

Infant Mortality

An Overview: 2019	
Infant Deaths	
Number	80
Rate per 1,000 Live Births	7.0
Neonatal Deaths	
Number	46
Rate per 1,000 Live Births	4.0
Postneonatal Death	
Number	34
Rate per 1,000 Live Births	3.0

During 2019, there were 80 South Dakota resident infant deaths reported for an infant mortality rate of 7.0 per 1,000 live births. In comparison, there were 70 infant deaths in 2018, with the infant mortality rate of 5.9 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.

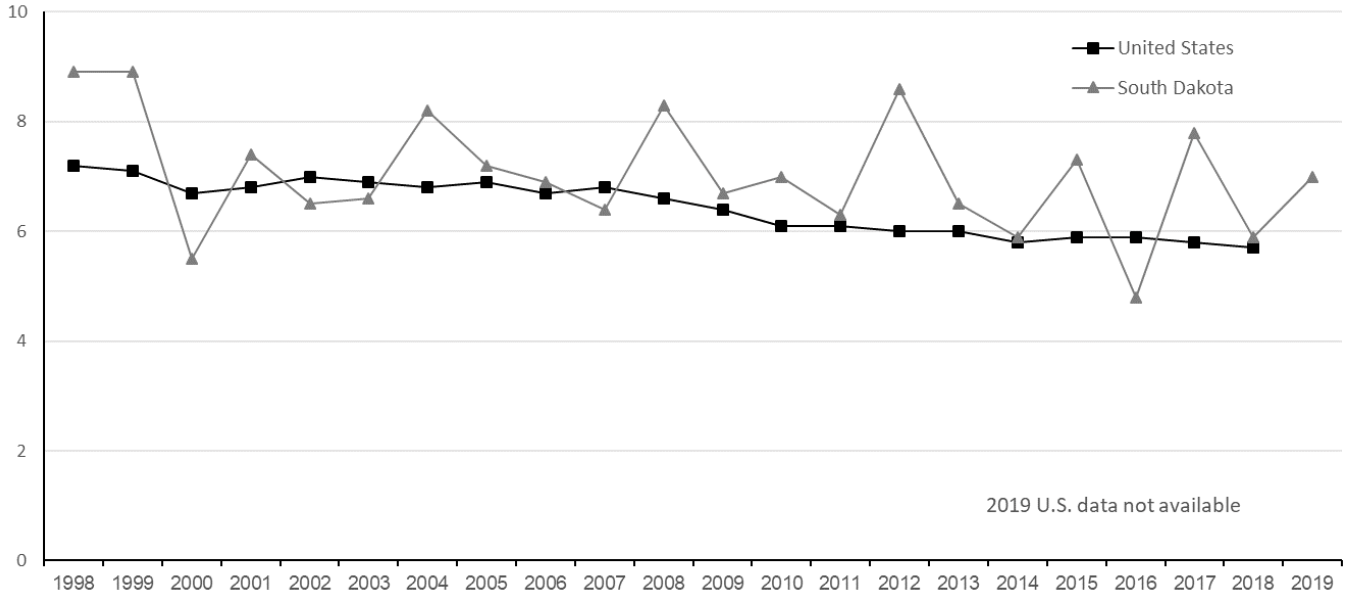
Table 34
Resident Infant Deaths and Infant Mortality Rates,
South Dakota and United States, 1998-2019

Year	United States		South Dakota	
	Number	Mortality Rate	Number	Mortality Rate
2019	*NA	*NA	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
1999	27,937	7.1	94	8.9
1998	28,371	7.2	92	8.9

Note: *U.S. 2019 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, 1998-2019

