

Infant Mortality

An Overview: 2008

Infant Deaths	
Number	100
Rate per 1,000 Live Births	8.28
Neonatal Deaths	
Number	61
Rate per 1,000 Live Births	5.05
Postneonatal Death	
Number	39
Rate per 1,000 Live Births	3.23
Fetal Deaths	
Number	61
Rate per 1,000 Live Births + Fetal Deaths	5.03

During 2008, there were 100 South Dakota resident infant deaths reported for an infant mortality rate of 8.28 per 1,000 live births.

In comparison, there were 79 infant deaths in 2007, with the infant mortality rate of 6.45 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 41, below, displays and Figure 10, page 44, illustrates, 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.

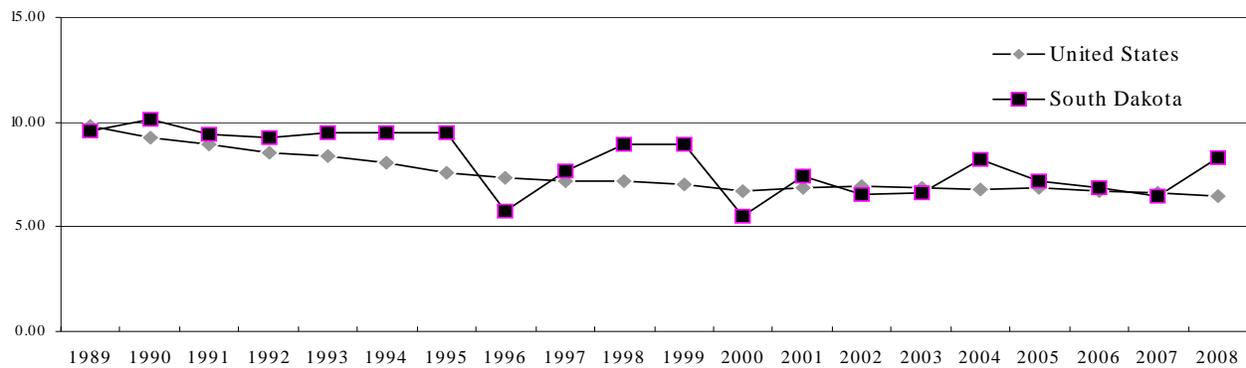
Table 41
Resident Infant Deaths and Infant Mortality Rates,
South Dakota and United States, 1989-2008

Year	United States		South Dakota	
	Number	Mortality Rate	Number	Mortality Rate
2008	*27,600	*6.50	100	8.28
2007	*29,241	*6.77	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
1994	31,710	8.02	100	9.52
1993	33,466	8.37	102	9.52
1992	34,628	8.52	102	9.27
1991	36,766	8.94	103	9.42
1990	38,351	9.22	111	10.10
1989	39,655	9.81	106	9.57

Note: * U.S. 2008 and 2007 data are provisional.
 Infant mortality rates are per 1,000 live births.

Source: National Center for Health Statistics
 South Dakota Department of Health, Office of Data, Statistics, and Vital Records

Figure 10
Resident Infant Mortality Rates, South Dakota and United States, 1989-2008



Note: Rate Per 1,000 Live Births. U.S. 2007 and 2006 data are provisional.

Source: National Center for Health Statistics and South Dakota Department of Health, Office of Data, Statistics, and Vital Records

Table 42 lists the overall leading causes of infant death in 2004-2008. The leading causes of infant death in 2008 can be broken down as follows: certain conditions in

perinatal period, 34.0 percent; congenital malformations, 24.0 percent; sudden infant death syndrome, 8.0 percent; and accidents with 4.0 percent.

