

Snapshot of Oral Health in South Dakota

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South Dakota Comprehensive Oral Health Report

This comprehensive oral health report summarizes the most current information available on the status of oral health in South Dakota. This report is a joint effort between the South Dakota Oral Health Program, Delta Dental Plan of South Dakota, the South Dakota Dental Association, and Indian Health Services. The collection of data enhances the epidemiological capacity to monitor trends over time and document improvements in oral health among the residents of South Dakota. It is hoped that this information will help raise awareness of the need for monitoring the oral disease burden in South Dakota and guide efforts to prevent and treat oral diseases and enhance the quality of life of South Dakota's residents.

Children's Oral Health Highlights

A statewide oral health survey of South Dakota third grade students was conducted during the 2005/2006 school year. The survey demonstrated that a large number of South Dakota children suffer from this preventable disease.

- Sixty-six percent of third graders had cavities and/or fillings (decay experience) and 33% of the children had untreated dental decay (cavities). Dental decay is a significant public health problem for South Dakota's children (South Dakota (SD) Oral Health Survey, 2006).
- Thirty-nine percent of third graders did not have dental sealants. In 2006, 61% of the third grade children screened had dental sealants compared to 50% in 2003. Seventy percent of American Indian children had dental sealants in 2006. During the last three years, the prevalence of dental sealants has increased dramatically in South Dakota. While dental sealants are a proven method for preventing decay, many of South Dakota's children have not received this preventive service (SD Oral Health Survey, 2006).
- Thirty-three percent of third graders were in need of dental care including 6% that needed urgent dental care because of pain or infection. A large proportion of South Dakota's children are in need of dental care (SD Oral Health Survey, 2006).
- The 2006 South Dakota Oral Health Survey compared American Indians to white non-Hispanic children; a significantly higher proportion of third grade American Indian children have decay experience (62% vs. 84%) and untreated decay (28% vs. 51%).

- Forty-one percent of third graders that participate in the free/reduced price school lunch program had untreated decay compared to only 27 % of children not eligible for the program. Low income children have poorer oral health (SD Oral Health Survey, 2006).
- There were 1,037 Head Start children in need of dental care in 2005 (Head Start Annual Profile, 2006).
- Twenty-one percent of children ages 0-17 had not visited a dentist or dental clinic within the past year (South Dakota BRFSS, 2005).
- Fifty-seven percent of children under age 5 had not visited a dentist (South Dakota BRFSS, 2005).

Adult Oral Health Highlights

In 2005, the South Dakota Maternal and Child Health Program conducted a survey of new moms throughout the state. New mothers were asked questions about behaviors prior to conception such as tobacco and alcohol use and about health care and education received during pregnancy. Questions also were asked about behaviors after the baby was born such as infant health care, car seat use, sleep position, and mother's physical activity and nutrition.

- Less than half (42%) of pregnant women received information from their physician on the importance of care of their teeth and gums (South Dakota New Mom's Survey, 2005).

- Twenty percent of pregnant women had problems with their teeth and gums during their pregnancy; however, only half (50.8%) were able to see a dentist for treatment (South Dakota New Mom's Survey, 2005).
- South Dakota physicians that do in fact include information on oral health during the prenatal exams reported that they conduct an assessment to determine the oral health status of the woman (55%) (Status of Prenatal Care in South Dakota Report, 2005).
- Six percent of South Dakotans reported that they use chewing tobacco or snuff every day or some days (South Dakota BRFSS, 2005). Of the deaths due to lip, oral cavity, and pharynx cancer, tobacco use was a contributing factor in 52.4% (South Dakota Vital Statistics Report, 2005).

Access to Care Highlights

- The Ronald McDonald Care Mobile served 1,061 children from January 1 – August 2006. It was the first dental visit for 24% of those seen during that timeframe (Delta Dental Plan of South Dakota, 2006).
- South Dakota hospital emergency rooms do not have policy in place to care for dental emergencies and lack specific dentists and/or oral surgeons to refer patients to (Emergency Room Dental Care Report, 2006).
- Twenty of the 66 counties (30%) in South Dakota do not have a dentist (South Dakota Vital Statistics Report, 2005).

South Dakota Demographics

South Dakota is one of the least densely populated states in the nation with 754,844 people living within its 75,955 square miles – an average population density of 9.9 people per square mile (2000 Census). Over half (34) of the state's 66 counties are classified as frontier (population density of less than six persons per square mile) while 29 are considered rural (population density of six or more persons per square mile but no population centers of 50,000 or more). Three counties are classified as urban (have a population center of 50,000 or more). Of the state's total population, 88.7% are White (of which 99.3% are White alone, not Hispanic or Latino), 9.0% are Native American and the remaining 2.3% are classified as some other race.

