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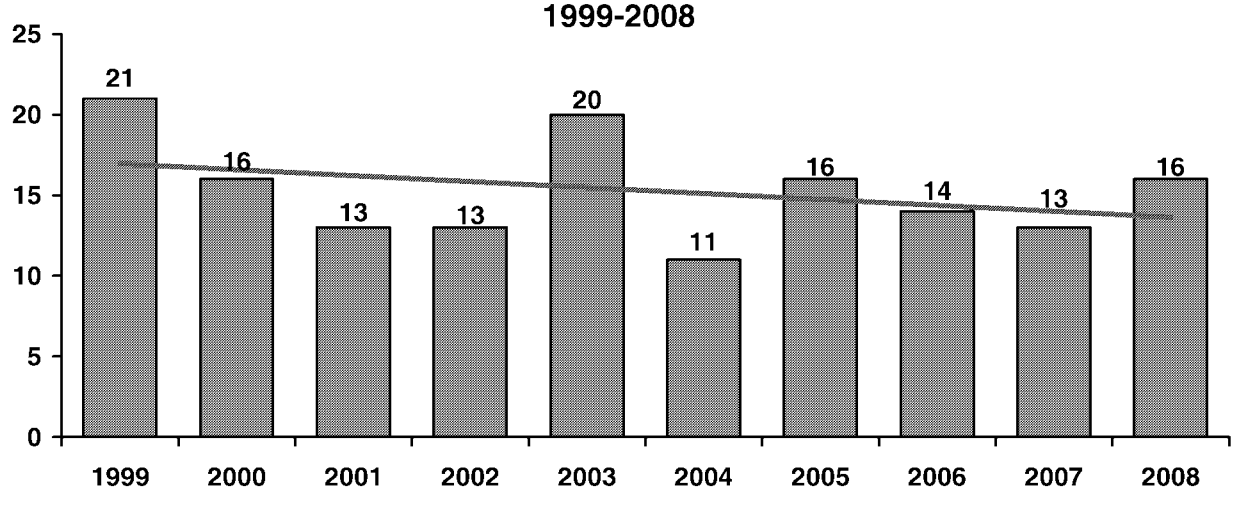
2008 South Dakota tuberculosis morbidity

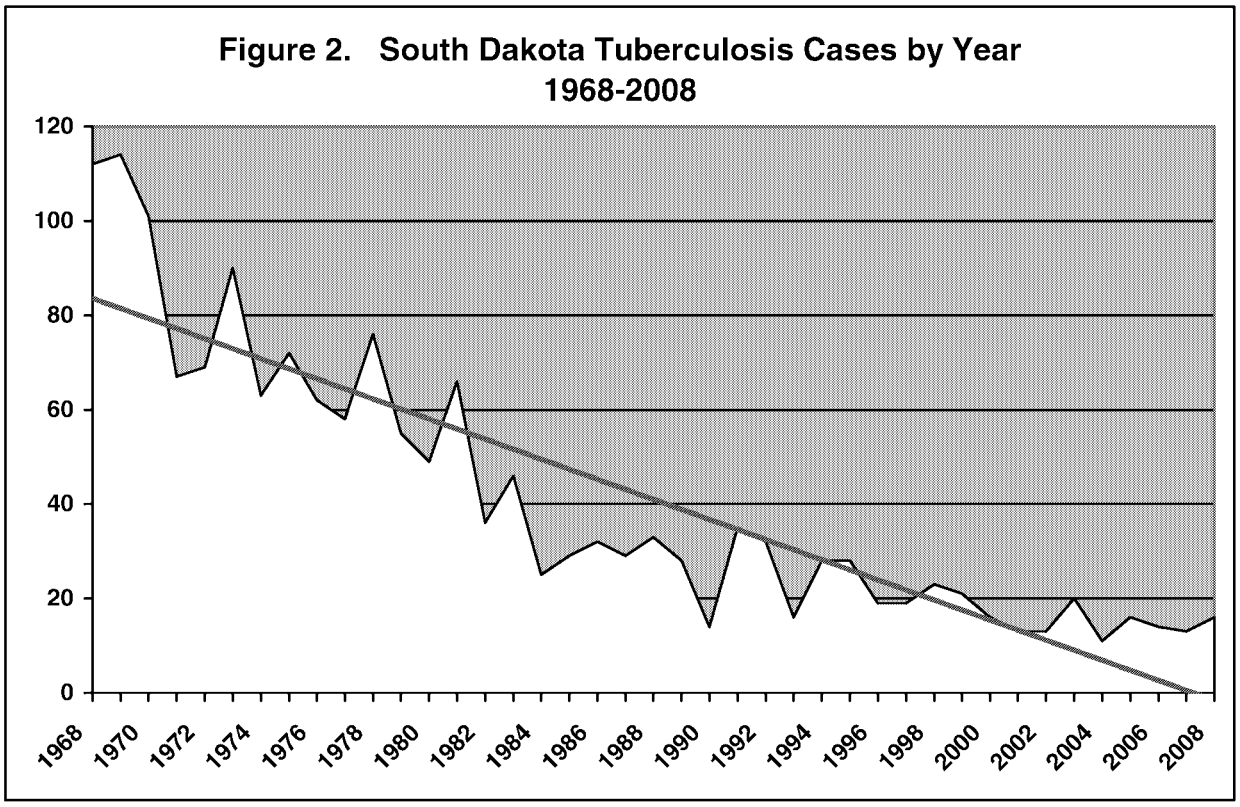
by Kristin Rounds, Tuberculosis Control Coordinator
Office of Disease Prevention, South Dakota Department of Health

During the last ten years, South Dakota averaged 15 cases of tuberculosis (TB) per year. During 2008, there were 16 cases of TB reported to the South Dakota Department of Health, which is an increase of 3 cases from 2007. Figure 1 describes the 10-year trend of decreasing TB case reports.

Figure 1. South Dakota TB Cases Reported by Year 1999-2008



The 10-year trend of decreasing TB cases is part of a longer trend of decreasing disease over the last several decades. Figure 2 illustrates the decreasing trend of reported tuberculosis cases in South Dakota since 1968. This dramatic historical decrease is a result of mandatory reporting of suspected TB cases to the Department of Health along with case management and comprehensive contact investigations which ensure that those exposed to tuberculosis receive appropriate intervention efforts.



The most recent data available nationally and regionally is from calendar year 2007. Figure 3 provides a comparison of the TB case rate per 100,000 population for the United States as well as a regional comparison of South Dakota and our border states of North Dakota, Minnesota, Iowa, Nebraska, Wyoming and Montana. Please note that South Dakota has the second highest TB case rate behind Minnesota when comparing these 7 states.

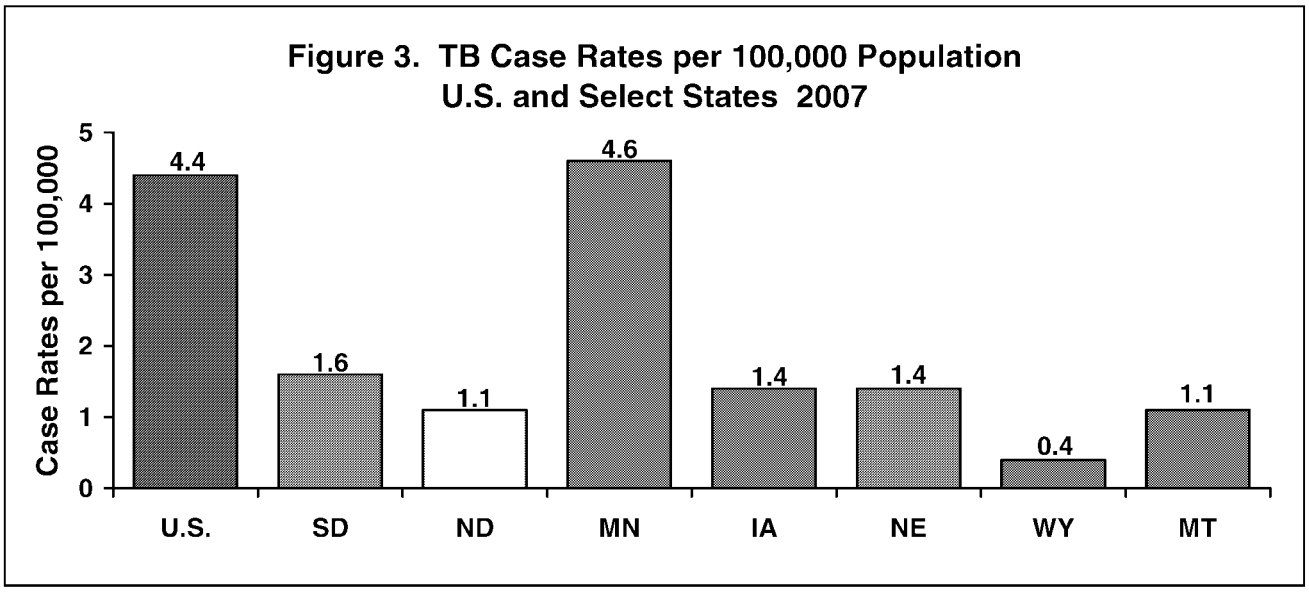
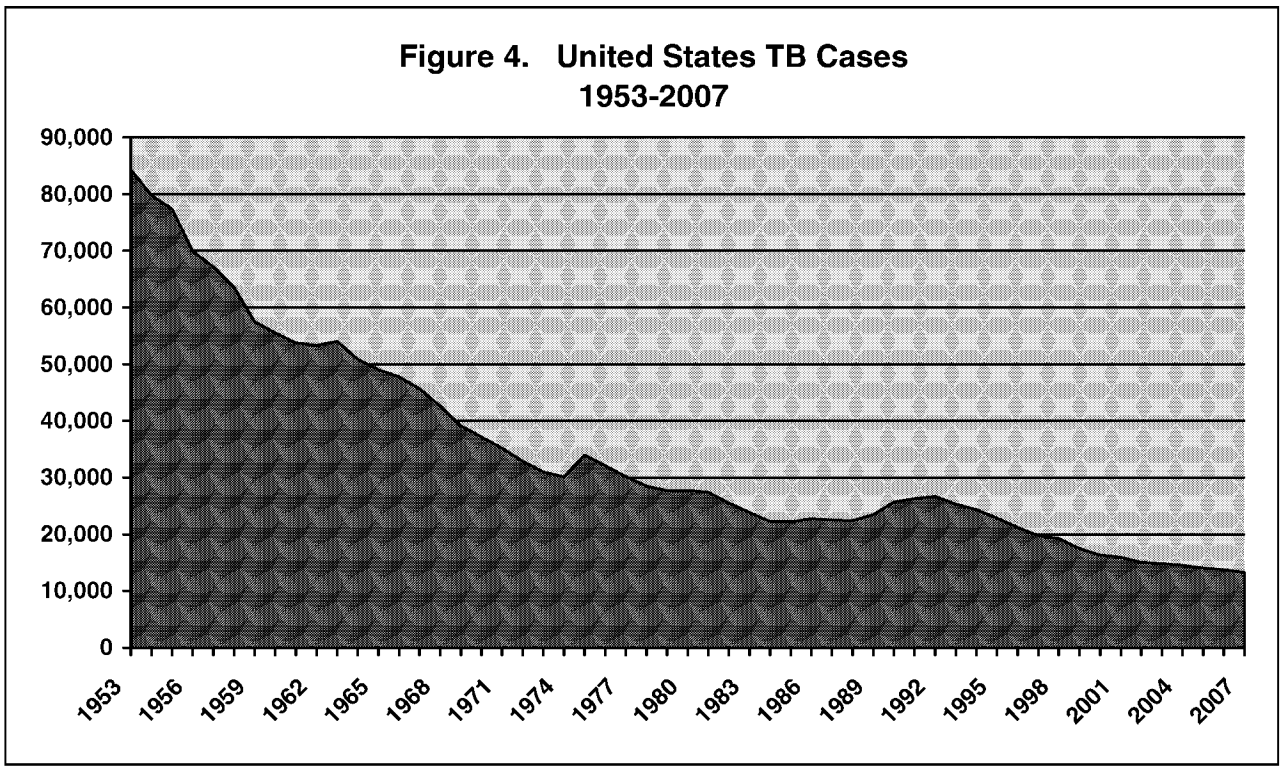


Figure 4 illustrates the historical trend of decreasing TB cases reported in the United States. In 2007 there were 13,299 TB cases reported in the US which was the lowest year on record, representing a 3.3% decrease from 2006. During 2007, 26 states reported increased case counts from 2006. The 4 states of California, Texas, New York and Florida accounted for 48% of the national case total. During 2007, 1.1% of the reported cases had primary multi-drug resistance compared to 1.0% in 2006 which is defined

as no previous history of TB disease and resistance to the tuberculosis medications of at least isoniazid and rifampin.

