

Infant Mortality

An Overview: 2021	
Infant Deaths	
Number	71
Rate per 1,000 Live Births	6.3
Neonatal Deaths	
Number	37
Rate per 1,000 Live Births	3.3
Postneonatal Death	
Number	34
Rate per 1,000 Live Births	3.0

During 2021, there were 71 South Dakota resident infant deaths reported for an infant mortality rate of 6.3 per 1,000 live births. In comparison, there were 81 infant deaths in 2020, with the infant mortality rate of 7.4 per 1,000 live births.

Caution should be used when comparing these annual rates, because the number of South Dakota resident births creates a relatively small denominator to determine infant mortality rates; a small change in the number of infant deaths can result in a relatively large rate change. Infant mortality rates should be monitored over a period of time.

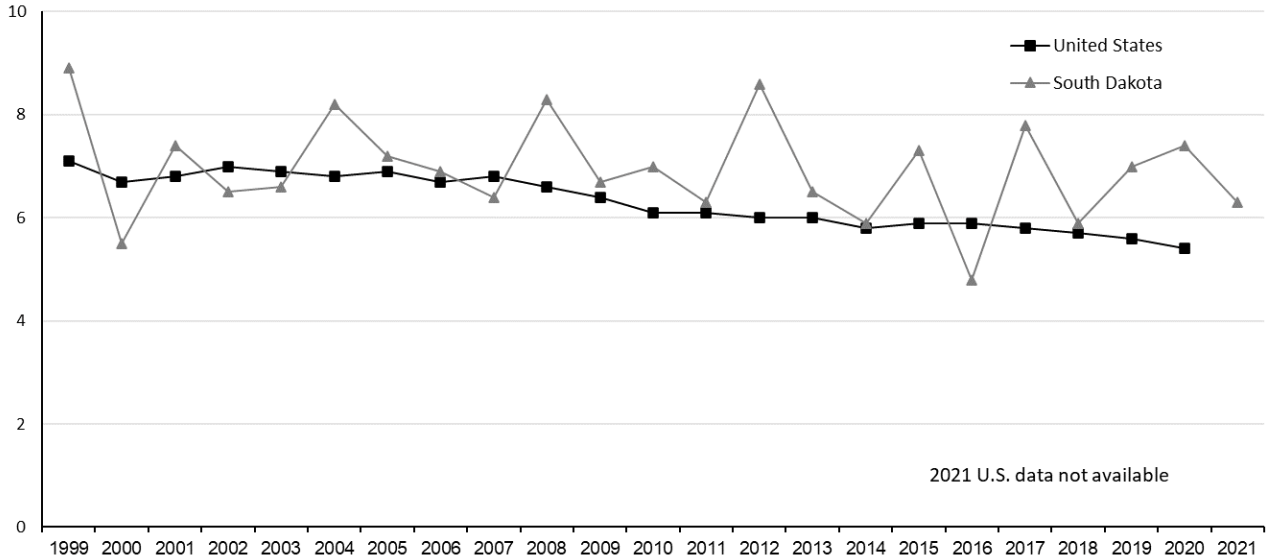
Table 33
Resident Infant Deaths and Infant Mortality Rates,
South Dakota and United States, 2000-2021

Year	United States		South Dakota	
	Number	Mortality Rate	Number	Mortality Rate
2021	*NA	*NA	71	6.3
2020	19,578	5.4	81	7.4
2019	20,921	5.6	80	7.0
2018	21,498	5.7	70	5.9
2017	22,341	5.8	94	7.8
2016	23,161	5.9	59	4.8
2015	23,455	5.9	90	7.3
2014	23,215	5.8	73	5.9
2013	23,446	6.0	80	6.5
2012	23,629	6.0	104	8.6
2011	23,985	6.1	75	6.3
2010	24,586	6.1	83	7.0
2009	26,412	6.4	80	6.7
2008	28,059	6.6	100	8.3
2007	29,138	6.8	79	6.4
2006	28,527	6.7	82	6.9
2005	28,440	6.9	82	7.2
2004	27,936	6.8	93	8.2
2003	28,025	6.9	73	6.6
2002	28,034	7.0	70	6.5
2001	27,568	6.8	78	7.4
2000	27,200	6.7	57	5.5

Note: *U.S. 2021 data were not available at time of publication.
 Infant mortality rates are per 1,000 live births.

