

National Center for Health Statistics

Maternal and Infant Characteristics Among Women with Confirmed or Presumed Cases of Coronavirus Disease (COVID-19) During Pregnancy

Limited information is available on the impact of the COVID-19 pandemic on pregnant women and their newborns. While national data are not available as of August 2020, 12 state vital records offices and the District of Columbia were routinely collecting information on confirmed or presumed COVID-19 cases among pregnant women who then gave birth and reporting this information to the National Center for Health Statistics (NCHS). The table below presents data for this select area on characteristics of women with COVID-19 at any time during pregnancy, and their newborns. These data are based on cases of COVID-19 reported to NCHS and linked to the standard birth record, allowing for an analysis of birth-related data by maternal COVID-19 status. Additional jurisdictions have recently begun reporting maternal COVID-19 cases to NCHS and will be included in future updates. While these data are not representative of all births in the United States, they are currently the only multi-state birth certificate-based data available. Of note, not all of the 13 reporting areas provided information for the total reporting period (April–August). The information provided is based on 16.9% of all births during the reporting period and the characteristics of the mothers and their newborns reflect the jurisdictions reporting COVID status. States also differed in how information on COVID-19 status was obtained and reported to NCHS. See Technical Notes for more information.

Table 1. Presumed or confirmed cases of COVID-19 during pregnancy, by selected maternal and infant characteristics and by race and Hispanic origin of the mother: 12 States and the District of Columbia, April–August, 2020

Data table  [XLS – 23 KB]

Maternal or infant characteristic	Total ¹		Non Hispanic White ²		Non-Hispanic Black ²		Hispanic ³	
	Yes COVID-19 ⁴	No COVID-19	Yes COVID-19 ⁴	No COVID-19	Yes COVID-19 ⁴	No COVID-19	Yes COVID-19 ⁴	No COVID-19
	Number							
Total	4,466	255,323	899	130,130	789	33,227	2,398	59,650
	Percent distribution							
COVID-19 case percent distribution ⁵	100.0	...	20.6	...	18.1	...	55.0	...
Non-COVID-19 case percent distribution ⁵	...	100.0	...	51.9	...	13.3	...	23.8
Maternal characteristics								
Age of mother								
Total ⁵	100.0	99.9	100.0	99.9	100.0	100.1	100.0	100.1
Under 20	7.1	4.2	3.7	3.2	7.6	6.5	8.6	5.8

20-24	23.1	17.6	19.6	16.5	25.1	22.9	23.6	21.0
25-29	30.0	27.9	30.8	28.4	31.1	29.3	29.7	29.4
30-34	23.5	30.0	29.5	32.4	20.0	24.6	22.0	25.3
35-39	13.2	16.4	14.3	16.2	13.4	13.4	12.8	14.7
40 or more	3.1	3.8	2.1	3.2	2.8	3.4	3.3	3.9
Educational attainment								
Total ^{5,6}	100.0	100.1	100.0	100.0	100.1	100.0	100.0	100.0
Less than High School	27.1	11.3	10.3	7.0	15.1	11.3	38.7	23.1
High School graduate or GED	35.2	26.6	27.9	22.6	42.2	37.1	35.2	33.5
Some college	18.1	19.5	20.4	18.0	22.1	24.9	16.0	21.8
Associate degree	5.3	8.2	9.4	9.5	6.2	7.3	3.6	6.5
Bachelor's degree and higher	14.3	34.5	32.0	42.9	14.5	19.4	6.5	15.1
Percentage								
Source of payment - Medicaid	64.1	40.2	36.8	29.3	72.0	62.7	73.3	57.4
ICU admission	1.1	0.1	0.7	0.1	1.8	0.2	0.9	0.2
Infant characteristics								
Total preterm ⁷	13.54	9.87	11.58	9.06	16.88	14.30	12.73	9.47
34-36 weeks	9.68	7.27	8.46	6.83	11.80	9.64	9.35	7.09
Less than 34 weeks	3.86	2.60	3.12	2.23	5.08	4.66	3.38	2.83
Low birthweight ⁸	9.99	7.94	7.79	6.83	16.88	13.98	8.43	6.85
Very low birthweight ⁹	2.02	1.28	2.11	1.02	2.79	2.77	1.46	1.09
NICU admission	12.6	8.7	11.1	8.4	14.2	12.1	12.1	7.7
Infant living ¹⁰	99.7	99.8	99.8	99.8	99.6	99.5	99.7	99.8

¹Includes births to race and origin groups not shown separately, such as non-Hispanic American Indian or Alaska Native, non-Hispanic Native Hawaiian or Other Pacific Islander, non-Hispanic multiple race and Hispanic origin not stated

²Race and Hispanic origin are reported separately on birth certificates; persons of Hispanic origin may be of any race. In this table, non-Hispanic women are classified by race. Race categories are consistent with the 1997 Office of Management and Budget standards; see reference 1. Single-race is defined as only one race reported on the birth certificate.

