A. Breast Cancers

Although the cause of breast cancer is unknown, the major risk factors for breast cancer are one's sex (female) and age (older). These risk factors, like heredity, cannot be controlled. Having a first-degree relative (i.e., mother or sister) with breast cancer increases an individual's risk, yet over 80% of breast cancer patients have no family history of the disease. Early detection through routine mammograms and breast exams can decrease severity of illness and mortality rates.

Oregon consistently ranks among the top five states for breast cancer incidence.

As seen nationally, breast cancer is the most common invasive cancer among women and the 2nd leading cause of cancer death among women in Oregon. In Oregon, however, breast cancer is the most common invasive cancer in the state—even among men and women combined. Oregon consistently ranks among the top five states for breast cancer incidence.

The Oregon female breast cancer mortality rate of 24.7 for 2002 was 11% above the Healthy People 2010 target of 22.3 deaths per 100,000 women. Reducing breast cancer incidence and mortality has been identified as a priority by the Oregon Partnership for Cancer Control.

Female Breast Cancers Fast Facts Overview

A brief overview of breast cancer in Oregon shows the following: (See Figure VII-A-1.)

1. In 2002, 3,293 new cases of breast cancer were diagnosed among Oregon women. Of these, 2,730 were invasive cases. In all, 501 women died of breast cancer. (19 men were diagnosed with breast cancer, all invasive, and 2 men died of breast cancer.)

2. Current five-year trends show age-adjusted, invasive female breast cancer incidence rates have been decreasing about 1% annually in Oregon and nationally. Oregon's mortality rate also mirrors the national mortality trend with a 2% decline.

3. Oregon's age-adjusted 2002 incidence rate for female breast cancer was 4% higher than the national rate for 1997-2001, while Oregon's 2002 mortality rate was similar to the 2002 national mortality rate.

4. Of the 43 states with central registries meeting national data quality standards in 2001, Oregon was 3rd highest in breast cancer incidence. Among all 50 states, Oregon ranked in the lower half, tied for 28th, for breast cancer mortality in 2002.

5. Breast cancer is the leading cancer incidence site for all Oregon women regardless of race or ethnicity. It is the 2nd leading cause of cancer mortality for most Oregon women, but it is the leading cause of cancer mortality for Asian/Pacific Islander and Hispanic women.

6. In Oregon in 2002, 17% of breast cancers were diagnosed at the *in situ* stage, 56% were diagnosed at the localized stage, and 27% were diagnosed at later stages. (See Figure VII-A-2)

7. Current five-year trends show incidence of *in situ* breast cancers has been increasing in Oregon about 3% annually while the nation has shown a nearly 3% decline in *in situ* breast cancers. However, the age-adjusted 2002 rate of *in situ* breast cancers in Oregon was 11% lower than the national rate for 1997-2001.

8. During 1998-2002, Oregon's M/I ratio for female breast cancer was 0.18, suggesting a relatively good prognosis for this disease. However, breast cancer is the 2nd leading cancer site for YPLL with an average of 2,662 years lost annually.

Female Breast Cancers Fast Facts

Figure VII-A-1

Female Breast Cancers Fast Facts	
Oregon 2002	***Female***
Cancer Incidence	
All Cases Total	***3,293***
In situ	563
Localized	1,800
Regional	770
Distant	105
Unstaged	55
In situ Rates	
Oregon Crude	31.8
Oregon Age-adjusted	29.2
Oregon Current Annual Trend (5-Year)	+3.1
US SEER Age-adjusted[1]	32.8
US SEER Annual Trend(5-Year)[1a]	-2.7
Invasive Rates	
Oregon Crude	154.0
Oregon Age-adjusted	139.8
Oregon Current Annual Trend (5-Year)	-1.3
US SEER Age-adjusted[1]	134.8
US SEER Annual Trend (5-Year)[1a]	-0.8
Cancer Mortality	
Total Deaths	***501***
Mortality Rates	
Oregon Crude	28.3
Oregon Age-adjusted	24.7
Oregon Current Annual Trend (5-Year)	-2.4
US Age-adjusted[2]	25.6
US Annual Trend[3]	*-2.3
Prognosis and Burden [4]	
Prognosis: M/I Ratio	0.18
Burden: YPLL before age 65	2,662

