		Strongly Agree
1	2	3	4	5

5. I sometimes distrust my provider's opinion and would like a second one.

Strongly Disagree		Undecided		Strongly Agree
1	2	3	4	5

6. I trust my provider's judgments about my medical care.

Strongly Disagree		Undecided		Strongly Agree
1	2	3	4	5

7. I feel my provider does not do everything he/she should for my medical care.

Strongly Disagree		Undecided		Strongly Agree
1	2	3	4	5

8. I trust my provider to put my medical needs above all other considerations when treating my pregnancy.

Strongly Disagree		Undecided		Strongly Agree
1	2	3	4	5

9. My provider is well-qualified to manage pregnancies like mine.

Strongly Disagree		Undecided		Strongly Agree
1	2	3	4	5

10. I trust my provider to tell me if a mistake was made about my treatment.

Strongly Disagree		Undecided		Strongly Agree
1	2	3	4	5

11. I sometimes worry that my provider may not keep the information we discuss totally private.

Strongly Disagree		Undecided		Strongly Agree
1	2	3	4	5

I sincerely thank you for your time and valuable input!
This concludes your participation in the study. If you have any further comments to add, please feel free to contact me through the email/phone provided on this card.
Would you like me to contact you once all the results of the study are in so that you can offer your thoughts on the findings of the study?
[yes] What is the best way to contact you?
[no] Thank you again for your participation!

Participant ID: _____
Interview Date: _____

Opciones Sobre el Modo de Parto Para Mujeres Hispanas Viviendo En Los Estados Unidos Que Han Tenido Una Cesárea
(Entrevista después de parto)
IRB00007257

Introducción y Antecedentes
Hola de nuevo. Muchas gracias por haber accedido a esta segunda parte del estudio que tomara aproximadamente 45 minutos. Solo para recordarle, que estoy colectando información sobre un estudio para entender sus percepciones acerca de sus opciones de parto después de tener un parto por cesárea y la comunicación que se produce sobre los planes futuros de procreación entre proveedores y sus pacientes. Algunas de estas preguntas pueden sonar familiar. Usted no tiene que responder de la misma manera que lo hizo la última vez. De nuevo, todo lo que usted diga será confidencial y puede negarse a contestar cualquier pregunta en cualquier momento.

Empecemos.

Pregunta	Respuesta
¿Cuántas semanas de embarazo tenía cuando tuvo él bebe?	
¿Cuánto está pesando actualmente?	
¿Es usted casada? ¿Soltera? ¿Divorciada? ¿Vive con el padre del bebé?	
¿Tuvo él bebe con el mismo proveedor de cuidado prenatal que tuvo durante el embarazo?	
¿Ha tenido cambios en su seguro desde la última vez que hablamos?	
¿Ha tenido cambios en su condición médica desde la última vez que hablamos?	

Como la última vez, la entrevista tiene tres secciones: pensamientos acerca de su parto actual, pensamientos desde nuestra última reunión, y terminaremos con algunas preguntas generales.

A. EMBARAZO ACTUAL

Vamos a hablar acerca de sus experiencias con este parto.

A1. Dígame sobre lo que ocurrió con este parto. Empecemos desde el momento en que fue ingresada en el hospital hasta el parto.

Puntos para explorar:

- Pensando sobre su plan original antes de que tuvo su parto, ¿cómo es diferente lo que terminó ocurriendo en comparación a su plan original?
- Dígame lo que estaba sucediendo cuando se tomó la decisión de tener un _____. ¿Cuánto duro su trabajo de parto? ¿Con quien estaba usted en ese momento? ¿Cuánto tardó en tomar la decisión? ¿Quien le pidió que usted tomara la decisión?
- Descríbame su experiencia de dolor, si lo tuvo.
- ¿Cómo se siente acerca de tener una _____?
- ¿Que tan involucrada estuvo Usted en la decisión final?

A2. Ahora quiero aprender más sobre el momento en que decidió tener un/a _____. ¿Alguien tuvo un papel en ayudarle a decidir? Estas podrían ser personas como su pareja, el padre del bebé, su familia, amigos, o incluso las personas de su trabajo o iglesia.