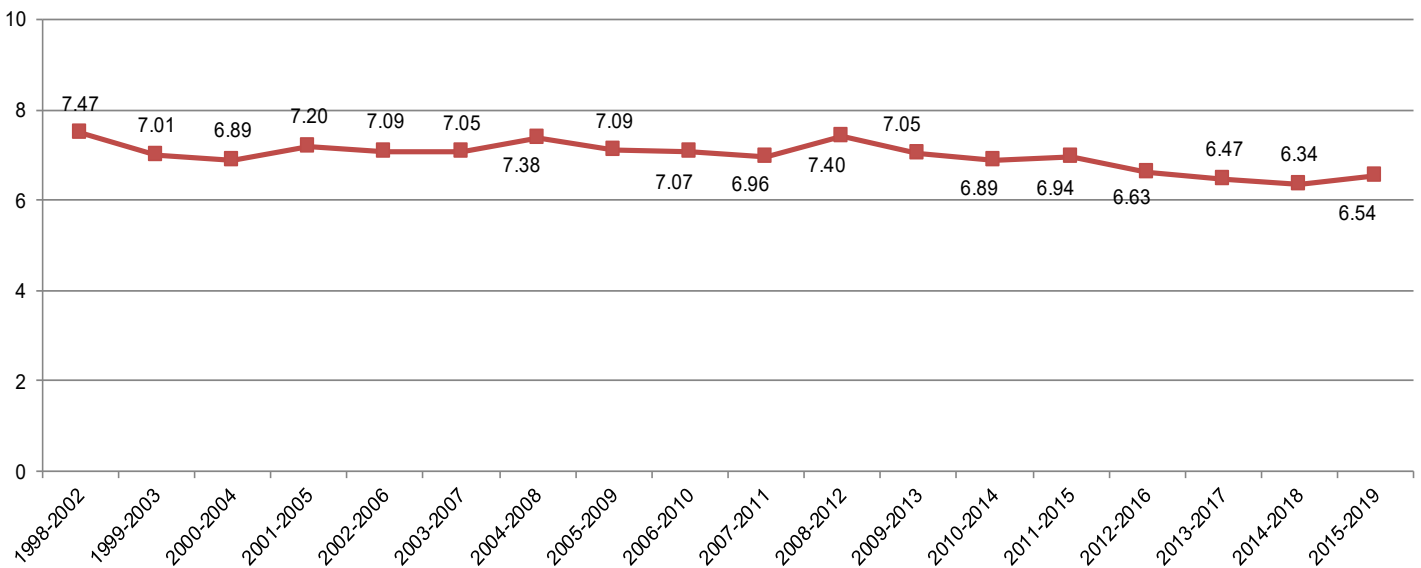


Note: Rate Per 1,000 Live Births. U.S. 2019 data are not available.
 Source: National Center for Health Statistics and South Dakota Department of Health, Office of Health Statistics

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

the past 21 years, South Dakota's infant mortality rate has been slowly decreasing.

Figure 7
Resident Infant Mortality Rates for South Dakota, 1998-2019



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

Table 35, below, lists the overall leading causes of infant death in 2015-2019. The leading causes of infant death in 2019 can be broken down as follows: congenital

malformations, 33.8 percent, short gestation and low birth weight with 12.5 percent, and unintentional injuries also with 12.5 percent.

Table 35
South Dakota Resident Leading Causes of Infant Death, 2015-2019

	Total	2015	2016	2017	2018	2019
Total Deaths	393	90	59	94	70	80
Congenital Malformations, Deformations, & Chromosomal Abnormalities (Q00-Q99)	103	19	13	25	19	27
Chromosomal abnormalities (Q90-Q99)	29	6	5	7	5	6
Edward's syndrome (Q91.0-Q91.3)	18	4	2	4	3	5
Congenital malformations of the heart (Q20-Q24)	18	2	3	2	5	6
Congenital malformations of the nervous system (Q00-Q07)	17	2	3	4	4	4
Anencephaly and similar malformations (Q00)	7	0	1	0	2	4
Congenital malformations and deformations of the musculoskeletal system, limbs and integument (Q65-Q85)	13	4	1	3	2	3
Congenital diaphragmatic hernia (Q79.0)	6	3	0	2	0	1
Congenital malformations of the genitourinary system (Q50-Q64)	6	0	0	3	2	1
Congenital malformations of the digestive system (Q35-Q45)	5	1	0	1	1	2
Multiple congenital malformations (Q89.7)	5	1	0	2	0	2
Congenital malformations of the respiratory system (Q30-Q34)	5	2	0	1	0	2
Disorders related to short gestation and low birth weight (P07)	50	11	7	19	3	10
Unintentional Injuries (V01-X59, Y85-Y86)	47	11	8	10	8	10
Accidental suffocation and strangulation in bed (W75)	36	10	6	7	6	7
Ill-Defined and Unknown Causes of Mortality (R96-R99)	28	7	5	3	5	8
Sudden Infant Death Syndrome (R95)	28	11	6	3	7	1
Newborn affected by complications of placenta, cord, and membranes (P02)	15	7	0	2	4	2
Newborn affected by complications involving placenta (P02.0-P02.3)	10	4	0	2	3	1
Newborn affected by maternal complications of pregnancy (P01)	15	4	3	1	3	4
Newborn affected by premature rupture of membranes (P01.1)	7	1	2	1	1	2
Cardiovascular disorders originating in the perinatal period (P29)	12	4	3	3	2	0
Neonatal cardiac dysrhythmia (P29.1)	6	3	2	1	0	0
Respiratory distress of newborn (P22)	9	1	1	4	2	1
Homicide (X85-Y09, Y87.1)	9	2	2	2	2	1
Diseases of the circulatory system (I00-I99)	7	0	1	1	2	3
Atelectasis (P28.0-P28.1)	6	2	0	3	0	1
Bacterial sepsis of newborn (P36)	5	0	0	3	2	0
Intrauterine hypoxia and birth asphyxia (P20-P21)	5	3	0	1	1	0
Influenza and Pneumonia (J09-J18)	5	1	0	2	1	1
All Other Causes	49	7	10	12	9	11

