

# Does maternal race influence indication for NTSV Cesarean delivery?

Simone Reaves<sup>1</sup>, Rebecca Mercier<sup>1</sup>, Ryan Brannon<sup>1</sup>

<sup>1</sup>Department of Obstetrics & Gynecology, Thomas Jefferson University Hospital

## Background

- In the US, approximately 1/3 of all deliveries are cesarean deliveries (CD), with primary cesarean accounting for approximately half of these deliveries
- Preventing an unnecessary primary CD is important for reducing overall maternal morbidity and mortality
- Women of color have been shown to have higher rates of maternal mortality and CD rates
- There is a growing body of evidence identifying racial disparities in rate of CD and indication for CD<sup>1-3</sup>
- The NTSV (Nulliparous, Term gestation, Singleton Gestation, Vertex presentation) CD rate is used as a quality measure by the Joint Commission to track low-risk pregnancies that result in CD

## Aims

Examine the NTSV CD rate by race and identify differences in indication by race at our institution

We hypothesize that after controlling for confounding variables there will be no difference in rate of CD or indication for CD by race

## Methods

Retrospective cohort study of all deliveries that meet criteria for NTSV (as set forth by the Joint Commission) done at Thomas Jefferson University Hospital from 2017 until March 2022

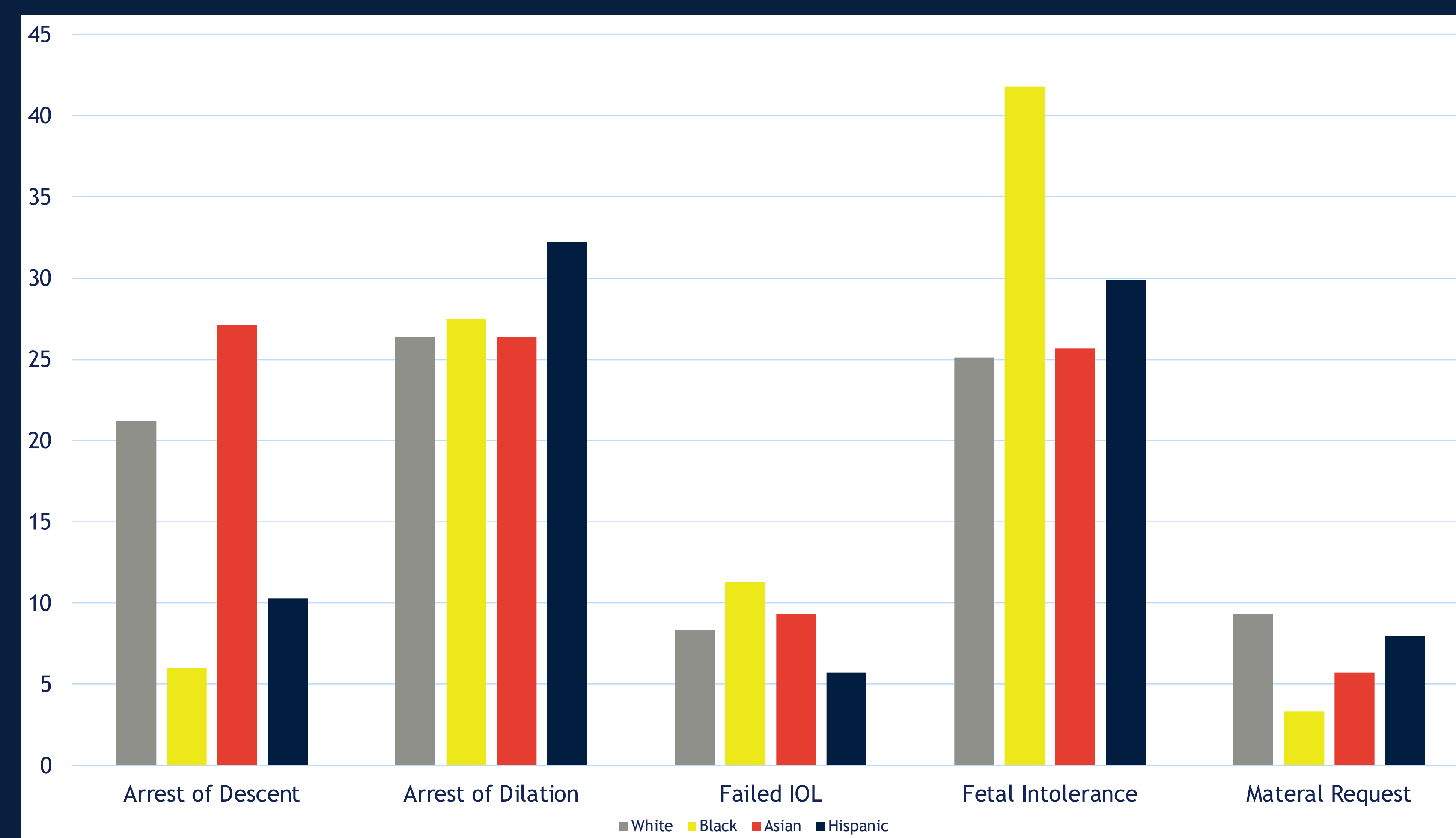
## Main Findings

Overall, there was no statistically significant difference in NTSV CD by race. However, compared to white women, Black women were twice as likely to have a CD for fetal intolerance of labor.

Table 1: Population Characteristics and Mode of Delivery

Population Characteristics	Overall sample (n=4240)	Mode of delivery n (%)	
		Vaginal 3187 (75.2)	CD 1053 (24.8)