According to the 2000 Census, 13.2% of South Dakotans live below 100% of the federal poverty level (FPL) compared to 12.4% for the nation. Over 33 % (33.1%) of South Dakotans live under 200% of the FPL

Percent of Population Under the Federal Poverty Level for Reservation Counties in South Dakota		
County (Reservation)	100% of FPL	200% of FPL
Dewey (Cheyenne River)	33.6%	66.0%
Ziebach (Cheyenne River)	49.9%	72.1%
Buffalo (Crow Creek)	56.9%	79.9%
Shannon (Pine Ridge)	52.3%	77.7%
Todd (Rosebud)	48.3%	73.4%

compared to 29.6% for the nation. When looking at poverty levels for counties on Indian reservations in the state, these numbers are significantly higher with the four largest reservations in the state representing the five poorest counties in South Dakota.

According to the 2000 Census, 26.8% of the state's population are children (under the age of 18) while 6.8% is age four or younger. Over 41% (41.5%) of the state's female

population is considered to be of childbearing age (aged 15 through 44). South Dakota resident pregnancies totaled 11,846 in 2004 (21 of those were to women not in the 15-44 year age range). Pregnancies were estimated by totaling resident births (pregnancies producing at least one live birth), fetal deaths and abortions.

Children's Oral Health: Third Grade Screening Results

During the 2005-2006 school year, the South Dakota Department of Health conducted a statewide oral health survey of third grade children in public, private and Bureau of Indian Affairs (BIA) elementary schools. Thirty-three elementary schools were randomly selected and 32 agreed to take part in the survey. Volunteer dentists and hygienists screened those children who returned a positive consent form. A total of 656 children returned the questionnaire/consent form and 643 were screened (66% of all third grade children enrolled in the 32 participating schools).

Sixty-six percent of the children had cavities and/or fillings (decay experience) and 33% of the children had untreated dental decay (cavities). Dental decay is a significant public health problem for South Dakota's children (Table 1). Thirty-nine percent of the children did not have dental sealants.

In 2006, 61% of the third grade children screened had dental sealants compared to 50% in 2003. Seventy percent of American Indian children had dental sealants in 2006. During the last three years, the prevalence of dental sealants has increased dramatically in South Dakota. While dental sealants are a proven method for preventing decay, many of South Dakota's children have not received this preventive service (Table 2).

Thirty-three percent of the children were in need of dental care including 6% that needed urgent dental care because of pain or infection. A large proportion of South Dakota's children are in need of dental care (Table 1). Compared to white non-Hispanic children, a significantly higher proportion of American Indian children have decay experience (62% vs. 84%) and untreated decay (28% vs. 51%).

Forty-one percent of children that participate in the free/reduced price school lunch program had untreated decay compared to only 27% of children not eligible for the program. Low income children have poorer oral health (Table 3).

Table 1- Oral Health of South Dakota Third Graders by Race and Ethnicity

Variable	Percent of Children (95% Confidence Interval)		
	White Non-Hispanic (n=501)	American Indian (n=56)	Other Minority Children (n=33)
With Private Insurance	58.3 (54.6-62.0)	20.7 (12.3-32.4)	37.9 (20.7 – 57.7)
Eligible for FRL	20.5 (17.6-23.6)	67.9 (55.5-78.3)	54.5 (36.4 – 71.9)
With Dental Visit in Last Year	83.3 (80.4-86.0)	66.9 (55.1-78.0)	60.6 (42.1 – 77.1)
Caries History	61.9 (58.2-65.5)	84.3 (77.0-90.5)	57.6 (39.2 – 74.5)
Untreated Decay	28.2 (24.9-31.6)	50.5 (41.5-59.7)	39.4 (22.9 – 57.9)
Dental Sealants	63.0 (59.4-66.5)	70.0 (61.2-78.0)	48.5 (30.8 – 66.5)
Treatment Urgency			
None	70.6 (67.1-73.8)	52.0 (43.0-61.2)	60.6 (42.1-77.1)
Early	26.2 (23.1-29.6)	31.9 (24.1-41.2)	36.4 (20.4-54.9)
Urgent	3.2 (2.1-4.9)	16.1 (10.2-23.8)	3.0(0.1-15.8)

Table 2- Comparison of Oral Health Status Indicators to Healthy People 2010 Objectives, 2003 & 2006

Variable	Percent of Children (95% Confidence Interval)		
	South Dakota 3 rd Grade 2003	South Dakota 3 rd Grade 2006	HP 2010 Objective 6-8 year old children
Caries History	66.9 (60.8 – 73.0)	65.6 (62.5 – 68.6)	42
Untreated Decay	30.2 (22.8 – 37.5)	32.9 (29.9 – 35.9)	21
Dental Sealants	49.6 (44.2 – 55.0)	61.1 (57.2 – 64.8)	50
8 Year Olds Only			
Dental Sealants	52.7 (43.8- 61.7)	57.6 (50.1 – 64.8)	50

Table 3- South Dakota Third Graders Eligible for Free and/or Reduced Price Meal Program

