

Health Indicators

Health

Internet site: <http://doh.sd.gov/>

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

Data Indicator and Definition:

Infant mortality (rate): The number of deaths for infants under one year of age per 1,000 live births.

Low birth weight babies (percent): Low birth weight babies are those born weighing less than 2,500 grams (about five and one half pounds).

Child death (rate): The number of deaths for children ages 1-14 per 100,000, from all causes.

Teen violent death (rate): The number of deaths from homicides, suicides, and accidents to teens ages 15-19 years per 100,000 teens.

Births to single teens (percent): The percent of all live births to single females under the age of 20.

Women receiving prenatal care (percent): The number of live single births to women receiving prenatal care during the first trimester (first three months) of pregnancy, by county of residence.

How to Interpret Health Data

Information and limitations of the health data:

Mortality and death rates are calculated by taking the number of deaths in any given category, dividing it by the total number of individuals in that category, and multiplying by 1,000 or 100,000 (whatever number is chosen).

$$\frac{\text{Total death}}{\text{Population Base}} \times 1,000$$

A percentage is calculated using the same formula only multiplied by 100.

As the population base becomes smaller, as it does in many counties in South Dakota, statistical variation becomes more prominent and more prone to anomalies. For example, let's say a county has 2 infants die out of 85 live births. If we divide 2 by 85 and multiply by 1,000 we get an infant mortality rate of 24 per 1,000. If the next year only 1 infant dies out of 85 live births, the infant mortality rate would be 12. This so-called large decrease is a result of statistical variation and the magnitude of the drop is exaggerated because of the use of a base of 1,000.

$$\frac{\text{Infant deaths}}{\text{Population Base}} \times 1,000 = \frac{2}{85} \times 1,000 = 0.0235 \times 1,000 = 24 \text{ per } 1,000$$

In an attempt to minimize chance variations five-year averages are used to minimize chance variations. Despite these precautions, in the most sparsely populated counties, using 5 year averages will still not reduce chance variation significantly for some of the indicators due to the small number of events.

A rate or percent is not calculated for those counties where the event number is below 3.

The standard error (SE) of a rate is used in health statistics when studying or comparing rates. The SE defines a rate's variability and can be used to calculate a confidence interval (CI) to determine the actual variance of a rate 95% of the time. Rates for two different populations are considered to be **significantly different when their confidence intervals do not overlap**.

The Todd County percent of low birth weight babies was 8.7% for 2006-10. The 95% confidence interval [CI] is 1.57. This was based on 113 low birth weights out of 1,360 total live births in the county during the time period 2006-10. Todd County's percent of low birth weight babies is **worse** than the South Dakota rate. This is because the confidence intervals for Todd County (1.57% to 7.1%) **do not overlap** the state's (6.4% to 6.8%). In other words, Todd County's percent of low birth weight babies falls outside of the state's confidence interval.

The 95% confidence interval [CI] for Grant County is 3.38. The percent low birth weight babies was 6.5%. The percent of low birth weight babies for Gregory County (based on 12 low birth weights for 2006-10 out of 217 total live births) is **not significantly different** from South Dakota because the percent of low birth weights the county (3.1% to 9.8%) **overlap** the state's (6.4% to 6.8%). In other words, Gregory County's percent of low birth weights falls within the state's confidence interval making Gregory County's rate the **same** as the state's average.

The 95% confidence interval [CI] for Ziebach County is 2.49. The percent low birth weight babies was 3.6%. The percent of low birth weight babies for Ziebach County (based on 13 low birth weight babies for 2006-10 out of 223 total live births) is **significantly different** from South Dakota because the percent of low birth weight babies for Ziebach County (1.1% to 6.1%) **do not overlap** the state (6.4% to 6.8%). In other words, Ziebach County percent of low birth weight babies does not fall within the state's confidence interval and the percentages are lower than the state's making Ziebach County's rate **better** than the state's average.

Infant Mortality

Source: South Dakota Department of Health.

The infant mortality rate reflects the number of infants who die before their first birthday, per 1,000 live births. Since the first year of life is more fragile than later years of childhood, negative social conditions such as poverty have a greater impact on this vulnerable group. Although infant mortality rates for the United States have been declining over the past several decades, the nation ranks poorly on an international level. Infant mortality has two components: neonatal mortality, deaths of infants younger than 28 days, and post neonatal mortality, or deaths between 28 days and one year old.