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

There were 46 neonatal deaths (deaths occurring to infants from birth through 27 days old) for a rate of 4.0 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 2018 neonatal and postneonatal rates were 3.0 and 2.9 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 36a, below, indicates that from 2018 to 2019, the number of South Dakota resident infant deaths increased for white, American Indians, and blacks. Table 36b, below, displays infant mortality grouped by five-year increments.

Table 36a
South Dakota Resident Infant Deaths and Mortality Rates by Infant's Race, 2010-2019

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
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
2011	42	4.8	24	12.8	3	12.8	0	0.0	4	12.5	75	6.3
2010	52	5.9	19	10.7	1	4.4	3	5.9	7	23.6	83	7.0

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 36b
South Dakota Resident Infant Deaths and Mortality Rates by Infant's Race, Five-Year Increments, 2006-2019

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
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
2007-2011	251	5.6	111	11.8	10	9.5	16	6.6	25	17.1	417	7.0
2006-2010	257	5.7	112	11.9	11	11.1	19	8.2	23	16.5	424	7.1

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 37a, below, indicates that the South Dakota resident neonatal mortality rate per 1,000 live births increased for all races from 2010 to 2019 except American Indians. The American Indian, non-Hispanic neonatal mortality rate

was the same as the white rate. In Table 37b, below, neonatal mortality is grouped in five-year increments. The five-year neonatal mortality rate increased for the first time since 2008-2012.

Table 37a
South Dakota Resident Neonatal Deaths and Mortality Rates by Infant's Race, 2010-2019

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
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
2011	29	3.3	10	5.3	2	8.5	0	0.0	3	9.4	46	3.9
2010	35	4.0	14	7.8	0	0.0	3	5.9	3	10.1	56	4.7

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 37b
South Dakota Resident Neonatal Deaths and Mortality Rates by Infant's Race, Five-Year Increments, 2006-2019

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
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
2007-2011	165	3.7	51	5.4	7	6.7	15	6.2	17	11.6	259	4.3
2006-2010	165	3.7	51	5.4	7	7.1	16	6.9	15	10.8	256	4.3

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 38a, below, indicates that the postneonatal mortality rate per 1,000 live births increased for white, non-Hispanic infants and American Indian, non-Hispanic infants from 2018 to 2019. The American Indian, non-Hispanic postneonatal mortality rate has been consistently higher than the

white, non-Hispanic rate for each year since 2010. When looking at the data in five-year increments as shown in Table 38b, below, the total postneonatal mortality rate is showing signs of increasing the past couple years.