Source: National Center for Health Statistics
 South Dakota Department of Health, Office of Health Statistics

Figure 6
Resident Infant Mortality Rates, South Dakota and United States, 1999-2021

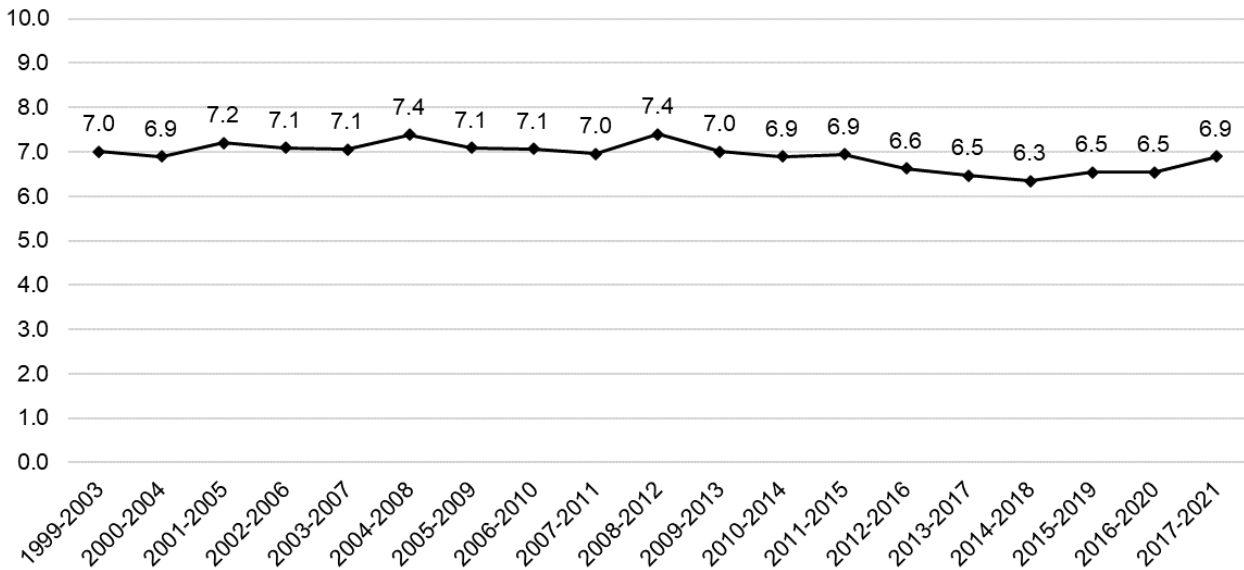


Note: Rate Per 1,000 Live Births. U.S. 2021 data are not available.
 Source: National Center for Health Statistics and South Dakota Department of Health, Office of Health Statistics

Figure 7, below, displays South Dakota's infant mortality rate grouped in five year increments. This graph shows that over the

past 23 years, South Dakota's infant mortality rate has been slowly decreasing.

Figure 7
Resident Infant Mortality Rates for South Dakota, 1999-2021



Note: Rate Per 1,000 Live Births.
 Source: South Dakota Department of Health, Office of Health Statistics

Table 34, below, lists the overall leading causes of infant death in 2017-2021. The leading causes of infant death in 2021 can be broken down as follows: congenital

malformations, 26.3 percent, short gestation and low birth weight with 12.9 percent, and accidental suffocation and strangulation in bed with 8.6%.

Table 34
South Dakota Resident Leading Causes of Infant Death, 2017-2021

	Total	2017	2018	2019	2020	2021
Total Deaths	396	94	70	80	81	71
Congenital malformations, deformations, & chromosomal abnormalities (Q00-Q99)	104	25	19	27	13	20
Chromosomal abnormalities (Q90-Q99)	27	7	5	6	2	7
Edward's syndrome (Q91.0-Q91.3)	18	4	3	5	1	5
Congenital malformations of the nervous system (Q00-Q07)	20	4	4	4	4	4
Anencephaly and similar malformations (Q00)	8	0	2	4	2	0
Congenital malformations of the heart (Q20-Q24)	19	2	5	6	3	3
Congenital malformations and deformations of the musculoskeletal system, limbs and integument (Q65-Q85)	11	3	2	3	0	3
Disorders related to short gestation and low birth weight (P07)	51	19	3	10	11	8
Accidental suffocation and strangulation in bed (W75)	34	7	6	7	8	6
III-Defined and unknown causes of mortality (R96-R99)	30	3	5	8	11	3
Sudden infant death syndrome (R95)	23	3	7	1	6	6
Newborn affected by maternal complications of pregnancy (P01)	16	1	3	4	4	4
Newborn affected by complications of placenta, cord, and membranes (P02)	12	2	4	2	3	1
Newborn affected by complications involving placenta (P02.0-P02.3)	8	2	3	1	2	0
Diseases of the circulatory system (I00-I99)	9	1	2	3	3	0
Respiratory distress of newborn (P22)	9	4	2	1	2	0
Cardiovascular disorders originating in the perinatal period (P29)	8	3	2	0	2	1
All other causes	100	26	17	17	18	22

Source: South Dakota Department of Health, Office of Health Statistics

There were 37 neonatal deaths (deaths occurring to infants from birth through 27 days old) for a rate of 3.3 deaths per 1,000 live births. There were 34 postneonatal deaths (deaths occurring to infants 28 days

to 1 year of age) for a rate of 3.0 deaths per 1,000 live births. In comparison, in 2020 neonatal and postneonatal rates were 3.9 and 3.5 per 1,000 live births, respectively.