Table 42
South Dakota Resident Leading Causes of Infant Death, 2004-2008

	Total	2008	2007	2006	2005	2004
Total Deaths	436	100	79	82	82	93
Certain Conditions in the Perinatal Period (P00-P96)	161	34	33	21	36	37
Extreme immaturity (Less than 28 comp wks of gestation)(P07.2)	29	10	4	4	9	2
Primary atelectasis of newborn(P28.0)	16	0	2	1	9	4
Other preterm infants (28 comp wks or more but less than 37 comp wks of gestations)(P07.3)	10	3	1	1	1	4
Hydrops fetalis not due to hemolytic disease(P83.2)	8	1	0	2	1	4
Newborn affected by chorioamnionitis(P02.7)	7	2	2	1	0	2
Newborn affected by premature rupture of membranes.....(P01.1)	7	0	1	3	2	1
Newborn affected by other forms of placental separation and hemorrhage.....(P02.1)	7	0	3	1	1	2
Unspecified intraventricular (nontraumatic) hemorrhage.....(P52.3)	6	2	1	0	2	1
Neonatal cardiac dysrhythmia(P29.1)	6	4	0	0	0	4
Neonatal cardiac failure(P29.0)	6	1	3	1	1	0
Respiratory distress syndrome of newborn(P22.0)	5	1	2	0	1	1
All other conditions originating in perinatal period	66	16	15	7	11	17
Congenital Malformations, Deformations, & Chromosomal Abnormalities (Q00-Q99)	129	24	24	28	21	32
Chromosomal abnormalities (Q90-Q99)	29	7	5	6	4	7
Edward's syndrome (Q91.0-Q91.3)	14	3	2	3	1	5
Patau's syndrome.....(Q91.4-Q91.7)	10	3	2	2	2	1
Congenital malformations of the heart..... (Q20-Q24)	26	3	5	3	7	8
Congenital malformations of the nervous system (Q00-Q07)	24	5	4	5	4	6
Anencephaly(Q00.0)	12	5	0	3	3	1
Holoprosencephaly.....(Q04.2)	6	0	2	1	1	2
Congenital malformations and deformations of the musculoskeletal system (Q65-Q79)	15	3	3	3	3	3
Congenital diaphragmatic hernia (Q79.0)	5	0	1	0	1	3
Congenital malformations of the urinary system (Q60-Q64)	14	1	4	5	1	3
Renal agenesis(Q60.0-Q60.2)	6	1	1	2	1	1
Congenital malformations of the respiratory system (Q30-Q34)	5	0	2	1	0	2
Hypoplasia and dysplasia of lung.....(Q33.6)	5	0	2	1	0	2
All other congenital anomalies	16	5	1	5	2	3
Sudden Infant Death Syndrome (R95)	47	12	8	12	7	8
Accidents (V01-X59, Y85-Y86)	27	7	4	7	4	5
Accidental suffocation and strangulation in bed.....(W75)	9	5	1	1	0	2
Motor vehicle accidents	6	1	1	1	2	1
All other accidents	12	1	2	5	2	2
Ill-Defined and Unknown Causes of Mortality.....(R96-R99)	17	6	2	2	6	1
Symptoms, Signs, and Abnormal Clinical and Lab Findings.....(R00-R94)	16	8	4	2	2	0
All Other Causes	39	9	4	10	6	10

Source: South Dakota Department of Health, Office of Data, Statistics, and Vital Records

There were 61 neonatal deaths (deaths occurring to infants from birth through 27 days old) for a rate of 5.05 deaths per 1,000 live births. There were 39 postneonatal deaths (deaths occurring to infants 28 days to 1 year of age) for a rate of 3.23 deaths per 1,000 live births. In comparison, 2007 neonatal and postneonatal rates were 4.16 and 2.29 per 1,000 live births, respectively. The number of fetal deaths increased from 54 in 2007 to 61 in 2008, with a corresponding increase in the fetal mortality rate from 4.39 (per 1,000 live births plus fetal deaths) in 2007 to 5.03 in 2008.

Infant Mortality by Race

Table 43, below, indicates that from 2007 to 2008, the number of South Dakota resident infant deaths increased for both whites and American Indians. American Indian infant mortality rates were also significantly higher than whites were in 2008 and for the 20 year total.

