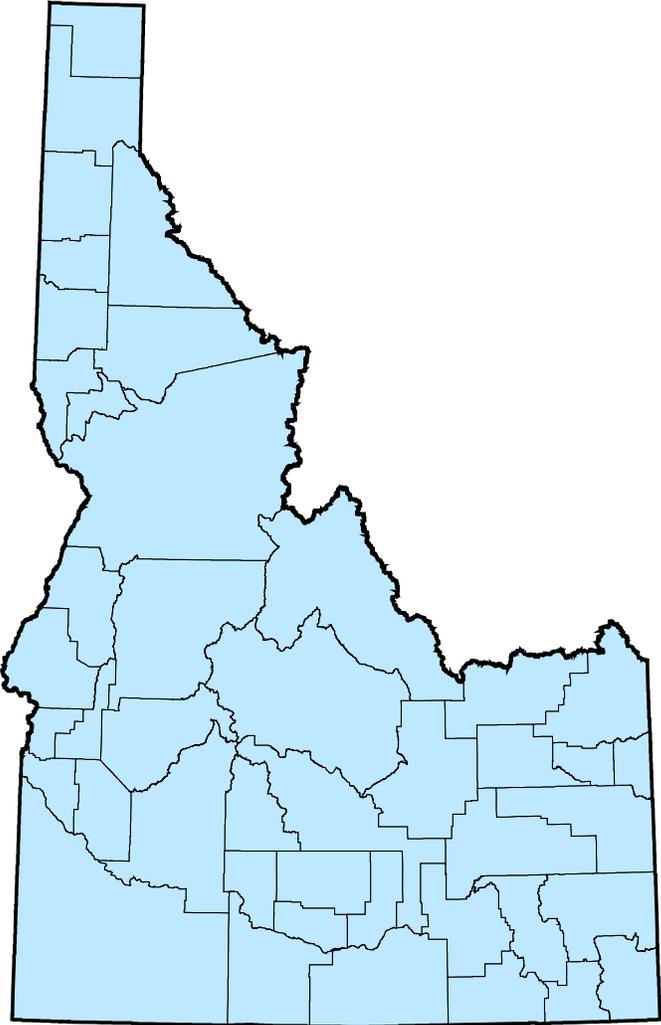


Major Cardiovascular Disease Mortality in Idaho

Diseases of Heart and Cerebrovascular Diseases

2004 Mortality



Division of Health
Bureau of Health Policy and Vital Statistics



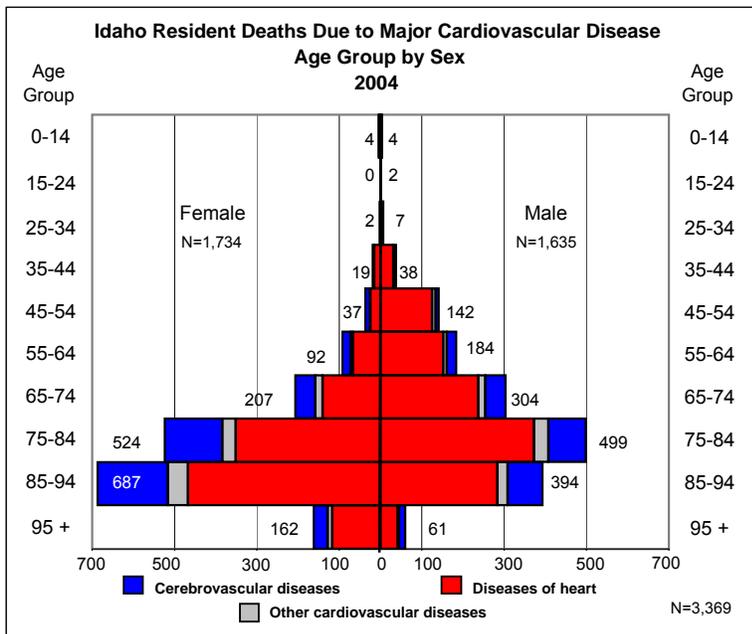
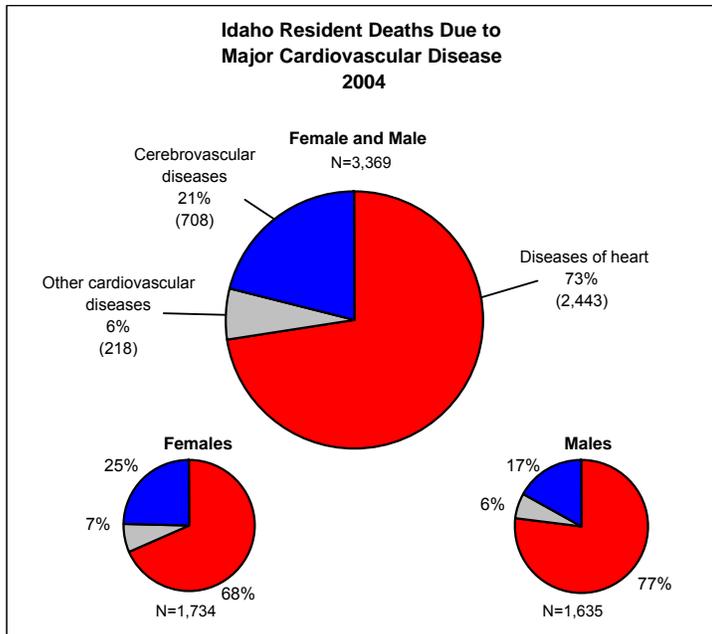
IDAHO DEPARTMENT OF
HEALTH & WELFARE

