

BLADDER

Table 12: Bladder Incidence and Mortality Summary, 2011

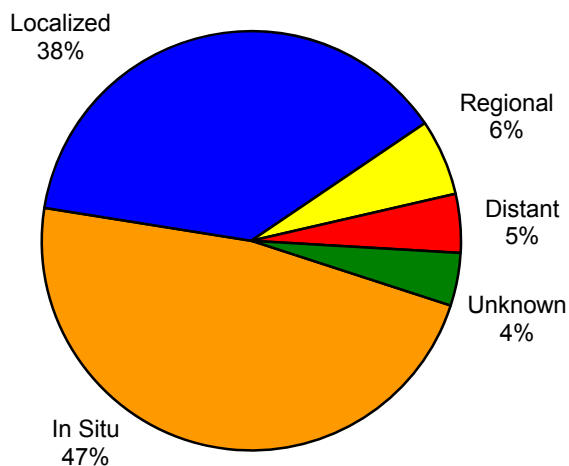
Bladder Cancer			Incidence			Mortality		
			Total	Male	Female	Total	Male	Female
South Dakota	Total	# Cases / Deaths	221	162	59	34	24	10
		Age Adjusted Rate	22.9	38.2	10.8	3.2	5.6	1.7
	White	# Cases / Deaths	217	159	58	33	23	10
		Age Adjusted Rate	23.7	39.3	11.3	3.2	5.5	1.8
	American Indian	# Cases / Deaths	2	2	0	1	1	0
		Age Adjusted Rate	5.5	12.5	0.0	3.9	9.6	0.0
United States	Total	Age Adjusted Rate	19.7	34.6	8.4	* 4.4	* 7.7	* 2.2
	White	Age Adjusted Rate	21.5	37.7	9.0	* 4.6	* 8.1	* 2.2
	American Indian	Age Adjusted Rate	8.3	17.0	2.6	* 2.4	* 4.1	* 1.4

¹Includes *in situ* bladder; Rates per 100,000 age-adjusted to 2000 US standard population and 2011 SD estimated population.

* US Mortality rates are from 2010, the 2011 rate is not available at this time. US rates www.seer.cancer.gov

Source: South Dakota Department of Health

Figure 15: Bladder Cancer Stage at Diagnosis, South Dakota, 2011



Source: South Dakota Department of Health

Descriptive Epidemiology

Stage at Diagnosis: Cancer is categorized as noninvasive and invasive. There were 105 noninvasive bladder cancers reported in 2011. There were 116 invasive. Forty-seven percent of all bladder cancer cases were diagnosed at noninvasive, *in situ* stage. Nationally 50% of the cases of urinary bladder cancer are diagnosed at the *in situ* stage. In South Dakota, 5% of the cases were not diagnosed until the disease had spread to distant sites. In the United States, distant stage accounted for 4% of the bladder cancers reported.

Incidence: In 2011, it was estimated that over 69,250 cases of bladder cancer would be diagnosed in the United States. There were 221 cases of bladder cancer reported in South

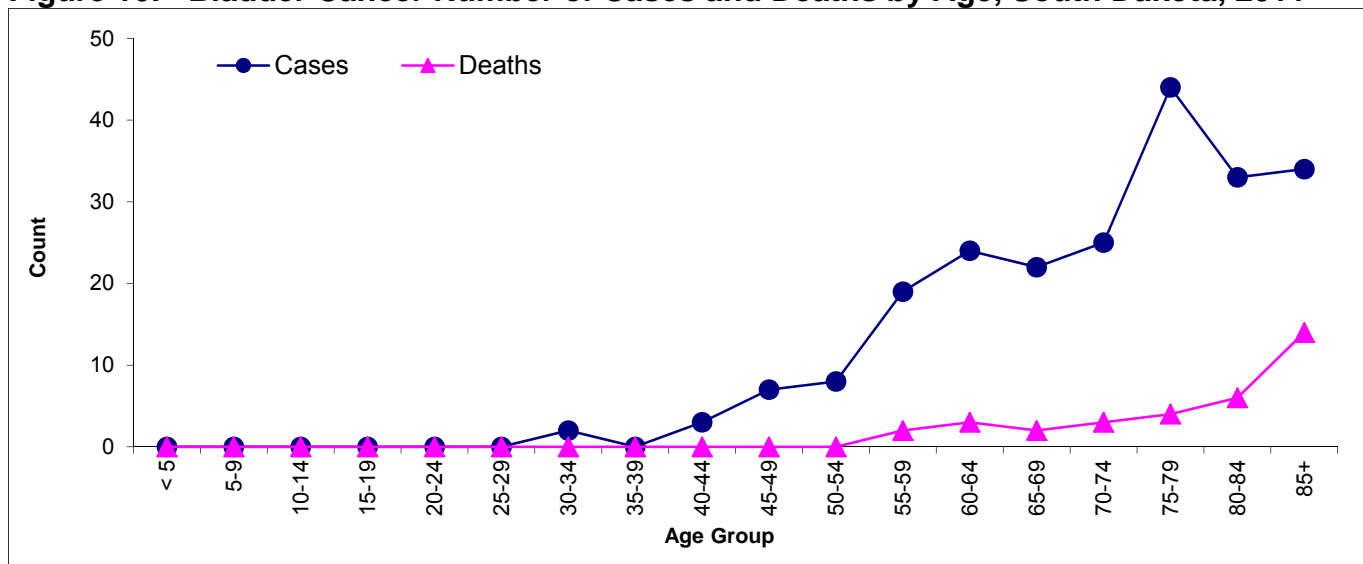
Dakota. There were 162 men and 59 women diagnosed with bladder cancer in 2011. Statistically, men are diagnosed four times more frequently than women. There were only two American Indian cases diagnosed in 2011. In the United States it is the fifth most frequent cancer. In South Dakota it was also the fifth most frequent cancer diagnosed.

Mortality: Almost half (47%) of all bladder cancer cases reported in South Dakota were noninvasive. Advances in intravesical therapy and in the treatment of advanced disease with chemotherapy have reduced the percentage of mortality from bladder cancer. In South Dakota, ages from 70 and above have the highest mortality. In 2011, the South Dakota mortality rate was 3.2 compared to the US (2010) rate which was 4.4.

Risk and Associated Factors: Bladder cancer was one of the first malignancies associated with industrialization. Not surprisingly, the incidence continues to rise. Cigarette smoking increases the risk for bladder cancer by two times that of a nonsmoker. Work exposure to certain chemicals also increases risk. Some of those with the highest risk are makers of rubber, leather, textiles, paint products, and printing compounds.

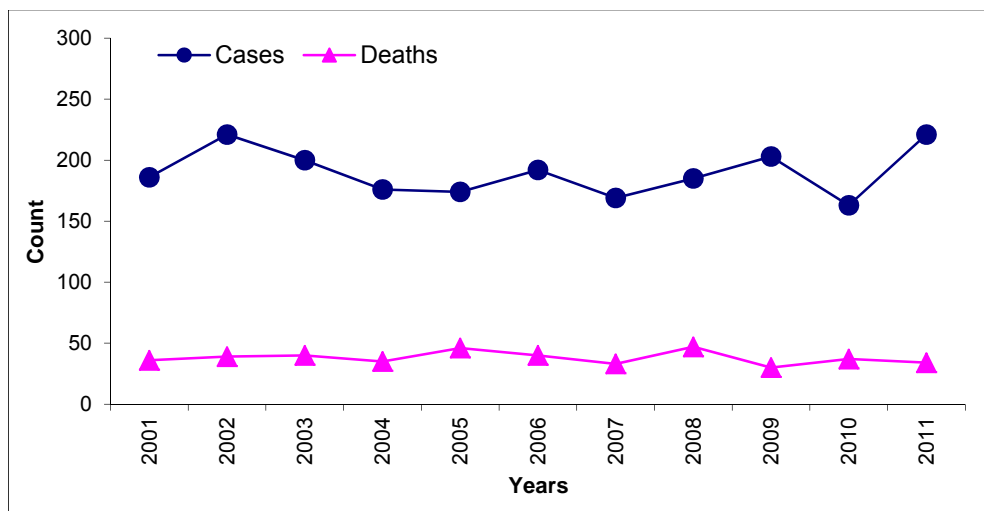
Prevention and Early Detection: Avoiding exposure to chemicals and cigarette smoking are two of the most common suggestions for prevention.

Figure 16: Bladder Cancer Number of Cases and Deaths by Age, South Dakota, 2011



Source: South Dakota Department of Health

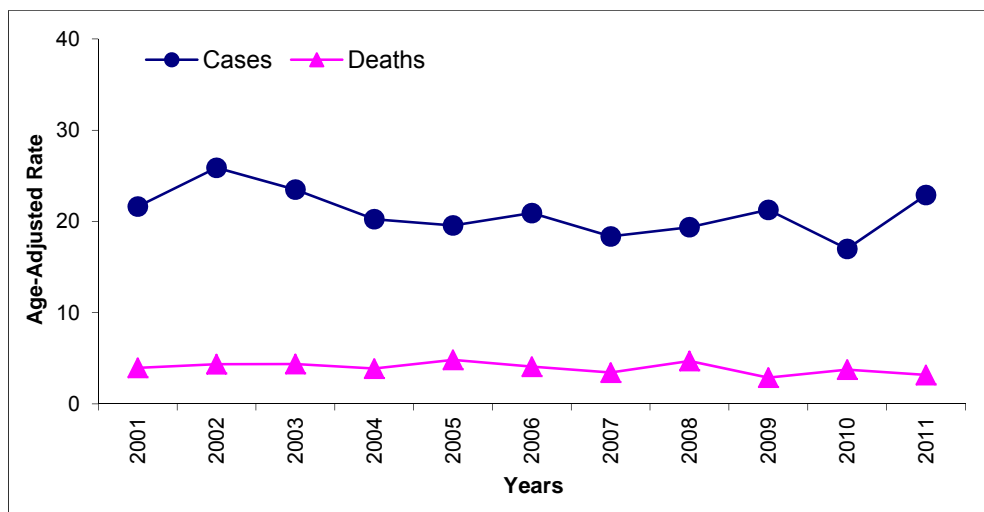
Figure 17: Bladder Cancer Cases and Deaths by Year, South Dakota, 2011 - 2011



Bladder cancer cases in 2011 tied an all-time high of 221 cases, the same as in 2002, after an all-time low in 2010 of 163 cases.

Source: South Dakota Department of Health

Figure 18: Bladder Cancer Age-Adjusted Rates, Cases, and Deaths by Year, South Dakota, 2011 - 2011



Rates per 100,000 age-adjusted to 2000 US standard population and SD estimated populations.
Source: South Dakota Department of Health

BREAST (FEMALE)

Table 13: Female Breast Incidence and Mortality Summary, 2011

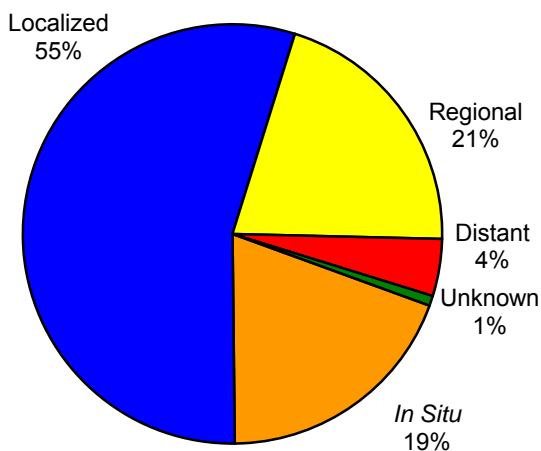
Female Breast Cancer			Incidence	Mortality
South Dakota	Total	# Cases / Deaths	624	122
		Age Adjusted Rate	129.3	23.3
	White	# Cases / Deaths	582	114
		Age Adjusted Rate	130.3	23.2
	American Indian	# Cases / Deaths	37	6
		Age Adjusted Rate	142.6	29.8
United States	Total	Age Adjusted Rate	124.3	* 21.9
	White	Age Adjusted Rate	127.2	* 21.3
	American Indian	Age Adjusted Rate	81.3	* 14.1

Rates per 100,000 age-adjusted to 2000 US standard population and 2011 SD estimated population.

* US Mortality rates are from 2010, the 2011 rate is not available at this time.

US rates www.seer.cancer.gov Source: South Dakota Department of Health

Figure 19: Female Breast Cancer Stage at Diagnosis, South Dakota, 2011



Source: South Dakota Health Department

Descriptive Epidemiology

Stage at Diagnosis: Including *in situ* female breast cancer cases there were 773 cases diagnosed in 2011, of which 425 cases were diagnosed at localized stage. This represents 55% of all reported breast cancer cases. There were 159 cases that had progressed beyond the breast. There were 34 that were diagnosed as a distant stage and 6 that were staged as unknown. The 149 *in situ* female breast cancer cases are reported but are not used in calculating incidence rates.

Incidence: Female breast cancer is the most common malignant tumor among women. The incidence rate increased from 1947-1990. The rates fell 3.5% per year from 2001-2005. This decrease may be in part due to the lower number of women using hormone replacement therapy. There were 624 cases of invasive female breast

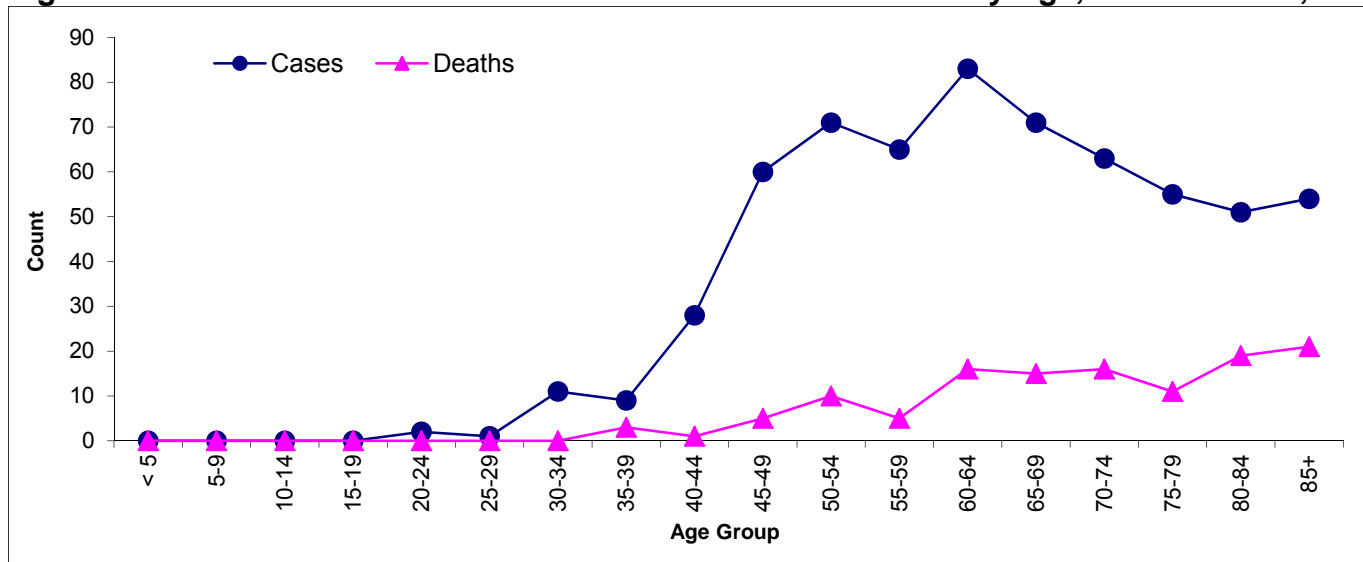
cancer reported in 2011. In South Dakota, 14.4% of all invasive cancer cases reported in 2011 were female breast. Nationally, 14% of all cancer cases are female breast cancer. Breast cancer represented 29% of the cancer cases diagnosed for South Dakota women in 2011.

Mortality: Breast cancer is the third leading cause of death attributed to cancer in South Dakota. Nationwide, breast cancer mortality has been relatively stable overall since 1950. In cancers only of women, it is the second leading cause of cancer deaths. Although mortality has increased among women older than 55 years, it has decreased among women younger than 55 years of age. In 2011, there were 122 deaths. Of those deaths, 114 were white and six were American Indian.

Risk and Associated Factors: Among the known risk factors for breast cancer are early onset of menarche, late onset of menopause, never having been pregnant, first full term pregnancy after age 30 and fewer number of children. These factors increase the risk because of cumulative exposure of breast tissue to estrogen. Other risk factors include high fat diets, obesity, alcohol consumption, history of fibrocystic disease, having a mother or sister with breast cancer, a personal history of ovarian or endometrial cancer and specific tumor suppressor genes such as BRCA1 and BRCA2.

Prevention and Early Detection: Prevention and early detection is the key to survival of breast cancer. Monthly self-examination and annual examination by a health professional are the mainstays of early detection. Women should talk to their doctor for individualized screening recommendations.

Figure 20: Female Breast Cancer Number of Cases and Deaths by Age, South Dakota, 2011



Source: South Dakota Department of Health

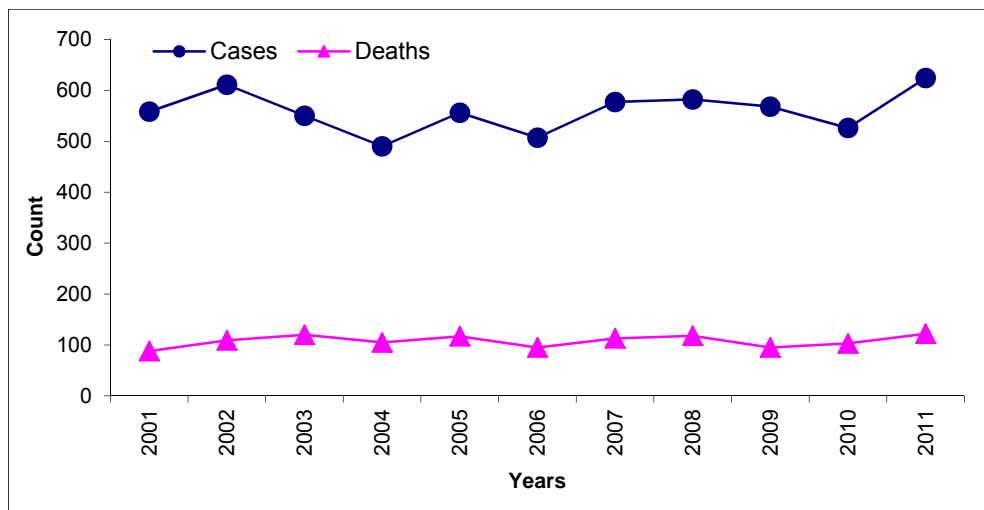


Figure 21: Female Breast Cancer Cases and Deaths by Year, South Dakota, 2001 - 2011

The incidence for female breast cancer was at an all-time high in 2011.

Source: South Dakota Department of Health

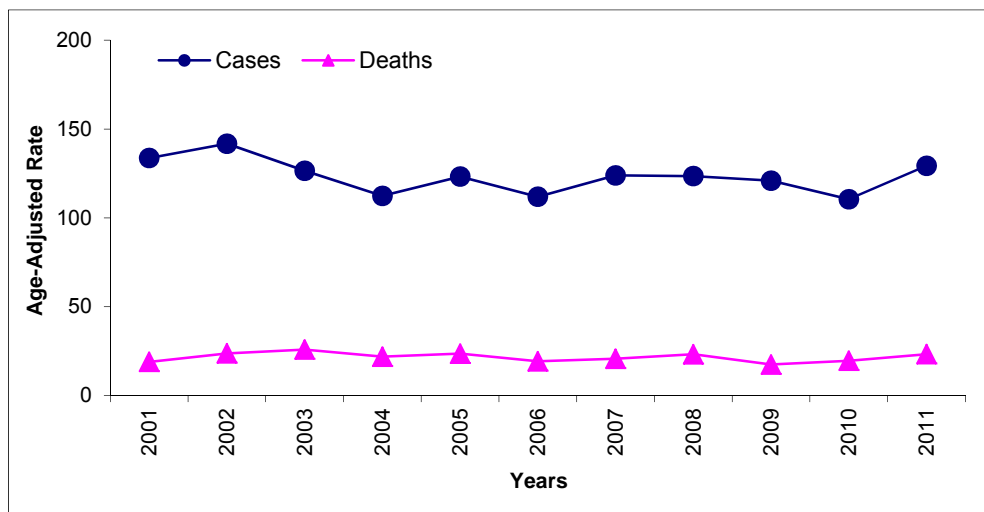


Figure 22: Female Breast Cancer Age-Adjusted Rates, Cases, and Deaths by Year, South Dakota, 2001 - 2011

Rates per 100,000 age-adjusted to 2000 US standard population and SD estimated populations.
Source: South Dakota Department of Health

CERVIX UTERI

Table 14: Cervix Uteri Incidence and Mortality Summary, 2011

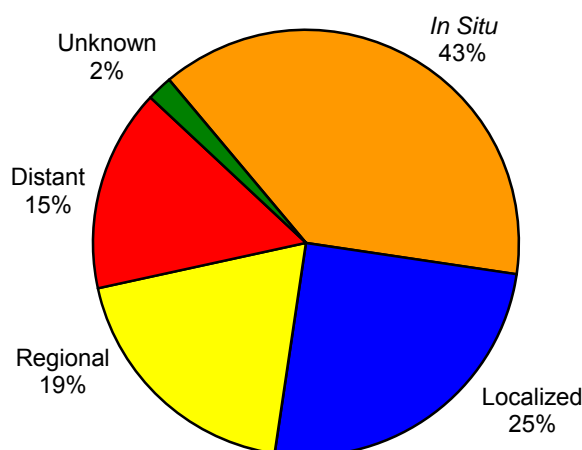
Cervix Uteri Cancer			Incidence	Mortality
South Dakota	Total	# Cases / Deaths	32	5
		Age Adjusted Rate	8.0	0.9
	White	# Cases / Deaths	24	3
		Age Adjusted Rate	7.0	0.6
United States	Total	# Cases / Deaths	8	2
		Age Adjusted Rate	26.8	7.1
	White	Age Adjusted Rate	7.4	* 2.3
	White	Age Adjusted Rate	7.5	* 2.1
	American Indian	Age Adjusted Rate	7.4	* 3.4

Rates per 100,000 age-adjusted to 2000 US standard population and 2011 SD estimated population.