* Indicates a statistically significant trend

M/I = Mortality-to-Incidence Ratio

YPLL = Years of Potential Life Lost

[1] Year 2001, SEER 9 Registry data, SEERSTAT 5.2.2

[1a] Years 1997-2001, SEER 9 Registry data, SEERSTAT 5.2.2

[2] 2002 mortality rate calculated from CDC Wonder: http://wonder.cdc.gov

[3] *Annual Report to the Nation on the Status of Cancer,* most current trend of 3 years or more

[4] Calculations based on combined years 1998-2002

Stage at Diagnosis

At present, breast cancer cannot be prevented. However, mortality can be reduced by early detection through mammography and breast examinations. Breast cancers detected at early stages are the most easily treated. Although there is some controversy over the benefits of mammography screening for women 40-49 years of age, there is agreement on the benefits for women ages 50 and older. Routine screening is now recommended for women starting at age 40. (See Section IV-C of *Cancer Overview* for mammography recommendations.)

In 2002, 73% of females were diagnosed at an early stage. (See Figure VII-A-2.) Although the percentage of cases diagnosed *in situ* has been increasing since 1996, the percentage of cases diagnosed at a localized stage has been declining at a similar rate. Therefore, the overall percentage of cases diagnosed at an early stage has remained about the same. (See Figure VII-A-3.) Targeted screening efforts that increase the percentage of cases diagnosed at *in situ* and localized stages could further decrease the burden of female breast cancer in Oregon.

Up to age 80, as age increases, the percentage of early stage diagnoses also increases. (See Figure VII-A-4.) This pattern may be due to increased awareness of risk among older women, screening recommendations and programs targeting older women, the greater effectiveness of mammography for older women, or increased severity and quicker progression of the cancer when diagnosed in younger women. It is likely a combination of all of these factors.

Figure VII-A-2

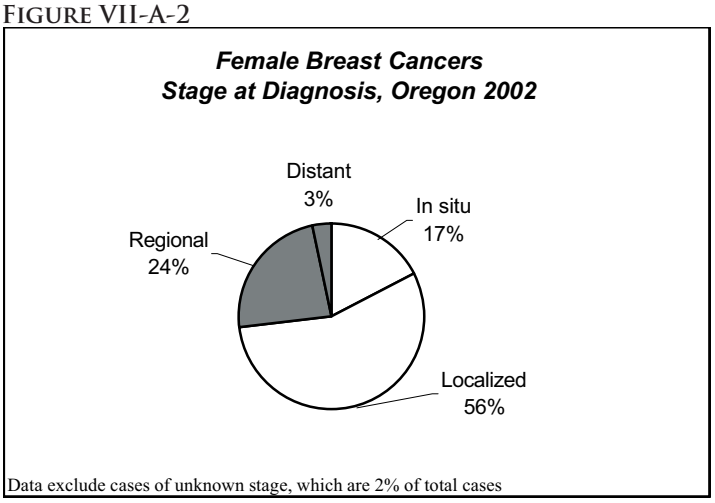


Figure VII-A-3

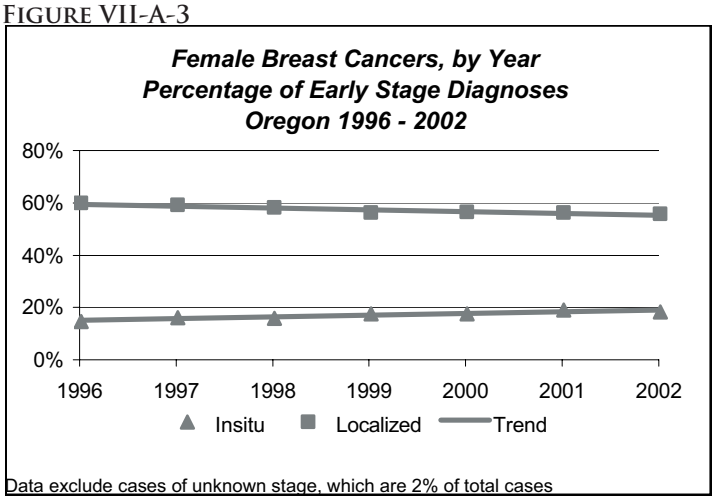
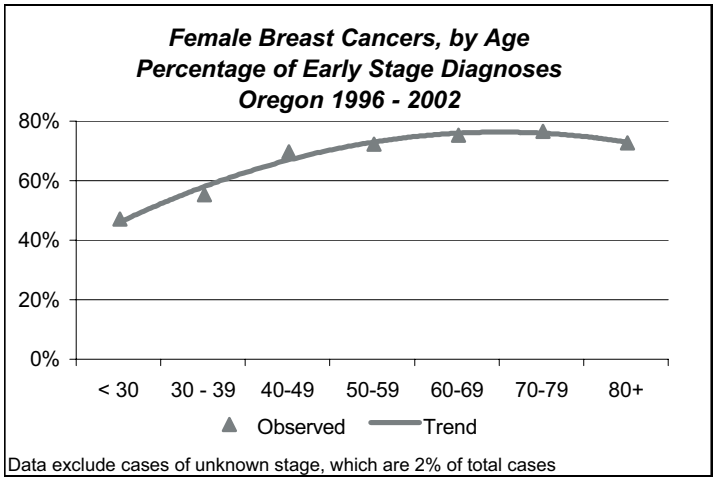