Major Cardiovascular Disease Mortality in Idaho

Diseases of Heart and Cerebrovascular Diseases

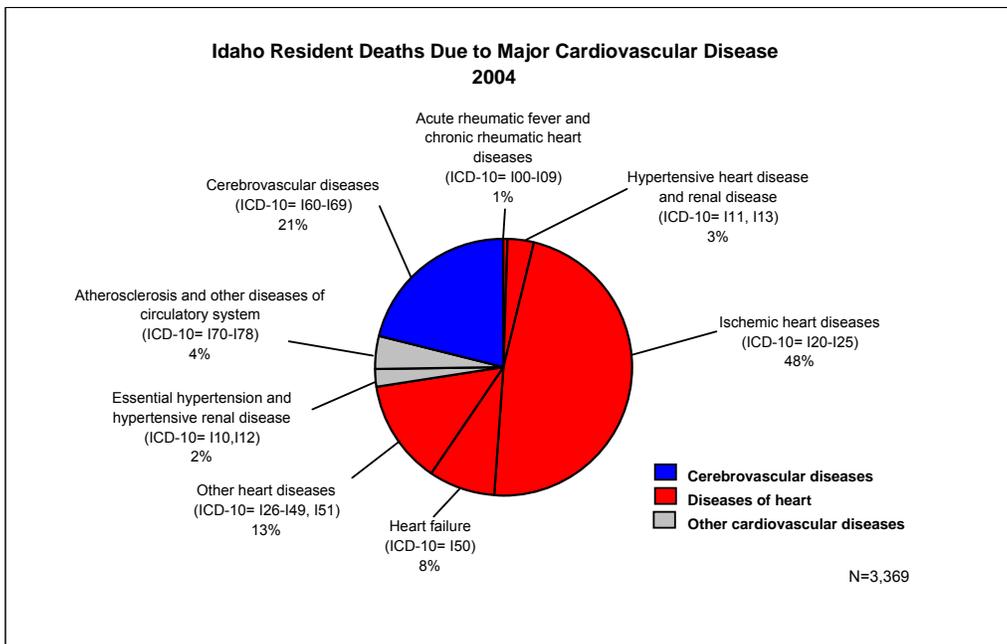
Overview

The disease classification Major cardiovascular disease (CVD)¹ includes Diseases of heart (heart disease), Cerebrovascular diseases (stroke) and other cardiovascular diseases affecting the blood vessels. Heart disease is the leading cause of death in Idaho, accounting for 24.4 percent of the total deaths to Idaho residents in 2004. The third leading cause of death in Idaho is stroke. In 2004, deaths due to stroke accounted for 7.1 percent of the total deaths to Idaho residents. Idaho ranked 40th among the states for heart disease deaths and 17th for stroke deaths in 2003² (the most recent year for which state rankings are available). Major CVD accounted for one-third of Idaho resident deaths in 2004 in which 3,369 Idaho residents died; of those deaths, 51 percent were to females (1,734) and 49 percent were to males (1,635).



- Heart disease is Idaho's number 1 leading cause of death. Stroke is Idaho's 3rd leading cause of death.

- Everyday, on average, 7 Idahoans die from heart disease and 2 Idahoans die from stroke.



