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Fetal Mortality in the United States: Trends From 2014 Through 2019 and Changes Between 2018–2019 and 2019–2020

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Abstract

Objectives—This report describes trends from 2014 through 2019 and changes between 2019 and 2020 for total, early, and late fetal mortality in the United States. Changes in fetal mortality from 2019 to 2020 by maternal race and Hispanic origin and by state are also described and compared with changes occurring from 2018 to 2019.

Methods—Data are based on reports of fetal death filed in the 50 states and the District of Columbia (D.C.) and collected via the National Vital Statistics System. In this report, only fetal deaths reported at 20 weeks of gestation or more are included. Data from 2014 through 2019 are final and data for 2020 are provisional.

Results—The fetal mortality rate declined 5% from 2014 to 2019 and increased nonsignificantly, by less than 1%, from 2019 to 2020. Similar trends and patterns were seen for early and late fetal mortality rates. From 2019 to 2020, fetal mortality rates for the three largest race and Hispanic-origin groups did not change significantly. Fetal mortality rates increased in 1 state, decreased in 2 states, and were not significantly different for 47 states and D.C. from 2019 to 2020. In comparison, from 2018 to 2019, fetal mortality rates declined for non-Hispanic White (4%) and Hispanic (5%) women but were not significantly different for non-Hispanic Black women. From 2018 to 2019, fetal mortality rates increased in 2 states and declined in 5 states.

Keywords: fetal death • race and Hispanic origin • provisional data • National Vital Statistics System

Introduction

This report is the first release of provisional national fetal death data for 2020 and provides a brief summary of changes in fetal mortality rates in light of concerns about the impact of COVID-19 on pregnancy outcomes (1–3). The report examines trends in fetal mortality in the United States from 2014 through 2019 and changes between 2019 and 2020 in fetal mortality overall and by maternal race and Hispanic origin and state of residence. Comparisons are also made with changes that occurred between 2018 and 2019.

Methods

The fetal death data shown in this report were collected via the National Vital Statistics System. Findings are based on data for fetal deaths occurring at 20 weeks of gestation or more to residents of the United States. Fetal death data for 2014–2019 are final. Data for 2020 are provisional and based on reports of fetal death received and processed by the National Center for Health Statistics as of August 25, 2021.

Numbers and rates are presented for fetal deaths at 20–27 weeks of gestation (early fetal deaths) and 28 weeks of gestation or more (late fetal deaths). Fetal mortality rates are computed as the number of fetal deaths at 20 weeks of gestation or more per 1,000 live births and fetal deaths at 20 weeks or more.

Hispanic origin and race are reported separately on the U.S. Standard Report of Fetal Death. Data shown by Hispanic origin include all persons of Hispanic origin of any race. Data for non-Hispanic persons are shown separately for each single-race group. Data by race are based on the revised standards issued by the Office of Management and Budget (OMB) in 1997 (4), which allow for the reporting of a minimum of five race categories either by single race (reported alone) or in combination (more than one race or multiple races). 2018 was the first year for which all states and the District of Columbia (D.C.) reported race data according to these revised standards. For years before 2018, the reporting of race data was based on the 1977 OMB standards using bridged race (5), which are not comparable to the 1997 standards. As a result, comparisons of race data based on the 1997 OMB standards are limited to data years 2018–2020. The race and Hispanic-origin groups shown in this report are non-Hispanic single-race White, non-Hispanic single-race Black, and Hispanic. For brevity, text references to non-Hispanic White or non-Hispanic Black women omit the term "single race." Other groups are not shown separately due to small numbers.

Fetal mortality rates by state are based on the mother's state of residence. The small number of fetal deaths in some states by year can result in lack of reliability for state-specific fetal

mortality rates, which can limit the ability to detect statistically significant changes between years.

