



## Common Causes of Death

*“Sex differences in mortality are well established facts. In the human population of developed countries where infectious diseases are not significant causes of death, the penalty for maleness is that almost every important disease has a higher mortality rate in males than in females” (Hayflick 1982).*

Now that we have seen how prevalent the sex mortality differential is, both around the world and at all ages, let us examine how the sexes differ by cause of death. The age-adjusted death rate from all causes in the United States in 1998 was 58.2% greater for males than for females. Of 72 selected causes of death, the only ones that yielded greater female than male age-adjusted death rates during that year were breast cancer, Alzheimer’s disease, asthma, rheumatic fever, complications of pregnancy/childbirth, and kidney infections. These causes account for only 6.7% (5.0%, 0.8%, 0.4%, 0.3%, 0.1%, and 0.1%, respectively) of the total female age-adjusted death rate.

These mortality statistics were compiled in accordance with the World Health Organization regulations, which specify classification of causes of death by the current *Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death*, which is the Ninth Revision of the *International Classification of Disease*. Cause of death data have been coded by procedures outlined in the *National Center for Health Statistics Instruction Manual* (Murphy 2000). *“There is no set of mortality-increasing diseases that is more common in women than in men than the autoimmune disorders (save for those virtually unique to the female, such as breast cancer). However, the collective prevalence of such disorders is not sufficient to narrow even slightly the overall gender differential in longevity” (Hazzard 1999).*

Figures 9 and 10 show the age-adjusted death rates by sex for major causes of death in the United States in 1998 and in Canada in 1994, respectively. The causes of death are listed from left to right in decreasing order of the male age-adjusted death rate, with the

scale being on the left. The bars represent the ratio of the age-adjusted death rates (male/female), with the scale on the right. Figure 9 shows that, in the United States, those causes associated with the greatest ratio—suicide (ratio of 4.3) and homicide (ratio of 3.5)—are sixth and tenth, respectively, in the order of their magnitude of contribution to the male age-adjusted death rate.

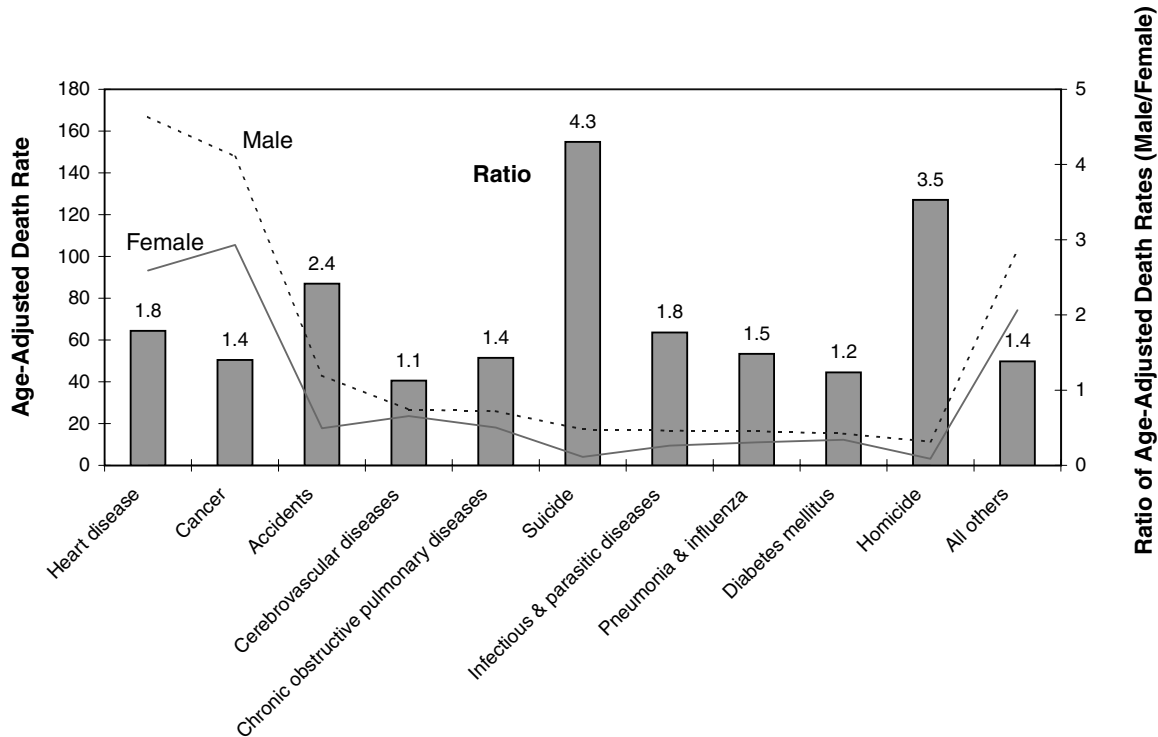
For all of these major causes of death, the age-adjusted death rate for males exceeds that for females; for the two largest contributors to the death rates, heart disease and cancer, the ratios are 1.8 and 1.4, respectively (Murphy 2000). (Heart disease causes almost 50% more female deaths than does cancer, but because the deaths from heart disease occur at later ages, the female age-adjusted death rate for heart disease is less than the rate for cancer).

