

**Title:** Assessing Racial and Ethnic Differences in Low-Risk Unplanned Cesarean Birth

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**Objective:** There are substantial disparities in labor and delivery outcomes by maternal race and ethnicity. Black birthing individuals have the highest rates of cesarean births and are 2.6 times more likely to die from pregnancy/childbirth related causes. Anti-racist clinical initiatives seek to identify and ameliorate disparities through changes in clinical care. Disaggregated race/ethnicity studies may inform more effective clinical approaches. Therefore, we examined associations between race/ethnicity and unplanned cesarean birth in a low-risk delivery cohort. We hypothesized that non-Hispanic Black patients more frequently experience unplanned cesarean birth.

**Study Design:** This is a secondary analysis of a low-risk cohort of patients delivered by midwives and obstetricians at the University of Colorado Hospital from 2013-2018. Participants included patients 18-50 years old with a live, singleton, full term fetus. We excluded patients with baseline risks that preclude low-risk provider management at our institution. Our primary outcome was unplanned cesarean birth. Our primary exposure was patient self-reported race/ethnicity in mutually exclusive census categories, non-Hispanic Black, non-Hispanic White, non-Hispanic Other, Hispanic, and non-Hispanic Asian. We used one-way ANOVA for group comparisons of continuous variables,  $\chi^2$  for group comparisons of categorical variables, and logistic regression to determine odds ratios. We considered a *P*-value of <0.05 significant.

**Results:** From the original cohort of 7,694, we included 7,691 patients. 906 patients had an unplanned cesarean birth (11.8%). Those patients were nulliparous (62%) and had higher rates of obesity (16% vs. 11.5%) compared with patients who delivered vaginally. Hispanic and White patients had the lowest rates of unplanned cesarean birth (10.5% and 11%, respectively). Asian and Black patients had the highest rates of unplanned cesarean birth (15.6% and 14.2%, respectively). The indication for cesarean birth differed by groups. Black patients were more likely indicated for non-reassuring fetal monitoring and Asian patients for arrest of labor. In an adjusted model, the odds ratio for unplanned cesarean birth compared with White patients was 1.85 for Black patients (CI 1.45 – 2.36, *P*<0.001) and 1.57 for Asian patients (CI 1.14 – 2.16, *P*<0.01).

**Conclusions:** In a low-risk maternal cohort, we found differences in both the rates of unplanned cesarean birth and the indication for surgical delivery by patient self-identified race/ethnicity. Analysis of perinatal outcomes using disaggregated institutional assessment could suggest opportunities for evidence-based equity initiatives and should be integrated into routine hospital-based quality improvement.

**Keywords:** health disparities, health equity, quality care initiatives