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Authors

Blebu, Bridgette E
Waters, Olivia
Lucas, Candice Taylor
et al.

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Variations in maternal factors and preterm birth risk among non-Hispanic Black, White, and mixed-race Black/White women in the United States, 2017

Bridgette E. Blebu[a,b], **Olivia Smith Waters**[c], **Candice Taylor Lucas**[d,e], **Annie Ro**[c]

[a]Department of Obstetrics, Gynecology & Reproductive Sciences, University of California, San Francisco, San Francisco, CA, USA

[b]California Preterm Birth Initiative, University of California, San Francisco, San Francisco, CA, USA

[c]Department of Health, Society, and Behavior, Program in Public Health, University of California, Irvine, Irvine, CA, USA

[d]Department of Pediatrics, School of Medicine, University of California, Irvine, Irvine, CA, USA

[e]Pediatric Exercise and Genomics Research Center, University of California, Irvine, Irvine, CA, USA.

Abstract

Objective.—This study aims to compare preterm birth (PTB) risk and maternal factors associated with preterm birth among non-Hispanic White, Black, and mixed-race Black/White women in the United States.

Methods.—In this study, we utilized US birth certificate data from the 2017 National Vital Statistics System. We included live singleton births to women who self-identified as non-Hispanic White, Black, or mixed-race Black/White. PTB was defined as less than 37 weeks gestation. We used logistic regression models to estimate preterm birth odds ratios for Black and Black/White relative to White women adjusted for maternal factors. We used logistic regression to estimate associations between PTB and maternal factors in race-stratified models.

Results.—The sample included a total of 2,297,076 births in 2017 to White (n = 1,792,257), Black (n = 476,969), and Black/White (n = 27,850) women. The prevalence of PTB varied for Black (11.2%), Black/White (8.2%), and White (6.8%) women. The odds of PTB compared to White differed for Black (OR=1.51, 95% CI: 1.49 – 1.53) and Black/White (OR=1.13, 95% CI: 1.08-1.18) women after adjusting for maternal factors. The odds of PTB associated with maternal sociodemographic, pre-pregnancy, and gestational factors differed by maternal race.

Conclusions.—Evaluation of PTB risk among White, Black, and Black/White revealed distinct associations between PTB and maternal factors for Black/White women. This study highlights

Corresponding Author: Bridgette Blebu, Department Obstetrics, Gynecology & Reproductive Sciences, University of California, San Francisco. 490 Illinois Street, Flr. 9 Box 2930 | San Francisco, CA 94143. Phone: (415)336-6655. Bridgette.blebu@ucsf.edu.

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the need for research assessing relationships between social risk factors such as colorism and racism, and PTB, and it provides evidence that may inform more targeted PTB prevention among Black/White and Black women.

Introduction

Preterm birth (PTB, < 37 weeks gestation) is a leading cause of infant mortality in the United States and has severe infant health implications. In 2019, 1 in 10 infants were born preterm in the United States, and racial disparities in PTB risk persist (Purisch & Gyamfi-Bannerman, 2017). In 2015, 13.3% of Black infants were born preterm, compared to 9.4% of White infants (Purisch & Gyamfi-Bannerman, 2017). PTB disparities are well-documented among US Black women, but little is known about PTB risk among mixed-race women who identify as Black and White (Black/White). Given that PTB disparities are largest among Black women compared to other racial/ethnic groups, it is important to describe PTB disparities among mixed-race Black/White women. Moreover, it is unclear how the patterns of known risk factors compare among non-Hispanic Black, White, and mixed-race Black/White women (hereafter Black, White, and Black/White). This is a critical limitation given the growing number of mixed-race individuals in the United States. In 2010, approximately 9 million people or 2.4% of the population reported two or more races, an increase of 32% since 2000 (Jones & Bullock, 2013). The majority of those reporting two or more races identify as White and Black (Jones & Bullock, 2013) and among women, a 2007 report on birth trends in five US states indicated that Black/White women account for 65% of mixed-race women with Black as one race and 20% of women with White as one race (Hamilton & Ventura, 2007). Lastly, the history of Black/White race in the United States also provides an important framework for understanding how colorism and racism as social and structural constructs shape birth outcomes among this subgroup of mixed-race women.

