

Minnesota Mortality Trends 1990 to 1995

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MINNESOTA MORTALITY TRENDS: 1990 TO 1995

by Martha McMurry

Minnesota mortality trends have not been as auspicious in the 1990s as in previous decades. Life expectancy gains for females have stopped or even reversed, and male gains in longevity are less than in the past. In addition, death rates for some types of cancer have increased. On the bright side, the death rate for heart disease has continued its substantial decline.

Number of Deaths Increases The number of deaths to Minnesota residents rose from 34,739 in 1990 to 37,429 in 1995, according to data provided by the Minnesota Center for Health Statistics.

The primary reason for the increase in the number of deaths was the aging of the population. There are more people in the age groups when death rates are higher. A growing number of Minnesotans are over age 70, and the aging of the baby boom generation has also resulted in more deaths.

The growing number of elderly Minnesotans is the main reason for the rising number of deaths. Census Bureau age estimates show that from 1990 to 1995 the number of Minnesotans age 70 and older went up 7.6 percent, and the population age 85 and older increased by 12.0 percent. There were 2,439 more deaths among people age 75 or older in 1995 than in 1990, accounting for more than 90 percent of the rise in the number of deaths.

The second biggest gain in number of deaths occurred among people age 35 to 54. There were 577 more deaths in this age group in 1995 than in 1990. Members of the baby boom generation are now in these age brackets where death rates begin to increase noticeably.

The overall death rate rose from 793.9 per 100,000 in 1990 to 811.9 per 100,000 in 1995. The death rate declined for males but rose for females.

Age-adjusted Death Rates The aging of the population accounts for some, but not all, of the increase in death rates. To assess whether the death rate is going up because the population is getting older or because of other factors, it is necessary to adjust the rates for changes in the age distribution. As a population ages, the number of deaths will increase even if the age-specific death rates remain constant. A population group with a relatively younger age distribution will tend to have fewer deaths than a population group of similar size with an older

age distribution.

A summary measure called the age-adjusted death rate controls for a population's age distribution and allows for comparisons of death rates over time or between groups. The conventional standardization is based on the 1940 United States age distribution. However, in this report, the 1990 Minnesota age distribution is used as the standard because the focus is on Minnesota mortality trends between 1990 and 1995. The age-adjusted death rates show what the 1995 death rates would be if age-specific death rates were at 1995 levels but the population distribution was the same as in 1990.

When the Minnesota death rates are standardized to the 1990 age distribution, the figures show essentially no change in the overall death rate. The gender differences remain, however. The age-standardized death rate fell for men but rose for women.

Life Expectancy Rises for Males, Shows Little Change for Females Minnesota and national life expectancy trends concur, showing moderate gains in life expectancy for males and little change for females so far in the 1990s. Total Minnesota life expectancy stayed about the same, 77.9 years in 1989-1990 and 78.0 in 1995. Life expectancy for males showed a modest gain from 74.6 years in 1990 to 75.1 years in 1995. For females, life expectancy dropped from 81.0 to 80.8 years.

National trends were similar. Life expectancy for males in the United States rose from 71.8 years in 1990 to 72.4 in 1994, according to the National Center for Health Statistics. National life tables for 1995 are not available at this time. Women also experienced a life expectancy gain nationally, from 78.8 to 79.0 years, much smaller than for males.

It is not clear why life expectancy for women rose marginally in the United States while declining slightly in Minnesota. Given the year-to-year fluctuations in deaths and possible errors in the age estimates, the differences in the state and national trends for women may not be meaningful. The differences are less significant than the common findings in the state and national data: life expectancy gains are less than in the past, and life expectancy for women is stagnating if not declining.

So far in the 1990s, life expectancy gains have been well behind the level of previous decades. In the 1980s, Minnesota male life expectancy went up 2.1 years and females gained 1.2 years. Between 1970 and 1980, males improved by 3.1 years and females by 3.0 years.

Although women continue to outlive men, the gender gap in life expectancy is declining. In 1970, the life expectancy gap in Minnesota was 7.4 years. Now it is 5.7 years.