**Table 43
South Dakota Resident Infant Deaths and Mortality Rates by
Infant's Race, 1989-2008**

Year	Race of Infant				Total	
	White		American Indian		Number	Rate
	Number	Rate	Number	Rate		
2008	60	6.36	36	16.20	100	8.28
2007	51	5.33	23	10.06	79	6.45
2006	50	5.34	26	12.04	82	6.88
2005	55	6.13	25	11.60	82	7.15
2004	62	6.95	28	13.33	93	8.20
2003	43	4.98	27	12.91	73	6.62
2002	41	4.74	26	14.40	70	6.54
2001	52	6.14	25	14.12	78	7.45
2000	36	4.28	19	11.30	57	5.51
1999	66	7.62	24	14.41	94	8.94
1998	61	7.28	29	16.90	92	8.95
1997	45	5.35	30	19.51	78	7.67
1996	39	4.51	20	12.25	60	5.73
1995	69	7.95	30	19.18	99	9.46
1994	66	7.52	33	21.53	100	9.52
1993	67	7.59	35	20.35	102	9.52
1992	69	7.59	32	18.40	102	9.27
1991	73	8.05	25	15.02	103	9.42
1990	77	8.40	33	19.78	111	10.10
1989	64	6.98	40	22.82	106	9.57
1989-2008	1,146	6.46	566	15.52	1,761	8.05

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

Source: South Dakota Department of Health, Office of Data, Statistics, and Vital Records

When analyzed by race, Table 44, below, indicates that the South Dakota resident neonatal mortality rate per 1,000 live births increased for whites and increased for

American Indians from 2007 to 2008. The American Indian neonatal mortality rate is significantly higher than whites for the 20 year total.

Table 44
South Dakota Resident Neonatal Deaths and Mortality Rates
by Infant's Race, 1989-2008

Year	Race of Infant				Total	
	White		American Indian		Number	Rate
	Number	Rate	Number	Rate		
2008	40	4.24	17	7.65	61	5.05
2007	37	3.87	11	4.81	51	4.16
2006	30	3.20	10	4.63	43	3.61
2005	41	4.57	9	4.18	52	4.54
2004	44	4.93	12	5.71	57	5.03
2003	22	2.55	11	5.26	35	3.18
2002	24	2.78	12	6.65	38	3.55
2001	27	3.19	9	5.08	37	3.53
2000	24	2.85	7	4.16	32	3.09
1999	43	4.97	10	6.01	57	5.42
1998	34	4.06	11	6.41	46	4.47
1997	28	3.33	10	6.50	40	3.93
1996	20	2.31	11	6.74	31	2.87
1995	40	4.61	14	8.95	54	5.16
1994	37	4.22	20	13.05	57	5.43
1993	37	4.19	16	9.30	53	4.94
1992	44	4.84	12	6.90	56	5.09
1991	43	4.74	13	7.81	59	5.40
1990	43	4.69	15	8.99	58	5.28
1989	34	3.71	16	9.13	51	4.61
1989-2008	692	3.90	246	6.75	968	4.43

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

Neonatal mortality rates are per 1,000 live births.

Source: South Dakota Department of Health, Office of Data, Statistics, and Vital Records

Table 45, below, indicates that the postneonatal mortality rate per 1,000 live births increased for both white and American Indian infants from 2007 to 2008.

The American Indian postneonatal mortality rate was significantly higher than whites in 2008 and for the 20 year total.

Table 45
South Dakota Resident Postneonatal Deaths and Mortality
Rates by Infant's Race, 1989-2008

Year	Race of Infant				Total	
	White		American Indian			
	Number	Rate	Number	Rate	Number	Rate
2008	20	2.12	19	8.55	39	3.23
2007	14	1.46	12	5.25	28	2.29
2006	20	2.13	16	7.41	39	3.27
2005	14	1.56	16	7.42	30	2.62
2004	18	1.59	16	7.62	36	3.17
2003	21	2.43	16	7.65	38	3.45
2002	17	1.97	14	7.76	32	2.99
2001	25	2.95	16	9.04	41	3.91
2000	12	1.43	12	7.13	25	2.42
1999	23	2.66	14	8.41	37	3.52
1998	27	3.22	18	10.49	46	4.47
1997	17	2.02	20	13.00	38	3.74
1996	19	2.20	9	5.51	29	2.77
1995	29	3.34	16	10.23	45	4.30
1994	29	3.31	13	8.48	43	4.09
1993	30	3.40	19	11.05	49	4.57
1992	25	2.75	20	11.50	46	4.18
1991	30	3.31	12	7.21	44	4.03
1990	34	3.71	18	10.80	53	4.82
1989	30	3.27	24	13.69	55	4.97
1989-2008	454	2.56	328	9.00	793	3.63