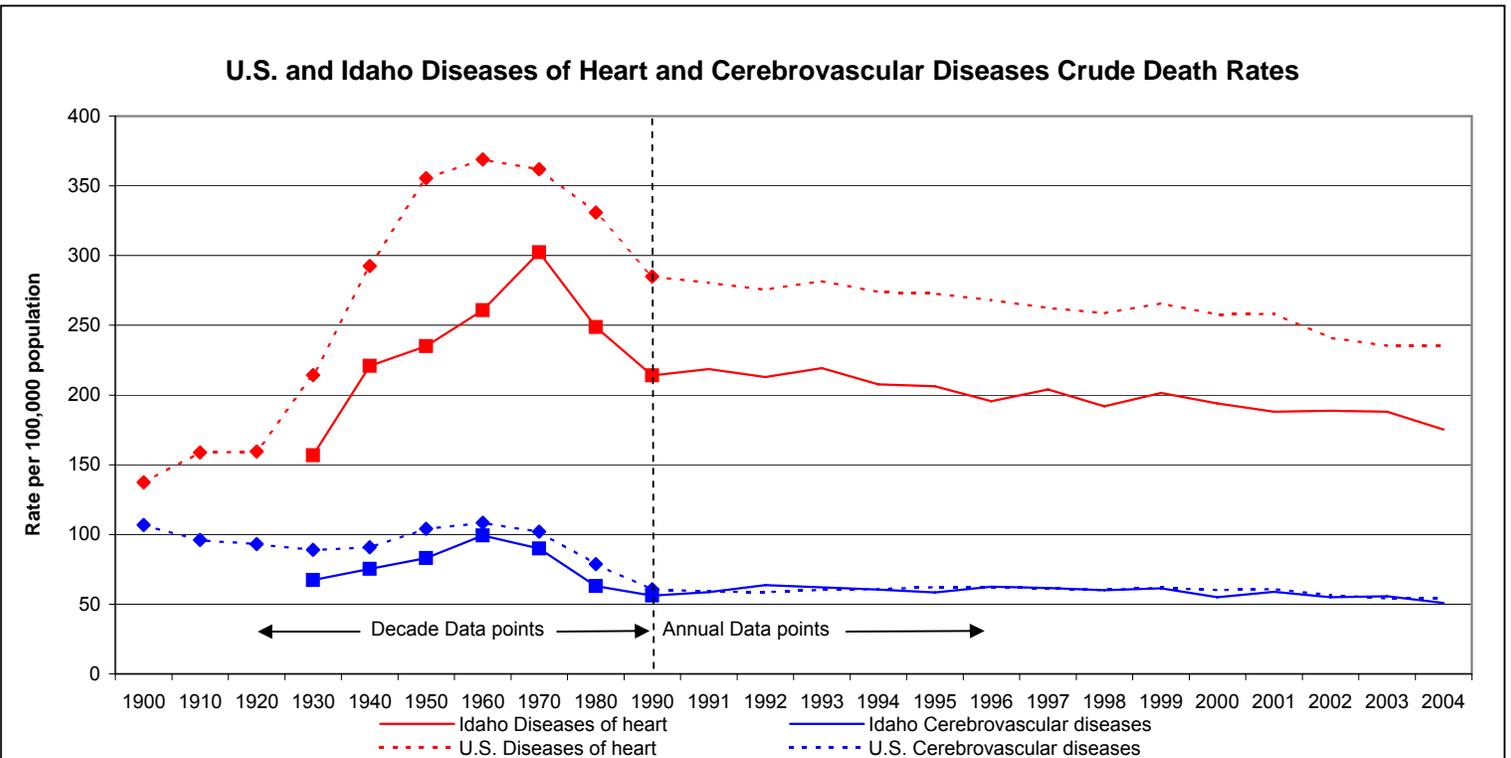
- In 2004, one in three Idaho resident deaths was due to major cardiovascular disease.

- Of Idaho residents who died from major CVD in 2004, deaths occurred in:
 - hospital (36%)
 - non-hospital (64%)
 - 46% home
 - 48% long-term facility
 - 6% other

The ICD-10 disease classification Ischemic heart diseases (formally called Coronary heart diseases (CHD) in ICD-9) includes; angina pectoris, acute myocardial infarction (heart attack), other acute ischemic heart diseases and chronic ischemic heart disease. Together they accounted for the largest portion of major CVD deaths in 2004 (48 percent). Of the Ischemic heart diseases deaths, 51 percent were deaths due to heart attacks and 49 percent were due to chronic ischemic heart disease.

Mortality Trend

Diseases of heart has been the leading cause of death in the U.S. since 1921³ and Cerebrovascular diseases has been the third leading cause of death in the U.S. since 1938³. In the time-series graph below the U.S. and Idaho crude death rate trend is shown for Diseases of heart and Cerebrovascular diseases.



Crude Death Rate	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	1991	1992
³ Idaho Diseases of heart	NA	NA	NA	156.8	220.8	235.0	260.8	302.4	248.7	213.9	218.6	212.9
⁴ Idaho Cerebrovascular diseases	NA	NA	NA	67.3	75.4	83.0	99.2	89.9	63.1	56.2	58.6	63.2
³ U.S. Diseases of heart	137.4	158.9	159.6	214.2	292.5	355.5	369.0	362.0	330.8	285.0	280.6	275.6
⁴ U.S. Cerebrovascular diseases	106.9	96.0	93.0	89.0	90.9	104.0	108.4	101.9	78.8	60.6	59.4	58.7
Rates based on International Classification of Diseases Revision	ICD-5	ICD-5	ICD-5	ICD-5	ICD-5	ICD-6	ICD-7	ICD-8	ICD-9*	ICD-9*	ICD-9*	ICD-9*