Infant Mortality by Race

Race is assigned based on standards set forth by the National Center for Health Statistics and the US Census Bureau in order for South Dakota's race data to be comparable to other areas. All race data in this section are categorized in the following manner:

white, non-Hispanic
 American Indian, non-Hispanic
 black, non-Hispanic
 multi-racial, non-Hispanic
 Hispanic

The remaining categories (Asian, non-Hispanic, and Pacific Islander, non-Hispanic) are included in the totals but are not necessarily shown specifically in any tables.

Table 35a, below, indicates that from 2020 to 2021, the rate of South Dakota resident infant deaths increased for American Indians and blacks. Table 35b, below, displays infant mortality grouped by five-year increments.

Table 35a
South Dakota Resident Infant Deaths and Mortality Rates by Infant's Race, 2012-2021

Year	Race of Infant										Total	
	White, non-Hispanic		American Indian, non-Hispanic		Black, non-Hispanic		Hispanic		Multi-racial, non-Hispanic			
	Num	Rate	Num	Rate	Num	Rate	Num	Rate	Num	Rate	Num	Rate
2021	31	3.9	26	17.2	7	18.3	3	4.3	3	7.1	71	6.3
2020	43	5.6	22	14.7	4	10.4	5	7.6	7	16.7	81	7.4
2019	50	6.1	18	11.2	5	12.1	4	6.2	2	5.1	80	7.0
2018	44	5.2	14	8.5	2	4.9	4	6.1	5	11.7	70	5.9
2017	61	7.1	15	8.3	7	17.6	3	4.8	6	14.4	94	7.8
2016	33	3.7	21	11.8	3	8.3	1	1.6	1	2.7	59	4.8
2015	52	5.9	24	12.5	3	11.3	3	5.4	7	16.6	90	7.3
2014	36	4.0	23	12.7	3	10.2	4	6.6	7	18.3	73	5.9
2013	46	5.2	22	11.6	4	14.4	2	3.8	4	11.9	80	6.5
2012	53	6.0	24	12.9	3	11.1	9	16.3	10	26.2	104	8.6

Note: Infant mortality rates are per 1,000 live births. Failure of races to add to the total is due to other and unknown races included in the total.
 Source: South Dakota Department of Health, Office of Health Statistics

Table 35b
South Dakota Resident Infant Deaths and Mortality Rates by Infant's Race, Five-Year Increments, 2008-2021

Year	Race of Infant										Total	
	White, non-Hispanic		American Indian, non-Hispanic		Black, non-Hispanic		Hispanic		Multi-racial, non-Hispanic			
	Num	Rate	Num	Rate	Num	Rate	Num	Rate	Num	Rate	Num	Rate
2017-2021	229	5.6	95	11.8	25	12.6	19	5.8	23	11.1	396	6.9
2016-2020	231	5.5	90	10.8	21	10.7	17	5.3	21	10.4	384	6.5
2015-2019	240	5.6	92	10.5	20	10.8	15	4.8	21	10.3	393	6.5
2014-2018	226	5.2	97	10.8	18	10.4	15	4.9	26	12.9	386	6.3
2013-2017	228	5.2	105	11.4	20	12.5	13	4.4	25	13.0	396	6.5
2012-2016	220	5.0	114	12.3	16	10.9	19	6.6	29	15.3	406	6.6
2011-2015	229	5.2	117	12.5	16	11.9	18	6.5	32	17.4	422	6.9
2010-2014	229	5.2	112	12.1	14	10.7	18	6.7	32	18.6	415	6.9
2009-2013	247	5.6	108	11.7	14	11.4	16	6.2	27	16.4	422	7.0
2008-2012	256	5.8	115	12.4	12	10.6	20	8.0	30	18.9	442	7.4

Note: Infant mortality rates are per 1,000 live births. Failure of races to add to the total is due to other and unknown races included in the total.
 Source: South Dakota Department of Health, Office of Health Statistics

When analyzed by race, Table 36a, below, indicates that the South Dakota resident neonatal mortality rate per 1,000 live births increased for American Indians and blacks from 2020 to 2021. The white, Hispanic, and

multi-racial neonatal mortality rate decreased from 2020 to 2021. In Table 36b, below, neonatal mortality is grouped in five-year increments.

Table 36a
South Dakota Resident Neonatal Deaths and Mortality Rates by Infant's Race, 2012-2021

Year	Race of Infant										Total	
	White, non-Hispanic		American Indian, non-Hispanic		Black, non-Hispanic		Hispanic		Multi-racial, non-Hispanic			
	Num	Rate	Num	Rate	Num	Rate	Num	Rate	Num	Rate	Num	Rate
2021	18	2.2	12	7.9	5	13.1	1	1.4	1	2.4	37	3.3
2020	23	3.0	10	6.6	4	10.4	3	4.5	3	7.2	43	3.9
2019	30	3.7	6	3.7	5	12.1	3	4.7	1	2.5	46	4.0
2018	24	2.8	7	4.3	1	2.4	3	4.6	1	2.3	36	3.0
2017	46	5.3	10	5.5	6	15.1	2	3.2	2	4.8	67	5.5
2016	22	2.5	8	4.5	0	0.0	0	0.0	1	2.7	31	2.5
2015	36	4.1	15	7.8	3	11.3	2	3.6	2	4.7	59	4.8
2014	25	2.8	8	4.4	1	3.4	4	6.6	4	10.4	42	3.4
2013	31	3.5	9	4.7	4	14.4	1	1.9	2	6.0	48	3.9
2012	39	4.4	14	7.6	1	3.7	6	10.9	6	15.7	69	5.7

Note: Neonatal mortality rates are per 1,000 live births. Failure of races to add to the total is due to other and unknown races included in the total.