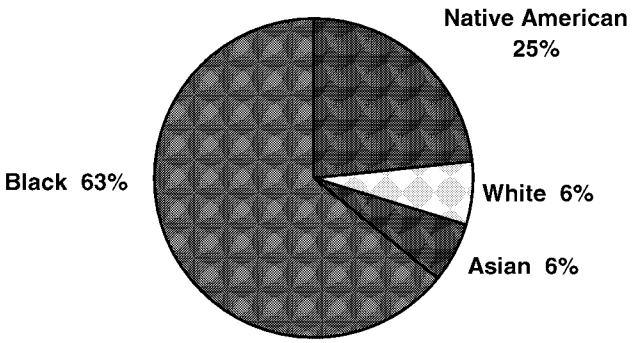


Native Americans have historically represented the highest percentage of TB cases by race in South Dakota. However in 2008, this trend changed to Blacks having the highest percentage of TB cases at 63%. Native Americans only contributed 25% of the total TB cases reported. The increase in Black TB cases was a mix of foreign-born persons and US-born children born to foreign-born parents. Nine of the 10 Black cases were associated with an outbreak of TB in the southeast area of the state. Table 1 and Figure 5 provide information on TB cases by race in 2008.

Table 1. TB Cases Reported By Sex And Race, South Dakota 2008

Race	Male	Female	Total	% of Cases
Native American	1	3	**4**	25%
White	0	1	**1**	6%
Black	4	6	**10**	63%
Hispanic	0	0	**0**	0%
Asian	1	0	**1**	6%
Total	**6**	**10**	**16**	**100%**

Figure 5. TB Cases by Race
South Dakota 2008



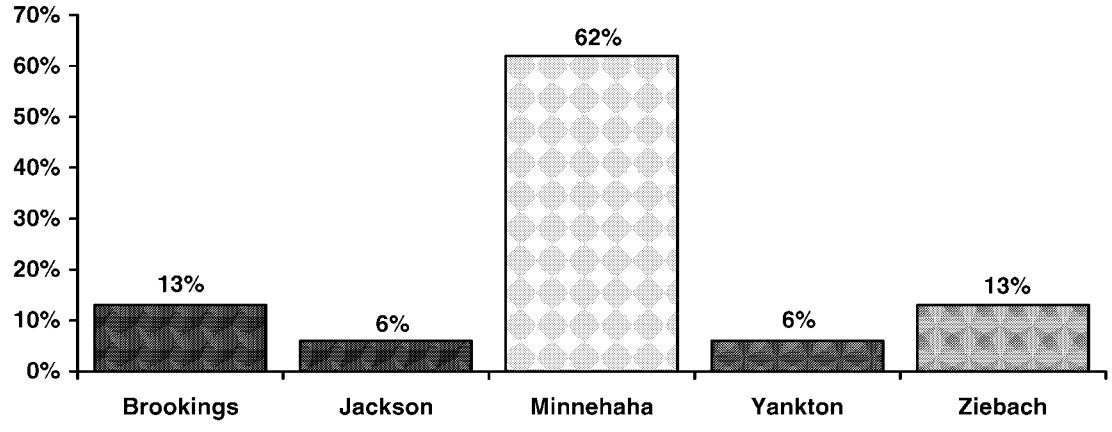
The TB incidence rate, which measures the number of TB cases per 100,000 population, is the best measure for determining the progress towards the elimination of TB in South Dakota. Native American TB case rates have dropped considerably while white cases have consistently remained low. The Black, Asian and other races mainly represent TB cases born outside of the United States who were diagnosed in South Dakota. Table 2 provides additional information on TB case rates for the last 6 years.

Table 2. TB Morbidity Incidence Rates Per 100,000 By Race & Year, SD 2003-2008

Race	2003	2004	2005	2006	2007	2008
US Case Rate (All Races)	5.1	4.9	4.7	4.6	4.4	Not available*
SD All Races	2.6	1.5	2.1	1.8	1.7	2.1
SD Native American	14.6	7.3	8.8	8.8	10.3	5.9
SD White	0.9	0.6	0.6	0.1	0.4	0.1
SD Black	0.0	0.0	48.4	64.5	32.3	161.3
SD Asian	69.4	0.0	52.1	52.1	17.4	17.4
All Other SD Races	0.0	41.3	0.0	0.0	0.0	0.0

**2008 US case rate data is not yet available.*

Figure 6. TB Cases Reported by County of Residence
South Dakota 2008



Tuberculosis cases in South Dakota have historically been located in a few geographic locations that consistently report the majority of TB cases. These include Minnehaha County which reports the most

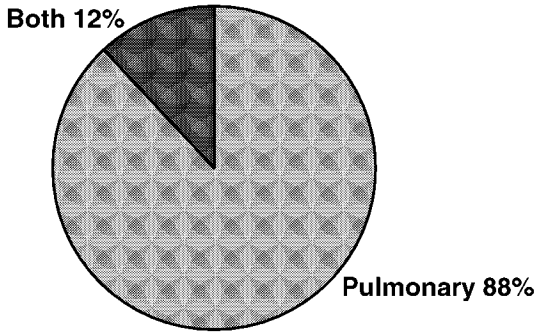
foreign-born TB cases and Shannon, Todd and Pennington counties which report the highest Native American TB cases. During 2008, Minnehaha County had a significantly higher rate of reported TB cases. Figure 6 and Table 3 provide additional information on the counties of residence of the TB cases in 2008.

Table 3. TB CASES REPORTED BY COUNTY OF RESIDENCE, SOUTH DAKOTA 2008

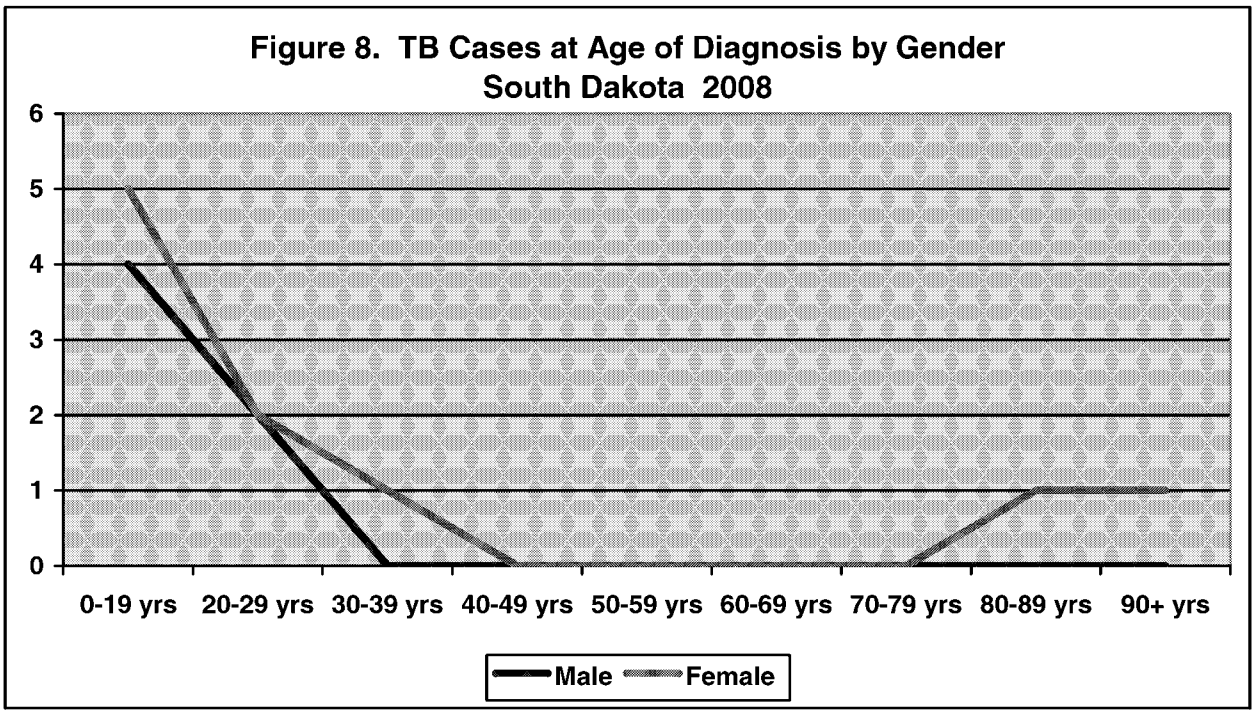
County	# of TB Cases	County	# of TB Cases
Brookings	2	Yankton	1
Jackson	1	Ziebach	2
Minnehaha	10		

Tuberculosis remains primarily a pulmonary disease with approximately 85% of cases reported nationally reported as pulmonary disease and 15% as non-pulmonary disease. South Dakota has historically reported a higher percentage of non-pulmonary TB disease. However in 2008, 14 cases (88%) were diagnosed with pulmonary TB and 2 additional TB cases (12%) had both pulmonary and non-pulmonary sites of disease as described in Figure 7. The non-pulmonary sites of disease in 2008 included lymph node and pericardial tuberculosis.

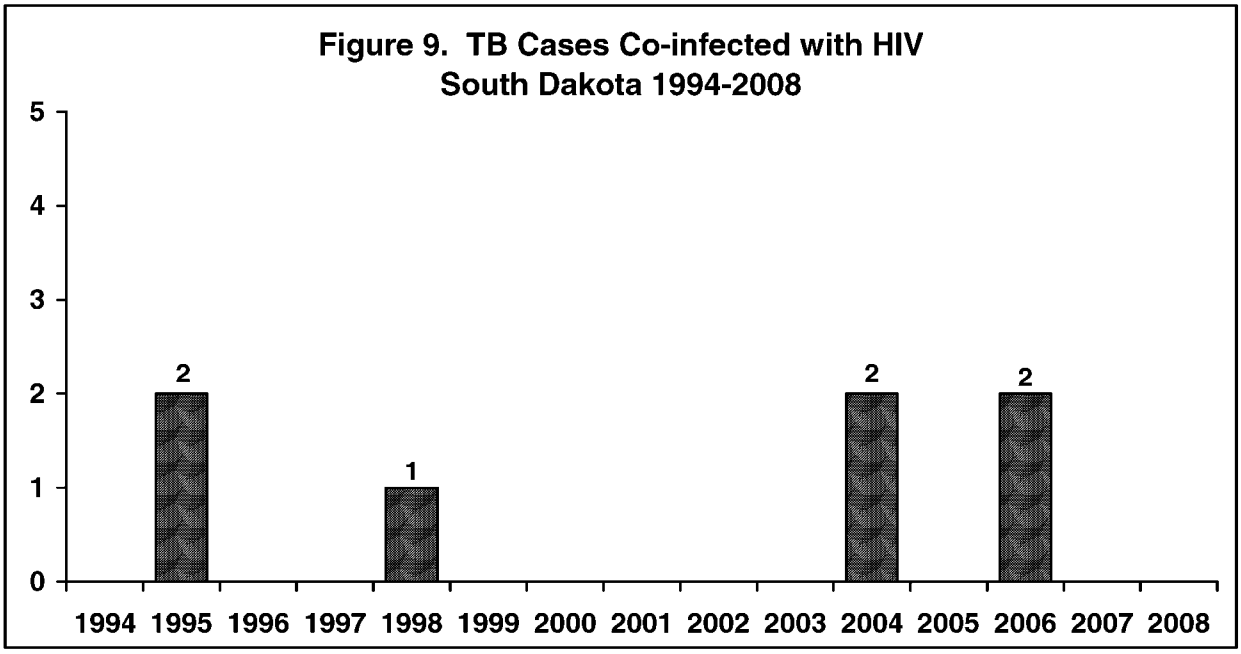
Figure 7. Percentage of Pulmonary versus Non-pulmonary South Dakota 2008