* US Mortality rates are from 2010, the 2011 rate is not available at this time.

US rates www.seer.cancer.gov Source: South Dakota Department of Health

Figure 23: Cervix Uteri Cancer Stage at Diagnosis, South Dakota, 2011



Source: South Dakota Health Department

Descriptive Epidemiology

Stage at Diagnosis: Early stage of diagnosis clearly provides the best opportunity for cure. In South Dakota, 25% of the cases reported were diagnosed at localized stage. SEER reports that 46% of the cases diagnosed nationally were at the localized stage.

Incidence: The incidence rate in South Dakota was 8.0 and in the United States it was 7.4. Both nationally and in South Dakota cervical cancer was the third most common female genital tract malignancy. Invasive cervical cancer accounted for .7% of all cases reported and 1.5% of all females diagnosed with cancer in South Dakota in 2011. SEER incidence reports that .2% of cases were younger than 20 years of age.

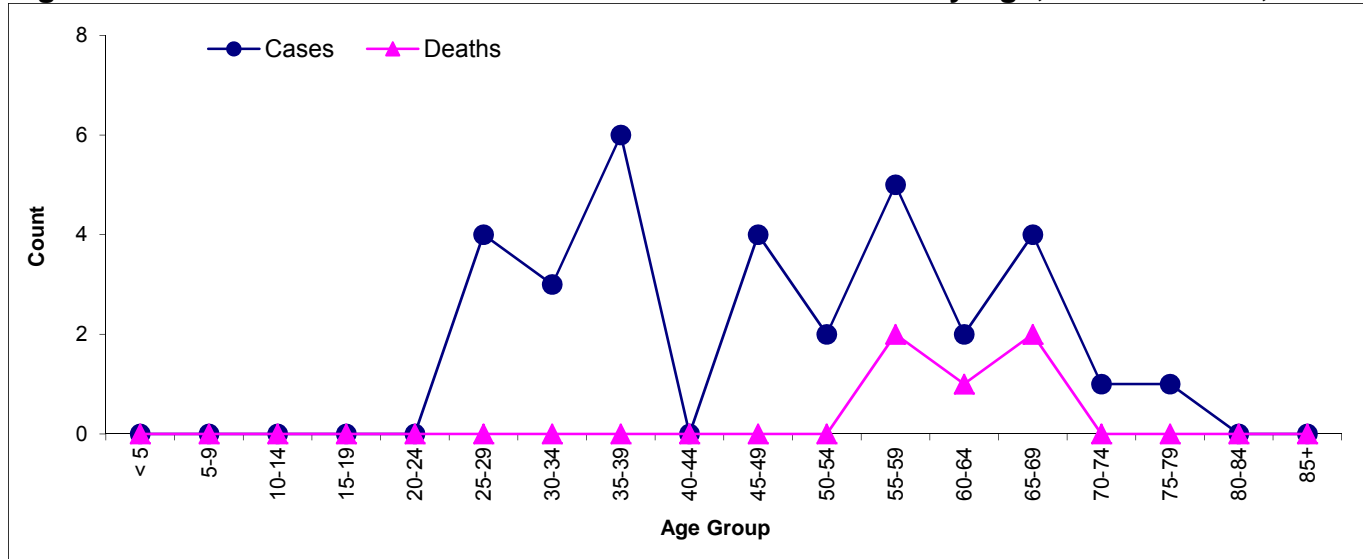
Mortality: The death rate in South Dakota was .9 for cancer of the cervix uteri. In the United States, the rate was 2.3 in 2010. The stage of disease at diagnosis affects the mortality rate. Cases diagnosed at a localized stage have a 92% survival rate according to the American Cancer Society. Nationally, when diagnosed at distant stage, the percentage of survival drops to 15% at five years. In South Dakota, there were eight cases in 2011 diagnosed at distant stage.

Risk and Associated Factors: Risk factors associated with cervical cancer suggest that a sexually transmitted agent is involved in the pathogenesis of the disease. Although Herpes Simplex Virus appeared to be a likely candidate in early studies, during the last decade the Human Papilloma virus (HPV) has been identified as the most likely. Other risk factors are nutritional deficiencies (Vitamin C and Vitamin B), low socioeconomic status, beginning sexual activity at a young age, high-risk male partner, tobacco use as well as the use of oral contraceptives.

Prevention and Early Detection: Cervical cancer represents the final step in a continuum that begins with cervical intraepithelial neoplasia (CIN). This is a preinvasive process, detectable by cervical cytological screening (Pap smear). The American Cancer Society recommends that all women at the age of 18 or earlier, if sexually active, should have annual Pap smears. Invasive cervical malignancies could be eradicated almost completely with regular screening programs available to all.

For more information on cervical cancer visit <http://www.cancer.gov/cancertopics/types/cervical/>

Figure 24: Cervix Uteri Cancer Number of Cases and Deaths by Age, South Dakota, 2011



Source: South Dakota Department of Health

More than half of the incidence of cervical cancer occurred in women under the age of 50 .

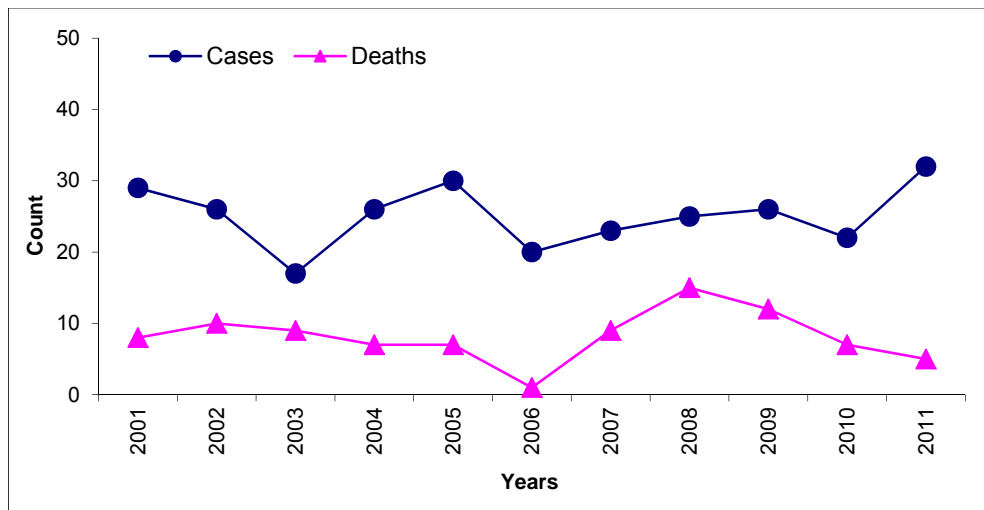


Figure 25: Cervix Uteri Cancer Cases and Deaths by Year, South Dakota, 2001 - 2011

The incidence peak for female cervix uteri cancer was in 2011.

Source: South Dakota Department of Health

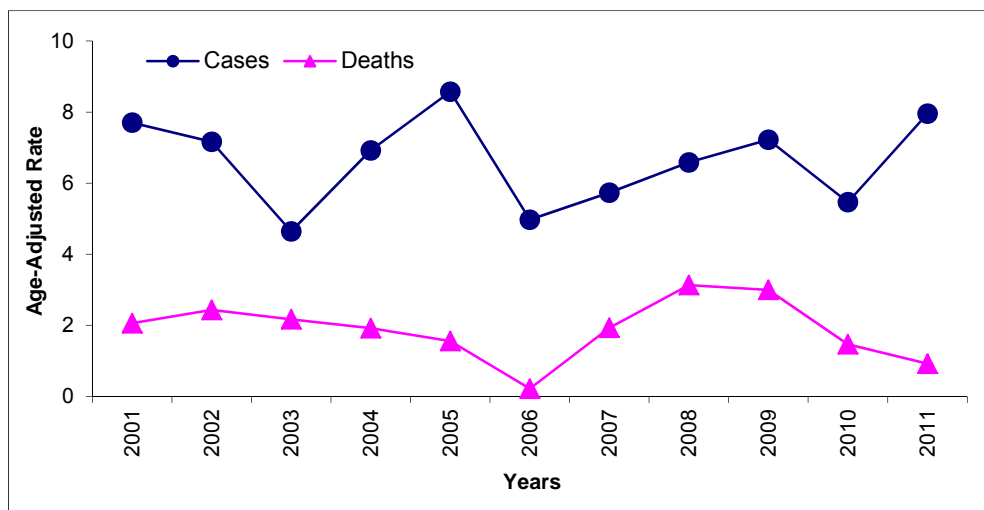


Figure 26: Cervix Uteri Cancer Age-Adjusted Rates, Cases, and Deaths by Year, South Dakota, 2001 - 2011

Rates per 100,000 age-adjusted to 2000 US standard population and SD estimated populations.
Source: South Dakota Department of Health

COLORECTAL

Table 15: Colorectal Incidence and Mortality Summary, 2011

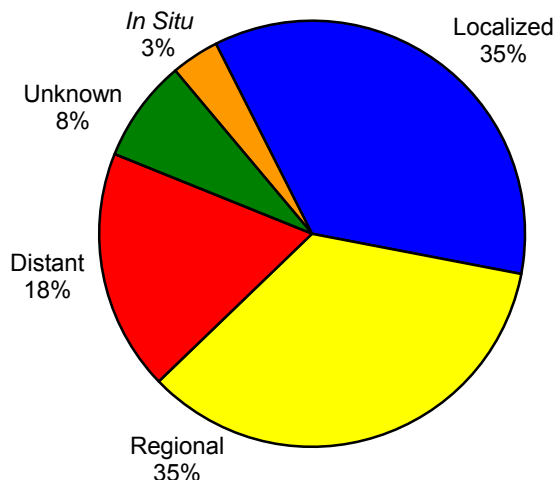
Colorectal Cancer			Incidence			Mortality		
			Total	Male	Female	Total	Male	Female
South Dakota	Total	# Cases / Deaths Age Adjusted Rate	421 43.8	230 52.1	191 35.5	136 13.7	68 15.9	68 11.2
	White	# Cases / Deaths Age Adjusted Rate	386 42.4	207 49.8	179 35.1	124 13.0	62 15.2	62 10.6
	American Indian	# Cases / Deaths Age Adjusted Rate	31 69.0	21 96.1	10 44.7	11 33.6	6 36.3	5 30.9
United States	Total	Age Adjusted Rate	40.3	46.5	35.3	* 15.5	* 18.7	* 13.0
	White	Age Adjusted Rate	39.3	45.2	34.3	* 15.0	* 18.1	* 12.6
	American Indian	Age Adjusted Rate	41.1	47.9	35.1	* 16.6	* 19.2	* 14.7

Rates per 100,000 age-adjusted to 2000 US standard population and 2011 SD estimated population.

* US Mortality rates are from 2010, the 2011 rate is not available at this time. US rates www.seer.cancer.gov

Source: South Dakota Department of Health

Figure 27: Colorectal Cancer Stage at Diagnosis, South Dakota, 2011



Source: South Dakota Department of Health

Descriptive Epidemiology

Stage at Diagnosis: The prognosis of the patient is greatly influenced by the stage of disease at diagnosis. In 2011, 35% (155) of the cases of colorectal cancer were diagnosed at localized stage. Localized is defined as when the disease is still confined to the colon. The remaining 232 invasive cases (53%) were diagnosed after the disease had spread beyond the colon. Of those 232 cases, 80 were diagnosed at distant stage when the disease had spread further involving other organs. The SEER National Cancer Institute website states that the 5-year survival rate for those who have distant stage at diagnosis is 12.9% for the 2004-2010 time period.

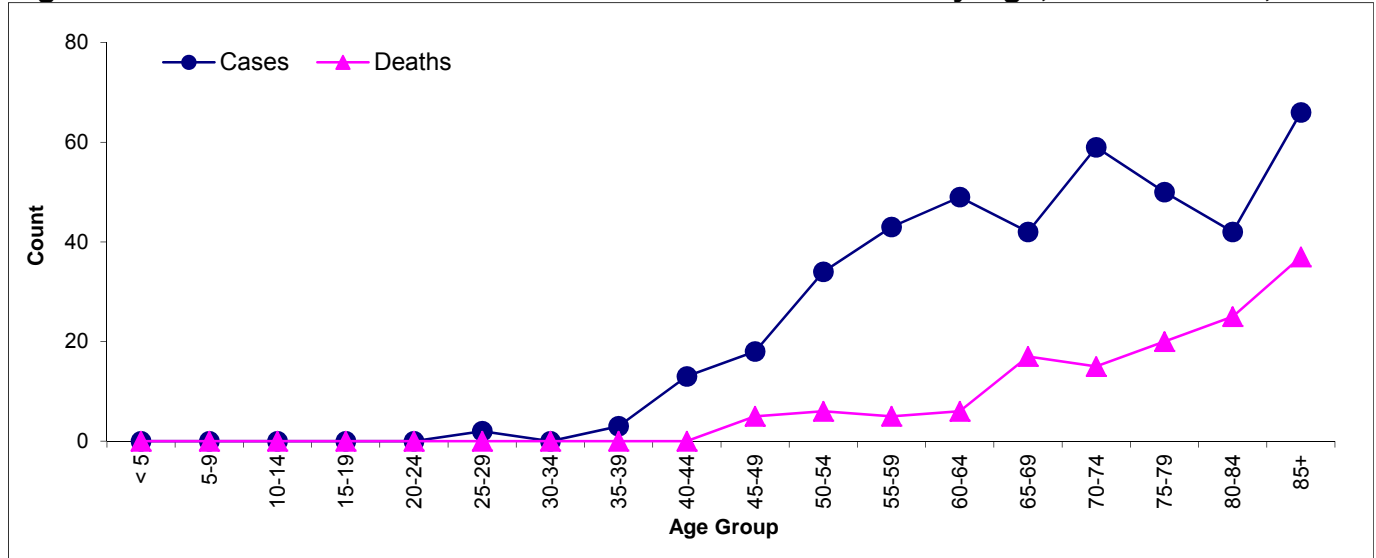
Incidence: Colorectal cancer accounted for 9.7% of all cases reported in South Dakota in 2011. The median age at diagnosis was 70. There were 230 men and 191 women diagnosed with colorectal cancer in 2011 in South Dakota. Overall, colorectal cancer was the fourth most diagnosed cancer. When reviewed by gender, it was the third most diagnosed cancer with 10.6% of the cancers reported in males and 8.9% of the cancers reported in females.

Mortality: Overall incidence and mortality rates for colorectal cancer are decreasing. The overall 5-year survival rate for 2004-2010 from SEER was 64.7% for men and women. In 2011, there were a total of 136 deaths that were attributed to colorectal cancer in South Dakota; half were men and half were women. Of that number, 124 were white and 11 were American Indian. The median age at death was 78. The SEER National Cancer Institute website states that the United States mortality rate in 2010 was 15.5.

Risk and Associated Factors: Studies have shown that diets high in fat and low in fiber result in an increased risk for colon cancer. Diets also that are low in fresh fruit and vegetables increase the risk. Obesity is also listed as a risk factor.

Prevention and Early Detection: Doctors believe that most colon cancers develop in colon polyps. Therefore, removing benign colon polyps can prevent colorectal cancer. Colon polyps are initially benign but over years can become cancerous. Screening guidelines suggest having a colonoscopy every ten years beginning at the age of 50.

Figure 28: Colorectal Cancer Number of Cases and Deaths by Age, South Dakota, 2011



Source: South Dakota Department of Health

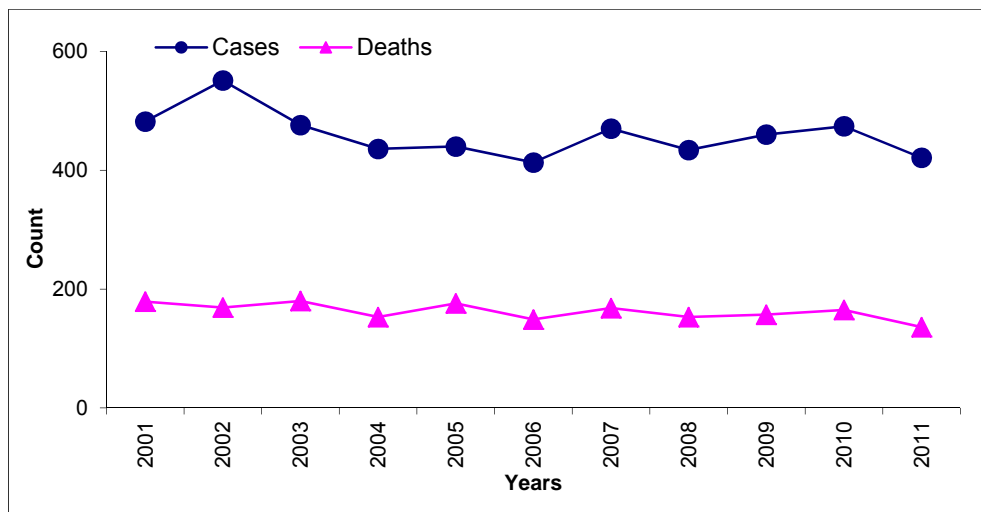


Figure 29: Colorectal Cancer Cases and Deaths by Year, South Dakota, 2001 - 2011

The incidence peak for colorectal cancer occurred in 2002. Incidences of colorectal cancer appear to escalate after age 50.