The pervasiveness of structural racism in the United States and the extent to which it patterns risk for adverse birth outcomes warrants the study of mixed-race groups that may be burdened by racism and social stressors contributing to health disparities (Chambers et al., 2019; Dominguez et al., 2008; Ford & Airhihenbuwa, 2010; Williams & Mohammed, 2013). Racially mixed Black/White Americans occupy a historically unique place in the racial landscape. The "one-drop rule," which was the long-standing norm of determining African ancestry in the United States, was borne from racist beliefs used to justify slavery and reinforce Jim Crow segregation. While mixed-race individuals were folded into the Black American community, they also faced tension within it because of their perceived social benefits from colorism and connections to the White community (Leverette, 2009). As Davis (1991) argues, the mixed-race category became a "self-conscious social group with an ethnic identity". While contemporary racial classification has availed more avenues for mixed-race identification, these long-standing tensions still inform how mixed-race status individuals might experience race-based social risk factors for health. Reports of mixed-race discrimination experiences have shown that many Black/White adults experience racial discrimination, such as racial slurs, poor service, and unfair policing (Pew Research Center, 2015). This may indicate that racism is a salient PTB risk factor among Black/White women that has detrimental impacts on social advantage similar to that of Black adults.

As an extension of White supremacist ideology, colorism works to privilege lighter skin color, creating a social hierarchy that results in the oppression of those with a darker complexion (Glenn, 2009). To the extent that White phenotype may confer greater social mobility and access to health-promoting resources, Bratter and Gorman (2011) hypothesize that partial White identity among mixed-race groups may result in more similar health to single-race White adults relative to adults with their minority ancestry. Empirical studies have shown that lighter skin tone is related to socioeconomic advantages (Hargrove, 2019; Martin et al., 2017). Slaughter-Acey and colleagues (2020) found that preterm birth rates varied by maternal skin tone among Black women. In a study of racial microaggressions and timing of prenatal care among Black women, skin tone was a significant moderator of greater experiences of microaggressions and delayed prenatal care (Slaughter-Acey et al., 2019). Among mixed-race Black/White women, social advantages stemming from lighter skin tone may reduce exposure to social risk factors. Thus, while racism and colorism are interrelated in the US, they may represent two opposing forces among mixed-race Black/White individuals. Colorism may function to privilege mixed-race Black/White people relative to their single-race Black counterparts, while racism serves to disadvantage mixed-race Black/White people relative to their White counterparts.

Few studies have explored the health patterns of Black/White adults relative to White and Black adults. Some studies have shown that mixed-race adults are at greater risk for poor health than those of a single race, specifically non-Hispanic White adults. Mixed-race adults have higher odds of obesity, diabetes, disability, self-rated health, and hypertension relative to White adults (Subica et al., 2017). These studies suggest that mixed-race adults' health outcomes are distinct from that of White and Black adults and may reflect a hierarchy where Black/White adults have better health outcomes than their single-race Black counterparts but still experience health disparities relative to White adults.

Research on mixed-race health has not included studies of adverse birth outcomes among Black/White women relative to White and Black women. While some studies have established poorer birth outcomes among interracial couples (Getahun et al., 2005; Gold et al., 2010; Srinivasjois et al., 2012), there are few studies that have examined birth outcomes of mixed-race women. This is a significant gap given the persistence of the Black-White disparities in birth outcomes in the US (McKinnon et al., 2016). Further, birth outcomes are particularly sensitive to race-based social risk factors, thus serving as important indicators of population health (Reidpath & Allotey, 2003). We address this literature gap by comparing PTB risk among non-Hispanic Black, White, and Black/White women. We then compare whether maternal social characteristics, pre-pregnancy, and gestational factors are differentially associated with PTB among non-Hispanic Black, White, and Black/White women. To our knowledge, this study is one of few to examine differences in health outcomes among Black, White, and Black/White women explicitly and the first to examine PTB risk among this population in the US.

