SEPTEMBER 1, 2022

Pregnancy and Birth in the COVID Era:
Exploring Racial Disparities

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Background

Timing of Births

On March 9, 2020, Governor Phil Murphy declared a public health emergency in the state of New Jersey as part of the state's coordinated response to contain the spread of COVID-19. The purpose of this report is to better understand the impact COVID-19 and the state's response had on the population of pregnant people in Central New Jersey. The counties within the central region include Hunterdon, Mercer, Momouth, Middlesex, Somerset, and Ocean.

While New Jersey hospitals estimate that between 20,000 and 30,000 infants have been exposed to COVID-19 in-utero, all infants have been exposed to the maternal stress associated with being pregnant during a global pandemic. In Central New Jersey, this accounts for 37,537 births.

The stressors associated with direct and vicarious exposures may also influence the in-utero environment to the detriment of infant health. We note that pandemic stressors extended beyond pregnancy to birthing process. Policy changes within hospitals created even more stress with birthing people not being allowed to have a support person, those with COVID being isolated from their infant for up to two weeks, not allowing COVID-19 positive people to breastfeed, requiring masking at all times, and various other policies to limit the transmission of COVID-19 on maternity units.

This report attempts to conceptualize the stressors associated with births during COVID by using population-level data to show differences in birth outcomes before COVID and during COVID. In order to control for variation in timing, we compare COVID births (those occurring while pandemic protocols were in place) to those occurring in the 15 months immediately preceeding COVID (time-matched) and the same months in the prior years (month-matched)

01
Month Matched
March 2018-June 2019
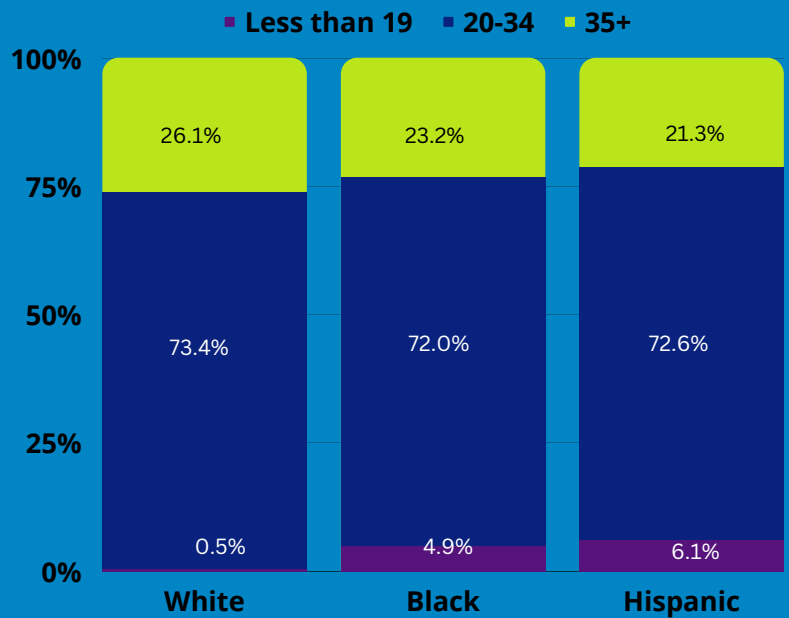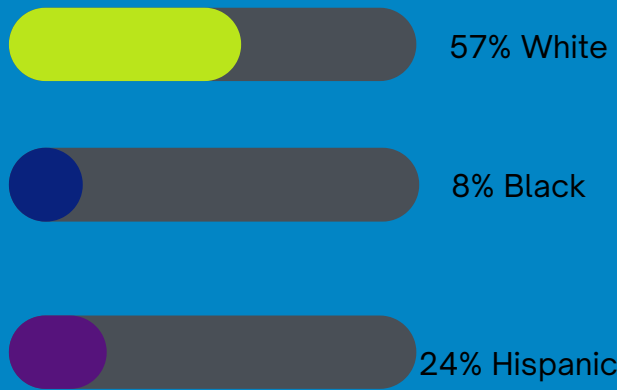
02
Time Matched
December 2018-February 2020

03
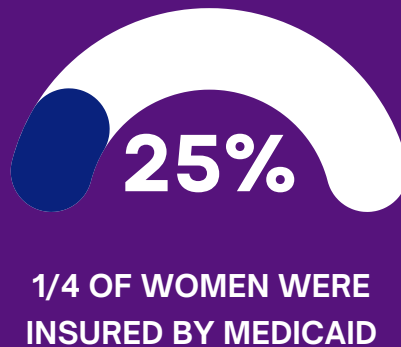### COVID Exposure
March 2020-June 2021