Variable	Percent of Children (95% Confidence Interval)		
	< 20% of Students Eligible for FRL (n=333)	20-49% of Students Eligible for FRL (n=195)	≥ 50% of Students Eligible for FRL (n=115)
White Non-Hispanic	89.4 (86.2-92.0)	82.7 (77.6-86.9)	33.0 (27.1-39.4)
With Private Insurance	63.3 (58.6-67.7)	46.4 (40.2-52.5)	32.2 (23.2-42.0)
With Dental Visit in Last Year	85.7 (81.4-89.3)	74.0 (67.1-80.0)	71.4 (57.8-82.7)
Eligible for FRL	16.7 (13.4-20.5)	33.2 (27.6-39.1)	59.9 (50.5-68.5)
Caries History	57.8 (53.2-62.3)	66.4 (60.6-72.2)	80.0 (74.3-84.9)
Untreated Decay	27.4 (23.4-31.7)	39.1 (33.4-45.3)	36.5 (30.3-43.0)
Dental Sealants	63.9 (59.3-68.2)	56.5 (50.4-62.5)	67.8 (61.4-73.7)
Treatment Urgency			
None	73.7 (69.4-77.6)	56.7 (50.5-62.5)	64.4 (57.9-70.5)
Early	21.0 (17.5-25.1)	41.1 (35.2-47.1)	25.6 (20.0-31.5)
Urgent	5.3 (3.5-7.8)	2.2 (0.8-4.7)	10.0 (6.6-14.7)

The state of South Dakota has exceeded the Healthy People 2010 objective for dental sealants. Unfortunately, significant progress must still be made in terms of caries history and untreated decay if South Dakota is to meet the other two objectives. About 66% of third grade children screened in South Dakota had experienced dental caries, much higher than the HP2010 objective of 42%. Almost 33% of the South Dakota children had untreated caries compared to the HP2010 objective of 21%. More than 61% of the third grade students screened had dental sealants compared to the HP2010 objective of 50%. Figures 1-3 compare the oral health of South Dakota's third grade children with the oral health of third grade children from several other states. Each of the states on the graphs collected data in a manner similar to South Dakota.

Figure 1
Prevalence of untreated decay in third grade children stratified by state

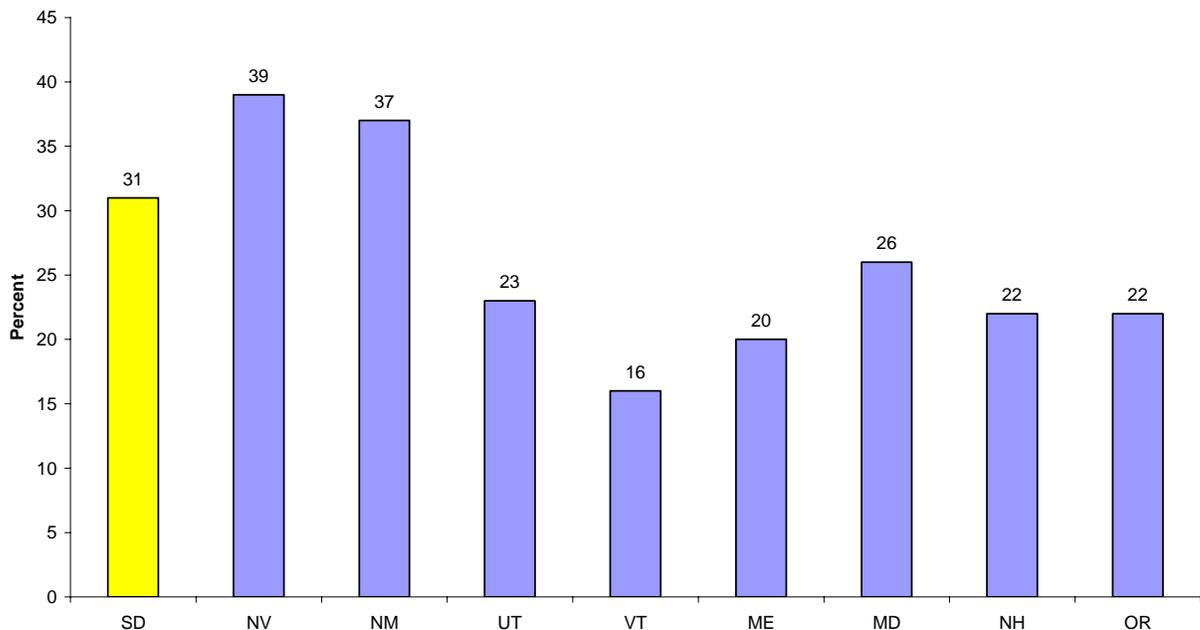


Figure 2
Prevalence of caries experience in 3rd grade children stratified by state