Methods

Study Sample

Our sample was drawn from US live births between January 1, 2017, and December 31, 2017 (N = 3,864,754). We restricted the sample to births among women (18+) who self-identified as non-Hispanic White, Black, or Black/White (n = 2,554,815). We included singleton births with a gestational age between 22 and 44 weeks based on the obstetric estimate of gestation (n = 2,458,042). We excluded births with missing data for maternal factors of interest, described in detail below (n = 160,966, 6.5%). Our final analytic sample included 2,297,076 births. This sample included 1,792,257 (78%) non-Hispanic White women, 476, 969 (21%) non-Hispanic Black women, and 27,850 (1.2%) non-Hispanic Black/White women. This study received a non-human subjects determination from the University of California, Irvine IRB, as the data we received was publicly available and de-identified.

Measures

Preterm Birth—We classified a birth as preterm if it occurred before 37 weeks gestation based on obstetric estimates of gestational age. We include the prevalence of preterm births for each racial group and used Chi-square tests to assess differences in the proportion of preterm births between NH White, Black, and Black/White women.

Maternal Race—To measure maternal race among women who self-reported their origin as non-Hispanic, we classified those who reported their race as "White (only)" as single-race non-Hispanic White, and those who reported their race as "Black (only)" as single-race non-Hispanic Black. We classified mixed-race Black/White women as those who reported their race as "Black and White."

Maternal Factors—The US birth files include data on maternal medical, behavioral, and demographic characteristics. We selected maternal factors as covariates based on availability in the dataset and established empirical associations with preterm birth (Carmichael et al., 1997; Schieve et al., 2000). We examined maternal sociodemographic features such as age (≥35 years or <35 years), educational attainment (≥ 12 years or < 12 years), enrollment in the Women, Infants, and Children program (WIC, yes or no) or Medicaid insurance (yes or no).

We also included relevant pre-pregnancy medical and behavioral risk factors: diabetes (yes or no), hypertension (yes or no), body mass index score (BMI, categorized as Underweight, Normal weight, Overweight, Obese) calculated using pre-pregnancy height and weight, parity (nulliparous or multiparous), previous preterm birth (yes or no, only among multiparous women) prenatal care initiation (categorized as "no prenatal care," "first trimester," "second-trimester or later"), and pre-pregnancy tobacco use (yes or no).

To examine differences in gestational medical and behavioral risk factors, we included: gestational diabetes (yes or no), gestational hypertension (yes or no), and tobacco use during pregnancy (yes or no). We also assessed weight gain during pregnancy (categorized as At, Above, or Below recommended weight gain) by calculating the difference in delivery

weight and pre-pregnancy weight and then categorizing weight gain based on the Institute of Medicine recommendations.

Statistical Analyses

We compared maternal factors among NH White (White), Black (Black), and NH Black/White (Black/White) women. We used Chi-square tests to assess differences in proportions among White and Black women and White and Black/White women for each maternal factor and preterm birth. Then we used logistic regression models to estimate the odds of preterm birth for Black and Black/White women relative to White women before and after adjustment for maternal factors. We ran post-estimation tests to evaluate whether the difference in preterm birth odds for Black and Black/White was significantly different from White women in the crude and adjusted models. We computed the predicted probabilities of preterm birth from the crude and adjusted models for each racial group. To explore whether maternal risk factors for preterm birth are patterned differently across the three racial groups, we used race-stratified multivariable logistic regression models to estimate the association between preterm birth and each maternal risk factor. Lastly, we repeated the analyses with a more restricted sample of multiparous women adjusting for prior preterm births to assess the impact of prior preterm birth on preterm birth risk. All analyses were performed using STATA version 16 (StataCorp, College Station, TX).