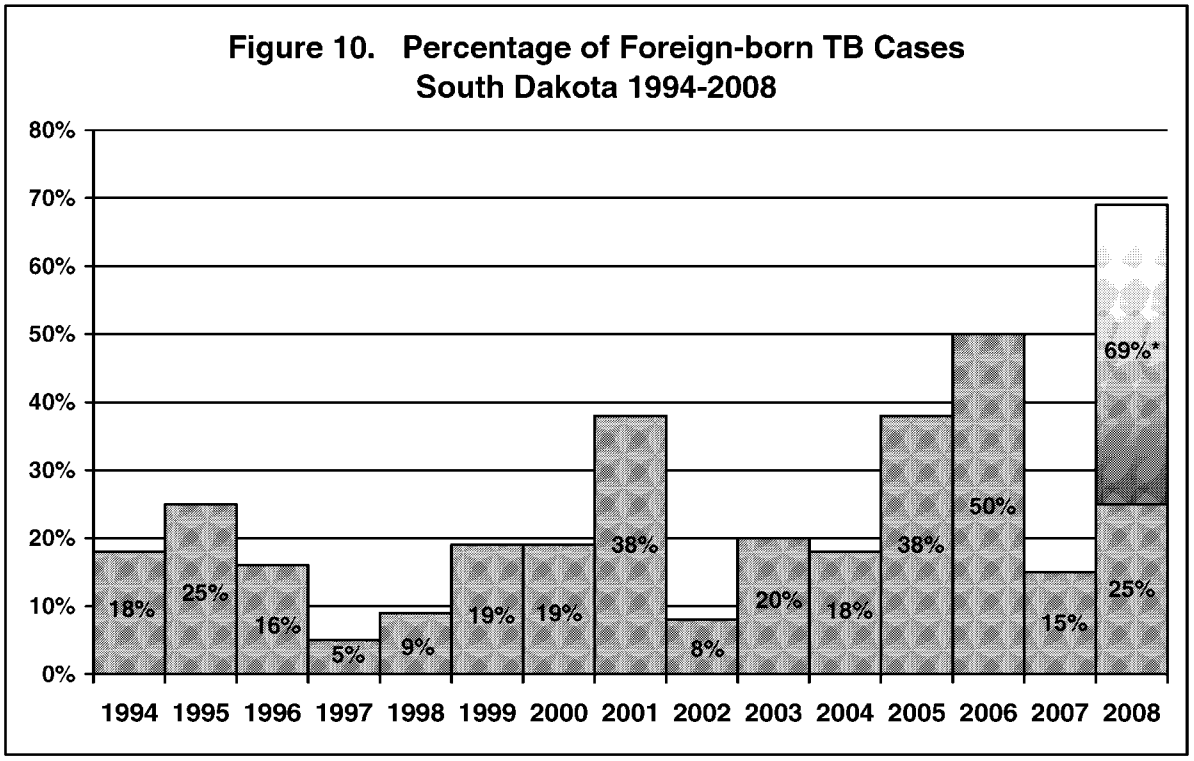
The average age of the TB case in 2008 was 22 years of age. This is a considerable shift of TB cases to younger ages compared to 2007 when the average age was 60 years of age. This was mainly due to a cluster of TB cases reported in the southeast part of the state. During 2008, 51% of the TB cases were reported in persons less than 10 years of age. Figure 8 illustrates the age at diagnosis by gender for tuberculosis cases reported in 2008.



Co-infection with HIV is an important risk factor for the development of active TB. Because of this, all TB cases diagnosed in South Dakota aged 25-44 years of age are offered HIV testing. Co-infected TB cases require more monitoring for toxicity and are frequently treated with second line TB medications. Figure 9 describes the number of TB cases co-infected with HIV since 1994 documenting that these HIV co-infected TB cases remain uncommon.

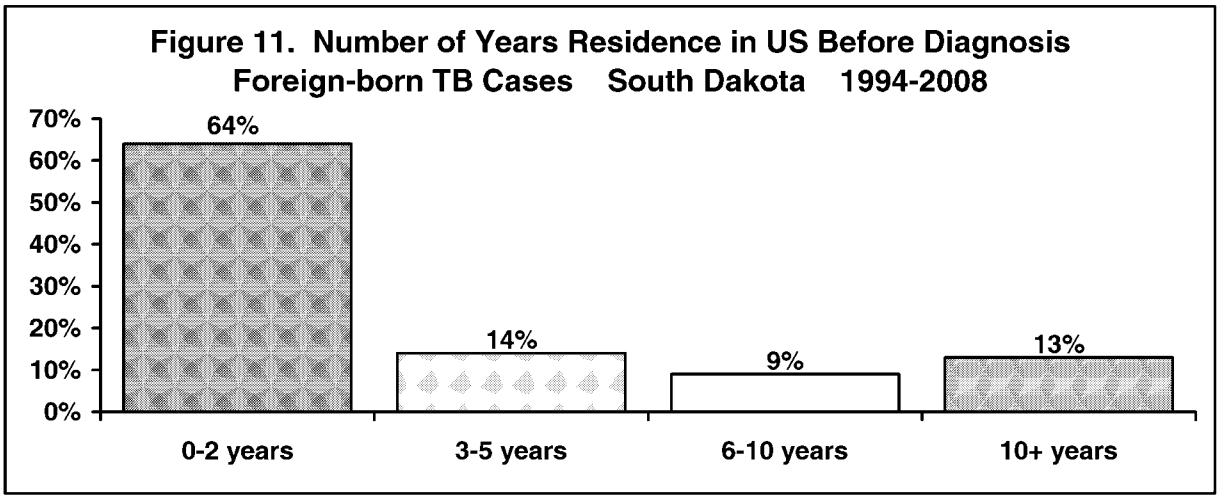


Tuberculosis cases who were born outside the United States continue to represent an important risk group in the United States as well as in South Dakota. During 2008 this group increased to 25% of the total cases reported. Figure 10 describes the percentage of foreign-born TB cases in South Dakota. US-born TB cases born to foreign-born parents is a relatively new TB risk factor which has been identified nationally. If the US-born TB cases born to foreign-born parents are also included in the below calculation, the 2008 South Dakota percentage increases to 69% (see shaded area in Figure 10).

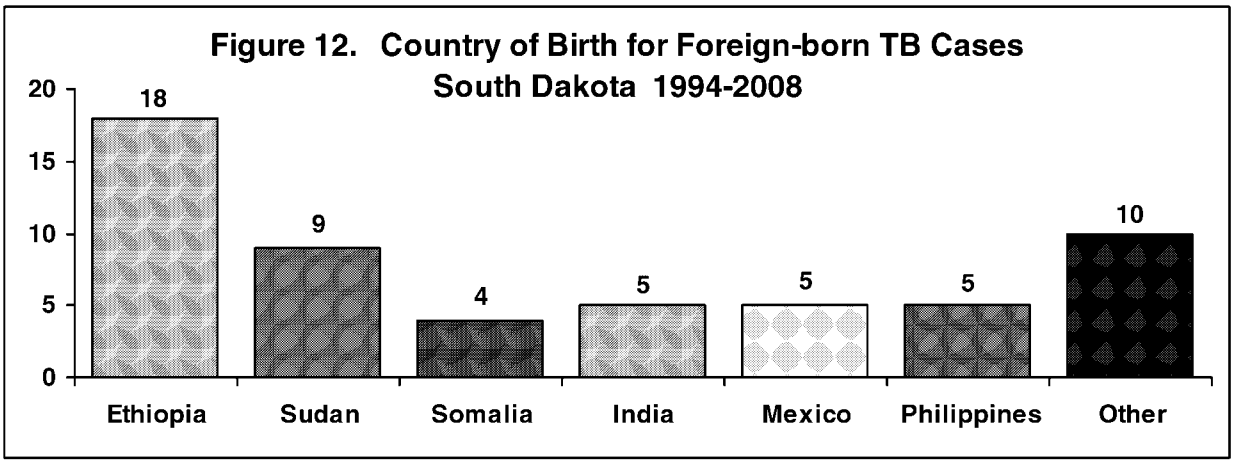


** 69% includes both foreign-born TB cases as well as US-born TB cases born to foreign-born parents.*

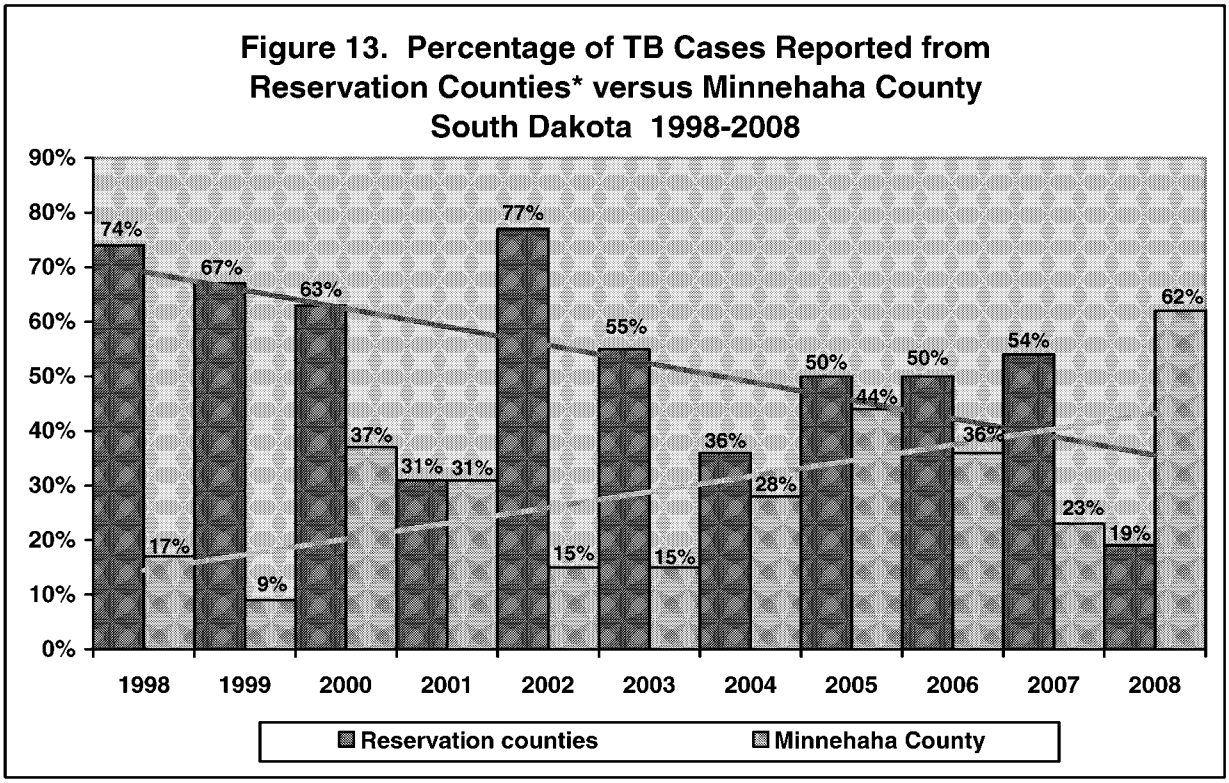
Most foreign-born persons who develop active TB usually do so within the first 2 years after arrival in the United States. Figure 11 describes that 64% of foreign-born TB cases since 1994 developed active TB within the first 2 years of their arrival. Because of this increased risk, these individuals are targeted for preventive TB program activities including targeted TB skin testing and preventive treatment programs.