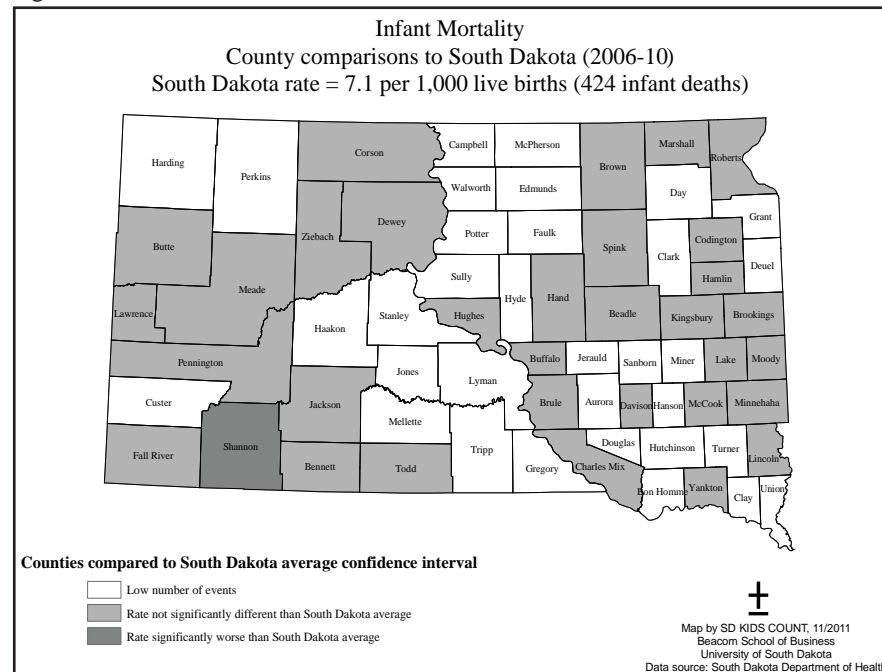
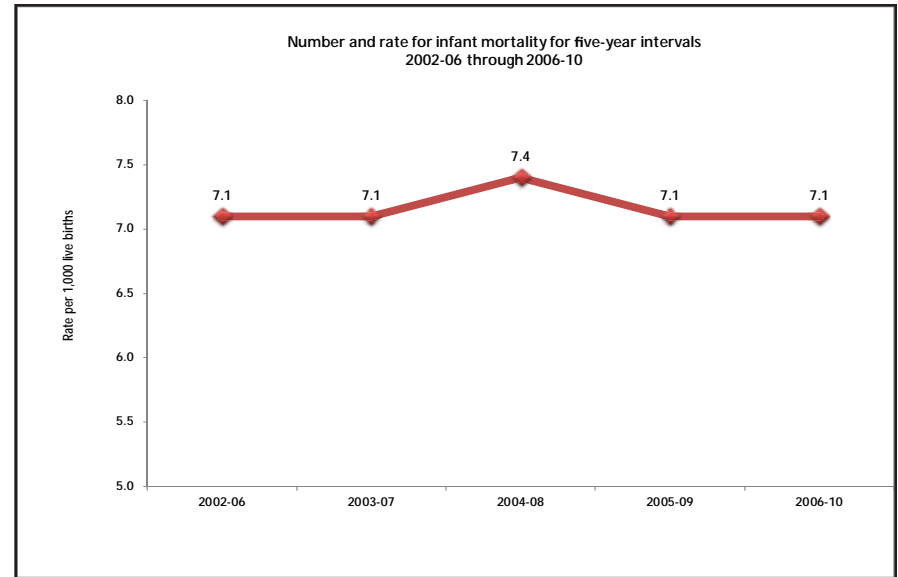
The five-year average infant mortality rate for 2006-10 in South Dakota was 7.1 per 1,000 live births. For the five-year period 2006-10 there was a total of 424 infant deaths. The graph on the right shows the infant mortality rate for the time periods 2002-06 through 2006-10. Infant mortality remained the same from the previous time period.

Infant mortality rates vary by race. Of all White babies born (46,949) in the 2006-10 time period, in South Dakota, there were 271 deaths for a rate of 5.8 per 1,000 live births.

Of all American Indian babies born (9,718) in the 2006-10 time period, in South Dakota, there were 114 deaths for a rate of 11.7 per 1,000 live births.

Of all babies of other race born (3,217) in the 2006-10 time period, in South Dakota, there were 39 deaths for a rate of 12.1 per 1,000 live births.

The infant mortality rate for American Indian babies in South Dakota is significantly higher than for White babies in South Dakota.