Race	n (%)		
White	1598 (37.7)	1209 (37.9)	389 (36.9)
Black	1479 (34.9)	1078 (33.8)	401 (38.1)
Asian	614 (14.5)	472 (14.8)	142 (13.5)
Hispanic	429 (10.1)	340 (10.7)	89 (8.5)
American Indian/Native	13 (0.3)	9 (0.3)	4 (0.4)
Unknown	107 (2.5)	79 (2.5)	28 (2.7)

Figure 1: CD Indication by Race/Ethnicity



## References

- Washington, Sierra, et al. "Racial and ethnic differences in indication for primary cesarean delivery at term: experience at one US Institution." *Birth* 39.2 (2012): 128-134.
- Getahun, Darios, et al. "Racial and ethnic disparities in the trends in primary cesarean delivery based on indications." *American Journal of Obstetrics and Gynecology* 201.4 (2009): 422-e1.
- Edmonds, Joyce K., et al. "Racial and ethnic differences in primary, unscheduled cesarean deliveries among low-risk primiparous women at an academic medical center: a retrospective cohort study." *BMC Pregnancy and Childbirth* 13.1 (2013): 168.
- U.S. Department of Health and Human Services - Office of Disease Prevention and Health Promotion. "Reduce Cesarean Births among Low-Risk Women with No Prior Births - MICH-06 0 Healthy People 2030"

## Results

Preliminary analysis:

- A total of 4240 patients met inclusion criteria:
  - 3187 delivered vaginally (75.2%)
  - 1053 delivered by CD (24.8%)
- NTSV rate = 23%\*
- In the overall population there was no statistically significant difference in NTSV CD rate by race (p=0.92)
- Compared to white women, Black women had increased rate of CD for fetal intolerance of labor, and were less likely to have CD for maternal request or arrest of descent (Table 2)

\* Calculated by dividing the total CD by total live births when contraindications for vaginal delivery were excluded: malpresentation, other medical conditions, prior uterine surgery.