Source: South Dakota Department of Health

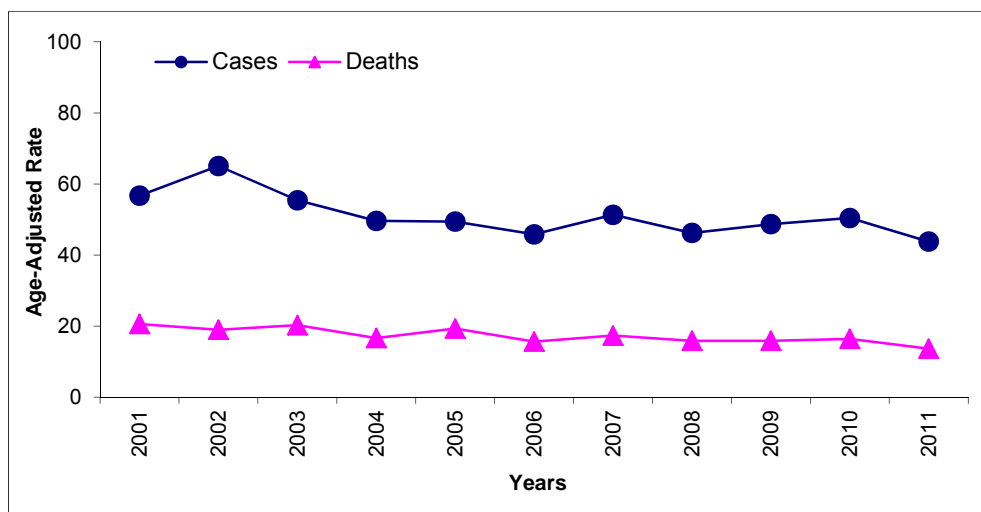


Figure 30: Colorectal Cancer Age-Adjusted Rates, Cases, and Deaths by Year, South Dakota, 2001 - 2011

Rates per 100,000 age-adjusted to 2000 US standard population and SD estimated populations.
Source: South Dakota Department of Health

CORPUS and UTERUS, NOS

Table 16: Corpus and Uterus, NOS Incidence and Mortality Summary, 2011

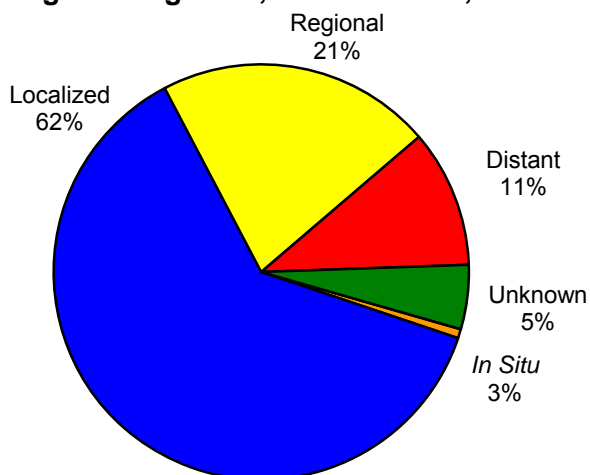
Corpus & Uterus, NOS Cancer			Incidence	Mortality
South Dakota	Total	# Cases / Deaths	139	31
		Age Adjusted Rate	28.2	5.7
	White	# Cases / Deaths	133	30
		Age Adjusted Rate	28.7	5.9
	American Indian	# Cases / Deaths	5	1
		Age Adjusted Rate	18.2	3.0
United States	Total	Age Adjusted Rate	24.9	* 4.5
	White	Age Adjusted Rate	25.5	* 4.2
	American Indian	Age Adjusted Rate	17.4	* 3.9

Rates per 100,000 age-adjusted to 2000 US standard population and 2011 SD estimated population.

* US Mortality rates are from 2010, the 2011 rate is not available at this time.

US rates www.seer.cancer.gov Source: South Dakota Department of Health

Figure 31: Corpus and Uterus, NOS Cancer Stage at Diagnosis, South Dakota, 2011



Source: South Dakota Health Department

Descriptive Epidemiology

Stage at Diagnosis: Cancer in the uterus is treated surgically. Staging for these diseases is done following surgery, unless it is obvious that the disease has progressed and advanced. Cases with obvious advanced disease do not benefit from surgical procedures and are staged by physical examination. These cases are treated without operative staging. In South Dakota, during 2011, 62% of corpus uteri cases were diagnosed at localized stage. Fifteen cases were diagnosed at distant stage, a large increase from 2010 with only five cases.

Incidence: The uterine cervix is the small cylindrical neck that leads from the uterus, or womb, into the vagina. A knob of the cervix protrudes into the vagina and can be visualized on physical examination. It is lined with epithelial and stromal cells creating a site for epithelial,

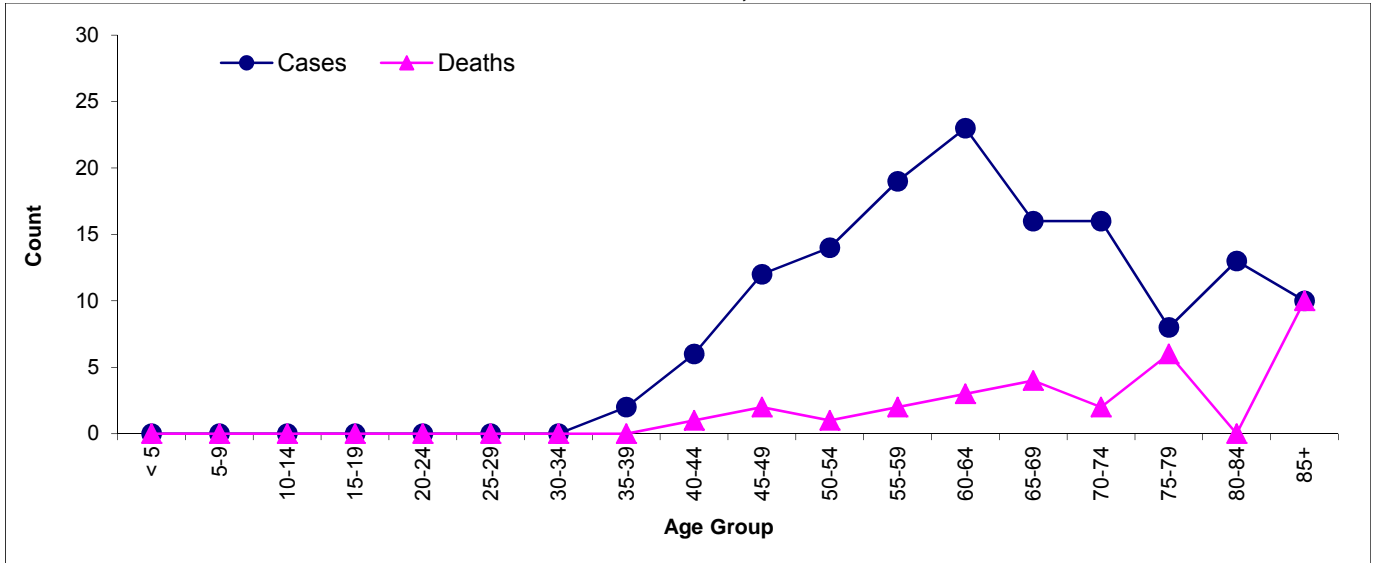
stromal and mixed cell malignancies. Endometrial carcinoma is one of the female genital cancers. It is ranked fourth among females reported with cancer in South Dakota in 2011. Cancer of the corpus uteri represents 6.5% of all of the cancers diagnosed in South Dakota females in 2011. Endometrial cancer affects primarily postmenopausal women. The median age at diagnosis in the United States is 60. In South Dakota, the median age is 63 years of age.

Mortality: The death rate in South Dakota for the reporting period was 5.7 for deaths attributed to uterine cancer. In the United States, the 2010 rate was 4.5. Only 31 South Dakota female deaths were attributed to cancer of the uterus in 2011. The stage of disease at diagnosis affects the mortality rate. Overall (all stages included), the five-year relative survival rate was 83.2% in the United States.

Risk and Associated Factors: Risk factors associated with corpus uteri cancer suggest that exposure to estrogen for long periods of time plays a critical role. The use of exogenous estrogen replacement therapy accounted for a dramatic rise in the incidence of endometrial cancer in the United States in the 1970s. The use of combination estrogen-progesterone oral contraceptive pills confers protection against endometrial hyperplasia and subsequent development of cancer.

Prevention and Early Detection: Other factors associated with an increased risk of developing uterine cancer include obesity, a high-fat diet and a prolonged exposure to the female hormone, estrogen. One pregnancy appears to lower the risk of uterine cancer by 50%.

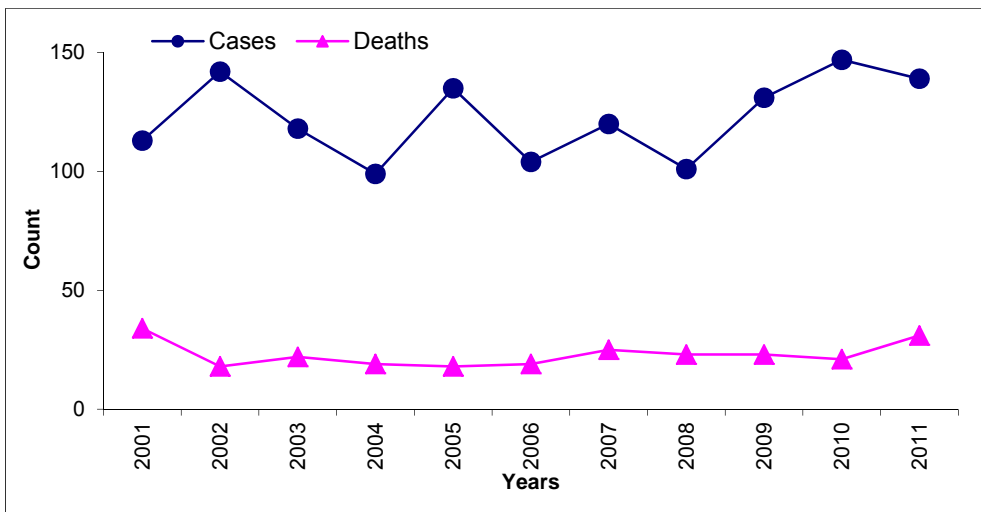
Figure 32: Corpus and Uterus, NOS Cancer Number of Cases and Deaths by Age, South Dakota, 2011



Source: South Dakota Department of Health

In South Dakota, in 2011 the incidence peaked in the 60-64 age group.

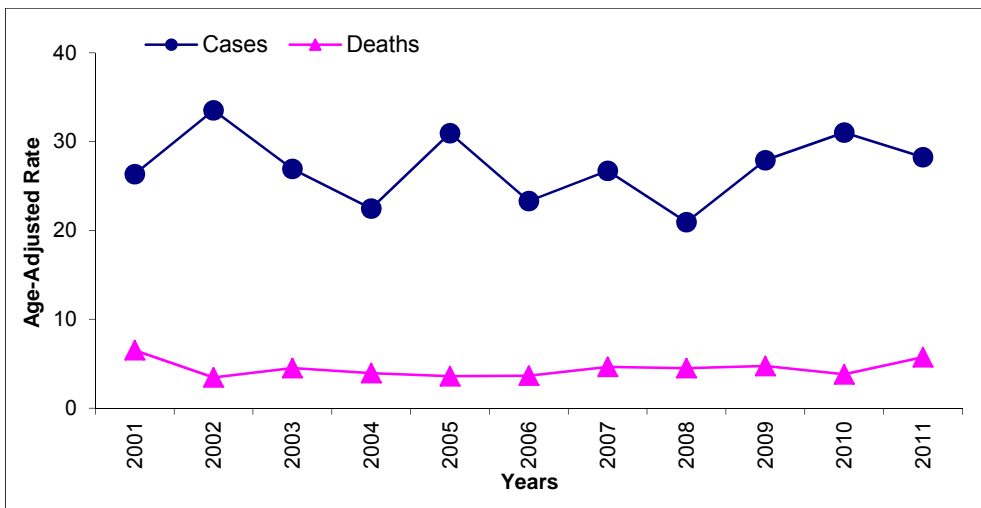
Figure 33: Corpus and Uterus, NOS Cancer Cases and Deaths by Year, South Dakota, 2001 - 2011



The incidence peak for female corpus and uterus, NOS cancer was in 2010.

Source: South Dakota Department of Health

Figure 34: Corpus and Uterus, NOS Cancer Age-Adjusted Rates, Cases, and Deaths by Year, South Dakota, 2001 - 2011



Rates per 100,000 age-adjusted to 2000 US standard population and SD estimated populations.
Source: South Dakota Department of Health

KIDNEY AND RENAL PELVIS

Table 17: Kidney and Renal Pelvis Incidence and Mortality Summary, 2011

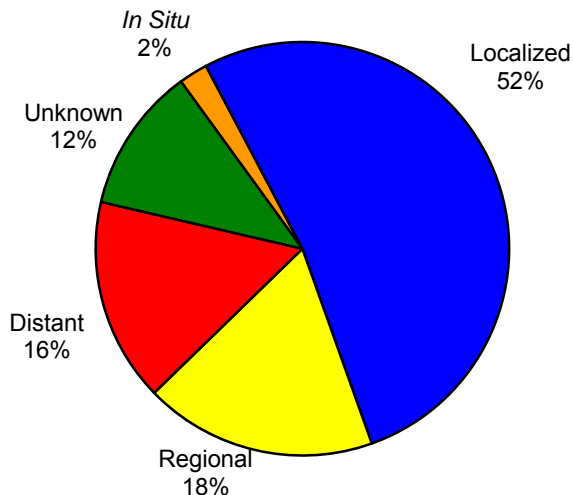
Kidney & Renal Pelvis Cancer			Incidence			Mortality		
			Total	Male	Female	Total	Male	Female
South Dakota	Total	# Cases / Deaths	129	70	59	51	31	20
		Age Adjusted Rate	14.0	16.0	12.3	5.2	7.0	3.7
	White	# Cases / Deaths	119	64	55	50	30	20
		Age Adjusted Rate	13.8	15.6	12.4	5.4	7.1	3.9
	American Indian	# Cases / Deaths	8	6	2	1	1	0
		Age Adjusted Rate	18.0	28.2	8.9	3.1	7.1	0.0
United States	Total	Age Adjusted Rate	15.2	20.7	10.5	* 3.9	* 5.7	* 2.5
	White	Age Adjusted Rate	15.6	21.1	10.9	* 4	* 5.9	* 2.6
	American Indian	Age Adjusted Rate	19.2	27.3	12.7	* 7.5	* 11.2	* 4.4

Rates per 100,000 age-adjusted to 2000 US standard population and 2011 SD estimated population.

* US Mortality rates are from 2010, the 2011 rate is not available at this time. US rates www.seer.cancer.gov

Source: South Dakota Department of Health

Figure 35: Kidney and Renal Pelvis Cancer Stage at Diagnosis, South Dakota, 2011



Source: South Dakota Health Department

Descriptive Epidemiology

Stage at Diagnosis: As with all malignancies, early diagnosis is the key to better prognosis and possible cure. Fifty-two percent of the cases in 2011 were diagnosed at localized stage, with another 16% diagnosed at distant stage. Unfortunately, symptoms do not always reflect the stage of disease. Blood in the urine is one of the symptoms that frequently presents at diagnosis. As with other cancers, renal cancer can spread through the blood stream and/or lymphatic system. Survival rates associated with kidney cancer depend on how far the disease has progressed, the size of tumor, and whether or not it has metastasized. The five-year survival rate for localized stage kidney cancer is 91.8%. The survival rate for distant stage is 12.1%.

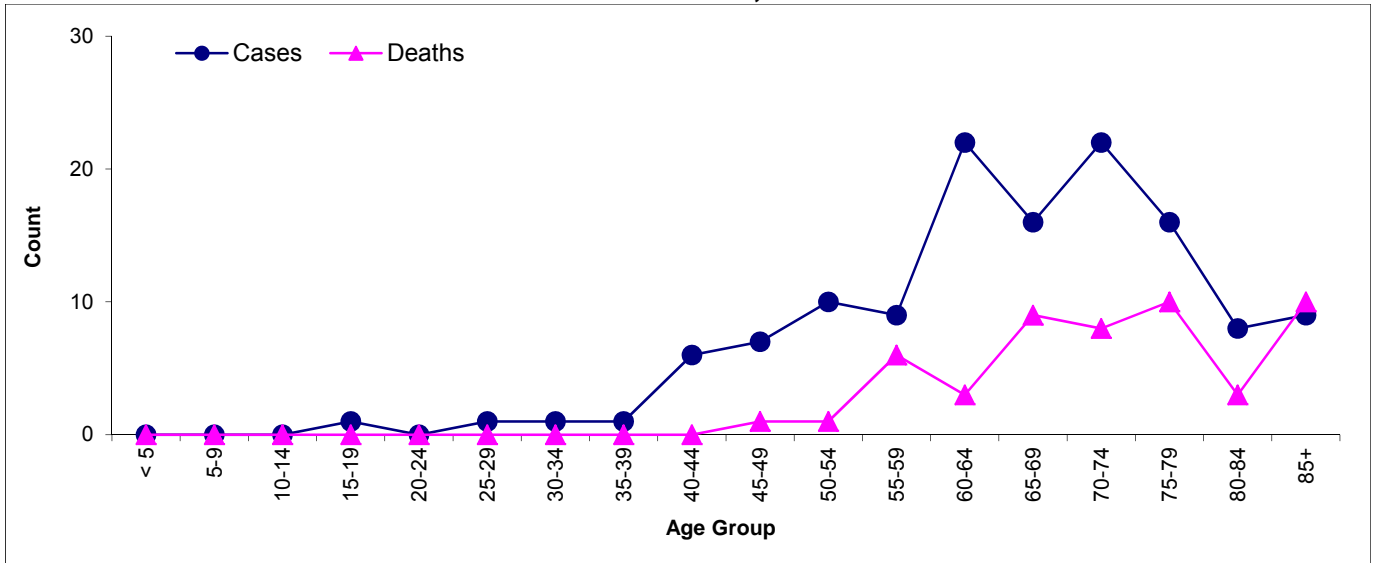
Incidence: In 2011 the American Cancer Society estimated there would be 60,920 new cases of kidney cancer in the United States. This accounts for 3.8% of all reported malignancies in the United States. In South Dakota there were 129 reported cases of kidney cancer in 2011 representing 3% of all cancer cases. Kidney cancer develops most often in people over 40. There is no known cause of this disease. Doctors can seldom explain why one person develops kidney cancer and another does not. The median age at diagnosis is 66 in South Dakota and 64 in the United States.

Mortality: This cancer was the eighth leading cause of cancer death for South Dakota in 2011. In the United States for 2006-2010 it is the thirteenth leading cause of death with a median age of death of 71 years. Death rates have been falling on average 0.6% each year since 2001.

Risk and Associated Factors: Cigarette smoking increases the risk of developing kidney cancer. The risk seems to increase by the amount one smokes. Obesity is associated with risk, as are exposures to occupational substances such as aniline dyes, benzene, and naphthalene.

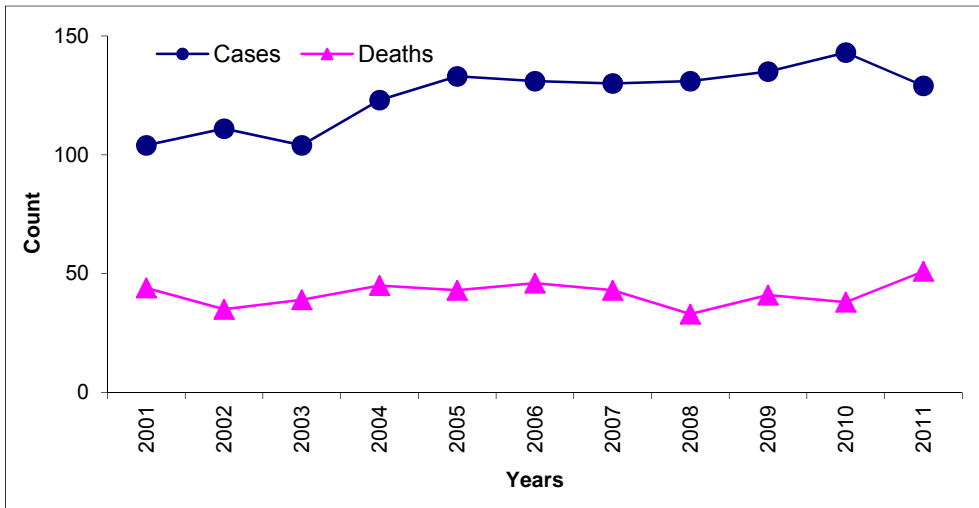
Prevention and Early Detection: The main preventive measure is to stop smoking and maintain a healthy weight. It is difficult to diagnose kidney cancer until it becomes symptomatic. There are no known screenings recommended at this time.

Figure 36: Kidney and Renal Pelvis Cancer Number of Cases and Deaths by Age, South Dakota, 2011



Source: South Dakota Department of Health

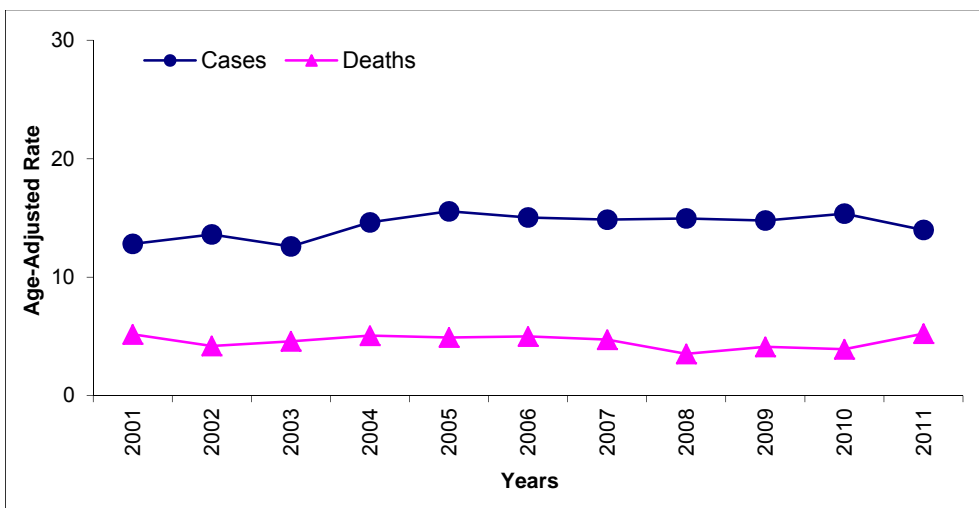
Figure 37: Kidney and Renal Pelvis Cancer Cases and Deaths by Year, South Dakota, 2001 - 2011



Source: South Dakota Department of Health

The incidence peak for kidney and renal pelvis cancer occurred in 2010.