Foreign-born TB cases continue to come from many areas of the world, however the majority of the TB cases reported in South Dakota are of African descent. Figure 12 describes the country of birth for the foreign-born TB cases reported in South Dakota since 1994. Countries of birth for the "other" category include Afghanistan, China, Indonesia, Romania, Russia, South Africa and Vietnam.

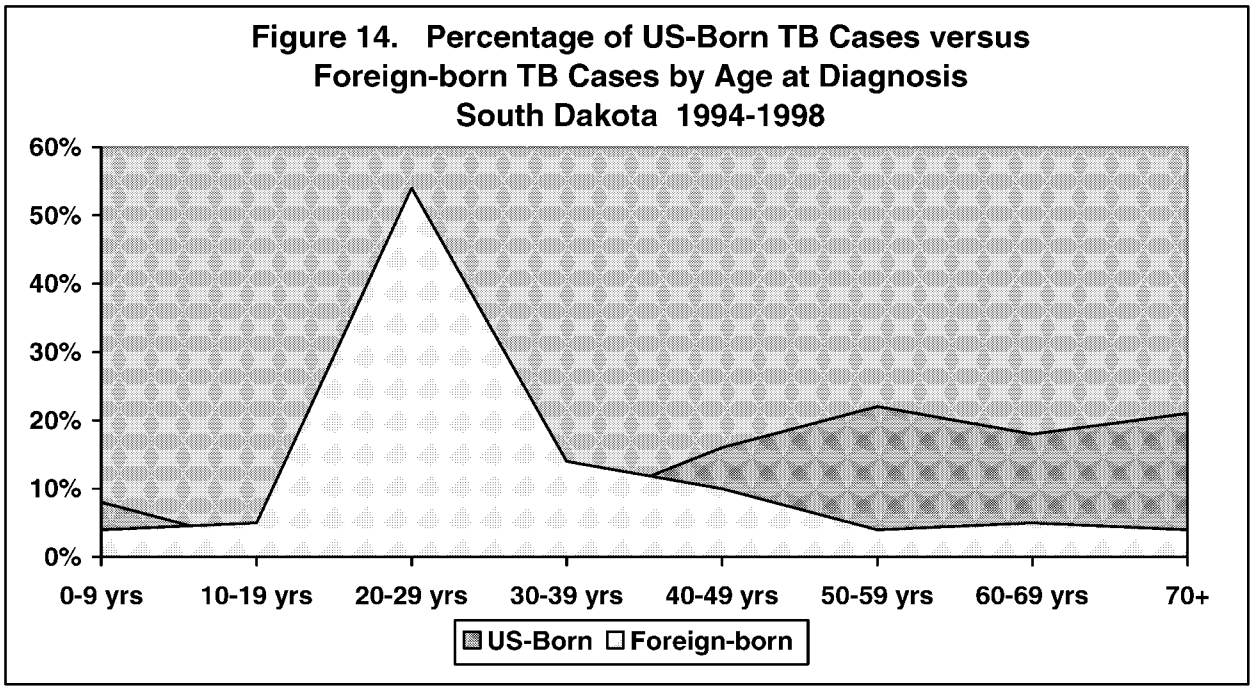


Another aspect to the increase of foreign-born TB cases in South Dakota is the change in geography where TB cases are reported. Historically, the highest percentage of TB cases were reported from counties that included and bordered American Indian Reservations. As Native American TB cases have decreased and foreign-born TB cases have increased, there has been a geographic shift of TB cases from reservation counties to Minnehaha County as illustrated in Figure 13. This is due to the fact that most foreign-born persons who resettle in South Dakota do so in Minnehaha County.

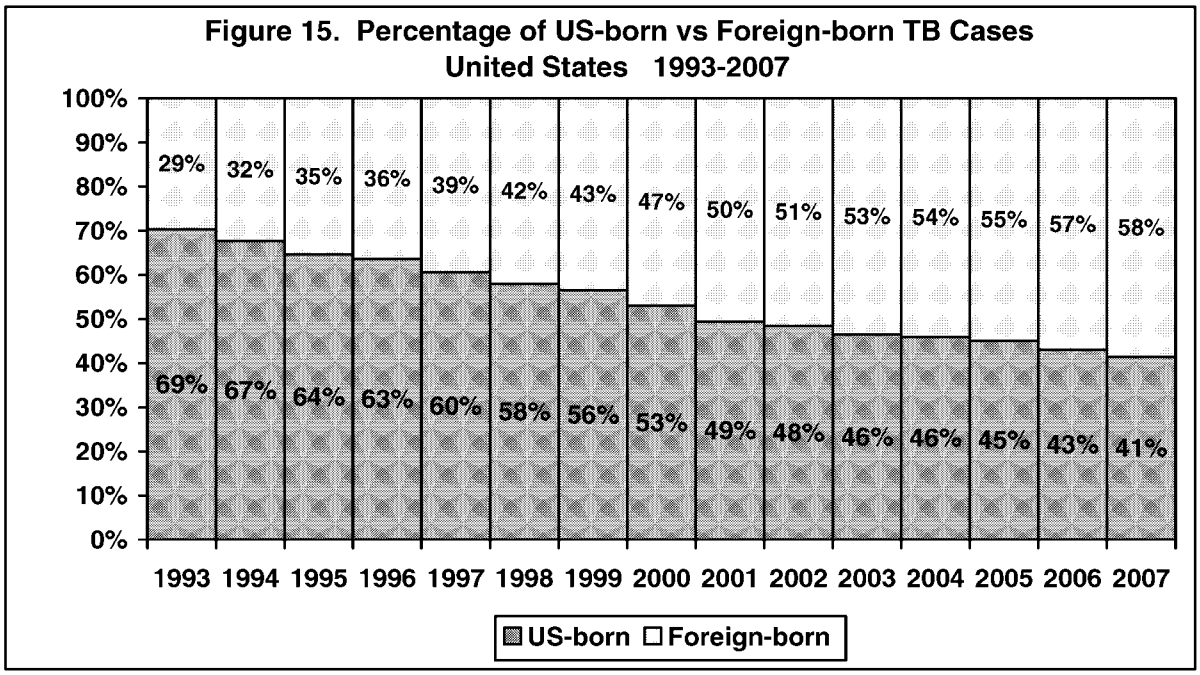


** Reservation counties include Bennett, Brule, Buffalo, Charles Mix, Corson, Dewey, Jackson, Mellette, Pennington, Shannon, Todd, Tripp, Walworth and Ziebach counties.*

Foreign-born TB cases consistently are reported in younger persons as compared to US born patients in South Dakota. This presents additional TB control issues as these TB cases more commonly have young children who have been exposed in the home and many are employed which may require an investigation at their worksite to those exposed. Figure 14 illustrates that the majority of foreign-born TB cases are diagnosed while young adults.

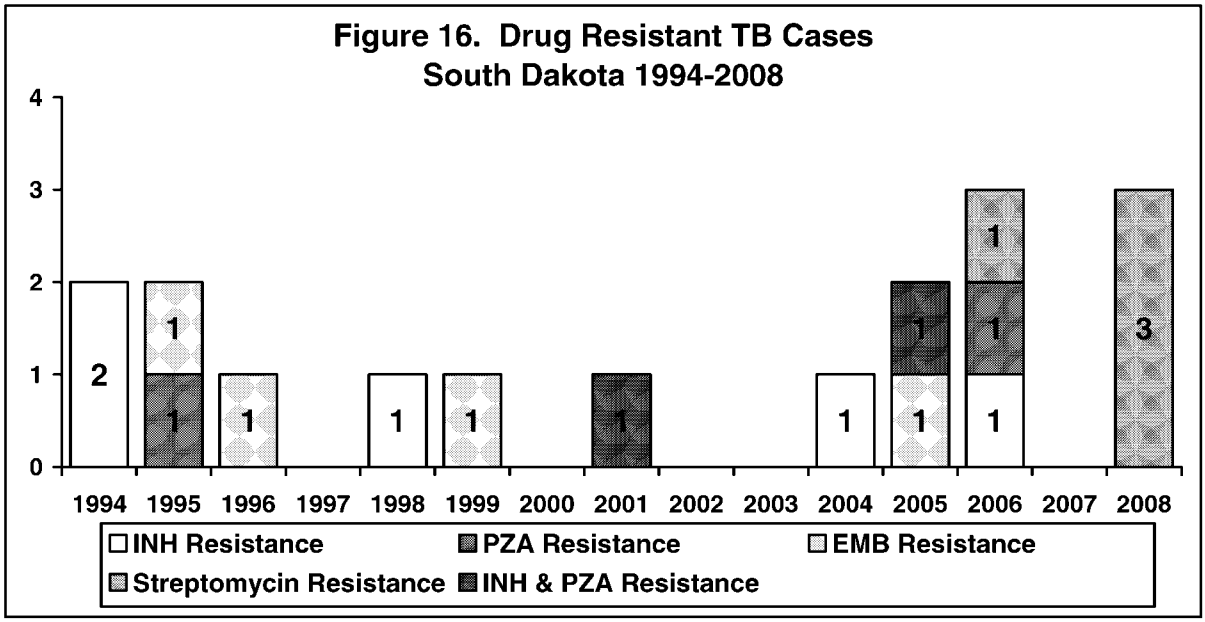


Foreign-born TB cases represent a unique challenge to the South Dakota TB Control Program because of cultural issues, language barriers and a greater likelihood of drug resistance. As these cases continue to increase in South Dakota, additional time and resources will need to be dedicated to address these unique issues. Figure 15 describes the ever increasing trend of the percentage of foreign-born TB in the United States since 1995.

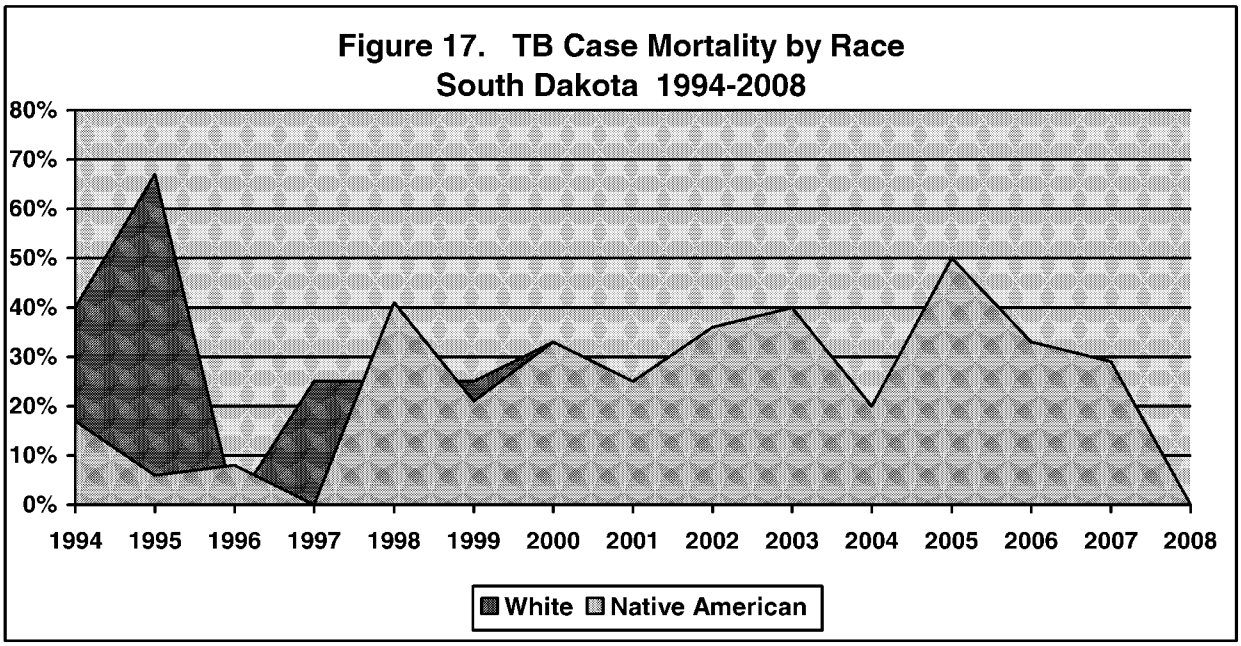


All culture positive TB cases are tested for drug resistance to first-line TB medications including isoniazid, rifampin, pyrazinamide, ethambutol and streptomycin. Patients with single drug resistance can usually be successfully treated for their TB disease. Multi-drug resistant TB (defined by CDC as resistance to at least INH and RIF) is a significant public health problem because of the difficulty in achieving a successful treatment outcome. Figure 16 describes the drug resistant TB cases since 1994 illustrating that South Dakota has most often had single drug resistant cases reported. No multi-drug

resistant TB cases have ever been reported in South Dakota although the Department of Health has managed a few MDR-TB cases reported in other states that have moved to South Dakota.