Results

Comparisons of Maternal Factors

Births to White, Black, and Black/White women constituted 78.0%, 20.8%, and 1.2% of total births in the sample respectively. The majority of women in the sample were between ages 18 to 34 (83.1%), multiparous (61.2%), received more than 12 years of education (67.9%), and began prenatal care in the first trimester (79.6%). The comparisons of maternal factors by maternal race are shown in Table 1. Overall, the distribution of maternal factors differed between White, Black, and Black/White women. For both Black and Black/White women, maternal factors were significantly different from White women. Black women had the highest prevalence of preterm birth (White = 6.8%; Black = 11.2%; Black/White = 8.2%). Black women experienced a greater burden of sociodemographic, pre-pregnancy, and gestational risk factors than White and Black/White women. For instance, comparisons of sociodemographic factors including education, WIC enrollment and Medicaid insurance indicated that Black women were more likely to receive less than a high school education (White =21.3%; Black=35.3%; Black/White=34.0%), to participate in WIC (White = 24.7%; Black = 52.6%; Black/White = 51.3%) and to be insured by Medicaid (White = 30.1; Black = 65.3%; Black/White = 60.1%) compared White and Black/White women. For Black/White women, generally, the prevalence of sociodemographic risk factors fell between White and Black women, with some exceptions.

Among pre-pregnancy factors, Black women had the highest prevalence of pre-pregnancy hypertension (White = 1.7%; Black = 3.8%; Black/White = 2.2%) and diabetes (White = 0.7%; Black = 1.3%; Black/White = 0.9%). Pre-pregnancy tobacco use was lowest among Black women and highest among Black/White women (White=12.8%; Black = 7.3%; Black/

White = 18.6%). We observed the same pattern in tobacco use during pregnancy (White = 10.0%; Black = 5.6%; Black/White = 13.9%). Comparisons of gestational factors showed small variations in gestational diabetes (White = 5.7%; Black = 5.2%; MHBW = 4.4%) and hypertension (White = 6.7%; Black = 7.6%; Black/White = 6.7%). Most women in the sample had weight above the Institute of Medicine's recommendation for a given BMI, and Black/White women had the highest proportion in this category (White = 49.7%; Black = 47.3%; Black/White= 53.8%).

Preterm birth risk among non-Hispanic White, Black, and Black/White women

To assess whether disparities in preterm birth relative to White women differed for Black and Black/White women, we compared odds ratios for Black and Black/White before and after adjustment for maternal factors (Table 2). The odds of preterm birth were 72% higher among Black (OR = 1.72, 95% CI: 1.70 - 1.74) and 21% higher among Black/White (OR = 1.21, 95% CI: 1.16 - 1.27) compared to White women. Post-estimation Wald tests showed that the estimates for Black and Black/White are significantly different (χ^2 = 241.5, p < 0.001). In the adjusted model, all maternal factors were associated with preterm birth. Adjusting for sociodemographic, pre-pregnancy, and gestational factors reduced disparities in preterm birth risk among Black (OR = 1.51, 95% CI: 1.49 - 1.53) and Black/White (OR = 1.13, 95% CI: 1.08 - 1.18) women, but the maternal factors did not fully account for disparities relative to White women. Post-estimation Wald test indicated that adjusted Black and Black/White estimates were also significantly different (χ^2= 160.7, p < 0.001). Figure 1 depicts the crude and adjusted predicted probabilities of preterm birth for White (6.8% and 6.9%), Black (11.2% and 9.9%), and Black/White (8.2% and 7.6%) women.

Maternal factors and preterm birth by maternal race

To examine whether the association between maternal factors and preterm birth varied among White, Black, and Black/White women, we estimated preterm birth risk in fully adjusted models stratified by maternal race (Table 3). We found that the associations between some maternal factors and preterm birth differed among the three racial groups. For instance, while higher educational attainment (>12 years) was protective for White and Black women, it was not significantly associated with lower odds of preterm birth among Black/White women (White OR = 0.89; 95% CI: 0.87 – 0.90; Black OR = 0.90 (0.88 – 0.92); Black/White OR = 0.99 (0.90 – 1.10). The association between pre-pregnancy BMI and preterm birth also differed by maternal race. Among White women, higher pre-pregnancy BMI (overweight and obese) was associated with increased preterm birth risk compared to normal BMI. However, for both Black and Black/White women, having a higher BMI either lowered preterm birth risk or was not significantly different from normal BMI. Among Black/White women, pre-pregnancy tobacco use was not associated with PTB risk (OR = 0.97, 95% CI: 0.79 – 1.19), while it increased risk among White (OR= 1.06, 95%CI: 1.02 – 1.09) and Black (OR=1.14, 95% CI: 1.07 – 1.21) women. We also compared the association between maternal factors and PTB risk by maternal race using interaction terms, but we present the stratified models to estimate group-specific PTB risks. Multiparous White and Black women have reduced PTB risk compared to nulliparous women, however among Black/White women, the difference in PTB risk between nulliparous and multiparous women was not significant (OR = 0.95, 95%CI: 0.87 - 1.04).