Figure VII-A-4

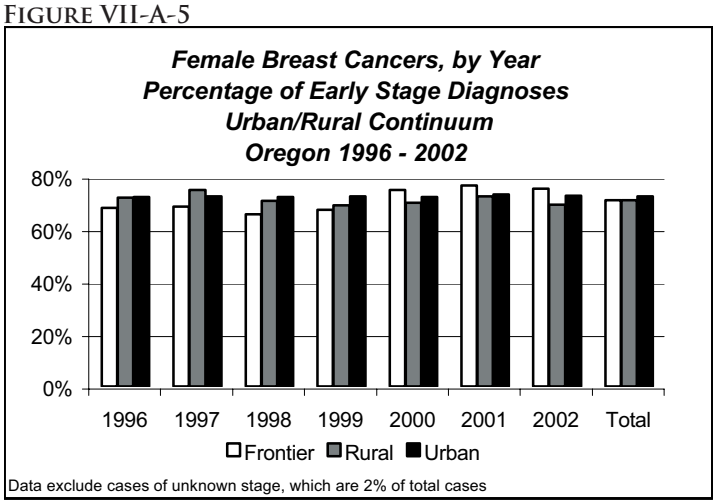


Where a woman resides could influence whether or not her breast cancer is diagnosed at an early, more treatable stage. Historically, there had been a higher percentage of *in situ* diagnoses in the Portland metropolitan area compared to the rest of the state. Differences in access to screening facilities and differences with transportation distance and infrastructure across the state are plausible explanations. Using census categories, which divide counties into Frontier (extremely rural [<6 persons per square mile]), Rural, and Urban, we can evaluate the percentage of early stage diagnoses by population density.

Although there is variation from year to year, in general, increasing population density correlates with the increasing percentage of early stage diagnoses. (See Figure VII-A-5.) Please review *Appendix C* for a list of counties and Urban/Rural codes.

While there has been little improvement in the percentage of early stage breast cancer among women living in Rural and Urban counties, there has been a 7% increase for women living in Frontier counties since 1996.

Figure VII-A-5



Routine Screening

During the past decade, rates of routine mammography screening (women aged 52 or older receiving a mammogram within the last two years) have been steadily increasing in Oregon. (See Figure VII-A-6.) According to the 2004 National Healthcare Quality Report, Oregon ranked "Average" for routine mammography screening for both 2000 and 2002.

The trend for mammography by age initially mirrors the early stage by age trend. However, mammography rates increase up to age 70, and then decline slightly for the 70 - 79 age groups. The 80+ group has lower mammography rates similar to the 40 - 49 group. (See Figure VII-A-7.)

The percentage of women reporting routine mammography also increased by population density. (See Figure VII-A-8.)

