CENTER FOR HEALTH STATISTICS
MINNESOTA DEPARTMENT OF HEALTH

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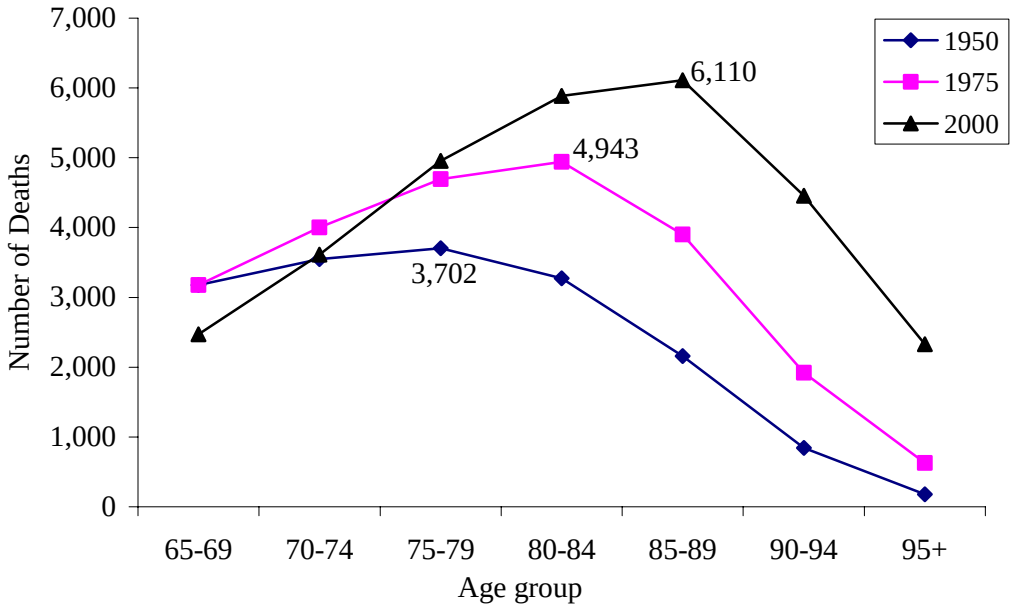
Deaths Among Older Minnesotans

People in Minnesota are living longer as can be demonstrated by both population and death data. This issue of Vital Signs will look at trends in death and population to those age 65 and older over the last 50 years. Data are from the death certificates of Minnesota residents from 1950 to 2004 and the U.S Census Bureau.