Figure 38: Kidney and Renal Pelvis Cancer Age-Adjusted Rates, Cases, and Deaths by Year, South Dakota, 2001 - 2011



Rates per 100,000 age-adjusted to 2000 US standard population and SD estimated populations.
Source: South Dakota Department of Health

LEUKEMIA

Table 18: Leukemia Incidence and Mortality Summary, 2011

Leukemia			Incidence			Mortality		
			Total	Male	Female	Total	Male	Female
South Dakota	Total	# Cases / Deaths	150	84	66	77	51	26
		Age Adjusted Rate	16.4	19.2	13.8	7.8	11.6	4.6
	White	# Cases / Deaths	140	78	62	75	49	26
		Age Adjusted Rate	16.5	19.3	14.1	8.0	11.9	4.8
	American Indian	# Cases / Deaths	8	5	3	2	2	0
		Age Adjusted Rate	14.4	19.1	9.5	5.6	13.3	0.0
United States	Total	Age Adjusted Rate	13.0	16.5	10.3	* 6.9	* 9.3	* 5.2
	White	Age Adjusted Rate	13.6	17.2	10.7	* 7.2	* 9.6	* 5.4
	American Indian	Age Adjusted Rate	7.1	8.2	6.3	* 5.5	* 8.4	* 3.8

Rates per 100,000 age-adjusted to 2000 US standard population and 2011 SD estimated population.

* US Mortality rates are from 2010, the 2011 rate is not available at this time. US rates www.seer.cancer.gov

Source: South Dakota Department of Health

Descriptive Epidemiology

Stage at Diagnosis: Leukemias are not staged because they may involve bone marrow throughout the body. Doctors classify them by type and subtype in an attempt to determine the prognosis and a recommended level of treatment. Chronic myelogenous leukemia is grouped by phases and chronic lymphocytic leukemia (CLL) uses a Rai classification. Leukemia is a type of cancer of the blood. It is defined by how quickly the disease progresses. Leukemia is either chronic (disease progresses slowly) or acute (progresses quickly).

Incidence: Leukemias are a diverse group of cancers and are subtyped by histology. Subtypes have different etiology, treatment, and prognosis. Leukemias accounted for 3.5% of the cancers reported in 2011 for South Dakota. The American Cancer Society estimated that there would be 140 new cases of leukemia in South Dakota during 2011 and 44,600 cases nationwide.

Mortality: Leukemia accounted for almost 5% of the cancer deaths in South Dakota in 2011. The subtype of acute myeloid leukemia was the most frequent cause of leukemia death. Almost 72% of the deaths associated with leukemia occurred at the age of 65 or older.

Leukemia is clinically and pathologically subdivided into a variety of large groups. The first division is between the acute and chronic forms.

Chronic Leukemia: Early in the disease process, the abnormal blood cells still have normal processes. Slowly, chronic leukemia does get worse. It causes symptoms as the number of abnormal cells in the blood rises. In South Dakota in 2011, there were 79 new cases of chronic leukemia.

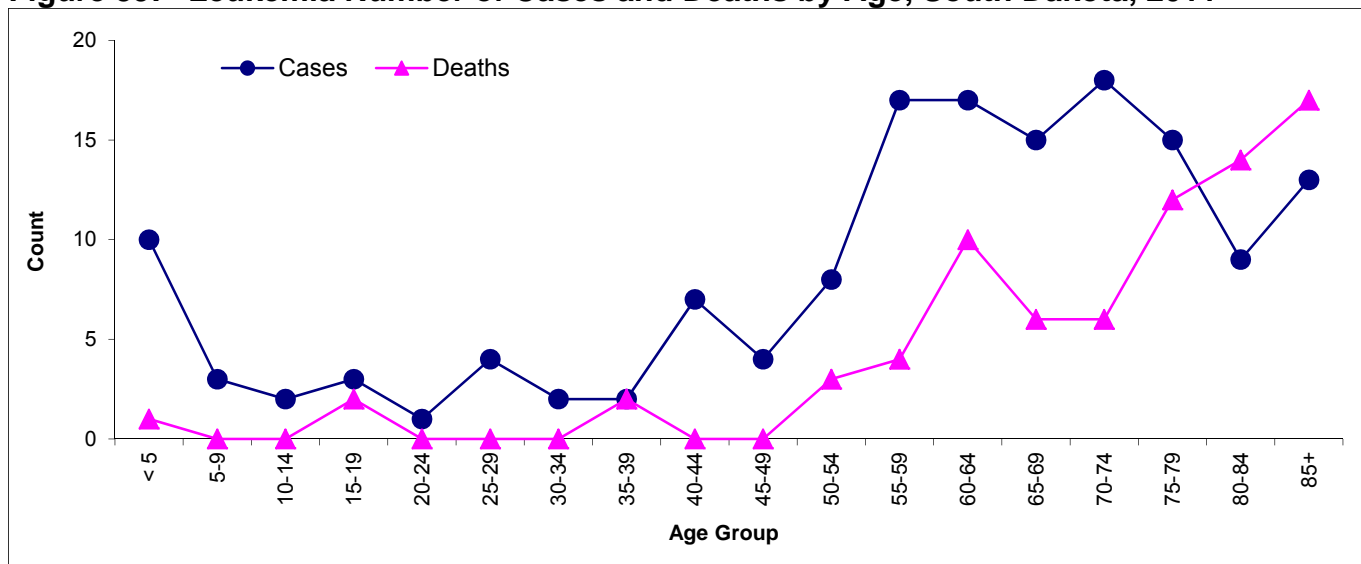
Acute Leukemia: The blood cells are very abnormal. The blood cells cannot carry out their normal processes. The number of abnormal cells increases rapidly. Acute leukemia worsens quickly as do the symptoms. There were 66 new cases of acute leukemia in South Dakota in 2011.

These types of leukemia are further divided by the type of white blood cell that is affected.

Risk and Associated Factors: People who are exposed to very high levels of radiation are more likely to develop leukemia. Working with certain chemicals and exposure to high levels of benzene in the workplace can cause leukemia. Benzene is used widely in the chemical industry. Workers exposed to formaldehyde may also be at greater risk of leukemia. Chromosomal abnormalities, such as Down's syndrome and certain other genetic diseases may increase the risk of leukemia.

Prevention and Early Detection: There are no early detection or prevention strategies. Often symptoms are the same as for many other health problems, thus early detection is difficult. Diagnosis is made using blood tests and bone marrow biopsies.

Figure 39: Leukemia Number of Cases and Deaths by Age, South Dakota, 2011



Source: South Dakota Department of Health

Leukemia is frequently diagnosed in children, but as with all malignancies it is a disease of the elderly. Deaths from leukemia steadily increase after the age of 74.

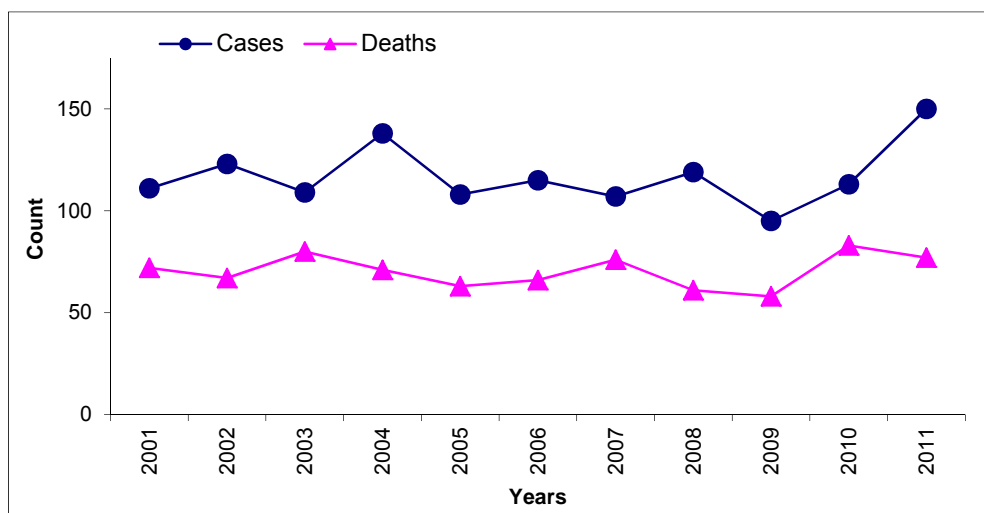


Figure 40: Leukemia Cases and Deaths by Year, South Dakota, 2001 - 2011

The incidence peak for leukemia occurred in 2011.

Source: South Dakota Department of Health

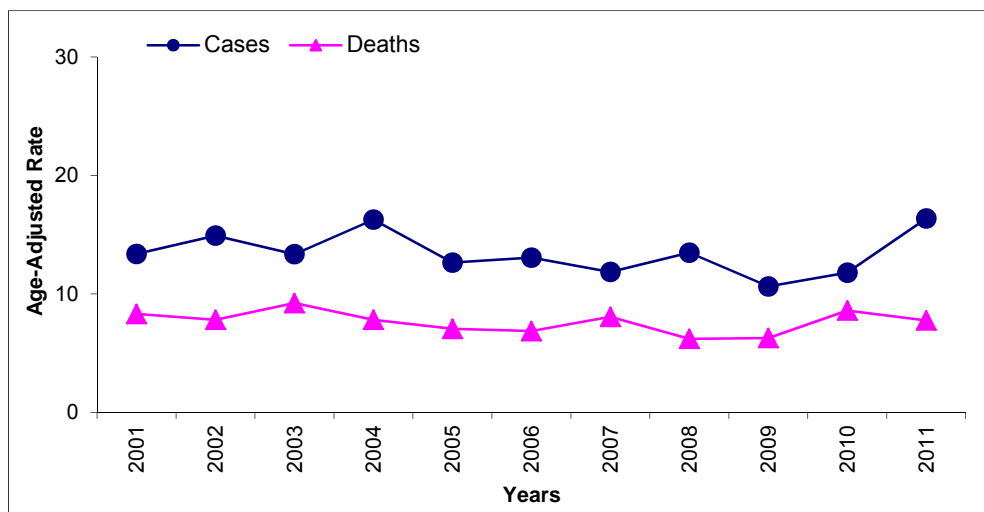


Figure 41: Leukemia Age-Adjusted Rates, Cases, and Deaths by Year, South Dakota, 2001 - 2011

Rates per 100,000 age-adjusted to 2000 US standard population and SD estimated populations.
Source: South Dakota Department of Health

LUNG AND BRONCHUS

Table 19: Lung and Bronchus Incidence and Mortality Summary, 2011

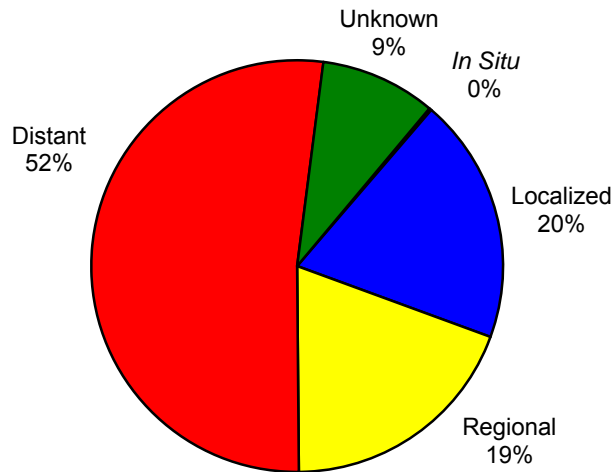
Lung & Bronchus Cancer			Incidence			Mortality		
			Total	Male	Female	Total	Male	Female
South Dakota	Total	# Cases / Deaths	528	266	262	457	233	224
		Age Adjusted Rate	55.1	60.8	51.6	47.0	53.4	42.5
	White	# Cases / Deaths	488	246	242	427	217	210
		Age Adjusted Rate	53.7	58.9	50.7	46.1	52.1	42.1
	American Indian	# Cases / Deaths	37	18	19	27	16	11
		Age Adjusted Rate	114.6	135.1	102.6	83.6	112.8	63.0
United States	Total	Age Adjusted Rate	55.9	66.2	48.2	* 47.4	* 60.1	* 37.9
	White	Age Adjusted Rate	57.5	66.4	50.8	* 48.1	* 59.9	* 39.2
	American Indian	Age Adjusted Rate	37.3	40.4	34.9	* 38.9	* 48.7	* 31.0

Rates per 100,000 age-adjusted to 2000 US standard population and 2011 SD estimated population.

* US Mortality rates are from 2010, the 2011 rate is not available at this time. US rates www.seer.cancer.gov

Source: South Dakota Department of Health

Figure 42: Lung and Bronchus Cancer Stage at Diagnosis, South Dakota, 2011



Source: South Dakota Department of Health

Descriptive Epidemiology

Stage at Diagnosis: The presentation of lung cancer is extremely variable and depends on local manifestations of the tumor, distant metastases or associated paraneoplastic syndromes. In 2011, 20% of lung cancer patients were diagnosed at localized stage. The more advanced the stage, the poorer the prognosis is for the patient. In 2011, 378 (52%) cases were diagnosed when disease had progressed beyond the lung and metastasized to a distant location. Approximately 73% of cases in 2011 were diagnosed after the disease had progressed beyond the lung to lymph nodes, regional areas, or distant sites, such as brain or bone.

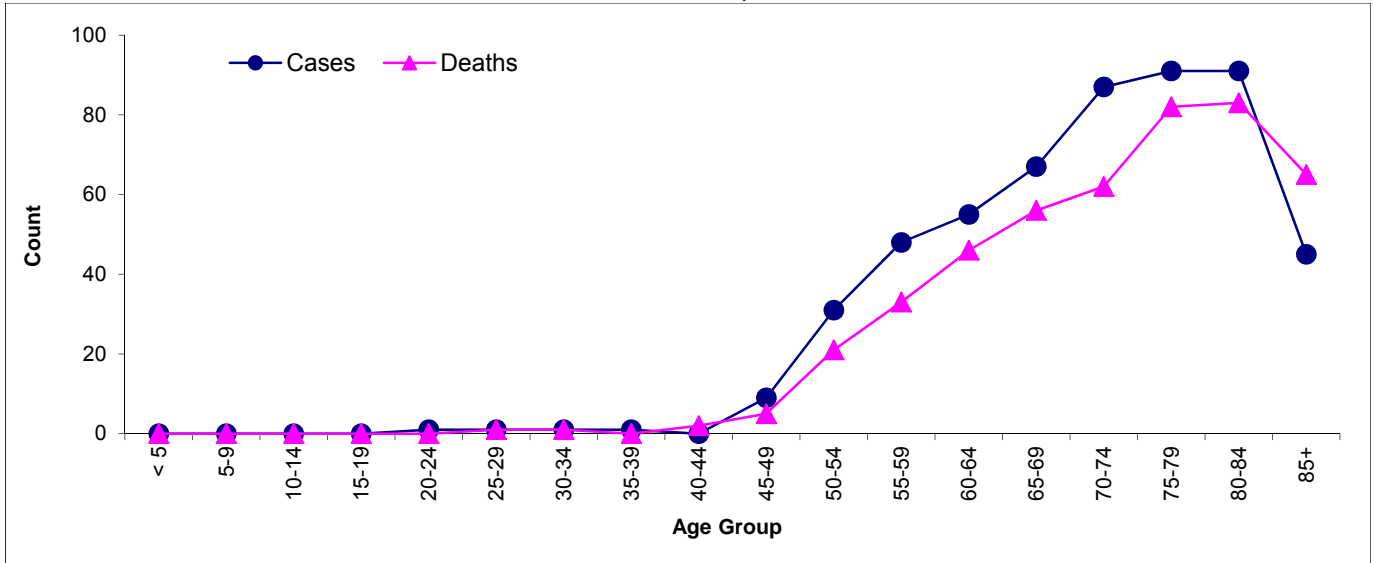
Incidence: Lung cancer is a major public health concern, with an estimated 221,130 new cases in the United States in 2011. Despite the well documented link between tobacco product use and respiratory diseases, including cancer, the outcomes of such efforts to curb the use of tobacco products have been mixed. In South Dakota, there were 528 new invasive lung cancer cases diagnosed in 2011.

Mortality: There were 457 lung cancer deaths in South Dakota in 2011. Incidence and mortality rates have significantly increased during the last century. Lung cancer accounts for approximately 27.5% of all United States deaths attributed to cancer. In South Dakota, lung cancer accounts for 27.6% of deaths from cancer. Lung cancer is the leading cause of cancer deaths in both men and women.

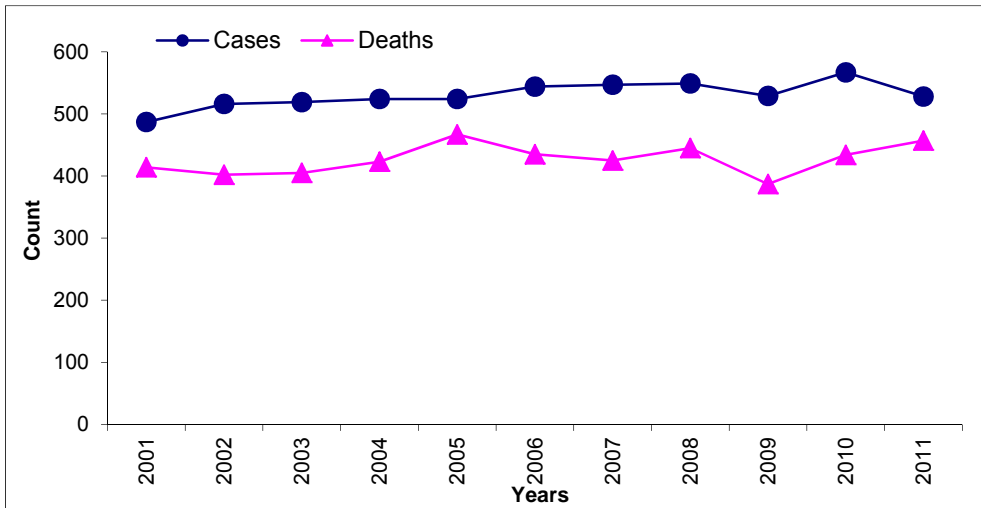
Risk and Associated Factors: Cigarette smoking is by far the most important risk factor for lung cancer. Approximately 90% of lung cancers in men and 80% in women are attributed to cigarette smoking. The lifetime risk of lung cancer in nonsmokers is estimated to be less than 1%. Other risk factors include second hand smoke, and occupational or environmental exposures to substances such as arsenic, benzene, and asbestos.

Prevention and Early Detection: Efforts at early detection by screening have not been effective in reducing mortality rates significantly. Chest x-ray, analysis of cells in sputum and bronchial fiber optic examination are methods used in early diagnosis and detection. The best prevention of lung cancer is to stop smoking or never smoke.

Figure 43: Lung and Bronchus Cancer Number of Cases and Deaths by Age, South Dakota, 2011



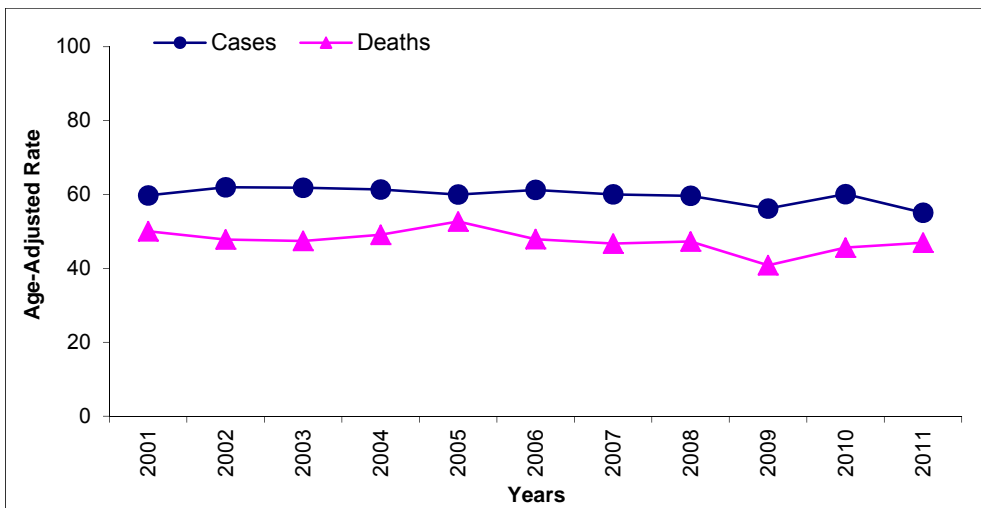
Source: South Dakota Department of Health



Source: South Dakota Department of Health

Figure 44: Lung and Bronchus Cancer Cases and Deaths by Year, South Dakota, 2001 - 2011

The number of cases and deaths associated with lung and bronchus cancer remain constant.