**Life Expectancy by Age and Sex
Minnesota: 1989-90 and 1995**

Average Expected Years of Life Remaining:

Age	Total:		Males:		Females:	
	1989-90	1995	1989-90	1995	1989-90	1995
0	77.9	78.0	74.6	75.1	81.0	80.8
1	77.4	77.5	74.2	74.6	80.5	80.3
5	73.5	73.6	70.3	70.7	76.6	76.4
10	68.6	68.7	65.4	65.7	71.7	71.5
15	63.7	63.7	60.5	60.8	66.7	66.5
20	58.9	58.9	55.8	56.0	61.9	61.6
25	54.1	54.2	51.1	51.4	57.0	56.8
30	49.3	49.4	46.4	46.7	52.1	51.9
35	44.5	44.6	41.6	42.0	47.2	47.0
40	39.8	39.9	37.0	37.4	42.4	42.2
45	35.1	35.2	32.4	32.7	37.6	37.5
50	30.5	30.7	27.8	28.3	33.0	32.8
55	26.2	26.3	23.5	24.0	28.5	28.3
60	22.0	22.1	19.5	19.9	24.2	24.0
65	18.2	18.2	15.8	16.2	20.2	19.9
70	14.7	14.7	12.6	12.8	16.3	16.1
75	11.6	11.6	9.8	10.0	12.8	12.7
80	8.8	8.7	7.3	7.4	9.6	9.5
85	6.5	6.4	5.5	5.5	7.0	6.9

Age-Specific Death Rate Trends Between 1990 and 1995, Minnesota death rates climbed for some age groups but dropped for others. The trends also varied by gender.

Trends in younger age groups were mixed. The infant mortality rate was 7.0 per 1,000 in 1994, lower than the 7.3 per 1,000 figure in 1990. The decline in infant mortality has contributed to lower death rates for the under age 5 group for both males and females.

For men, mortality rates fell for all age groups between 55 and 84, but rose for those age 85 and older. The population 85 group may now be "older," including a larger share of those in their late 80s or 90s with extremely high mortality levels. In most Minnesota male age groups between 20 and 54, death rates rose, though the increases were small.

Female age-specific death rate trends were less favorable than those for males. Death rates went up for all ages over 75. The rising mortality rates for women age 75 to 84 suggests that not all the increase in death rates among older women can be attributed to a growth in the number of extremely old people.

For most age groups between age 40 and 74, women's death rates went down, but the declines were not as large as for men. And mortality rates went up slightly for Minnesota women between the ages of 20 and 39.

Mortality Rates Are Higher in 1995 Than in 1994 Minnesota mortality rates were generally higher in 1995 than in 1994, particularly for women. For women, mortality rates rose for most age groups over age 35. Mortality also rose slightly for males. It is not clear whether this is a blip or if it indicates the start of a long-term trend.

Heart Disease and Cancer Remain the Major Causes of Death The great majority of Minnesotans die either from diseases of the circulatory system or from neoplasms. In 1995, these two major causes accounted for 63 percent of total deaths. The proportion of deaths attributed to cancer remained steady at about 24 percent in both 1990 and 1995, but the proportion of deaths caused by circulatory system diseases fell from 42 percent to 39 percent.

Respiratory diseases, including pneumonia and emphysema, accounted for about 10 percent of deaths in 1995. Injury and poisoning, including homicide, suicide, and accidental deaths, were responsible for 6 percent of deaths. Another 4 percent of deaths were attributed to mental disorders, including Alzheimer's Disease.

The major causes of death are often not the ones that receive the most media attention. Homicide, teen suicide, AIDS, and snowmobiling accidents are discussed on TV and in newspapers far more often than, for example, pneumonia, yet deaths from pneumonia are far more common. Often the causes of death that receive the most media coverage are the ones that