Crude Death Rate	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
³ Idaho Diseases of heart	219.2	207.7	206.4	195.5	203.9	192.0	201.5	194.0	188.0	188.6	187.9	175.3
⁴ Idaho Cerebrovascular diseases	62.0	60.4	58.5	62.4	61.7	60.0	61.3	55.1	59.0	55.0	55.8	50.8
³ U.S. Diseases of heart	281.7	274.1	272.8	268.1	262.6	258.7	265.9	257.9	258.2	241.3	235.4	235.6
⁴ U.S. Cerebrovascular diseases	60.5	61.0	62.2	62.2	61.3	60.2	61.8	60.3	60.9	56.5	54.3	54.2
Rates based on International Classification of Diseases Revision	ICD-9*	ICD-10	ICD-10	ICD-10	ICD-10	ICD-10						

1. Idaho Death Rates 1930-1940 from NCHS "Vital Statistics Rates in the United States 1900-1940", 1950-1970 from Idaho Annual Vital Statistics Reports, 1980-1998 from Vital Statistics database, 1999-2004 from Idaho Annual Vital Statistics Reports.

2. U.S. Death Rates 1900-1960 from NCHS "Leading Causes of Death, 1900-1998", 1970 from "Vital Statistics of the United States 1970- Volume II-Mortality", 1980-1998 from NCHS WONDER database, 1999-2004 from Idaho Annual Vital Statistics Report based on NCHS U.S. numbers.

3. Diseases of heart: [Diseases of the heart (ICD-5 = 90-95), Diseases of the heart (ICD-6 = 410-433), Diseases of heart (ICD-7 = 400-402,410-443), Diseases of heart (ICD-8 = 390-398,402,404, 410-429), Diseases of heart (ICD-9* = 390-398,402,404-429), Diseases of heart (ICD-10 = I00-I09,I11,I13,I20-I51)]

4. Cerebrovascular diseases: [Intracranial lesions of vascular origin (ICD-5 = 83), Intracranial lesions affecting central nervous system (ICD-6 =330-334), Intracranial lesions affecting central nervous system (ICD-7 = 330-334), Cerebrovascular diseases (ICD-8 = 430-438), Cerebrovascular diseases (ICD-9* = 430-434,436-438), Cerebrovascular diseases (ICD-10 = I60-I69)]