Rates per 100,000 age-adjusted to 2000 US standard population and SD estimated populations.
Source: South Dakota Department of Health

Figure 45: Lung and Bronchus Cancer Age-Adjusted Rates, Cases, and Deaths by Year, South Dakota, 2001 - 2011

MELANOMA OF THE SKIN

Table 20: Melanoma of the Skin Incidence and Mortality Summary, 2011

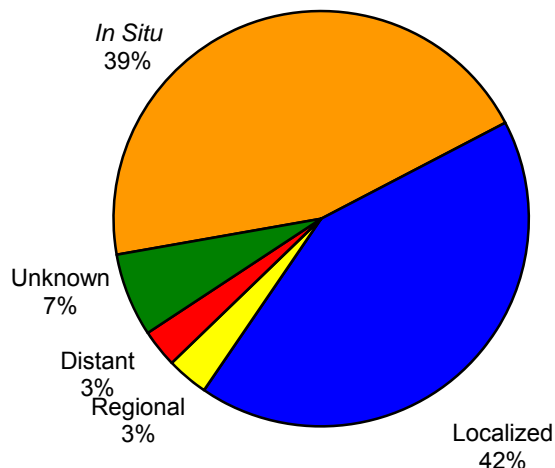
Melanoma of the Skin			Incidence			Mortality		
			Total	Male	Female	Total	Male	Female
South Dakota	Total	# Cases / Deaths	186	95	91	25	13	12
		Age Adjusted Rate	20.1	21.8	19.6	2.7	2.9	2.4
	White	# Cases / Deaths	185	95	90	25	13	12
		Age Adjusted Rate	21.7	23.2	21.4	2.9	3.1	2.6
	American Indian	# Cases / Deaths	1	0	1	0	0	0
		Age Adjusted Rate	1.5	0.0	2.9	0.0	0.0	0.0
United States	Total	Age Adjusted Rate	21.1	27.7	16.2	* 2.7	* 4.1	* 1.7
	White	Age Adjusted Rate	24.8	32.1	19.3	* 3.2	* 4.7	* 2.0
	American Indian	Age Adjusted Rate	3.9	3.2	4.7	* 1.0	*	*

Rates per 100,000 age-adjusted to 2000 US standard population and 2011 SD estimated population.

* US Mortality rates are from 2010, the 2011 rate is not available at this time. US rates www.seer.cancer.gov

Source: South Dakota Department of Health

Figure 46: Melanoma of the Skin Stage at Diagnosis, South Dakota, 2011



Source: South Dakota Department of Health

Descriptive Epidemiology

Stage at Diagnosis: Melanoma is staged by the depth of invasion and the extension of the lesion. In 2011, there were 186 cases of melanoma of the skin reported for South Dakota. Of this number, 143 were staged as localized disease. The survival rate for localized melanoma is 98.1%. For distant disease, the survival rate is 16.1% at 5 years.

Incidence: In the United States in 2011, the American Cancer Society estimated that there would be 70,230 new cases of melanoma of the skin. There are three forms of skin cancer: basal cell, squamous cell, and melanoma. Melanoma is by far the most dangerous form of skin cancer. Melanoma is primarily a cancer of the white

populations. In South Dakota, the incidence rate is 20.1 and the United States has an incidence rate of 21.1.

Mortality: There were 25 deaths attributed to melanoma of the skin in South Dakota in 2011 with a mortality rate of 2.7. The last reported mortality rate for the United States (2010) was 2.7. The median age for death in South Dakota for this cancer was 67 in 2011. Nationwide, the median age at death was 69 for melanoma of the skin.

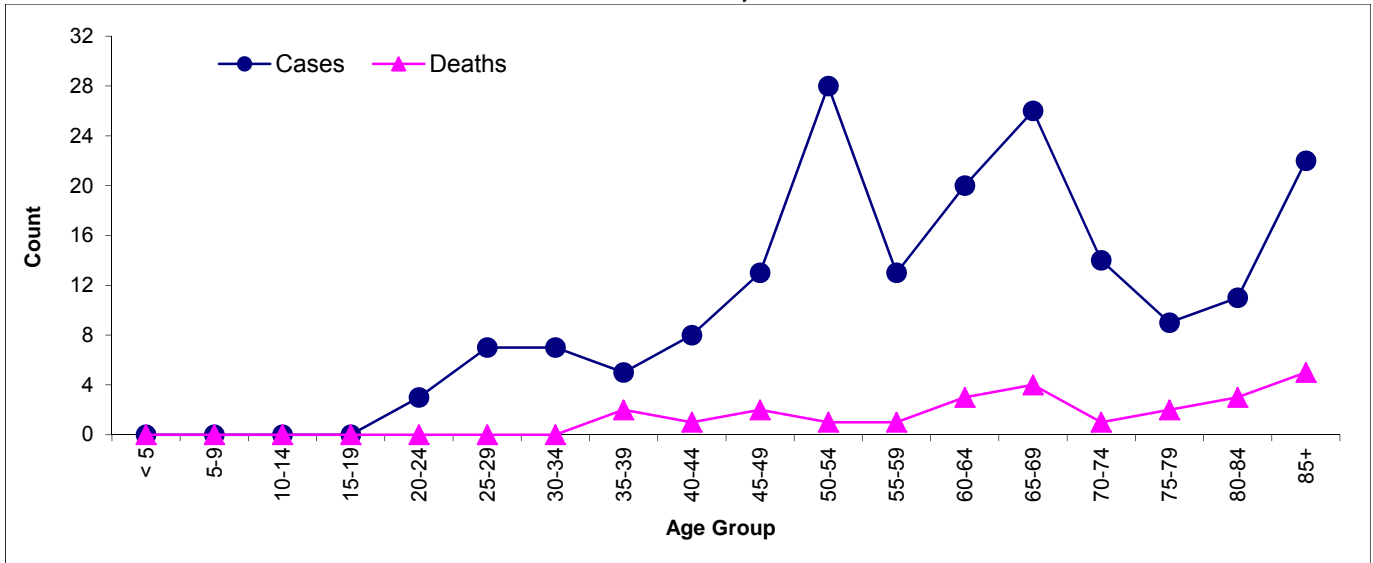
Risk and Associated Factors: Certain factors are more likely to contribute to a higher risk. These are:

- Lighter natural skin color
- Family history of skin cancer
- Personal history of skin cancer
- Exposure to the sun
- History of sunburns early in life
- Skin that burns, freckles, reddens easily
- Blue or green eyes, blond or red hair
- Large number of moles

Early Detection and Prevention: The best way to prevent skin cancer is to protect the skin from the sun. The CDC recommends five easy options for protection from sunburn:

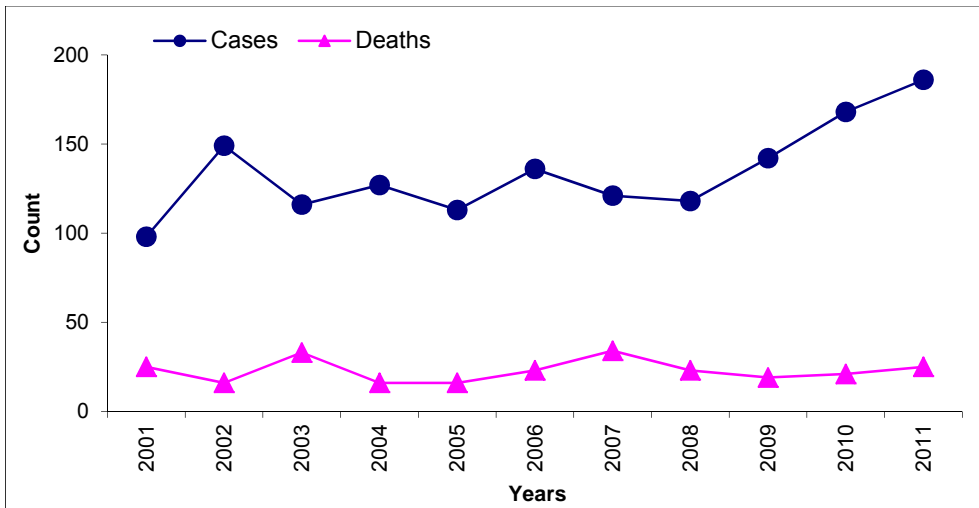
- use sun glasses
- use sunscreen regularly
- stay in the shade
- cover skin
- wear a hat

Figure 47: Melanoma of the Skin Number of Cases and Deaths by Age, South Dakota, 2011



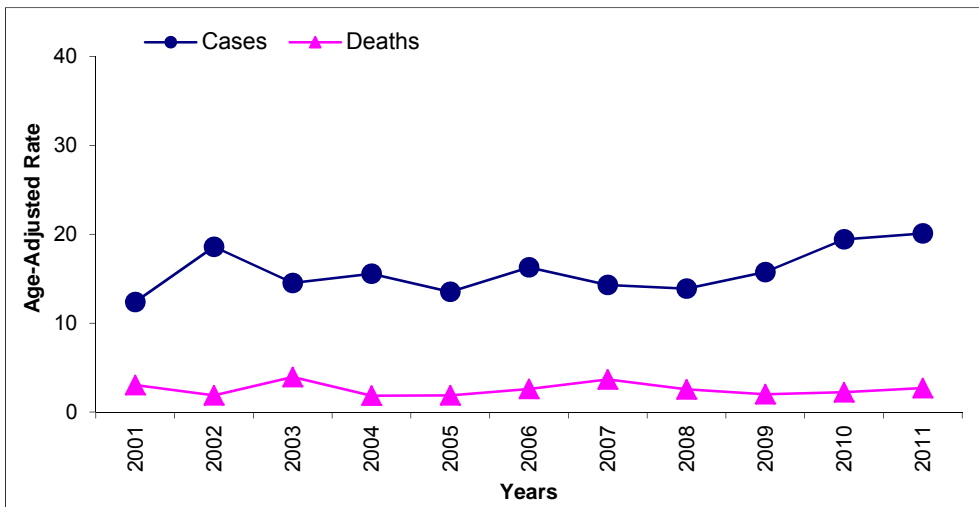
Source: South Dakota Department of Health

Figure 48: Melanoma of the Skin Cases and Deaths by Year, South Dakota, 2001 - 2011



Source: South Dakota Department of Health

Figure 49: Melanoma of the Skin Age-Adjusted Rates, Cases, and Deaths by Year, South Dakota, 2001 - 2011



Rates per 100,000 age-adjusted to 2000 US standard population and SD estimated populations.
Source: South Dakota Department of Health

MYELOMA §

Table 21: Myeloma Incidence and Mortality Summary, 2011

Myeloma §			Incidence			Mortality		
			Total	Male	Female	Total	Male	Female
South Dakota	Total	# Cases / Deaths	70	43	27	39	17	22
		Age Adjusted Rate	7.2	10.0	4.9	3.7	3.9	3.6
	White	# Cases / Deaths	69	42	27	39	17	22
		Age Adjusted Rate	7.5	10.2	5.1	3.8	4.1	3.7
	American Indian	# Cases / Deaths	1	1	0	0	0	0
		Age Adjusted Rate	3.1	7.1	0.0	0.0	0.0	0.0
United States	Total	Age Adjusted Rate	6.2	7.7	5.0	* 3.3	* 4.2	* 2.7
	White	Age Adjusted Rate	5.6	7.2	4.3	* 3.1	* 3.9	* 2.4
	American Indian	Age Adjusted Rate	4.2	5.9	3.0	* 2.6	* 3.4	* 2.0

Rates per 100,000 age-adjusted to 2000 US standard population and 2011 SD estimated population.

§ can include NOS, multiple, plasma cell and solitary. * US Mortality rates are from 2010, the 2011 rate is not available at this time. US rates www.seer.cancer.gov Source: South Dakota Department of Health

Descriptive Epidemiology

Stage at Diagnosis: Stage of disease for myeloma is always distant per the SEER Summary Staging Manual.

Incidence: Myeloma is a systemic malignancy of plasma cells that is highly treatable, but rarely curable. It is potentially curable when it presents as a solitary plasmacytoma of the bone or as an extramedullary plasmacytoma. In South Dakota during 2011, myeloma accounted for 1.6% of total cancer cases reported. Median age at diagnosis in South Dakota was 74 and the United States was 69. The national incidence rate is higher in men (7.7) than women (4.9). In South Dakota the incidence rate is also higher in men (10.0) than women (4.9). Myeloma is more common among the elderly. African Americans have approximately twice the incidence and mortality rates of whites.

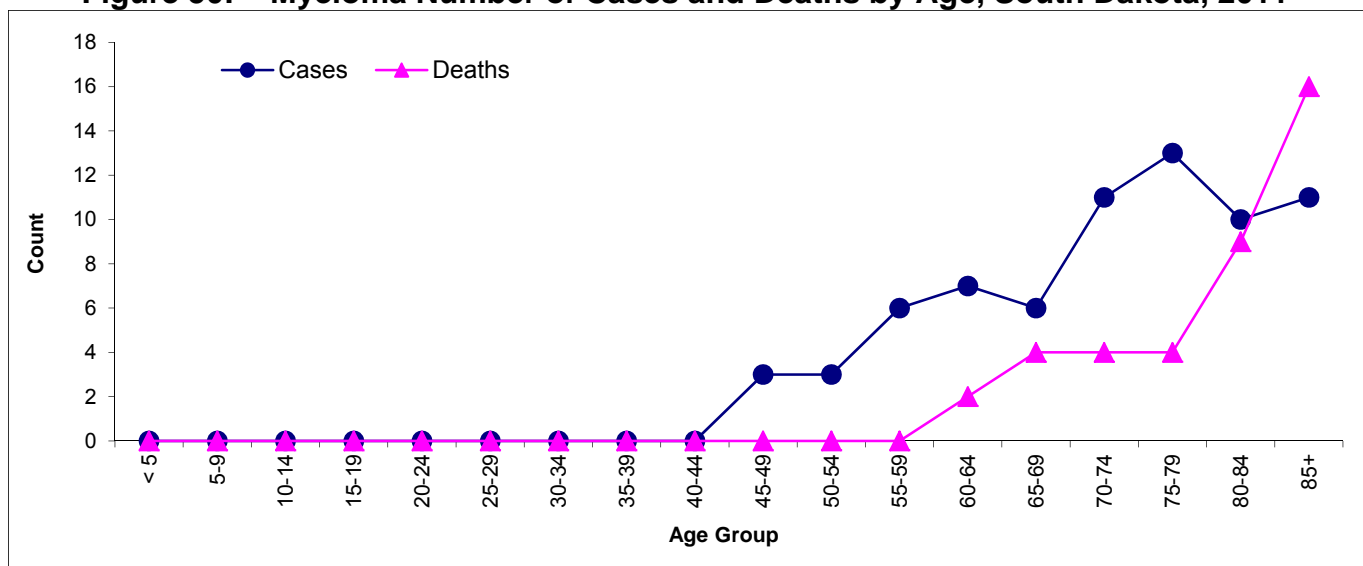
Mortality: The median survival prior to the common use of chemotherapy was about seven months. After the introduction of chemotherapy, prognosis improved significantly with a median survival of 24 to 30 months and a 10-year survival of 3%. During 2011, there were 39 deaths attributed to myeloma in South Dakota. Seventeen were male and 22 were female. The mortality rate for South Dakota is 3.7. For men the rate is 3.9 and for women it is 3.6. These

rates compare to United States mortality rates in 2010 of 3.4 overall, 4.3 for men and 2.7 for women.

Risk and Associated Factors: The etiology of myeloma is relatively unknown. There are many research studies evaluating the exposure of individuals with myeloma to various substances.

Early Detection and Prevention: There is no known test for screening for early detection. Some cases of myeloma progress very slowly, and they are referred to as smoldering or indolent myeloma. The presence of plasma cells and proteinuria do not automatically lead to myeloma, but it can be an early symptom. This disease is often asymptomatic in early stages of the disease. Myeloma is most often diagnosed clinically by radiological procedures and through cytology.

Figure 50: Myeloma Number of Cases and Deaths by Age, South Dakota, 2011



Source: South Dakota Department of Health

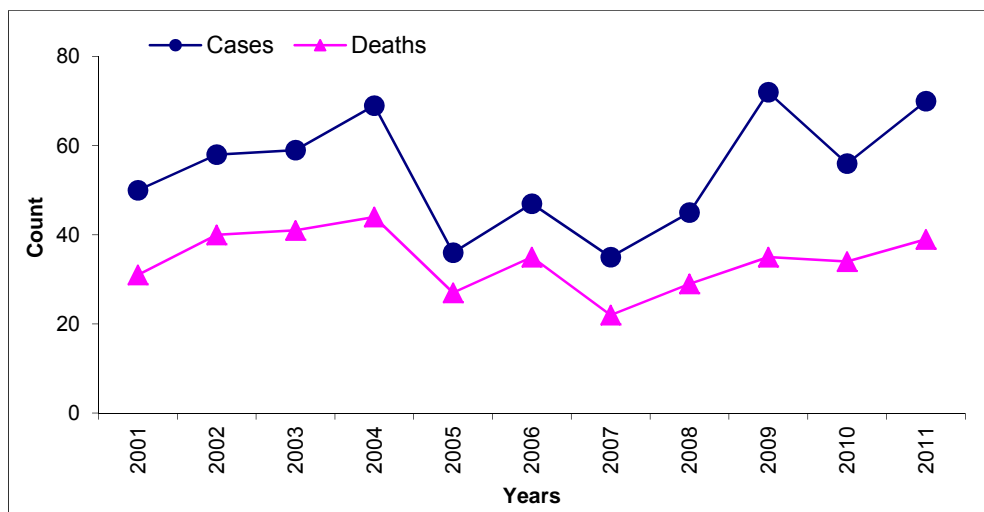


Figure 51: Myeloma Cancer Cases and Deaths by Year, South Dakota, 2001 - 2011

The incidence count for myeloma cancers took a sharp drop from 2004 to 2005.

Source: South Dakota Department of Health

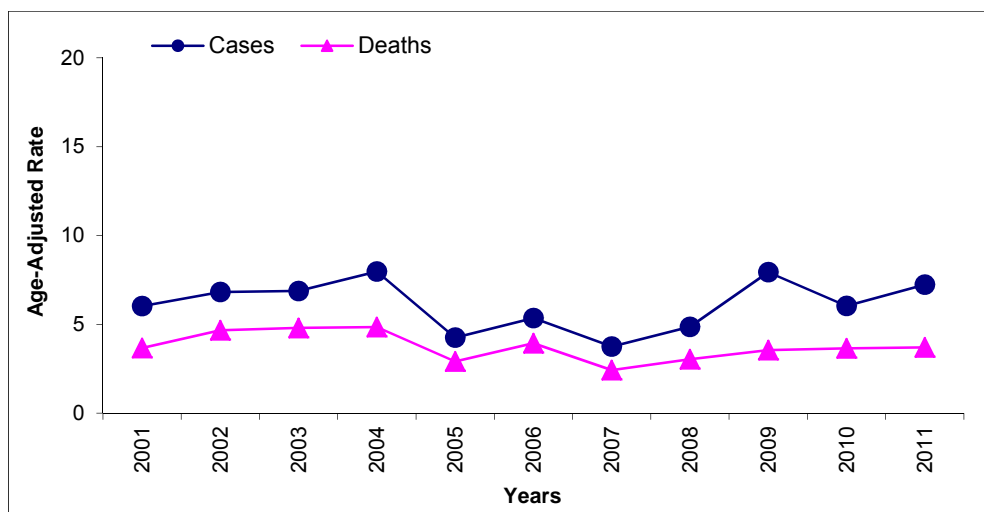


Figure 52: Myeloma Cancer Age-Adjusted Rates, Cases, and Deaths by Year, South Dakota, 2001 - 2011

Rates per 100,000 age-adjusted to 2000 US standard population and SD estimated populations.
Source: South Dakota Department of Health

NON-HODGKIN'S LYMPHOMA

Table 22: Non-Hodgkin's Lymphoma Incidence and Mortality Summary, 2011

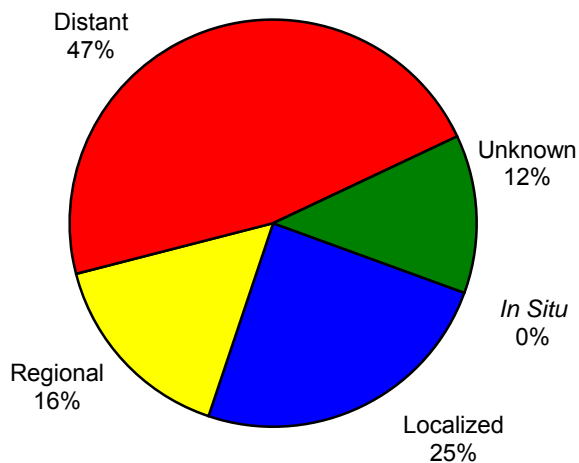
Non-Hodgkin's Lymphoma			Incidence			Mortality		
			Total	Male	Female	Total	Male	Female
South Dakota	Total	# Cases / Deaths	183	100	83	62	41	21
		Age Adjusted Rate	19.3	23.0	16.7	6.0	9.3	3.3
	White	# Cases / Deaths	174	93	81	59	39	20
		Age Adjusted Rate	19.6	22.7	17.6	6.0	9.4	3.2
	American Indian	# Cases / Deaths	5	3	2	2	2	0
		Age Adjusted Rate	12.9	18.0	8.7	6.3	14.5	0.0
United States	Total	Age Adjusted Rate	19.0	23.0	15.8	* 6.1	* 7.8	* 4.9
	White	Age Adjusted Rate	19.8	23.9	16.5	* 6.4	* 8.1	* 5.0
	American Indian	Age Adjusted Rate	12.7	12.9	12.3	* 4.4	* 5.7	* 3.3

Rates per 100,000 age-adjusted to 2000 US standard population and 2011 SD estimated population.