³Includes all persons of Hispanic origin of any race; see reference 1.

⁴Confirmed or presumed COVID-19 during pregnancy.

⁵May not add to 100.0 percent due to rounding error.

⁶Includes women who may not have had time to complete their education.

⁷Gestational age in completed weeks; based on the obstetric estimate of gestation.

⁸Less than 2,500 grams

⁹Less than 1,500 grams

¹⁰Infant living at time of discharge or transfer from hospital.

NOTES: Reporting area includes Alabama, Alaska, Arkansas, California, District of Columbia, Idaho, Maine, Maryland, New Hampshire, North Dakota, Ohio, Oregon and West Virginia. See Technical notes for numbers and distributions of cases by state and details on state maternal COVID-19 reporting.

Technical Notes

A subset of states is providing information to the National Center for Health Statistics (NCHS) on reported cases of COVID-19 occurring during pregnancy for pregnancies ending in a live birth. The number of states reporting has increased from seven states and the District of Columbia (DC) in April to 12 states and DC in June. The information from the reporting states is not representative of all women giving birth given that the incidence of COVID-19 cases varies substantially by state and by reporting period and that the reporting states are not a random sample of states. It is also important to note that states have varying approaches to capturing information on maternal COVID-19 and different time requirements for reporting birth information (see Table I below for more information).

Nature and sources of data

National data on maternal COVID-19 are currently not available. Although a specific reporting item for maternal COVID-19 is not included on the U.S. Standard Certificate of Live Birth, a number of states are collecting information on maternal COVID-19 as part of the birth registration process and through other methods and are reporting this supplemental information to NCHS. The information presented for April through August 2020 represents 16.9% of all births during this period. Additional jurisdictions have recently begun reporting maternal COVID-19 cases to NCHS and their data will be included in future updates.

Maternal COVID-19 information is sent by the states to NCHS on a recurring basis independently of the standard birth record and of the standard birth record data transmission process. This information is then linked to the standard birth record using a unique identifier, which allows for detailed analysis of information on the birth record (1) by maternal COVID-19 status. The vast majority (99.6%) of cases of maternal COVID-19 reported for April-August were linked to the corresponding birth record. Unlinked cases are those for which the standard birth record had not been received by NCHS at the time the linkage was performed.

It is important to note that:

- Since reporting states are not a random sample of states, the statistical information shown in this report reflects the characteristics of the reporting states. For example, California maternal COVID-19 cases account for 49.0% of maternal COVID-19 births in the current reporting period while only 11.9% of all U.S. births in 2019 occurred in California. The characteristics of mothers in California will be disproportionately reflected in the data for the reporting area compared to the total U.S. See Table II for the distribution of maternal COVID-19 cases by state for all reporting areas and for the reporting areas excluding California, and Table III for comparisons of selected results for three different reporting areas: the full reporting area, the reporting area excluding California, and California alone.
- The information on COVID-19 cases shown may not include all cases of maternal COVID-19 that occurred in the reporting area during the time period indicated, that is, information on some cases may not be provided to the state prior to submission to NCHS.
- States have different methods for collecting maternal COVID-19 information. Some states have modified their state birth certificates to include a COVID-19 data item. Other states are identifying cases through infectious disease surveillance; still others are using a combination of these two methods (see Table I below).
- These data are reported to NCHS outside of the usual process for submission of standard birth certificate data and do not undergo standard NCHS review prior to posting.

Maternal COVID-19 reporting area

Twelve states and the District of Columbia have provided data as of 10/16/20, although it is important to note that the number of reporting areas was not constant over the time period for which these data are shown. Seven states and DC reported maternal COVID-19 to NCHS for April 2020, nine states and DC for May, and 12 states and DC for June, July and August. Characteristics of the reporting area are a function of the states participating and the length of time that they have been reporting. Table 1 includes data for all cases reported by these states over the April-August time period since the purpose of this analysis was not to examine trends over time, but rather to compare the characteristics of births to women with, and without, COVID-19 during pregnancy. A comparison of results for the full reporting area/period shown in Table 1 with those for a consistent seven-state and DC reporting area for April-August shows essentially similar results in terms of maternal characteristics and birth outcomes (data available upon request).

As additional states begin collecting and reporting information on maternal COVID-19, their data will be added to future updates.