Minnesota Death Rates per 100,000, by Age: 1990 and 1995

	1990 Death Rate Per 100,000	1995 Death Rate Per 100,000	Change in Death Rate
Total	793.9	811.9	18.0
Under 5	170.5	161.5	-9.0
5 to 9	17.7	15.6	-2.1
10 to 14	16.0	20.0	4.0
15 to 19	71.8	61.4	-10.3
20 to 24	85.2	91.5	6.3
25 to 29	68.2	81.2	12.9
30 to 34	90.9	96.2	5.3
35 to 39	131.3	137.6	6.3
40 to 44	179.2	172.2	-6.9
45 to 49	265.3	269.0	3.8
50 to 54	426.9	440.2	13.3
55 to 59	719.3	641.0	-78.3
60 to 64	1187.5	1141.7	-45.8
65 to 69	1837.1	1803.2	-33.9
70 to 74	2971.0	2860.3	-110.7
75 to 79	4399.5	4246.5	-153.0
80 to 84	7110.4	7143.2	32.8
85+	14926.0	15539.9	613.8
Males	819.2	814.0	-5.2
Under 5	191.6	182.6	-9.0
5 to 9	23.8	15.0	-8.8
10 to 14	16.9	25.1	8.2
15 to 19	102.9	82.4	-20.6
20 to 24	129.9	132.3	2.5
25 to 29	99.9	115.9	16.0
30 to 34	135.9	141.7	5.8
35 to 39	178.9	184.0	5.0
40 to 44	227.9	219.7	-8.3
45 to 49	317.1	335.0	17.9
50 to 54	529.6	557.2	27.6
55 to 59	907.3	798.9	-108.4
60 to 64	1521.3	1448.8	-72.5
65 to 69	2421.6	2318.9	-102.7
70 to 74	4033.5	3754.1	-279.5
75 to 79	6106.8	5622.9	-483.8
80 to 84	9644.6	9392.5	-252.1
85+	17920.3	18252.3	332.0
Females	769.5	810.0	40.4
Under 5	148.5	139.6	-8.9
5 to 9	11.3	16.3	5.0
10 to 14	15.1	14.6	-0.5
15 to 19	39.4	39.6	0.1
20 to 24	40.9	50.7	9.8
25 to 29	36.7	46.5	9.8
30 to 34	45.8	50.4	4.6
35 to 39	83.0	90.0	7.0
40 to 44	130.1	124.3	-5.9
45 to 49	213.7	203.3	-10.4
50 to 54	326.3	325.6	-0.7
55 to 59	537.9	487.5	-50.5
60 to 64	879.4	852.6	-26.7
65 to 69	1333.0	1355.0	22.0
70 to 74	2163.8	2135.9	-27.9
75 to 79	3263.6	3296.2	32.6
80 to 84	5725.1	5863.3	138.2
85+	13747.6	14479.2	731.6

affect primarily children or younger people. The concept "Years of Potential Life Lost," a measure of mortality that takes into account the age at which people die, draws attention to causes of death that occur early in life and may be more preventable. Motor vehicle accidents, homicides, and AIDS loom larger as causes of years of potential life lost than they do in the overall rankings of causes of death.

Heart Disease Death Rates Decline The falling proportion of deaths attributable to heart disease reflects substantial recent declines in the death rates from this cause. The Minnesota heart disease death rate, adjusted to the 1990 age distribution, has gone down for both men and women, falling more for men (-10.9 percent) than for women (-6.9 percent).

Heart disease is often stereotyped as a male disease, and in fact death rates from heart disease are higher for men within each age group. Yet, paradoxically, in 1995 more Minnesota women than men died from this cause, and the overall female heart disease death rate, 323.5 per 100,000, was higher than the overall male rate of 312.1 per 100,000. The apparent paradox occurs because there are larger numbers and proportions of women in the oldest age groups. The very high heart disease death rates that prevail among the oldest female age groups raise the total number of deaths and the total death rate.

Death rates did not fall for all types of heart disease. Rates of mortality declined for acute myocardial infarction and chronic ischemic heart disease, but went up for cerebrovascular disease (such as strokes) and all other diseases of the heart.

Cancer Death Rates Rise for Females, Decline for Males From 1990 to 1995, the age-standardized cancer death rate rose 4.4 percent for Minnesota females, while declining 1.1 percent for males. There was basically no change in the overall age-adjusted cancer death rate.

This Minnesota pattern appears at first glance to be contrary to national trends recently reported by the National Institutes of Health. The NIH study found that between 1991 and 1995 the national cancer death rate declined by nearly 3 percent, marking the first sustained decline since record-keeping began in the 1930s.

An examination of the discrepancy between the Minnesota and national trends shows that the conclusion about what is happening to cancer mortality rates appears to depend on which age distribution is used as a standard. Mortality researchers traditionally use the 1940 United States age distribution, and this is what was used in the NIH study. If the Minnesota data are standardized to this same 1940 age distribution, the overall Minnesota cancer death rate declines, just like the national rates. However, when the Minnesota rates are standardized to the more similar 1990 Minnesota age distribution, the result no change in the overall cancer death rate and an increase for women.