Puntos para explorar:

- ¿Cómo se sentiría si hubiera tenido el resultado opuesto?

A3. ¿Cuáles son sus pensamientos acerca de lo qué tener un/a _____ puede significar para la próxima vez que tenga otro bebé? ¡Vamos a pretender que usted va a tener otro bebé!

Puntos para explorar:

- ¿Me puede decir lo que su médico o su enfermera le dijo acerca de su próximo parto?
- ¿Cuáles son sus pensamientos acerca de la seguridad de la mamá? ¿Seguridad para el bebé? ¿Riesgos y beneficios?

B. PERCEPCIONES PREVIAS

Vamos a hablar un poco sobre nuestra última conversación. En esa conversación, usted tenia _____ semanas de embarazo.

B1. Usted me dijo que había/no había decidido si iba a tener un parto vaginal o una cesárea. ¿Cómo te sientes acerca de lo que terminó ocurriendo?

Puntos para explorar:

- Que importante es que lo que paso/no paso fue planificado?

B2. Háblame acerca de las conversaciones que tuvo alrededor de las cesáreas repetidas/trabajo de parto después de la/la cesárea/parto vaginal desde la otra entrevista que tuvimos.

***C. CULTURA/* ETNICIDAD**

Ahora, voy a hacerle algunas preguntas que requieren que usted me dé su opinión... y le recuerdo que no hay una respuesta correcta o incorrecta. No espero una respuesta específica y sus respuestas son totalmente confidenciales.

C1. ¿Cree que otras mujeres que han tenido la experiencia como la que tuvo usted en su trabajo de parto y parto hubieran tenido el mismo resultado? Cuénteme más.

C2. La última vez, usted me dio una lista de razones por la cual una mujer tuviera una cesárea repetida. [Muestra la lista]. ¿Que es lo que añadiría a la lista? ¿Quitarías algo?
Puntos para explorar:

- La última vez, me dijo que la raza de una mujer hace/no hace una diferencia en cuanto a si debe tener o no tener una cesárea repetida? ¿Cómo ha cambiado o no ha cambiado de opinión en base de la experiencia que tuvo con su parto?
- ¿Y acerca del origen étnico de la mujer?
- ¿Y si no habla o habla poquito inglés?

¡Muchas gracias por su entrevista! Ahora le voy a hacer las mismas preguntas que le hice la última vez acerca de su confianza en los proveedores. Recuerde que usted me da un número que coincide con su sentimiento sobre la pregunta, sin discusión. De nuevo, usted no tiene que dar la misma respuesta que me dio la última vez. En vez de eso, simplemente me dice acerca de cómo se siente de la pregunta ahora, en este momento.

La confianza en los proveedores:
Mediante esta escala de 1 a 5, con 1 = totalmente en desacuerdo, 5= totalmente de acuerdo, por favor dígame su opinión sobre las siguientes afirmaciones:

1. Dudo que mi doctor realmente se preocupe por mí como persona.

Totalmente en desacuerdo		Indecisa		Totalmente de acuerdo
1	2	3	4	5

2. Mi doctor generalmente es considerado con mis necesidades y las pone en primer lugar.

Totalmente en desacuerdo		Indecisa		Totalmente de acuerdo
1	2	3	4	5

3. Confío en mi doctor tanto que yo siempre trato de seguir sus consejos.

Totalmente en desacuerdo		Indecisa		Totalmente de acuerdo
1	2	3	4	5

4. Si mi doctor me dice que algo es así, entonces debe ser verdad.

Totalmente en desacuerdo		Indecisa		Totalmente de acuerdo
1	2	3	4	5

5. Yo a veces desconfió de la opinión de mi doctor y deseo una segunda opinión.

Totalmente en desacuerdo		Indecisa		Totalmente de acuerdo
1	2	3	4	5

6. Confío en los juicios de mi doctor sobre mi atención médica.

Totalmente en desacuerdo Indecisa Totalmente de acuerdo

1 2 3 4 5

7. Siento que mi doctor no hace todo lo que él/ella debería por mi atención médica.

Totalmente en desacuerdo Indecisa Totalmente de acuerdo

1 2 3 4 5

8. Confío en que mi doctor pone mis necesidades médicas por encima de todas las demás consideraciones sobre el tratamiento de mi embarazo.