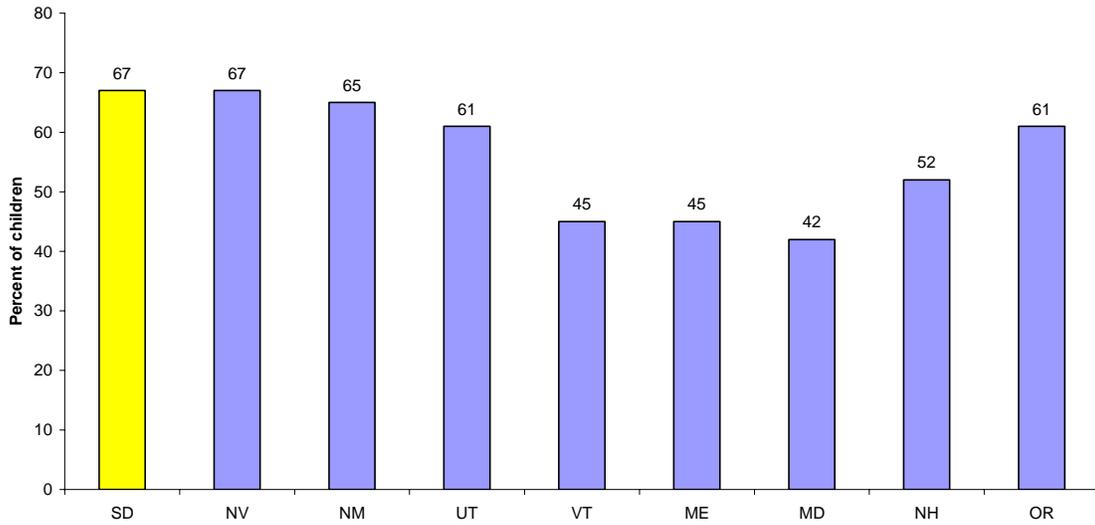
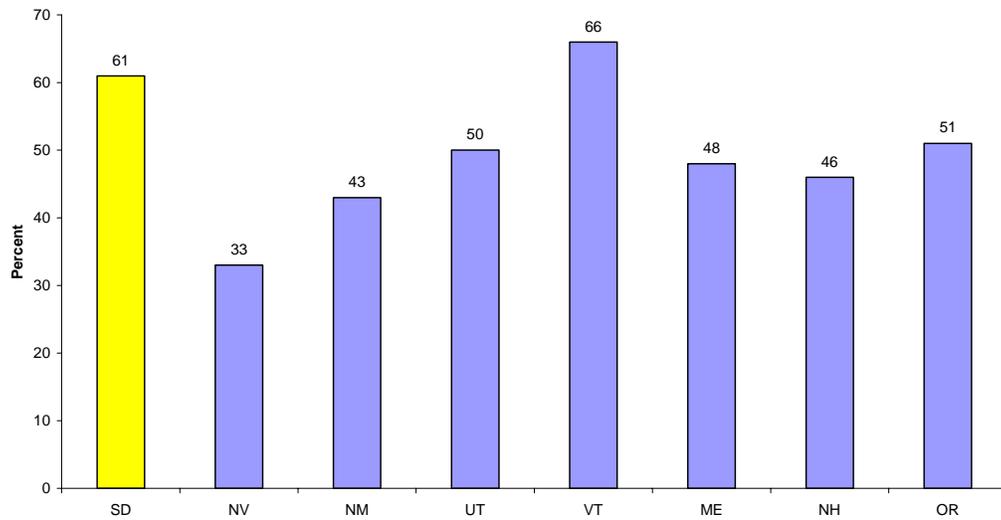


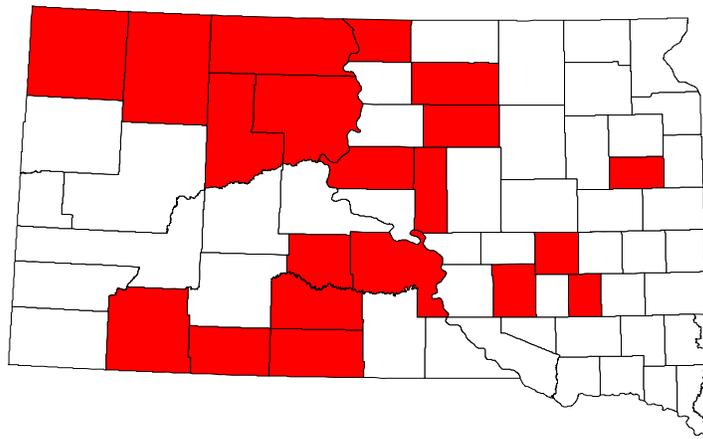
Figure 3
Prevalence of dental sealants in 3rd grade children stratified by state



Access to Dental Care

The Ronald McDonald Care Mobile served 1,061 children from January 1 – August 2006. It was the first dental visit for 24% of those seen during that timeframe. South Dakota hospital emergency rooms do not have policies in place to care for dental emergencies and lack specific dentists and/or oral surgeons to refer patients to (Emergency Room Dental Care Report, 2006). Twenty of the 66 counties (30%) in South Dakota do not have a dentist (South Dakota Vital Statistics Report, 2005). There are currently five Federally Qualified Health Care Centers in South Dakota that provide dental services to South Dakota communities.