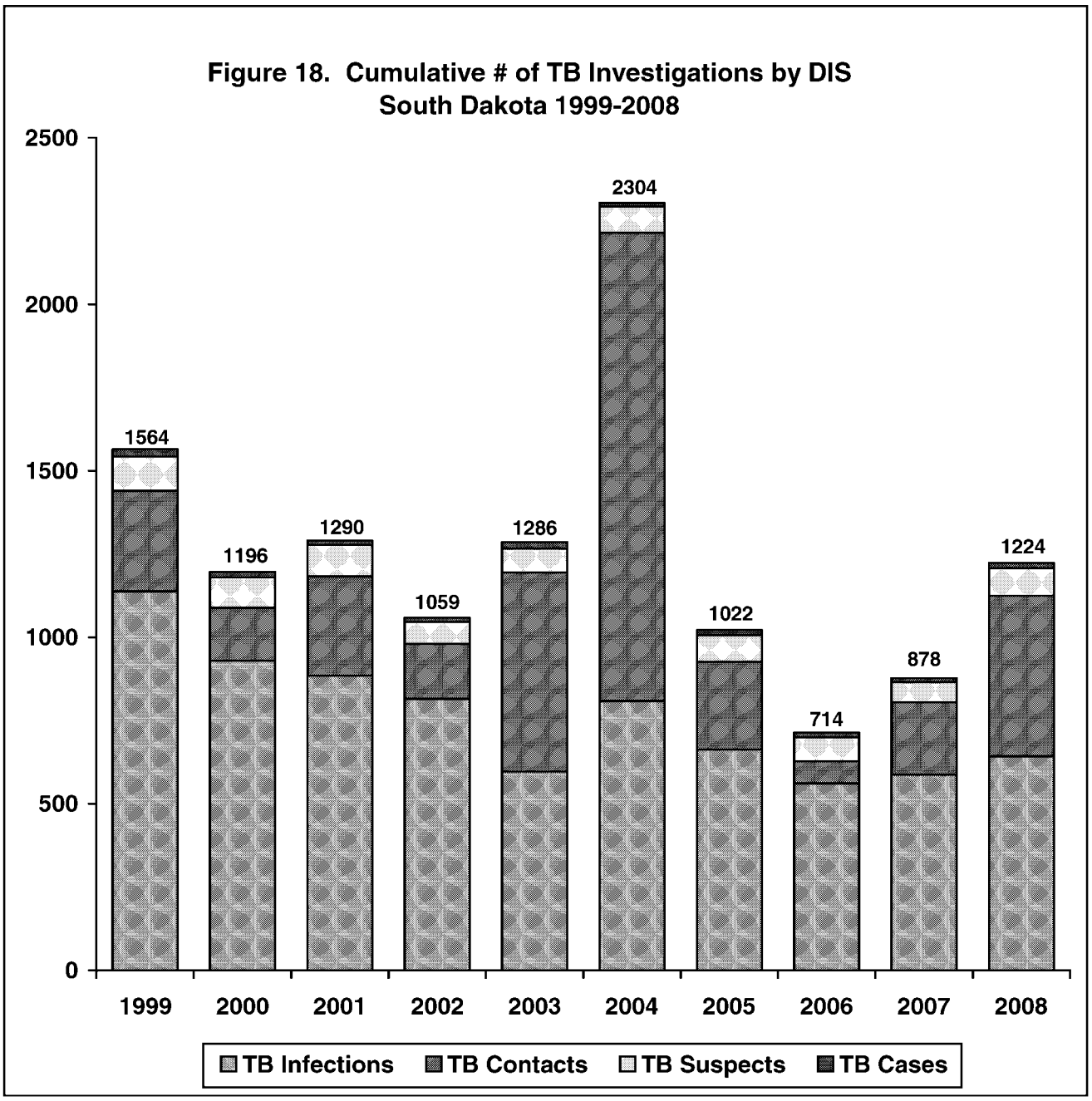
South Dakota has reported a higher than expected mortality rate during certain years, especially among Native American patients. Figure 17 describes the mortality rates by race since 1994 showing the higher trend among Native American cases since 1998. Mortality rates are calculated by the percentage of TB cases, by race, that die during the year of their diagnosis.



The workload in the TB Control Program includes four categories of patients:

1) **TB cases** (persons diagnosed with active TB)
2) **TB suspects** (persons suspected of active TB with a pending diagnosis)
3) **TB contacts** (persons confirmed to have been exposed to an infectious TB case)
4) **Latent TB infection** (persons reported with a positive TB skin test)

All of these conditions are reportable to the TB Control Program and are initiated for investigation. Disease Intervention Specialist (DIS) staff are responsible for ensuring appropriate investigation, treatment and follow-up of these individuals statewide. Figure 18 describes this cumulative caseload which is divided among 19 DIS staff illustrating that the active TB cases and suspect TB cases represent the smallest number of patients reported. TB contacts and patients with latent TB infection make up the greatest percentage of assigned workload for DIS staff within the TB Control Program.



Providing for appropriate treatment and follow-up of active TB cases and suspects is the highest priority of the Tuberculosis Control Program. However, in order to achieve TB elimination in South Dakota, an emphasis must be made on preventing future cases of TB. This is accomplished by follow-up of persons infected with latent TB infection. These individuals are infected with the TB bacteria (*Mycobacterium tuberculosis*) but have not yet developed an active form of the disease. By finding and treating these individuals, future TB cases can be prevented and therefore the TB Control Program dedicates time and resources to this preventive strategy.

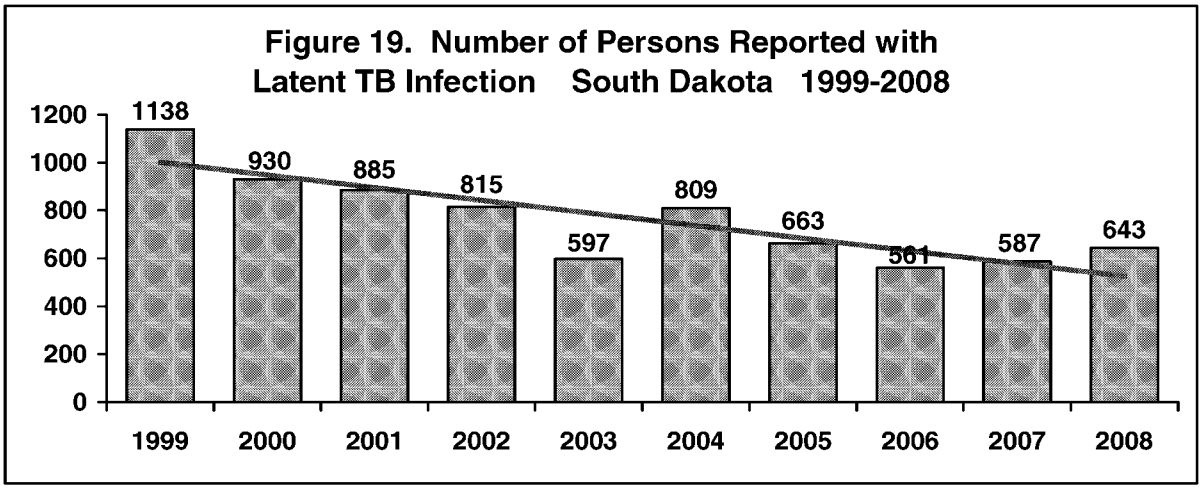


Figure 19 presents the number of patients reported with latent TB infection (positive TB skin tests) over the last 10 years. All of these individuals have the potential to develop active TB disease and potentially be infectious to others.