Totalmente en desacuerdo Indecisa Totalmente de acuerdo

1 2 3 4 5

9. Mi doctor está bien cualificado para manejar embarazos como el mío.

Totalmente en desacuerdo Indecisa Totalmente de acuerdo

1 2 3 4 5

10. Confío en que mi doctor me diga si se cometió un error acerca de mi tratamiento.

Totalmente en desacuerdo Indecisa Totalmente de acuerdo

1 2 3 4 5

11. A veces me preocupa que mi doctor no mantenga la información que necesitamos discutir totalmente privada.

Totalmente en desacuerdo Indecisa Totalmente de acuerdo

1 2 3 4 5

¡Muchas gracias sinceramente por su tiempo y su valiosa aportación!

Esto concluye su participación en el estudio. Si tiene algún comentario adicional para agregar, no dude en ponerse en contacto conmigo a través del email/teléfono en esta tarjeta.

¿Quiere que me ponga en contacto con usted una vez que todos los resultados del estudio estén analizados para que pueda ofrecer sus pensamientos sobre las conclusiones del estudio?

[sí] ¿Cuál es la mejor manera de ponerse en contacto con usted?

[no] Gracias de nuevo por su participación!

Appendix I: Post Interview Form

Participant ID: _____
Interview Date: _____

Birth Options After Cesarean Among Hispanic Women Living in the United States
IRB00007257

Identifying Information	
Time of Day:	Language used:
Description of Setting	
Location:	Who present:
Material features of the environment:	
Interruptions:	
Description of the Informant	
Clothing:	
Manner/Tone:	
Gestures:	
Honesty/Frankness:	
Perceived Engagement:	
Summary Information	
How well did it go?	
Changes	
Unanticipated issues	
Reflexive comments	
Themes/Thoughts that stand out for further exploration	

(JHU Bloomberg, Qualitative Class, 2014)

Appendix J: Study Approvals (IRB and MWHC)

FWA #00000287

Institutional Review Board Office

615 N. Wolfe Street / Room E1100
Baltimore, Maryland 21205-2179
Phone: 410-955-3193
Toll Free: 1-888-262-3242
Fax: 410-502-0584
Email: jhsph.irboffice@jhu.edu
Website: www.jhsph.edu/irb

INITIAL APPLICATION APPROVAL NOTICE

Date: September 23, 2016

To: Donna Strobino, PhD
(Roxanne Mirabal Beltran)
Department of Population, Family and Reproductive Health

From: Luke C. Mullany, PhD, MHS
Chair, IRB-X

Re: **Study Title**: "Birth Options After Cesarean among Hispanic Women Living in the United States"
IRB No: 00007257

The **JHSPH IRB-X** voted to approve the above referenced application at its meeting on **July 14, 2016**. **The Board made the following determinations:**

Approval of the research is for the period of **July 14, 2016** to **July 13, 2017**. **Please submit a progress report no later than 6 weeks before the approval lapse date. We recommend that YOU USE YOUR OUTLOOK CALENDAR, OR OTHER ELECTRONIC REMINDER CALENDAR TOOL, to set a timely reminder notification for this submission to avoid a lapse in approval.**