Table 38a
South Dakota Resident Postneonatal Deaths and Mortality Rates by Infant's Race, 2010-2019

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
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
2011	13	1.5	14	7.5	1	4.3	0	0.0	1	3.1	29	2.5
2010	17	1.9	5	2.8	1	4.4	0	0.0	4	13.5	27	2.3

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 38b
South Dakota Resident Postneonatal Deaths and Mortality Rates by Infant's Race, Five-Year Increments, 2006-2019

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
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
2007-2011	86	1.9	60	6.4	3	2.9	1	0.4	8	5.5	158	2.6
2006-2010	92	2.0	61	6.5	4	4.0	3	1.3	8	5.7	168	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 39, below, shows the leading causes of infant death from 2015 to 2019. The overall leading cause of infant death for South Dakota residents was congenital malformations, deformations, and chromosomal abnormalities, which accounted for 26.2 percent of all infant deaths in South Dakota from 2015 to 2019. The second leading cause of death was disorders related to short gestation and low birth weight with 12.7 percent.

When analyzed by race, the leading cause of death for white, non-Hispanic infants was congenital malformations, deformations, and chromosomal abnormalities with 31.7 percent of all white, non-Hispanic infant deaths. The leading cause of death for American Indian, non-Hispanic infants was unintentional injuries with 21.7 percent. The leading cause of death for black, non-Hispanic infants was disorders related to short gestation and low birth weight with 25.0 percent.

Table 39
South Dakota Resident Infant Deaths by Cause of Death and Race, 2015-2019

	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	393	6.5	240	5.6	92	10.5	20	10.8	15	4.8	21	10.3
1. Congenital malformations, deformations, & chromosomal abnormalities (Q00-Q99)	103	1.7	76	1.8	10	1.1	4	2.2	8	2.6	2	1.0
Chromosomal abnormalities (Q90-Q99)	29	0.5	21	0.5	1	0.1	1	0.5	5	1.6	0	0.0
Edward's syndrome (Q91.0-Q91.3)	18	0.3	15	0.3	0	0.0	1	0.5	2	0.6	0	0.0
Congenital malformations of the heart (Q20-Q24)	18	0.3	14	0.3	1	0.1	0	0.0	1	0.3	1	0.5
Congenital malformations of the nervous system (Q00-Q07)	17	0.3	12	0.3	3	0.3	1	0.5	0	0.0	1	0.5
Congenital malformations and deformations of the musculoskeletal system, limbs and integument (Q65-Q85)	13	0.2	12	0.3	0	0.0	0	0.0	1	0.3	0	0.0
2. Disorders related to short gestation and low birth weight (P07)	50	0.8	34	0.8	8	0.9	5	2.7	0	0.0	2	1.0
3. Unintentional injuries (V01-X59, Y85-Y86)	47	0.8	22	0.5	20	2.3	0	0.0	0	0.0	5	2.5
Accidental suffocation and strangulation in bed (W75)	36	0.6	20	0.5	14	1.6	0	0.0	0	0.0	2	1.0
T4. Ill-Defined and unknown causes of mortality (R96-R99)	28	0.5	17	0.4	9	1.0	0	0.0	1	0.3	1	0.5
T4. Sudden infant death syndrome (R95)	28	0.5	15	0.3	9	1.0	1	0.6	1	0.3	2	1.0
T6. Newborn affected by complications of placenta, cord and membranes (P02)	15	0.2	7	0.2	7	0.8	1	0.6	0	0.0	0	0.0
Newborn affected by complications involving placenta (P02.0-P02.3)	10	0.2	3	0.1	7	0.8	0	0.0	0	0.0	0	0.0
T6. Newborn affected by maternal complications of pregnancy(P01)	15	0.2	5	0.1	4	0.5	2	1.1	2	0.6	2	1.0
8. Cardiovascular disorders originating in the perinatal period (P29)	12	0.2	8	0.2	2	0.2	2	1.1	0	0.0	0	0.0
T9. Respiratory distress of newborn (P22)	9	0.1	6	0.1	1	0.1	1	0.6	1	0.3	0	0.0
T9. Homicide (X85-Y09, Y87.1)	9	0.1	3	0.1	3	0.3	0	0.0	1	0.3	2	1.0
All Other Causes	77	1.3	47	1.1	19	2.2	4	2.2	1	0.3	5	2.5

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 40, 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 447.1, a neonatal mortality rate of 419.8, and a postneonatal mortality rate of

27.3. The highest rates occurred below 2,500 grams, which is considered low birth weight babies. The lowest infant mortality rate occurred in the 4,000-4,499 gram group with 2.0.