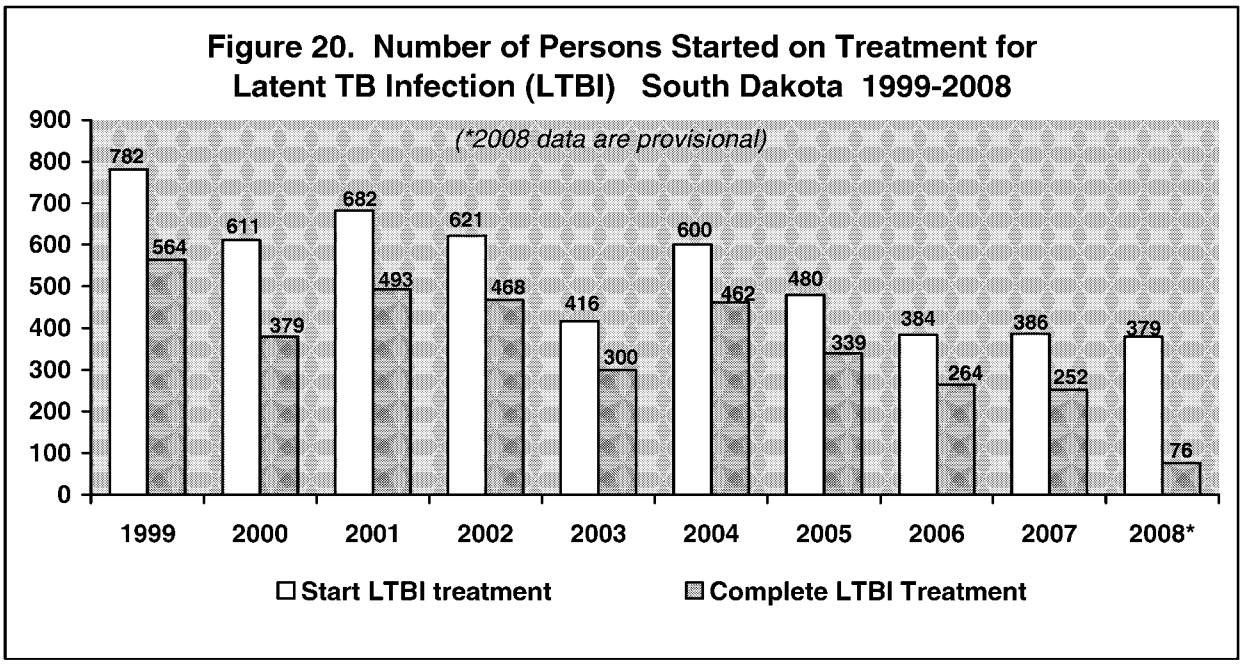
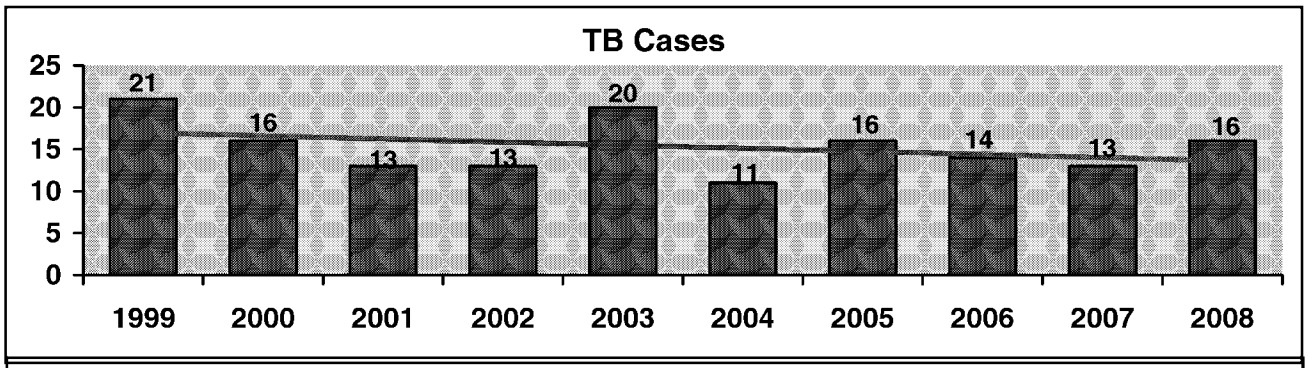
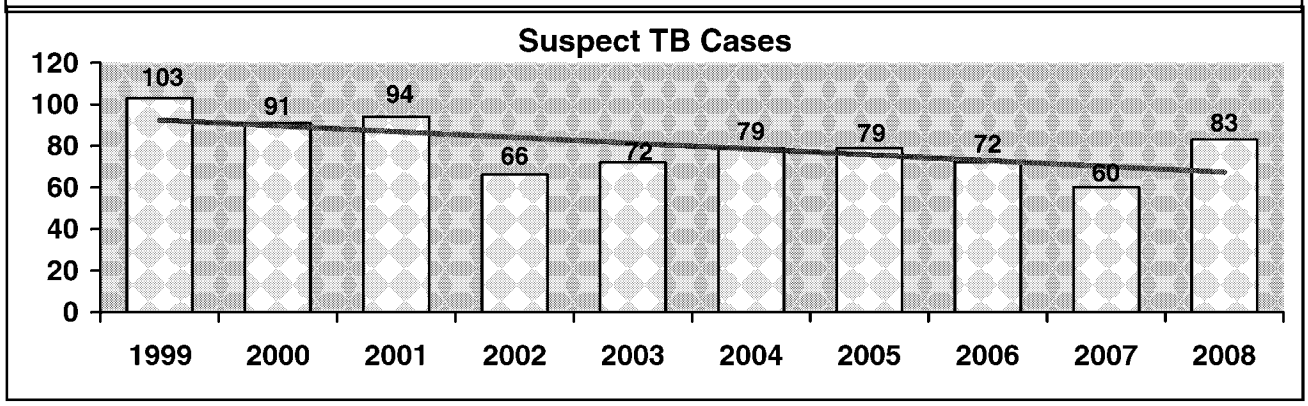
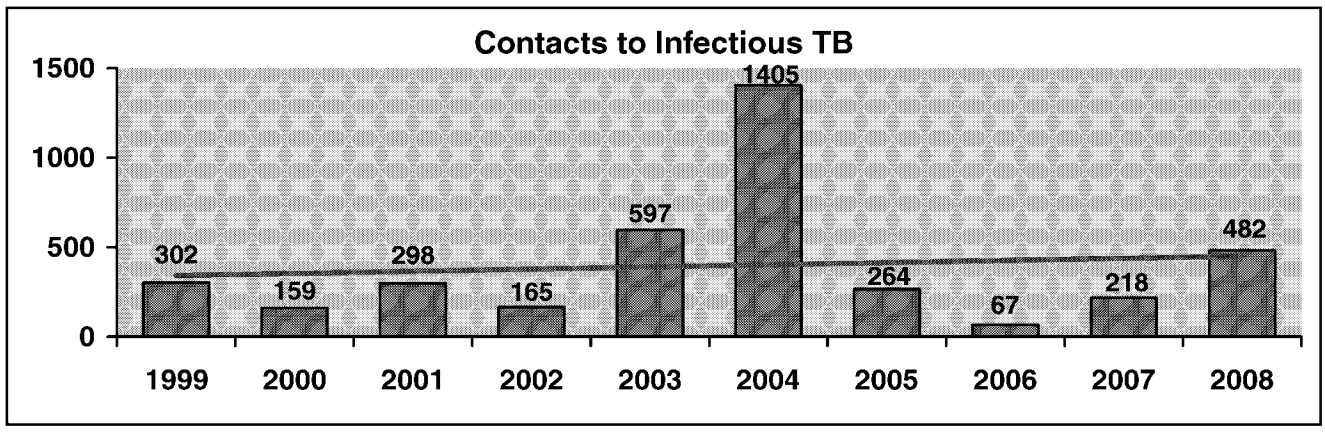


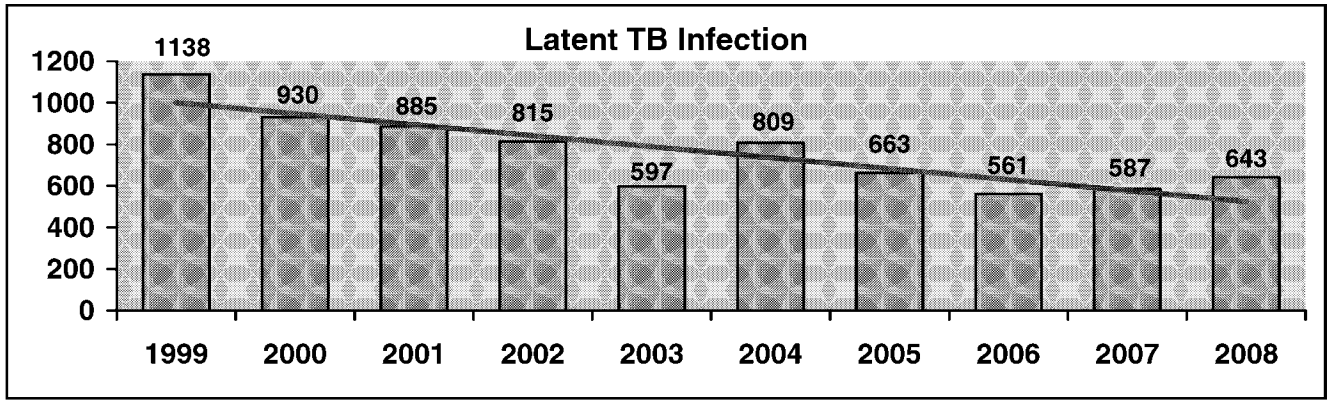
Figure 20 presents the number of patients with latent TB infection that started on a course of preventive treatment as well as the number who ultimately complete this treatment. The treatment is usually done with Isoniazid (INH) which is provided free of charge to patients statewide by the TB Control Program.

Summary of TB Control Program Caseload South Dakota 1999-2008



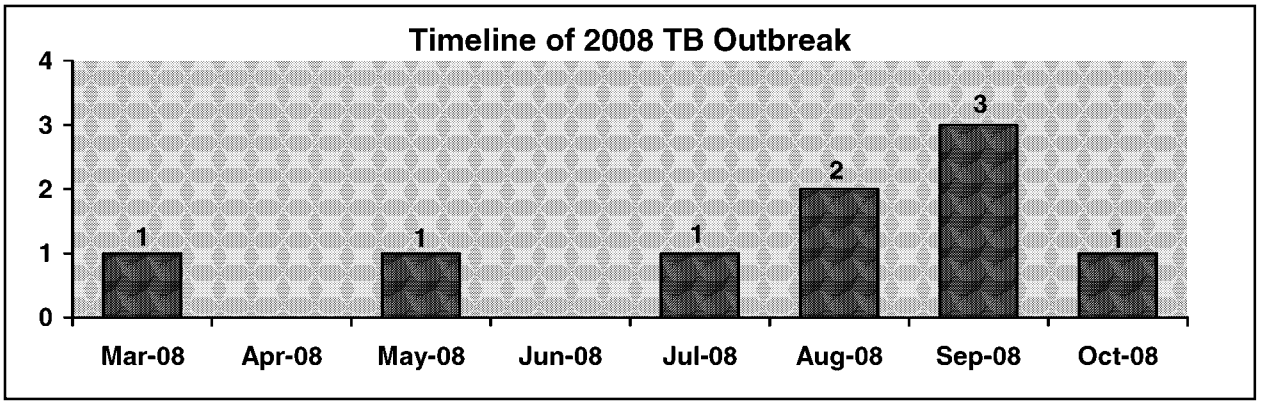






2008 Tuberculosis Outbreak

During 2008, there was a cluster of TB cases reported over an 8 month time period. Nine TB cases were reported and all were epidemiologically linked. These 9 cases, including 7 children, accounted for 56% of the total cases reported statewide during 2008. The first TB case reported in March 2008 was a 3 month old infant who had been acutely ill since 2 weeks of age. Congenital tuberculosis was investigated in the child's mother;however she was asymptomatic and ruled out. This indicated that the child had to have been exposed to an infectious TB case shortly after birth. Repeated interviews with the family did not identify a source case for this exposure. In May 2008, a second infant was reported with tuberculosis. No epidemiological links were identified between the families; however the children were born within hours of each other at the same hospital. An investigation was initiated at the hospital to identify a possible infectious health care worker as the source, however this also was ruled out. In July 2008 an adult TB case was reported which later was confirmed to be the source case for the first 2 infant TB cases. A complete investigation was initiated which yielded 6 additional TB cases during the next 3 months, all of which were linked to the source case.



Of the 9 TB cases reported in this cluster, only 3 were laboratory confirmed. The remaining 6 cases were diagnosed through clinical and/or radiographic findings suggestive of active TB. Genotype testing was completed for the 3 laboratory confirmed cases which confirmed a genetic match between them, confirming the epidemiological links identified previously. Listed below is a summary of the investigation:

33	**Total persons linked to the outbreak**
9	Active TB cases diagnosed
7	Contacts – not infected
17	Contacts – infected (6 previous +TB skin tests, 11 new +TB skin tests)

During this investigation, 26 persons were identified who were recommended for treatment. All 26 (100%) of these individuals received appropriate treatment as described below:

26	**Total persons treated**
9	Active TB treatment
14	New treatment for latent TB infection
3	Previous treatment for latent TB infection

This TB outbreak identified a new risk group for development of active TB that has never been reported before in South Dakota which is *US-born children to foreign-born parents*. Of the 9 total TB cases reported in this cluster, 2 were foreign-born adults and the remaining 7 cases were children born in the US to foreign-born parents. This new risk category is also being observed nationally and beginning in 2009, CDC will begin to collect data to track these cases.

Ovarian Cancer in South Dakota, 2005

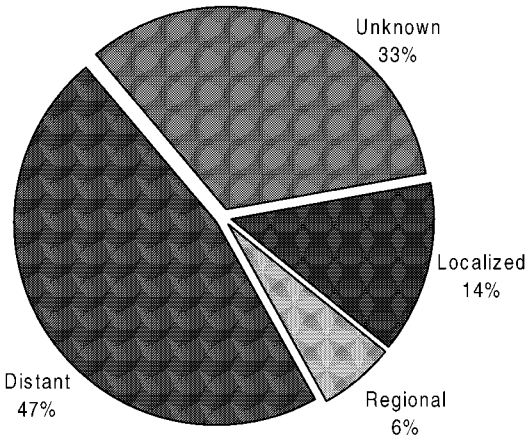
By the South Dakota Cancer Registry, South Dakota Department of Health

The South Dakota Cancer Registry has released 2005 ovarian cancer data. During the years 2001-2005, there were 291 new cases of ovarian cancer diagnosed among South Dakota women. Of those cases, 277 were white and 13 were from the American Indian population. Also during 2001-2005, 222 female residents died from ovarian cancer. Of that number, 216 were white and 4 were American Indian.