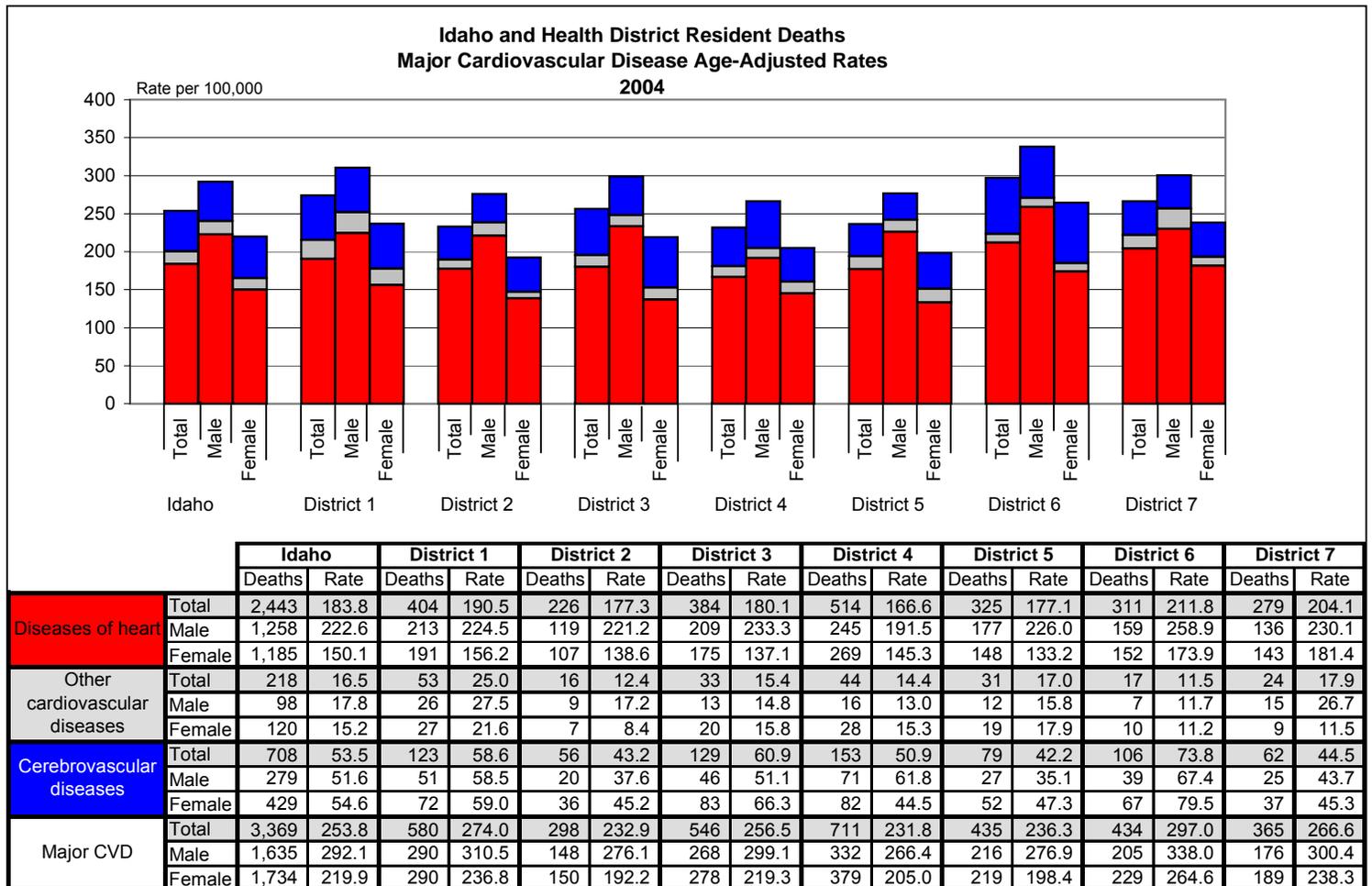
NA: Data not available

* Death Rates are based on the modified ICD-9 codes that are comparable with the ICD-10 codes for the disease category with the comparability ratio ICD-10 to ICD-9 applied to the rate.

In the early part of the 20th century pneumonia and influenza, tuberculosis, and heart disease alternated as the leading causes of death in the United States⁴. In the 1920's, a decrease occurred in deaths due to pneumonia and influenza, and tuberculosis, which was most likely due to the improvements in medical care, sanitation and living conditions⁵. Heart disease and stroke deaths began to increase in the 1920's and 1930's, and became a concern to public health professionals in the 1930's. Studies into the CVD epidemic largely began in the 1940's, in which researchers began to understand that certain risk factors contributed to CVD. Through the efforts of "...development of prevention interventions to reduce these risks, and improvements in therapy for persons who develop CVD"³, the U.S. public health system was able to induce a decline in CVD death rates by the 1960's. By 2004, the U.S. had a 36 percent decrease in the crude death rate of Diseases of heart since its peak in the 1960's. Idaho's rate dropped 42 percent since its peak in the 1970's. Cerebrovascular diseases death rates for the U.S. and Idaho have dropped 50 percent and 49 percent, respectively since they peaked in the 1960's.