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

Source: South Dakota Department of Health, Office of Data, Statistics, and Vital Records

Table 46, below, shows the leading causes of infant death from 2004 to 2008. The overall leading cause of infant death for South Dakota residents from 2004 to 2008 was certain conditions in perinatal period. Certain conditions in perinatal period accounted for 36.9 percent of all infant deaths in South Dakota from 2004 to 2008.

When analyzed by race, the leading cause of death for white infants was certain conditions in perinatal period with 118 white infant deaths or 42.4 percent of all white infant deaths. The leading cause of death for American Indian infants was certain conditions in the perinatal period with 36 American Indian infant deaths or 26.1 percent of all American Indian infant deaths.

Table 46
South Dakota Resident Infant Deaths by Cause of Death and Race, 2004-2008

	Total	Race	
		White	American Indian
Total Deaths	436	278	138
Certain Conditions in the Perinatal Period..... (P00-P96)	161	118	36
Extreme immaturity (Less than 28 comp wks of gestation)..... (P07.2)	29	20	8
Primary atelectasis of newborn (P28.0)	16	14	1
Other preterm infants (28 comp wks or more but less than 37 comp wks of gestations)..... (P07.3)	10	4	5
Hydrops fetalis not due to hemolytic disease..... (P83.2)	8	7	1
Newborn affected by chorioamnionitis..... (P02.7)	7	1	5
Newborn affected by other forms of placental separation and hemorrhage (P02.1)	7	6	1
Newborn affected by premature rupture of membranes (P01.1)	7	6	1
Unspecified intraventricular (nontraumatic) hemorrhage of newborn (P52.3)	6	5	1
Neonatal cardiac dysrhythmia (P29.1)	6	5	1
Neonatal cardiac failure (P29.0)	6	6	0
Respiratory distress syndrome of newborn (P22.0)	5	4	0
All other conditions originating in perinatal period	12	10	2
Congenital Malformations, Deformations, & Chromosomal Abnorm..... (Q00-Q99)	129	95	29
Chromosomal abnormalities (Q90-Q99)	29	23	4
Edward's syndrome(Q91.0-Q91.3)	14	12	1
Patau's syndrome(Q91.4-Q91.7)	10	8	1
Congenital malformations of the heart (Q20-Q24)	26	19	6
Congenital malformations of the nervous system..... (Q00-Q07)	24	19	5
Anencephaly (Q00.0)	12	11	1
Holoprosencephaly (Q04.2)	6	3	3
Congenital malformations and deformations of the musculoskeletal system (Q65-Q79)	15	11	3
Congenital diaphragmatic hernia..... (Q79.0)	5	4	1
Congenital malformations of the urinary system (Q60-Q64)	14	10	3
Renal agenesis (Q60.0-Q60.2)	6	5	0
Congenital malformations of the respiratory system (Q30-Q34)	5	3	2
Hypoplasia and dysplasia of lung (Q33.6)	5	3	2
All other congenital anomalies	16	10	6
Sudden Infant Death Syndrome (R95)	47	19	25
Accidents(V01-X59, Y85-Y86)	27	12	15
Accidental suffocation and strangulation in bed (W75)	9	6	3
Motor vehicle accidents	6	0	6
All other accidents	12	6	6
Ill-Defined and Unknown Causes of Mortality(R96-R99)	17	6	11
Symptoms, Signs, and Abnormal Clinical and Lab Findings.....(R00-R94)	16	8	6
All Other Causes	39	20	16

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

Source: South Dakota Department of Health, Office of Data, Statistics, and Vital Records

Infant Mortality and Birth Weight

Table 47, below, displays infant mortality rates by birth weight. The highest mortality rate is for babies born who weigh less than 1,000 grams with an infant mortality rate of 471.70, a neonatal mortality rate of 437.11,

and a postneonatal mortality rate of 34.59. The highest rates occur below 2,500 grams which is considered low birth weight babies.

