

Infant Mortality

An Overview: 2014

Infant Deaths	
Number	73
Rate per 1,000 Live Births	5.94
Neonatal Deaths	
Number	42
Rate per 1,000 Live Births	3.42
Postneonatal Death	
Number	31
Rate per 1,000 Live Births	2.52

In comparison, there were 80 infant deaths in 2013, with the infant mortality rate of 6.53 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. For example, as Table 32, below, and Figure 6, on the next page, displays, large downward spikes occurred in 1996 and 2000. Decreases of 39 infants from 1995 to 1996 and 37 infants from 1999 to 2000 caused large downward spikes in infant mortality rates. Therefore, infant mortality rates should be monitored over a period of time.

During 2014, there were 73 South Dakota resident infant deaths reported for an infant mortality rate of 5.94 per 1,000 live births.

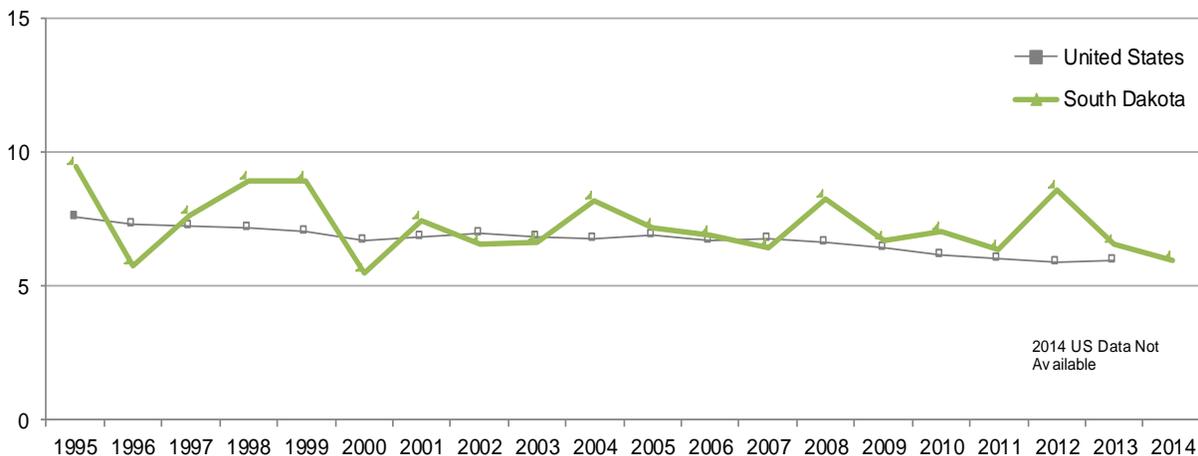
Table 32
Resident Infant Deaths and Infant Mortality Rates,
South Dakota and United States, 1995-2014

Year	United States		South Dakota	
	Number	Mortality Rate	Number	Mortality Rate
2014	*NA	*NA	73	5.94
2013	23,446	5.96	80	6.53
2012	23,629	5.98	104	8.60
2011	23,985	6.07	75	6.34
2010	24,586	6.15	83	7.04
2009	26,412	6.39	80	6.71
2008	28,059	6.61	100	8.28
2007	29,138	6.75	79	6.45
2006	28,527	6.69	82	6.88
2005	28,440	6.87	82	7.15
2004	27,936	6.79	93	8.20
2003	28,025	6.85	73	6.62
2002	28,034	6.97	70	6.54
2001	27,568	6.85	78	7.45
2000	27,200	6.70	57	5.51
1999	27,937	7.06	94	8.94
1998	28,371	7.20	92	8.95
1997	28,045	7.21	78	7.67
1996	28,487	7.32	60	5.73
1995	29,583	7.59	99	9.46

Note: U.S. 2014 data are not available.
 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, 1995-2014