Incidence 2005		**Mortality 2005**	
Number of cases		Number of deaths	
Total	66	Total	42
White	60	White	41
American Indian	6	American Indian	1
Median age at diagnosis	66 yrs	Median age at death	74 yrs
Mode	74 yrs	Mode	58 yrs
Age range at diagnosis	17-94 yrs	Age range at death	34-94 yrs
SD age-adjusted incidence rate	14.7	SD age-adjusted death rate	8.4
US SEER age-adjusted incidence rate	12.5 *	US SEER age-adjusted death rate	8.6 *

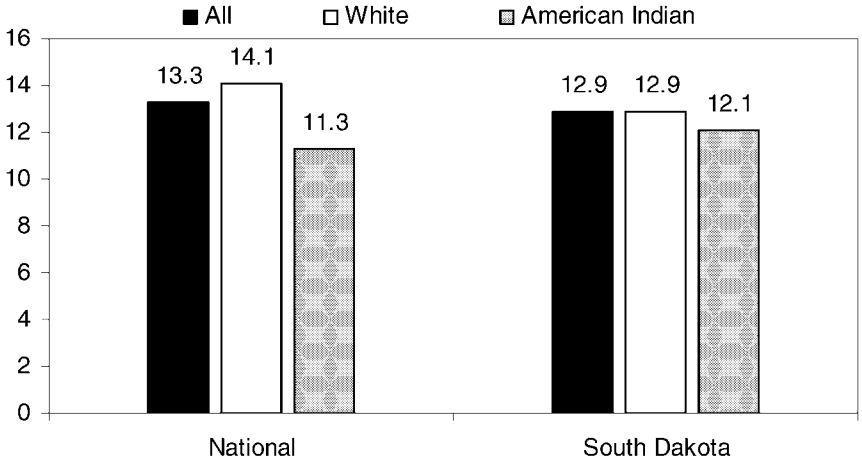
Rates per 100,000 U.S. 2000 standard population
*2005 U.S. SEER age-adjusted rate

Early detection will save lives! The two main obstacles for an early ovarian cancer diagnosis are no screening test and the lack of awareness about ovarian cancer. The circle graph at the right displays the SEER summary stage at diagnosis for ovarian cancer for South Dakota women in 2005.



See below for the age-adjusted national and South Dakota ovarian cancer incidence rates for 2005. As shown, the South Dakota rates are similar to the national rates.

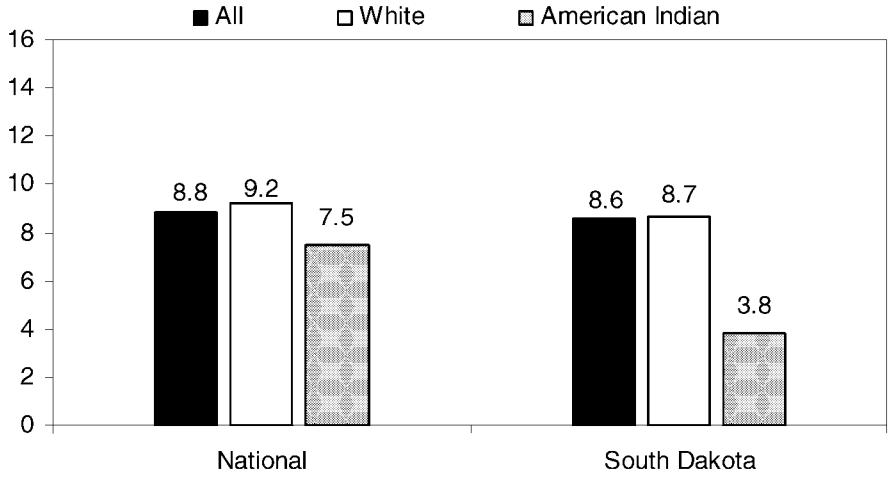
Age-adjusted Ovarian Cancer Incidence Rate, National and South Dakota, 2005



Rates per 100,000 U.S. 2000 standard population

Ovarian cancer is the eighth most common cancer in women and also ranks as the fifth cause of cancer death in women. Middle-aged and older women are at a greater risk of developing ovarian cancer and one in 95 women will die from this disease. The national and South Dakota age-adjusted death rates for 2005 are shown below.

Age-adjusted Ovarian Cancer Mortality Rate, National and South Dakota, 2005



Rates per 100,000 U.S. 2000 standard population

Signs and Symptoms

Ovarian cancer often causes signs and symptoms. See your doctor, nurse, or other health care professional if you have any of these signs every day for two weeks or longer and they are not normal for you, especially if they get worse;

- pain in the pelvic or abdominal area (the area below the stomach and between the hip bones),
- back pain,
- tired all the time,
- bloating, which is when the area below the stomach swells or feels full,
- change in bathroom habits, such as having to pass urine very badly or very often,
- upset stomach or heartburn,
- vaginal discharge that is not normal for you, and
- pain during intercourse.

Detection Recommendations

There is no simple and reliable way to test for ovarian cancer. The Pap test does not check for ovarian cancer; however, here are steps that you can take;

- BE AWARE – pay attention to your body and know what is normal for you.
- SEE YOUR DOCTOR – if you notice any changes in your body that are not normal for you and could be a sign of ovarian cancer, see your doctor.
- ASK QUESTIONS – ask your doctor if you should have a test, such as a rectovaginal pelvic exam, a transvaginal ultrasound, or a CA-125 blood test, if you have any unexplained signs or symptoms of ovarian cancer. These tests may help find or rule out ovarian cancer.

View the complete ovarian cancer monograph published by the South Dakota Department of Health at http://doh.sd.gov/SDCR/PDF/Ovarian2008.pdf. For additional information, please contact Kay Dosch, Cancer Registry Coordinator, at 605-773-6345 or 800-592-1861.

10 Leading causes of death by age group, South Dakota, 2000-2006

	Age Groups											
	<1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+	Total
Rank	Total 535	Total 122	Total 211	Total 742	Total 722	Total 1359	Total 2760	Total 4178	Total 7359	Total 13,771	Total 17,088	Total 48,847
1	Congenital abnormalities 155	Accidents 61	Accidents 122	Accidents 396	Accidents 276	Accidents 311	Cancer 781	Cancer 1,587	Cancer 2,721	Heart disease 3,722	Heart disease 5,824	Heart disease 13,246
2	SIDS 78	Congenital abnormalities 14	Cancer 18	Suicide 170	Suicide 132	Cancer 230	Heart disease 623	Heart disease 996	Heart disease 1,821	Cancer 3,556	Cancer 2,133	Cancer 11,138
3	Short gestation, low birth weight 48	Homicide 13	Suicide 16	Cancer 35	Cancer 72	Heart disease 187	Accidents 316	Accidents 217	Chronic lower respiratory diseases 585	Chronic lower respiratory diseases 1,129	Stroke 1,709	Stroke 3,456
4	Accidents 32	Cancer 5	Congenital abnormalities 11	Homicide 32	Heart disease 46	Suicide 142	Liver disease 156	Chronic lower respiratory diseases 209	Stroke 351	Stroke 1,114	Alzheimer's disease 1,043	Chronic lower respiratory diseases 2,716
5	Maternal complications 23		Heart disease 6	Heart disease 14	Homicide 25	Liver disease 89	Suicide 136	Diabetes 161	Diabetes 283	Diabetes 454	Influenza & pneumonia 859	Accidents 2,680
6	Placenta cord membranes 22		Septicemia 6	Congenital abnormalities 11	Liver disease 25	Stroke 39	Diabetes 102	Stroke 135	Accidents 179	Alzheimer's disease 443	Chronic lower respiratory diseases 728	Alzheimer's disease 1,557
7	Atelectasis 18		Sphingolipid metabolism 3	Cerebral palsy 10	Congenital abnormalities 15	Homicide 33	Stroke 86	Liver disease 125	Influenza & pneumonia 103	Influenza & pneumonia 370	Unspecified dementia 520	Diabetes 1,510
8	Cardiovascular disorders 11		Cerebral palsy 3	Epilepsy 7	Undetermined intent 14	Diabetes 32	Chronic lower respiratory diseases 43	Suicide 59	Liver disease 95	Accidents 340	Diabetes 468	Influenza & pneumonia 1,451
9	Hypoxia and asphyxia 10		Influenza & pneumonia 3	Stroke 7	Stroke 11	Alcohol use 21	Alcohol use 41	Kidney disease 41	Kidney disease 86	Kidney disease 238	Accidents 430	Suicide 762
10	Hydrops fetalis 8		Stroke 3	Undetermined intent 6	Diabetes 7	Influenza & pneumonia 21	Influenza & pneumonia 40	Influenza & pneumonia 40	Aortic aneurysm 85	Parkinson's disease 206	Kidney disease 299	Kidney disease 698
	All other 130	All other 29	All other 20	All other 54	All other 99	All other 233	All other 436	All other 568	All other 1050	All other 2199	All other 3075	All other 9633

Top 5 causes of death are highlighted.

10 Leading causes of death by year, South Dakota, 1988 – 2007*

Rank	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
1	Heart 2,579	Heart 2,383	Heart 2,322	Heart 2,324	Heart 2,277	Heart 2,253	Heart 2,275	Heart 2,273	Heart 2,187	Heart 2,124	Heart 2,102	Heart 2,016	Heart 2,105	Heart 1,984	Heart 1,933	Heart 1,942	Heart 1,775	Heart 1,764	Heart 1,743	Heart 1,623
2	Cancer 1,361	Cancer 1,461	Cancer 1,377	Cancer 1,524	Cancer 1,576	Cancer 1,529	Cancer 1,470	Cancer 1,564	Cancer 1,540	Cancer 1,548	Cancer 1,569	Cancer 1,635	Cancer 1,604	Cancer 1,598	Cancer 1,561	Cancer 1,645	Cancer 1,559	Cancer 1,610	Cancer 1,561	Cancer 1,606
3	Stroke 531	Stroke 509	Stroke 520	Stroke 466	Stroke 496	Stroke 490	Stroke 496	Stroke 533	Stroke 481	Stroke 568	Stroke 537	Stroke 544	Stroke 561	Stroke 491	Stroke 518	Stroke 475	Stroke 463	Stroke 511	Accident 443	CLRD 458
4	I & P 306	Accident 331	Accident 332	CLRD 324	CLRD 306	CLRD 354	Accident 303	CLRD 325	Accident 339	CLRD 337	Accident 347	Accident 340	CLRD 387	Accident 382	CLRD 382	Accident 390	Accident 407	CLRD 440	Stroke 437	Stroke 408
5	Accident 287	CLRD 264	CLRD 271	I & P 310	Accident 300	Accident 308	CLRD 298	Accident 313	CLRD 294	Accident 300	CLRD 315	CLRD 338	Accident 318	CLRD 360	Accident 344	CLRD 379	CLRD 393	Accident 396	CLRD 375	Accident 357
6	CLRD 246	I & P 229	I & P 252	Accident 305	I & P 261	I & P 283	I & P 284	I & P 313	I & P 287	I & P 268	I & P 283	I & P 262	I & P 208	Diabetes 210	I & P 239	I & P 223	Alzheimer 255	Alzheimer 289	Alzheimer 330	Alzheimer 345
7	Diabetes 99	Diabetes 148	Diabetes 119	Diabetes 137	Diabetes 166	Diabetes 168	Diabetes 178	Diabetes 169	Diabetes 180	Diabetes 195	Diabetes 210	Diabetes 195	Alzheimer 180	I & P 186	Diabetes 193	Diabetes 201	Diabetes 227	I & P 242	Diabetes 261	Diabetes 246
8	Suicide 81	Suicide 91	Suicide 93	Suicide 99	Aneurysm 91	Suicide 117	Suicide 98	Suicide 86	Suicide 126	Suicide 126	Suicide 115	Alzheimer 156	Diabetes 179	Alzheimer 159	Alzheimer 169	Alzheimer 175	I & P 180	Diabetes 239	I & P 173	I & P 189
9	Atheros 75	Liver 73	Atheros 56	Aneurysm 74	Suicide 79	Liver 76	Liver 86	Kidney 76	Alzheimer 78	Senility 88	Kidney 93	Suicide 103	Kidney 130	Mental 135	Mental 144	Mental 159	Suicide 114	Suicide 123	Suicide 125	Suicide 101
10	Kidney 62	Atheros 63	Aneurysm 54	Kidney 69	Kidney 77	Kidney 73	Kidney 83	Liver 76	Mental 74	Kidney 75	Senility 77	Kidney 99	Suicide 95	Suicide 108	Kidney 128	Kidney 131	Liver 97	Liver 83	Liver 83	Liver 94
Total	**6,567**	**6,534**	**6,320**	**6,636**	**6,680**	**6,774**	**6,724**	**6,901**	**6,793**	**6,855**	**6,850**	**6,941**	**7,014**	**6,915**	**6,886**	**7,109**	**6,811**	**7,074**	**7,038**	**6,800**
CDR	926	916	908	953	960	973	966	992	976	985	984	997	929	916	912	942	902	937	932	901
AADR	765	761	735	769	778	787	779	798	788	790	791	799	805	796	791	819	784	816	808	781

Heart: Heard disease
CLRD: Chronic lower respiratory disease, also as COPD chronic obstructive pulmonary disease
Aneurysm: Aortic Aneurism
Kidney: Nephritis, nephrotic syndrome and nephrosis
*ICD-9 codes 1988-1998; ICD-10 codes 1999-2007.