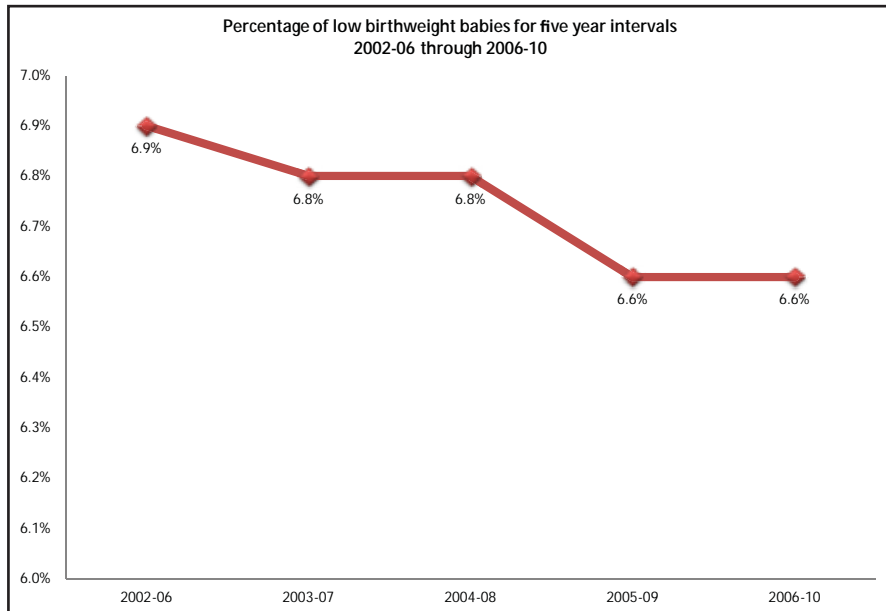
The map on the left shows the counties compared to the state confidence interval for infant mortality for the time period 2006-10. The standard error (SE) of a rate is used in health statistics when studying or comparing rates. The SE defines a rate's variability and can be used to calculate a confidence interval (CI) to determine the actual variance of a rate 95% of the time.

Rates for two different populations are considered to be significantly different when their confidence intervals do not overlap. In other words, the number of events do not fall within the state's confidence interval, whether higher (worse) or lower (better). In this case:

- One county had an infant mortality rate worse than the state average (dark grey).
- Rates for two different populations are considered *not* to be significantly different when their confidence intervals overlap. In other words, the number of events falls within the state's confidence interval. In this case:
 - 32 counties had confidence intervals that overlap the state (medium grey).
- Counties with a low number of events (LNE-anything less than three events) did not have rates calculated. In this case:
 - 33 counties had a low number of events (white).

Low Birth Weight Babies

Source: South Dakota Department of Health.



Low birth weight is the percentage of infants born weighing less than 2,500 grams (about 5.5 pounds). A baby's birth weight is a key indicator of newborn health. It is directly related to infant survival and healthy development.

The percent of all live births that were low birth weight was 6.6% for the 2006-10 time period. Out of the 59,938 live births during 2006-10, there were 3,985 born low birth weight. The graph at the left indicates the number of low birth weight babies for 2002-06 through 2006-10.

Of all White babies born in the 2006-10 time period in South Dakota, 6.5% (3,029 of 46,938) were low birth weight.

Of all American Indian babies born in the 2006-10 time period in South Dakota, 6.8% (661 of 9,704) were low birth weight.

Of all babies of other race born in the 2006-10 time period in South Dakota, 10.4% (177 of 1,698) were low birth weight.

Of all babies of two or more races born in the 2006-10 time period in South Dakota, 7.3% (111 of 1,518) were low birth weight.

American Indian low birth weight babies for 2006-10 is not significantly different than for White babies.

The map on the right shows the counties compared to the state confidence interval for the percent of low birth weight babies for the time period 2006-10. The standard error (SE) of a rate is used in health statistics when studying or comparing rates. The SE defines a rate's variability and can be used to calculate a confidence interval (CI) to determine the actual variance of a rate 95% of the time.

Rates for two different populations are considered to be significantly different when their confidence intervals do not overlap. In other words, the number of events do not fall within the state's confidence interval, whether higher (worse) or lower (better). In this case:

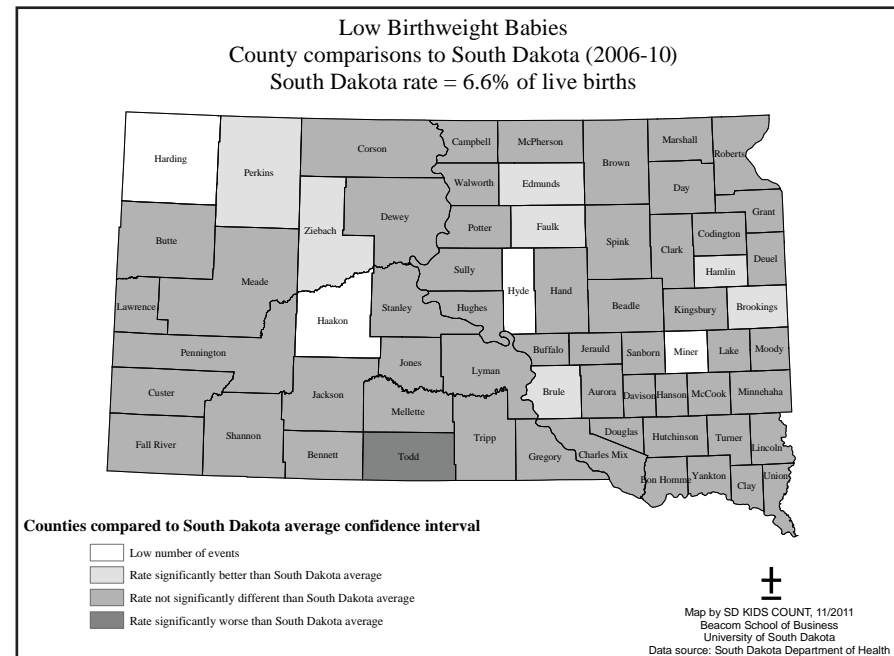
- Seven counties (Brookings, Brule, Edmunds, Faulk, Hamlin, Perkins, and Ziebach) had rates that were better than the state average meaning they had a lower percentage of low birth weight babies during the 2006-10 time period (light grey).
- One county had a rate worse than the state average (dark grey).

