

# Female Breast Cancer

**Definition:** Cancer of the female breast is characterized by uncontrolled growth of cells developing in a woman's breast with the potential to invade and spread to other sites. Female breast cancer is coded as ICD-9 code 174 and ICD-10 code C50 on the death certificate.

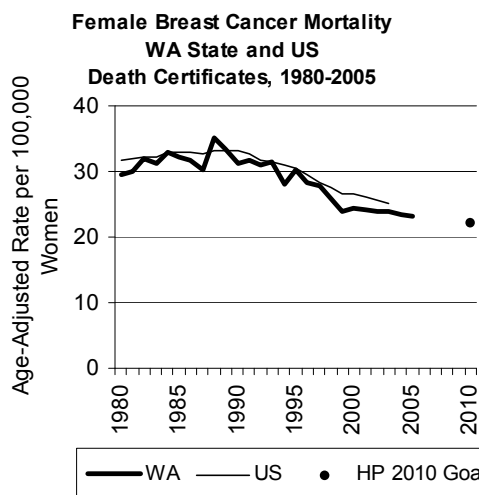
## Summary

In Washington State, 791 women died of breast cancer in 2005 ([age-adjusted](#) mortality rate: 23 per 100,000 women). Breast cancer is the second leading cause of cancer death among Washington women. In 2004, there were 5,401 new cases of breast cancer (age-adjusted incidence rate: 164 per 100,000 women). Breast cancer is the most frequently diagnosed cancer among Washington women. During 2003-2005 combined, breast cancer mortality rates in Washington were highest among women with a high school education or less.

It is not easy to modify most risk factors for developing breast cancer. Regular screening with mammography to detect breast cancer at its earliest, most treatable stages remains the best strategy to reduce mortality.

## Time Trends

Breast cancer death rates among Washington women increased from 1980 to 1989. Since 1989, mortality rates have declined. Mammography screening and advances in treatment each explain about half of the decline.<sup>1</sup> In most years, and for 1980–2005 overall, the female breast cancer mortality rate in Washington has been slightly below the U.S. rate.



## Year 2010 Goals

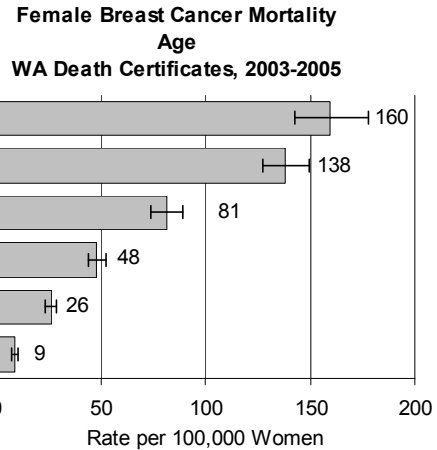
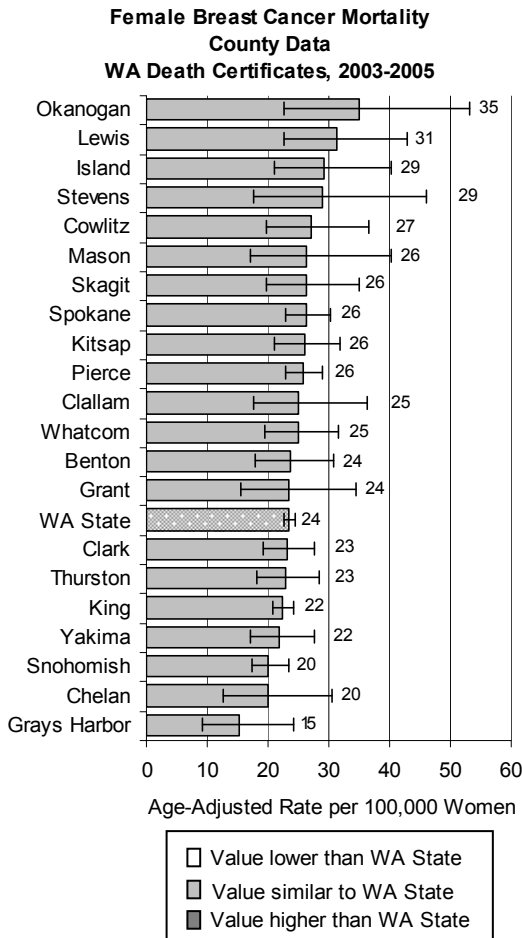
The national *Healthy People 2010* (Midcourse Review) goal is to reduce the age-adjusted breast cancer mortality rate to 21.3 per 100,000 women. The 2005 Washington mortality rate was higher than this goal. Washington should achieve the *Healthy People 2010* objective if its mortality rate continues to decline at its current pace.