Source: South Dakota Department of Health, Office of Health Statistics

Table 36b
South Dakota Resident Neonatal Deaths and Mortality Rates by Infant's Race, Five-Year Increments, 2008-2021

Year	Race of Infant										Total	
	White, non-Hispanic		American Indian, non-Hispanic		Black, non-Hispanic		Hispanic		Multi-racial, non-Hispanic			
	Num	Rate	Num	Rate	Num	Rate	Num	Rate	Num	Rate	Num	Rate
2017-2021	141	3.4	45	5.6	21	10.6	12	3.7	8	3.8	229	4.0
2016-2020	145	3.5	41	4.9	16	8.1	11	3.4	8	3.9	223	3.8
2015-2019	158	3.7	46	5.3	15	8.1	10	3.2	7	3.5	239	4.0
2014-2018	153	3.5	48	5.4	11	6.4	11	3.6	10	5.0	235	3.9
2013-2017	160	3.6	50	5.4	14	8.8	9	3.1	11	5.7	247	4.0
2012-2016	153	3.5	54	5.8	9	6.1	13	4.5	15	7.9	249	4.1
2011-2015	160	3.6	56	6.0	11	8.2	13	4.7	17	9.2	264	4.3
2010-2014	159	3.6	55	6.0	8	6.1	14	5.2	18	10.5	261	4.3
2009-2013	166	3.8	54	5.8	9	7.4	12	4.7	16	9.8	264	4.4
2008-2012	170	3.8	57	6.1	7	6.2	16	6.4	20	12.6	277	4.6

Note: Neonatal mortality rates are per 1,000 live births. Failure of races to add to the total is due to other and unknown races included in the total.

Source: South Dakota Department of Health, Office of Health Statistics

Table 37a, below, indicates that the postneonatal mortality rate per 1,000 live births increased for American Indian and black infants from 2020 to 2021. The American Indian, non-Hispanic postneonatal mortality rate has been consistently higher

than the white, non-Hispanic rate for each year since 2012. When looking at the data in five-year increments as shown in Table 37b, below, the total postneonatal mortality rate from 2017-2021 is the highest in the table that goes back to 2008-2012.

Table 37a
South Dakota Resident Postneonatal Deaths and Mortality Rates by Infant's Race, 2012-2021

Year	Race of Infant										Total	
	White, non-Hispanic		American Indian, non-Hispanic		Black, non-Hispanic		Hispanic		Multi-racial, non-Hispanic			
	Num	Rate	Num	Rate	Num	Rate	Num	Rate	Num	Rate	Num	Rate
2021	13	1.6	14	9.2	2	5.2	2	2.9	2	4.7	34	3.0
2020	20	2.6	12	8.0	0	0.0	2	3.0	4	9.5	38	3.5
2019	20	2.5	12	7.5	0	0.0	1	1.6	1	2.5	34	3.0
2018	20	2.4	7	4.3	1	2.4	1	1.5	4	9.3	34	2.9
2017	15	1.7	5	2.8	1	2.5	1	1.6	4	9.6	27	2.2
2016	11	1.2	13	7.3	3	8.3	1	1.6	0	0.0	28	2.3
2015	16	1.8	9	4.7	0	0.0	1	1.8	5	11.8	31	2.5
2014	11	1.2	15	8.3	2	6.8	0	0.0	3	7.8	31	2.5
2013	15	1.7	13	6.8	0	0.0	1	1.9	2	6.0	32	2.6
2012	14	1.6	10	5.4	2	7.4	3	5.4	4	10.5	35	2.9

Note: Postneonatal mortality rates are per 1,000 live births. Failure of races to add to the total is due to other and unknown races included in the total.