Rates for two different populations are considered *not* to be significantly different when their confidence intervals overlap. In other words, the number of events falls within the state's confidence interval. In this case:

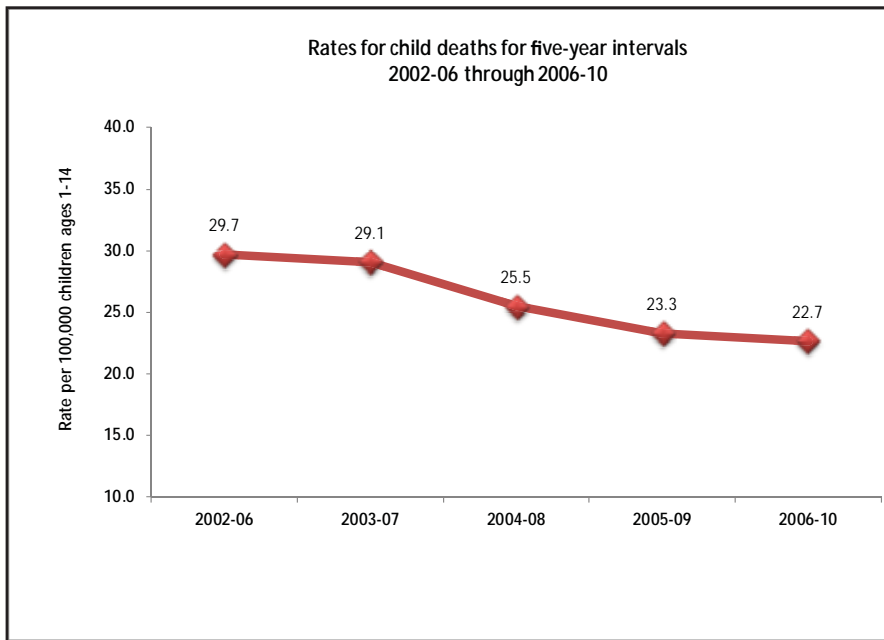
- 54 counties had confidence intervals that overlap the state (medium grey).

Counties with a low number of events (LNE-anything less than three events) did not have rates calculated. In this case:

- Four counties (Haakon, Harding, Hyde, and Miner) had a low number of events (white).



Child Deaths Source: South Dakota Department of Health.



Once a child survives the first year of life, mortality drops sharply. Child deaths are the number of deaths from all causes per 100,000 children ages 1-14 years. The rate is a reflection of the physical, mental and emotional health of children. Motor vehicle crashes are a significant cause of child deaths in South Dakota.

The rate of 22.7 per 100,000 children ages 1-14 is about 173 child deaths for the 2006-10 time period. The child death rate averages between 35-50 deaths per year. The graph at the left shows the trend in the number of child deaths for 2002-06 through 2006-10. There has been a steady decrease in the rate of child deaths.

Of all White children ages 1-14 for the 2006-10 time period in South Dakota, there were 121 child deaths for a rate of 20.1 per 100,000 children ages 1-14.

Of all American Indian children ages 1-14 for the 2006-10 time period in South Dakota, there were 41 child deaths for a rate of 37.9 per 100,000 children ages 1-14.

Of all children of other races ages 1-14 for the 2006-10 time period in South Dakota, there were 11 deaths for a rate of 21.1 deaths per 100,000 children ages 1-14.

The child death rate for American Indian children ages 1-14 in South Dakota is significantly higher than for White children ages 1-14 in South Dakota.

The map on the right shows the counties compared to the state confidence interval for the child death rate for the time period 2006-10. The standard error (SE) of a rate is used in health statistics when studying or comparing rates. The SE defines a rate's variability and can be used to calculate a confidence interval (CI) to determine the actual variance of a rate 95% of the time.

