

## LEUKEMIA

**Table 18: Leukemia Incidence and Mortality Summary, 2010**

Leukemia			Incidence			Mortality		
			Total	Male	Female	Total	Male	Female
South Dakota	Total	# Cases / Deaths	107	74	33	82	49	33
		Age Adjusted Rate	11.2	17.3	6.2	8.5	12.3	5.8
	White	# Cases / Deaths	102	72	30	76	47	29
		Age Adjusted Rate	11.4	18.0	5.9	8.2	12.4	5.1
	American Indian	# Cases / Deaths	4	1	3	4	0	4
		Age Adjusted Rate	7.8	3.7	11.1	10.0	0.0	18.0
United States	Total	Age Adjusted Rate	* 12.2	* 15.6	* 9.7	* 7.0	* 9.5	* 5.2
	White	Age Adjusted Rate	* 12.7	* 16.2	* 10.0	* 7.3	* 9.9	* 5.3
	American Indian	Age Adjusted Rate	* 9.2	* 11.8	* 7.7	* 4.1	* 6.3	* 2.5

Rates per 100,000 age-adjusted to 2000 US standard population and 2010 SD census population.

\* US Incidence and Mortality rates are from 2009, the 2010 rate is not available at this time. US rates [www.seer.cancer.gov](http://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 2.7% of the cancers reported in 2010 for South Dakota. The American Cancer Society estimated that there would be 130 new cases of leukemia in South Dakota during 2010 and 43,050 cases nationwide.

**Mortality:** Leukemia accounted for almost 5% of the cancer deaths in South Dakota in 2010. The subtype of acute myeloid leukemia was the most frequent cause of leukemia death. Almost 60% 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 2010, there were 16 new cases of chronic leukemia.

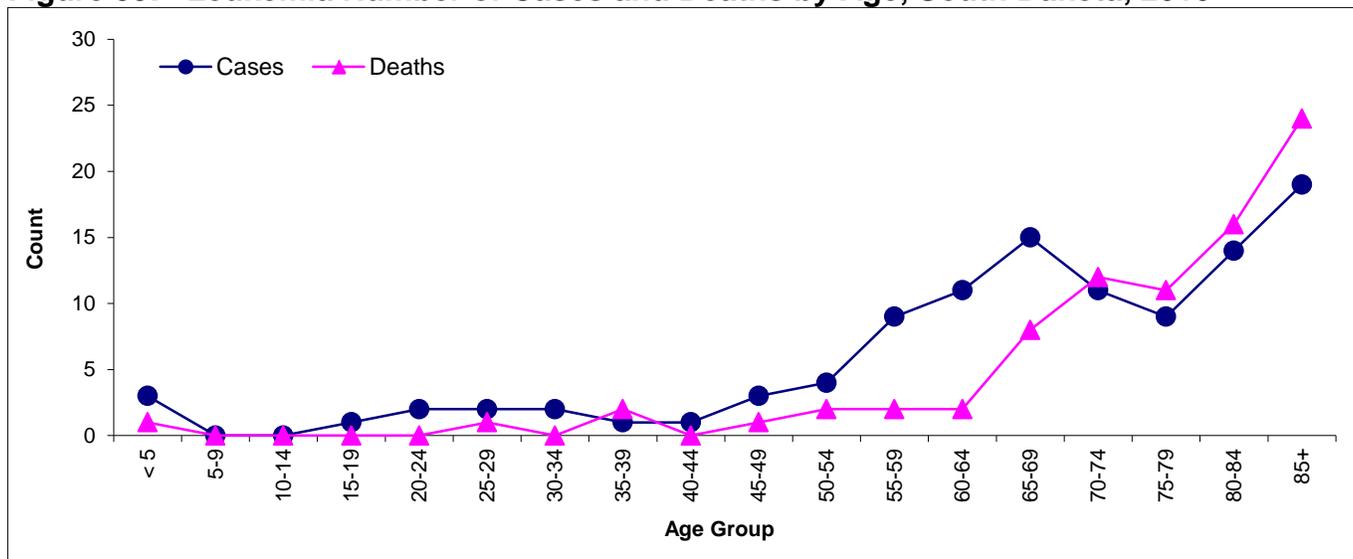
**Acute Leukemia:** The blood cells are very abnormal. The blood cells cannot carry out their normal processes. The number of abnormal cells increases rapidly. Acute leukemia worsens quickly as do the symptoms. There were 51 new cases of acute leukemia in South Dakota in 2010.