South Dakota Counties without a Dentist, 2005



Children eligible for Medicaid have difficulty accessing oral health care. In 2006, only 32% of Medicaid children received any dental services. The focus of oral health efforts, to date, has been around children. The American Academy of Pediatric Dentistry recommends that a child's first visit occur by the age of one year. It may be that parents and caregivers, and many health professionals, are not aware of this schedule.

The following chart indicates that very young children have the least amount of access to dental care.

Table 4- Percent of Medicaid Eligible Children Receiving any Dental Services by Age, 2000-2006.

	2000	2001	2002	2003	2004	2005	2006
Medicaid children - yearly average		15.2%	9.9%	5.9%	3.9%	3.4%	1.4%
Medicaid children - total enrollment		10.4%	7.3%	4.9%	3.4%	2.5%	0.3%
Medicaid children receiving treatment		18.7%	10.3 %	10.0%	14.1 %	7.0%	2.1%
Medicaid children - yearly average	47,162	54,309	59,665	63,165	65,621	67,831	68,798
Medicaid children - total enrollment	66,421	73,356	78,721	82,580	85,372	87,497	87,716
Medicaid children receiving treatment	14,787	17,545	19,346	21,274	24,281	25,988	26,530
# of visits	27,436	32,898	36,727	41,599	48,324	51,784	51,573
% receiving treatment	22.3%	23.9%	24.6%	25.8%	28.4%	29.7%	30.2%
# of dentists providing treatment	268	288	292	292	297	313	310
Medicaid children treated at CHCs	0	217	450	1,000	1,904	2,047	1,916
# of visits	0	320	817	2,082	4,093	4,050	3,752
# of dentists providing treatment	0	1	3	4	13	14	17
Medicaid children treated at Care Mobile	0	0	0	0	637	860	824
# of visits	0	0	0	0	844	1,290	1,378
Medicaid children treated at surgery center	636	701	589	601	693	902	989
# of visits	654	710	602	605	698	909	998
# of dentists providing treatment	20	19	20	22	22	21	27
Under age 6:							
Medicaid children - total enrollment	27,528	30,298	32,554	34,186	35,662	36,892	37,163
Medicaid children receiving treatment	3,944	4,515	4,605	5,180	6,294	6,800	7,390
# of visits	6,872	7,839	7,855	9,290	11,571	12,494	13,208
% receiving treatment	14.3%	14.9%	14.1%	15.2%	17.6%	18.4%	19.9%
# of dentists providing treatment	193	198	206	203	228	232	229
Medicaid children treated at CHCs	0	49	69	235	468	457	491
# of visits	0	66	76	381	755	639	717
# of dentists providing treatment	0	1	3	4	11	11	15

Medicaid children treated at Care Mobile	0	0	0	0	401	226	230
# of visits	0	0	0	0	484	292	315
Medicaid children treated at surgery center	521	588	455	495	566	684	755
# of visits	534	595	461	496	569	688	759
# of dentists providing treatment	12	11	12	12	16	16	16
Under age 5:							
Medicaid children - total enrollment	24,240	26,566	28,540	30,052	31,291	32,357	32,591
Medicaid children receiving treatment	2,915	3,264	3,249	3,695	4,512	4,965	5,512
# of visits	4,915	5,485	5,360	6,368	7,972	8,824	9,555
% receiving treatment	12.0%	12.3%	11.4%	12.3%	14.4%	15.3%	16.9%
# of dentists providing treatment	181	182	193	194	213	213	211
Medicaid children treated at CHCs	0	37	55	167	334	344	367
# of visits	0	45	61	256	478	448	495
# of dentists providing treatment	0	1	3	4	10	11	14
Medicaid children treated at Care Mobile	0	0	0	0	350	167	170
# of visits	0	0	0	0	425	206	219
Medicaid children treated at surgery center	459	497	393	424	467	546	644
# of visits	470	503	399	425	469	550	648
# of dentists providing treatment	12	10	12	12	16	14	16
* Does not include IHS data							