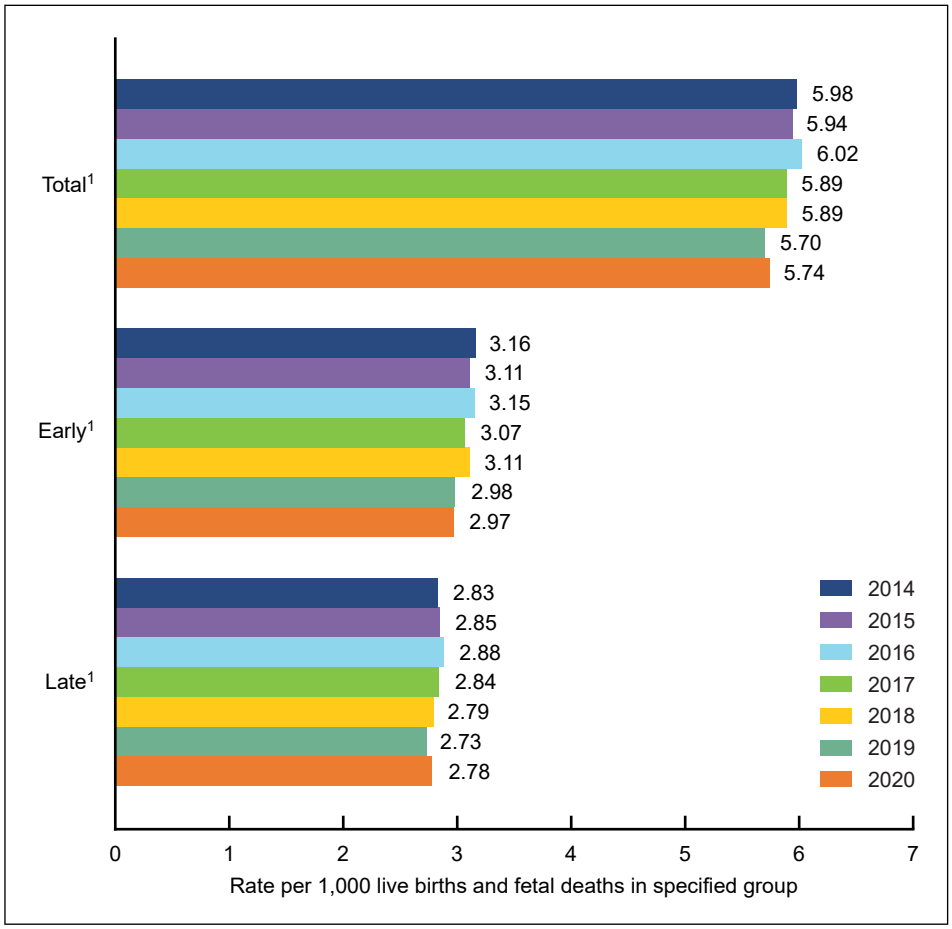
The difference between rates is statistically significant at the 0.05 level unless otherwise noted. For information on the methods used to test for statistical significance, see the 2019 user guide (6). Trends are statistically significant at the 0.05 level and were assessed using the Cochran–Armitage test for trends, a modified chi-squared test.

Results

Trends in total, early, and late fetal mortality for 2014–2019 and changes from 2019 to 2020

- From 2014 through 2019, the total fetal mortality rate fluctuated from year to year but declined overall by 5%, from 5.98 fetal deaths per 1,000 live births and fetal deaths in 2014 to 5.70 in 2019. The rate increased slightly from 2019 to 2020 (5.74), but the increase was not significant (Table 1, Figure 1).
- The early fetal mortality rate (20–27 weeks of gestation) also fluctuated from 2014 through 2019, with an overall 6% decline from 3.16 in 2014 to 2.98 in 2019. The rate was essentially unchanged from 2019 to 2020 (2.97).
- The late fetal mortality rate (28 weeks of gestation or more) also varied from 2014 through 2019 but declined 4% overall, from 2.83 in 2014 to 2.73 in 2019. From 2019 to 2020, a nonsignificant increase of less than 2% was seen, from 2.73 in 2019 to 2.78 in 2020.

Figure 1. Total, early, and late fetal mortality rates: United States, 2014–2020



[1]Significant decreasing trend from 2014 through 2019 ($p < 0.05$).
NOTES: Fetal mortality rate is the number of fetal deaths at 20 weeks of gestation or more per 1,000 live births and fetal deaths. Early fetal mortality rate is the number of fetal deaths at 20–27 weeks of gestation per 1,000 live births and fetal deaths at 20–27 weeks of gestation. Late fetal mortality rate is the number of fetal deaths at 28 weeks of gestation or more per 1,000 live births and fetal deaths at 28 weeks of gestation or more.
SOURCE: National Center for Health Statistics, National Vital Statistics System.