Source: South Dakota Department of Health, Office of Health Statistics

Table 37b
South Dakota Resident Postneonatal Deaths and Mortality Rates by Infant's Race, Five-Year Increments, 2008-2021

Year	Race of Infant										Total	
	White, non-Hispanic		American Indian, non-Hispanic		Black, non-Hispanic		Hispanic		Multi-racial, non-Hispanic			
	Num	Rate	Num	Rate	Num	Rate	Num	Rate	Num	Rate	Num	Rate
2017-2021	88	2.1	50	6.2	4	2.0	7	2.1	15	7.2	167	2.9
2016-2020	86	2.1	49	5.9	5	2.5	6	1.9	13	6.4	161	2.7
2015-2019	82	1.9	46	5.3	5	2.7	5	1.6	14	6.9	154	2.6
2014-2018	73	1.7	49	5.5	7	4.0	4	1.3	16	7.9	151	2.5
2013-2017	68	1.5	55	6.0	6	3.8	4	1.4	14	7.3	149	2.4
2012-2016	67	1.5	60	6.5	7	4.8	6	2.1	14	7.4	157	2.6
2011-2015	69	1.6	61	6.5	5	3.7	5	1.8	15	8.1	158	2.6
2010-2014	70	1.6	57	6.2	6	4.6	4	1.5	14	8.2	154	2.6
2009-2013	81	1.8	54	5.8	5	4.1	4	1.6	11	6.7	158	2.6
2008-2012	86	1.9	58	6.2	5	4.4	4	1.6	10	6.3	165	2.8

Note: Postneonatal mortality rates are per 1,000 live births. Failure of races to add to the total is due to other and unknown races included in the total.

Source: South Dakota Department of Health, Office of Health Statistics

Table 38, below, shows the leading causes of infant death from 2017 to 2021. The overall leading cause of infant death for South Dakota residents was congenital malformations, deformations, and chromosomal abnormalities, which accounted for 26.3 percent of all infant deaths in South Dakota from 2017 to 2021. The second leading cause of death was disorders related to short gestation and low birth weight with 12.9 percent.

When analyzed by race, the leading cause of death for white, non-Hispanic infants was congenital malformations, deformations, and chromosomal abnormalities with 29.7 percent of all white, non-Hispanic infant deaths. This was also the leading cause of death for American Indian, non-Hispanic infants at 15.8 percent.

Table 38
South Dakota Resident Infant Deaths by Cause of Death and Race, 2017-2021

	Total		Race									
			White, non-Hispanic		American Indian, non-Hispanic		Black, non-Hispanic		Hispanic		Multi-racial, non-Hispanic	
	Num	Rate	Num	Rate	Num	Rate	Num	Rate	Num	Rate	Num	Rate
Total Deaths	396	6.9	229	5.6	95	11.8	25	12.6	19	5.8	23	11.1
1. Congenital malformations, deformations, & chromosomal abnormalities (Q00-Q99)	104	1.8	68	1.7	15	1.9	7	3.5	6	1.8	6	2.9
Chromosomal abnormalities (Q90-Q99)	27	0.5	15	0.4	2	0.2	3	1.5	4	1.2	2	1.0
Edward's syndrome (Q91.0-Q91.3)	18	0.3	12	0.3	1	0.1	1	0.5	2	0.6	2	1.0
Congenital malformations of the nervous system (Q00-Q07)	20	0.3	16	0.4	3	0.4	0	0.0	0	0.0	1	0.5
Anencephaly and similar malformations (Q00)	8	0.1	6	0.1	1	0.1	0	0.0	0	0.0	1	0.5
Congenital malformations of the heart (Q20-Q24)	19	0.3	12	0.3	4	0.5	1	0.5	1	0.3	1	0.5
Congenital malformations and deformations of the musculoskeletal system, limbs and integument (Q65-Q85)	11	0.2	9	0.2	1	0.1	0	0.0	1	0.3	0	0.0
2. Disorders related to short gestation and low birth weight (P07)	51	0.9	28	0.7	13	1.6	7	3.5	1	0.3	1	0.5
3. Accidental suffocation and strangulation in bed (W75)	34	0.6	18	0.4	10	1.2	0	0.0	2	0.6	4	1.9
4. Ill-Defined and unknown causes of mortality (R96-R99)	30	0.5	19	0.5	9	1.1	0	0.0	1	0.3	1	0.5
5. Sudden infant death syndrome (R95)	23	0.4	14	0.3	7	0.9	0	0.0	0	0.0	2	1.0
6. Newborn affected by maternal complications of pregnancy (P01)	16	0.3	6	0.1	5	0.6	2	1.0	3	0.9	0	0.0
7. Newborn affected by complications of placenta, cord and membranes (P02)	12	0.2	4	0.1	7	0.9	0	0.0	0	0.0	1	0.5
Newborn affected by complications involving placenta (P02.0-P02.3)	8	0.1	2	0.0	6	0.7	0	0.0	0	0.0	0	0.0
T8. Diseases of the circulatory system (I00-I99)	9	0.2	6	0.1	3	0.4	0	0.0	0	0.0	0	0.0
T8. Respiratory distress of newborn (P22)	9	0.2	6	0.1	1	0.1	1	0.5	1	0.3	0	0.0
10. Cardiovascular disorders originating in the perinatal period (P29)	8	0.1	6	0.1	0	0.0	2	1.0	0	0.0	0	0.0
All Other Causes	100	1.7	54	1.3	25	3.1	6	3.0	5	1.5	8	3.8

Source: South Dakota Department of Health, Office of Health Statistics

Note: Failure of races to add to the total is due to other and unknown races included in the total.