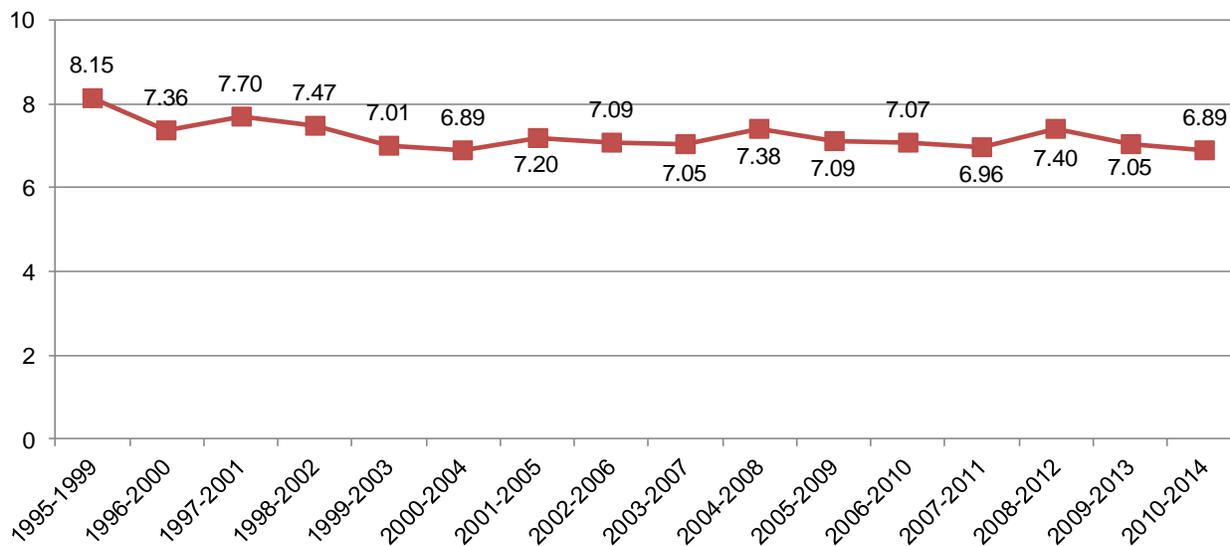


Note: Rate Per 1,000 Live Births. U.S. 2014 data are not available.
 Source: National Center for Health Statistics and South Dakota Department of Health, Office of Health Statistics

Figure 7, below, displays South Dakota's infant mortality rate grouped in five year increments. This graph shows that since the early 1990's South Dakota's infant mortality

rate has decreased slightly, but in more recent years, the infant mortality has remained steady.

Figure 7
Resident Infant Mortality Rates for South Dakota, 1995-2014



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

Table 33, below, lists the overall leading causes of infant death in 2010-2014. The leading causes of infant death in 2014 can be broken down as follows: certain

conditions in perinatal period, 34.2 percent; congenital malformations, 28.8 percent; accidents, 9.6 percent; and sudden infant death syndrome with 6.8 percent.

Table 33
South Dakota Resident Leading Causes of Infant Death, 2010-2014

	Total	2010	2011	2012	2013	2014
Total Deaths	415	83	75	104	80	73
Certain Conditions in the Perinatal Period (P00-P96)	175	36	31	47	36	25
Extreme immaturity and other preterm infants (Less than 37 comp wks of gestation) (P07.2-P07.3)	65	12	13	14	16	10
Primary atelectasis of newborn (P28.0)	8	2	1	1	2	2
Newborn affected by chorioamnionitis (P02.7)	8	2	2	3	1	0
Newborn affected by other forms of placental separation and hemorrhage (P02.1)	7	2	0	2	1	2
Necrotizing enterocolitis of newborn (P77)	7	1	2	1	2	1
Bacterial sepsis of newborn, unspecified (P36.9)	6	1	1	0	3	1
Neonatal cardiac failure (P29.0)	6	0	1	3	2	0
Newborn affected by premature rupture of membranes (P01.1)	6	3	1	2	0	0
Hypoxic ischemic encephalopathy of newborn (P91.6)	5	1	1	3	0	0
Newborn affected by incompetent cervix (P01.0)	5	0	3	2	0	0
Congenital Malformations, Deformations, & Chromosomal Abnormalities (Q00-Q99)	106	21	17	29	18	21
Chromosomal abnormalities (Q90-Q99)	22	5	5	3	3	6
Edward's syndrome (Q91.0-Q91.3)	9	0	3	1	2	3
Patau's syndrome (Q91.4-Q91.7)	7	3	2	0	1	1
Congenital malformations of the heart (Q20-Q24)	22	3	6	7	3	3
Congenital malformations of the nervous system (Q00-Q07)	21	6	2	3	3	7
Anencephaly (Q00.0)	7	2	2	1	1	1
Congenital malformations and deformations of the musculoskeletal system (Q65-Q79)	10	2	0	3	4	1
Congenital malformations of the urinary system (Q60-Q64)	8	1	1	4	2	0
Congenital malformations of the respiratory system (Q30-Q34)	5	3	0	1	0	1
Accidents (V01-X59, Y85-Y86)	36	7	5	9	8	7
Accidental suffocation and strangulation in bed (W75)	15	3	2	4	1	5
Unspecified threat to breathing (W84)	10	1	1	2	4	2
Sudden Infant Death Syndrome (R95)	35	7	8	6	9	5
Ill-Defined and Unknown Causes of Mortality (R96-R99)	12	2	2	2	2	4
Influenza and Pneumonia (J09-J18)	8	0	3	2	1	2
Assault (homicide) (X85-Y09, Y87.1)	8	2	2	1	1	2
All Other Causes	35	8	7	8	5	7