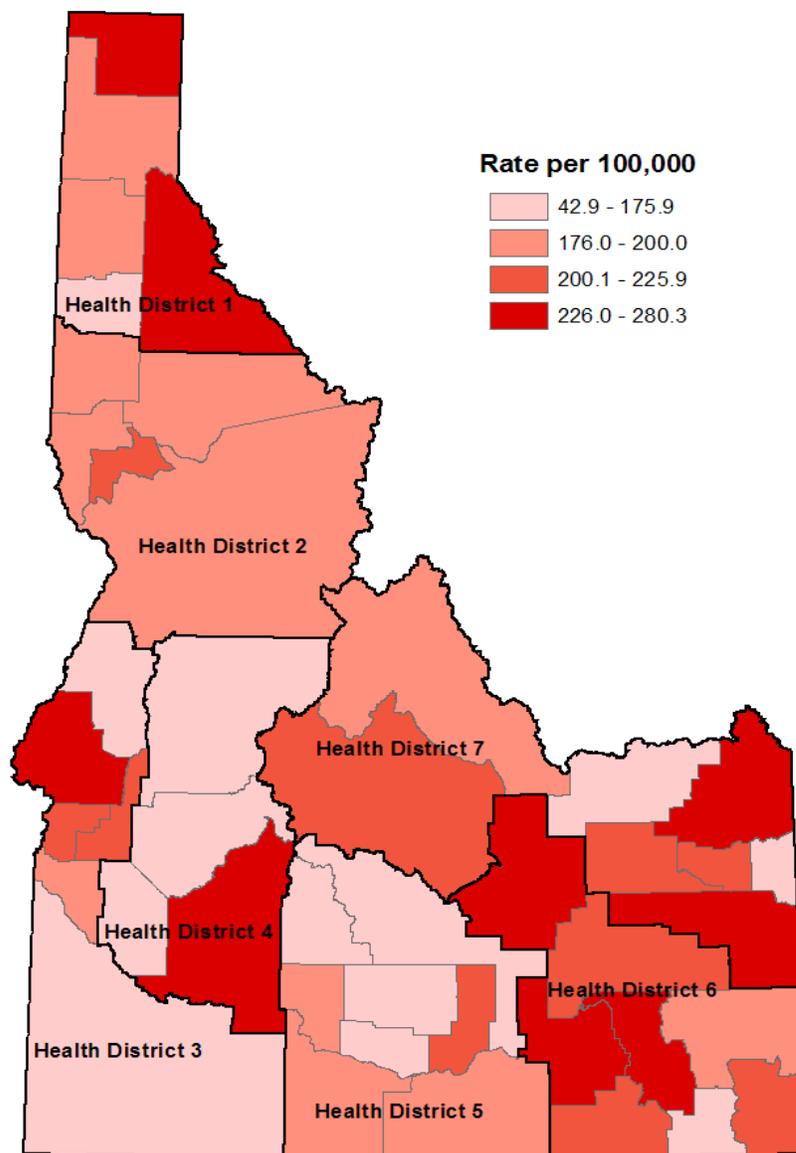
Mortality in Idaho by Health District

In 2004, there were disparities in the death rates for heart disease and stroke among Idaho's Health Districts. The 2004 age-adjusted death rates for Diseases of heart ranged from 166.6 (District 4) to 211.8 (District 6). The age-adjusted death rate for Cerebrovascular diseases ranged from a low of 42.2 (District 5) to a high of 73.8 (District 6).



Idaho Resident Deaths by Health District and County of Residence
Total Deaths and Average Annual Age-Adjusted Deaths Rates*
Diseases of Heart
2002 - 2004

Residence	Total Deaths	Age-Adjusted Rate*
IDAHO	7,541	193.2
District 1	1,169	191.5
Benewah	58	171.1
Bonner	229	183.5
Boundary	80	252.4
Kootenai	659	181.2
Shoshone	143	257.4
District 2	676	181.8
Clearwater	60	182.0
Idaho	119	186.1
Latah	164	177.4
Lewis	38	206.9
Nez Perce	295	180.3
District 3	1,240	196.0
Adams	23	161.9
Canyon	764	188.2
Gem	137	212.5
Owyhee	52	152.1
Payette	157	216.5
Washington	107	235.0
District 4	1,539	174.7
Ada	1,357	171.8
Boise	21	121.0
Elmore	118	233.2
Valley	43	158.7
District 5	1,031	186.3
Blaine	43	101.9
Camas	2	51.8
Cassia	137	189.3
Gooding	101	181.6
Jerome	96	175.1
Lincoln	19	137.1
Minidoka	135	211.8
Twin Falls	498	199.7
District 6	997	227.7
Bannock	484	244.4
Bear Lake	55	225.8
Bingham	229	213.0
Butte	28	270.6
Caribou	47	195.6
Franklin	62	170.9
Oneida	36	211.5
Power	56	280.3
District 7	889	219.3
Bonneville	510	231.3
Clark	1	42.9
Custer	32	211.9
Fremont	79	227.5
Jefferson	97	211.5
Lemhi	60	188.4
Madison	92	204.8
Teton	18	156.1