As shown in Figure 10, the Canadian results are similar, but not exactly the same. In Canada, the age-adjusted death rate from cancer is greater than that from heart disease for both males and females. Also, the order of age-adjusted death rates for males are not the same as in the United States. In both countries, for all of these major causes of death, the age-adjusted death rate for males exceeds that for females. The ratios of the age-adjusted death rates (male/female) are similar in both countries, except that the ratio is higher in Canada from chronic obstructive pulmonary diseases (2.6 in Canada compared with 1.4 in the United States), infectious and parasitic diseases (3.2 in Canada and 1.8 in the United States) and homicide (1.9 in Canada and 3.5 in the United States).

The tables in Appendices D and E show male and female death rates by five-year age groups for major causes of death, along with the ratios of the male-to-female rates in the United States in 1997 and in Canada in 1994, respectively. The mortality rates attributable to cancer for ages 30-44 in the United States, and for ages 30-55 in Canada, are greater for females than for males, because of breast cancer and cancer of the genital organs. There are a few other



**FIGURE 9**  
**AGE-ADJUSTED U.S. DEATH RATES FOR MAJOR CAUSES OF DEATH**  
**1998**



Source of data: Murphy 2000, Table 14.

scattered age groups in which female rates are greater than male rates, but these do not appear to be part of a pattern. It is interesting to note that, in both countries, the greatest ratio is for death from suicide at the highest age group: 12.3 in the United States for ages 85+ and 19.8 in Canada for ages 90+.

## 6.1 Heart Disease

The leading cause of death for both sexes in the United States is heart disease, accounting for 31.0% of the deaths in 1998. The age-adjusted death rates from heart disease were 166.9 per 100,000 for males and 93.3 for females, or 1.8 times more for males than for the females (Murphy 2000). Women in every age group have a significantly lower incidence of fatal arteriosclerotic heart disease, myocardial infarcts, transient coronary ischemia, and bronchopulmonary disease (Ramey 1982).

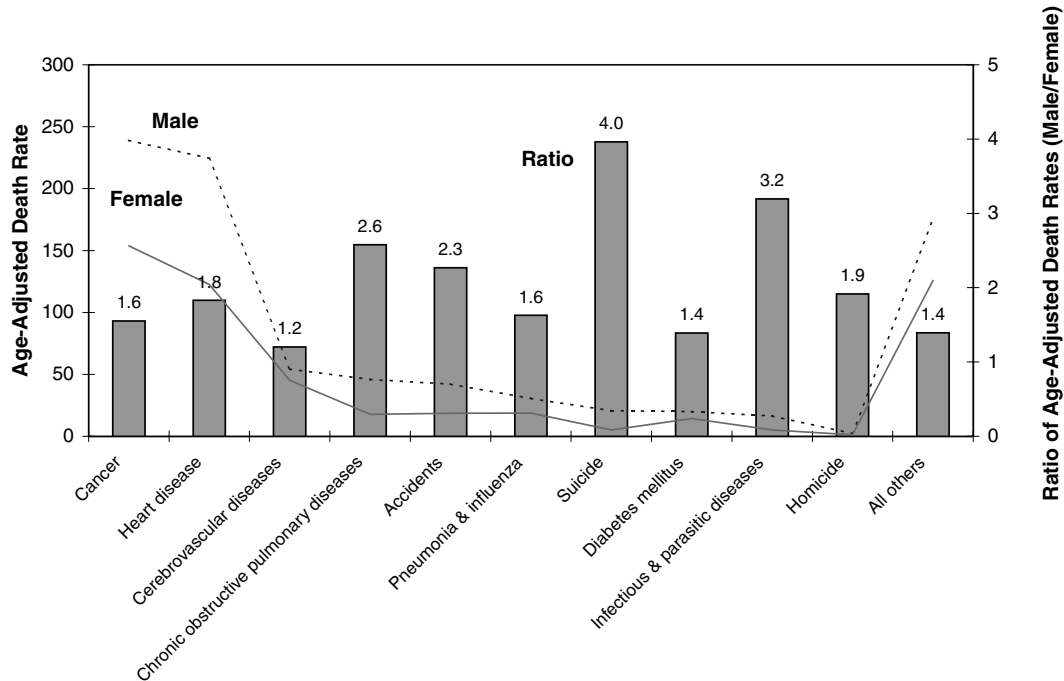
Because cardiovascular disease accounts for so many deaths, it is important when studying the sex mortality differential to examine the differential with

respect to cardiovascular disease. Nikiforov and Mammaev (1998) analyzed the historical trend of the sex mortality differential due to cardiovascular disease in England and Wales for the period covering 1861–1992, and in the United States for the period covering 1900–91. They found that, in England and Wales, and in the United States, cardiovascular disease mortality passed through three stages. Until the 1920s, there was no significant difference between the sexes in mortality from cardiovascular disease. From the 1920s to the 1960s, male mortality from cardiovascular disease increased, while female mortality from cardiovascular disease decreased. During the third stage, from the 1960s to the present, excess male mortality from cardiovascular disease stabilized and even slightly declined. (Johnson 1977 also found this trend in the United States.)