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

There were 42 neonatal deaths (deaths occurring to infants from birth through 27 days old) for a rate of 3.42 deaths per 1,000 live births. There were 31 postneonatal deaths (deaths occurring to infants 28 days

to 1 year of age) for a rate of 2.52 deaths per 1,000 live births. In comparison, in 2013 neonatal and postneonatal rates were 3.92 and 2.61 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. All race data in this section are categorized in the following manner:

Single-race white
 Single-race American Indian
 Two or more races

The remaining single-race categories (Black, Asian, Pacific Islander) are included in the totals, but are not shown specifically in any tables.

Table 34a, below, indicates that from 2013 to 2014, the number of South Dakota resident infant deaths decreased for whites, and slightly increased for American Indians and infants of two or more races. Table 34b, below, displays infant mortality grouped by five-year increments.

Table 34a
South Dakota Resident Infant Deaths and Mortality Rates
by Infant's Race, 2005-2014

Year	Race of Infant						Total	
	White		American Indian		Two or more races			
	Num	Rate	Num	Rate	Num	Rate	Num	Rate
2014	40	4.36	23	12.18	7	16.99	73	5.94
2013	48	5.25	22	11.25	5	13.70	80	6.53
2012	58	6.37	26	13.43	10	25.06	104	8.60
2011	43	4.82	24	12.29	4	11.76	75	6.34
2010	54	5.84	19	10.35	8	24.54	83	7.04
2009	56	6.00	19	10.08	2	5.87	80	6.71
2008	60	6.36	29	14.56	9	29.80	100	8.28
2007	51	5.33	21	10.22	6	21.43	79	6.45
2006	50	5.34	26	13.33	2	7.41	82	6.88
2005	55	6.13	25	14.36	1	2.07	82	7.15

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 34b
South Dakota Resident Infant Deaths and Mortality Rates by Infant's Race,
Five-Year Increments, 2005-2014

Year	Race of Infant						Total	
	White		American Indian		Two or more races			
	Num	Rate	Num	Rate	Num	Rate	Num	Rate
2010-2014	243	5.33	114	11.91	34	18.46	415	6.89
2009-2013	259	5.66	110	11.50	29	16.37	422	7.05
2008-2012	271	5.89	117	12.19	33	19.32	442	7.40
2007-2011	264	5.68	112	11.52	29	18.25	417	6.96
2006-2010	271	5.77	114	11.73	27	17.77	424	7.07
2005-2009	272	5.83	120	12.47	20	11.94	423	7.09

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 35a, below, indicates that the South Dakota resident neonatal mortality rate per 1,000 live births decreased for both whites and American Indians from 2013 to 2014. The American Indian neonatal mortality rate has been

consistently higher than white neonatal mortality rates for each year since 2005. In Table 35b, below, the neonatal mortality is grouped in five-year increments. This indicates that the neonatal mortality rate has shown little change since 2005.