**Minnesota Death Rates per 100,000
1990 and 1995, Actual and Standardized,
Total and Selected Causes**

	1990 Rate	1995 Rate	1995 Rate, Using 1990 Age Distribution
All Causes			
Total Death Rate	793.9	811.9	792.3
Total Male Rate	819.2	814.6	793.0
Total Female Rate	769.5	810.0	787.5
Diseases of Circulatory System			
Total Rate	337.0	317.9	308.0
Male Rate	338.8	312.1	301.8
Female Rate	335.3	323.5	312.1
Neoplasms (Cancer)			
Total Rate	188.0	190.9	187.9
Male Rate	200.8	198.6	194.2
Female Rate	175.8	183.5	181.0
Cancer of Prostate			
Male Rate	28.3	28.8	27.8
Cancer of Genitourinary Organs (Females)			
Female Rate	22.2	23.1	22.6
Cancer of Colon, Rectum, etc.			
Total Rate	21.7	21.2	20.9
Male Rate	22.9	20.7	20.3
Female Rate	20.5	21.7	21.3
Breast Cancer			
Female Rate	33.5	36.9	36.0
Cancer of Trachea, Bronchus and Lung			
Total Rate	43.6	44.9	44.8
Male Rate	57.0	54.2	53.6
Female Rate	30.7	35.8	35.8
Diseases of Respiratory System			
Total Rate	76.0	78.7	76.4
Male Rate	79.3	77.5	74.8
Female Rate	72.8	79.7	77.5
Mental Disorders			
Total Rate	17.9	29.4	28.1
Male Rate	14.3	20.4	19.6
Female Rate	21.3	38.1	36.2
Injury and Poisoning			
Total Rate	49.8	51.9	51.8
Male Rate	69.6	69.5	69.8
Female Rate	30.4	34.9	34.3
Symptoms, Signs and Ill-Defined Conditions			
Total Rate	17.0	20.7	20.3
Male Rate	15.2	16.8	16.6
Female Rate	18.7	24.6	23.8

Is it better to standardize to a 1940 age distribution or a 1990 distribution? I would argue that for purposes of comparing 1990 Minnesota death rates to 1995 Minnesota death rates, the 1990 age distribution is more appropriate. Using the 1940 United States age distribution is an accepted convention, but it tends to weight deaths less if they occur to older people. This is because the current population contains a much larger proportion of elderly people. In the 1940 age distribution, only 6.8 percent of the population is age 65 or older, compared to 12.5 percent in the 1990 Minnesota age distribution.

If cancer death rates are declining for people in their 40s and 50s but increasing for older people, the age-adjusted death rate might decline if the 1940 distribution is used as a standard yet show no change or increase if the 1990 distribution is used. This is in fact what has been happening in Minnesota. Trends in cancer mortality have varied by age. From 1990 to 1995, male cancer death rates fell for most age groups under age 85, but went up among males ages 85 and older. The increases among women were more systematic, with rising age-specific rates for all age groups over 60.

Breast Cancer Death Rate Rises for Minnesota Women The age-adjusted death rate from breast cancer rose 7.5 percent for Minnesota women between 1990 and 1995. The rate increased both for women under 65 and for older women, with a very large gain of 23 percent in the death rate for women ages 85 and older.

Lung Cancer Death Rate Goes Down for Males but Rises for Females The Minnesota age-adjusted rate of death from cancer of the trachea, bronchus and lung declined 6.0 percent for men, but went up 16.6 percent among women. Every female age group over 50 showed an increase in the rate of death from these respiratory system cancers. The national studies, which give figures for lung cancer only, also show falling rates for males and rising rates for females.

The most likely explanation for the rising female death rates is smoking. No figures on the smoking histories of Minnesota women are available, but it seems likely that the current generation of older women probably smoked more than previous generations, and they are paying for it in higher rates of lung cancer. Women also had an increase in the rate of death from non-cancer respiratory diseases, including emphysema. Like lung cancer, some of these diseases are strongly linked to smoking.

