Female Breast Cancer

Definition: Cancer of the female breast is characterized by uncontrolled growth of neoplastic cells developing in a woman's breast, with the potential to invade and spread to other sites. ICD-9 code 174

Summary

Cancer of the breast is the second leading cause of cancer death among women, and the most common cancer cause of death among women 40 to 50 years old. Breast cancer killed 745 Washington women in 1994 (age-adjusted death rate: 23 per 100,000). In the US one woman in eight will be diagnosed with breast cancer during her lifetime. About 4,000 new cases occur each year in Washington.

Although research continues, little is known about the primary prevention of breast cancer. Detection of breast cancer at its earliest, most treatable stage remains the best available way to reduce mortality. Efforts to increase the proportion of women regularly screened with clinical breast exam and mammography are the main focus for breast cancer prevention.

Time Trends

Both Washington and US breast cancer death rates have remained fairly stable through the 1980s. Data from the most recent years show a decline in mortality. This may reflect earlier detection and improvements in diagnostic tests and techniques, as well as improved treatment practices.

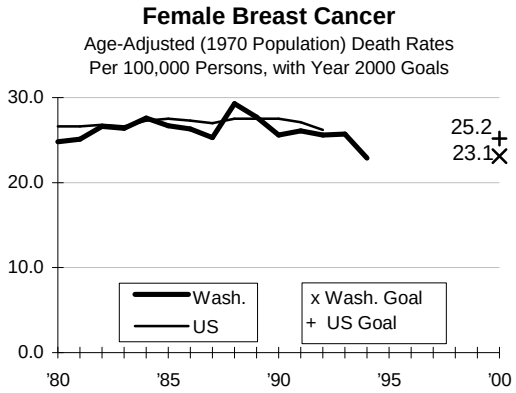
Year 2000 Goal

Washington's goal for the year 2000 is an age-adjusted female breast cancer death rate of 23.1/100,000. The mortality rate in Washington for 1994 was 22.9 per 100,000. While the original goal has been met, maintaining and improving this death rate will require continued emphasis on effective prevention and early detection.

Two related goals are:

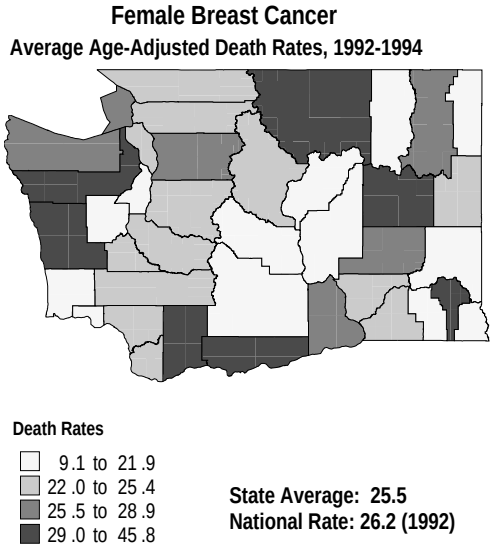
1) Increase the proportion of women age 40 and over who report ever having had a mammogram to 90%. In 1994, this proportion, which has been increasing steadily since it was first measured in 1987, was 85.5% (±2.2)

2) Increase the proportion of women age 50 and older who report a mammogram in the previous two years to 80%. In 1994, this proportion, which has also shown a steady increase, stood at 76.8% (±3.4).



Geographic Variation

The map below displays average annual age-adjusted mortality due to breast cancer by county for 1992-1994. The counties with the highest rates were Lincoln, Skamania, Okanogan, Garfield, Klickitat, Grays Harbor, Jefferson, Adams, San Juan, and Snohomish. The counties with the



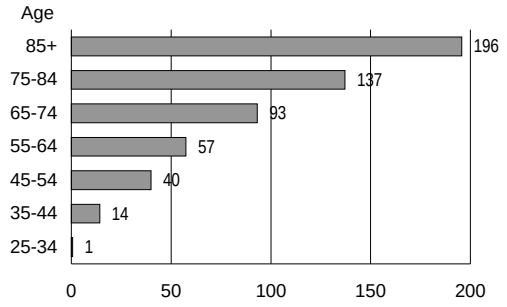
lowest rates were Columbia, Douglas, Pend Oreille, Pacific, Wahkiakum, Asotin, Ferry, Kittitas, Kitsap, and Grant. For many counties the rates are based on very small numbers and are subject to considerable year-to-year fluctuation. People interested in assessing breast cancer at the local level, and comparing the experience of various areas of the state, would be well advised to examine several years of breast cancer deaths.