Infant Mortality and Birth Weight

Table 39, below, displays infant mortality rates by birth weight. The highest mortality rate was for babies born who weighed less than 1,000 grams with an infant mortality rate of 458.0, a neonatal mortality rate of 412.6, and a postneonatal mortality rate of

45.5. The highest rates occurred below 2,500 grams, which is considered low birth weight babies. The lowest infant mortality rate occurred in the 3,500-3,999 gram group with 1.9.

Table 39
South Dakota Resident Infant Mortality Rates by Birth Weight, 2017-2021

Birth Weight (in Grams)	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Total	57,721	396	6.9	4.0	2.9
<1,000	286	131	458.0	412.6	45.5
1,000-1,499	319	25	78.4	56.4	21.9
1,500-1,999	806	25	31.0	21.1	9.9
2,000-2,499	2,585	34	13.2	7.7	5.4
2,500-2,999	9,606	62	6.5	2.0	4.5
3,000-3,499	21,750	68	3.1	1.1	2.1
3,500-3,999	17,045	33	1.9	0.5	1.5
4,000-4,499	4,619	11	2.4	0.4	1.9
4,500+	687	3	4.4	1.5	2.9

Note: Infant, neonatal, and postneonatal mortality rates are per 1,000 live births.
Failure of births to add to total is due to unknown birth weights included in the total.
Source: South Dakota Department of Health, Office of Health Statistics

Infant Mortality and Prenatal Care

Table 40, below, displays infant mortality rates by prenatal care. The highest infant mortality rate, 28.3, occurred when mothers did not have prenatal care. This is also

true for neonatal and postneonatal mortality rates. In comparison, when mothers received prenatal care in the first trimester the infant mortality rate was only 5.4.

Table 40
South Dakota Resident Infant Mortality Rates by Prenatal Care, 2017-2021

Trimester Prenatal Care Began	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Total	57,721	396	6.9	4.0	2.9
First Trimester	43,108	231	5.4	3.2	2.1
Second Trimester	10,535	107	10.2	5.5	4.7
Third Trimester	2,836	23	8.1	2.8	5.3
No Prenatal Care	636	18	28.3	20.4	7.9

Note: Infant mortality rates are per 1,000 live births.
Failure of births and infant deaths to add to the total is due to unknown prenatal care included in the total.
Source: South Dakota Department of Health, Office of Health Statistics

Infant Mortality and Gestation Period

Table 41, below, displays infant mortality rates by gestation period. The highest infant mortality rate occurred to those with less than 25 weeks gestation with a rate of 735.7.

The highest neonatal mortality occurred at less than 25 weeks with a rate of 707.1 and the highest postneonatal mortality rate occurred at 25-29 weeks with a rate of 43.2.

Table 41
South Dakota Resident Infant Mortality Rates by Gestation Period, 2017-2021

Weeks of Gestation	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Total	57,721	396	6.9	4.0	2.9
<25 Weeks	140	103	735.7	707.1	28.6
25-29 Weeks	301	41	136.2	93.0	43.2
30-31 Weeks	286	14	49.0	45.5	3.5
32 Weeks	251	8	31.9	15.9	15.9
33 Weeks	321	10	31.2	24.9	6.2
34 Weeks	762	13	17.1	10.5	6.6
35 Weeks	1,030	8	7.8	5.8	1.9
36 Weeks	2,461	30	12.2	5.3	6.9
37 Weeks	5,938	47	7.9	2.5	5.4
38 Weeks	9,768	42	4.3	1.1	3.2
39 Weeks	21,367	54	2.5	0.8	1.7
40 Weeks	11,502	21	1.8	0.4	1.4
41 Weeks	3,306	2	0.6	0.0	0.6
42+ Weeks	232	1	4.3	4.3	0.0

Note: Infant mortality rates are per 1,000 live births.

Failure of births and infant deaths to add to the total is due to unknown gestations included in the total.

Source: South Dakota Department of Health, Office of Health Statistics

Infant Mortality and Cigarette Use

Table 42, below, displays infant mortality rates by cigarette use of the mother. Mothers who reported they smoked cigarettes while pregnant had an infant

mortality rate of 11.7, while mothers who reported they did not smoke cigarettes while pregnant had an infant mortality rate of 5.7.

Table 42
South Dakota Resident Infant Mortality Rates
by Cigarette Use of Mother During Pregnancy, 2017-2021

Cigarette Use of Mother	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Total	57,721	396	6.9	4.0	2.9
Yes	6,281	86	13.7	5.6	8.1
No	51,252	304	5.9	3.7	2.2

Note: Infant mortality rates are per 1,000 live births.

Failure of births to add to the total is due to unknown cigarette use of the mother included in the total.

Source: South Dakota Department of Health, Office of Health Statistics

Infant Mortality and Mother Demographics

The following tables, 43a-43d, compare infant mortality rates among different demographics of the mother, different previous pregnancy histories, different labor and delivery situations, and different post-delivery conditions. The comparison is done using the Chi-Square test. An explanation of this test is given in the Technical Notes section at the end of the report.

