

EXPLORING RACIAL DISPARITIES IN MASSACHUSETTS C-SECTION RATES

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INTRODUCTION

In Massachusetts and nationwide, cesarean section (C-section) rates are higher than recommended targets and rising. Because there are substantial risks associated with delivery via C-section, such as infection, longer recovery time, surgical complications, and potential complications with subsequent deliveries, it is important to ensure appropriate use. Previous research from the Massachusetts Health Policy Commission (HPC) has found inequities in maternal health outcomes, including rates of severe maternal morbidity, by race/ethnicity.¹ C-section rates also vary considerably in Massachusetts by patient race and ethnicity: Black non-Hispanic people have a consistently higher C-section rate than patients of other races or ethnicities, suggesting potentially avoidable cesarean deliveries for Black patients.

OBJECTIVES

As unexplained variation in C-section rates may reflect potentially avoidable cesarean deliveries, this study aims to understand more about the factors that may contribute to the disparity in C-section rates by patient race and ethnicity, particularly the role of patient and hospital-level characteristics.

STUDY DESIGN

This study used the Center for Health Information and Analysis (CHIA) Hospital Inpatient Discharge Database to identify patients who delivered via C-section. C-sections were identified using All Patient Refined Diagnosis Related Groups (APR-DRGs).

Patients were grouped into five mutually exclusive race/ethnicity categories: White non-Hispanic, Black non-Hispanic, Asian/Native Hawaiian/Pacific Islander non-Hispanic, Hispanic, and other non-Hispanic (which includes American Indian and Alaskan Natives as well as other, unspecified, or multiple races).

Regression analysis was performed to predict C-section rates by race and ethnicity and controlled for patient age, hospital, community income, and clinical indicators for a C-section such as: malpresentation, multiple gestation, eclampsia, a previous C-section, a large baby, and other obstetric factors such as uterine rupture, umbilical cord issues, placenta previa, and abruption.

The population studied was deliveries in Massachusetts hospitals from 2019 to 2024 (n=404,191).

RESULTS

The difference in C-section rates between Black patients and White patients increased from 2019 to 2024 (**Exhibit 1**). Black patients had a C-section rate of 34.5% in 2019 rising to 39.1% in 2024. In contrast, the C-section rate among White patients has stabilized and decreased slightly from 33.1% in 2023 to 32.9% in 2024. As of 2024, Black patients had a C-section rate 6.1 percentage points higher than the White patients.

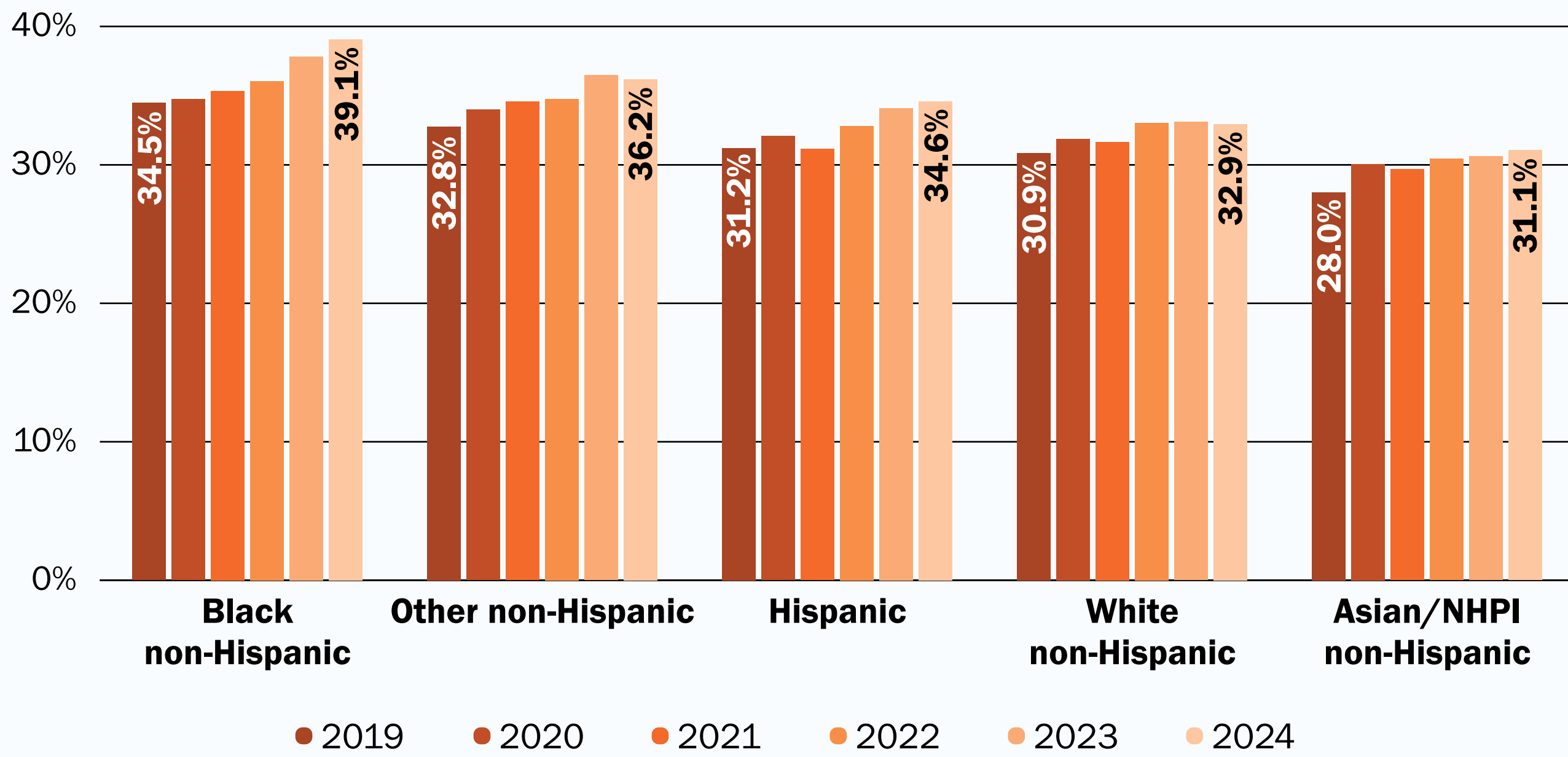
Although cesarean delivery is more likely among older patients, Black patients in the Commonwealth who have C-sections are slightly younger than their White counterparts. In 2024, 28% of Black patients who had C-sections were under 30 years old, compared to 20% for White patients.