Table 47
South Dakota Resident Infant Mortality Rates by Birth Weight, 2004-2008

Birth Weight (in Grams)	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Total	59,046	436	7.38	4.47	2.91
<1,000	318	150	471.70	437.11	34.59
1,000-1,499	340	23	67.65	50.00	17.65
1,500-1,999	792	31	39.14	31.57	7.58
2,000-2,499	2,569	39	15.18	10.12	5.06
2,500-2,999	9,568	70	7.32	3.14	4.18
3,000-3,499	22,780	68	2.99	0.66	2.33
3,500-3,999	17,275	40	2.32	0.35	1.97
4,000-4,499	4,635	7	1.51	0.22	1.29
4,500+	738	3	4.07	1.36	2.71

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.

Source: South Dakota Department of Health, Office of Data Statistics, and Vital Records

Infant Mortality and Prenatal Care

Table 48, below, displays infant mortality rates by prenatal care. The highest infant mortality rate, 54.47, 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 6.13.

Table 48
South Dakota Resident Infant Mortality Rates by Prenatal Care, 2004-2008

Trimester Prenatal Care Began	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Total	59,046	436	7.38	4.47	2.91
First Trimester	42,768	262	6.13	3.83	2.29
Second Trimester	12,553	99	7.89	4.30	3.58
Third Trimester	2,509	26	10.36	4.78	5.58
No Prenatal Care	459	25	54.47	37.04	17.43

Note: Infant mortality rates are per 1,000 live births.
For purposes of calculating infant mortality rates by prenatal care, multiple births and deaths (twins, triplets, etc) are counted only as a single birth and death.
Failure of births and infant deaths to add to the total is due to unknown trimester prenatal care began.

Source: South Dakota Department of Health, Office of Data, Statistics, and Vital Records

Infant Mortality and Gestation Period

Table 49, below, displays infant mortality rates by gestation period. The highest infant mortality rate occurred to those with less than 25 weeks with a rate of 794.52. The highest neonatal mortality rate occurred at

less than 25 weeks with a rate of 780.82. The highest postneonatal mortality rate occurred during 25 to 29 weeks with a rate of 32.74.

Table 49
South Dakota Resident Infant Mortality Rates by Gestation Period, 2004-2008

Weeks of Gestation	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Total	59,046	436	7.38	4.47	2.91
<25 Weeks	146	116	794.52	780.82	13.70
25-29 Weeks	336	43	127.98	95.24	32.74
30 Weeks	111	10	90.09	72.07	18.02
31 Weeks	149	8	53.69	40.27	13.42
32 Weeks	270	13	48.15	40.74	7.41
33 Weeks	361	8	22.16	16.62	5.54
34 Weeks	616	20	32.47	14.61	17.86
35 Weeks	1,057	13	12.30	9.46	2.84
36 Weeks	2,309	18	7.80	3.90	3.90
37 Weeks	5,078	21	4.14	1.18	2.95
38 Weeks	10,528	46	4.37	1.04	3.32
39 Weeks	17,262	56	3.24	1.33	1.91
40 Weeks	15,243	40	2.62	0.66	1.97
41 Weeks	4,861	15	3.09	0.62	2.47
42+ Weeks	562	5	8.90	3.56	5.34

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 weeks of gestation.
Source: South Dakota Department of Health, Office of Data, Statistics, and Vital Records

Infant Mortality and Tobacco Use

Table 50, below, displays infant mortality rates by tobacco use of the mother. Mothers who reported they did use tobacco while pregnant had an infant mortality rate

of 11.14, while mothers who reported they did not use tobacco while pregnant had an infant mortality rate of 6.49.

