

# Update on breast cancer mortality, 1995

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## Abstract

### Objectives

This article updates recently published information on Canadian breast cancer mortality, highlighting a lower rate in 1995, a marked decline in the rate since 1990, and possible factors contributing to this trend.

### Data source

Breast cancer mortality data are from the Canadian Vital Statistics Data Base, maintained by Statistics Canada.

### Analytical techniques

Age-standardized breast cancer mortality rates were calculated. The average annual percent change in mortality rates by age group and province was calculated and tested for statistical significance.

### Main result

The age-standardized breast cancer mortality rate declined in 1995, continuing a downward trend that had begun in 1986. The 1995 rate is the lowest since 1950.

## Key words

breast neoplasms

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Breast cancer is one of the most serious health concerns of Canadian women. It is the leading form of cancer in women (excluding non-melanoma skin cancer), accounting for about 30% of all new cases. It can occur at a relatively early age, when many other forms of cancer are far less likely to develop. In 1993, breast cancer was the leading cause of death in women aged 35-49.<sup>1</sup>

Recent Canadian data confirm a promising trend. The breast cancer mortality rate is falling. Using data from the Canadian Vital Statistics Data Base, this article updates breast cancer mortality information presented in the Autumn 1996 issue of *Health Reports* and discusses potential factors contributing to this downturn (see *Methods*).<sup>1</sup>

**Mortality trends**

In 1986, the age-standardized breast cancer mortality rate peaked at 31.9 deaths per 100,000 female population (Chart 1). The following year, it declined slightly and then stayed reasonably steady for the next three years. In 1991, the rate began to drop. At 28.4 deaths per 100,000 females, the 1995 breast cancer mortality rate is the lowest reported in the period since 1950.

Statistically significant decreases in breast cancer mortality rates have occurred in all age groups under 70, including women in the age group (50-69) targeted for mammographic screening (Chart 2). The average annual percent decline in the rate since 1986 was about 2% for women in their fifties (Chart 3). For women in their sixties, the downturn began later, with rates declining by over 4% annually between 1990 and 1995.

Since 1986, the average annual percent change (AAPC) in the breast cancer mortality rate has been between -1% and -2% in all provinces except Newfoundland. The provinces with the largest declines since 1990—British Columbia (AAPC = -3.1%) and Saskatchewan (-3.4%)—have also achieved the highest rates of mammography through organized screening programs. The introduction of systemic adjuvant chemotherapy around 1980 and the consistent application of

**Methods**

**Data source**

This analysis is based on mortality data from the Canadian Vital Statistics Data Base. The data were provided to Statistics Canada by provincial/territorial vital statistics registries.

**Analytical techniques**

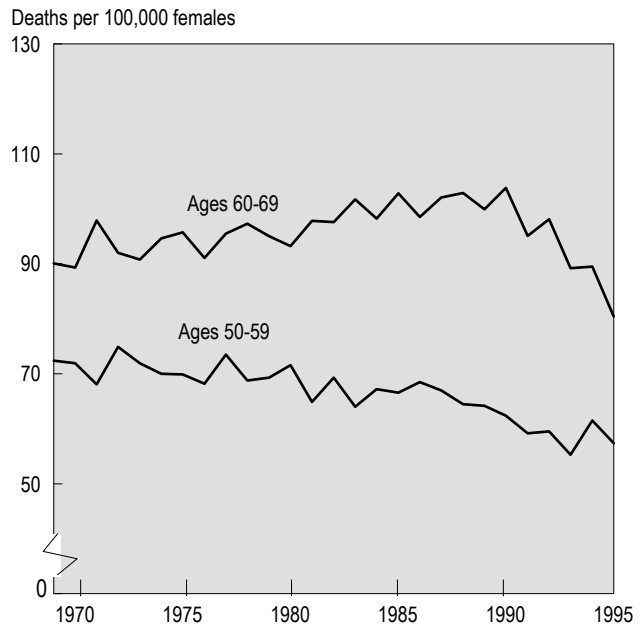
Rates in this article were age-standardized to the 1991 Canadian female population. Changes over time in annual age-standardized breast cancer mortality rates were examined by calculating the average annual percent change (AAPC). The AAPC is equal to  $(e^{\beta}-1)100$ , where  $\beta$  is the slope from a regression of the natural logarithm of rates on year.