We repeated the analyses above in a more restricted sample of multiparous women, to further adjusted for prior preterm birth given its salience as a predictor of PTB risk and that prevalence of recurrent preterm birth varies by maternal race (Mazaki-Tovi et al., 2007). The proportion of previous preterm births for White (5.0%) varied compared to Black (7.0%) and Black/White (6.9%) women (n = 1,405,211). The results of racial disparities in PTB risk did not differ significantly from the results reported in Table 2. There were differences in PTB risk associated with a previous preterm birth for White (OR = 4.58, 95% CI = 4.49-4.69), Black (OR =3.45, 95% CI = 3.34-3.56), and Black/White (OR = 3.71, 95% CI = 3.16-4.36) women, net of other maternal factors. Adjusting for previous preterm birth did not change associations reported for other maternal factors in Table 3.

Discussion

Similar to prior research on racial disparities in birth outcomes, we found that non-Hispanic Black women were at greater risk for PTB than non-Hispanic White women after adjusting for maternal factors. Our results showed that mixed-race Black/White women were also at greater PTB risk than White women, but the disparity was significantly smaller than the Black-White disparity. The racial patterning of PTB identified in this study is similar to those found in other studies of mixed-race health (Bratter & Gorman, 2011; Veenstra, 2019). While our findings suggest that Black/White women may be subject to experiences of racism that result in poorer birth outcomes relative to White women (Nuru-Jeter et al., 2009), they may also reflect variations in experiences of social disadvantage and/or racism relative to Black women. However, the persistence of a PTB disparity between Black/White and White women in this study indicates that the potential benefits of White phenotype may have limits. Alternatively, the findings may indicate that there are unique stressors associated with being mixed-race that stem from experiences of isolation from either racial group. Additional mixed methods or qualitative research is needed to clarify these race-related mechanisms for PTB risk among mixed-race women. Further, while the use of vital statistics data in this study offers some insights for population-level trends among mixed-race women, exploration of birth outcomes can be advanced by questionnaire-based research to more explicitly examine the experiences of colorism and racism over the life course.

We found that the associations between maternal factors differed to some extent among non-Hispanic White, Black, and mixed-race Black/White women. For instance, unlike Black and White women, for mixed-race Black/White women higher educational attainment was not protective for PTB risk relative to a high school education. While the prevalence of pre-pregnancy tobacco use was higher among mixed-race Black/White women compared to White and Black women, pre-pregnancy tobacco use was not associated with PTB risk among mixed-race women. Parity was not a significant predictor of PTB risk among mixed-race Black/White women. For Black/White women, maternal risk factors that are shaped by social conditions, such as educational attainment and health behaviors like smoking, do not operate in the expected ways. It is especially notable that increased education was not protective for mixed race women as it was for Black and White women, implying that there are limits to socioeconomic resources as a protective factor in this group. The null association between pre-pregnancy tobacco use and PTB risk among mixed-race women may stem from an overall lower smoking intensity (e.g., less than one pack per day). A study

of gestational smoking found that low intensity smoking was associated with lower odds of PTB relative to high intensity smoking (Kondracki & Hofferth, 2019). This may explain the null association despite mixed-race women having a higher prevalence of pre-pregnancy tobacco use. Future research should explore how differences in social conditions may shape behaviors such as tobacco use among mixed-race women, and how their role in PTB risk may differ from single race Black and White women.