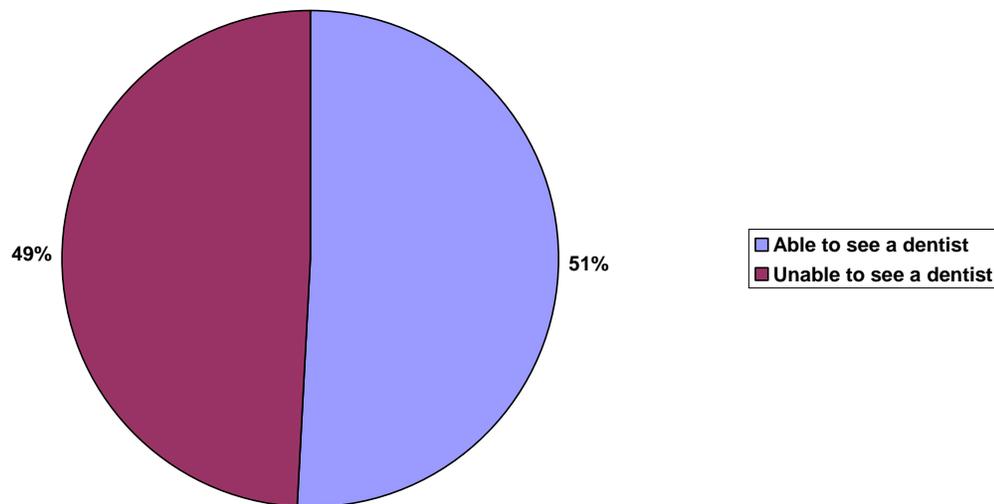
Table 5- Indian Health Service, 2006

Clinic	Patient Visits		Topical Fluorides		Sealants	
	Age 0 - 18	Age 19-99	0-18	19-99	0-18	19-99
Eagle Butte	1024	2692	64	10	317	13
Flandreau						
Ft. Thompson	1250	2053	659	518	1370	368
Kyle	1233	1997	600	261	1132	173
Lower Brule	522	414	306	90	413	123
Pine Ridge	4102	4417	2590	544	6326	356
Rapid City	1256	5529	277	500	1153	310
Rosebud	1368	2298	177	30	737	49
Sisseton	1217	2225	311	217	1968	99
Wagner	1138	737	623	151	1543	21
Wanblee	796	936	249	85	359	13

Pregnancy and Oral Health

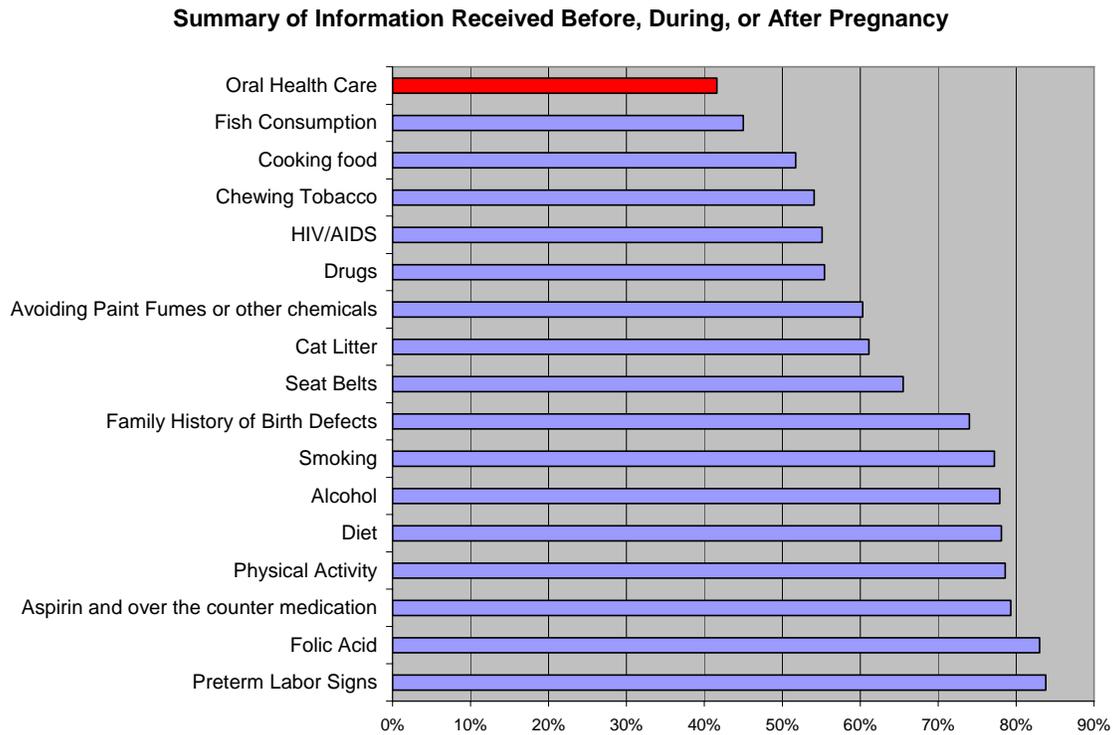
Emerging research highlights the infectious and contagious nature of oral bacteria. There may be a relationship between the poor oral health of expectant mothers and pre-term low birth weight babies (Jeffcoat et al., 2001). Twenty percent of pregnant women had problems with their teeth and gums during their pregnancy; however, only half (50.8%) were able to see a dentist for treatment (South Dakota New Mom's Survey, 2005).