Figure VII-A-6

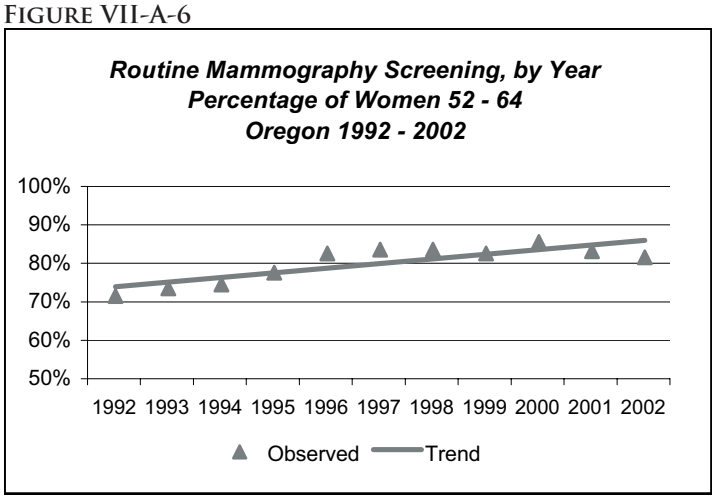


Figure VII-A-7

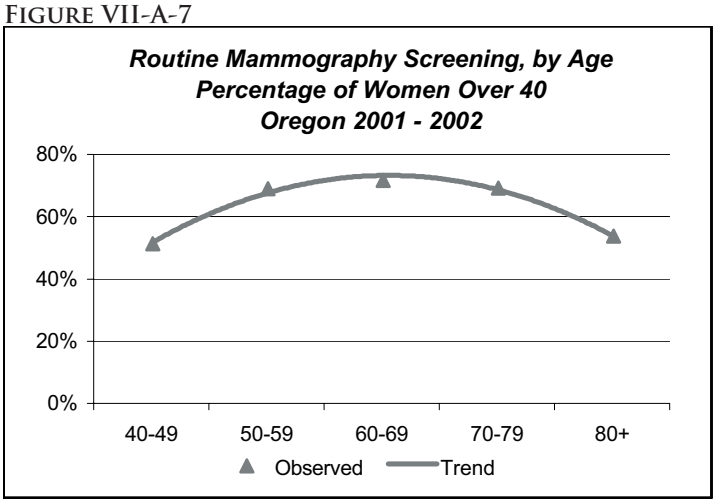
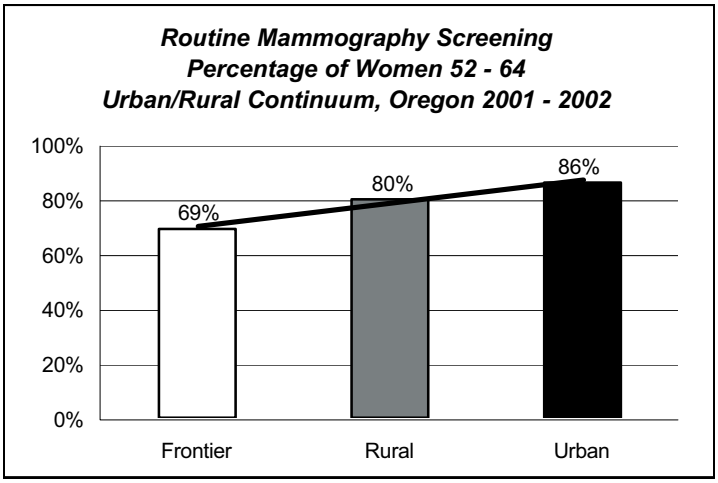


Figure VII-A-8



Race and Ethnicity

Although race and ethnicity data need to be interpreted cautiously due to reporting issues (please see the *What's New in 2002?* and the *Technical Section* for additional details), breast cancer is the leading cancer site among all women regardless of race or ethnicity. Breast cancer is the 2nd leading cause of cancer mortality for most Oregon women except for Asian/Pacific Islanders (A/PI) and Hispanics, for whom it is the leading cause of cancer mortality.

As is seen nationally, although Whites have the highest incidence rate, African American (AA) women have the highest mortality rates. (See Figure VII-A-9.) Non-Hispanics have higher incidence and mortality rates than Hispanics. (See Figure VII-A-9.)

Both AA and A/PI have higher Mortality to Incidence (M/I) ratios than either Whites or American Indians/Alaska Natives (AI/AN). Non-Hispanics have a higher M/I ratio than Hispanics. Higher M/I ratios mean poorer prognosis. (See Figure VII-A-10.)

Some of the difference in prognosis may be explained by differences in stage at diagnosis by race and ethnicity. Among the four race categories, AA have the lowest percentage of breast cancers diagnosed at an early stage and White women have the highest. (See Figure VII-A-11.)