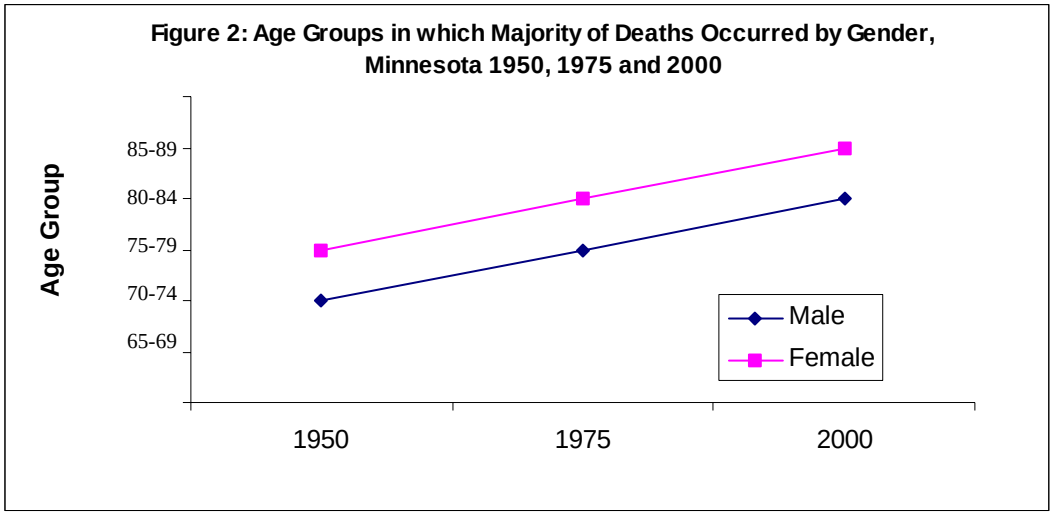
Age at Death

The age at death is increasing for Minnesotans as illustrated by the increase in the number of deaths occurring at older ages (Figure 1). In 1950 the overall number of deaths peaks in the 75-79 year old age group with 3,702 deaths occurring in that age group, 13% of all deaths. In 1975 the peak shifts to the 80-84 year old age group and by 2000 the peak has shifted again to the 85-89 year old group which constitutes 16% of all deaths in 2000. The greatest number of deaths occur in the 85-89 year old age group for 2004 as well.

Figure 1: Age at Death, Minnesota 1950, 1975 and 2000



The increase in age at death is due mainly to the increasing numbers of females dying at older ages. In 1950, the majority of female deaths occur in the 75-79 age group. By 1975 the majority of female deaths occur in the 80-84 year olds. In 2000 the majority of deaths shift yet again to the 85-89 year olds. For males the peaks occur 5 years earlier; in the 70-74 age group in 1950, in the 75-79 age group in 1975, and in the 80-84 age group in 2000 (Figure 2).



Interestingly, the number of deaths to persons age 100 and older has doubled for males since 1980 (the first year separate data is available for this group) from 31 in 1980 to 62 in 2004. For females the number has quadrupled over this time period, from 89 to 376. The female to male ratio in the 100 years and older age group has increased from approximately 3:1 in 1980 to 6:1 in 2004.

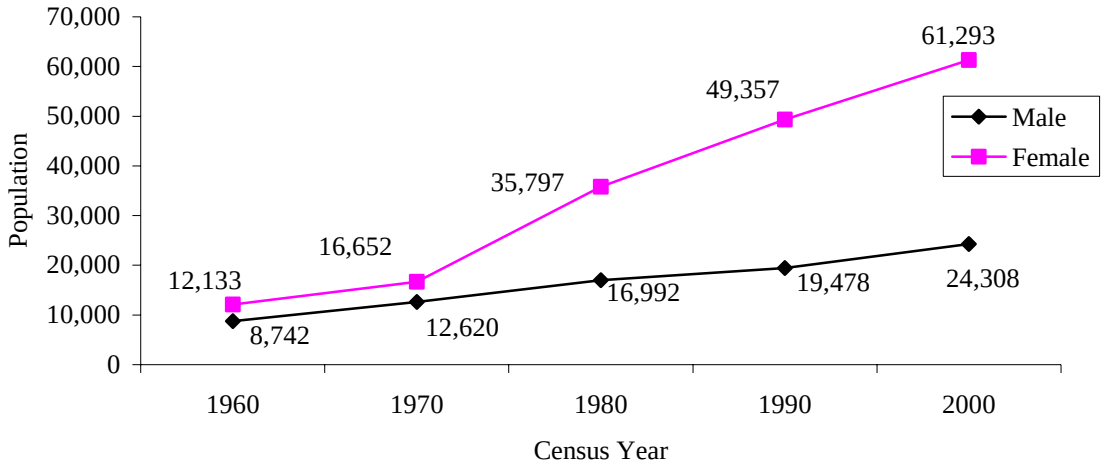
Table 1: Deaths to Persons Ages 100 years and older, Minnesota

Year	Males	Females	Female/Male Ratio
1980	31	89	2.9
1985	63	186	3.0
1990	68	259	3.8
1995	77	346	4.5
2000	56	394	7.0
2001	55	378	6.9
2002	53	372	7.0
2003	65	404	6.2
2004	62	376	6.1

Population

Population figures for the 65 and older age groups show increasing numbers of elderly in Minnesota. While numbers have increased for both males and females over age 65, the growth has been particularly pronounced in the 85 and over age group. The number of people age 85 and over has increased for males from 8,742 in 1960 to 24,308 in 2000. The increase among females has been much more dramatic, increasing from 12,133 in 1960 to 61,293 in 2000. Thus the gap between numbers of males and numbers of females continues to widen. In 1960 there were 1.4 females to each male in the 85 and over age group. In 2000 there were 2.5 females to each male (Figure 3). In contrast, for the 65-84 year old population the ratio grew by much less, from 1.1 in 1960 to 1.3 in 2000.