Table 40
South Dakota Resident Infant Mortality Rates by Birth Weight, 2015-2019

Birth Weight (in Grams)	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Total	60,059	393	6.5	4.0	2.6
<1,000	293	131	447.1	419.8	27.3
1,000-1,499	351	25	71.2	51.3	19.9
1,500-1,999	815	25	30.7	24.5	6.1
2,000-2,499	2,569	32	12.5	6.6	5.8
2,500-2,999	9,613	52	5.4	1.9	3.5
3,000-3,499	22,374	77	3.4	1.2	2.2
3,500-3,999	18,150	36	2.0	0.7	1.3
4,000-4,499	5,115	10	2.0	0.4	1.6
4,500+	773	2	2.6	0.0	2.6

Note: Infant, neonatal, and postneonatal mortality rates are per 1,000 live births.
Failure of births to add to total is due to not stated birth weights.

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

Infant Mortality and Prenatal Care

Table 41, below, displays infant mortality rates by prenatal care. The highest infant mortality rate, 19.7, occurred when mothers did not have prenatal care. This is

true for neonatal and postneonatal mortality rates. In comparison, when mothers received prenatal care in the first trimester the infant mortality rate was only 5.3.

Table 41
South Dakota Resident Infant Mortality Rates by Prenatal Care, 2015-2019

Trimester Prenatal Care Began	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Total	60,059	393	6.5	4.0	2.6
First Trimester	44,610	238	5.3	3.4	1.9
Second Trimester	11,206	107	9.5	5.2	4.4
Third Trimester	2,933	20	6.8	3.1	3.8
No Prenatal Care	558	11	19.7	14.3	5.4

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

Failure of births and infant deaths to add to the total is due to not stated trimester prenatal care began.

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

Infant Mortality and Gestation Period

Table 42, 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 753.6.

The highest neonatal mortality rate and postneonatal mortality rate both occurred at less than 25 weeks with a rate of 724.6 and 29.0, respectively.

Table 42
South Dakota Resident Infant Mortality Rates by Gestation Period, 2015-2019

Weeks of Gestation	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Total	60,059	393	6.5	4.0	2.6
<25 Weeks	138	104	753.6	724.6	29.0
25-29 Weeks	336	41	122.0	95.2	26.8
30-31 Weeks	273	11	40.3	33.0	7.3
32 Weeks	243	8	32.9	28.8	4.1
33 Weeks	315	8	25.4	19.0	6.3
34 Weeks	730	11	15.1	9.6	5.5
35 Weeks	1,065	9	8.5	6.6	1.9
36 Weeks	2,387	33	13.8	6.3	7.5
37 Weeks	5,489	34	6.2	2.4	3.8
38 Weeks	9,732	42	4.3	1.3	3.0
39 Weeks	21,591	55	2.5	1.0	1.5
40 Weeks	13,139	26	2.0	0.5	1.5
41 Weeks	4,214	8	1.9	0.2	1.7
42+ Weeks	349	2	5.7	2.9	2.9

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

Failure of births and infant deaths to add to the total is due to not stated weeks of gestation.

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

Infant Mortality and Cigarette Use

Table 43, 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 11.4, while mothers who reported they did not smoke cigarettes while pregnant had an infant mortality rate of 5.7.

Table 43
South Dakota Resident Infant Mortality Rates
by Cigarette Use of Mother During Pregnancy, 2014-2018

Cigarette Use of Mother	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Total	60,059	393	6.5	4.0	2.6
Yes	7,514	86	11.4	5.5	6.0
No	52,323	300	5.7	3.7	2.0

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

Failure of births to add to the total is due to 'not stated' cigarette use of the mother.