The M/I ratio for Hispanic women is lower than for non-Hispanics, as is overall mortality. Yet, Hispanic women have a low percentage of breast cancers diagnosed at an early stage. (See Figure VII-A-10.) This incongruence between prognosis and stage at diagnosis may reflect differences in how the Registry and Center for Health

Figure VII-A-9

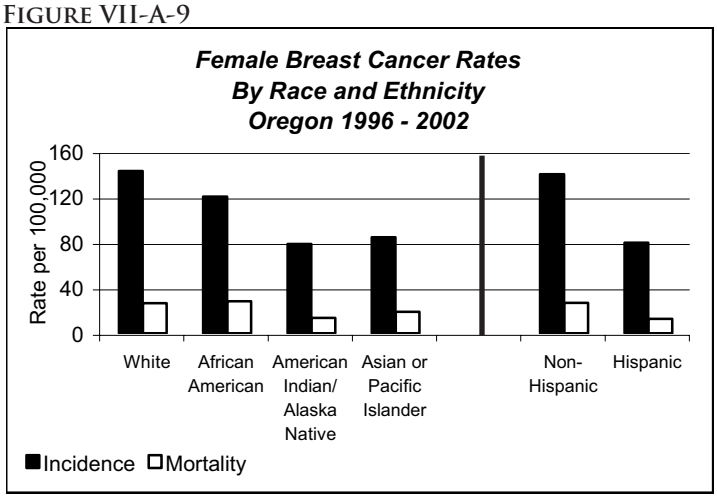
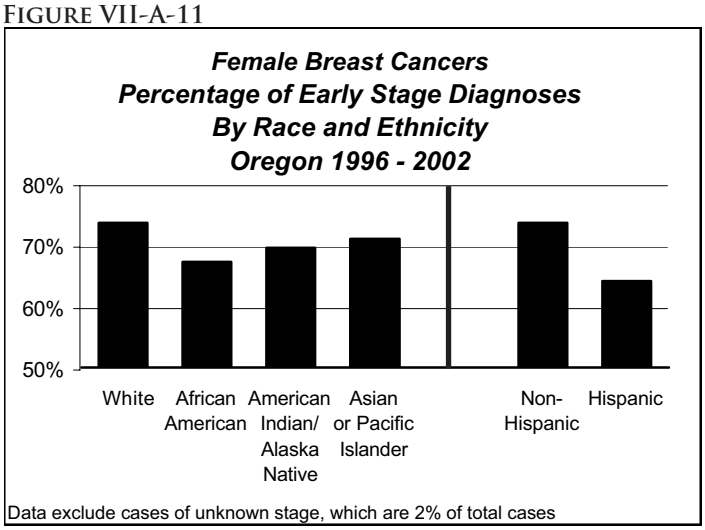


Figure VII-A-10

Female Breast Cancers
Mortality to Incidence Ratios (M/I)
By Race and ethnicity
Oregon 1996 - 2002

Race and Ethnicity	M/I Ratio
African American	0.24
Asian/Pacific Islander	0.22
White	0.19
American Indian/Alaska Native	0.17
Non-Hispanic	0.19
Hispanic	0.16

Figure VII-A-11



Statistics report ethnicity. This divergence could also result if Hispanic women are more likely to leave Oregon after a diagnosis of breast cancer than are other women.

There are also racial differences in the percentage of cases that are unknown stage at diagnosis. Generally, a breast cancer is not staged at diagnosis because of an extremely poor prognosis or because comorbidities, like advanced age, contraindicate surgery and/or treatment. However, some unstaged breast cancer cases may be early stage cases for women that refuse clinical treatment for ideological or other reasons. All cases that are identified by a death certificate are reported as unstaged-at-diagnosis cases. These cases may represent patients that had difficulty getting access to health care or were only using health care services near the end of their life.

AA and AI/AN women have twice the number of unstaged cases as other women (4% versus 2%) and more breast cancers identified by death certificate only. These stage-at-diagnosis differences may indicate differences in treatment options, patient treatment choices, disease severity, or access to health care among racial groups. There was no difference in percentage of unstaged-at-diagnosis breast cancer cases between Hispanics and Non-Hispanics.

Male Breast Cancer

Everyone is at risk of breast cancer. Even though breast cancer is far less common among men, men are less likely to survive the disease. Although breast cancer may be more severe in men, the poorer prognosis may also be due to later stage at diagnosis among men than women. Many men do not know they can get breast cancer, and this lack of awareness may contribute to the low percentage of men diagnosed at an early stage compared with women. (See Figure VII-A-12.) Self-exams, clinical exams, and x-rays or ultrasounds of the chest are tools to aid in early detection of breast cancer among men. However, there are no recommended tests for population-based screening for male breast cancer.