1992-94 self-reported data on mammography screening analyzed by region across the state showed that, among women 50 and over, the region with lowest proportion reporting a mammogram in the previous two years was Chelan, Douglas, Kittitas, and Okanogan Counties, with 60.3%. The highest proportion (80.1%) was in Benton and Franklin Counties. Nationwide in 1992, 51% of women in this age group reported a recent mammogram.

Age

A woman's risk of developing breast cancer during her lifetime is one in eight.[1] More than half of this risk comes after age 65, and mortality increases sharply with age. From 1980-1993, breast cancer mortality in Washington decreased slightly among women under age 55, while rates increased among older women.

Female Breast Cancer
by Age
Age-Specific Deaths per 100,000, Wash. State, 1994

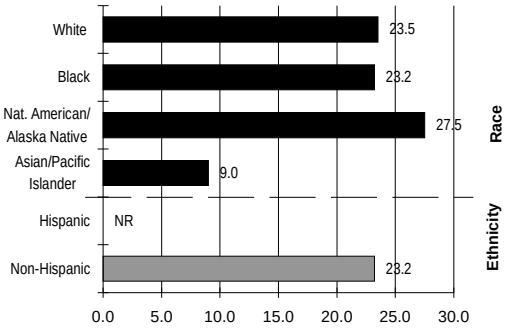


In 1994, 73.4% (±4.9) of Washington women over age 65 reported a recent mammogram. The proportion among women 50-64 was somewhat higher at 79.9% (±4.4) While this difference is not statistically significant, it is consistent with results of numerous studies.[2]

Race and Ethnicity

Mortality is highest among Native American women. African-American women, despite lower incidence rates (see below), experience breast cancer mortality comparable to that of Caucasians. This is due in large part to the relatively high proportion of cases diagnosed at more advanced stages, when the disease is more difficult to treat.[3]

Female Breast Cancer
by Race and Ethnicity
Age-Adjusted Deaths per 100,000
Wash. State, 1994



Data limitations preclude analysis of mammography rates for individual racial and ethnic minority groups. However, in 1994 the proportion of Caucasian women over age 50 reporting a mammogram in the last two years was essentially the same as that for non-Caucasian women.

Income and Education

Data on breast cancer mortality by income and education are not currently available for Washington state. However, socioeconomic factors have shown an association with survival from this disease. In an assessment of breast cancer patients initially diagnosed from 1983 through 1988 at Jackson Memorial Medical Center at the University of Miami, 5-year death rates were 52% for indigent patients and 30% for private patients.[4] The higher death rate among low income patients was attributable, in large part, to diagnosis at more advanced stages. For patients who were diagnosed at similar stages, the death rates were virtually identical.

Mammography screening utilization is strongly associated with income and education. This is evident in Washington data from 1994. Reported mammography in the previous two years among women 50 and older was significantly higher among women in households with total income over $20,000 per year (82.2% ±4.5) versus those in less affluent households (64.4% ±5.5). Recent mammography was reported by 83.6%

(±4.1)of women with more than high school education, compared with 65.4% (±10.5) of women who had not achieved high school graduation.

Other Measures of Impact and Burden

Incidence. In 1993, 3,980 new cases of breast cancer were diagnosed among women living in Washington. The overall state age-adjusted breast cancer incidence rate was 133.3/100,000 women. Since statewide incidence data have only been collected for two years, no state time trend can be determined.

National data show a 24% increase in breast cancer incidence between 1973 and 1991.[5] This increase, due largely to increases in screening-identified early stage (in-situ and local) disease, has leveled off since the late 1980s.

The counties with the highest age-adjusted breast cancer incidence rates (among those counties with a minimum of 25 cases) for 1993 were Clark (168.1/100,000) and Clallam (175.2/100,000). The low of 97.8/100,000 women was in Lewis County.