Data from the National Household Survey on Drug Abuse show that men are more likely to be current or lifetime smokers, but differences in lifetime smoking rates are smaller among younger people than older ones. And for women, lifetime smoking rates are much higher for women between ages 30 and 64 than for older women. This pattern is consistent with the finding of rising lung cancer death rates for women and a gradual convergence in the rates for men and women. This trend should be monitored in the future.

Minnesota Deaths from Selected Causes, 1990-1995

Year	HIV Infection	Mental Disorders:		Falls:		Symptoms, Signs and Ill-Defined Conditions	
		Total	Age 85+	Total	Age 85+	Total	Age 85+
1990	166	782	435	345	154	743	298
1991	182	840	465	356	179	708	271
1992	171	874	481	368	195	775	355
1993	205	1107	633	400	208	817	360
1994	255	1187	671	456	241	1002	488
1995	261	1356	790	465	251	956	457

Prostate Cancer Death Rate Rises for Men Ages 85+ The overall age-adjusted Minnesota prostate cancer death rate declined very slightly between 1990 and 1995, from 28.3 to 27.8 per 100,000. In Minnesota, prostate cancer deaths fell in most age groups, but there was a dramatic increase in the rate for men ages 85 and over. For men in this oldest age group, the death rate went up by 32 percent, from 785.5 to 1036.3 per 100,000.

Rate of Female Genitourinary Cancer Deaths Goes Up Slightly There was a very small increase in the Minnesota female death rate for genitourinary cancer. This includes cervical and ovarian cancer. The largest increases occurred among women under 65.

Rate of Death from Colorectal Cancer Falls for Men, Rises for Women Trends in deaths from cancer of the colon and rectum differed for Minnesota men and women. The age-adjusted death rate fell 11.4 percent for men but increased 3.9 percent among women.

Most of the increase in the death rate for women in Minnesota occurred over age 70. For younger women, colorectal cancer death rates went down.

Selected Other Causes: HIV Infection Between 1990 and 1995 there were dramatic increases in deaths from HIV-AIDS, mental disorders, falls, and a category called "symptoms, signs, and ill-defined conditions." The number of people dying from these causes is relatively small, but the growing rates may be significant indicators of social or demographic trends.

The number of Minnesota deaths attributable to HIV infection grew steadily from 176 in 1990 to 261 in 1995. The great majority of those dying from AIDS are young or middle-aged adults. In 1995, 55 percent were between the ages of 30 and 39.

Mental Disorders Deaths attributed to mental disorders rose from 782 in 1990 to 1,356 in 1995. The age-adjusted mental disorder death rate went up 70 percent for women and 37 percent for men. Most of these deaths are probably caused by Alzheimer's disease or another age-related dementia. In 1995, 74 percent of those dying from mental disorders were age 80 or older.

Part of the reason for the increase in mental disorder deaths is the rapid growth of the very old population that is most vulnerable to these diseases, but the rate of increase is so great that it cannot all be explained by demographic factors. It is possible these mental ailments are becoming more prevalent, but other explanations are more likely. For example, doctors may be more likely to report Alzheimer's as a cause of death now than they were in the past. There may be more awareness of the disease, and it is probably less stigmatized now that its biological nature is better understood.

Falls Deaths attributed to accidental falls went up 35 percent, from 345 in 1990 to 465

in 1995. The extremely old are particularly likely to die from falls. The number of people over age 85 who died from falls increased from 154 in 1990 to 251 in 1995. The fall death rate for people 85 or older also grew dramatically, from 226.2 to 329.4 per 100,000.

Symptoms, Signs and Ill-Defined Conditions The number of Minnesota deaths with no clear diagnosis of the cause grew by 29 percent, from 743 in 1990 to 956 in 1995. Deaths attributed to symptoms and ill-defined conditions occur disproportionately among infants and the very old. In 1995, about 60 percent of deaths in this category were to persons over age 80.

Other Causes of Death Other causes of death posting big increases between 1990 and 1995 include septicemia; diabetes mellitus and other endocrine and metabolic diseases; and diseases of the nervous system and sense organs, including Parkinson's Disease. All these diseases affect primarily older people, and much of the growth is probably tied to population aging.