Table I. Reporting specifications for maternal COVID-19 by state: 12 states and the District of Columbia, April-August, 2020

Jurisdiction	Date data collection began	Data collection method
Alabama	3/1/2020	Reports confirmed or presumed cases of maternal COVID-19 reported in the medical notes section of the electronic birth reporting system and birth database. Also matches birth file with COVID-19 positive tests from Alabama National Electronic Disease Surveillance System.
Alaska	4/16/2020	Indicates that confirmed or presumed COVID-19 was present during pregnancy in the "Other Infections of Interest" section of the birth certificate item "Infections present and/or treated during this pregnancy."
Arkansas	5/21/2020	Indicates that confirmed or presumed COVID-19 was present during pregnancy in the "Infections present and/or treated during this pregnancy" item of the birth certificate.
California	6/10/2020	Reports confirmed or presumed cases of maternal COVID-19 reported in the "Complications and Procedures of Pregnancy and Concurrent Illnesses" item of the birth certificate.
District of Columbia	3/1/2020	Indicates that confirmed or presumed COVID-19 was present during pregnancy in the "Infections present and/or treated during this pregnancy" and "Characteristics of Labor and Delivery" items of the birth certificate. Cases are verified using hospital medical records.
Idaho	5/1/2020	Indicates that confirmed or presumed COVID-19 was present during pregnancy in the

		"Infections present and/or treated during this pregnancy" item of the birth certificate.
Maine	6/1/2020	Indicates that confirmed or presumed COVID-19 was present during pregnancy in the "Pregnancy Factors" section of the birth certificate item "Obstetric Procedures".
Maryland	4/8/2020	Developed a COVID-19 birth data collection form for completion by birthing facilities for mothers with confirmed (positive laboratory test) disease.
New Hampshire	4/8/2020	Indicates that confirmed or presumed COVID-19 was present during pregnancy in the "Other Infections" section of the birth certificate item "Infections present and/or treated during this pregnancy."
North Dakota	3/1/2020	Requires birthing hospitals to submit paper-based monthly reports identifying COVID-19 positive mothers.
Ohio	3/1/2020	Links birth file with the Ohio Disease Reporting System to identify confirmed COVID-19 cases.
Oregon	6/15/2020	Indicates that confirmed or presumed COVID-19 was present during pregnancy in the "Infections present and/or treated during this pregnancy" item of the birth certificate.
West Virginia	4/13/2020	Indicates that confirmed or presumed COVID-19 was present during pregnancy in the "Other Infections" section on the birth certificate item "Infections present and/or treated during this pregnancy."

Completeness and representativeness of data

Differences in reporting methods used by states to identify cases of maternal COVID-19 may result in varying levels of completeness by state. While most states report both confirmed or presumed COVID-19 during pregnancy, three states, Maryland, Ohio and North Dakota, report confirmed COVID-19 only. Limited information is available on the quality of infection data reported on the birth certificate, however, underreporting of specific infections has been observed in some jurisdictions (2); accordingly, maternal COVID-19 may also be underreported and the cases reported to NCHS may not be representative of all maternal COVID-19 cases occurring in that jurisdiction.

The incidence of COVID-19 cases among the general population can vary substantially by state and by time period. Since the reporting states do not represent a random sample of states the results shown in Table 1 for the maternal COVID-19 reporting states are not representative of the total U.S., as is illustrated by comparing maternal characteristics from these states to the total U.S. For births occurring during April-August 2019 (comparable data for 2020 are not yet available) the maternal COVID-19 reporting states combined (taking into account the dates at which each state began reporting maternal COVID-19) had a larger percentage of Hispanic births than the total U.S. (24.3% compared with 23.6%), and a smaller percentage of non-Hispanic white (50.7% vs. 52.3%) and non-Hispanic black (13.4% vs. 14.4%) births. The preterm birth rate for the maternal COVID-19 reporting area was lower than that of the entire U.S. (9.96% compared with 10.26%).

State of Occurrence

Maternal COVID-19 cases are reported by state of occurrence, which is the state in which the birth took place. State of occurrence may not be the same as the state of residence. Birth data are typically reported by state of residence.

Table II. Distribution of confirmed or presumed cases of maternal COVID-19 for all reporting areas and for all reporting areas excluding California: April-August 2020

Reporting area	All reporting areas		Reporting area excluding California	
	April-August		April-August	
	Percent distribution	Number	Percent distribution	Number
Alabama	12.8	572	25.1	572
Alaska	0.2	11	0.5	11
Arkansas ¹	4.5	202	8.9	202
California ²	49.0	2,188	N/A	N/A
District of Columbia	3.9	174	7.6	174
Idaho ¹	1.1	48	2.1	48
Maine ²	0.6	26	1.1	26
Maryland	11.2	499	21.9	499
New Hampshire	0.5	21	0.9	21
North Dakota	0.1	6	0.3	6
Ohio	13.9	621	27.3	621
Oregon ²	2.0	90	4.0	90
West Virginia	0.2	8	0.4	8
Total³	100.0	4,466	100.1	2,278

N/A is not applicable

¹Began reporting in May, 2020

²Began reporting in June, 2020

³May not add to 100.0 percent due to rounding error.