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

Infant Mortality and Mother Demographics

The following tables, 44a-44d, 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 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 44a
South Dakota Resident Infant Mortality Rates by Demographics of Mother, 2015-2019

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Education					
11 years or less	7,669	77	10.0*	5.2	4.8*
12+ years	50,542	285	5.6*	3.8	1.9*
Marital Status					
Single	22,028	192	8.7*	5.0*	3.7*
Married	38,011	183	4.8*	3.4*	1.4*
Mother's WIC Status					
No WIC	41,782	233	5.6*	4.0	1.6*
WIC	17,852	139	7.8*	3.9	3.9*
Age					
<20	3,146	21	6.7	3.8	2.9*
20-24	12,380	97	7.8	4.5	3.3*
25-29	20,178	114	5.6	3.7	1.9*
30-34	16,835	91	5.4	3.9	1.5*
35+	7,520	53	7.0	4.3	2.8*
BMI					
Underweight (<18.5)	1,793	17	9.5*	6.7*	2.8*
Recommended (18.5-24.9)	26,911	130	4.8*	3.1*	1.7*
Overweight (25.0-29.9)	15,523	83	5.3*	3.5*	1.8*
Obese (30.0-34.9)	8,301	55	6.6*	3.9*	2.8*
Very Obese (35.0-39.9)	4,162	48	11.5*	7.2*	4.3*
Morbidly Obese (40.0+)	2,806	36	12.8*	7.5*	5.3*
Diabetes					
No Pre-Existing Diabetes	59,399	364	6.1*	3.9	2.2*
Pre-Existing Diabetes	588	9	15.3*	6.8	8.5*
Hepatitis C					
No Hepatitis C	59,766	368	6.2*	3.9*	2.2*
Hepatitis C	233	6	25.8*	12.9*	12.9*
Chlamydia					
No Chlamydia	58,510	354	6.1*	3.9*	2.2*
Chlamydia	1,489	20	13.4*	7.4*	6.0*

Table 44a (continued)
South Dakota Resident Infant Mortality Rates by Demographics of Mother, 2015-2019

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Payment Source					
Medicaid	18,290	163	8.9*	4.7	4.2*
Private Insurance	36,100	173	4.8*	3.5	1.3*
Self-Pay	1,842	15	8.1*	6.0	2.2*
Indian Health Service	1,456	13	8.9*	4.8	4.1*
Champus/Tricare	1,815	5	2.8*	1.7	1.1*
Other Government	215	2	9.3*	9.3	0.0*
Other	166	1	6.0*	6.0	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 44b
South Dakota Resident Infant Mortality Rates by Previous Pregnancy History, 2015-2019

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Number of Living Children					
0	19,724	115	5.8	4.2	1.7*
1	18,621	111	6.0	4.0	2.0*
2	11,613	67	5.8	3.2	2.6*
3	5,497	44	8.0	4.5	3.5*
4+	4,593	37	8.1	4.4	3.7*
Number of Dead Children					
0	59,212	356	6.0*	3.7*	2.3
1+	824	19	23.1*	21.8*	1.2
Number of Previous Terminations					
0	42,604	223	5.2*	3.2*	2.0*
1	11,742	90	7.7*	5.5*	2.2*
2+	5,681	62	10.9*	6.5*	4.4*
Number of Previous Pregnancies					
0	16,212	79	4.9*	3.1*	1.8*
1	15,775	95	6.0*	4.3*	1.7*
2	11,799	61	5.2*	3.4*	1.8*
3	7,200	63	8.8*	5.3*	3.5*
4	4,031	25	6.2*	3.5*	2.7*
5+	5,002	51	10.2*	5.6*	4.6*
Previous Pre-Term Infant					
No	57,943	348	6.0*	3.8*	2.2*
Yes	2,044	25	12.2*	7.8*	4.4*
Pre-Pregnancy Hypertension					
No	59,179	366	6.2	3.9*	2.3
Yes	808	7	8.7	8.7*	0.0
Gestational Hypertension					
No	56,272	348	6.2	4.0	2.2*
Yes	3,715	25	6.7	3.0	3.8*
Other Poor Previous Pregnancy Outcomes					
No	57,017	331	5.8*	3.6*	2.2
Yes	2,621	41	15.6*	12.2*	3.4
Hepatitis B					
No	59,895	372	6.2	4.0	2.2*
Yes	104	2	19.2	0.0	19.2*
Infertility Treatment					
No	58,875	363	6.2	3.9*	2.3
Yes	1,112	10	9.0	8.1*	0.9
Infertility Treatment – Assisted Reproductive Technology					
No	59,661	368	6.2*	3.9*	2.3
Yes	326	5	15.3*	12.3*	3.1