Births During COVID

At A Glance

TOTAL BIRTHS	MONTH* MATCHED	TIME** MATCHED	EXPOSURE†
121,453	37,302	36,857	37,537

Demographics

57% White

8% Black

24% Hispanic

■ Less than 19   ■ 20-34   ■ 35+

	White	Black	Hispanic
35+	26.1%	23.2%	21.3%
20-34	73.4%	72.0%	72.6%
Less than 19	0.5%	4.9%	6.1%

Socioeconomic Status

1 IN 3 WOMEN WERE UNEMPLOYED DURING COVID

25%

1/4 OF WOMEN WERE INSURED BY MEDICAID

50% OF WOMEN WERE COLLEGE EDUCATED

Adverse Birth Outcomes

■ *Month Matched   ■ **Time Matched   ■ †COVID Exposure

Preterm Birth

Low Birth Weight

NICU Admissions

Maternal Morbidity
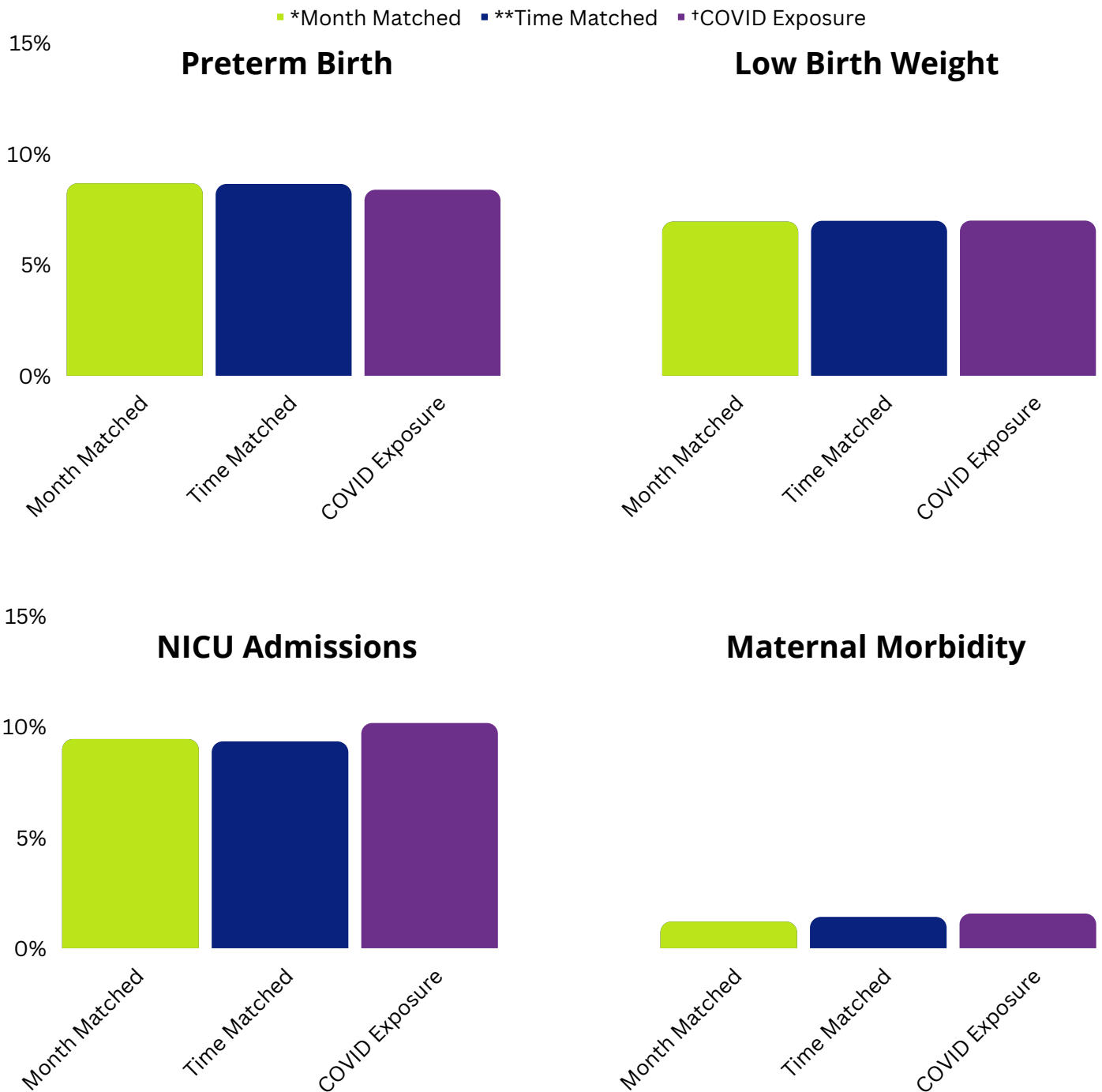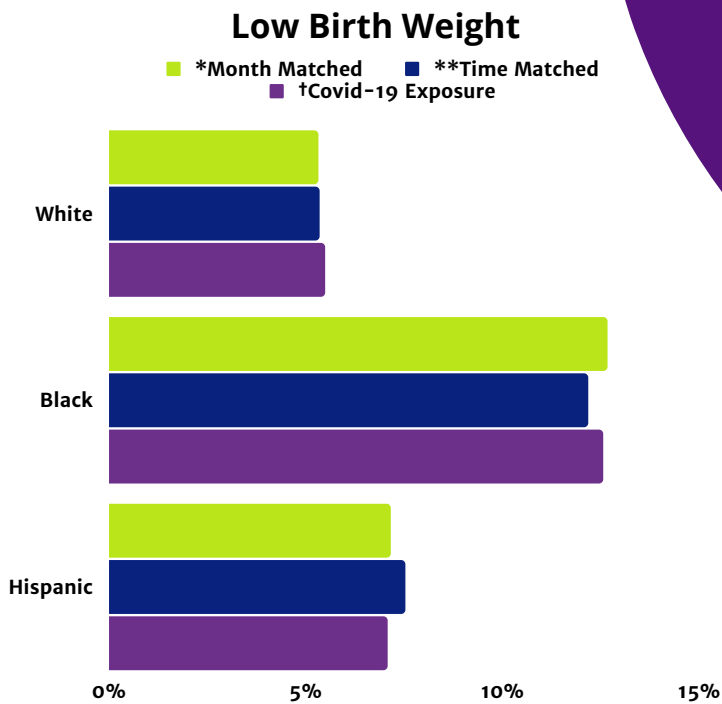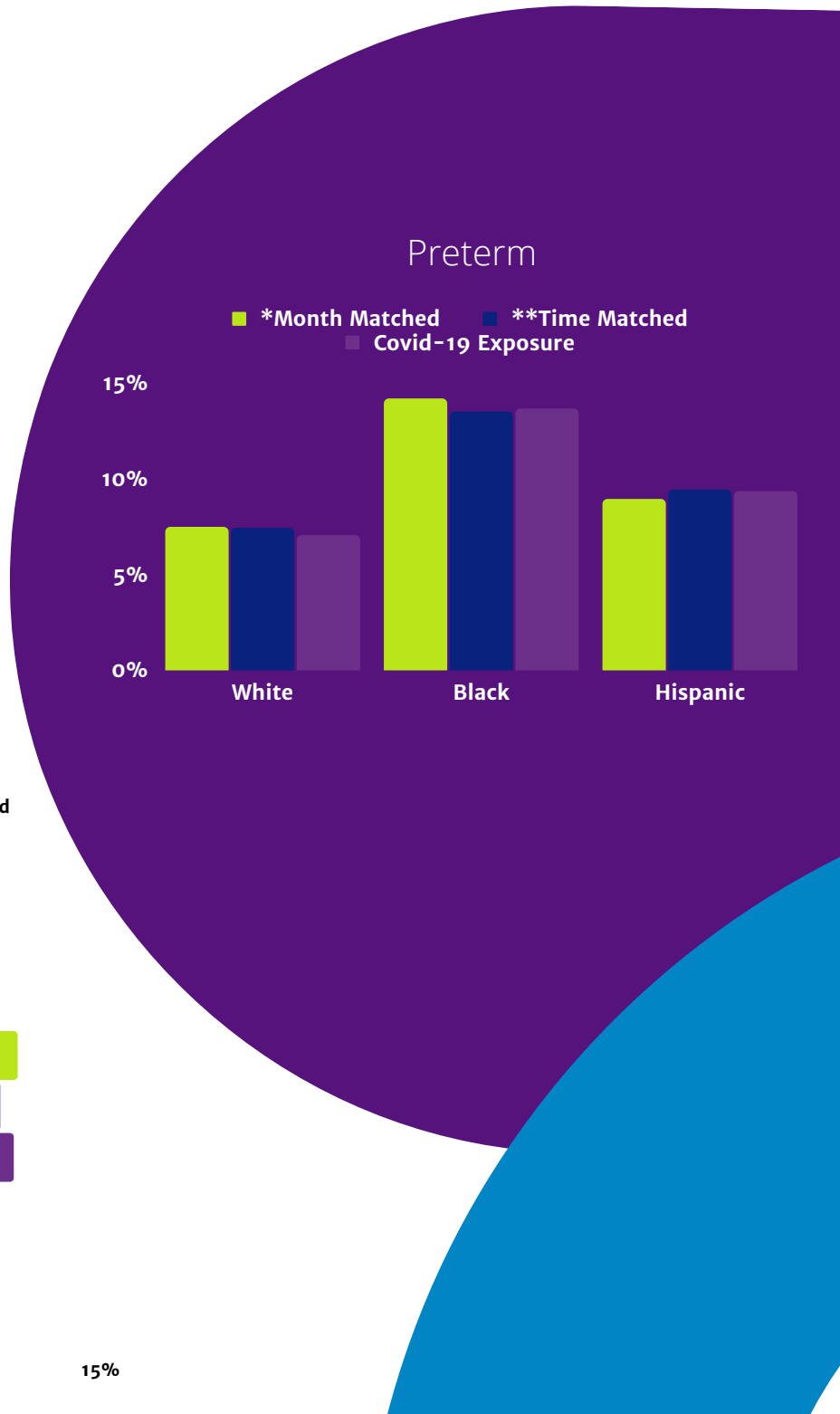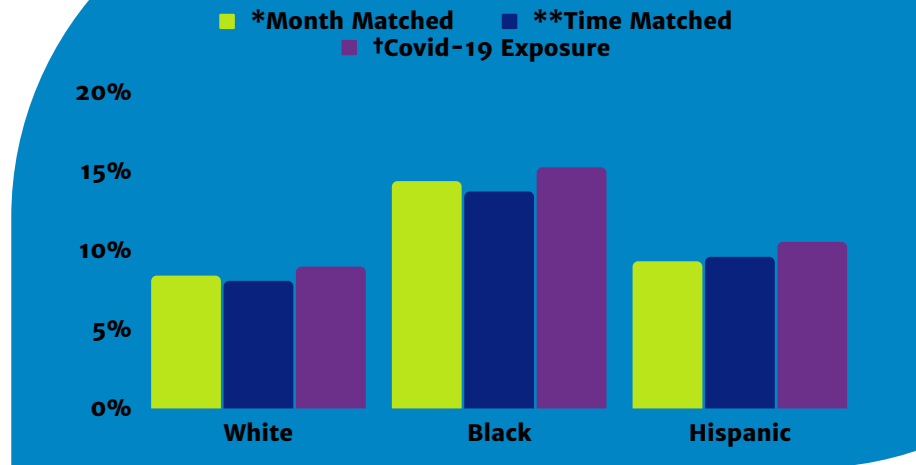
Maternal Morbidity is defined as having one or more of the following: admission to intensive, care unit, maternal transfusion, third or fourth degree perineal laceration, unplanned hysterectomy, or unplanned operating room procedure following delivery