Homicide Much attention has been paid recently to Minnesota's rising homicide rate. Between 1990 and 1995, the number of homicide deaths grew by 30 percent, from 135 to 175. In 1995, seventy percent of homicide victims were males, and 58 percent were between the ages of 15 and 34.

Suicide Almost three times as many Minnesotans die from suicide as from homicide. The number of suicide deaths declined slightly between 1990 and 1995, from 542 to 519. The great majority of those who commit suicide (83 percent) are males.

Conclusions

The number of deaths during the 1990s has been higher than in the past and higher than was projected in the 1993 Demographer's Office projections series. It appears that Minnesota mortality improvements have slowed considerably, at least for women. Mortality appears to have been particularly high in the 1995 data, the latest available. Since there is a good deal of variation in year-to-year mortality rates, mortality trends should be monitored further before arriving at any gloomy conclusions.

Part of the reason for the rising death rates is that the number of very old people is increasing. Because of the historic trend towards higher survival rates, the 85 and older population is not only growing in numbers, but is probably getting older, with a higher proportion who are over age 90 or even 95. Since an unprecedented number of people have survived to an extremely old age, part of what we may be seeing is a catch-up phenomenon as these very old people finally die in their late eighties or nineties.

The data on age at death are consistent with this hypothesis, though they do not provide conclusive proof. Between 1990 and 1995, the number of deaths for Minnesotans ages 85 to 89 went up 13.0 percent, compared to an increase of 19.4 percent for persons in their nineties and 29.4 percent for those aged 100 or older. The proportion of 85 and older deaths occurring among the "younger" 85 to 89-year-old group declined from 49.0 percent of the total to 47.5 percent.

The rapid increases in deaths from falls, mental disorders, and ill-defined conditions are consistent with the hypothesis that there is a growing population of extremely old, frail individuals. To assess these trends, it would be useful to have age estimates of the number of people over age 90 or 95, instead of lumping together all the age groups over age 85.

Is it possible that the rather discouraging mortality trends are the product of some sort of statistical artifact? The accuracy of the MCHS data on deaths by age is generally regarded as quite good. A more likely error lies in the age estimates from the Census Bureau. For the population over age 65, where most deaths occur, the Bureau method is based on Medicare records. These numbers should be quite accurate, though I have not seen any state-level evaluations. However, given the relatively small size of some of the very old age groups, errors in the age estimates would have a large effect on the age-specific death rates.

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Minnesota Deaths by Cause of Death: 1990 and 1995

		1990	1995	Change, 1990-95	% Change, 1990-95
TOTAL DEATHS					
Total		34739	37427	2688	8%
Male		17577	18464	887	5%
Female		17162	18963	1801	10%
I. Infectious and Parasitic Diseases					
Total		480	664	184	38%
Male		301	449	148	49%
Female		179	215	36	20%
Septicemia					
Total		181	237	56	31%
Male		81	109	28	35%
Female		100	128	28	28%
All other infectious/parasitic					
Total		299	427	128	43%
Male		220	340	120	55%
Female		79	87	8	10%
II. Neoplasms					
Of digestive organs and peritoneum					
Total		1990	2097	107	5%
Male		1049	1097	48	5%
Female		941	1000	59	6%
Of trachea, bronchus and lung					
Total		1909	2068	159	8%
Male		1224	1229	5	0%
Female		685	839	154	22%
Of breast					
Total		748	777	29	4%
Male		2	4	2	Not computed
Female		746	773	27	4%

Minnesota Deaths by Cause of Death: 1990 and 1995

	1990	1995	Change, 1990-95	% Change, 1990-95
Of prostate				
Total	607	653	46	8%
Male	607	653	46	8%
Female	0	0	0	n/a
Leukemia				
Total	376	430	54	14%
Male	210	260	50	24%
Female	166	170	4	2%
All other neoplasms				
Total	2598	2776	178	7%
Male	1216	1261	45	4%
Female	1382	1515	133	10%
III. Endocrine, nutritional and metabolic diseases and immunity disorders				
Diabetes mellitus				
Total	936	1188	252	27%
Male	394	551	157	40%
Female	542	647	105	19%
All other endocrine/metabolic				
Total	247	327	80	32%
Male	96	146	50	52%
Female	151	191	40	26%
IV. Diseases of the blood and blood-forming organs				
Total	169	180	11	7%
Male	70	86	16	23%
Female	99	94	-5	-5%