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

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

Table 44c
South Dakota Resident Infant Mortality Rates by Labor and Delivery, 2015-2019

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Tocolysis					
No	59,389	357	6.0*	3.8*	2.2
Yes	626	18	28.8*	24.0*	4.8
Cervical Cerclage					
No	59,836	364	6.1*	3.8*	2.3
Yes	179	11	61.5*	61.5*	0.0
Premature Rupture of Membranes					
No	57,997	311	5.4*	3.1*	2.2
Yes	2,017	64	31.7*	28.3*	3.5
Antibiotics Received by the Mother During Labor					
No	43,358	221	5.1*	3.3*	1.8*
Yes	16,667	155	9.3*	5.7*	3.6*
Non-Vertex Presentation					
No	56,985	302	5.3*	3.0*	2.3
Yes	2,695	73	27.1*	25.6*	1.5
Steroids for Fetal Lung Maturation Received by the Mother Prior to Delivery					
No	56,396	310	5.5*	3.5*	2.0*
Yes	3,629	66	18.2*	11.3*	6.9*
Clinical Chorioamnionitis Diagnosed During Labor – Maternal Temp $\geq 38^{\circ}\text{C}$					
No	59,289	360	6.1*	3.8*	2.3
Yes	736	16	21.7*	21.7*	0.0
Epidural or Spinal Anesthesia During Labor					
No	16,527	152	9.2*	7.0*	2.2
Yes	33,090	126	3.8*	1.8*	2.0
Fetal Presentation					
Cephalic	56,997	290	5.1*	2.8*	2.2
Breech	2,389	75	31.4*	29.7*	1.7
Method of Delivery					
Vaginal	43,312	239	5.5*	3.5*	2.1
Vaginal after previous C-section	1,719	19	11.1*	8.7*	2.3
Primary C-section	8,149	76	9.3*	6.5*	2.8
Repeat C-section	6,818	39	5.7*	2.8*	2.9
Maternal Transfusion					
No	59,792	370	6.2*	3.9*	2.3
Yes	244	6	24.6*	20.5*	4.1
Unplanned Operating Procedure Following Delivery					
No	59,825	362	6.1*	3.8*	2.2*
Yes	211	14	66.4*	56.9*	9.5*

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

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

Table 44d
South Dakota Resident Infant Mortality Rates by Post Delivery Conditions, 2015-2019

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Five Minute APGAR Score					
0-7	2,498	214	85.7*	77.7*	8.0*
8	5,589	34	6.1*	2.5*	3.6*
9	48,664	111	2.3*	0.5*	1.8*
10	3,054	7	2.3*	0.3*	2.0*
Ten Minute APGAR Score					
0-2	125	112	896.0*	896.0*	0.0
3-7	354	37	104.5*	98.9*	5.6
8-10	230	6	26.1*	17.4*	8.7
Plurality					
1	57,918	337	5.8*	3.6*	2.2
2+	2,141	39	18.2*	15.4*	2.8
Breastfeeding at the Time of Discharge					
No	11,541	95	8.2*	3.6*	4.6*
Yes	48,087	103	2.1*	0.4*	1.7*
Assisted Ventilation Required Immediately Following Delivery					
No	56,280	258	4.6*	2.7*	1.9*
Yes	3,769	116	30.8*	23.1*	7.7*
Assisted Ventilation for More than Six Hours					
No	58,557	301	5.1*	3.2*	1.9*
Yes	1,492	73	48.9*	33.5*	15.4*
Neonatal Intensive Care Unit Admission					
No	54,018	250	4.6*	3.0*	1.6*
Yes	6,031	124	20.6*	12.8*	7.8*
Newborn Given Surfactant Replacement Therapy					
No	59,615	331	5.6*	3.4*	2.1*
Yes	434	43	99.1*	78.3*	20.7*
Antibiotics Received by the Newborn for Suspected Neonatal Sepsis					
No	57,275	315	5.5*	3.4*	2.1*
Yes	2,774	59	21.3*	14.8*	6.5*
Suspected Chromosomal Disorder					
No	59,943	332	5.5*	3.4*	2.1*
Yes	100	41	410.0*	330.0*	80.0*

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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