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.

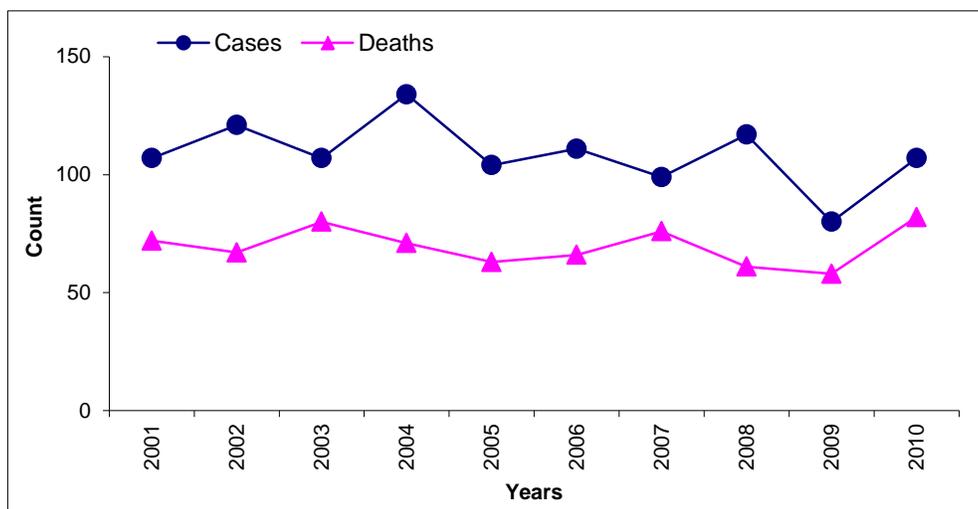
**Prevention and Early Detection:** There are no early detection or prevention strategies. Often symptoms are the same as for many other health problems, thus early detection is difficult. Diagnosis is made using blood tests and bone marrow biopsies.

**Figure 39: Leukemia Number of Cases and Deaths by Age, South Dakota, 2010**



Source: South Dakota Department of Health

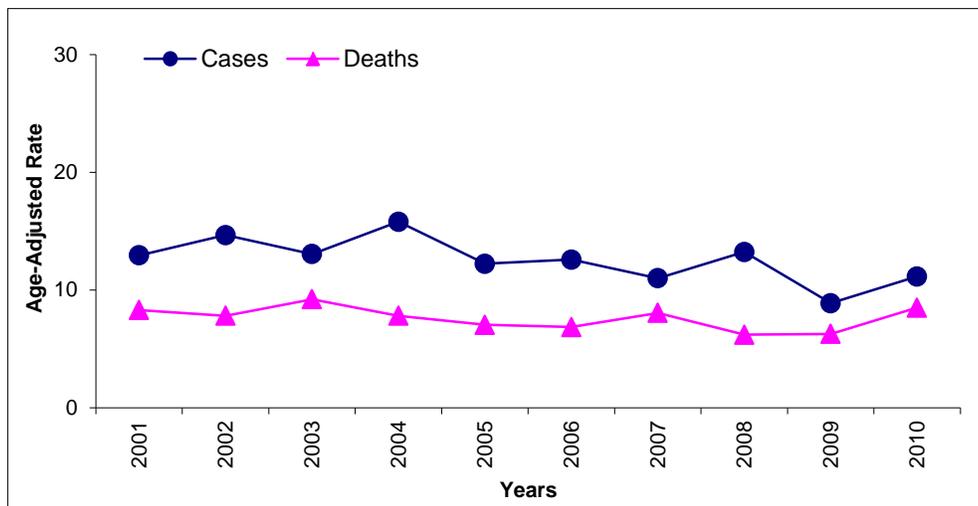
Leukemia is frequently diagnosed in children, but as with all malignancies it is a disease of the elderly. Deaths from leukemia steadily increase after the age of 64.



**Figure 40: Leukemia Cases and Deaths by Year, South Dakota, 2001 - 2010**

The incidence peak for leukemia occurred in 2004.

Source: South Dakota Department of Health



**Figure 41: Leukemia Age-Adjusted Rates, Cases, and Deaths by Year, South Dakota, 2001 - 2010**

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