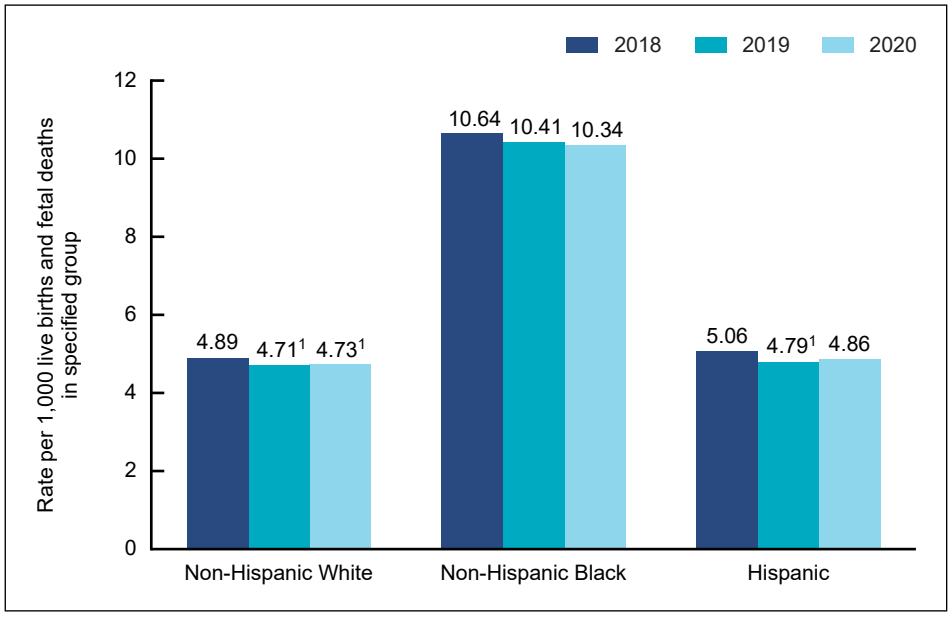
Changes in fetal mortality rate by race and Hispanic origin between 2018–2019 and 2019–2020

- The fetal mortality rate was essentially unchanged for non-Hispanic White women from 2019 (4.71) to 2020 (4.73). In comparison, the fetal mortality rate declined 4% from 2018 (4.89) to 2019 (Table 1, Figure 2).
- For non-Hispanic Black women, a nonsignificant decline of less than 1% was seen in the fetal mortality rate from 2019 (10.41) to 2020 (10.34). In comparison, a nonsignificant decline of about 2% was found from 2018 (10.64) to 2019.
- For Hispanic women, a nonsignificant increase of about 1% was seen in the fetal mortality rate from 2019 (4.79) to 2020 (4.86). In comparison, the fetal mortality rate declined 5% from 2018 (5.06) to 2019.

Changes in fetal mortality rate by state between 2018–2019 and 2019–2020

- From 2019 to 2020, changes in the fetal mortality rate were not significant for 47 states and D.C. The rate increased 7% in California (from 4.84 to 5.20) and decreased 12% in North Carolina (from 6.56 to 5.79) and 14% in Pennsylvania (from 5.94 to 5.09) (Table 2, Figure 3).
- Changes in the fetal mortality rate were not significant in 43 states and D.C. in 2019 compared with 2018. The fetal mortality rate declined in 5 states and increased in 2 states.

Figure 2. Fetal mortality rate, by race and Hispanic origin of mother: United States, 2018–2020



[1]Significantly lower than 2018 ($p < 0.05$).
SOURCE: National Center for Health Statistics, National Vital Statistics System.