Table 50
South Dakota Resident Infant Mortality Rates by Tobacco Use of Mother, 2004-2008

Tobacco Use of Mother	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Total	59,046	436	7.38	4.47	2.91
Yes	10,954	122	11.14	5.93	5.20
No	47,598	309	6.49	4.14	2.35

Note: Infant mortality rates are per 1,000 live births.
Failure of births to add to the total is due to unknown tobacco use of the mother.
Source: South Dakota Department of Health, Office of Data, Statistics, and Vital Records

Infant Mortality and Mother Demographics

The following tables, 51a-51d, 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 233.

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 51a
South Dakota Resident Infant Mortality Rates by Demographics of Mother, 2006-2008

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Education					
11 years or less	4,384	54	12.32*	6.84*	5.47*
12+ years	29,752	172	5.78*	3.66*	2.08*
Marital Status					
Single	13,745	129	9.39*	5.17*	4.22*
Married	22,449	122	5.43*	3.74*	1.65*
Mother's WIC Status					
No WIC	21,268	118	5.55*	3.81	1.69*
WIC	14,007	116	8.28*	4.21	4.07*
Age					
<18	1,030	14	13.59*	8.74	4.85*
18-19	2,428	22	9.06*	4.53	4.53*
20-24	9,840	75	7.62*	3.86	3.76*
25-29	11,963	80	6.69*	4.51	2.17*
30+	10,969	60	5.47*	3.92	1.46*
BMI					
Underweight	1,245	6	4.82*	2.41*	2.41
Recommended	17,742	106	5.97*	3.55*	2.37
Overweight	8,819	54	6.12*	3.40*	2.72
Obese	7,531	70	9.29*	6.37*	2.92
Diabetes					
No Pre-Existing Diabetes	35,702	243	6.81*	4.17*	2.60
Pre-Existing Diabetes	246	6	24.39*	16.26*	8.13
Payment Source					
Medicaid	12,497	117	9.36*	4.88	4.48*
Private Insurance	19,318	96	4.97*	3.68	1.24*
Self-Pay	896	10	11.16*	4.46	6.70*
Indian Health Service	962	14	14.55*	6.24	8.32*
Champus/Tricare	877	2	2.28*	2.28	0.00*
Other Government	366	2	5.46*	2.73	2.73*
Other	591	2	3.38*	3.38	0.00*

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

Source: South Dakota Department of Health, Office of Data, Statistics, and Vital Records

Table 51b
South Dakota Resident Infant Mortality Rates by Previous Pregnancy History, 2006-2008

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Number of Dead Children					
0	35,639	231	6.48*	4.04*	2.41*
1+	552	18	32.61*	18.12*	14.49*
Number of Previous Pregnancies					
0	11,059	64	5.79*	4.25	1.54*
1	10,023	64	6.39*	3.19	3.19*
2	7,021	42	5.98*	3.85	2.14*
3	3,808	27	7.09*	4.73	2.36*
4	1,993	21	10.54*	6.02	4.52*
5	999	14	14.01*	10.01	3.00*
6	556	3	5.40*	0.00	5.40*
7	285	5	17.54*	14.04	3.51*
8	179	3	16.76*	5.59	11.17*
9+	232	5	21.55*	12.93	8.62*
Other Poor Previous Pregnancy Outcomes					
No	34,958	231	6.61*	4.40*	2.57
Yes	990	18	18.18*	13.13*	5.05
Infertility Treatment					
No	35,535	242	6.80*	4.11*	2.67
Yes	383	7	18.28*	18.28*	0.00

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

Source: South Dakota Department of Health, Office of Data, Statistics, and Vital Records

Table 51c
South Dakota Resident Infant Mortality Rates by Labor and Delivery, 2006-2008