This study utilized a large administrative dataset to estimate and compare PTB risk in a relatively small population (Black/White women) in the US, which would not otherwise be feasible with different data sources. Despite this strength, the results of this study should be interpreted with caution in relation to population trends. However, we also note that the mixed -race population is often underestimated (Pew Research Center, 2015). This study is limited to mixed-race individuals who self-identified as mixed-race and may not be generalizable to individuals from mixed-race backgrounds who chose to identify as a single-race. Many factors shape racial identity formation, and these factors may also be related to exposure to stressors that can impact health (Rockquemore et al., 2009). The maternal factors examined in this study are limited to what is collected in vital statistics, which limits investigations of other important factors such as skin tone that may be an important mediator/moderator of the maternal race associations described in this study (Slaughter-Acey et al., 2019). Several studies have reported on important limitations of vital statistics data that can impact the reliability and validity of information on maternal medical and behavioral factors which can result in biased estimates of their associations with birth outcomes (Northam & Knapp, 2006; Reichman & Ofira Schwartz-Soicher, 2007; Schoendorf & Branum, 2006). Lastly, some evidence suggests that obstetric estimates of gestational age may underestimate preterm birth compared to other methods of estimating gestational age (Barradas et al., 2014).

Ultimately, this study's results indicate that the risk of preterm birth among Black/White women differs significantly from that of single-race Black and White women. This examination of preterm birth risk among White, Black, and mixed-race White/Black women may provide opportunities for tailored interventions among mixed-race women, particularly in light of the distinct ways that racism may shape exposure to stressors over the life course among this population. Lastly, enhancing our understanding of racial disparities among mixed-race groups will inform public health efforts to achieve racial equity.

Implications for Practice

While preterm birth disparities are well-documented among US Black women, little is known about the risk of preterm birth among women who identify as mixed-race (Black/White). In this study, Black and mixed-race Black/White women experience preterm birth disparities compared to White women, but the preterm birth disparity is smaller for mixed-race Black/White women. We found that associations between preterm birth risk and maternal factors differ among White, Black, and mixed-race Black/White women. Because the causes of preterm birth are complex, these findings emphasize the need for targeted approaches to prevention among this unique population. Further, the growth of the

mixed-race population necessitates more attention to this population and the implications of colorism in racial disparities research.

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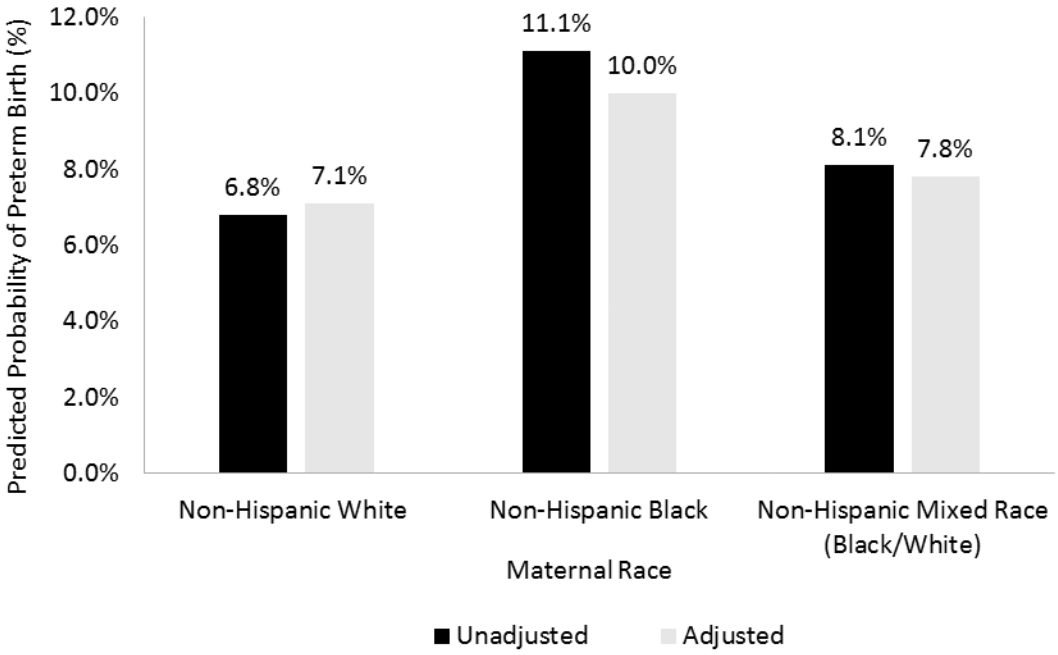

Figure 1.
Predicted probabilities (%) of preterm birth by maternal race for unadjusted and adjusted models.