Access to Dental Care



After birth, mothers may transmit the bacteria responsible for tooth decay to their infants and toddlers through the sharing of saliva. South Dakota physicians that do in fact include information on oral health during the prenatal exams report that they conduct an assessment to determine the oral health status of the woman (55%) (Status of Prenatal Care in South Dakota Report, 2005).

The graph below indicates the percentage of new mothers who were counseled by health care workers about risks to their babies. Oral health care was addressed less frequently than other issues (South Dakota New Mom’s Survey, 2005).

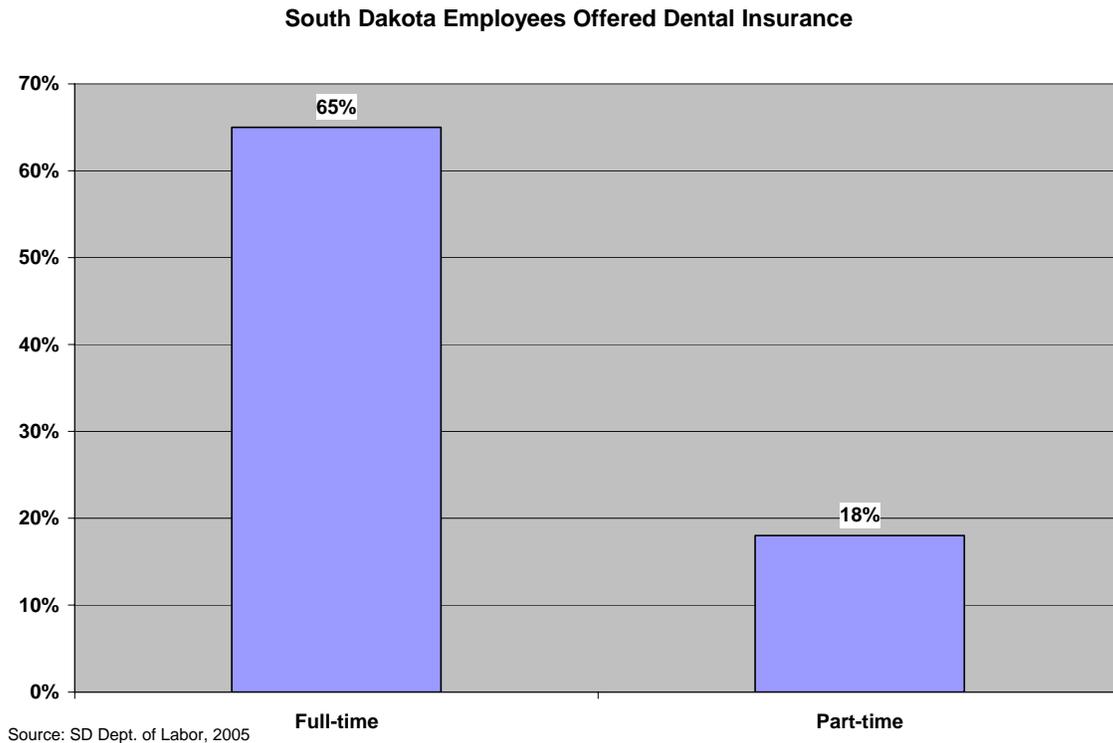


Chronic Disease and Oral Health

Other adults, in addition to pregnant women, also are in need of dental care. Survey data for South Dakota adults show that oral health issues among adults are significant, and dental disease is exacerbated by various chronic diseases (Behavioral Risk Factor Surveillance Survey, 2003 and 2005). The percentage of diabetic adults in South Dakota receiving dental care has decreased. In 2004, 64% of adults with diabetes had been to the dentist in the past year, while in 1999 71% had a dental visit in the past year (CDC, 2007). Among all adults in South Dakota, only 27% had visited the dentist or dental clinic within the past year for any reason (BRFSS, 2003). According to the