The rates denoted with an asterisk are the ones found to illustrate an association with the variables listed in the left column. For example, the test indicates that when there is a change in the education of the mother, there is an associated change with the

infant mortality rate as well as the neonatal and post-neonatal mortality rate.

However, it should be noted that this test does not consider relationships among multiple variables at the same time. Therefore, dependencies detected by Chi-square analyses may be unrealistic or non-causal. There may be other unseen factors that make the variables appear to be associated. However, if properly used, this test is a very useful tool for the evaluation of associations and can be used as a preliminary analysis of more complex statistical evaluations.

Table 43a
South Dakota Resident Infant Mortality Rates by Demographics of Mother, 2017-2021

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Education					
11 years or less	7,297	81	11.1*	6.0*	5.1*
12+ years	48,701	294	6.0*	3.7*	2.4*
Marital Status					
Single	20,950	217	10.4*	5.4*	4.9*
Married	36,750	172	4.7*	3.1*	1.6*
Mother's WIC Status					
No WIC	42,192	249	5.9*	4.0	1.9*
WIC	15,054	132	8.8*	3.9	4.8*
Age					
<20	2,777	29	10.4*	4.7	5.8*
20-24	11,182	95	8.5*	4.7	3.8*
25-29	19,221	104	5.4*	3.1	2.3*
30-34	16,681	99	5.9*	4.3	1.7*
35+	7,859	63	8.0*	4.5	3.6*
BMI					
Underweight (<18.5)	1,622	22	13.6*	8.0*	5.5*
Recommended (18.5-24.9)	24,967	132	5.3*	3.3*	2.0*
Overweight (25.0-29.9)	15,210	96	6.3*	3.6*	2.7*
Obese (30.0-34.9)	8,266	60	7.3*	4.2*	3.0*
Very Obese (35.0-39.9)	4,297	41	9.5*	5.1*	4.4*
Morbidly Obese (40.0+)	2,865	31	10.8*	5.2*	5.6*
Diabetes					
No Pre-Existing Diabetes	57,090	377	6.6*	3.9	2.7*
Pre-Existing Diabetes	598	10	16.7*	8.4	8.4*
Hepatitis C					
No Hepatitis C	57,367	375	6.5*	3.9	2.6*
Hepatitis C	313	11	35.1*	9.6	25.6*
Chlamydia					
No Chlamydia	56,219	365	6.5*	3.8	2.7*
Chlamydia	1,461	21	14.4*	6.8	7.5*
Gonorrhea					
No Gonorrhea	57,272	378	6.6*	3.9*	2.7
Gonorrhea	408	8	19.6*	12.3*	7.4
Family History of Hearing Loss					
No	55,633	353	6.3*	3.7*	2.7
Yes	925	13	14.1*	9.7*	4.3

Table 43a (continued)
South Dakota Resident Infant Mortality Rates by Demographics of Mother, 2017-2021

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Payment Source					
Medicaid	17,011	169	9.9*	4.5*	5.5*
Private Insurance	35,191	170	4.8*	3.4*	1.4*
Self-Pay	1,786	19	10.6*	8.4*	2.2*
Indian Health Service	1,206	17	14.1*	8.3*	5.8*
Champus/Tricare	1,799	6	3.3*	2.2*	1.1*
Other Government	263	5	19.0*	11.4*	7.6*
Other	138	1	7.2*	7.2*	0.0*

Note: *The Chi-square statistic is significant at the 0.05 level.

Source: South Dakota Department of Health, Office of Health Statistics

Table 43b
South Dakota Resident Infant Mortality Rates by Previous Pregnancy History, 2017-2021

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Number of Living Children					
0	18,962	117	6.2*	4.0	2.2*
1	17,506	113	6.5*	4.5	2.0*
2	11,106	61	5.5*	3.1	2.4*
3	5,508	42	7.6*	3.8	3.8*
4+	4,617	55	11.9*	4.3	7.6*
Number of Dead Children					
0	56,840	369	6.5*	3.7*	2.8
1+	811	19	23.4*	21.0*	2.5
Number of Previous Terminations					
0	40,819	236	5.8*	3.4*	2.4*
1	11,327	94	8.3*	5.0*	3.3*
2+	5,505	58	10.5*	5.8*	4.7*
Number of Previous C-Sections					
0	49,784	322	6.5	3.9	2.6*
1	5,094	37	7.3	4.5	2.7*
2+	2,807	28	10.0	4.3	5.7*
Number of Previous Pregnancies					
0	15,626	86	5.5*	3.3	2.2*
1	14,883	95	6.4*	4.5	1.9*
2	11,093	58	5.2*	3.3	1.9*
3	7,045	51	7.2*	4.0	3.3*
4	3,982	33	8.3*	3.5	4.8*
5+	4,995	63	12.6*	5.8	6.8*
Previous Pre-Term Infant					
No	55,568	347	6.2*	3.6*	2.6*
Yes	2,120	40	18.9*	11.8*	7.1*
Other Poor Previous Pregnancy Outcomes					
No	54,817	346	6.3*	3.7*	2.6*
Yes	2,473	38	15.4*	8.9*	6.5*
Infertility Treatment					
No	56,550	374	6.6*	3.8*	2.8
Yes	1,138	13	11.4*	9.7*	1.8

Note: *The Chi-square statistic is significant at the 0.05 level.