Table 35a
South Dakota Resident Neonatal Deaths and Mortality Rates by Infant's Race, 2005-2014

Year	Race of Infant						Total	
	White		American Indian		Two or more races			
	Num	Rate	Num	Rate	Num	Rate	Num	Rate
2014	29	3.16	8	4.24	4	9.71	42	3.42
2013	32	3.50	9	4.60	2	5.48	48	3.92
2012	43	4.72	15	7.75	6	15.04	69	5.71
2011	30	3.36	10	5.12	3	8.82	46	3.89
2010	37	4.00	14	7.63	4	12.27	56	4.75
2009	34	3.64	7	3.71	2	5.87	45	3.77
2008	40	4.24	12	6.02	7	23.18	61	5.05
2007	37	3.87	9	4.38	4	14.29	51	4.16
2006	30	3.20	10	5.13	1	3.70	43	3.61
2005	41	4.57	9	5.17	1	2.07	52	4.54

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 35b
South Dakota Resident Neonatal Deaths and Mortality Rates by Infant's Race, Five-Year Increments, 2005-2014

Year	Race of Infant						Total	
	White		American Indian		Two or more races			
	Num	Rate	Num	Rate	Num	Rate	Num	Rate
2010-2014	171	3.75	56	5.85	19	10.31	261	4.33
2009-2013	176	3.85	55	5.75	17	9.60	264	4.41
2008-2012	184	4.00	58	6.04	22	12.88	277	4.64
2007-2011	178	3.83	52	5.35	20	12.59	259	4.32
2006-2010	178	3.79	52	5.35	18	11.85	256	4.27
2005-2009	182	3.90	47	4.88	15	8.96	252	4.23

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 36a, below, indicates that the postneonatal mortality rate per 1,000 live births decreased for both white infants and infants of two or more races from 2013 to 2014. The American Indian postneonatal mortality rate has been consistently higher

than white postneonatal mortality rates for each year since 2005. When looking at the data in five-year increments as shown in Table 36b, below, the postneonatal mortality has shown little change.

Table 36a
South Dakota Resident Postneonatal Deaths and Mortality Rates
by Infant's Race, 2005-2014

Year	Race of Infant						Total	
	White		American Indian		Two or more races			
	Num	Rate	Num	Rate	Num	Rate	Num	Rate
2014	11	1.20	15	7.94	3	7.28	31	2.52
2013	16	1.75	13	6.65	3	8.22	32	2.61
2012	15	1.65	11	5.68	4	10.03	35	2.89
2011	13	1.46	14	7.17	1	2.94	29	2.45
2010	17	1.84	5	2.72	4	12.27	27	2.29
2009	22	2.36	12	6.37	0	0.00	35	2.93
2008	20	2.12	17	8.53	2	6.62	39	3.23
2007	14	1.46	12	5.84	2	7.14	28	2.29
2006	20	2.13	16	8.20	1	3.70	39	3.27
2005	14	1.56	16	9.19	0	0.00	30	2.62

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 36b
South Dakota Resident Postneonatal Deaths and Mortality Rates
by Infant's Race, Five-Year Increments, 2005-2014

Year	Race of Infant						Total	
	White		American Indian		Two or more races			
	Num	Rate	Num	Rate	Num	Rate	Num	Rate
2010-2014	72	1.58	58	6.06	15	8.14	154	2.56
2009-2013	83	1.81	55	5.75	12	6.78	158	2.64
2008-2012	87	1.89	59	6.15	11	6.44	165	2.76
2007-2011	86	1.85	60	6.17	9	5.66	158	2.64
2006-2010	93	1.98	62	6.38	9	5.92	168	2.80
2005-2009	90	1.93	73	7.59	5	2.99	171	2.87

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 37, below, shows the leading causes of infant death from 2010 to 2014. The overall leading cause of infant death for South Dakota residents from 2010 to 2014 was certain conditions in perinatal period. Certain conditions in perinatal period accounted for 42.2 percent of all infant deaths in South Dakota from 2010 to 2014. The largest contributor to this group was extreme immaturity.