Table 1.

Comparison of maternal factors for non-Hispanic White, Black and Black/White women, 2017.

	Non-Hispanic White, %	Non-Hispanic Black, %	Non-Hispanic Black/White, %
Maternal Age (years)			
Less than 35	82.4	85.3	92.4
Educational attainment (years)			
Less than 12	6.5	12.1	12.1
12	21.3	35.3	34.0
> 12	72.2	52.6	53.9
WIC enrollment			
Yes	24.7	57.0	51.3
Insured by Medicaid			
Yes	30.1	65.3	60.1
Parity			
Multiparous	60.3	64.8	57.3
Pre-pregnancy diabetes			
Yes	0.7	1.3	0.9**
Pre-pregnancy hypertension			
Yes	1.7	3.8	2.2
Pre-pregnancy BMI			
Underweight	3.3	3.1	3.4 [ns]
Normal	46.9	32.9	36.4
Overweight	24.9	26.9	26.0
Obese	24.9	37.2	34.1
Pre-pregnancy tobacco use			
Yes	12.8	7.3	18.6
Gestational diabetes			
Yes	5.7	5.2	4.4
Gestational hypertension			
Yes	6.7	7.6	6.7 [ns]
Tobacco use during pregnancy			
Yes	10.0	5.6	13.9
Weight Gain			
At recommended	31.3	27.6	25.7
Above recommended	49.7	47.3	53.8
Below recommended	18.9	25.1	20.5
Prenatal care initiation			
No prenatal care	1.0	2.8	1.8
1st trimester	82.9	67.6	73.3
2nd or later	16.2	29.7	25.7
Preterm birth	6.8	11.2	8.2

	Non-Hispanic White, %	Non-Hispanic Black, %	Non-Hispanic Black/White, %
N	1,792,257	476,969	27,850

Chi-square tests compare means of non-Hispanic White to non-Hispanic Black, and non-Hispanic Black/White respectively. All comparisons were statistically significant at $p < 0.001$ except for gestational hypertension, pre-pregnancy BMI, and diabetes. WIC = Special Supplement Program for Women Infants and Children; BMI = body mass index; NS= not significant.

Table 2.

Unadjusted and adjusted logistic regression estimates of preterm birth risk for Non-Hispanic Black and Non-Hispanic Black/White women, 2017.

	Crude OR (95% CI)	Adjusted OR (95% CI)
Maternal race (ref: Non-Hispanic White)		
Non-Hispanic Black	1.72 (1.70 - 1.74) ***	1.51 (1.49 - 1.53) ***
Non-Hispanic Black/White	1.21 (1.16 - 1.27) ***	1.13 (1.08 - 1.18) ***
Age (ref: less than 35 y)		1.24 (1.22 - 1.26) ***
≥ 35 y		
Educational attainment (ref: 12 y)		
Less than 12 y		1.06 (1.04 - 1.08) ***
> 12 y		0.89 (0.88 - 0.90) ***
WIC enrollment		0.91 (0.90 - 0.93) ***
Insured by Medicaid		1.23 (1.21 - 1.24) ***
Pre-pregnancy diabetes		3.18 (3.07 - 3.29) ***
Pre-pregnancy hypertension		2.97 (2.90 - 3.05) ***
Pre-pregnancy BMI (ref: normal)		
Underweight		1.32 (1.29 - 1.36) ***
Overweight		1.10 (1.08 - 1.11) ***
Obese		1.08 (1.07 - 1.10) ***
Pre-pregnancy tobacco use		1.08 (1.05 - 1.11) ***
Parity (ref: Nulliparous)		
Multiparous		0.87 (0.86 - 0.88) ***
Gestational diabetes		1.30 (1.27 - 1.32) ***
Gestational hypertension		3.26 (3.21 - 3.31) ***
Tobacco use during pregnancy		1.38 (1.34 - 1.43) ***
Prenatal care initiation (re: 1st trimester)		
No prenatal care		3.04 (2.96 - 3.13) ***
2nd trimester or later		0.83 (0.82 - 0.84) ***
Gestational weight gain (ref: at recommendation)		
Above recommendation		0.73 (0.72 - 0.74) ***
Below recommendation		1.61 (1.59 - 1.63) ***

WIC = Special Supplement Program for Women Infants and Children; BMI = body mass index

*** $p < 0.01$

** $p < 0.05$

* $p < 0.10$

Table 3.