Source: South Dakota Department of Health, Office of Health Statistics

Table 43c
South Dakota Resident Infant Mortality Rates by Labor and Delivery, 2017-2021

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Infertility Treatment-Drugs, Insemination					
No	56,858	377	6.6	3.8*	2.8
Yes	826	10	12.1	10.9*	1.2
Tocolysis					
No	57,160	370	6.5*	3.7*	2.7
Yes	540	19	35.2*	29.6*	5.6
Cervical Cerclage					
No	57,519	379	6.6*	3.8*	2.7*
Yes	181	10	55.2*	44.2*	11.0*
Premature Rupture of Membranes					
No	55,811	334	6.0*	3.3*	2.7*
Yes	1,877	54	28.8*	23.4*	5.3*
Antibiotics Received by the Mother During Labor					
No	41,657	236	5.7*	3.4*	2.3*
Yes	16,048	153	9.5*	5.5*	4.0*
Non-Vertex Presentation					
No	54,637	307	5.6*	2.9*	2.7
Yes	2,672	79	29.6*	25.1*	4.5
Steroids for Fetal Lung Maturation Received by the Mother Prior to Delivery					
No	53,637	302	5.6*	3.3*	2.3*
Yes	4,068	87	21.4*	12.3*	9.1*
Clinical Chorioamnionitis Diagnosed During Labor – Maternal Temp $\geq 38^{\circ}\text{C}$					
No	57,028	370	6.5*	3.7*	2.8
Yes	677	19	28.1*	28.1*	0.0
Epidural or Spinal Anesthesia During Labor					
No	15,336	150	9.8*	7.0*	2.7
Yes	32,418	127	3.9*	1.7*	2.2
Fetal Presentation					
Cephalic	54,790	298	5.4*	2.8*	2.6
Breech	2,347	77	32.8*	28.1*	4.7
Method of Delivery					
Vaginal	41,829	234	5.6*	3.3*	2.2*
Vaginal after previous C-section	1,689	18	10.7*	8.3*	2.4*
Primary C-section	7,958	88	11.1*	6.5*	4.5*
Repeat C-section	6,215	47	7.6*	3.4*	4.2*
Maternal Transfusion					
No	57,422	384	6.7*	3.9*	2.8
Yes	265	6	22.6*	18.9*	3.8
Unplanned Operating Procedure Following Delivery					
No	57,487	380	6.6*	3.9*	2.7
Yes	200	10	50.0*	40.0*	10.0

Note: *The Chi-square statistic is significant at the 0.05 level.
Source: South Dakota Department of Health, Office of Health Statistics

Table 43d
South Dakota Resident Infant Mortality Rates by Post Delivery Conditions, 2017-2021

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Five Minute APGAR Score					
0-7	2,531	216	85.3*	74.7*	10.7*
8	5,567	35	6.3*	1.6*	4.7*
9	46,863	118	2.5*	0.4*	2.1*
10	2,473	7	2.8*	0.4*	2.4*
Ten Minute APGAR Score					
0-2	134	110	820.9*	820.9*	0.0
3-7	393	41	104.3*	91.6*	12.7
8-10	205	6	29.3*	19.5*	9.8
Plurality					
1	55,663	349	6.3*	3.6*	2.7
2+	2,058	41	19.9*	15.1*	4.9
Breastfeeding at the Time of Discharge					
No	10,981	112	10.2*	3.2*	7.0*
Yes	46,309	103	2.2*	0.5*	1.7*
Assisted Ventilation Required Immediately Following Delivery					
No	54,136	270	5.0*	2.8*	2.2*
Yes	3,573	119	33.3*	22.4*	10.9*
Assisted Ventilation for More than Six Hours					
No	56,150	315	5.6*	3.2*	2.4*
Yes	1,559	74	47.5*	30.8*	16.7*
Neonatal Intensive Care Unit Admission					
No	51,906	246	4.7*	2.9*	1.8*
Yes	5,803	143	24.6*	13.4*	11.2*
Newborn Given Surfactant Replacement Therapy					
No	57,313	344	6.0*	3.4*	2.6*
Yes	396	45	113.6*	90.9*	22.7*
Suspected Chromosomal Disorder					
No	57,587	350	6.1*	3.5*	2.6*
Yes	109	38	348.6*	266.1*	82.6*
Antibiotics Received by the Newborn for Suspected Neonatal Sepsis					
No	55,375	328	5.9*	3.4*	2.5*
Yes	2,334	61	26.1*	17.1*	9.0*

Note: *The Chi-square statistic is significant at the 0.05 level.

Source: South Dakota Department of Health, Office of Health Statistics

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