Figure VII-A-12

Breast Cancers, Prognosis Indicators, by Sex Oregon 1998 - 2002

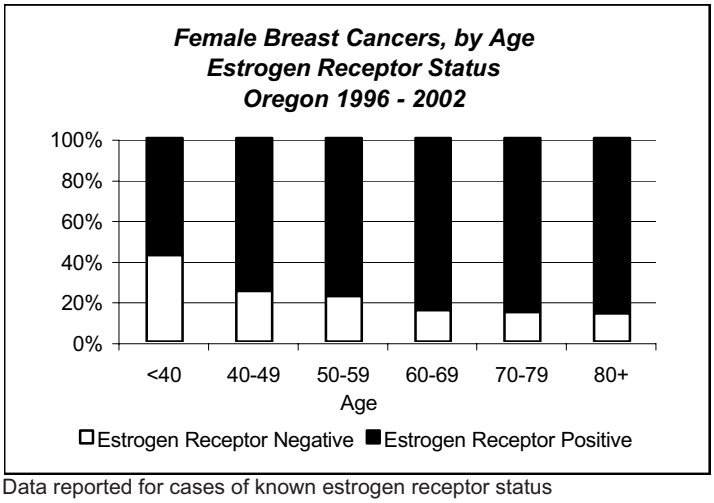
	Male	***Female***
Percentage of Early Stage	51%	72%
M/I Ratio	0.24	0.18

Estrogen Receptor Status

While the cause of breast cancers remains unknown, exposures to hormones, including estrogen and progesterone, are a significant risk factor. This is why certain life choices (not having children, having a first child after age 30, lack of breast-feeding) and individual factors (early menstruation and late menopause) are associated risk factors for breast cancer. It also suggests why modifiable behaviors (alcohol use, lack of physical exercise, and weight gain after menopause) that increase estrogen levels are associated with higher breast cancer risk.

Some breast cancers respond to hormones and some do not. The cancers that do respond have receptors on the cell that are stimulated by hormones. This stimulation causes growth and division of the cancer cells. An estimated 70% of breast cancers are estrogen receptor positive. As you can see in Figure VII-A-13, this percentage is higher in older women and lower in younger women. Hormone receptor status gives us information about how a given cancer will behave (prognostic factor) and how it will respond to treatment (predictive factor).

Figure VII-A-13

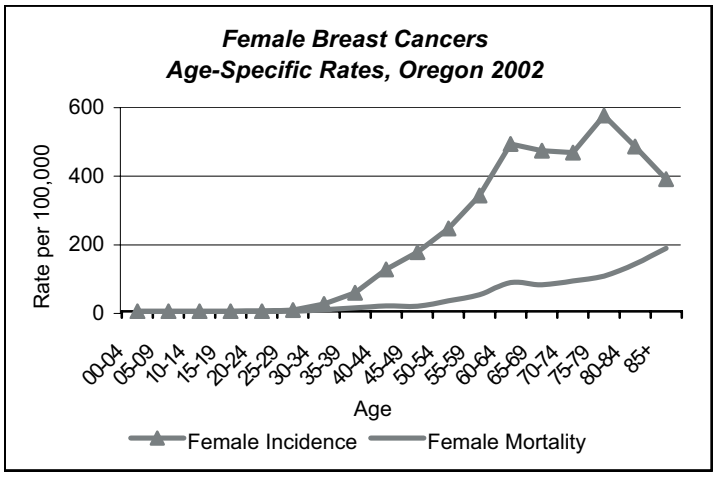


Data reported for cases of known estrogen receptor status

Age-Specific Incidence and Mortality

As with other types of cancer, the risk of developing breast cancer increases with age. Figure VII-A-14 shows the age-specific incidence and mortality rates for breast cancer. About 80% of breast cancers occur in women aged 50 years or older. Age-specific breast cancer incidence rates increase sharply around age 40 and drop after age 80, which is similar to the national trend. Breast cancer mortality increases steadily with age.