When analyzed by race, the leading cause of death for white infants was certain conditions in perinatal period with 104 white infant deaths or 42.8 percent of all white infant deaths. The leading cause of death for American Indian infants was certain conditions in the perinatal period with 42 American Indian infant deaths or 36.8 percent of all American Indian infant deaths.

Table 37
South Dakota Resident Infant Deaths by Cause of Death and Race, 2010-2014

	Total		Race			
			White		American Indian	
	Num	Rate	Num	Rate	Num	Rate
Total Deaths	415	6.89	243	5.33	114	11.91
Certain Conditions in the Perinatal Period (P00-P96)	175	2.90	104	2.28	42	4.39
Extreme immaturity and other preterm infants (Less than 37 comp wks of gestation) (P07.2-P07.3)	65	1.08	28	0.61	21	2.19
Primary atelectasis of newborn (P28.0)	8	0.13	5	0.11	3	0.31
Newborn affected by chorioamnionitis (P02.7)	8	0.13	4	0.09	3	0.31
Newborn affected by other forms of placental separation and hemorrhage (P02.1)	7	0.12	6	0.13	1	0.10
Necrotizing enterocolitis of newborn (P77)	7	0.12	5	0.11	1	0.10
Bacterial sepsis of newborn, unspecified (P36.9)	6	0.10	3	0.07	1	0.10
Neonatal cardiac failure (P29.0)	6	0.10	2	0.04	2	0.21
Newborn affected by premature rupture of membranes (P01.1)	6	0.10	5	0.11	1	0.10
Hypoxic ischemic encephalopathy of newborn (P91.6)	5	0.08	4	0.09	1	0.10
Newborn affected by incompetent cervix (P01.0)	5	0.08	5	0.11	0	0.00
Congenital Malformations, Deformations, & Chromosomal Abnormality (Q00-Q99)	106	1.76	73	1.60	21	2.19
Chromosomal abnormalities (Q90-Q99)	22	0.37	17	0.37	2	0.21
Edward's syndrome (Q91.0-Q91.3)	9	0.15	7	0.15	1	0.10
Patau's syndrome (Q91.4-Q91.7)	7	0.12	6	0.13	0	0.00
Congenital malformations of the heart (Q20-Q24)	22	0.37	13	0.29	6	0.63
Congenital malformations of the nervous system (Q00-Q07)	21	0.35	12	0.26	7	0.73
Anencephaly (Q00.0)	7	0.12	7	0.15	0	0.00
Congenital malformations and deformations of the musculoskeletal system (Q65-Q79)	10	0.17	8	0.18	0	0.00
Congenital malformations of the urinary system (Q60-Q64)	8	0.13	5	0.11	3	0.31
Congenital malformations of the respiratory system (Q30-Q34)	5	0.08	2	0.04	2	0.21
Accidents (V01-X59, Y85-Y86)	36	0.60	17	0.37	14	1.46
Accidental suffocation and strangulation in bed (W75)	15	0.25	6	0.13	7	0.73
Unspecified threat to breathing (W84)	10	0.17	6	0.13	2	0.21
Sudden Infant Death Syndrome (R95)	35	0.58	20	0.44	12	1.25
Ill-Defined and Unknown Causes of Mortality (R96-R99)	12	0.20	4	0.09	5	0.52
Influenza and Pneumonia (J09-J18)	8	0.13	4	0.09	4	0.42
Assault (homicide) (X85-Y09, Y87.1)	8	0.13	4	0.09	3	0.31
All Other Causes	35	0.58	17	0.37	13	1.36

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

Infant Mortality and Birth Weight

Table 38, 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 489.49, a neonatal mortality rate of 456.46, and a postneonatal mortality rate of

33.03. 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 2.19.