Rates for two different populations are considered to be significantly different when their confidence intervals do not overlap. In other words, the number of events do not fall within the state's confidence interval, whether higher (worse) or lower (better). In this case:

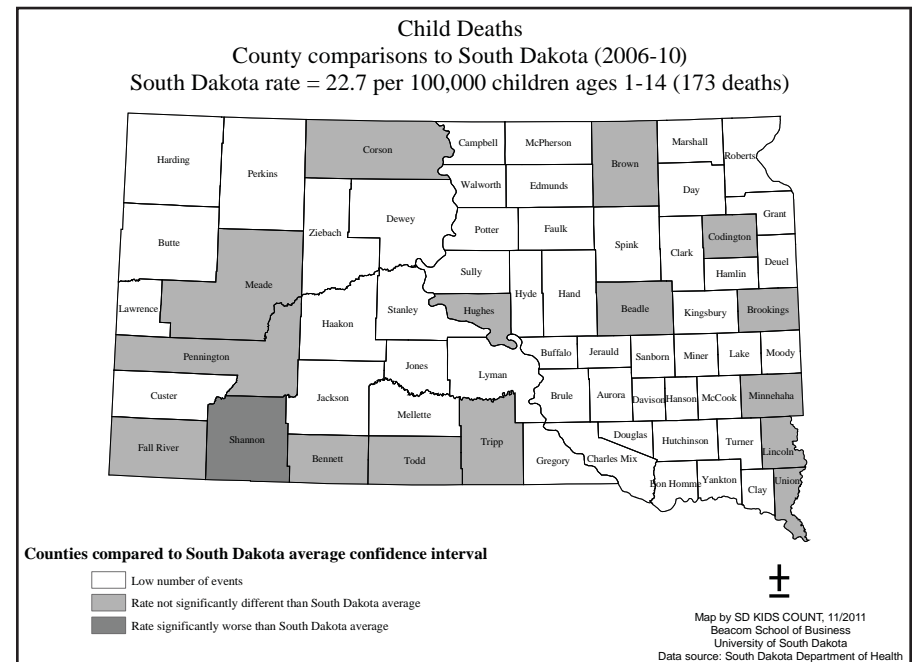
- No counties had a rate better than the state average
- One county has a rate worse than the state average (dark grey).

Rates for two different populations are considered *not* to be significantly different when their confidence intervals overlap. In other words, the number of events falls within the state's confidence interval. In this case:

- 15 counties fell within the state confidence interval average and thus are not significantly different (medium grey).

Counties with a low number of events (LNE-anything less than three events) did not have rates calculated. In this case:

- 50 counties had a low number of events (white).



Teen Violent Deaths

Source: South Dakota Department of Health.