Summary

This report found that after a 5% decline in the total fetal mortality rate from 2014 through 2019, the rate increased by less than 1% from 2019 (5.70) to 2020 (5.74), a change that was not significant. Similar trends and patterns were found for early and late fetal mortality rates. From 2019 to 2020, fetal mortality rates did not change significantly for the three largest race and Hispanic-origin groups. Rates also did not change significantly for nearly all states and D.C.; however, state-specific fetal mortality rates are subject to more variation than the national rate, and 1-year differences may be difficult to detect.

On an annual basis, lack of change and nonsignificant increases and declines in fetal mortality rates are common (7,8). The fetal mortality rate declined 75% from 1942 through 2014, with many fluctuations in the rate over this period (7,8). The rate continued to fluctuate from 2014 through 2020, with a larger, although nonsignificant, increase from 2015 to 2016 (1.3%) compared with 2019 to 2020 (0.7%).

Anecdotal reports have suggested that there were increases in fetal deaths in 2020 potentially associated with COVID-19 (2,3). Although COVID-19 status is not collected on reports of fetal death nationally and, therefore, cannot be examined, this report did not find a significant increase in fetal deaths from 2019 to 2020.

References

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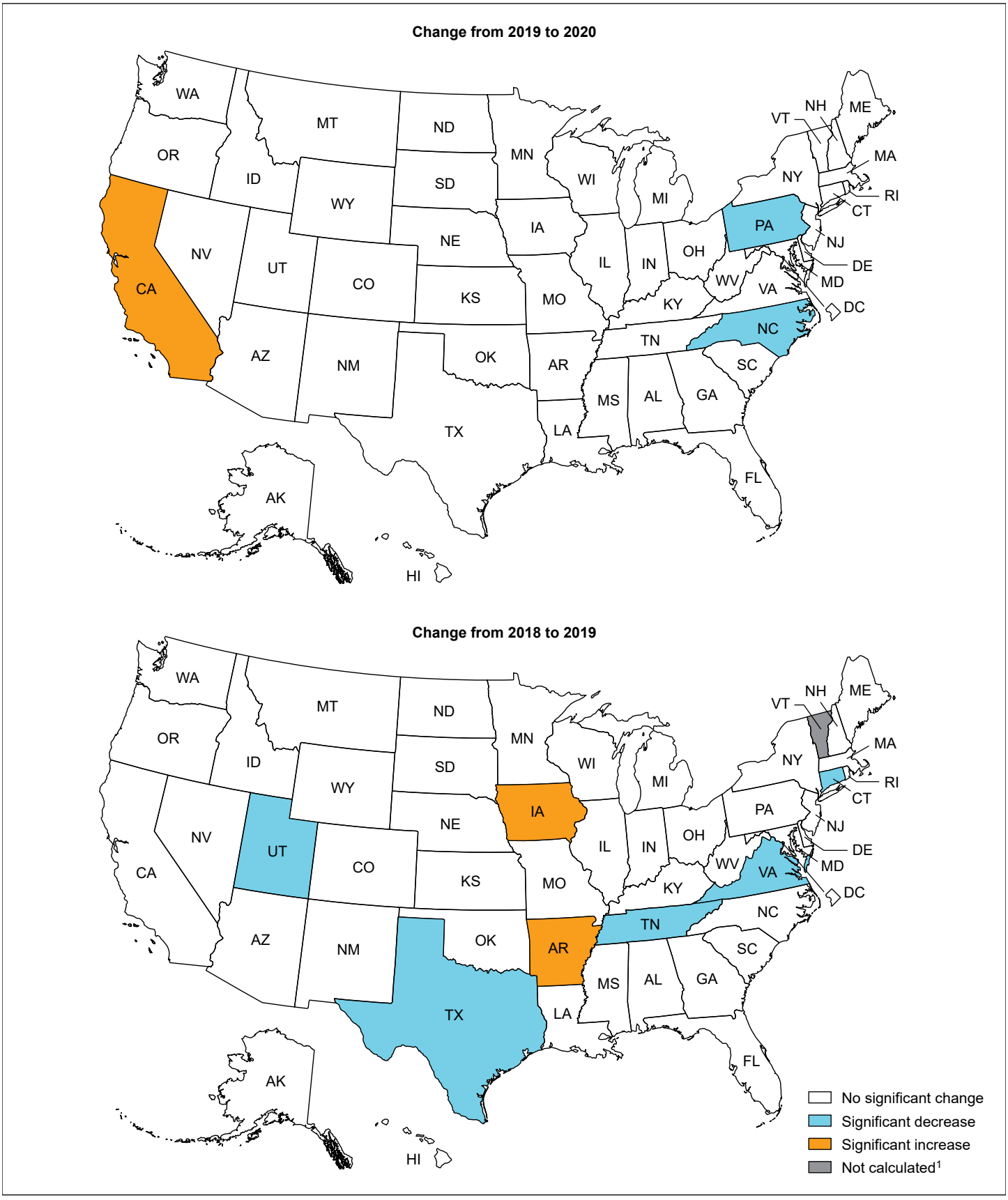
List of Detailed Tables