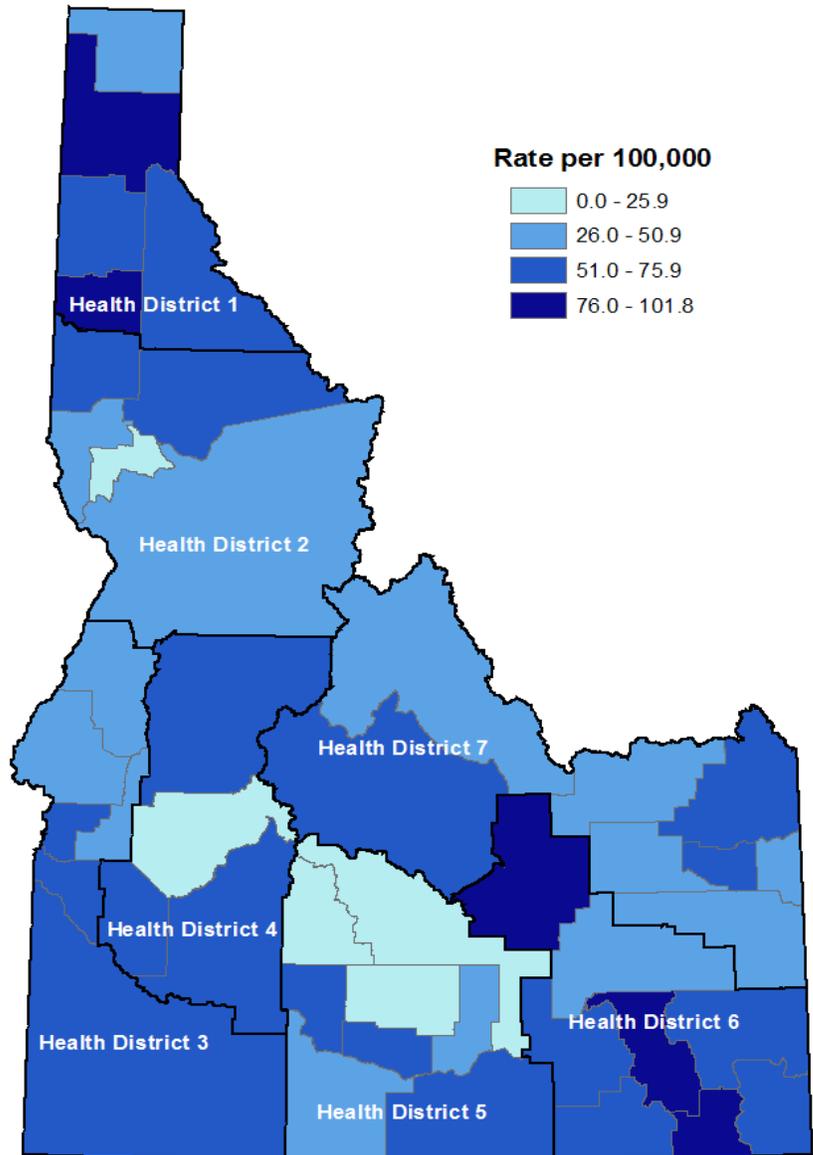


County death rates for Diseases of heart ranged from a high of 280.3 in Power County to a low of 42.9 in Clark County. The five counties with the highest death rates were Power, Butte, Shoshone, Boundary and Bannock County.

* Average annual age-adjusted death rate per 100,000 population. County rates were age-adjusted to Idaho three-year average annual rate (standardized to the U.S. Standard million) using the indirect method of standardization. Idaho and Districts rates were age-adjusted using the direct method of standardization (standardized to the U.S. Standard million).

**Idaho Resident Deaths by Health District and County of Residence
Total Deaths and Average Annual Age-Adjusted Deaths Rates*
Cerebrovascular Diseases
2002 - 2004**

Residence	Total Deaths	Age-Adjusted Rate*
IDAHO	2,207	56.8
District 1	415	69.2
Benewah	34	100.6
Bonner	97	80.4
Boundary	12	38.7
Kootenai	237	65.8
Shoshone	35	62.7
District 2	188	49.5
Clearwater	18	55.5
Idaho	32	49.9
Latah	50	53.8
Lewis	2	10.6
Nez Perce	86	50.9
District 3	375	59.1
Adams	6	43.1
Canyon	258	63.0
Gem	33	49.7
Owyhee	21	61.3
Payette	38	51.6
Washington	19	40.3
District 4	458	53.2
Ada	408	52.8
Boise	3	19.1
Elmore	30	62.2
Valley	17	65.3
District 5	275	48.9
Blaine	7	18.5
Camas	-	-
Cassia	50	67.5
Gooding	37	64.6
Jerome	34	62.0
Lincoln	2	14.3
Minidoka	31	48.3
Twin Falls	114	44.4
District 6	302	69.5
Bannock	155	78.8
Bear Lake	13	52.3
Bingham	49	46.3
Butte	10	97.3
Caribou	15	62.0
Franklin	38	101.8
Oneida	9	50.9
Power	13	66.4
District 7	194	48.5
Bonneville	98	45.3
Clark	1	44.1
Custer	11	74.1
Fremont	25	72.4
Jefferson	16	35.8
Lemhi	14	44.0
Madison	26	58.8
Teton	3	28.1