The *Healthy People 2010* screening goal is that at least 70% (age-adjusted) of women ages 40 and older report having a mammogram within the past two years. Washington has already exceeded this goal. Based on the [Behavioral Risk Factor Surveillance System](#) (BRFSS) for 2006, 75% ( $\pm 1\%$ ) of Washington women ages 40 and older met this goal.

## Geographic Variation

In 18 Washington counties, [fewer than 20](#) women died of breast cancer from 2003–2005. Death rates for these counties fluctuated even when combining three years. No county with stable rates had death rates significantly different from the state. Additional

county information on breast cancer mortality is available at <http://www3.doh.wa.gov/WSCR/>.



### Race and Hispanic Origin

In Washington in 2003–2005 combined, age-adjusted death rates from female breast cancer were lower among Asians and Pacific Islanders than among women in all other groups except women of Hispanic origin. Rates for American Indians and Alaska Natives were statistically significantly higher than rates for all groups except blacks. Breast cancer death rates for American Indians and Alaska Natives in Washington fluctuate widely from year to year, however. Before 2003, death rates from breast cancer were similar among American Indian and Alaska Native and women in other groups. Nationally, black women have higher breast cancer mortality rates than white women. This pattern is not evident in Washington for 2003–2005 combined but was evident in prior three-year periods.

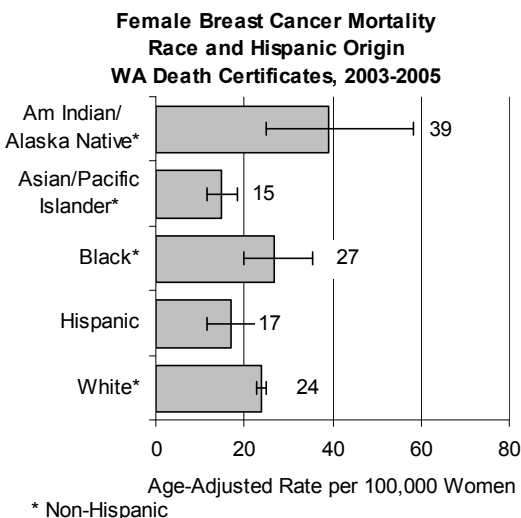
Socioeconomic factors and access to health care do not completely account for the differences between white and black women in terms of death rates and how far the cancer has spread before diagnosis.<sup>4, 5, 6, 7, 8, 9, 10, 11</sup> Even after accounting for income and education, black women are more likely to be diagnosed when the breast cancer is more advanced, have tumor characteristics associated with poor survival, and have disease that is more difficult to treat than white women.<sup>4, 12, 13</sup> Researchers are trying to understand the reasons for this difference in order to develop appropriate interventions.

Rates for Asian and Pacific Islander women vary among subgroups and should be interpreted with caution.<sup>14</sup> For example, foreign-born Asian and Pacific Islander women are more likely to be diagnosed later in the disease process than are U.S.-born Asian and Pacific Islander women.<sup>15, 16</sup> Washington cancer statistics do not include reliable

### Age

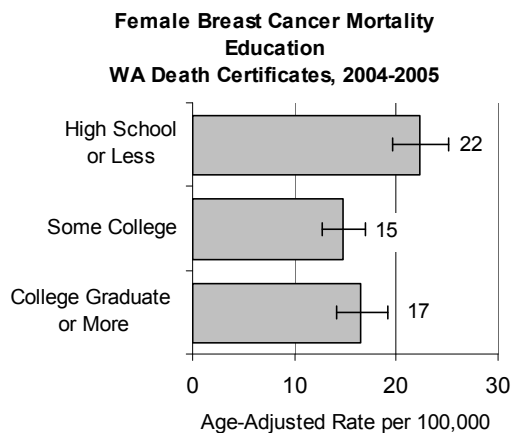
While breast cancer is less common at a younger age, younger women tend to have more aggressive breast cancers than do older women.<sup>2</sup> This might help to explain why survival rates are lower among women younger than 50 compared to women diagnosed at ages 70 and older.<sup>3</sup> Age groups younger than 35 years are not included in the following chart because there were fewer than 20 deaths in the youngest age groups.

data for subgroups within the Asian and Pacific Islander category.



## Income and [Education](#)

In Washington for 2004–2005 combined, age-adjusted breast cancer death rates were higher for women with a high school education or less than among women with more education. Women with lower levels of education are less likely to be diagnosed with breast cancer, in part because of differences in mammography use, reproductive behavior, or unknown factors.<sup>17,18</sup>



The *Health of Washington State, 2004 Supplement*<sup>19</sup> did not report differences in cancer mortality among women who lived in high- compared to low-poverty areas, but this finding might be misleading. Women living in low-income neighborhoods are less likely to get breast cancer than women in wealthier communities, but once a woman is diagnosed

with breast cancer, she is more likely to die if she lives in a low-income community. National data indicate that women with relatively low levels of education and income are more likely to be diagnosed with late stage breast cancer,<sup>20,21</sup> which is strongly associated with higher mortality.