Table 38
South Dakota Resident Infant Mortality Rates by Birth Weight, 2010-2014

Birth Weight (in Grams)	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Total	60,245	415	6.89	4.33	2.56
<1,000	333	163	489.49	456.46	33.03
1,000-1,499	344	26	75.58	61.05	14.53
1,500-1,999	757	22	29.06	21.14	7.93
2,000-2,499	2,449	35	14.29	9.39	4.90
2,500-2,999	9,357	47	5.02	1.82	3.21
3,000-3,499	22,811	63	2.76	0.66	2.10
3,500-3,999	18,293	40	2.19	0.55	1.64
4,000-4,499	5,148	14	2.72	0.78	1.94
4,500+	736	3	4.08	1.36	2.72

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 39, below, displays infant mortality rates by prenatal care. The highest infant mortality rate, 57.07, 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 5.33.

Table 39
South Dakota Resident Infant Mortality Rates by Prenatal Care, 2010-2014

Trimester Prenatal Care Began	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Total	60,245	415	6.89	4.33	2.56
First Trimester	41,995	224	5.33	3.26	2.07
Second Trimester	13,532	104	7.69	4.95	2.73
Third Trimester	3,138	22	7.01	2.87	4.14
No Prenatal Care	403	23	57.07	47.15	9.93

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 40, 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 754.19.

The highest neonatal mortality rate and postneonatal mortality rate both occurred at less than 25 weeks with a rate of 709.50 and 44.69, respectively.

Table 40
South Dakota Resident Infant Mortality Rates by Gestation Period, 2010-2014

Weeks of Gestation	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Total	60,245	415	6.89	4.33	2.56
<25 Weeks	179	135	754.19	709.50	44.69
25-29 Weeks	320	43	134.38	109.38	25.00
30-31 Weeks	263	10	38.02	34.22	3.80
32 Weeks	237	7	29.54	25.32	4.22
33 Weeks	323	10	30.96	18.58	12.38
34 Weeks	631	11	17.43	9.51	7.92
35 Weeks	936	15	16.03	12.82	3.21
36 Weeks	2,037	16	7.85	3.93	3.93
37 Weeks	4,654	39	8.38	4.08	4.30
38 Weeks	9,455	40	4.23	1.06	3.17
39 Weeks	20,498	51	2.49	0.44	2.05
40 Weeks	15,089	25	1.66	0.66	0.99
41 Weeks	4,929	11	2.23	0.81	1.42
42+ Weeks	573	1	1.75	0.00	1.75

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 Tobacco Use

Table 41, below, displays infant mortality rates by tobacco use of the mother. Mothers who reported they used tobacco while pregnant had an infant mortality rate

of 11.10 while mothers who reported they did not use tobacco while pregnant had an infant mortality rate of 5.98.

Table 41
South Dakota Resident Infant Mortality Rates by Tobacco Use of Mother, 2010-2014

Tobacco Use of Mother	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Total	60,245	415	6.89	4.33	2.56
Yes	9,642	107	11.10	6.02	5.08
No	50,296	301	5.98	3.96	2.03

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

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

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

Infant Mortality and Mother Demographics

The following tables, 42a-42d, 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 on page 246.

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 42a
South Dakota Resident Infant Mortality Rates by Demographics of Mother, 2010-2014

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Education					
11 years or less	7,782	83	10.67*	6.81*	3.86*
12+ years	49,764	272	5.47*	3.66*	1.81*
Marital Status					
Single	22,980	201	8.75*	5.35*	3.39*
Married	37,212	189	5.08*	3.55*	1.53*
Mother's WIC Status					
No WIC	37,208	211	5.67*	4.22	1.45*
WIC	22,411	169	7.54*	4.11	3.44*
Age					
<20	4,456	44	9.87*	5.83	4.04*
20-24	14,476	114	7.88*	4.84	3.04*
25-29	20,498	111	5.42*	3.46	1.95*
30-34	14,554	75	5.15*	3.92	1.24*
35+	6,240	46	7.37*	4.97	2.40*
BMI					
Underweight (<18.5)	2,027	14	6.91*	2.96*	3.95
Recommended (18.5-24.9)	28,636	151	5.27*	3.49*	1.78
Overweight (25.0-29.9)	15,059	129	8.57*	5.84*	2.72
Obese (30.0-34.9)	7,681	51	6.64*	4.04*	2.60
Very Obese (35.0-39.9)	3,762	19	5.05*	3.72*	1.33
Morbidly Obese (40.0+)	2,272	14	6.16*	3.96*	2.20
Weight Gain for Mother's with Pre-Pregnancy BMI 18.5-24.9					
<Recommended (< 25 lbs)	5,183	17	3.28*	0.96	2.32
Recommended (25-35 lbs)	9,577	22	2.30*	0.94	1.36
>Recommended (> 35 lbs)	11,353	16	1.41*	0.53	0.88
Diabetes					
No Pre-Existing Diabetes	59,656	379	6.35*	4.19*	2.16*
Pre-Existing Diabetes	503	10	19.88*	9.94*	9.94*
Diabetes-Gestational					
No Gestational Diabetes	56,532	377	6.67*	4.39*	2.28
Gestational Diabetes	3,627	12	3.31*	1.93*	1.38
Hypertension-Gestational					
No Hypertension-Gestational	57,366	378	6.59	4.38*	2.21
Hypertension-Gestational	2,793	11	3.94	1.43*	2.51