Figure 3. Change in fetal mortality rates, by state of residence: United States, 2018–2019 and 2019–2020



[1]Rate for 2018 does not meet National Center for Health Statistics standards of reliability; based on fewer than 20 fetal deaths in the numerator.
SOURCE: National Center for Health Statistics, National Vital Statistics System.

Table 1. Fetal mortality rates and number of fetal deaths, by selected characteristics: United States, 2014–2020

Characteristic	2014	2015	2016	2017	2018	2019	2020
				Fetal mortality rate[1]			
Total[2]	5.98	5.94	6.02	5.89	5.89	5.70	5.74
Early[3,4]	3.16	3.11	3.15	3.07	3.11	2.98	2.97
Late[4,5]	2.83	2.85	2.88	2.84	2.79	2.73	2.78
Race and Hispanic origin[2,6]:							
Non-Hispanic single-race White	---	---	---	---	4.89	4.71	4.73
Non-Hispanic single-race Black	---	---	---	---	10.64	10.41	10.34
Hispanic[7]	---	---	---	---	5.06	4.79	4.86
				Number			
Total[2]	23,980	23,776	23,880	22,827	22,459	21,478	20,854
Early[3,4]	12,652	12,407	12,486	11,861	11,844	11,216	10,764
Late[4,5]	11,328	11,369	11,394	10,966	10,615	10,262	10,090
Race and Hispanic origin[2,6]:							
Non-Hispanic single-race White	---	---	---	---	9,621	9,067	8,753
Non-Hispanic single-race Black	---	---	---	---	5,938	5,766	5,536
Hispanic[7]	---	---	---	---	4,510	4,264	4,231

--- Data not available.
[1]Number of fetal deaths in specified group per 1,000 live births and fetal deaths.
[2]Fetal deaths with stated or presumed period of gestation of 20 weeks or more.
[3]Fetal deaths at 20–27 weeks of gestation.
[4]Not-stated gestational age is proportionally distributed.
[5]Fetal deaths at 28 weeks of gestation or more.
[6]Race and Hispanic origin are reported separately on the U.S. Standard Report of Fetal Death; persons of Hispanic origin may be of any race. In this table, non-Hispanic women are classified by race. Race categories are consistent with 1997 Office of Management and Budget standards. Single race is defined as only one race reported on the report of fetal death.
[7]Includes all persons of Hispanic origin of any race.

NOTE: Data for 2014–2019 are final, and data for 2020 are provisional.

SOURCE: National Center for Health Statistics, National Vital Statistics System.

Table 2. Number of fetal deaths and fetal mortality rates, by state of residence: Final 2018 and 2019 and provisional 2020 data