Figure 3: Population of 85 Years and Older, Minnesota, Selected Census Years



The 65 and over age group as a proportion of the entire population also shows growth in Minnesota's older population. In 1960, 10.4% of the population is 65 years and older and 0.6% are 85 years and older. By 2000, 12.1% are 65 years and older and 1.7% are over 85 (Table 2). This trend is expected to continue as the baby boom generation reaches age 65 and beyond in the next decades.

Table 2: Percent of Total Population for Persons Ages 65 and Over and 85 and Over, Minnesota Selected Years

65 Years and Over		85 Years and Over	
Year	Percent of Total Population	Year	Percent of Total Population
1950	9.0	1950	n.a.
1960	10.4	1960	0.6
1970	10.6	1970	0.8
1980	11.8	1980	1.3
1990	12.5	1990	1.6
2000	12.1	2000	1.7

Death Rates

Because of differing population size for gender and age groups, a more accurate picture of differences is obtained by looking at rates rather than counts. Table 3 indicates differences in death rates between males and females in five-year age groups. Because of the large number of deaths in this population, the rates shown here use a base of 10,000 population rather than the more commonly used base of 100,000.

Table 3: Death Rates per 10,000 population by Age Group and Gender, Minnesota Selected Years

Year	Gender	Age 65-69	Age 70-74	Age 75-79	Age 80-84	Age 85+
1960	Male	348.0	526.8	830.9	1,305.6	2,128.8
	Female	196.7	336.4	565.6	1,038.6	1,935.2
	Total	270.7	428.9	689.9	1,157.7	2,016.3
1970	Male	354.8	499.0	812.5	1,187.0	1,849.5
	Female	166.5	287.6	493.6	802.0	1,966.1
	Total	252.9	381.2	631.7	958.1	1,915.8
1980	Male	306.6	449.4	679.6	1,063.6	1,802.6
	Female	141.9	225.3	365.8	622.9	1,399.0
	Total	216.9	322.0	489.8	783.9	1,528.9
1990	Male	241.6	403.7	609.1	965.9	1,768.7
	Female	133.0	215.9	325.4	572.2	1,360.5
	Total	183.3	297.1	438.7	711.2	1,476.0
2000	Male	199.8	317.9	508.2	853.1	1,756.2
	Female	126.5	199.5	328.2	534.4	1,415.2
	Total	161.3	253.1	404.1	652.7	1,512.0

As expected, death rates rise with age for both males and females. Death rates for males are greater than those for females at any given age group and year, with one exception (1970, 85+). Rates of death for both males and females have dropped over the years, again with one exception (females, age 85+). The death rate for females is higher in 2000 than it was in 1990 as is the rate for the total 85+ age group.

Cause of Death

Gender

Although death rates may differ by quite large amounts, leading causes of death are remarkably similar for males and females in these age groups (Table 4). Using 2004 as an example typical of the last several years; cancer, heart disease, chronic lower respiratory disease, cerebrovascular disease, and diabetes make up the top five causes for both genders from age 65 to age 74. For males these five remain as the leading causes until age 85 when accidents replace diabetes and heart disease overtakes cancer as the number one cause. For females, Alzheimer's disease takes the place of diabetes as one of the top five causes of death at age 75 and as it does for males, heart disease switches places with cancer in the number one and two positions at age 85.