## Other Measures of Impact and Burden

**Incidence.** In 2004, there were 5,401 new cases of female breast cancer reported in Washington (age-adjusted incidence rate: 164 per 100,000). This rate includes women with *in situ* tumors that do not invade or penetrate surrounding tissue. In Washington, incidence rates for breast cancer increased steadily from about 154 per 100,000 women in 1992 to 187 per 100,000 in 1999. While breast cancer incidence rates in Washington have been declining since 1999, more years of data are needed to ensure that this decline is not due to random variation.

Washington's breast cancer incidence rate for each year between 1999 and 2003 was higher than the rate in about 40 other states with high-quality cancer registries.<sup>22</sup> Furthermore, since 1992 Washington's rate of newly diagnosed breast cancer among women has been higher than the national rate. About 20% of the increase is due to delayed childbearing among Washington women since at least 1970.<sup>23</sup> Differences in racial composition might play a minor role. Potential factors that need further exploration include alcohol consumption, vitamin D levels, and hormone replacement therapy.<sup>23</sup>

The age-adjusted incidence rate at which new breast cancers are diagnosed is highest among Washington's white women. This pattern is the same as that seen nationally.

**Screening.** A recent study concluded that mammograms contributed from 28% to 65% of the sharp decrease in national breast cancer deaths from 1990 to 2000.<sup>24</sup> The U.S. Preventive Services Task Force recommends screening mammography every one to two years for women ages 40 and older.<sup>25</sup> On the Washington BRFSS for 2006, 83% ( $\pm 2\%$ ) of women ages 40-49 reported having at least one mammogram at some time in their lives, and 67% ( $\pm 2\%$ ) had mammograms in the last two years. Ninety-six percent ( $\pm 1\%$ ) of women ages 50 and older reported ever having had a mammogram, and 80% ( $\pm 1\%$ ) had one in the past two years.

Mammography is strongly associated with income and education. On the 2004 and 2006 combined Washington BRFSS, as income and education increased so did the percent of women ages 40 and

older reporting a mammogram in the past two years. Age-adjusted rates ranged from 59% ( $\pm 3\%$ ) for those in households with annual incomes less than \$20,000 to 81% ( $\pm 1\%$ ) for women with household incomes of \$50,000 or more. Rates ranged from 69% ( $\pm 2\%$ ) for women with no formal education beyond high school to 79% ( $\pm 1\%$ ) for those with at least four years of college. The relationship of mammography and income persisted when accounting for age, race, Hispanic origin, and education; similarly, the relationship of mammography and education persisted when accounting for age, race, Hispanic origin, and income.

Among women ages 40 and older reporting mammography in the past two years, the 2004 and 2006 combined Washington BRFSS data did not show differences by race or Hispanic origin. National BRFSS data show similar levels of mammography screening among white and black women. A recent study, however, examining pooled data from seven mammography registries found that black women are less likely to be screened adequately<sup>26</sup> or have sufficient follow-up.<sup>27,28</sup>

**Stage at diagnosis and survival.** The earlier the stage at the time of diagnosis, the better the five-year survival rate. In 2004, 21% of breast cancers in Washington were diagnosed at the earliest stage (*in situ* or noninvasive), 48% at the locally invasive stage, 24% with regional spread, and 3% with distant spread or metastasis (4% were unstaged). The overall 2003 U.S. five-year survival rate for breast cancer is 92%, with a range of survival from 22% for cancer with distant metastasis to nearly 100% for *in situ* cases.

Black and American Indian and Alaska Native women were less likely to be diagnosed when the disease was *in situ* or localized than white and Asian and Pacific Islander women in Washington during 2002-2004 combined. This is the same as the national pattern.<sup>29</sup>

### Risk and Protective Factors

Women may have one or more risk factors for breast cancer. Many risk factors are difficult to change.<sup>30</sup> In addition, known risk factors do not explain all breast cancer. Early detection<sup>31,32</sup> and appropriate treatment<sup>33</sup> are currently the best ways to reduce mortality.

**Screening and stage at diagnosis.** Late stage of disease at diagnosis is associated with higher

breast cancer mortality.<sup>34</sup> Mammography can detect breast cancer at an early stage.<sup>35</sup>

**Barriers to screening.** A number of factors reduce rates of breast cancer screening in some populations. These factors include transportation problems, language and cultural barriers, lack of education regarding the benefits of screening, excessive fear of cancer, and lack of funds to pay for screening services.<sup>36,37,38</sup>

Interviews with 43 black women in the Seattle area who chose not to receive a mammogram suggest additional barriers. These women declined the test based on concerns about the accuracy of mammograms as well as perceived harm from the test.<sup>39</sup>