Figure 2: Maternal Race/Ethnicity

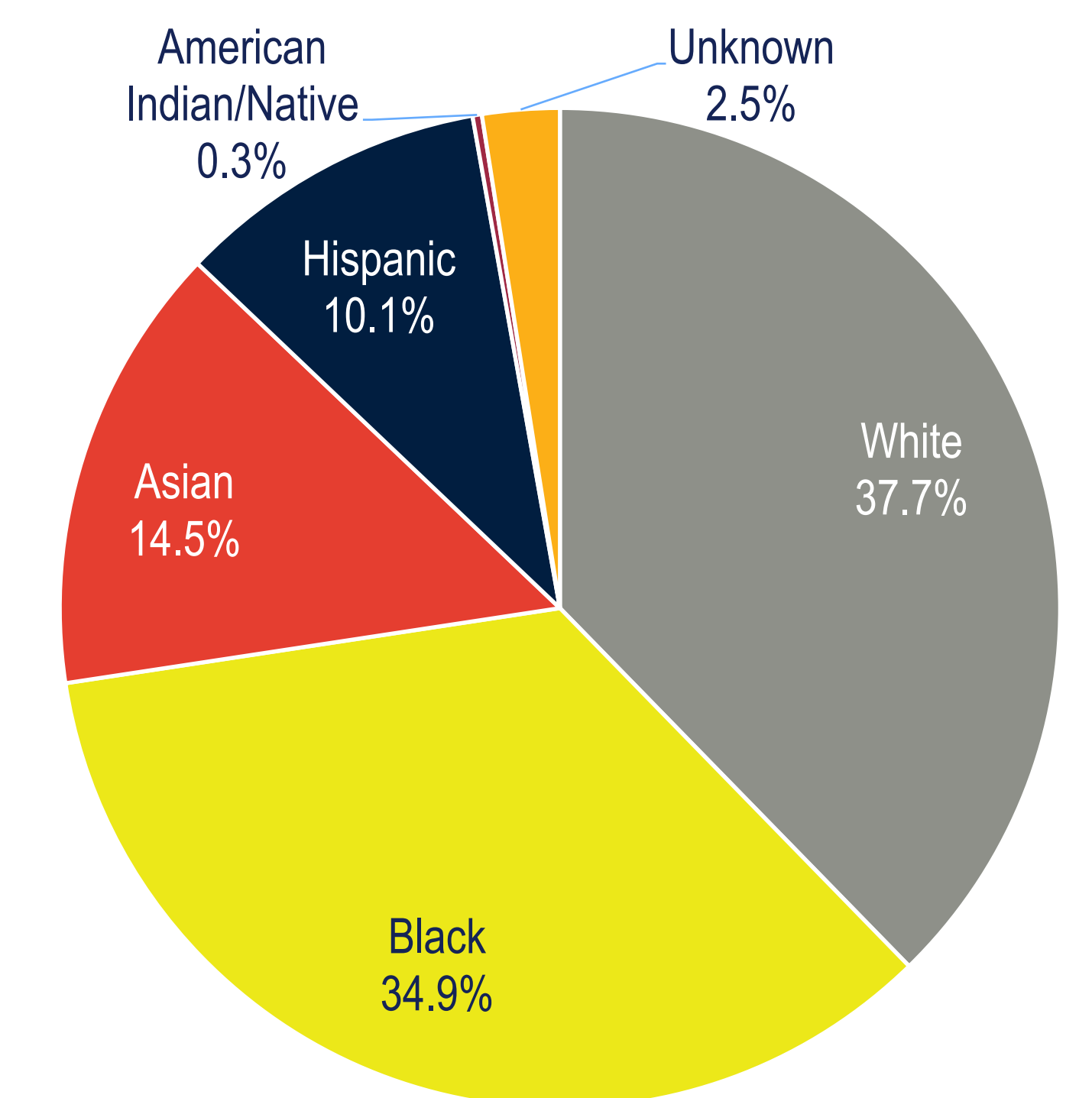


Table 2: CD Indication by Race/Ethnicity (OR)

Indication	Arrest of Descent		Fetal Intolerance		Maternal Request	
	n (%)	OR (95% CI)	n (%)	OR (95% CI)	n (%)	OR (95% CI)
White	82 (21.2)	Reference	97 (25.1)	Reference	36 (9.3)	Reference
Black	24 (6.0)	0.24 (0.15-0.38)	167 (41.8)	2.14 (1.19-5.62)	13 (3.3)	0.33 (0.17-0.63)

## Conclusions and Implications

NTSV rate of 23% meets the Healthy People 2030 goal of 23.6%<sup>4</sup> and overall there is no difference in CD rate by race

However, Black women were more likely to have a CD for fetal intolerance of labor

Additional statistical analyses are warranted to assess for effect modification of gestational age, AMA status, and insurance status on indication for CD