Table 42a (continued)
South Dakota Resident Infant Mortality Rates by Demographics of Mother, 2010-2014

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Chlamydia					
No Chlamydia	58,727	373	6.35	4.24	2.11*
Chlamydia	1,421	13	9.15	2.81	6.33*
Payment Source					
Medicaid	20,459	162	7.92*	4.45*	3.47*
Private Insurance	33,645	163	4.84*	3.60*	1.25*
Self-Pay	1,550	24	15.48*	11.61*	3.87*
Indian Health Service	1,794	26	14.49*	7.80*	6.69*
Champus/Tricare	1,754	7	3.99*	3.42*	0.57*
Other Government	263	3	11.41*	7.60*	3.80*
Other	423	1	2.36*	2.36*	0.00*

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

Table 42b
South Dakota Resident Infant Mortality Rates by Previous Pregnancy History, 2010-2014

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Number of Living Children					
0	21,589	137	6.35	4.63	1.71*
1	18,564	102	5.49	3.72	1.78*
2	11,104	83	7.47	4.23	3.24*
3	5,058	32	6.33	3.76	2.57*
4+	3,893	36	9.25	5.14	4.11*
Number of Dead Children					
0	59,387	360	6.06*	3.92*	2.14*
1+	812	29	35.71*	25.86*	9.85*
Number of Previous Terminations					
0	44,006	268	6.09*	4.07	2.02
1	11,020	75	6.81*	3.90	2.90
2+	5,153	46	8.93*	6.21	2.72
Number of Previous Pregnancies					
0	17,815	94	5.28*	3.76	1.52*
1	16,292	100	6.14*	4.42	1.72*
2	11,477	80	6.97*	4.27	2.70*
3	6,756	41	6.07*	3.40	2.66*
4	3,672	28	7.63*	3.81	3.81*
5+	4,157	45	10.83*	6.74	4.09*
Previous Pre-Term Infant					
No	58,243	364	6.25*	4.14*	2.11*
Yes	1,916	25	13.05*	7.31*	5.74*
Other Poor Previous Pregnancy Outcomes					
No	57,702	353	6.12*	3.97*	2.15*
Yes	2,457	36	14.65*	10.58*	4.07*
Infertility Treatment					
No	59,246	374	6.31*	4.05*	2.26
Yes	913	15	16.43*	16.43*	0.00
Infertility Treatment – Drugs, Insemination					
No	59,484	375	6.30*	4.05*	2.25
Yes	674	14	20.77*	20.77*	0.00

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

Table 42c
South Dakota Resident Infant Mortality Rates by Labor and Delivery, 2010-2014