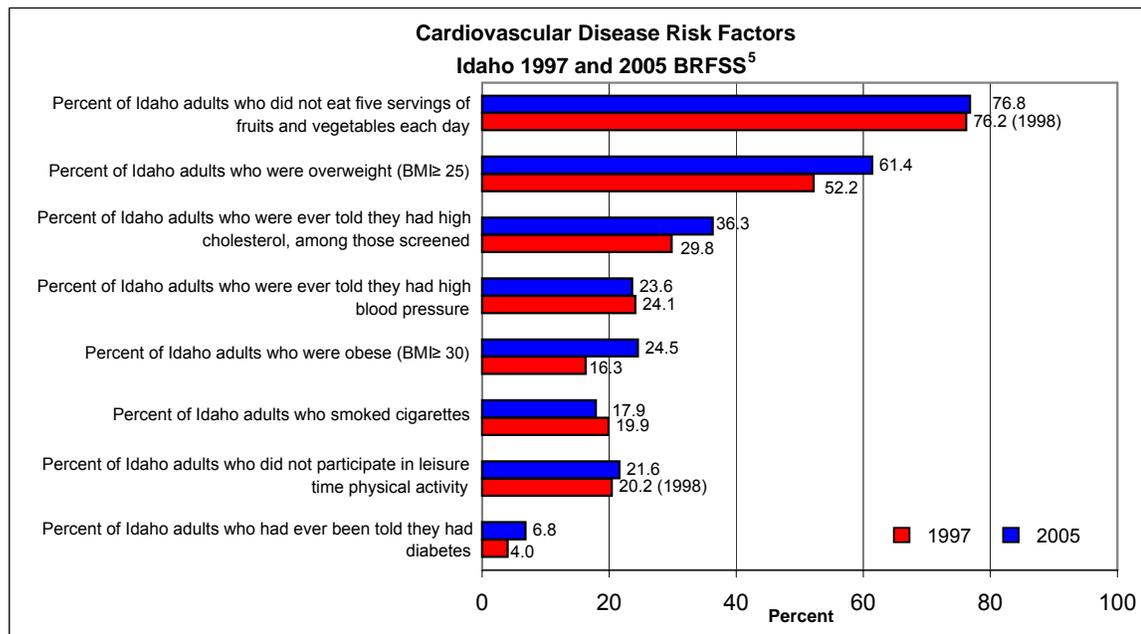


Franklin County had the highest Cerebrovascular diseases death rate of 101.8, and of the 21 total deaths to Camas County residents, none were due to Cerebrovascular diseases from 2002 to 2004. The five counties with the highest death rates were Franklin, Benewah, Butte, Bonner and Bannock County.

* Average annual age-adjusted death rate per 100,000 population. County rates were age-adjusted to Idaho three-year average annual rate (standardized to the U.S. Standard million) using the indirect method of standardization. Idaho and Districts rates were age-adjusted using the direct method of standardization (standardized to the U.S. Standard million).

Risk Factors

Health risk factors, including those that contribute to heart disease and stroke, are monitored through a survey of Idahoans aged 18 and older called the Idaho Behavioral Risk Factor Surveillance System (BRFSS). Between the years of 1997 and 2005⁶ there was a significant⁷ increase in the prevalence of Idaho adults who were overweight or obese. There was also a significant increase in adults who had ever been told they had diabetes, as well as an increase in the adults who were ever told they had high cholesterol.



Risk Factors associated with CVD

- high blood pressure
- high cholesterol
- diabetes
- smoking
- excessive weight
- sedentary life style
- poor diet

Research indicates that individuals can reduce their risk of developing CVD by taking steps to⁸:

- Control high blood pressure
- Control cholesterol
- Exercise regularly
- Maintain a healthy diet, including eating five or more servings of fruit and vegetables a day
- Reduce stress
- Quit smoking
- Control weight

In addition to controlling risk factors, individuals need to be aware of the symptoms of a heart attack and stroke. If they experience the symptoms they should call 911 immediately. If emergency treatment is administered early it will increase the chances of survival^{9,10}.

Symptoms of a heart attack⁹:

- Chest discomfort
- Shortness of breath
- Discomfort in other areas of the upper body
- Other symptoms may include cold sweat, nausea, or light headedness

Symptoms of a stroke¹⁰:

- Sudden numbness or weakness of the face, arms or legs
- Sudden confusion or trouble speaking or understanding others
- Sudden trouble walking, dizziness, or loss of balance or coordination
- Sudden trouble seeing
- Sudden severe headache with no known cause

Notes and References:

1. Major Cardiovascular Disease is based on the tenth revision of the International Classification of Diseases (ICD-10), codes: I00-I78
2. Centers for Disease Control and Prevention (CDC). Deaths: Final Data for 2003. *NVSS National Vital Statistics Report*. April 19, 2006: Vol.54, No.13
3. Centers for Disease Control and Prevention (CDC). Decline in Deaths from Heart Disease and Stroke- United States, 1900-1999. *MMWR Morbidity and Mortality Weekly Report*. August 6, 1999: Vol.48, No.30
4. National Center for Health Statistics (NCHS). Leading Causes of Death, 1900-1998. http://www.cdc.gov/nchs/data/dvs/lead1900_98.pdf. Accessed May 2006
5. Armstrong GL, Conn LA, Pinner RW. Trends in Infectious Disease Mortality in the United States During the 20th Century. *Journal of the American Medical Association (JAMA)*. January 6, 1999: Vol 281, No.1
6. Idaho Department of Health and Welfare, Bureau of Health Policy and Vital Statistics. Idaho Behavioral Risk Factors: Results from the 1997 and the 2005 Behavioral Risk Factor Surveillance System. The 1997 BRFSS did not collect data for "adults who did not participate in leisure time physical activity" and "adults who did not eat five servings of fruits and vegetables each day". The percents for 1998 were used for these risk factors.
7. Statistically significantly at the 95% confidence level using the methodology that if the lower and upper confidence intervals between the two years do not overlap, the percents are significantly different at the 95% confidence level.
8. Centers for Disease Control and Prevention. Eliminate Disparities in Cardiovascular Disease (CVD). www.cdc.gov/omh/AMH/factsheets/cardio.htm. Accessed May 2006
9. Department of Health & Human Services and Center for Disease Control and Prevention. Know the Signs and Symptoms of a Heart Attack. June 2005
10. Department of Health & Human Services and Center for Disease Control and Prevention. Know the Signs and Symptoms of a Stroke. January 2004



Idaho Department of Health and Welfare, Bureau of Health Policy and Vital Statistics

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