Race-stratified logistic regression estimates of preterm birth risk and maternal factors, 2017.

	White OR (95% CI)	Black OR (95% CI)	Black/White OR (95% CI)
Age (ref: less than 35 y)			
≥ 35 y	1.24 (1.22 - 1.26) ***	1.26 (1.23 - 1.29) ***	1.17 (1.00 - 1.38) *
Educational attainment (ref: 12 y)			
Less than 12 y	1.09 (1.06 - 1.11) ***	1.01 (0.98 - 1.04)	1.21 (1.05 - 1.39) ***
> 12 y	0.89 (0.87 - 0.90) ***	0.90 (0.88 - 0.92) ***	0.99 (0.90 - 1.10)
WIC enrollment	0.96 (0.95 - 0.98) ***	0.83 (0.81 - 0.85) ***	0.89 (0.81 - 0.99) **
Insured by Medicaid	1.23 (1.22 - 1.25) ***	1.17 (1.14 - 1.19) ***	1.13 (1.02 - 1.26) **
Pre-pregnancy diabetes	3.56 (3.42 - 3.72) ***	2.55 (2.40 - 2.71) ***	3.28 (2.41 - 4.45) ***
Pre-pregnancy hypertension	2.97 (2.87 - 3.06) ***	3.02 (2.91 - 3.13) ***	2.44 (1.93 - 3.08) ***
Pre-pregnancy BMI (ref: normal)			
Underweight	1.32 (1.29 - 1.37) ***	1.28 (1.21 - 1.34) ***	1.26 (1.01 - 1.56) **
Overweight	1.13 (1.12 - 1.15) ***	0.99 (0.97 - 1.02)	0.95 (0.85 - 1.07)
Obese	1.13 (1.11 - 1.14) ***	0.97 (0.94 - 0.99) ***	0.84 (0.76 - 0.94) ***
Pre-pregnancy tobacco use	1.06 (1.02 - 1.09) ***	1.14 (1.07 - 1.21) ***	0.97 (0.79 - 1.19)
Parity (ref: Nulliparous)			
Multiparous	0.84 (0.82 - 0.85) ***	0.98 (0.96 - 1.00) **	0.95 (0.87 - 1.04)
Gestational diabetes	1.28 (1.25 - 1.31) ***	1.31 (1.27 - 1.36) ***	1.54 (1.28 - 1.85) ***
Gestational hypertension	3.22 (3.16 - 3.27) ***	3.34 (3.25 - 3.43) ***	3.53 (3.10 - 4.03) ***
Tobacco use during pregnancy	1.39 (1.34 - 1.44) ***	1.25 (1.17 - 1.34) ***	1.31 (1.04 - 1.64) **
Prenatal care initiation (re: 1st trimester)			
No prenatal care	3.50 (3.37 - 3.63) ***	2.49 (2.39 - 2.60) ***	3.45 (2.78 - 4.28) ***
2nd trimester or later	0.86 (0.85 - 0.88) ***	0.77 (0.76 - 0.79) ***	0.89 (0.80 - 0.99) **
Gestational weight gain (ref: at recommendation)			
Above recommendation	0.72 (0.71 - 0.73) ***	0.74 (0.72 - 0.76) ***	0.64 (0.57 - 0.71) ***
Below recommendation	1.65 (1.62 - 1.68) ***	1.51 (1.48 - 1.55) ***	1.51 (1.35 - 1.70) ***

WIC = Special Supplement Program for Women Infants and Children; BMI = body mass index

*** $p < 0.01$

** $p < 0.05$

* $p < 0.10$