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Tocolysis					
No	59,128	352	5.95*	3.87*	2.08*
Yes	1,022	34	33.27*	23.48*	9.78*
Cervical Cerclage					
No	59,952	377	6.29*	4.09*	2.20
Yes	198	9	45.45*	40.40*	5.05
Premature Rupture of Membranes					
No	58,552	336	5.74*	3.59*	2.15*
Yes	1,645	53	32.22*	27.36*	4.86*
Antibiotics Received by the Mother During Labor					
No	43,541	251	5.76*	3.61*	2.16
Yes	16,667	139	8.34*	5.88*	2.46
Precipitous Labor					
No	57,453	357	6.21*	3.97*	2.25
Yes	2,744	32	11.66*	9.84*	1.82
Induction of Labor					
No	43,377	330	7.61*	5.12*	2.49*
Yes	16,831	60	3.56*	1.96*	1.60*
Augmentation of Labor					
No	43,243	334	7.72*	5.23*	2.50*
Yes	16,965	56	3.30*	1.71*	1.59*
Non-Vertex Presentation					
No	57,721	293	5.08*	2.95*	2.13*
Yes	2,487	97	39.00*	34.18*	4.83*
Steroids for Fetal Lung Maturation Received by the Mother Prior to Delivery					
No	59,276	355	5.99*	3.90*	2.09*
Yes	932	35	37.55*	25.75*	11.80*
Clinical Chorioamnionitis Diagnosed During Labor – Maternal Temp $\geq 38^{\circ}\text{C}$					
No	59,768	377	6.31*	4.05*	2.26
Yes	440	13	29.55*	29.55*	0.00
Moderate/Heavy Meconium Staining of the Amniotic Fluid					
No	55,526	358	6.45	4.32	2.13*
Yes	4,682	32	6.83	3.20	3.63*
Epidural or Spinal Anesthesia During Labor					
No	18,286	186	10.17*	7.82*	2.35
Yes	31,530	98	3.11*	1.33*	1.78
Fetal Presentation					
Cephalic	57,193	281	4.91*	2.80*	2.12*
Breech	2,223	92	41.39*	36.44*	4.95*
Method of Delivery					
Vaginal	43,474	246	5.66*	3.70*	1.96*
Vaginal after previous C-section	1,363	14	10.27*	6.60*	3.67*
Primary C-section	8,656	93	10.74*	7.39*	3.35*
Repeat C-section	6,684	36	5.39*	3.14*	2.24*

Table 42c (continued)
South Dakota Resident Infant Mortality Rates by Labor and Delivery, 2010-2014

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Maternal Transfusion					
No	59,937	381	6.36*	4.17*	2.19*
Yes	262	8	30.53*	19.08*	11.45*
Unplanned Operating Procedure Following Delivery					
No	60,032	380	6.33*	4.10*	2.23
Yes	167	9	53.89*	53.89*	0.00

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

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

Table 42d
South Dakota Resident Infant Mortality Rates by Post Delivery Conditions, 2010-2014

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Five Minute APGAR Score					
0-7	2,071	237	114.44*	105.75*	8.69*
8	5,298	35	6.61*	2.83*	3.78*
9	48,398	99	2.05*	0.27*	1.78*
10	4,269	8	1.87*	0.23*	1.64*
Ten Minute APGAR Score					
0-2	147	128	870.75*	870.75*	0.00
3-7	269	38	141.26*	118.96*	22.30
8-10	121	4	33.06*	24.79*	8.26
Plurality					
1	58,371	343	5.88*	3.67*	2.21
2+	1,853	47	25.36*	22.13*	3.24
Breastfeeding at the Time of Discharge					
No	14,275	102	7.15*	3.01*	4.13*
Yes	45,467	86	1.89*	0.29*	1.61*
Assisted Ventilation Required Immediately Following Delivery					
No	57,028	278	4.87*	2.96*	1.91*
Yes	3,182	112	35.20*	27.03*	8.17*
Assisted Ventilation for More than Six Hours					
No	58,970	326	5.53*	3.56*	1.97*
Yes	1,240	64	51.61*	36.29*	15.32*
Neonatal Intensive Care Unit Admission					
No	54,601	253	4.63*	3.15*	1.48*
Yes	5,609	137	24.43*	14.80*	9.63*
Newborn Given Surfactant Replacement Therapy					
No	59,755	350	5.86*	3.82*	2.04*
Yes	455	40	87.91*	59.34*	28.57*
Antibiotics Received by the Newborn for Suspected Neonatal Sepsis					
No	57,266	322	5.62*	3.72*	1.90*
Yes	2,944	68	23.10*	14.27*	8.83*

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

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