Single Reviewer ☐ **Convened** ☒ DHHS 46.110 . . ☒ DHHS..... ☐ FDA 56.110 . . . ☐ FDA..... ☐ Category: 5, 6 & 7 **GWAS**..... ☐	**Consent/Parental Permission Required From:** Adult Participant..... ☒ LAR ..... ☐ One Parent..... ☐ Two Parents..... ☐ Legal Guardian..... ☐ (Foster Care Children)	**Form of Consent/Permission:** Written Consent..... ☒ Waiver of Signature..... ☐ (Oral Script) Waiver of Informed Consent.... ☐ HIPAA Authorization..... ☒ HIPAA Waiver..... ☐ No Longer Enrolling..... ☐	**Study Site(s):** U.S. ☒ International ☐ **List Country(ies):**
Vulnerable Populations: Children ..... ☒ Foster Care Children ..... ☐	**Assent Required From:** No children (waived) .. ... ☐ Children aged: ..... ☐ **Form of Assent:**	**Pregnant Women/Fetuses** 46.204..... ☒ **Neonates** 46.205 ..... ☐	**Sample Size:** (screened plus enrolled) **Aim 3 = 50 screened women**

DHHS 46.404 . . . . ☐ 46.405. . . . ☐ 46.406 . . . . ☐ **FDA** 50.51..... ☐ 50.52..... ☐ 50.53..... ☐	Written ..... ☐ Oral ..... ☐ Assent Statement in Parent Permission ..... ☐	**Prisoners** 46.305 ..... ☐ 46.306 ..... ☐ Epidemiological Research ... ☐	**Final Enrollment:** **Secondary Data Analysis:** (# specimens/participants) Aim 1 & 2 = 2,514

This approval is inclusive of the following documentation:

- **Research Plan (V4, September 6, 2016)**
- **Adult Consent Document English/ Spanish Clean (V1, July 14, 2016)**
- **Confirmation of Eligibility and Scheduling Script English/Spanish (V1, July 14, 2016)**
- **Recruitment Flyers (V2, June 216)**
- **Recruitment Flyer for UCC (V2, June 2016)**
- **Study Pamphlet English/Spanish (V1, July 14, 2016)**
- **Antenatal Screening Checklist (V1, July 14, 2016)**
- **Log of Recruitment (V1, July 14, 2016)**
- **Interview Guide English/Spanish (V1, July 14, 2016)**

As principal investigator of the research, you are responsible for fulfilling the following requirements of approval:

1) The co-investigators listed on the application should be kept informed of the status of the research.
2) Submit an Amendment Request Form for any changes in research. These changes in research are required to be reviewed and approved prior to the activation of the changes, with the following exceptions:
    a) changes made to eliminate an apparent immediate hazard to the research participant may be instituted immediately and the JHSPH IRB should be informed of such changes promptly; and
    b) changes to IRB Approved questionnaires, interview or focus group guides, other data collection or recruitment materials – limited to rewording to clarify meaning, correcting grammatical or typographical errors, or removing items that will not be used in the research.
3) Unanticipated problems involving risk of harm to participants or others that are related to the study procedures must be reported to the JHSPH IRB within 10 days of the time that the PI learns of such problems. A Problem Event Report Form must be submitted to the IRB immediately.

4) Only consent forms with a valid JHSPH IRB approval stamp or logo, with the correct IRB Approved version number and approval date may be presented to participants. All consent forms signed by subjects enrolled in the study should be retained on file. The Office of Graduate Education and Research conducts periodic compliance monitoring of study records, and consent documentation is part of such monitoring.

5) Federal regulations require review of approved research not less than once a year, unless a shorter period is determined by the IRB. **Therefore, a Progress Report for continuing review must be submitted to the IRB Office no later than six weeks prior to the approval lapse date**. **This will allow sufficient time for review of the application to be completed prior to the approval lapse date**. Failure to submit a Progress Report prior to the approval lapse date will result in termination of the study, at which point new participants may not be enrolled and currently enrolled participants must discontinue participation in the study. All ongoing research activities must stop immediately, including data analysis.

6) If your research involves international travel, please don't forget to register with the International Travel Registry https://apps4.jhsph.edu/ITR/Default.aspx so that the School may locate you in the event of an emergency.