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Tocolysis					
No	35,070	233	6.64*	4.05*	2.57
Yes	826	16	19.37*	13.32*	6.05
Cervical Cerclage					
No	35,780	246	6.88*	4.19*	2.66
Yes	116	3	25.86*	25.86*	0.00
Precipitous Labor					
No	34,257	226	6.60*	3.94*	2.63
Yes	1,658	23	13.87*	10.86*	3.02
Induction of Labor					
No	24,791	190	7.66*	4.52	3.11*
Yes	11,258	58	5.15*	3.55	1.60*
Augmentation of Labor					
No	27,242	209	7.67*	4.85*	2.79
Yes	8,807	39	4.43*	2.27*	2.16
Non-Vertex Presentation					
No	35,192	228	6.48*	3.78*	2.67
Yes	361	20	23.34*	22.17*	1.17
Steroids for Fetal Lung Maturation Received by the Mother Prior to Delivery					
No	35,501	233	6.56*	4.06*	2.48*
Yes	548	15	27.37*	14.60*	12.77*
Clinical Chorioamnionitis Diagnosed During Labor – Maternal Temp $\geq 38^{\circ}\text{C}$					
No	35,854	240	6.69*	4.04*	2.62
Yes	195	8	41.03*	35.90*	5.13
Fetal Intolerance of Labor Requiring In-Utero Resuscitative Measures, Further Fetal Assessment or Operative Delivery					
No	33,903	223	6.58*	3.89*	2.65
Yes	2,146	25	11.65*	9.32*	2.33
Epidural or Spinal Anesthesia During Labor					
No	11,697	95	8.12*	4.96*	3.16*
Yes	17,836	79	4.43*	2.58*	1.85*
Fetal Presentation					
Cephalic	34,348	201	5.85*	3.17*	2.65
Breech	1,394	42	30.13*	27.98*	2.15
Maternal Transfusion					
No	35,742	243	6.80*	4.11*	2.66
Yes	155	5	32.26*	32.26*	0.00
Unplanned Operating Procedure Following Delivery					
No	35,767	241	6.74*	4.08*	2.63
Yes	130	7	53.85*	46.15*	7.69

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

Source: South Dakota Department of Health, Office of Data, Statistics, and Vital Records.

Table 51d
South Dakota Resident Infant Mortality Rates by Post Delivery Conditions, 2006-2008

	Births	Infant Deaths	Infant Mortality Rate	Neonatal Mortality Rate	Postneonatal Mortality Rate
Five Minute APGAR Score					
0-2	153	84	549.02*	542.48*	6.54*
3-4	162	21	129.63*	123.46*	6.17*
5	176	10	56.82*	51.14*	5.68*
6	376	14	37.23*	29.26*	7.98*
7	1,127	17	15.08*	6.21*	7.99*
8	5,745	26	4.53*	0.87*	3.66*
9	26,194	66	2.52*	0.57*	1.95*
10	2,206	6	2.72*	0.45*	2.27*
Ten Minute APGAR Score					
0-6	180	96	533.33*	522.22*	11.11
7-8	191	10	52.36*	52.36*	0.00
9-10	110	0	0.00*	0.00*	0.00
Plurality					
1	35,041	230	6.56*	3.91*	2.63
2+	1,190	21	17.65*	15.13*	2.52
Breastfeeding at the Time of Discharge					
No	8,968	61	6.80*	2.79*	4.01*
Yes	26,406	75	2.84*	0.68*	2.12*
Assisted Ventilation Required Immediately Following Delivery					
No	33,839	188	5.56*	3.19*	2.33*
Yes	2,098	59	28.12*	20.50*	7.63*
Assisted Ventilation for More than Six Hours					
No	35,038	209	5.96*	3.57*	2.37*
Yes	899	38	42.47*	28.92*	13.35*
Neonatal Intensive Care Unit Admission					
No	32,789	173	5.28*	3.05*	2.23*
Yes	3,148	74	23.51*	16.20*	6.99*
Newborn Given Surfactant Replacement Therapy					
No	35,677	225	6.31*	3.84*	2.44*
Yes	260	22	84.62*	53.85*	30.77*
Antibiotics Received by the Newborn for Suspected Neonatal Sepsis					
No	34,164	214	6.26*	3.83*	2.40*
Yes	1,773	33	18.61*	11.28*	7.33*

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

Source: South Dakota Department of Health, Office of Data, Statistics, and Vital Records