Minnesota Deaths by Cause of Death: 1990 and 1995

		1990	1995	Change, 1990-95	% Change, 1990-95
V. Mental disorders					
	Total	782	1356	574	73%
	Male	306	463	157	51%
	Female	476	893	417	88%
VI. Diseases of the nervous system and sense organs					
	Total	920	1196	276	30%
	Male	411	530	119	29%
	Female	509	666	157	31%
VII. Diseases of the circulatory system					
	Total	14746	14653	-93	-1%
	Male	7269	7079	-190	-3%
	Female	7477	7574	97	1%
Acute myocardial infarction					
	Total	3574	3062	-512	-14%
	Male	2044	1706	-338	-17%
	Female	1530	1356	-174	-11%
Chronic ischemic heart disease					
	Total	4169	3807	-362	-9%
	Male	2231	2050	-181	-8%
	Female	1938	1757	-181	-9%
Cerebrovascular disease					
	Total	2839	3121	282	10%
	Male	1099	1149	50	5%
	Female	1740	1972	232	13%
All other diseases of the heart					
	Total	4164	4663	499	12%
	Male	1895	2174	279	15%
	Female	2269	2489	220	10%
VIII. Diseases of the respiratory system					
Pneumonia and influenza					
	Total	1462	1514	52	4%
	Male	641	642	1	0%
	Female	821	872	51	6%
All other diseases of the respiratory system					
	Total	1863	2113	250	13%
	Male	1060	1115	55	5%
	Female	803	998	195	24%

Minnesota Deaths by Cause of Death: 1990 and 1995

	1990	1995	Change, 1990-95	% Change, 1990-95
IX. Diseases of the digestive system				
Chronic liver disease and cirrhosis				
Total	1108	1169	61	6%
Male	501	545	44	9%
Female	607	624	17	3%
All other diseases of the digestive system				
Total	292	308	16	5%
Male	179	190	11	6%
Female	113	118	5	4%
X. Diseases of the genitourinary system				
Total	816	861	45	6%
Male	322	355	33	10%
Female	494	506	12	2%
XI. Complications of pregnancy, childbirth and the puerperium				
Total	504	622	118	23%
Male	213	279	66	31%
Female	291	343	52	18%
Female	3	0	-3	Not computed

Minnesota Deaths by Cause of Death: 1990 and 1995

	1990	1995	Change, 1990-95	% Change, 1990-95
XII. Diseases of the skin and subcutaneous tissue				
Total	35	33	-2	-6%
Male	7	13	6	86%
Female	28	20	-8	-29%
XIII. Diseases of the musculoskeletal system and connective tissue				
Total	160	216	56	35%
Male	40	56	16	40%
Female	120	160	40	33%
XIV. Congenital anomalies				
Total	236	210	-26	-11%
Male	129	107	-22	-17%
Female	107	103	-4	-4%
XV. Certain conditions originating in the perinatal period				
Total	187	163	-24	-13%
Male	101	88	-13	-13%
Female	86	75	-11	-13%
XVI. Symptoms, signs and ill-defined conditions				
Total	743	956	213	29%
Male	326	380	54	17%
Female	417	576	159	38%
XVII. Injury and poisoning				
Total	2177	2393	216	10%
Male	1500	1577	77	5%
Female	677	816	139	21%

Minnesota Deaths by Cause of Death: 1990 and 1995

		1990	1995	Change,	% Change,
				1990-95	1990-95
Motor vehicle	Total	660	657	-3	-0%
	Male	448	429	-19	-4%
	Female	212	228	16	8%
Falls	Total	345	465	120	35%
	Male	156	198	42	27%
	Female	189	267	78	41%
Suicide and self-inflicted injury	Total	542	519	-23	-4%
	Male	430	431	1	0%
	Female	112	88	-24	-21%
Homicide and injury purposely inflicted by other persons					
	Total	135	175	40	30%
	Male	97	123	26	27%
	Female	38	52	14	37%
All other injury and poisoning	Total	495	577	82	17%
	Male	369	396	27	7%
	Female	126	181	55	44%

Sources: Death data from Minnesota Center for Health Statistics. Population data from U.S. Bureau of the Census.



Minnesota Mortality Trends 1990 to 1995

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