The age-specific incidence rates for invasive female breast cancer increase steadily with advancing age from 10/100,000 at age 30-34 to 500/100,000 at age 70 in 1993. During the period 1987-1991, US average annual incidence rates were 32.9 per 100,000 women under 50 and 345.8 per 100,000 women 50 and older.[6]

In 1993, breast cancer incidence was highest among Caucasian women (117.1/100,000). The rate for African-American women was somewhat lower (92.5/100,000), and Asian and Native American rates were lower still.

Stage at Diagnosis and Survival. In 1993, 13.5% of breast cancer cases in Washington were diagnosed at the earliest (in-situ) stage and 55% at the local stage. About 28% of all breast cancers were diagnosed in the regional or distant stage. The overall 5-year survival rate for breast cancer is 78%, with a range of survival from 18% for distant-stage cancer to 93% for local-stage cancer.

Hospitalizations and Costs. In 1994, there were 2,181 hospitalizations among Washington residents for breast cancer related diagnosis and/or treatment, a rate of 82/100,000 women. This represents a decline from the rate of 105/100,000 in 1990, reflecting a trend toward outpatient management of cancer cases. 1994 hospitalizations associated with breast cancer resulted in charges totaling nearly $13 million. The cost of treatment for early-stage breast cancer is, on average, about $5,000 compared to $50,000 for late-stage disease.

Risk and Protective Factors

Screening and Stage at Diagnosis. There is excellent evidence that breast cancer screening with a combination of mammography and clinical breast examinations reduces breast cancer mortality. All major medical associations and organizations agree to the efficacy of screening mammography.[7] Modeling based on breast cancer screening trials indicates that mortality due to breast cancer can be reduced by at least 30 percent among women age 50 and older through regular screening.[8]

Barriers to Screening. A number of factors contribute to lower rates of breast screening in some populations. These include difficulties in accessing screening services, such as transportation problems and language and cultural barriers, lack of education regarding the benefits of screening, benefits of screening, excessive fear of cancer, and lack of funds to pay for screening services.[9] In addition, the lack of physician referral and the lack of culturally appropriate and sensitive public education messages contribute to poor utilization of screening services.[10] These barriers are more prevalent among lower income women, women of color and older women.[11]

Family History. Women with a family history of breast cancer in a first- or second-degree relative are at increased risk for developing the disease. The risk of developing breast cancer is increased 1.5 to 3 times if a mother or sister has the disease.[12]

Hormonal Factors. Numerous studies have linked increased breast cancer incidence with early age at menarche, late age at menopause, nulliparity, and late age at first completed pregnancy.[13] Hormonal factors related to these events seem to have an affect on differentiation of breast tissue, influencing cancer risk.

Radiation. Exposure of the breast to ionizing radiation is associated with an increased risk of developing breast cancer, especially when the exposure occurs at a young age.[14]

Genetic Factors. Recently discovered genetic syndromes, related to specific genetic mutations including those in the BRCA1 and BRCA2 genes,

account for approximately 5% of breast cancer cases.[15]

Other. A possible relationship between breast cancer and diet has been suggested by the large variation in international breast cancer incidence rates. Currently there is no conclusive evidence, however, that dietary modification reduces breast cancer risk. The lack of regular physical activity has been associated with increased incidence, an effect possibly mediated through influence on hormonal factors. Some data indicate a relationship between oral contraceptive use and increased incidence of breast cancer, but no clear association has yet been established.

Summary. A majority of women will have one or more risk factors for breast cancer. However, most risks are at such a low level that they only partly explain the high frequency of the disease in the population. Thus, breast cancer risk factors appear to be more useful in providing clues to the development of cancer than in identifying prevention strategies. Since adult women may not be able to alter their personal risk factors in any practical sense, the best current opportunity for reducing mortality is through early detection.

High Risk Groups

Although all women are at risk, the following subgroups of women participate in screening and early detection services at much lower rates than the general population of women.

Older women. 85% of breast cancer deaths in Washington occur among women who are 50 and older. Statewide, 15% of women 55 years of age or older have never had a mammogram. Medicare covers mammograms subject to copayment and deductible, and financial barriers to screening remain among low-income elders.[16]

Women with low income or education. For women in Washington age 40 and over, 20% of those with household income less than $20,000 have never had a mammogram, compared to 13% of women with incomes equal to or higher than $20,000. Also, 19% of women 40 years of age or older with less than a high school education have never had a mammogram.