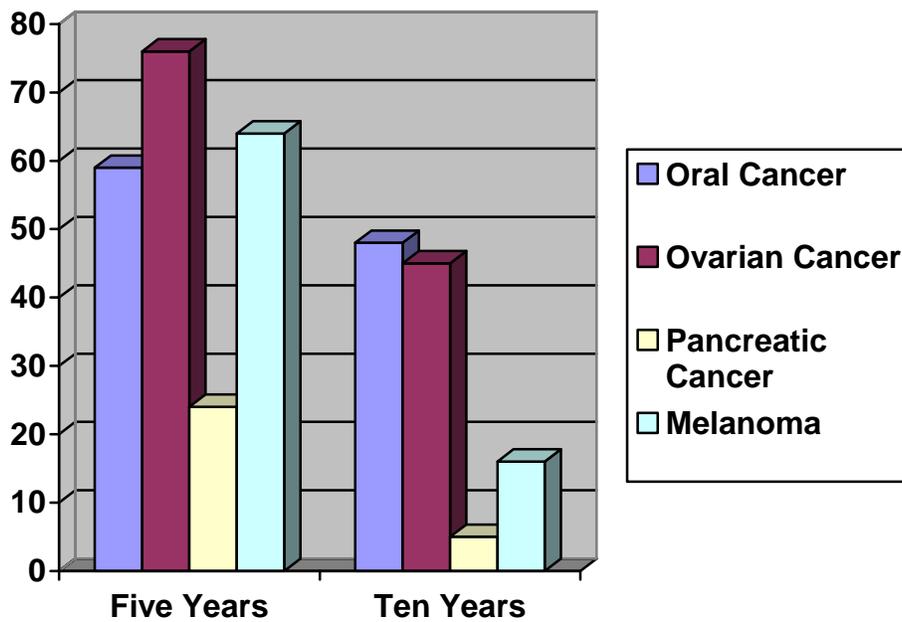
United States Surgeon General's Oral Health Report (2000), "you cannot be healthy without oral health. Oral health and general health should not be interpreted as separate entities. Oral health is a critical component of health and must be included in the provision of health care and the design of community programs".

Those with dental insurance are almost one and a half times more likely to visit the dentist than those without dental insurance. In South Dakota, 65% of full-time employees are offered dental insurance; while only 18% of part-time workers are offered dental insurance.



Oral Cancer

In 2005, there were 21 deaths due to lip, oral cavity, and pharynx cancer. Eleven of the 21 deaths were directly due to tobacco use. In South Dakota, mortality due to lip, oral cavity, and pharynx cancer increased significantly from 12 (2004) to 21 (2005) (South Dakota Vital Statistics, 2005). Oral cancer has an 84% survival rate at one year post diagnosis; however, only 59 % of oral cancer patients survive for five years, which is lower than the percentage of patients surviving ovarian cancer and melanoma. Dentists and primary care physicians can identify leukoplakia, which in the early stages can increase survival. Early detection, as with all cancers, is key to survival.

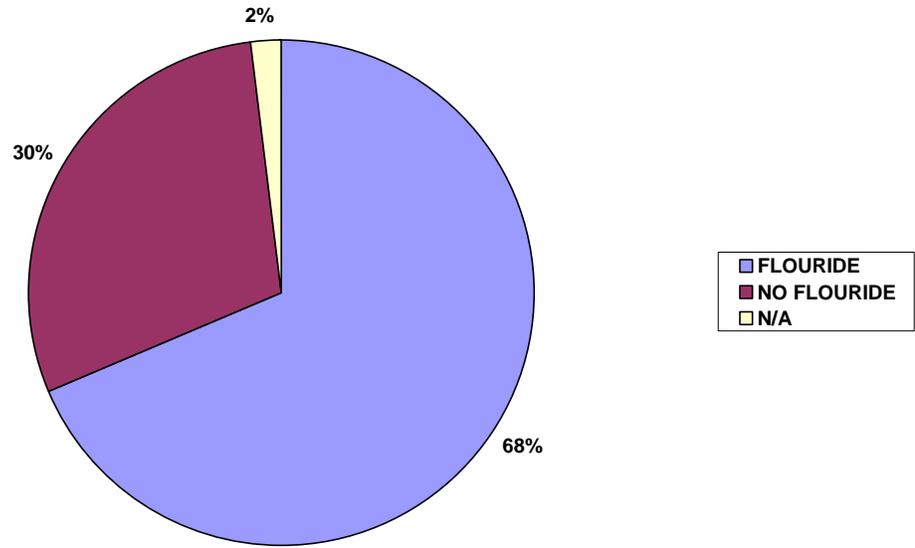


Community Water Fluoridation

Approximately 78% of South Dakota's population lives in communities that fluoridate their drinking water. Municipalities that serve over 500 residents are federally mandated to fluoridate the drinking water in accordance with EPA guidelines. South Dakota communities began fluoridating their drinking water supplies in the early 1980's. Fluoridation, recognized as one of the ten greatest public health achievements of the 20th century, is a safe and cost-effective means of preventing tooth decay. Today, over 78% of South Dakota residents served by public water systems have optimal levels of fluoride (on average, one part per million).

In 2002 the Aberdeen Area Indian Health Service, which serves South Dakota, North Dakota, Iowa, and Nebraska, began a water fluoridation initiative. The number of tribally owned and operated public water systems has grown to 72 (63 community water systems, and 9 non-community water systems). The service population for the Aberdeen Area is about 120,000 and 70,000 of those are served by a public water system. The other 50,000 get water from private wells, which may provide water with a low fluoride content. The good news is that as rural water systems expand their distribution lines, more people get fluoridated water and the need for private wells diminishes. Specific to South Dakota, 68% of the American Indian reservations have fluoridated water.

Tribal Water Systems in South Dakota



Source: Aberdeen Area Indian Health Service, 2006

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