LCM/teb

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BLOOMBERG SCHOOL
of PUBLIC HEALTH

Institutional Review Board Office

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Website: www.jhsph.edu/irb

HIPAA APPROVAL NOTICE

HIPAA Privacy Authorization
And
Waiver of HIPAA Privacy Authorization

Date: August 29, 2016

To: Donna Strobino, PhD
(Roxanne Mirabal Beltran)
Department of Population, Family and Reproductive Health

From: JHSPH IRB Office

Re: **Study Title:** "Birth Options After Cesarean among Hispanic Women Living in the United States"
IRB No: 7257

Your HIPAA Application for Disclosure of Protected Health Information for the above research study was received by the JHSPH IRB Office. On August 29, 2016, the IRB approved your HIPAA Application for the authorization language that will be included in your consent form and medical record release (Aim 3) and a waiver of the authorization requirement for the electronic data (Aims 1 and 2) that will be used in the study.

The IRB approved the waiver with the following determinations:

The research cannot practicably be conducted without the waiver of authorization because this is retrospective secondary data analysis from electronic medical records (EMR) linked with birth certificate data from Medstar Washington Hospital Center. Because the nursing staff have access to the clinical record, a waiver is not required for recruitment for Aim 3.

Please note that the review of your HIPAA Application and associated materials is independent of the IRB's review of the rest of your study. If elements of your study or your IRB application are still pending with the IRB, do not proceed until you receive its final approval. If you have any questions, or need additional information, please contact us at your convenience.

Thank you.

IRB/tm

Institutional Review Board (IRB)/Independent Ethics Committee (IEC) Authorization Agreement

	Name of Institution	Federal-wide Assurance No.	IRB Registration No.
Institution Providing IRB Review (Institution A)	**Johns Hopkins Bloomberg School of Public Health**	**00000287**	**00000112 00000758**
Institution Relying on Institution A's IRB Review (Institution B)	**MedStar Health Research Institute**	**000000504**	**IORG0000347**

The Officials signing below agree that MedStar Health Research Institute rely on the designated IRB for review and continuing oversight of its human subjects research described below:

This agreement is limited to the following specific protocol(s):

Name of Research Project: **Birth Options After Cesarean Among Hispanic Women Living in the United States** – IRB #7257

Name of PI (Institution A): Donna Strobino, PhD

Name of Investigator (Institution B): Roxanne Mirabal-Beltran

Sponsor or Funding Agency: None Award Number, if any: NA

The review and continuing oversight performed by the Institution A's IRB will meet the human subject's protection requirements of Institution B's OHRP-approved FWA. Both institutions agree to the following conditions:

1. Upon request, Institution A will provide Institution B with copies of its findings and actions associated with the project(s) listed above. Institution A also will provide Institution B with copies of minutes associated with the project(s) listed above upon request.
2. Institution A's IRB will notify Institution B if the study is suspended or terminated and will provide a summary of the reasons for the suspension or termination.
3. Institution A's IRB will notify Institution B of any unanticipated problems involving risks to human participants or others, or of any instances of serious or continuing noncompliance related to the research.
4. Institution A's IRB will notify Institution B of audits/investigations by oversight agencies, the sponsor or funding agencies and will provide a summary of the findings.
5. If Institution A fails to notify Institution B as stated above, Institution B shall have the right to terminate this agreement immediately, and request any study related documents associated with Institution B's investigator's role in the study.
6. Institution B agrees to defend, indemnify, and hold Johns Hopkins University harmless from any claims, lawsuits, or demands for payment that arise against either or both of them or against the individual Hopkins IRB members as a result of the Hopkins IRB performing the requirements of Institution B's OHRP –approved FWA, including approval, continuing review and oversight. This obligation shall apply unless the Hopkins IRB is determined by a court of law to be negligent or grossly negligent. Hopkins and its personnel have a duty to notify Institution B in a timely way and cooperate in the handling of such claims.

This document must be kept on file by both parties and provided to OHRP upon request.