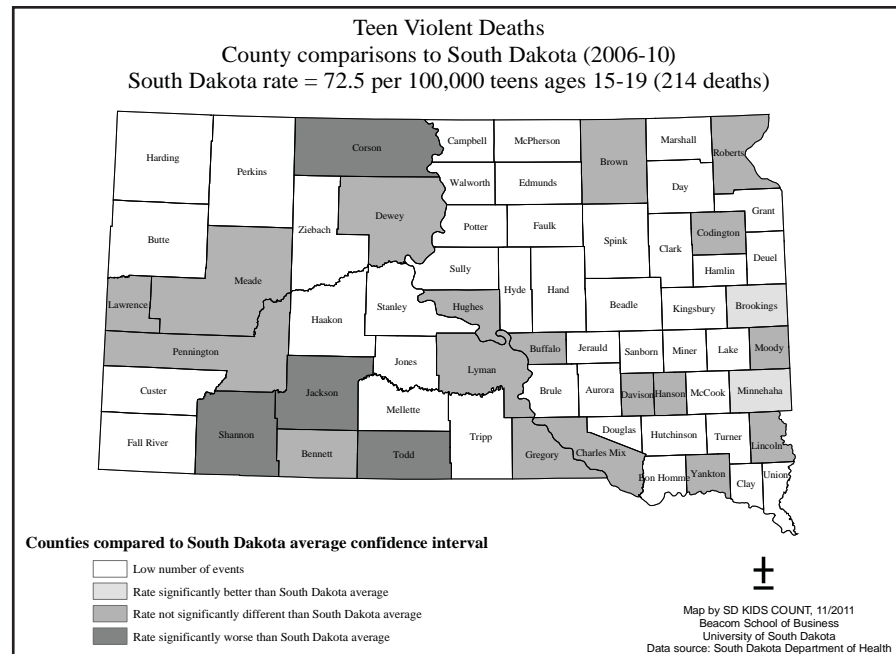
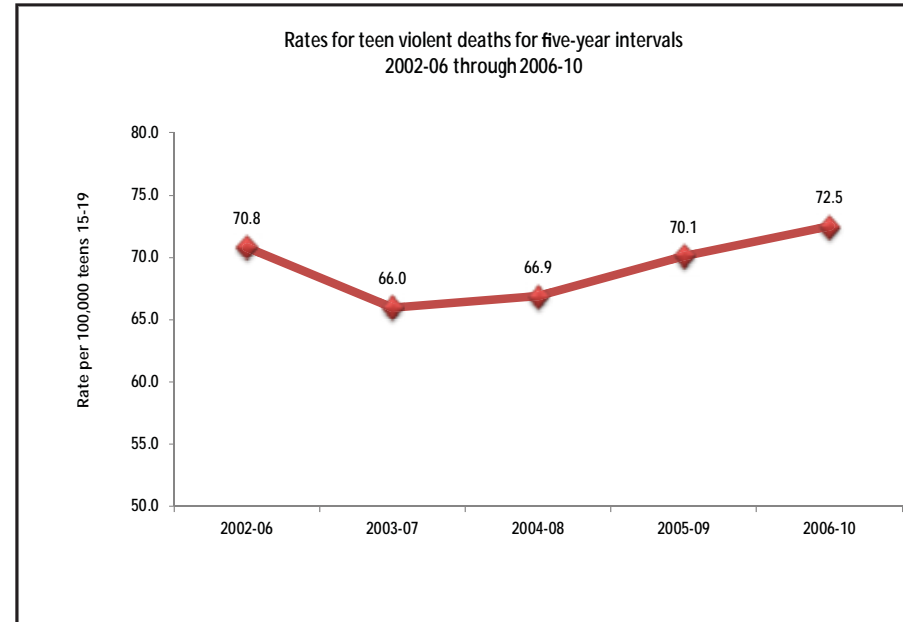
This indicator is deaths caused by accidents, homicides, and suicides per 100,000 teens ages 15-19. As with child deaths, motor vehicle crashes make up the highest percentage of teen violent deaths in South Dakota.

The teen violent death rate for 2006-10 was 72.5 per 100,000 youth 15 through 19 years of age. For every 100,000 youth in that age group, about 214 died from accidents, suicides, or homicides for the 2006-10 time period. The graph at the right indicates the number of teen violent deaths for 2002-06 through 2006-10. Teen deaths have been inching up over the past four time periods.

Of all White teens ages 15-19 in the 2006-10 time period in South Dakota, there were 129 teen violent deaths for a rate of 52.9 per 100,000 teens ages 15-19.

Of all American Indian teens ages 15-19 in the 2006-10 time period in South Dakota, there were 79 teen violent deaths for a rate of 194.7 per 100,000 teens ages 15-19.

The teen violent death rate for American Indian teens age 15 to 19 in South Dakota is significantly higher than for White teens age 15 to 19 in South Dakota.



The map on the left shows the counties compared to the state confidence interval for the teen violent death rate for the time period 2006-10. The standard error (SE) of a rate is used in health statistics when studying or comparing rates. The SE defines a rate's variability and can be used to calculate a confidence interval (CI) to determine the actual variance of a rate 95% of the time.

Rates for two different populations are considered to be significantly different when their confidence intervals do not overlap. In other words, the number of events do not fall within the state's confidence interval, whether higher (worse) or lower (better). In this case:

- Four counties, Corson, Jackson, Shannon, and Todd have a rate worse than the state average, meaning they had a higher rate of teen violent deaths as compared to the state as a whole for the time period 2006-10 (dark grey).
- Two counties (Brookings and Minnehaha) had rates better than the state average. Rates for two different populations are considered *not* to be significantly different when their confidence intervals overlap. In other words, the number of events falls within the state's confidence interval. In this case:
 - 18 counties fall within the state confidence interval average and thus are not significantly different (medium grey).

Counties with a low number of events (LNE-anything less than three events) did not have rates calculated. In this case:

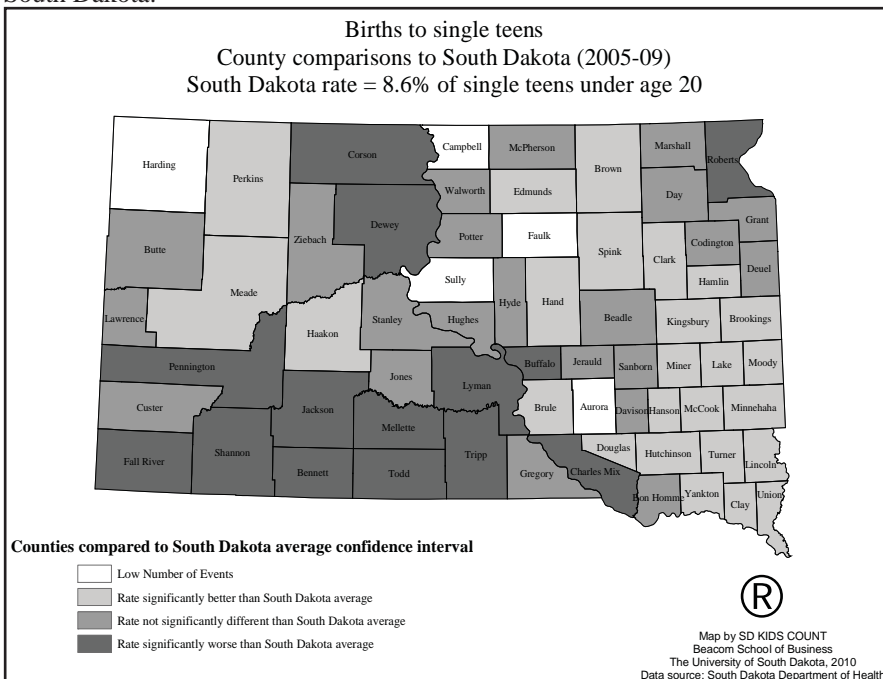
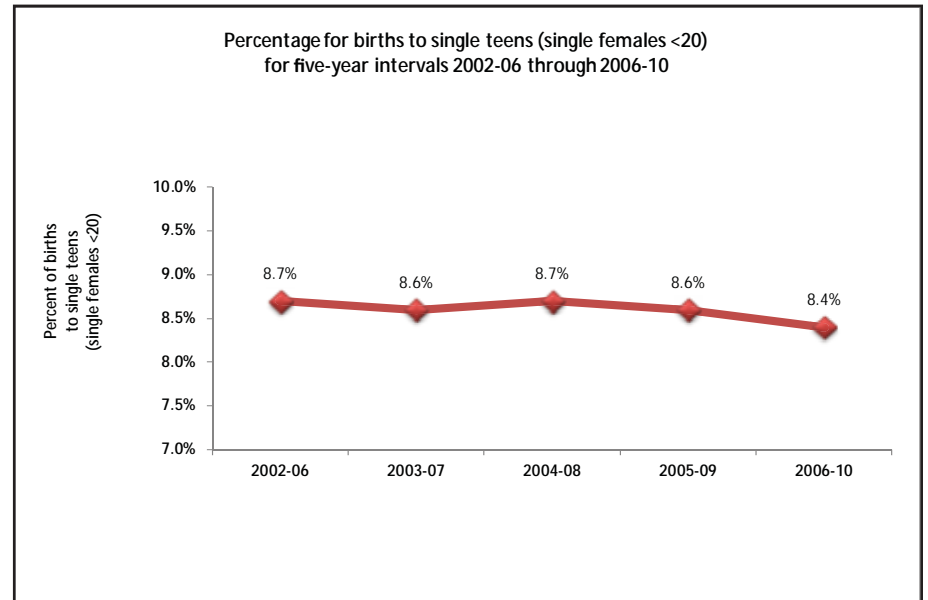
- 42 counties had a low number of events (white).

Births to Single Teens

Source: South Dakota Department of Health.

This is the percentage of all births to single teens under age 20. The indicator is included because teen childbearing has been shown to diminish the opportunities of both the child and the mother. Births to females under age 18 are particularly problematic because most of the teens are not married and have not completed high school. Children of teen mothers are more likely to be born low birth weight, have health problems, and need hospitalization.

Births to single teens made up 8.4% of all births from 2006-10. Of the 59,966 births from 2006-10, 5,016 were to teens under age 20. The graph at the right indicates the number of births to single teens have been fairly constant from the 2002-06 through 2006-10 time periods. Of all White births in the 2006-10 time period in South Dakota, 5.6% (2,632 of 46,949) were to single teens (single White females under age 20). Of all American Indian births in the 2006-10 time period in South Dakota, 20.5% (1,989 of 9,718) were to single teens (single American Indian females under age 20). Of all births to other races in the 2006-10 time period in South Dakota, 5.5% (93 of 1,698) were to single teens (single females of other races under age 20). Of all births to two or more races in the 2006-10 time period in South Dakota, 19.4% (294 of 1,519) were to single teens (single females of two or more races under age 20). The births to single teens rate for American Indian single females under age 20 in South Dakota is significantly higher than for White single females under age 20 in South Dakota.



The map on the left shows the counties compared to the state confidence interval for percent of births to single teens for the time period 2006-10. The standard error (SE) of a rate is used in health statistics when studying or comparing rates. The SE defines a rate's variability and can be used to calculate a confidence interval (CI) to determine the actual variance of a rate 95% of the time.