Chart 1  
**Age-standardized female breast cancer mortality rate, Canada, 1969 to 1995**



Data source: Canadian Vital Statistics Data Base  
Note: Age-standardized to the 1991 Canadian population

Chart 2  
**Female breast cancer mortality rates, selected age groups, Canada, 1969 to 1995**



Data source: Canadian Vital Statistics Data Base

treatment guidelines in British Columbia may also be contributing to improvements in survival.<sup>2,3</sup>

### Increased mammographic screening

In 1985, 250,000 mammograms were performed in Canada.<sup>4</sup> By 1994, the number had climbed to 1.4 million. This was largely because of an increase in mammograms performed for screening rather than diagnostic purposes.

Current guidelines in Canada recommend biennial mammographic screening for women aged 50-69. By 1994, annual rates for women aged 50-69 in the five provinces with organized screening programs were approaching 30% or more. This may indicate that the desired goal for screening—70% of women aged 50-69 receiving a mammogram every two years—was close to being achieved in those provinces. However, Saskatchewan and British Columbia were the only provinces where the majority of

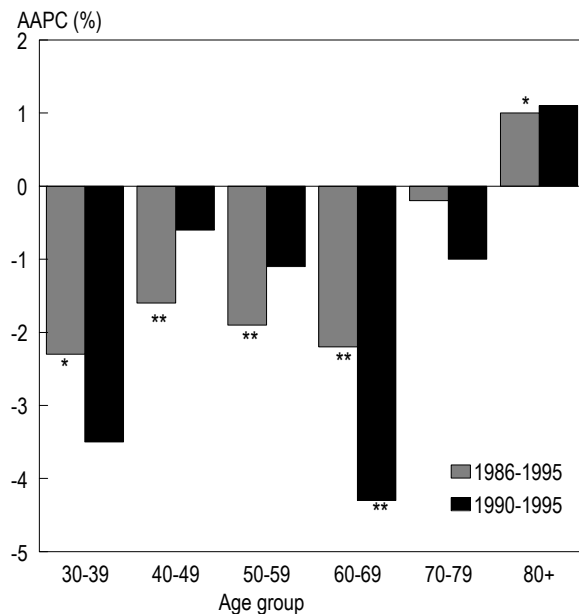
mammograms were performed through organized screening programs (See *Who doesn't get a mammogram* in this issue).

Because the decline in the breast cancer mortality rate occurred so soon after the increase in screening mammography, it is unlikely that screening alone is behind the decline. On the other hand, the earlier diagnoses achieved with mammography may be playing a role in combination with treatment advances and fertility patterns. Previous studies have indicated that both screening and treatment advances are affecting incidence and survival rates.<sup>3,5</sup> Decreases in the late 1980s in the diagnosis of regional disease (breast cancer that has spread to lymph nodes adjacent to the breast) among American women aged 40 and over were attributed to the increased use of mammography.<sup>5</sup> However, the steep drop in breast cancer mortality in the United States was thought to have occurred too rapidly to be explained by mammography alone.

Although mammographic screening was introduced between 1988 and 1992 in England and Wales, the decline in the mortality rate there was also seen as occurring too early to be due to screening.<sup>6,7</sup> Treatment advances, notably the widespread use of tamoxifen, were thought to be the most likely explanation for the decline in breast cancer mortality among women aged 50 and over.

In Canada, the United States, England and Wales, changes in fertility may also be influencing breast cancer mortality rates, particularly among the mothers of the baby-boom generation.<sup>7,8</sup> Declining breast cancer mortality rates for women born between 1924 and 1938 may reflect higher fertility rates after World War II. Dietary restrictions early in life during the Great Depression of the 1930s may also be affecting mortality in these cohorts in both North America and the U.K. Continued monitoring and analysis of trends in breast cancer mortality will be needed to assess the relative effect of mammography, treatment and various risk factors.

Chart 3  
Average annual percent change (AAPC) in female breast cancer mortality rates, by age group, Canada, 1986 to 1995, and 1990 to 1995



Data source: Canadian Vital Statistics Data Base

\* Significantly different from zero ( $p < 0.05$ )

\*\* Significantly different from zero ( $p < 0.01$ )

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