Signature of Institutional Officials

	Institution A Official	**Institution B Official**
Print Name	Joan C. Pettit, J.D., M.A.	Neil J. Weissman, MD
Title	Executive Director, IRB Office	President, MedStar Health Research Institute
Signature	Joan C. Pettit	Neil J. Weissman
Date	29 Sept 2016	10/12/16

IRB Authorization Agreement_V2_Institution B_Template_19Jul2016

MedStar Washington Hospital Center

August 10, 2016

Roxanne Mirabal-Beltran, MSN, RN
MedStar Washington Hospital Center
110 Irving St., NW
Washington, DC 20010

Dear Roxanne,

This letter is to support your proposed research "*Birth Options After Cesarean Among Hispanic Women Living in the United States*" at MedStar Washington Hospital Center.

I understand you seek to interview post-partum women about their births and collect medical record data on births at MWHC. There will be no change in the clinical nurse's work activity or delivery of nursing care. Nursing informaticists will assist you with data collection from the electronic medical record. Nurses will not be identified in the data collection. The tentative dates for data collection are from the time of approval through August 2017.

You are aware that if your university institutional review board (IRB) does not hold an IRB of Record with MedStar Health Research Institute (MHRI), your research proposal will require review by the MHRI IRB. We can provide submission information for you if necessary.

We wish you the best with your planned research.

Sincerely,

Susan Eckert, RN, MSN

Susan Eckert, MSN,RN, NEA-BC,CENP
Senior Vice President of Nursing and Chief Nursing Executive

Appendix K: Sensitivity Analysis Results, Obstetrical/Medical Factors, n=1821

Models	Hispanic	Black[iv]	White[iv]
Model 9 [i]	1.70 (0.75, 3.85)	1.48 (0.91, 2.40)	1.00
Model 10 [ii]	1.69 (0.75, 3.77)	1.59 (0.99, 2.57)	1.00
Model 11 [iii]	1.62 (0.73, 3.64)	1.53 (0.95, 2.47)	1.00

[i] Adjusted for gestational age and all demographic, anthropomorphic, and health system covariates.
[ii] Adjusted for birth weight and all demographic, anthropomorphic, and health system covariates.
[iii] Adjusted for gestational/pre-gestational diabetes and all demographic, anthropomorphic, and health system covariates.
[iv] Non-Hispanic.

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1995	*Bachelor of Science, Biology, Concentration: Neuroscience,* Duke University

ACADEMIC TEACHING EXPERIENCE

2015	*Teaching Assistant, Bloomberg School of Public Health, Baltimore* Teaching assistant for Teaching at the University Level. Provided student guidance in creating portfolios; assessed student performance; organized guest lecturers; maintained class website; prepared readings.
2011-2013	*Clinical Instructor, University of Maryland, School of Nursing, Baltimore* Clinical Instructor for summer terms of Nursing 509: The Childbearing Family; conducted a clinical rotation for eight to nine students through Labor and Delivery, Postpartum, and Antepartum at Johns Hopkins Hospital in Baltimore, Maryland. Still on faculty as Clinical Instructor but deferring clinical instruction until completion of current phase of doctoral studies.
2009-2011	*Guest Lecturer, University of Maryland, School of Nursing, Baltimore* Prepared and conducted lectures for the Fall 2009 and Spring 2011 terms of Nursing 509. Topics included: Preterm Labor, Perinatal Infections, Mood Disorders, and Contraception.

RESEARCH EXPERIENCE

2013-2016 *Bloomberg School of Public Health, Baltimore,* Population, Family, and Reproductive Health
Research Assistant to Jacinda Dariotis, PhD
Research Team Member. PI: Sarah Finocchario-Kessler, PhD
A 7-site study, in partnership with the CDC Preconception Care Expert Panel and Working Group, to assess the attitudes, barriers, and recommendations of HIV providers on how to best meet the reproductive health needs of their patients.
Contributed to development of semi-structured interview tool. Recruited study participants. Conducted semi-structured interviews of study participants from two Baltimore sites. Coded and conducted qualitative data analysis using Dedoose software. Currently working on second study proposal.