* US Mortality rates are from 2010, the 2011 rate is not available at this time. US rates www.seer.cancer.gov

Source: South Dakota Department of Health

Figure 53: Non-Hodgkin's Lymphoma Stage at Diagnosis, South Dakota, 2011



Source: South Dakota Department of Health

Descriptive Epidemiology

Stage at Diagnosis: Stage is based on where lymphoma cells are found (in the lymph or in other organs or tissues). The stage also depends on how many areas are involved. Localized stage only involves a single lymph node region or single extralymphatic organ. When two or more lymph node regions are involved and the regions are on both sides of the diaphragm the cancer will be staged as distant. In 2011, 47% of the cases were diagnosed at distant stage, a decrease from 2010 when 50% were diagnosed at distant stage.

Incidence: Non-Hodgkin's lymphoma is a cancer that originates in the lymphatic system, the disease-fighting network that spreads throughout the body. It develops in lymphocytes, a type of white blood cell. Non-Hodgkin's lymphoma is more than five times as common as the other general type of lymphoma,

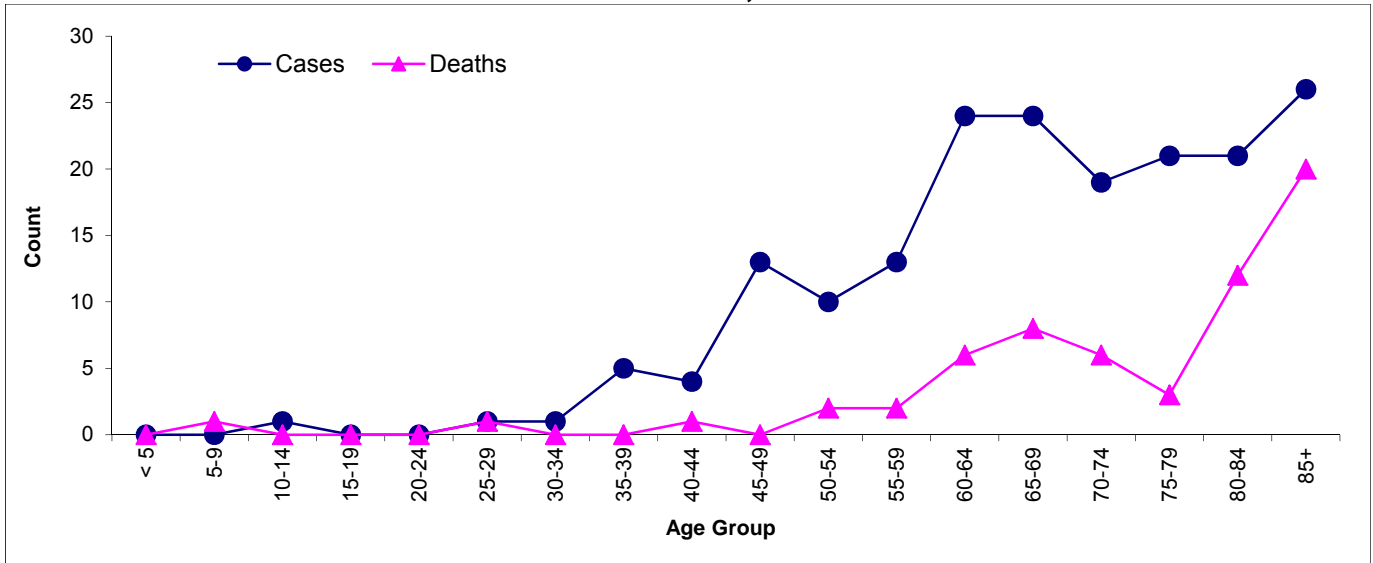
Hodgkin's disease. The incidence rate has been increasing in the United States since the 1970s. The incidence of non-Hodgkin's disease in South Dakota was 183 cases in 2011. The median age at diagnosis in South Dakota in 2011 was 68.

Mortality: There were 62 deaths reported in South Dakota that were attributed to non-Hodgkin's lymphoma. The median age at death for those whose death was attributed to non-Hodgkin's lymphoma in South Dakota was 81 years of age. Nationally, the five-year survival rate is 69.3% for non-Hodgkin's lymphoma.

Risk and Associated Factors: Getting older is a strong risk factor for this disease, with most cases occurring from age 60 and older. Some studies suggest that exposure to chemicals such as benzene and certain herbicides and insecticides may be linked to an increased risk. Some chemotherapy used to treat other cancers can increase the risk as well as patients having been treated with radiation. The risk is higher for those having been treated with both. Certain infections increase the risk, such as HIV, Epstein - Barr virus, H. pylori bacteria, and Hepatitis C virus.

Early Detection and Prevention: Non-Hodgkin's lymphoma may present with various symptoms. Symptoms may include signs resulting from local effects of cancer growth. Non-Hodgkin's lymphoma can also produce generalized symptoms, such as unexplained weight loss, fever, drenching night sweats, and severe itching.

Figure 54: Non-Hodgkin's Lymphoma Number of Cases and Death by Age, South Dakota, 2011



Source: South Dakota Health Department

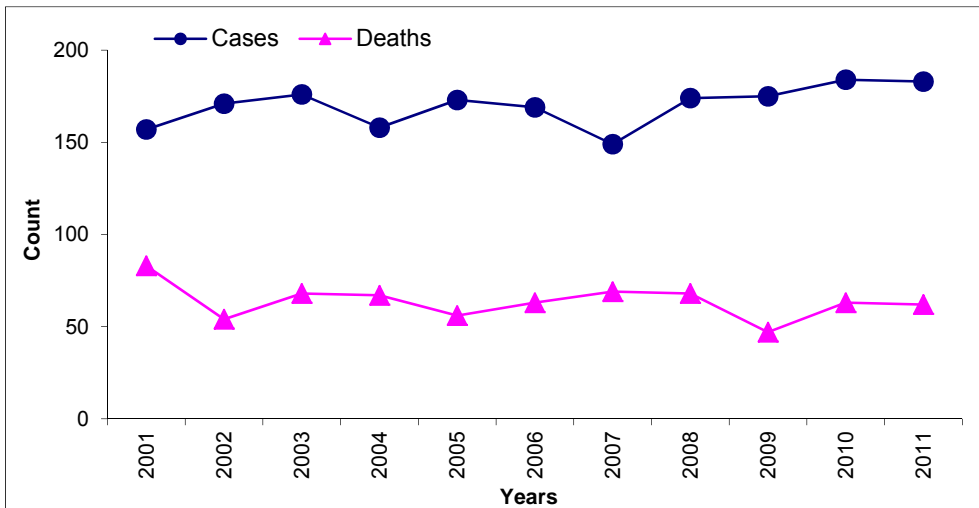


Figure 55: Non-Hodgkin's Lymphoma Cases and Deaths by Year, South Dakota, 2001 - 2011

Source: South Dakota Health Department

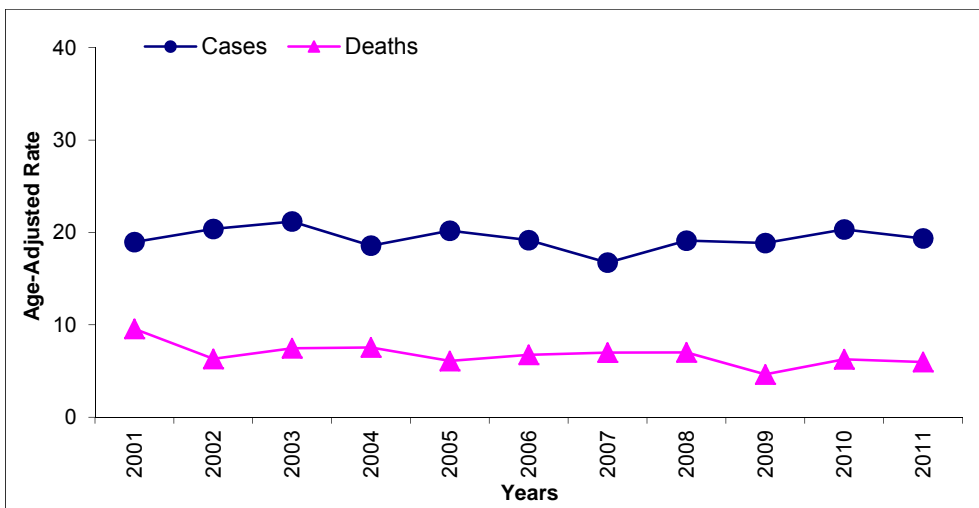


Figure 56: Non-Hodgkin's Lymphoma Age-Adjusted Rates, Cases, and Deaths by Year, South Dakota, 2001 - 2011

Rates per 100,000 age-adjusted to 2000 US standard population and SD estimated populations.
Source: South Dakota Department of Health

Table 23: Ovarian Incidence and Mortality Summary, 2011

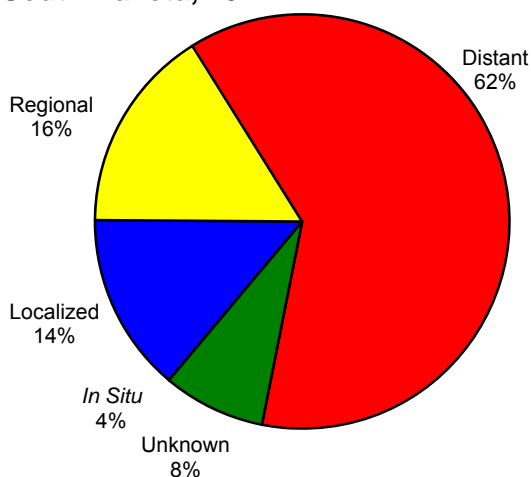
Ovarian Cancer			Incidence	Mortality
South Dakota	Total	# Cases / Deaths	50	40
		Age Adjusted Rate	9.9	7.0
	White	# Cases / Deaths	49	40
		Age Adjusted Rate	10.3	7.3
	American Indian	# Cases / Deaths	1	0
		Age Adjusted Rate	4.0	0.0
United States	Total	Age Adjusted Rate	11.5	* 7.8
	White	Age Adjusted Rate	12.1	* 8.1
	American Indian	Age Adjusted Rate	8.3	* 7.1

Rates per 100,000 age-adjusted to 2000 US standard population and 2011 SD estimated population.

* US Mortality rates are from 2010, the 2011 rate is not available at this time.

US rates www.seer.cancer.gov Source: South Dakota Department of Health

Figure 57: Ovarian Cancer Stage at Diagnosis, South Dakota, 2011



Source: South Dakota Department of Health

Descriptive Epidemiology

Stage at Diagnosis: Staging of ovarian cancer is done by a surgical procedure to remove as much of the cancer as possible. Surgical staging is of critical importance in management of this disease. The morbidity associated with ovarian carcinoma is partially attributable to the fact that in the United States two-thirds of the patients present with advanced-stage disease at the time of diagnosis. In 2011, in South Dakota 31 (60%) of the 50 cases were diagnosed at distant stage.

Incidence: The incidence of ovarian cancer varies greatly. There were 50 cases of ovarian cancer reported in 2011 in South Dakota. This accounted for 2.3% of the cancer cases diagnosed in 2011 for South Dakota women. The lifetime risk of a woman developing ovarian cancer is 1.4%. Eight cases were diagnosed at

younger than 49 years of age. There were 13 cases diagnosed in the 60-69 age group. The median age at diagnosis in South Dakota was 64.5; nationally it was 63.

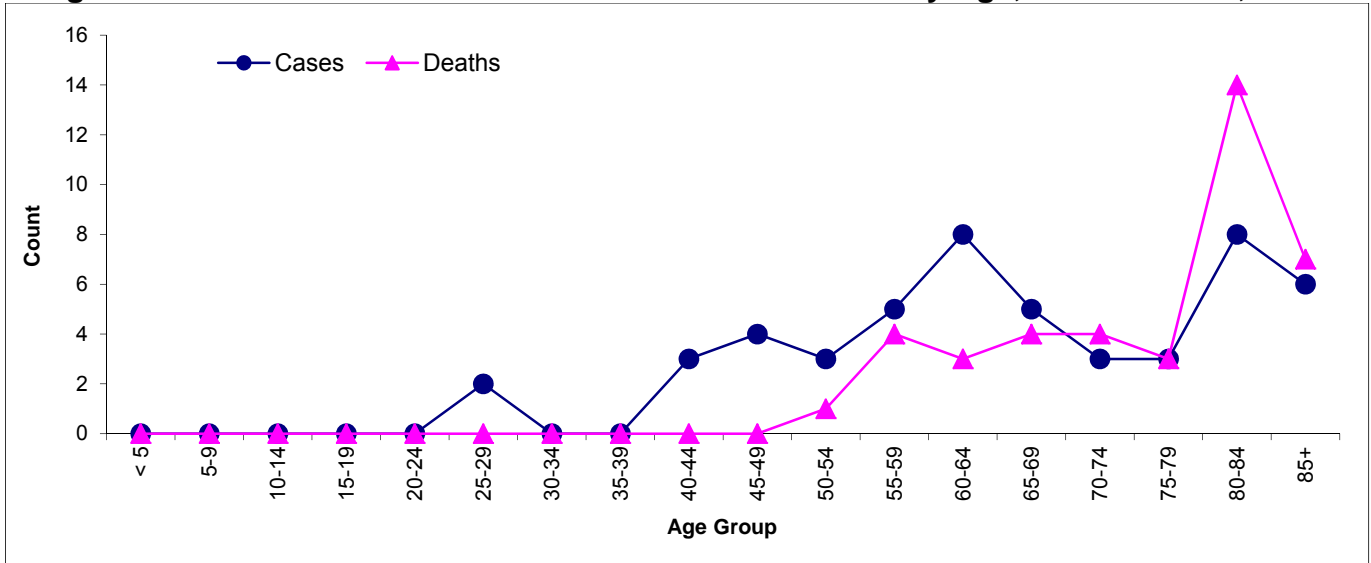
Mortality: Doctors are using dramatic new therapies to fight ovarian cancer, extending the lives of women who five or 10 years ago would have died from the disease. Survival rates for the last several decades are only about 25% for those with advanced disease. Most ovarian cancer presents at advanced disease. Only 27.4% of those diagnosed at late stage survive five years. For those who are diagnosed early, before the disease spreads beyond the ovaries, the disease is 92.3% curable. In South Dakota, 40 patients died in 2011. The mortality rate was 7.0 for women in South Dakota.

Risk and Associated Factors: Women who have a higher risk for developing ovarian cancer are those with a family history of the disease, those who have used fertility drugs, those who had their first baby after age 30 and those over the age of 65.

Prevention and Early Detection: Factors that may reduce the risk of ovarian cancer are pregnancy lasting full term, use of oral contraceptives, breastfeeding, tubal ligation, hysterectomy, or removal of ovaries in women with inherited risks.

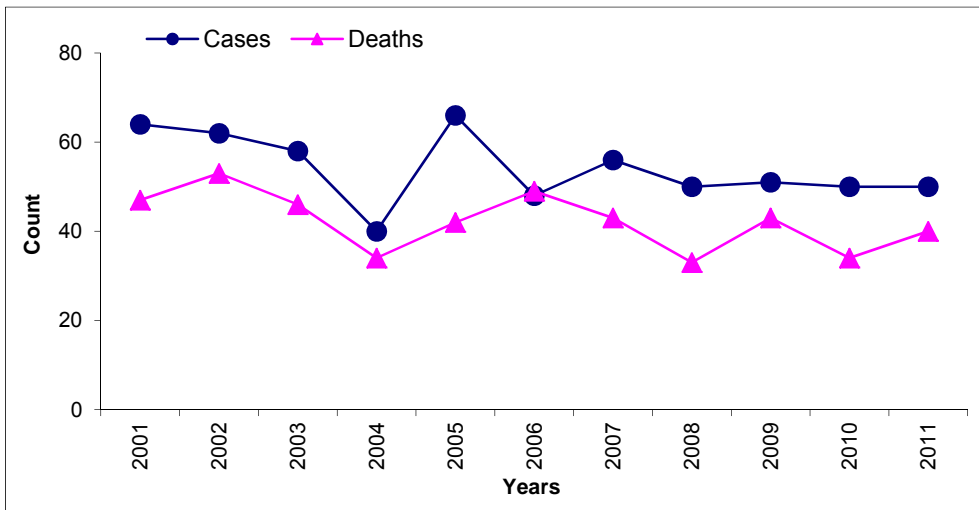
No early stage screening tests have been proven for ovarian cancer and it can be difficult to detect until it has advanced. A combination of imaging and lab tests are the most useful diagnostic tools.

Figure 58: Ovarian Cancer Number of Cases and Deaths by Age, South Dakota, 2011



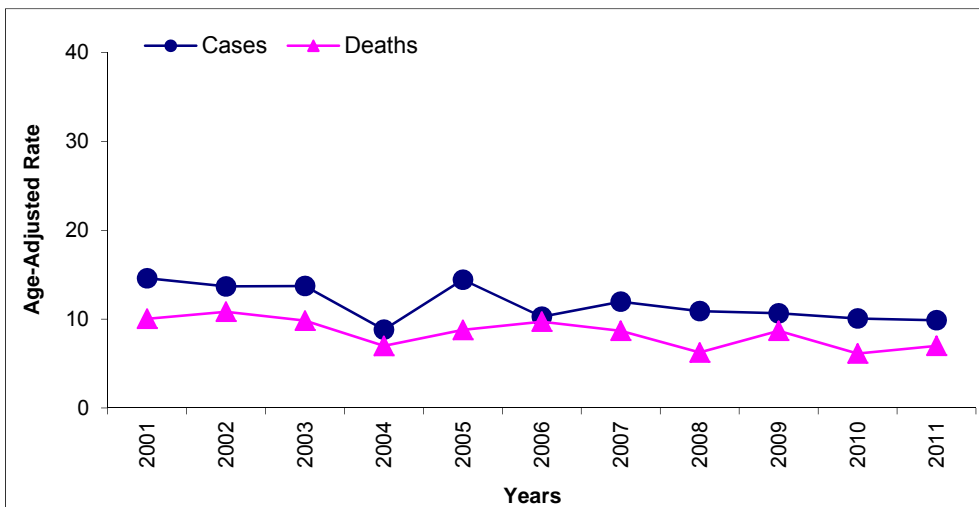
Source: South Dakota Department of Health

Figure 59: Ovarian Cancer Cases and Deaths by Year, South Dakota, 2001 - 2011



Source: South Dakota Department of Health

Figure 60: Ovarian Cancer Age-Adjusted Rates, Cases, and Deaths by Year, South Dakota, 2001 - 2011



Rates per 100,000 age-adjusted to 2000 US standard population and SD estimated populations.
Source: South Dakota Department of Health

PANCREAS

Table 24: Pancreas Incidence and Mortality Summary, 2011

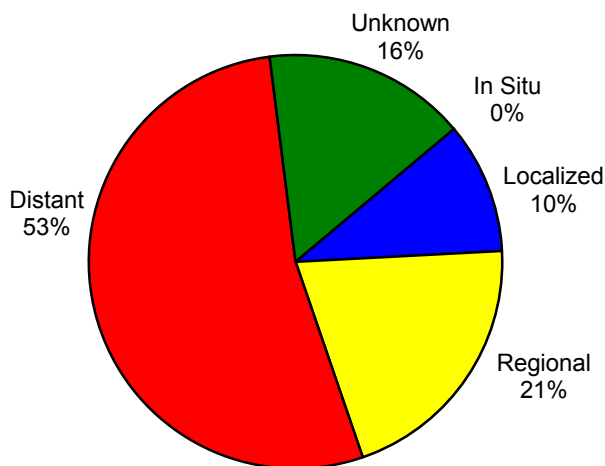
Pancreas Cancer			Incidence			Mortality		
			Total	Male	Female	Total	Male	Female
South Dakota	Total	# Cases / Deaths	107	46	61	95	40	55
		Age Adjusted Rate	10.9	10.1	11.3	9.4	8.7	9.8
	White	# Cases / Deaths	104	45	59	88	39	49
		Age Adjusted Rate	11.0	10.3	11.4	9.1	8.9	8.9
	American Indian	# Cases / Deaths	3	1	2	6	1	5
		Age Adjusted Rate	10.5	9.6	11.9	17.2	5.4	25.0
United States	Total	Age Adjusted Rate	12.2	14.0	10.7	* 11.0	* 12.7	* 9.6
	White	Age Adjusted Rate	12.1	14.1	10.5	* 10.9	* 12.6	* 9.4
	American Indian	Age Adjusted Rate	9.5	12.5	6.9	* 9.5	* 10.6	* 8.4

Rates per 100,000 age-adjusted to 2000 US standard population and 2011 SD estimated population.