Table 4: Age-Specific Death Rates per 10,000 Population For Leading Causes of Death by Gender, Minnesota 2004

	Male		Female	
Age Group	**Cause**	**Rate**	**Cause**	**Rate**
Age 65-69	Cancer	65.4	Cancer	90.9
	Heart Disease	36.7	Heart Disease	13.4
	Chronic Lower Respiratory	10.2	Chronic Lower Respiratory	8.4
	Cerebrovascular	8.7	Cerebrovascular	4.3
	Diabetes	6.7	Diabetes	2.1
Age 70-74	Cancer	101.4	Cancer	74.2
	Heart Disease	54.7	Heart Disease	27.7
	Chronic Lower Respiratory	21.7	Chronic Lower Respiratory	14.6
	Cerebrovascular	13.5	Cerebrovascular	9.9
	Diabetes	9.7	Diabetes	8.5
Age 75-79	Cancer	139.1	Cancer	89.1
	Heart Disease	103.1	Heart Disease	54.7
	Chronic Lower Respiratory	35.3	Chronic Lower Respiratory	23.6
	Cerebrovascular	30.0	Cerebrovascular	22.5
	Diabetes	16.6	Alzheimer's	12.5
Age 80-84	Cancer	202.0	Cancer	113.4
	Heart Disease	183.4	Heart Disease	110.3
	Cerebrovascular	55.8	Cerebrovascular	49.5
	Chronic Lower Respiratory	51.1	Chronic Lower Respiratory	29.6
	Diabetes	28.2	Alzheimer's	28.2
Age 85+	Heart Disease	402.6	Heart Disease	336.4
	Cancer	258.2	Cancer	135.4
	Cerebrovascular	123.8	Cerebrovascular	129.0
	Other Accidents	88.2	Alzheimer's	84.2
	Chronic Lower Respiratory	79.2	Chronic Lower Respiratory	43.9

Historical Perspective

Leading causes of death among older Minnesotans have changed little over the past 50 years. Heart disease, cancer and cerebrovascular disease (intercranial vascular lesions in the 1950 data) have remained the three leading causes of death for those age 65 and over since 1950 (Table 5). While the number of deaths due to cerebrovascular disease has not varied much, the gap between the numbers of deaths due to heart disease and cancer has narrowed considerably in the last 25 to 30 years. In 1950, heart disease was responsible for approximately 2.9 times more deaths than was cancer in this age group. In 1975, heart disease deaths were still 2.3 times more prevalent, but by 2004, the numbers of deaths for each were nearly equal. Cancer surpasses heart disease as the leading cause of death for the entire state population in 2004, but the greater number of deaths due to heart disease in the 85+ age group makes heart disease still the number one cause of death among those age 65 and older, although by only an extremely small count.

Table 5: Leading Causes of Death for Persons Age 65 and Over, Minnesota, 1950, 1975 and 2004

1950		1975		2004	
Cause	**Number**	**Cause**	**Number**	**Cause**	**Number**
Heart Disease	7,214	Heart Disease	9,864	Heart Disease	6,685
Intercranial Vascular Lesions	2,750	Cancer	4,203	Cancer	6,620
Cancer	2,501	Cerebrovascular	3,087	Cerebrovascular	2,316
Arteriosclerosis	796	Pneumonia/Influenza	994	Chronic Lower Respiratory	1,643
Accidents	648	Arteriosclerosis	531	Alzheimer’s Disease	1,216
Pneumonia/Influenza	565	Accidents	528	Diabetes	895
Diabetes	381	Diabetes	385	Accidents	856

Arteriosclerosis, accidents, pneumonia/influenza, and diabetes appear as causes four through seven in both 1950 and 1975, although the order changes. However, by 2004, while accidents and diabetes remain in the top seven, chronic lower respiratory disease and Alzheimer’s disease replace arteriosclerosis and pneumonia/influenza as the remaining leading causes.

Minnesota Vital Signs

Minnesota Center for Health Statistics
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