2013-2015 *Bloomberg School of Public Health, Baltimore,* Population, Family, and Reproductive Health
Research Team Member. PI: Jacinda Dariotis, PhD
A qualitative study to gain the perspectives of 5th and 6th grade students and teachers at 3 local schools in Baltimore on a school-based mindfulness and yoga intervention program.
Transcribed focus group interviews. Coded and conducted qualitative data analysis using Excel. Participated in the writing and preparation of three separate manuscripts.

Spring 2014 *Bloomberg School of Public Health, Baltimore,* Population, Family, and Reproductive Health
Research Assistant. PI: Donna Strobino, PhD
A manuscript to present global prevalence estimates of chronic hypertension, preeclampsia and all hypertensive disorders in pregnancy and explore variations in estimates using multivariable meta-analysis.
Reviewed data quality references and contributed to corresponding section and final manuscript editing.

1994-1995 *Duke University, Durham,* Neuroscience Department, School of Medicine
Research Assistant. PI: William Hall, PhD
Experiments to explore whether the optic layer provides a link between layers of the superior colliculus in the tree shrew.
Optic layer cells and corresponding axons and terminals were identified and drawn.

RELATED PROFESSIONAL EXPERIENCE

1999-Present *Registered Nurse in Labor and Delivery, Washington Hospital Center, Washington, DC*

Experience as Charge Nurse; adapted a pain scale patient tool for Spanish-speaking patients; recognition for exceptional patient care with Bravo Awards and Center Stars; rotated for 10 months in Postpartum/Newborn Nursery; participated in a nine-month fellowship program acquiring experience in Labor and Delivery, Postpartum/Newborn Nursery, and the Neonatal Intensive Care Unit; served as Tour Guide on nights for prospective parents. Since 2011 have worked as a Registered Women's Health Float Pool Nurse covering departments as needed. Departments covered include: Labor and Delivery, Postpartum, Antepartum, The Perinatal Center (conducting NSTs and AFI measurements), and the High Risk Prenatal Centering Clinic.

2015-2017 *Clinic Coordinator for Prenatal Centering Clinic, Washington Hospital Center, Washington, DC*
Organize clinic; create and deliver instructional material. Engage clinic patients in active learning. Perform patient follow up as necessary.

1996-1999 *Executive Assistant, La Clinica del Pueblo, Inc., Washington, DC*
Performed general administrative duties for Executive Director; edited/interpreted speeches, Spanish to English; arranged meetings and conferences; coordinated travel arrangements; implemented new organizational system; managed petty cash; coordinated new employee interviews; served as simultaneous interpreter at Board Meetings.

1995-1997 *Pediatric and Volunteers Coordinator, Zacchaeus Free Clinic, Washington, DC*
Assisted in the creation of the Nonprofit Clinics Consortium of Washington, DC; coordinated the pediatric clinic including follow up and patient teaching; coordinated the scheduling of 50-100 volunteers; interviewed and trained incoming volunteers in dispensing medications, phlebotomy, and medical clinic coordination; developed and implemented a patient immunization status/appointment tracking system; conducted smoking cessation classes. From August 1995 to May 1996, worked as part of the *Capuchin Franciscan Volunteer Corps* prior to being offered a permanent position from May 1996 to August 1997.

PUBLICATIONS/POSTERS/PRESENTATIONS

Publication: Dariotis, J.K., **Mirabal-Beltran, R**., Cluxton-Keller, F., Feagans Gould, L., Greenberg, M.T., and Mendelson, T. (2016). A Qualitative Evaluation of Student Learning and Skills Use in a School-Based Mindfulness and Yoga Program. *Mindfulness, 7,* (1), 1-14.

Publication: Dariotis, J.K., Cluxton-Keller, F., **Mirabal-Beltran, R**., Feagans Gould, L., Greenberg, M.T., and Mendelson, T. (2016). "The Program Affects Me 'Cause It Gives Away Stress": Urban Students' Qualitative Perspectives on Stress and A

School-Based Mindful Yoga Intervention. *Explore: The Journal of Science and Healing.*

Publication: Dariotis, J.K., **Mirabal-Beltran, R**., Cluxton-Keller, F., Feagans Gould, L., Greenberg, M.T., and Mendelson, T. (2016). Teacher and Student Perspectives on a School-Based Mindfulness and Yoga Intervention. *Psychology in the Schools*.