* US Mortality rates are from 2010, the 2011 rate is not available at this time. US rates www.seer.cancer.gov

Source: South Dakota Department of Health

Figure 61: Pancreatic Cancer Stage at Diagnosis, South Dakota, 2011



Source: South Dakota Department of Health

Descriptive Epidemiology

Stage at Diagnosis: Often pancreatic cancer is diagnosed late in the disease process. Patients who have local stage disease may be acceptable for resection. Only 10 to 20% of patients with pancreatic cancer are candidates for surgical resection. In South Dakota, 74% of new cases were diagnosed at late stage (regional and distant) in 2011.

Incidence: The incidence of pancreatic cancer increases steadily with age. An estimated 44,030 new cases of pancreatic cancer were expected to be diagnosed in 2011 in the United States. The majority of the cases occurred in South Dakotans 65 years old or older. Seventy-eight cases (72.9%) were diagnosed in 2011 in that age group. In the United States and South Dakota

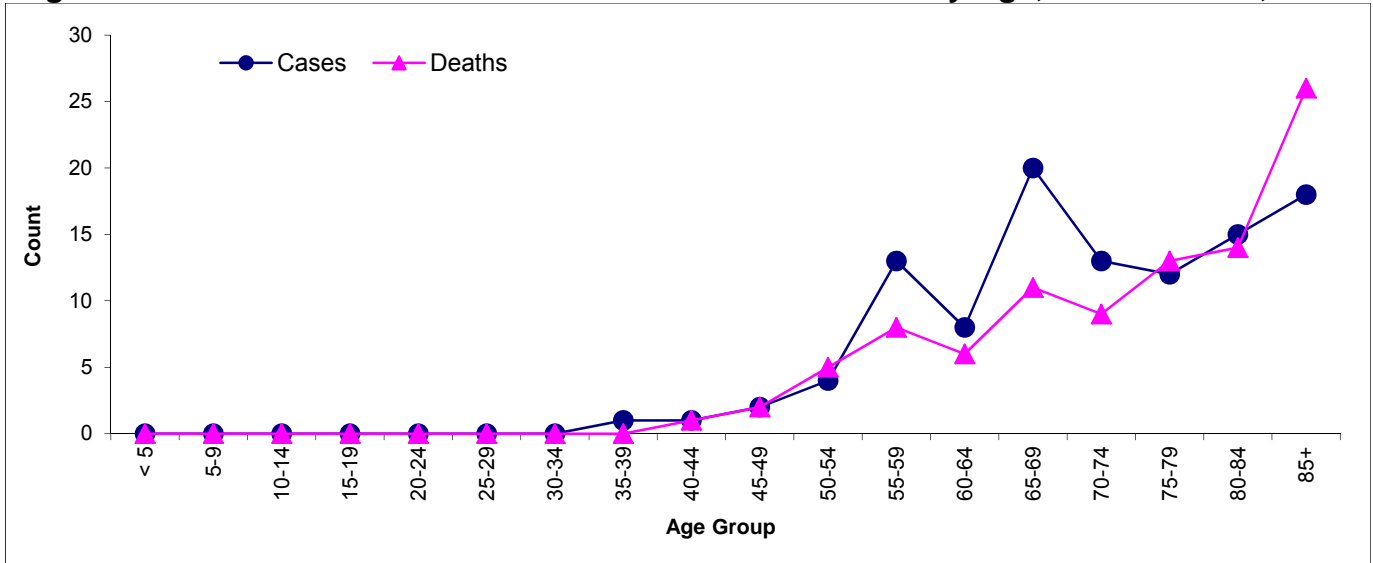
this cancer occurred more in females than in males. Nationally, there was a higher incidence rate in blacks of both genders. The median age at diagnosis was 73 in South Dakota and 71 years in the United States.

Mortality: The overall survival for cancer of the pancreas is poor. Studies reveal that the 5-year survival rate is approximately 6.7%. More recently, prospective studies show survival improvement with postoperative chemotherapy. In 2011, there were 95 deaths and the median age at death was 77 in South Dakota.

Risk and Associated Factors: The exact causes of pancreatic cancer are unknown. Studies have found that certain factors increase a person's risk for developing pancreatic cancer. As one ages, the incidence of pancreatic cancer increases, especially after the age of 60. Cigarette smokers are two to three times more likely than nonsmokers to develop this cancer. Pancreatic cancer occurs frequently in those with diabetes. Also, African Americans are more likely than Asians, Hispanics, American Indians, or whites to have pancreatic cancer. The risk triples if the person's mother, father, sister, or brother had the disease. Also, a history of colon or ovarian cancer increases the risk. Some evidence shows that chronic pancreatitis may increase the risk.

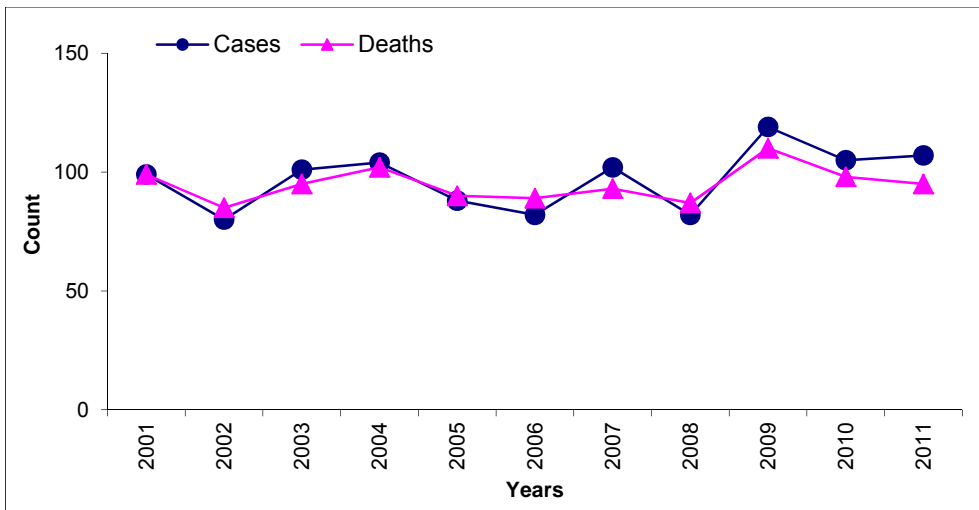
Prevention and Early Detection: Currently, there are no known screenings for pancreatic cancer. Also, there is no specific prevention except to avoid smoking.

Figure 62: Pancreatic Cancer Number of Cases and Deaths by Age, South Dakota, 2011



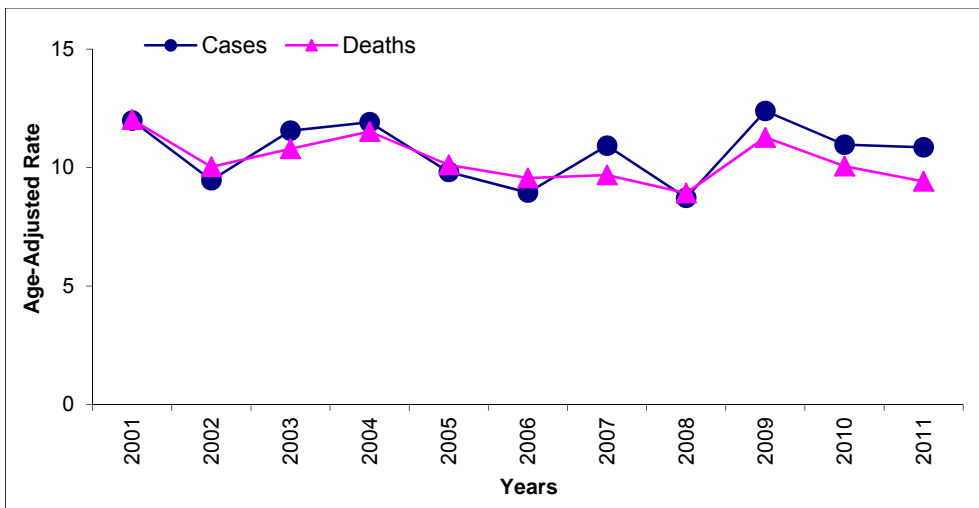
Source: South Dakota Department of Health

Figure 63: Pancreatic Cancer Cases and Deaths by Year, South Dakota, 2001 - 2011



Source: South Dakota Department of Health

Figure 64: Pancreatic Cancer Age-Adjusted Rates, Cases, and Deaths by Year, South Dakota, 2001 - 2011



Rates per 100,000 age-adjusted to 2000 US standard population and SD estimated populations.
Source: South Dakota Department of Health

PROSTATE

Table 25: Prostate Incidence and Mortality Summary, 2011

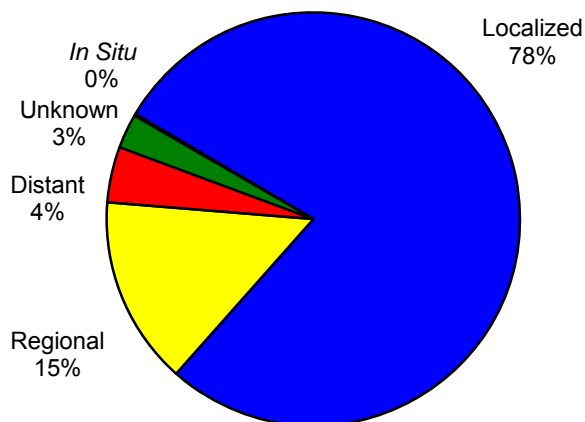
Prostate Cancer			Incidence	Mortality
South Dakota	Total	# Cases / Deaths	596	88
		Age Adjusted Rate	127.1	20.8
	White	# Cases / Deaths	569	82
		Age Adjusted Rate	127.9	20.1
	American Indian	# Cases / Deaths	26	6
		Age Adjusted Rate	151.3	53.6
United States	Total	Age Adjusted Rate	135.7	* 21.8
	White	Age Adjusted Rate	125.9	* 20.1
	American Indian	Age Adjusted Rate	53.2	* 19.6

Rates per 100,000 age-adjusted to 2000 US standard population and 2011 SD estimated population.

* US Mortality rates are from 2010, the 2011 rate is not available at this time.

US rates www.seer.cancer.gov Source: South Dakota Department of Health

Figure 65: Prostate Cancer Stage at Diagnosis, South Dakota, 2011



Source: South Dakota Department of Health

Descriptive Epidemiology

Stage at Diagnosis: The greatest number of cases was diagnosed at an early stage. In 2011, 78% of the cases were diagnosed as localized (not extending outside the prostate). Frequently older cases may simply be monitored (watchful waiting) by their physician to assess the rate of growth; others may be given hormonal therapy. New treatments for prostate cancer include the de Vinci Robotic assisted prostatectomy, proton therapy, and brachytherapy radiation.

Incidence: Carcinoma of the prostate is predominately a tumor of older men. The median age at diagnosis in South Dakota is 65.5. Also, in South Dakota the incidence of prostate cancer begins to increase in the 60's age group. Nationwide, eight out of 10 men diagnosed with

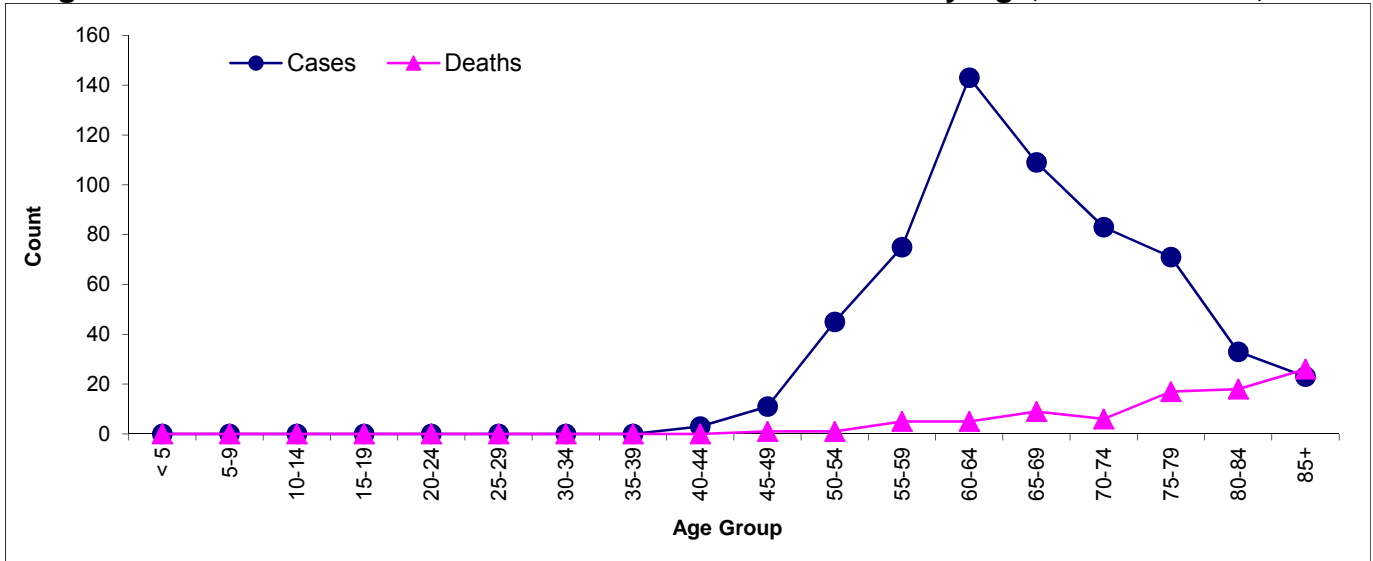
prostate cancer are over the age of 65. Prostate cancer is the second most diagnosed site of all cancers reported in the state.

Mortality: Prostate cancer was the second leading cancer death in men in South Dakota in 2011. Prostate cancer can be a slow progressing disease and can be cured or at least controlled in the early stages. The median age of death in South Dakota in 2011 was 79.5 years old and six were American Indians. Many patients have co-morbid conditions and will die of other causes rather than prostate cancer.

Risk and Associated Factors: A number of risk factors for prostate cancer have been identified. Studies suggest that prostate cancer risk is increased two to five-fold in relatives of men with prostate cancer. Environmental factors, including exposure to heavy metals may increase risk. Smoking has also been indicated as a risk. Diets high in saturated fat intake may also contribute.

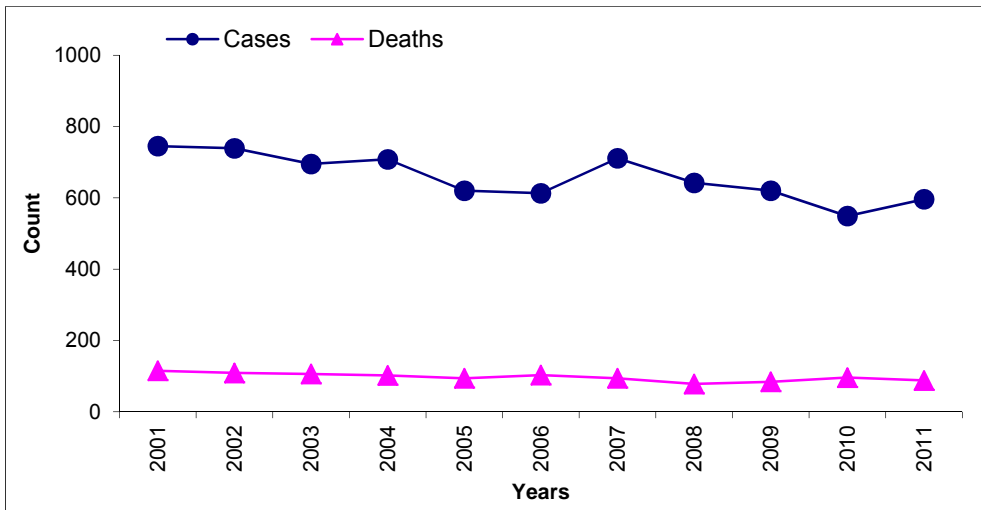
Early Detection and Prevention: The availability of the Prostate Specific Antigen (PSA) test as a diagnostic test coupled with increased awareness by the public of the disease has produced an increase in the number of new cases diagnosed each year in the United States. Disease detected by elevated PSA in the presence of a palpable normal gland is the most common presentation of prostate cancer. The American Cancer Society recommends the PSA and digital rectal exam should be offered annually beginning at the age of 50.

Figure 66: Prostate Cancer Number of Cases and Deaths by Age, South Dakota, 2011



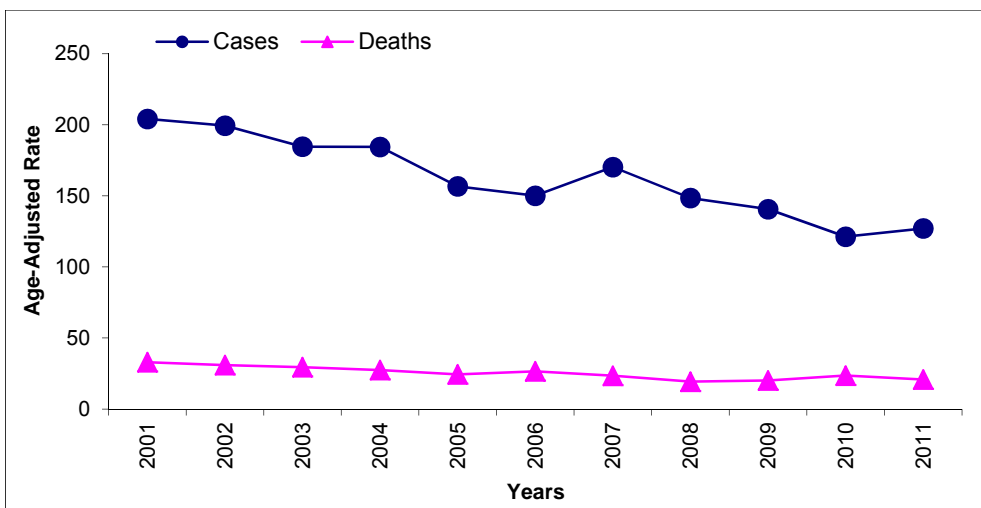
Source: South Dakota Department of Health

Figure 67: Prostate Cancer Cases and Deaths by Year, South Dakota, 2001 - 2011



Source: South Dakota Department of Health

Figure 68: Prostate Cancer Age-Adjusted Rates, Cases, and Deaths by Year, South Dakota 2001 - 2011



Rates per 100,000 age-adjusted to 2000 US standard population and SD estimated populations.
Source: South Dakota Department of Health

STOMACH

Table 26: Stomach Incidence and Mortality Summary, 2011

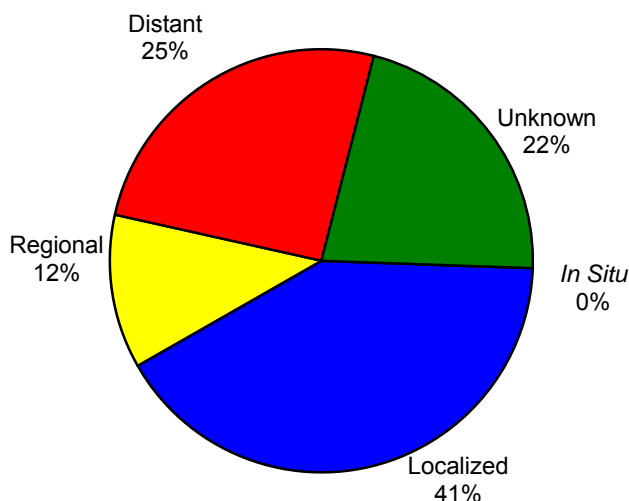
Stomach Cancer			Incidence			Mortality		
			Total	Male	Female	Total	Male	Female
South Dakota	Total	# Cases / Deaths	51	34	17	27	17	10
		Age Adjusted Rate	5.4	8.1	3.3	2.7	3.9	1.9
	White	# Cases / Deaths	45	32	13	26	16	10
		Age Adjusted Rate	5.1	8.1	2.6	2.7	3.9	2.0
	American Indian	# Cases / Deaths	3	1	2	0	0	0
		Age Adjusted Rate	9.5	9.6	9.8	0.0	0.0	0.0
United States	Total	Age Adjusted Rate	7.2	9.8	5.1	* 3.4	* 4.6	* 2.5
		White	Age Adjusted Rate	6.5	9.0	4.4	* 3.0	* 4.0
	American Indian	Age Adjusted Rate	8.7	13.7	5.2	* 5.2	* 7.1	* 3.7

Rates per 100,000 age-adjusted to 2000 US standard population and 2011 SD estimated population.