Adverse Outcomes by Exposure

Exploring Racial/Ethnic Differences

Preterm

- 🟩 *Month Matched
- 🟦 **Time Matched
- 🟪 Covid-19 Exposure

Low Birth Weight

- 🟩 *Month Matched
- 🟦 **Time Matched
- 🟪 †Covid-19 Exposure

NICU Admission

■ *Month Matched **■ **Time Matched**
■ †Covid-19 Exposure

White, Black, Hispanic — bar chart with values on a 0%–20% axis.

Maternal Morbidity

■ *Month Matched **■ **Time Matched**
■ †Covid-19 Exposure

White, Black, Hispanic — bar chart with values on a 0%–2% axis.
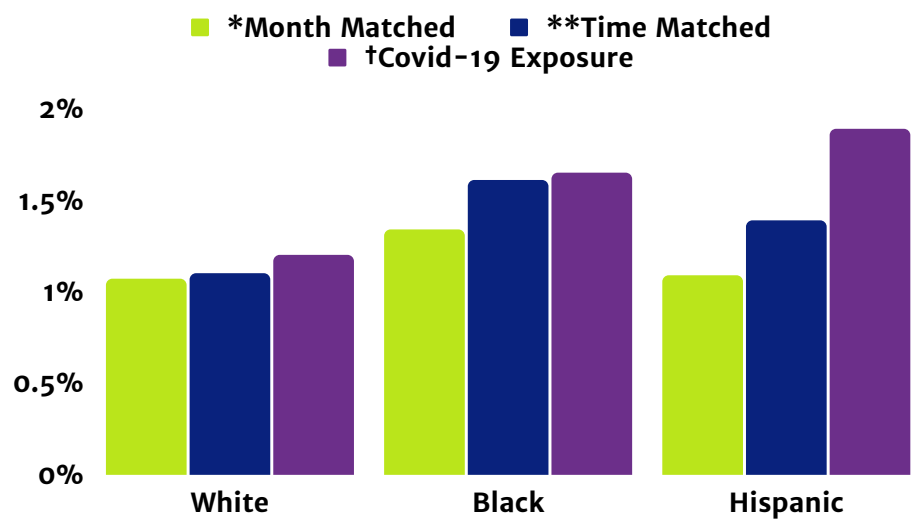
Logistic Regression