Presentation: Finocchario-Kessler, S., Yond, R., Champassak, S., Phillips J., **Beltran R**., Leke, E., Martinelli, R., Rouda, E., Fahey, H., Goggin, K., Dariotis, JK., Hoyt, MJ., HIV PCC Study Group [Levison, J., Short, W., Chakraborty, R., Weber S., Phillips, J., Storm, D., Anderson, J]. More than just the facts: HIV providers in 7 U.S. cities identify training needs for preconception care. Presented at 143rd APHA Conference, November 3, 2015, Chicago, USA.

Presentation: Dariotis, J.K., **Mirabal-Beltran, R**., Cluxton-Keller, F., Gould, L.F., Greenberg, M.T., and Mendelson, T. (Submitted). *Student and Teacher Perspectives on a School-Based Mindfulness and Yoga Program: A Qualitative Exploration of Implementation Factors.* Paper presentation submission for the Annual Meeting of the Society for Prevention Research Annual Meeting, May 26-29, 2015, Washington, DC.

Poster: Finocchario-Kessler, S., Yond, R., Champassak, S., Phillips J., **Beltran R**., Leke, E., Martinelli, R., Rouda, E., Fahey, H., Goggin, K., Dariotis, JK., Hoyt, MJ., HIV PCC Study Group [Levison, J., Short, W., Chakraborty, R., Weber S., Phillips, J., Storm, D., Anderson, J]. *Provider Knowledge and Attitudes About PrEP for Safer Conception: Qualitative Data from 7 U.S. Cities*. 5th International Workshop on HIV and Women. February 21-22, 2015.

Paper: Strobino, D.M., Gagliardi, L., Mandal, M., Werner, E., **Mirabal-Beltran, R**., and Ahmed, S. A Meta-Analysis of Population-Based Prevalence Estimates of Hypertensive Disorders in Pregnancy. Submitted to JHPIEGO 2014.

Poster: **Mirabal, R**. *The Dynamics of Domestic Abuse: Addressing the Latino Family.* American Public Health Association Poster Session, 1999.

Abstract: Lee, P., **Mirabal, R**., and Hall, W.C. (Submitted, 1995). *Intracollicular Connections of the Optic Layer in the Tree Shrew*, Society of Neuroscience 1995.

ACADEMIC AWARDS AND HONORS

2017-2018	American Association of University Women American Fellow
2011-2017	Brown Scholar, Bloomberg School of Public Health, Johns Hopkins University
1997-1999	Dean's List, Catholic University of America, School of Nursing
1995	Dean's List, Duke University
1998	Who's Who Among Students in American Universities, Catholic University of America

1999	Olivia Gowan Scholarship Award Fund, Catholic University of America, School of Nursing
1999	National Collegiate Nursing Award, Catholic University of America, School of Nursing
1999	Sister Rosemary Donley Award, Catholic University of America, School of Nursing
1999	Summa cum Laude, Catholic University of America, School of Nursing
2008	Phi Kappa Phi, University of Maryland, School of Nursing
2011	Advanced Education Nursing Traineeship Grant, University of Maryland, School of Nursing
2011	Sigma Theta Tau International, Honor Society of Nursing

LICENSING/CERTIFICATION

Registered Nurse Licensure: DC

CPR (American Heart Association)

Prenatal Centering

Neonatal Resuscitation Program

MEMBERSHIPS

American Civil Liberties Union

Association of Women's Health, Obstetric and Neonatal Nurses

District of Columbia American Nurses Association

Duke Alumni Association

Montgomery Blair High School Parent Teacher Association

National Hispanic Nurses Association

National Nurses United

North Four Corners Civic Association

Richard Montgomery High School Parent Teacher Association

Sigma Theta Tau International, Inductee

SKILLS

Bilingual: English/Spanish
Dedoose, MS Office, Keynote, Pages, Photoshop, Prezi, Stata