Rates for two different populations are considered to be significantly different when their confidence intervals do not overlap. In other words, the number of events do not fall within the state's confidence interval, whether higher (worse) or lower (better). In this case:

- 24 counties had percentages that were better than the state as a whole (light grey).
- 13 counties had a percentage of births to single teens worse than the state average, meaning those counties had a higher percentage of births to single teens compared to the state as a whole for the time period 2006-10 (dark grey).

Rates for two different populations are considered **not** to be significantly different when their confidence intervals overlap. In other words, the number of events falls within the state's confidence interval. In this case:

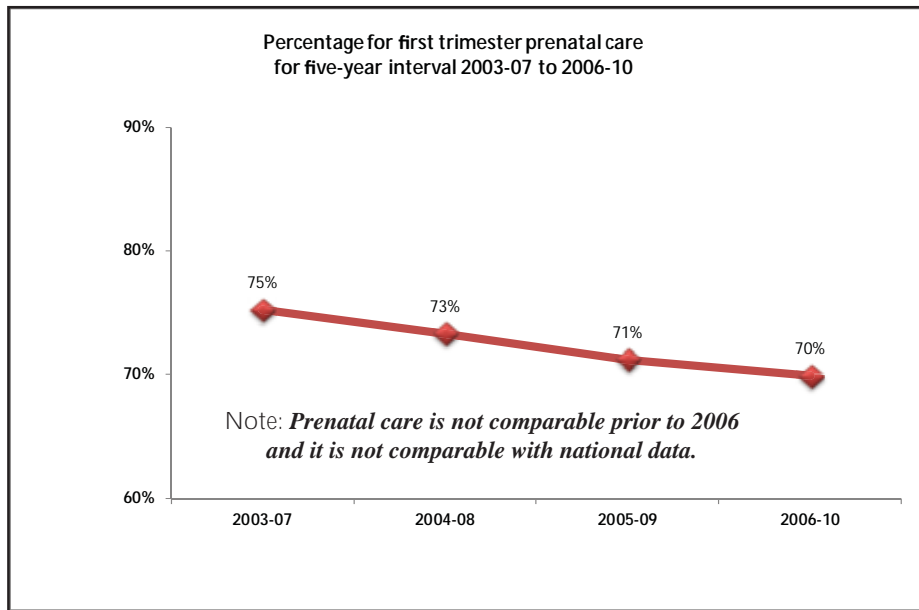
- 24 counties fell within the state confidence interval average and thus are not significantly different (medium grey).

Counties with a low number of events (LNE-anything less than three events) did not have rates calculated. In this case:

- Five counties had low number of events (white).

Prenatal Care

Source: South Dakota Department of Health.



Prenatal care (first trimester) helps to promote healthier births. Prenatal care for the mother addresses such issues as inadequate nutrition, smoking, anemia, and diabetes. For babies, prenatal care (first trimester) is associated with lower likelihood of being born low birth weight, stillborn, or dying within the first year of life.

The graph on the left indicates that 70% [40,932 of 58,839] of women received prenatal care in their first trimester of pregnancy for the time period 2006-10. **Note that this prenatal care figures are not comparable prior to 2006 and is not comparable with national data.**

In the 2006-10 time period in South Dakota, 74.9% (33,974 of 45,362) of White women received prenatal care during their first trimester of pregnancy.

In the 2006-10 time period in South Dakota, 48.4% (4,541 of 9,377) of American Indian women received prenatal care during their first trimester of pregnancy.

In the 2006-10 time period in South Dakota, 50.9% (829 of 1,628) of women of other races received prenatal care during their first trimester of pregnancy.

In the 2006-10 time period in South Dakota, 61.5% (906 of 1,472) of women of two or more races received prenatal care during their first trimester of pregnancy.

The rate of prenatal care for White women in South Dakota is significantly higher than for American Indian women in South Dakota.

The map on the right shows the counties compared to the state confidence interval for the percent of women receiving prenatal care (first trimester) for the time period 2006-10. The standard error (SE) of a rate is used in health statistics when studying or comparing rates. The SE defines a rate's variability and can be used to calculate a confidence interval (CI) to determine the actual variance of a rate 95% of the time.

Rates for two different populations are considered to be significantly different when their confidence intervals do not overlap. In other words, the number of events do not fall within the state's confidence interval, whether higher (worse) or lower (better). In this case:

- 11 counties had confidence intervals better than the state as a whole (light grey).
- 16 counties have confidence intervals worse than the state average, meaning they had a lower percentage of women receiving prenatal care as compared to the state as a whole for the time period 2006-10 (dark grey).

Rates for two different populations are considered **not** to be significantly different when their confidence intervals overlap. In other words, the number of events falls within the state's confidence interval. In this case:

- 39 counties have confidence intervals that overlap the state and are not significantly different (medium grey).