Uninsured or Underinsured women. Although state law requires all insurance policies to cover screening mammography, no standards are set for age eligibility or screening intervals. According to a 1990 publication from the Washington State Office of Financial Management, an estimated 200,000 older women in Washington have no insurance coverage. The average cost of a screening mammogram in Washington is $120, remaining unaffordable for many women. There are limited opportunities for affordable screening mammograms and clinical breast examinations for uninsured and underinsured women in Washington.

Women of color. Native American women and African American women experience lower incidence rates, yet higher mortality rates than Caucasian women. This is probably due, in part, to lower screening utilization among Native American women and African American women and other women of color.

Intervention Points, Strategies and Effectiveness

The goal of public health strategies to reduce breast cancer mortality is to increase utilization of screening services, particularly among the low-income, older and racial and ethnic minority women who are currently less likely to be screened. Achievement of this goal will require further effort to reduce barriers to screening and to assure the availability of high quality screening and follow-up treatment services.[17]

Current effective strategies to decrease breast cancer mortality include an emphasis on outreach to target populations, professional education, quality assurance, and health care systems change to assure the provision of coordinated, culturally appropriate, affordable services.[18]

The goals of public education and outreach are to: 1) enhance an individual's understanding, motivation, and ability to seek regular breast cancer screening; 2) ensure adherence to recommended screening and follow-up regimens; and 3) encourage pursuit of appropriate treatment, as necessary.

Education strategies for physicians, nurses, and other health care providers includes appropriate screening recommendations, clinical practice techniques in breast exams, and appropriate and timely diagnostic follow-up and treatment. Strategies also include the education of radiology technicians, and other health professionals. Longer term strategies include an increased emphasis on training programs and

certification programs for all health care professionals.[19]

Quality assurance strategies for breast cancer screening include those planned and systematic actions that provide confidence that a valid mammography was performed, that the results were interpreted properly, and that those results were reported accurately to the clinician and the woman screened. Key components of the process include obtaining a high-quality image, receiving an appropriate and accurate interpretation of the mammogram, reporting results in a clinically cogent manner, and linking report results to outcomes in a feedback system. Quality assurance for breast cancer screening includes measures to ensure radiation control during the routine operation of the mammography machines.[20]

An effective breast cancer early detection program includes a heavy emphasis on effective public/private partnerships. This includes the development of collaborative relationships among health departments, voluntary and non-profit organizations, private foundations, managed care organizations, corporations and community groups. These partnerships serve to increase awareness of breast cancer as a major public health issue, and to ensure integration and coordination of outreach, screening and follow-up services.[21]

The Washington State Breast and Cervical Health Program is an example of a program incorporating the features of the national strategic plan. It funds clinical breast examination, mammography and Pap smear screening among low-income and older women and women of color. The program works collaboratively with local communities to build or enhance local capacity to provide quality services and outreach related to breast cancer. It also incorporates strong components of professional education, quality assurance, tracking and surveillance, while working closely with an array of community partners. Evaluation of this and other similar programs with regard to their success in increasing screening rates and shifting the stage at diagnosis among high risk populations is underway.

Data Sources

State Death Data: Washington Department of Health, Center for Health Statistics.

National Death Data: National Center for Health Statistics and SEER Cancer Statistics Review.

State Hospitalization Data: Washington Department of Health, Comprehensive Hospital Abstract Reporting System (CHARS).

State Cancer Incidence Data: Washington Department of Health, Washington State Cancer Registry.

State mammography screening data: Washington Department of Health, Behavioral Risk Factor Surveillance System (BRFSS)

For More Information

Washington Department of Health, Breast and Cervical Health Program (360) 586-6082. See related sections on All Cancer, Nutrition, Physical Inactivity, and Primary Health Care Access.

Technical Notes

Age adjustment: Rates presented in this section are age-adjusted to the 1970 US population. The 1994 Washington State total population mortality rate for all cancers, adjusted to the 1940 US population, was 124.0/100,000. See technical appendix.

Race and ethnicity: See technical appendix.

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Endnotes:

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[15] Ibid.

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[19] Ibid.

[20] Ibid

[21] Ibid