**Factors influencing the development of breast cancer.** Documented risk factors for developing breast cancer are age greater than 50; a family history of breast cancer, especially among one's mother, sisters, or daughters; young age at menarche or late age at menopause, resulting in prolonged exposure to estrogen; having no children or having a first child after age 30; exposure to X-rays; use of postmenopausal hormones, particularly those that combine estrogen and progestin; and some types of benign breast disease.<sup>40,41</sup> Breast cancer caused by genetic mutations accounts for about 5%–10% of cases.<sup>34</sup> Specific dietary factors that affect breast cancer have not been firmly established, but there is increasingly strong evidence that consumption of two or more alcoholic drinks per day<sup>42</sup> and obesity among postmenopausal women<sup>43,44</sup> are linked to increased risk for breast cancer. There is also evidence that physical activity, particularly for normal weight women, is associated with decreased risk.<sup>45,46,47</sup> Vitamin D levels might also influence the development of breast cancer, but further studies are needed to confirm this association.<sup>48,49,50</sup> Age, family history, and a type of benign breast disease called atypical epithelial hyperplasia are major known risk factors.<sup>51</sup>

### Intervention Strategies

Public health tries to reduce breast cancer mortality by increasing mammography rates, particularly among low-income, older, lesbian, racial minority, and Hispanic origin women. *The Guide to Community Preventive Services* reviews evidence for the effectiveness of interventions. The guide found strong evidence that the following interventions increase use of mammography: client reminders; multi-component interventions for women and physicians using media, education, and

enhanced access; increasing access; reducing costs; one-to-one education; and distribution of brochures, flyers, newsletters, informational letters, or videos.<sup>52</sup>

The U.S. Preventive Services Task Force concludes that no studies have looked at the effectiveness of clinical breast exams (CBE) independent of mammography, and therefore it is unclear whether potential benefits of routine CBE outweigh the potential harms. For breast self-exams (BSE), the task force found poor evidence to determine whether BSE reduces breast cancer mortality. There is fair evidence that BSE is associated with an increased risk for false-positive results and biopsies.<sup>25</sup>

The Washington State Breast and Cervical Health Program, funded by federal, state, and private dollars, works collaboratively with statewide partners to offer uninsured and underinsured women ages 40 to 64 breast and cervical cancer screening, and when needed, diagnostic services. Since July 2001, Medicaid has covered treatment costs for uninsured women diagnosed through the program. Due to funding limitations, the program has screened only about 20% of the eligible population in Washington.

Some women are not screened even when barriers are removed. Documenting and understanding this process is a present focus for researchers. A primary goal of public education and outreach is to enhance an individual's understanding of screening benefits as well as her motivation and ability to seek regular breast cancer screening.

**See Related Chapters:** [Invasive Cervical Cancer](#), [Access to Primary Health Care Services](#) and [Dental X-ray and Mammography Safety](#).

### Data Sources

(For additional detail, see [Appendix B](#)).

Washington State Death Certificate Data: Washington State Department of Health, Vital Registration System Annual Statistics Files, Deaths 1980–2005, released December 2006.

Washington State Cancer Incidence: Washington State Department of Health, Washington State Cancer Registry, October 2006.

Washington State Population Counts: U.S. Census provided through Washington State Office of Financial Management (OFM), OFM intercensal and postcensal estimates, Krupski Consulting.

National Incidence Data: SEER\*Stat 6.2, Sept 2006 release, NCI, NIH.

National Death Data: SEER\*Stat Database: Mortality-All Causes of Death (COD), Public-Use With State, Total U.S. (1969–2003), National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released April 2006. Underlying COD mortality data provided by NCHS.

Washington State Behavioral Risk Factor Surveillance System (BRFSS) data: 1987–2006. The data for 2003–2006 were also weighted to reflect the county population estimates from the Washington State Office of Financial Management. Data release for 2003–2005: November 2006; data release for 2006: June 2007.

### For More Information

Washington State Cancer Registry,  
<http://www3.doh.wa.gov/WSCR/default.htm>

SEER Program, <http://seer.cancer.gov/>

National Cancer Institute's CancerNet,  
<http://cancer.net.nci.nih.gov/cancertopics>

U.S. Preventive Services Task Force (USPSTF),  
<http://preventiveservices.ahrq.gov>

Washington State Department of Health, Breast and Cervical Health Program (888) 438-2247,  
<http://www.doh.wa.gov/wbchp>

### Technical Notes

Cancer incidence: We have used ICD-O-3 codes C50.0–C50.9 excluding histology codes 9140, 9590–9989. This definition includes ductal and lobular carcinoma *in situ*. When we compare Washington and national incidence, we include the *in situ* cases for both Washington and the nation. But many national reports, such as those commonly published by the American Cancer Society and the National Cancer Institute, do not include *in situ* cases. Incidence rates are lower when *in situ* cases are not included.

### Endnotes

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