The HPC examined rates of C-section by hospital to investigate whether the differences in C-section rates were due to Black patients disproportionately giving birth in hospitals with high overall C-section rates.

While Black deliveries were concentrated in relatively few hospitals (48% of Black deliveries occurred at 5 hospitals), these hospitals did not have particularly high overall C-section rates. A correlation analysis found little relationship between hospitals with high shares of Black patients and high C-section rates (correlation coefficient = 0.25). High C-section rate hospitals were also not found to have high disparities in C-section rates between Black and White patients (**Exhibit 2**).

Regression analysis confirmed that the higher C-section rates observed among Black patients persisted after controlling for patient demographic, clinical, and hospital factors, though the differences were smaller (**Exhibit 3**). Separate regressions by race and ethnicity revealed that some indicators, such as malpresentation, were found to be more predictive of having a C-section for White patients than for Black patients.

EXHIBIT 1. C-section rate by race and ethnicity, 2019–2024



Notes: NHPI = Native Hawaiian or Pacific Islander. Other non-Hispanic includes American Indian and Alaskan Natives, those with multiple races, and those who did not report race or whose race could not be identified.

Sources: HPC analysis of Center for Health Information and Analysis Hospital Inpatient Discharge Database, 2019-2024.

EXHIBIT 2. Overall c-section rate vs Black-White c-section rate disparity by hospital, 2019–2024