Cancer: Malignant neoplasms
I & P: Influenza and pneumonia
Liver: Chronic liver disease and cirrhosis
Senility: Senile and presenile organic psychotic conditions
CDR: Crude death rate per 100,000 population

Stroke: Cerebrovascular diseases
Mental: Organic, including symptomatic, mental disorders
Atherso: Atherosclerosis

AADR: Age-adjusted death rate per 100,000 population

Local physicians or coroners submit death certificates to the South Dakota Department of Health. Over the past 20 years, 1988-2007, the first and second most common causes of death were heart disease and cancer. During these two decades heart disease deaths have dramatically decreased, whereas cancer deaths increased slightly. Stroke deaths declined and were the third leading cause of death is all but the last two years. Death causes that have increased during the two decades include deaths due to accidents, chronic lower respiratory disease, Alzheimer's, diabetes, suicide, kidney disease and liver disease.

Age-grouped deaths during the 7-year period, 2000-2006, show accidental deaths as the leading cause of death in children and young adults in the 1-44 year age groups, cancer death is most common in the 45-74 year age groups, and heart disease death is most common in the elderly 75 years and older.

Lon Kightlinger, State Epidemiologist

Source: South Dakota Vital Statistics Reports, 1998-2007.

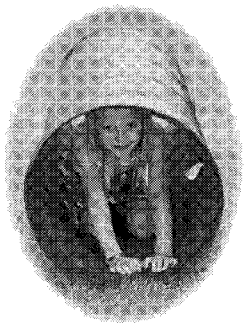
School Height and Weight Report

South Dakota Students
2007-2008 School Year

For the full report, go to http://doh.sd.gov/schoolweight/
For additional information, see www.healthysd.gov

South Dakota Department of Health
December 2008

The South Dakota Department of Health, in cooperation with the South Dakota Department of Education has analyzed height and weight data on students since the 1998-1999 school year. This pamphlet summarizes the report of the data collected during the 2007-2008 school year.



Schools voluntarily submit height and weight measurements. Data collected for the 2007-2008 year was collected for 27% percent of the state's students from 249 schools, which is 28 percent of the state's attendance centers. While American Indians comprise 16 percent of the South Dakota enrollment population, they represent 11 percent of the respondents in this report. Schools and/or school districts who submitted measurements on 100 or more students are receiving school specific and/or district specific data along with the aggregate data in the full report.

Overweight And Obese

Data is analyzed for short stature, underweight, overweight and obesity using the current national standards. This pamphlet focuses on excess weight as South Dakota students as a whole are not short nor underweight. The definition of obese and overweight changed in last year's report.

Definitions:

Obese: At or above the 95th percentile BMI-for-age when compared to children of the same age and gender.

Overweight: 85th to 94th percentile BMI-for-age when compared to children of the same age and gender.

Information in other previous reports should not be compared to the full report or this summary pamphlet due to this definition change. The recommended cutoff points have not changed and will not affect prevalence rates of the BMI categories.

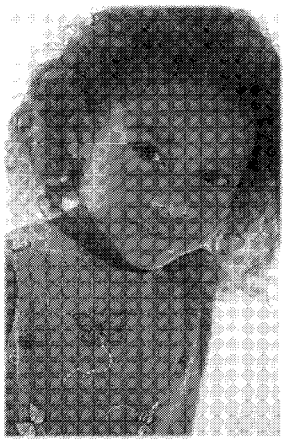
BMI-for-age is an excellent screening tool and the data presented here is for surveillance purposes. To determine if an individual student who is above the 95th percentile BMI-for-age is obese, the child's physician should make that determination.

Risk of Pediatric Obesity

Obesity in children and adolescents is associated with increased risk of psychological or psychiatric problems, cardio-vascular risk factors, chronic inflammation, type 2 diabetes mellitus, and asthma. Excess weight usually persists into adulthood. The higher the BMI in childhood the greater the chance the child will be obese when an adult.

Health Goals

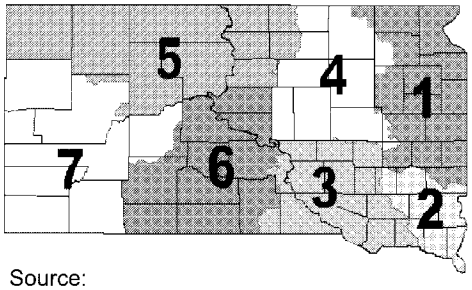
The national Healthy People 2010 objective is to reduce the percentage of children over the age of six who are obese to 5%. The South Dakota Department of Health 2010 Initiative performance indicator is to "reverse the trend and reduce the percentage of school-age children and adolescents above the 95th percentile from 17% in 2003 to 15% by 2010". Though this report shows a slight decrease from the levels during the 2005-2006 school year, much work needs to be done to reach these goals.



School Year 2007-2008 Overweight And Obese Body Mass Index For Age				
Age	Number Of Students	Overweight	Obese	Overweight And Obese Combined
5-8 years	12,933	16.6%	14.4%	31.0%
9-11 years	11,029	17.1%	17.7%	34.8%
12-14 years	9,677	16.9%	16.8%	33.7%
15-19 years	3,389	16.1%	17.4%	33.5%
Total	37,028	16.8%	16.3%	33.1%

School Year 2007-2008 Overweight And Obese Body Mass Index For Age, By Race				
Race	Number of Students	Overweight	Obese	Overweight And Obese Combined
White	29,040	16.1%	14.8%	30.8%
American Indian	4,169	20.6%	25.9%	46.5%
Other Races	1,997	19.0%	17.9%	36.9%
Race Unknown	1,822	15.8%	14.2%	30.0%
Total	37,028	16.8%	16.3%	33.1%

School Year 2007-2008 Overweight and Obese Body Mass Index For Age, By Gender				
Gender	Number of Students	Overweight	Obese	Overweight and Obese Combined
Female	17,931	17.2%	14.5%	31.7%
Male	19,097	16.4%	17.9%	34.3%



Source:
South Dakota Department of Education

School Year 2007-2008 Overweight And Obese Body Mass Index, By Region				
Region	Number of Students	Overweight	Obese	Overweight And Obese Combined
1	6,680	16.1%	15.4%	31.5%
2	9,617	16.5%	14.2%	30.7%
3	4,590	17.1%	18.3%	35.4%
4	6,040	17.5%	17.9%	35.4%
5	1,313	20.0%	21.2%	41.2%
6	1,676	18.5%	17.8%	36.3%
7	7,112	16.1%	15.9%	32.0%
Total	37,028	16.8%	16.3%	33.1%

Regional Data

This report provides data reported by the seven educational service agency regions. The composition of the regions varies in racial and age distribution. See the full report for school locations and additional information.

Education Service Agency Region 2 is the only region significantly below the state rate for obesity. Regions 3, 4 and 5 are significantly higher than the state rate. Regions 1, 6 and 7 are not significantly different as they fall into the statewide statistical range.

How Can South Dakota Reverse This Trend

There are many things everyone in South Dakota can do to reduce excess weight in children and adolescents. For more ideas, see the full report. For ways South Dakota schools have successfully reversed the trend, see Success Stories under the schools tab on www.healthysd.gov. website.

Research shows six science-based strategies to prevent obesity and other chronic diseases:

- *Increase physical activity*
- *Decrease television viewing*
- *Increase fruit and vegetable intake*
- *Decrease sweetened beverage intake*
- *Decrease portion sizes, and*
- *Increase breastfeeding*

School Height Weight Schedule

January Check out http://www.healthysd.gov website especially the Schools tab. Site is updated monthly. Look for Healthy Challenges three times a year. New is the SD Healthy Kids web-based training modules.

March Celebrate National Nutrition Month®. See www.eatright.org for more information.

April Plant a school garden.

April Hold special events to celebrate Turn Off TV Week.

May Order the Power Panther Costume from USDA for a fall event at your school. See www.fns.usda.gov/eatsmartplayhard for more information.

June 15 Submit data from the previous year to the Department of Health.

July Hold community events to celebrate South Dakota Great Day of Play.

September Start collecting height and weight data.

October Participate in South Dakota Schools Walk. See http://doe.sd.gov/oess/schoolhealth/sdwalks/index.asp for more information.

November Order free posters, lesson plans, and other resources from Team Nutrition. See www.fns.usda.gov/tn for ordering.

HEALTHYSD.GOV
Live Better. Grow Stronger.

3,000 copies were printed by the South Dakota Department of Health at a cost of $.88 each.

South Dakota Department of Health - Infectious Disease Surveillance

Morbidity Report, 1 January – 31 December 2008

(provisional numbers) see http://doh.sd.gov/ID/site.aspx

Disease		2008 year-to-date	5-year median	Percent change
Vaccine-Preventable Diseases	Diphtheria	0	0	n/a
	Tetanus	0	0	n/a
	Pertussis	62	61	+2%
	Poliomyelitis	0	0	n/a
	Measles	0	0	n/a
	Mumps	1	0	n/a
	Rubella	0	0	n/a
	Haemophilus influenza type b	0	0	n/a
Sexually Transmitted Infections and Blood-borne Diseases	HIV infection	34	25	+36%
	Hepatitis B, acute	0	0	0%
	Chlamydia	2942	2620	+12%
	Gonorrhea	370	304	+22%
	Syphilis, early	4	2	+100%
Tuberculosis	Tuberculosis	16	14	+14%
Invasive Bacterial Diseases	*Neisseria meningitides*	3	4	-25%
	Invasive Group A *Streptococcus*	23	21	+10%
Enteric Diseases	*E. coli*, Shiga toxin-producing	51	35	+46%
	Campylobacteriosis	258	231	+12%
	Salmonellosis	151	154	-2%
	Shigellosis	76	116	-34%
	Giardiasis	130	98	+33%
	Cryptosporidiosis	85	48	+77%
	Hepatitis A	4	4	0%
Vector-borne Diseases	Animal Rabies	24	68	-65%
	Tularemia	10	5	+80%
	Rocky Mountain Spotted Fever	3	5	-25%
	Malaria (imported)	0	0	0%
	Hantavirus Pulmonary Syndrome	0	0	0%
	Lyme disease	3	1	+200%
	West Nile Virus disease	39	51	-24%
Other Diseases	Legionellosis	3	5	-40%
	Streptococcus pneumoniae, drug-resistant	7	4	+67%
	Additionally, the following were reported: Anaplasmosis (1); Chicken Pox (20); Cyclosporias (1); Group B *Strep,* invasive (22); Hansen's disease (1); Hepatitis B, chronic (22); Hepatitis C, chronic (278); Hepatitis E (1); Listeriosis (1); MRSA, invasive (72); Staph Toxic Shock (1); Typh Fever (2); Q-Fever (1)			

Communicable diseases are obligatorily reportable by physicians, hospitals, laboratories, and institutions.
The **Reportable Diseases List** is found at http://doh.sd.gov/Disease/report.aspx or upon request.
Diseases are reportable by telephone, fax, mail, website, or courier.
Secure website: www.state.sd.us/doh/diseasereport
Telephones: 24 hour answering device 1-800-592-1804; for a live person at any time call 1-800-592-1861; after hours emergency 605-280-4810. **Fax** 605-773-5509.
Mail in a sealed envelope addressed to the DOH, Office of Disease Prevention, 615 E. 4th Street, Pierre, SD 57501, marked "Confidential Medical Report".

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State of South Dakota
Department of Health
600 E. Capitol Ave.
Pierre, South Dakota 57501-2536

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