Table III. Confirmed or presumed cases of COVID-19 during pregnancy, by selected maternal and infant characteristics: Selected reporting areas and months, 2020

	All reporting areas		Reporting area excluding California		California only	
	April-August		April-August		June-August	
	Yes COVID-19 ¹	No COVID-19	Yes COVID-19 ¹	No COVID-19	Yes COVID-19 ¹	No COVID-19

Maternal or infant characteristic						
	Number					
Total	4,466	255,323	2,278	159,477	2,188	95,846
Maternal characteristics						
	Percent distribution					
Race and Hispanic origin						
Total ²	99.9	100.0	99.9	99.9	100.0	100.0
Non-Hispanic white ³	20.6	51.9	28.4	64.9	12.2	29.4
Non-Hispanic black ³	18.1	13.3	30.6	17.8	4.5	5.3
Non-Hispanic Asian ³	3.1	7.4	2.4	3.5	3.9	14.1
Non-Hispanic other ⁴	3.1	3.6	3.9	3.8	2.2	3.3
Hispanic ⁵	55.0	23.8	34.6	9.9	77.2	47.9
Age of mother in years						
Total ²	100.0	99.9	100.0	99.9	99.9	100.0
Under 20	7.1	4.2	7.2	4.7	7.1	3.3
20-24	23.1	17.6	24.3	19.6	21.8	14.3
25-29	30.0	27.9	29.6	29.5	30.4	25.3
30-34	23.5	30.0	23.2	29.0	23.7	31.7
35-39	13.2	16.4	13.2	14.2	13.2	20.2
40 or more	3.1	3.8	2.5	2.9	3.7	5.2
Educational attainment						
Total ^{2,6}	100.0	100.1	100.0	99.9	100.0	100.0
Less than High School	27.1	11.3	29.5	11.4	24.3	11.1
High School graduate or GED	35.2	26.6	34.4	27.1	36.1	25.6
Some college	18.1	19.5	15.3	19.1	21.3	20.1
Associate degree	5.3	8.2	5.5	8.6	5.0	7.3
Bachelor's degree	9.5	20.9	9.3	20.1	9.9	22.3
Master's degree	3.3	10.3	4.3	10.4	2.2	10.1
Doctorate	1.5	3.3	1.7	3.2	1.2	3.5
	Percentage					
Source of Payment – Medicaid	64.1	40.2	62.0	40.8	66.3	39.3
ICU admission	1.1	0.1	1.3	0.1	1.0	0.2
Infant characteristics						
Total preterm ⁷	13.54	9.87	14.11	10.49	12.95	8.84
34-36 weeks	9.68	7.27	10.11	7.66	9.24	6.61
Less than 34 weeks	3.86	2.60	4.00	2.82	3.71	2.23
Low birthweight ⁸	9.99	7.94	11.07	8.56	8.87	6.90
Very low birthweight ⁹	2.02	1.28	2.28	1.42	1.74	1.04
NICU admission	12.6	8.7	12.4	9.3	12.7	7.6

¹Confirmed or presumed COVID-19

²May not add to 100.0 percent due to rounding error.

³Race and Hispanic origin are reported separately on birth certificates; persons of Hispanic origin may be of any race. In this table, non-Hispanic women are classified by race. Race categories are consistent with the 1997 Office of Management and Budget standards; see reference 1. Single-race is defined as only one race reported on the birth certificate.

⁴Includes births to race and origin groups not shown separately, such as non-Hispanic American Indian or Alaska Native, non-Hispanic Native Hawaiian or Other Pacific Islander, non-Hispanic multiple race and Hispanic origin not stated.

⁵Includes all persons of Hispanic origin of any race; see reference 1.

⁶Includes women who may not have had time to complete their education.

⁷Gestational age in completed weeks; based on the obstetric estimate of gestation.

⁸Less than 2,500 grams

⁹Less than 1,500 grams

¹⁰Infant living at time of discharge or transfer from hospital.

NOTES: Reporting area includes Alabama, Alaska, Arkansas, California, District of Columbia, Idaho, Maine, Maryland, New Hampshire, North Dakota, Ohio, Oregon and West Virginia. See Technical notes for numbers and distributions of cases by state and details on state maternal COVID-19 reporting.

Source

NCHS, National Vital Statistics System.

References

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