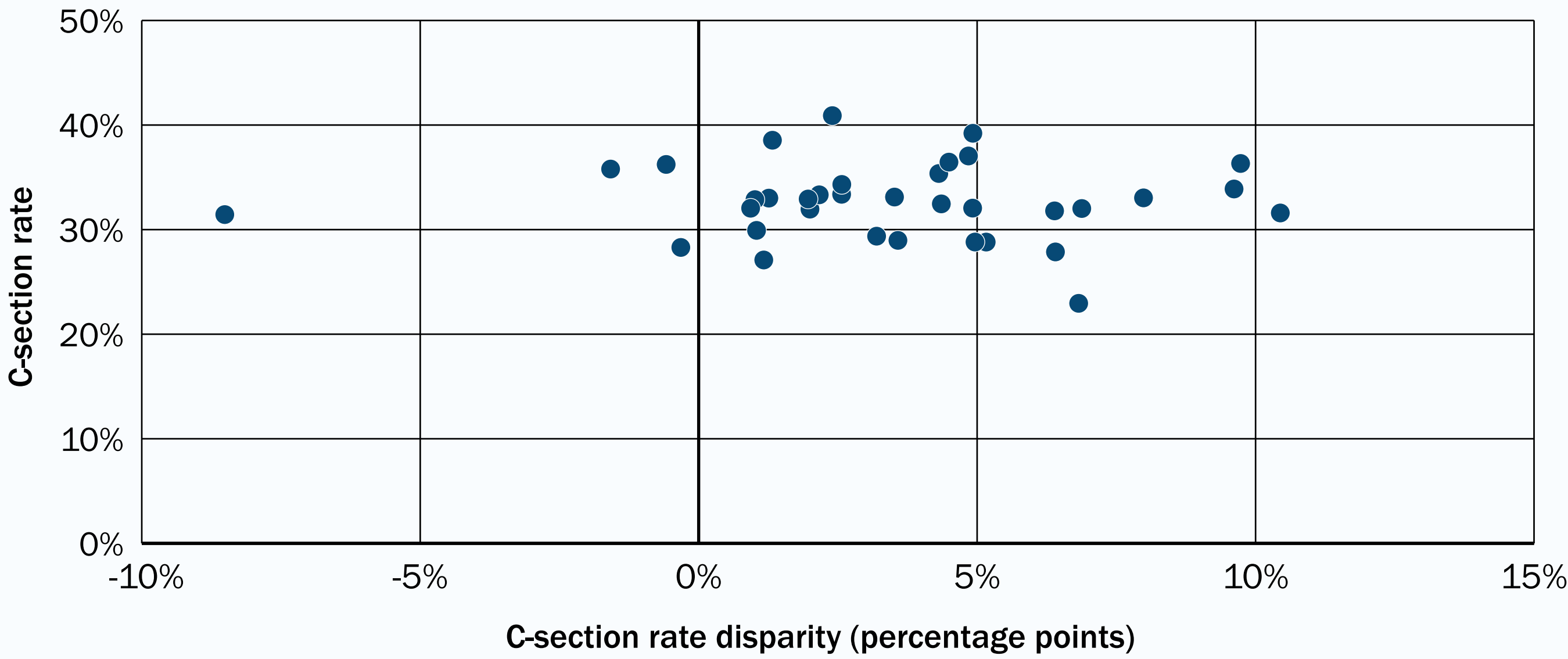


EXHIBIT 3. Actual vs predicted C-section rates by race/ethnicity, 2019–2024

	Actual C-section rate	Predicted C-section rate	Percentage point difference
Black non-Hispanic	36.4%	35.4%	1.0%
Other non-Hispanic	34.6%	34.2%	0.4%
Hispanic	32.7%	33.2%	-0.5%
White non-Hispanic	32.4%	32.1%	0.3%
Asian/NHPI non-Hispanic	29.9%	30.0%	-0.1%

Notes: NHPI = Native Hawaiian or Pacific Islander. Other non-Hispanic includes American Indian and Alaskan Natives, those with multiple races, and those who did not report race or whose race could not be identified. Predicated C-section rates control for patient age, community income decile, hospital, and indicators for C-section, including malpresentation, multiple gestation, eclampsia/pre-eclampsia, previous C-section scar, large baby, and other obstetric factors such as uterine rupture, umbilical cord issues, placenta previa, and abruption.

Sources: HPC analysis of Center for Health Information and Analysis Hospital Inpatient Discharge Database, 2019-2024.

CONCLUSIONS

Although differences in hospital culture may influence hospital-level C-section rates, these findings suggest that where patients deliver and the characteristics of those hospitals are not driving the disparity between C-section rates for Black and White birthing people. While differences in patient characteristics (such as age) may play a role, the disparity persists even when these factors are included in regression analyses.

Indicators for C-section being more influential on C-section probability for White patients than for Black patients suggests that Black birthing people may be less likely to get a C-section when they actually need one. These findings are echoed in the research literature, which also suggests the possible role of clinician bias and individual decision-making in the misalignment of risk and delivery type.²

POLICY IMPLICATIONS

Provider discretion and hospital culture play an important role in the determination of whether a patient has a C-section. Standardizing policies and practices for labor and delivery has been a successful strategy for reducing the C-section rate among low-risk pregnancies and may help address disparities by race and ethnicity.^{3,4} Hospitals may also consider provider transparency tools such as clinician-level unblinded C-section rates and provider report cards.^{3,5,6}

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- Massachusetts Health Policy Commission. Severe maternal morbidity in Massachusetts. May 2024. Available at: https://masshpc.gov/sites/default/files/SMM-Chart-pack_0.pdf
- McGregor AJ, et al. Racial inequities in cesarean use among high- and low-risk deliveries: An analysis of childbirth hospitalizations in New Jersey from 2000 to 2015. *Health Serv Res.* 2025 Apr; 60(2):e14375.
- Javernick JA, Dempsey A. Reducing the primary cesarean birth rate: a quality improvement project. *Journal of Midwifery & Women's Health.* 2017; 62(4):477-483.
- Corredor-Waldron A, Currie J, Schnell M. Drivers of racial differences in c-sections. *National Bureau of Economic Research.* Aug. 2024.
- Rosenstein MG, et al. Hospital quality improvement interventions, statewide policy initiatives, and rates of cesarean deliveries for nulliparous, term, singleton, vertex births in California. *JAMA Network.* 2021; 325(16):1631-1639.
- Ogunyemi D, et al. Using a multifaceted quality improvement initiative to reverse the rising trend of cesarean births. *The Journal of Maternal-Fetal & Neonatal Medicine.* 2017.



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