* US Mortality rates are from 2010, the 2011 rate is not available at this time. US rates www.seer.cancer.gov

Source: South Dakota Department of Health

Figure 69: Stomach Cancer Stage of Diagnosis, South Dakota, 2011



Source: South Dakota Department of Health

Descriptive Epidemiology

Stage at Diagnosis: In 2011 data demonstrates that 21 (41%) cases were diagnosed at localized stage. When a patient is diagnosed at an early stage prognosis is much better. Six cases (12%) were diagnosed at regional stage. There were 13 (25%) of the cases in South Dakota diagnosed at distant stage. Prognosis for distant stage is very poor. The stage is based on whether the tumor has invaded nearby tissues, where the cancer has spread, and if so, to what extent.

Incidence: Stomach cancer continues to account for approximately 1.2% of all cancers in South Dakota. Of the 51 cases diagnosed in 2011, 34 were male and 17 were female. It is

predominately a disease of men. Gastric (stomach) cancer is found more commonly in people between the ages of 50 and 70 years of age. The median age at diagnosis was 69 in the United States and 72 in South Dakota.

Mortality: Stomach cancer accounted for 1.6% of cancer deaths in South Dakota in 2011. The median age at death was 75 in South Dakota and 72 in the United States. The age-adjusted death rate was 3.3 for men and 1.9 in women in South Dakota. These rates are based on patients who died in 2011 in South Dakota. There were no American Indian stomach cancer deaths.

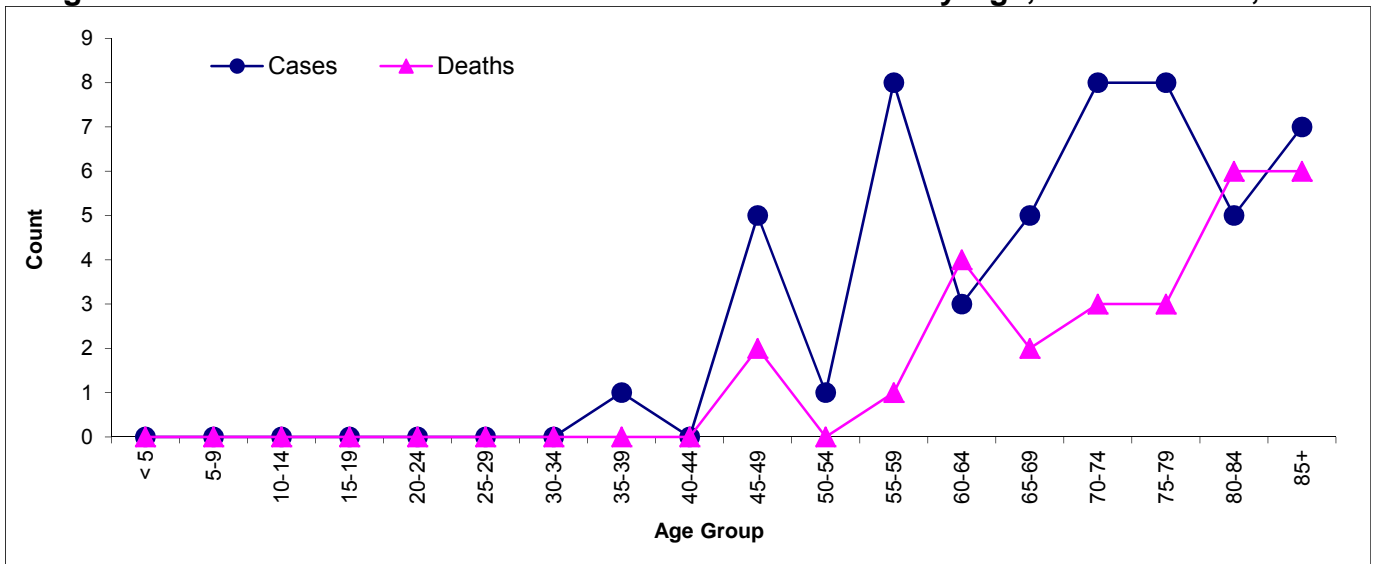
Risk and Associated Factors: Men have twice the risk of women for developing stomach cancer. In recent years, *Helicobacter pylori* bacteria have received considerable attention as a potential factor. Some researchers suspect this bacterium, which causes stomach inflammation and ulcers, may be an important stomach cancer risk factor. Individuals with pernicious anemia (a vitamin B-12-related disorder) and achlorhydria or gastric atrophy, both of which result in lower than normal amounts of gastric juices, may be at higher risk.

Prevention and Early Detection: Excessive salt intake has been identified as a possible risk factor for stomach cancer. Having a high intake of fresh fruits and vegetables may be associated with a decreased risk of stomach cancer. Studies have suggested that eating foods that contain beta-carotene¹ and vitamin C² may decrease the risk of stomach cancer.

¹<http://www.cancer.gov/Common/PopUps/popDefinition.aspx?id=45328&version=Patient&language=English>

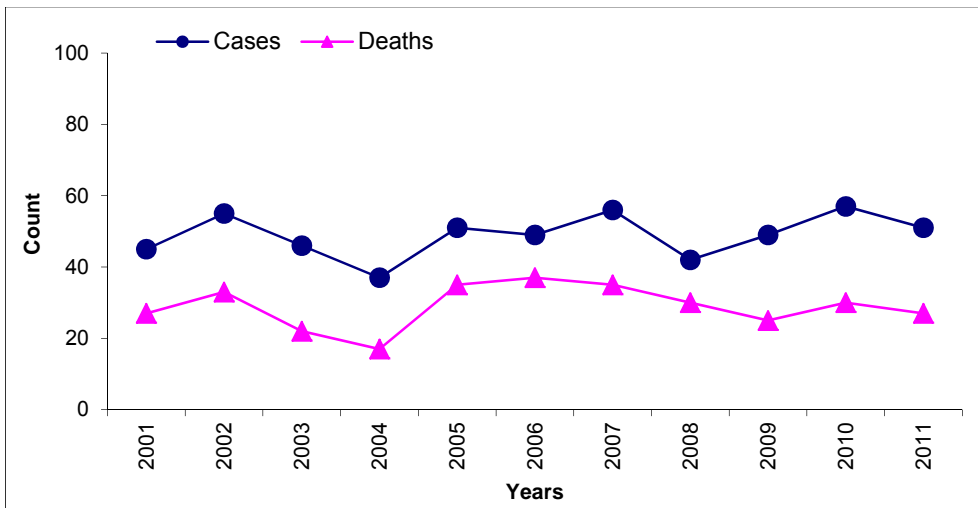
²<http://www.cancer.gov/Common/PopUps/popDefinition.aspx?id=439435&version=Patient&language=English>

Figure 70: Stomach Cancer Number of Cases and Deaths by Age, South Dakota, 2011



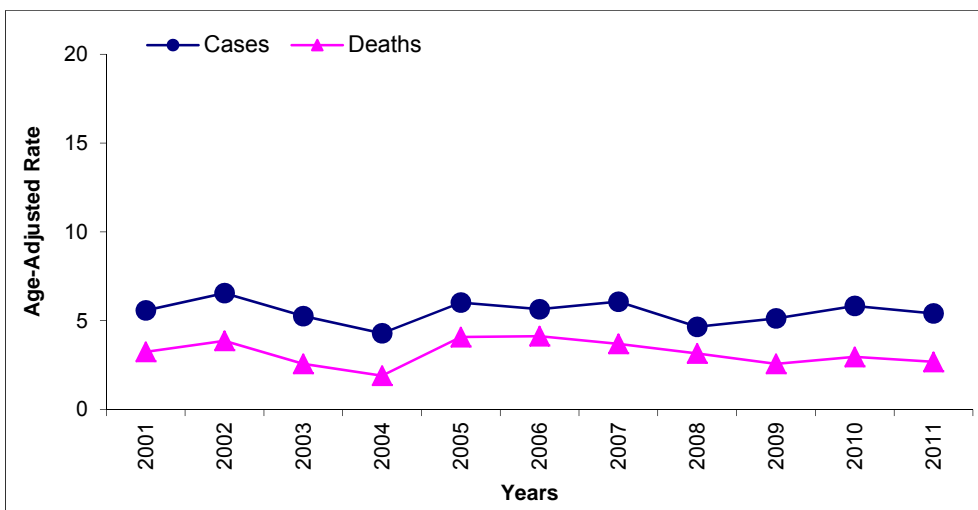
Source: South Dakota Department of Health

Figure 71: Stomach Cancer Cases and Deaths by Year, South Dakota, 2001 - 2011



Source: South Dakota Department of Health

Figure 72: Stomach Cancer Age-Adjusted Rates, Cases, and Deaths by Year, South Dakota, 2001 - 2011



Rates per 100,000 age-adjusted to 2000 US standard population and SD estimated populations.
Source: South Dakota Department of Health

THYROID

Table 27: Thyroid Incidence and Mortality Summary, 2011

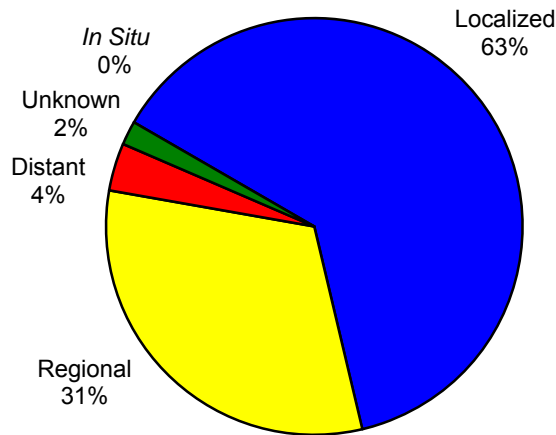
Thyroid Cancer			Incidence			Mortality		
			Total	Male	Female	Total	Male	Female
South Dakota	Total	# Cases / Deaths Age Adjusted Rate	108 12.6	24 5.4	84 20.0	7 0.7	4 0.9	3 0.6
	White	# Cases / Deaths Age Adjusted Rate	102 13.3	23 5.6	79 21.2	6 0.6	4 1.0	2 0.4
	American Indian	# Cases / Deaths Age Adjusted Rate	2 2.9	0 0.0	2 5.8	0 0.0	0 0.0	0 0.0
United States	Total	Age Adjusted Rate	13.8	6.9	20.5	* 0.5	* 0.5	* 0.5
	White	Age Adjusted Rate	14.5	7.4	21.7	* 0.5	* 0.5	* 0.5
	American Indian	Age Adjusted Rate	8.0	4.3	11.5	*	* 0	*

Rates per 100,000 age-adjusted to 2000 US standard population and 2011 SD estimated population.

* US Mortality rates are from 2010, the 2011 rate is not available at this time. US rates www.seer.cancer.gov

Source: South Dakota Department of Health

Figure 73: Thyroid Cancer Stage at Diagnosis, South Dakota, 2011



Source: South Dakota Department of Health

Descriptive Epidemiology

Stage at Diagnosis: In 2011 data demonstrates that 68 (63%) of cases were diagnosed at localized stage. When a patient is diagnosed at an early stage, prognosis is much better for a cure. There were 31 (28%) cases diagnosed at regional stage. Only two cases (2%) were diagnosed at a distant stage.

Incidence: The American Cancer Society estimated 48,020 thyroid cancer cases would be diagnosed in the United States in 2011. Thyroid cancer continues to account for approximately 2.5% of all cancers in South Dakota. Of the 108 cases diagnosed in 2011, 24 were male and 84 were female. The median age at diagnosis was 54. In the United States the median age was 50. Thyroid cancer is

found more commonly in people between the ages of 45 and 70 years of age, with 71% diagnosed before age 65. It is predominately a disease of females as the statistics of South Dakota confirm.

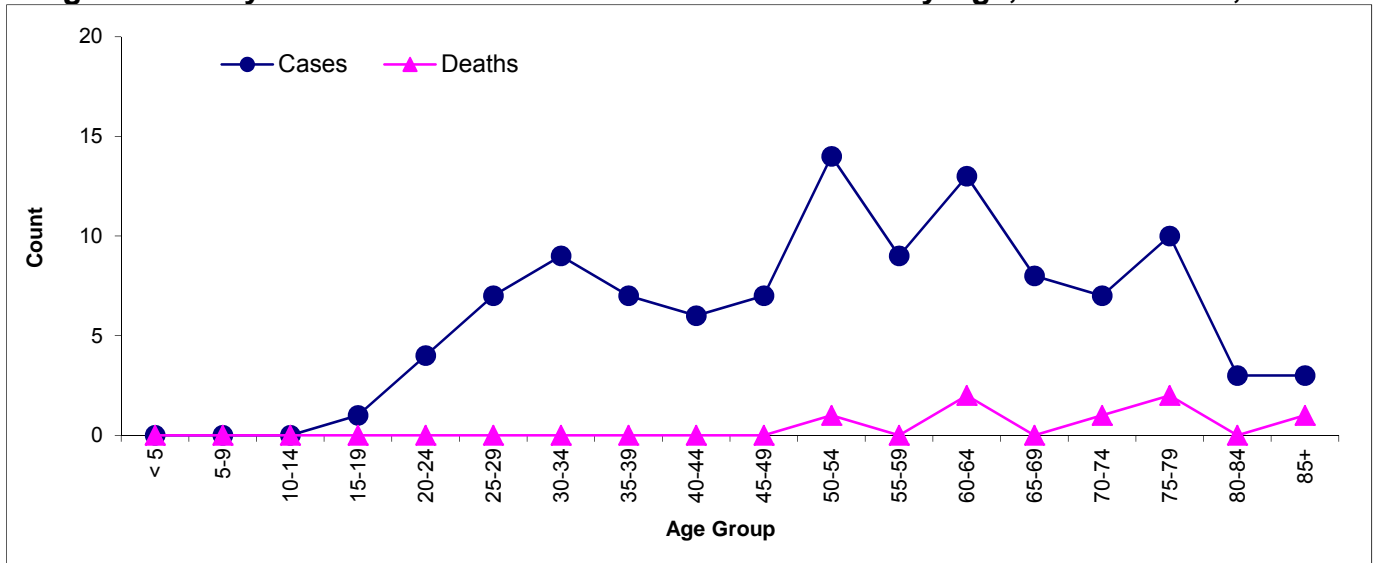
Mortality: There were seven deaths attributed to thyroid cancer in 2011. Nationally, the 5-year relative survival rates were 99.9% for localized, 98.1% for regional, and 89.6% for unknown stage.

Risk and Associated Factors: Thyroid cancer accounted for only 2.5% of the cancer cases in South Dakota in 2011. Risk factors include being exposed to radiation to the head and neck in childhood. Other risk factors for the development of thyroid cancer include a history of goiter, family history of thyroid disease, and Asian race.

Early Detection and Prevention: Early detection of cancer of the thyroid is extremely important. There are currently no tests or screenings for early detection of thyroid cancer. Physical examinations may reveal a lump on the side of neck, hoarseness of the voice, and difficulty swallowing. Most cancerous thyroid tumors are slow growing and curable. Prompt attention to signs and symptoms is the best approach to early diagnosis of most thyroid cancers. Signs or symptoms include:

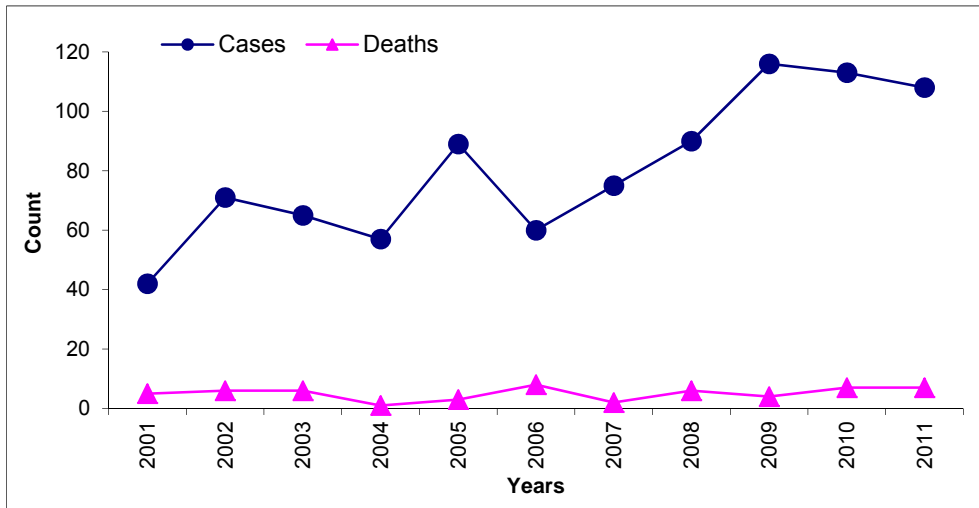
- A lump in the neck, sometimes growing rapidly
- A pain in the neck, sometimes going up to the ears
- Hoarseness
- Trouble swallowing
- Breathing problems (feeling as if one were breathing through a straw)
- A cough that persists and is not due to a cold

Figure 74: Thyroid Cancer Number of Cases and Deaths by Age, South Dakota, 2011



Source: South Dakota Department of Health

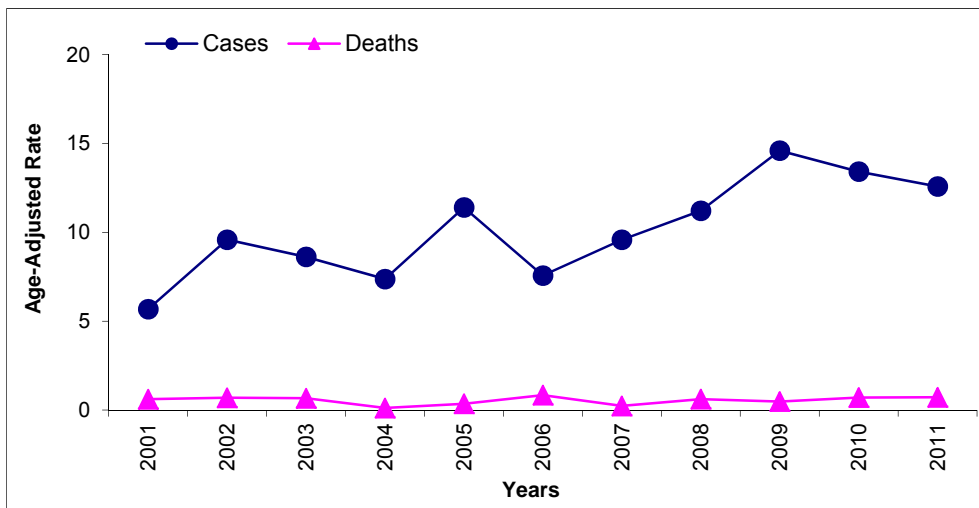
Figure 75: Thyroid Cancer Cases and Deaths by Year, South Dakota, 2001 - 2011



The incidence count for thyroid cancers peaked in 2011.

Source: South Dakota Department of Health

Figure 76: Thyroid Cancer Age-Adjusted Rates, Cases, and Deaths by Year, South Dakota, 2001 - 2011



Rates per 100,000 age-adjusted to 2000 US standard population and SD estimated populations.
Source: South Dakota Department of Health