In the next section, we provide logistic regression results for NICU admission and maternal morbidity. Logistic regression is a predictive algorithm that allows us to explore the relationship between giving birth during COVID and the adverse outcome of interest. Therefore, we will be calculating the probability of a baby being admitted to the NICU or a person suffering a maternal morbidity given exposure to COVID. Since other factors may contribute to adverse outcomes, they are included in the model with the reference category being what they are compared to. For example, the racial category reference is White, so a probability of NICU admission for a African American baby being above 1.0 suggests that compared to White babies, net of all other factors in the model, African American babies are at increased risk. When the odds ratio is below 1.0, this indicates decreased risk.

Predicting Adverse Outcomes

NICU Admissions

LOGISTIC REGRESSION		
	Time Matched**	Month Matched*
COVID-19 Exposure	1.1	**1.3**
RACE (REFERENCE =WHITE)		
Less than 19	1.1	1.1
35+	**1.1**	**1.1**
RACE (REFERENCE =WHITE)		
Black	**1.5**	**1.5**
Hispanic	1.1	1.0
Asian	**1.5**	**1.4**
Other	**1.4**	1.1
EDUCATION (REFERENCE HIGH SCHOOL DIPLOMA)		
Less than High School	0.9	0.9
Some College	1.0	1.0
College Grad	**0.9**	1.0
Advanced Degree	**0.9**	**0.9**
SOCIAL FACTORS		
Unmarried	**1.4**	**1.4**
Unemployed	**1.1**	**1.1**
On Medicaid	1.0	1.0
Received WIC	**0.8**	**0.8**
HEALTH FACTORS		
Diabetes	**1..5**	**1.6**
Hypertension	**2.4**	**2.3**
Previous Adverse Outcome	**1.5**	**1.6**

1.3
Babies born during the COVID Pandemic were 1.3 times more likely to be admitted to the NICU compared to babies born during the equivalent (month-matched) timeframe.

Predicting Adverse Outcomes

Maternal Morbidity

LOGISTIC REGRESSION		
	Time Matched**	Month Matched*
COVID-19 Exposure	1.1	**1.3**
RACE (REFERENCE =WHITE)		
Less than 19	**1.6**	**1.6**
35+	0.9	0.9
RACE (REFERENCE =WHITE)		
Black	**1.3**	1.2
Hispanic	**1.3**	1.2
Asian	**1.9**	**1.8**
Other	1.5	1.7
EDUCATION (REFERENCE HIGH SCHOOL DIPLOMA)		
Less than High School	1.2	1.1
Some College	1.1	1.1
College Grad	1.2	1.2
Advanced Degree	**1.4**	**1.3**
SOCIAL FACTORS		
Unmarried	**1.2**	**1.3**
Unemployed	1.0	0.9
On Medicaid	0.9	1.0
Received WIC	0.9	0.9
	1.1	**1.3**
HEALTH FACTORS	Time Matched	Month Matched
Diabetes	1.1	1.2
Hypertension	**1.8**	**1.8**
Previous Adverse Outcome	1.3	1.2

1.3
People delivering during COVID were 1.3 times more likely to experience a maternal morbidity compared to those delivering during the equivalent (month-matched) timeframe.

Summary

- More than 37,000 births occurred during the COVID-19 pandemic and the subsequent limitations implemented to reduce the spread
- Low birth weight and preterm births did not increase significantly compared to births prior to COVID.
- Black and Hispanic women experienced higher rates of preterm birth and low birth weight; however, delivering during COVID was not a factor
- Babies born during COVID experienced significantly higher rates of NICU admission than babies born prior
- People delivering during COVID experienced higher rates of maternal morbidity than those delivering prior
- NICU admissions and maternal morbidity were disproportionately higher for Black and Hispanic women during COVID

Questions? Contact us.

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