Area	Number of fetal deaths			Fetal mortality rate[1]			Relative percent change	
	2018[2]	2019[2]	2020[3]	2018[2]	2019[2]	2020[3]	2018 to 2019	2019 to 2020
Alabama	497	526	489	8.53	8.89	8.41	4	-5
Alaska	46	55	54	4.54	5.57	5.67	23	2
Arizona	475	497	459	5.85	6.22	5.93	6	-5
Arkansas	262	306	318	7.03	8.30	8.94	†18	8
California	2,278	2,171	2,196	4.98	4.84	5.20	-3	†7
Colorado	338	350	327	5.35	5.54	5.29	4	-5
Connecticut[4]	173	133	149	4.96	3.87	4.43	†-22	14
Delaware	60	59	57	5.62	5.56	5.46	-1	-2
District of Columbia	74	86	70	7.97	9.38	7.83	18	-17
Florida	1,515	1,538	1,458	6.79	6.94	6.91	2	0
Georgia	976	976	1,007	7.68	7.66	8.16	0	7
Hawaii	120	85	103	7.02	5.03	6.48	-28	29
Idaho	113	112	117	5.25	5.05	5.40	-4	7
Illinois	890	829	754	6.11	5.88	5.62	-4	-4
Indiana	498	489	476	6.06	6.01	6.02	-1	0
Iowa	150	196	166	3.95	5.18	4.58	†31	-12
Kansas	204	196	168	5.59	5.51	4.86	-1	-12
Kentucky	311	306	327	5.73	5.73	6.29	0	10
Louisiana	325	290	322	5.42	4.90	5.59	-10	14
Maine	71	65	74	5.73	5.49	6.37	-4	16
Maryland	497	462	466	6.94	6.54	6.75	-6	3
Massachusetts	316	298	278	4.55	4.29	4.17	-6	-3
Michigan	655	652	612	5.92	6.01	5.85	2	-3
Minnesota	394	359	343	5.82	5.41	5.38	-7	-1
Mississippi	391	348	380	10.46	9.41	10.60	-10	13
Missouri	400	402	431	5.43	5.54	6.18	2	12
Montana	46	54	44	3.98	4.85	4.06	22	-16
Nebraska	105	125	104	4.10	5.02	4.26	22	-15
Nevada	252	230	260	7.01	6.52	7.67	-7	18
New Hampshire	55	55	54	4.56	4.62	4.56	1	-1
New Jersey	701	694	658	6.88	6.92	6.67	1	-4
New Mexico	84	69	77	3.63	3.00	3.50	-17	17
New York (including New York City)	1,463	1,331	1,338	6.43	5.97	6.35	-7	6
North Carolina	802	784	680	6.70	6.56	5.79	-2	†-12
North Dakota	60	66	61	5.61	6.27	6.03	12	-4
Ohio	893	850	746	6.56	6.28	5.74	-4	-9
Oklahoma	286	282	302	5.71	5.71	6.30	0	10
Oregon	200	189	205	4.72	4.49	5.12	-5	14
Pennsylvania	823	802	668	6.03	5.94	5.09	-1	†-14
Rhode Island	59	49	63	5.58	4.79	6.20	-14	29
South Carolina	342	345	310	6.00	6.01	5.53	0	-8
South Dakota	51	69	67	4.27	5.99	6.08	40	2
Tennessee	586	498	520	7.20	6.15	6.56	†-15	7
Texas	1,745	1,504	1,492	4.59	3.97	4.04	†-14	2
Utah	317	246	235	6.67	5.23	5.12	†-22	-2
Vermont	16	20	27	*	3.72	5.23	…	41
Virginia	573	485	466	5.71	4.95	4.89	†-13	-1
Washington	488	484	448	5.64	5.67	5.36	1	-5
West Virginia	113	79	80	6.15	4.34	4.60	-29	6
Wisconsin	330	342	317	5.12	5.38	5.20	5	-3
Wyoming	40	40	31	6.06	6.06	5.03	0	-17

† Significant change ($p < 0.05$).
* Estimate does not meet National Center for Health Statistics standards of reliability; based on fewer than 20 fetal deaths in the numerator.
… Category not applicable.
[1]Number of fetal deaths per 1,000 live births and fetal deaths.
[2]Final data.
[3]Provisional data; based on reports of fetal death received and processed as of August 25, 2021.
[4]Fetal deaths were underreported in 2019 and may be underreported in 2020.

SOURCE: National Center for Health Statistics, National Vital Statistics System.

Suggested citation

Gregory ECW, Valenzuela CP, Martin JA. Fetal mortality in the United States: Trends from 2014 through 2019 and changes between 2018–2019 and 2019–2020. Vital Statistics Rapid Release; no 18. Hyattsville, MD: National Center for Health Statistics. 2022. DOI: https://dx.doi.org/10.15620/cdc:113008.