It is interesting to note that, in England and Wales, and the United States, spikes of cardiovascular disease mortality occurred in young males (ages 15–35) during World Wars I and II. Also, mortality rates due to major cardiovascular-renal diseases for white women decreased substantially from 1920 to 1955, even for the



**FIGURE 10**  
**AGE-ADJUSTED CANADIAN DEATH RATES FOR MAJOR CAUSES OF DEATH**  
**1994**



Source of data: Statistics Canada 1996, Table 3.

55–64 age group, though estrogen replacement therapy was neither widespread nor prolonged (Moriyama et al. 1958). Preston (1976), in studying mortality in 165 countries from as early as the 1860s, found that “*increasing sex differentials from cardiovascular disease are by themselves responsible for 80% of the increase (in the total differential).*” Tomasson (1984) found that diseases of the heart accounted for 43% of the male/female differential in age-adjusted mortality rates for U.S. whites and 26% for U.S. blacks.

## 6.2 Cancer

Cancer is the second leading cause of death for both sexes, accounting for 23.2% of the deaths in 1998, and it is increasing as a cause of death. The age-adjusted death rates for cancer are 147.7 per 100,000 for males and 105.5 for females, so that the male rate is 1.4 times greater than the female rate (Murphy 2000). Cancer accounts for 16% of the male/female differential in age-adjusted mortality rates for U.S. whites, and 21% for U.S. blacks (Tomasson 1984).

As shown in the table in Appendix D, respiratory and intrathoracic (lung) cancer rates are at least as

great in all age groups for males as they are for females; the ratio of male-to-female mortality rates range from a low of 1.0 for ages 30–35 to a high of 2.6 for ages 85 and older. Digestive organ cancer is also greater for males than for females. The ratio of mortality rates for this type range from a low of 1.2 for ages 20–29 to 1.9 for ages 50–59. Mortality rates due to genital organ cancer are greater for females for ages 20–64, but are greater for males for ages 65 and older, yielding age-adjusted rates of 13.6 for males and 11.1 for females. Breast cancer is overwhelmingly a female disease. Sowder (1954) said, “*It is interesting to note that the two types of cancer which cause more deaths among women than men, cancer of the breast and of the genital organs, are relatively more easy to detect and to cure than most other types of cancers.*”

## 6.3 Accidents and Other Violent Deaths

Accidents, which accounted for 4.2% of the deaths in 1998, had age-adjusted death rates of 43.0 per



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100,000 for males and 17.8 for females, so the rate was 2.4 times greater in males than females (Murphy 2000). As shown in the table in Appendix D, accidents are the leading cause of death for males in the 1–39 year age group, and they are the leading cause of death for females in the 1–29 age group.

Motor vehicle accidents cause more deaths than all other accidents and adverse effects (excluding suicide and homicide) for ages 5–29 for both males and females. It is interesting to note that the greatest ratio of male to female mortality is 12.3 for suicide for the 85 and older age group. External causes of death (accidents, suicide, homicide and a residual category of all other external causes) account for 19% of the male/female differential in age-adjusted mortality rates for U.S. whites, and 27% for U.S. blacks (Tomasson 1984).

## 6.4 Cerebrovascular Diseases

The sex mortality differential due to cerebrovascular diseases has changed during the past 50 or so years. In many developed countries, the female mortality rate for cerebrovascular diseases was greater than that for males in the 1950s. Since then, the rate for males has exceeded that for females. The mortality rate due to cerebrovascular diseases for both sexes has declined; in part it is likely due to prevention and control of hypertension. While little is known regarding why the sex mortality differential due to cerebrovas-

cular diseases has changed, it is thought that serum cholesterol levels and cigarette smoking may help explain the pattern (Moriyama 1983).

## 6.5 Infectious and Parasitic Diseases

Infectious and parasitic diseases, such as tuberculosis, diarrhea, dysentery and cholera, typhus, scarlet fever, and smallpox, which have been virtually eliminated from the developed world, account for the major reductions in mortality for both sexes (Potts 1970). Currently, the only infectious diseases among the 10 leading causes of death for both sexes in the United States are pneumonia and influenza, accounting for 3.9% of the deaths in 1998 (Murphy 2000).

Excess male mortality for infectious diseases is almost universal in the United States. For almost every infectious disease, male mortality exceeds female mortality by a substantial amount (Tomasson 1984). In fact, Graney (1979) said “*Washburn et al. (1965) found greater likelihood of males dying from infectious diseases at all ages, but male susceptibility was most pronounced in infancy. This finding has been confirmed in cross-national data (Preston 1976; Preston, Keyfitz, and Schoen 1972). . . Improved nutrition, sanitation, housing, immunization, and medical care have all contributed to lowering mortality from infectious diseases.*”