Figure VII-A-14

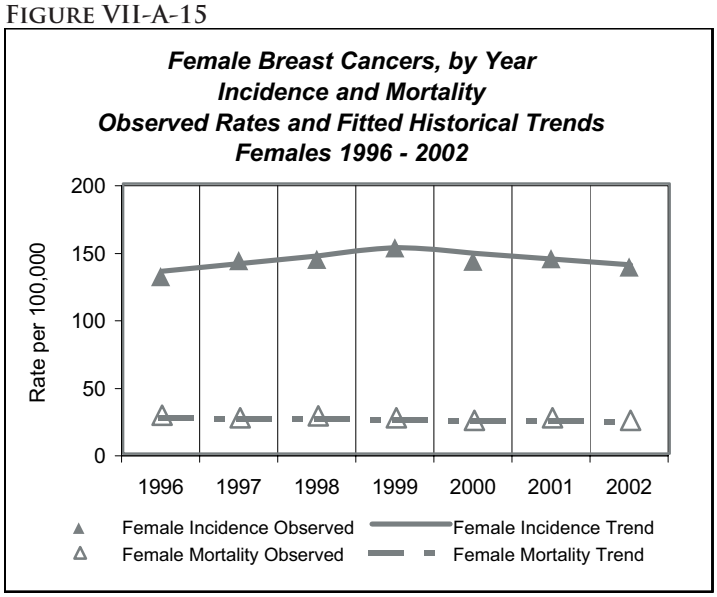


Historical Trends (1996-2002)

Historically, female breast cancer incidence in Oregon increased 4% annually from 1996-1999. From 1999-2002, female breast cancer incidence began to decrease nearly 3% a year. (See Figure VII-A-15.) This is consistent with national patterns of a 2% annual increase from 1995-1998 followed by a decrease of nearly 2% a year from 1998-2001.

While incidence has been variable, female breast cancer mortality has been steadily decreasing about 1% a year since 1996 in Oregon. This also follows national patterns with a steady decrease of about 2% a year since 1990. It is likely that mortality patterns diverge from incidence patterns due to a combination of increased screening as well as improved treatments for breast cancer. With the recent decline in breast cancer incidence, mortality rates will likely decrease more sharply in the next few years.

Figure VII-A-15



Regional Variation (Combined Five-Year Rates: 1998-2002)

Breast cancer incidence shows regional variation that corresponds with the distribution of Oregon's population. (See Figure VII-A-16.) The area along the I-5 corridor has higher female breast cancer incidence rates than those seen nationally for the period 1996-2001. Most counties surrounding the high-risk area have rates similar to the nation. The remainder of the state, most of Eastern Oregon and the northern and southern tips of the coast, has lower female breast cancer rates than the nation.

Contrary to the East/West gradient seen with incidence, female breast cancer mortality shows a North/South pattern. (See Figure VII-A-17.) Female breast cancer mortality is higher than is seen nationally for the years 1999-2002 for most northern counties. The southern half of the state has mortality rates at or below the national rates.

The northern coast region and the southeast portion of Oregon have both low incidence and low mortality, which may be of epidemiologic interest for investigating risk factors for breast cancer. Much of Central Oregon and the northeast region have low breast cancer incidence but high mortality, which may represent areas in need of targeted screening efforts.

Figure VII-A-16

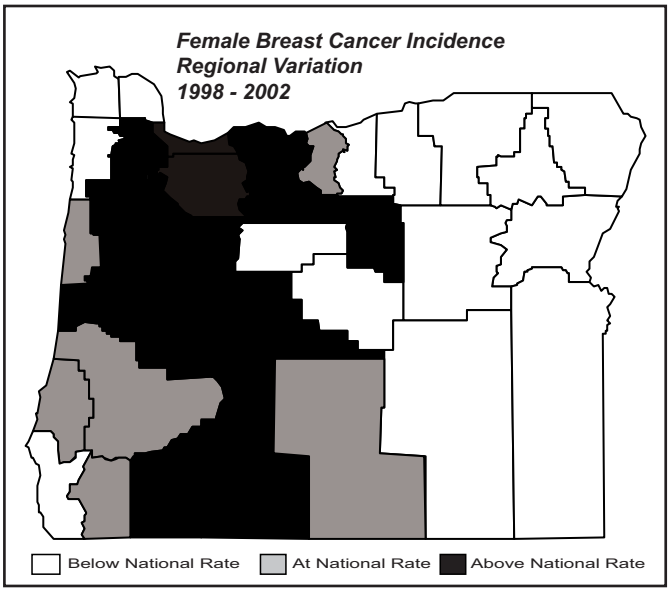


Figure VII-A-17