

D. LUNG CANCERS

Lung cancer is Oregon's leading cause of cancer-related death and is the state's 3rd most frequently reported cancer. Tobacco use is the primary cause of lung cancer. In 2002, 80% of lung cancer deaths in Oregon were linked to tobacco use. In 2002, an estimated 20% of Oregon adults smoked cigarettes. Among Oregon youth, an estimated 12% of 8th Graders and 21% of 11th Graders smoked in 2002.

The 2002 Oregon lung cancer mortality rate of 56.7 was 26% above the Healthy People 2010 target of 44.9 deaths per 100,000 persons. Due to the potential for primary prevention through tobacco control efforts, the reduction of lung cancer incidence and mortality has been identified as a priority for the Oregon Partnership for Cancer Control.

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LUNG CANCERS FAST FACTS OVERVIEW

A brief overview of Oregon's lung cancer data shows the following: (See Figure VII-D-1.)

1. In 2002, 2,446 new cases of lung cancer were diagnosed in Oregonians; all but 2 were invasive. There were 2,057 Oregonians who died of lung cancer. Age-adjusted incidence and mortality rates were higher for men than women, as anticipated due to the higher smoking rates among men than women.
2. The current five-year trend for lung cancer incidence rates is a 2% annual decrease both nationally and in Oregon. Mortality rates have been declining for men, 2% a year nationally and 3% per year among Oregon men, whereas lung cancer mortality rates have been increasing among women, <1% a year nationally and 1% a year among Oregon women.
3. Oregon's age-adjusted 2002 lung cancer incidence rate of 67.6 per 100,000 was 11% higher than the national rate of 61.1. The excess is largely due to an 18% higher rate of lung cancer among Oregon women than their national counterparts. Among men, the Oregon 2002 incidence rate was 3% higher than the national rate for 1997-2001. Oregon's 2002 mortality rate was 2% higher than the national mortality rate. However, while the mortality rate for Oregon men was 11% lower than the national rate, the 2002 lung cancer mortality rate for Oregon women was 18% higher than the national rate for women.
4. Of the 43 states with central registries meeting national data quality standards in 2001, Oregon ranked 30th for men and 5th for women in lung cancer incidence. Of all 50 states, Oregon's lung cancer mortality rate ranked 33rd for men but 5th for women in 2002.
5. Lung cancer is the 2nd most common cancer for all men regardless of race or ethnicity, and is the 2nd most common cancer for most women except African American and Asian/Pacific Islander women, for whom it is the 3rd most common cancer. Lung cancer is the most common cause of cancer-related death for all men and most women. However, it is the 2nd most common cause of cancer-related death for female Asian/Pacific Islanders as well as for women of Hispanic ethnicity.
6. In 2002, only 19% of lung cancers among Oregonians were diagnosed at an early stage. Currently, there are no population-based screening recommendations to detect lung cancer in its early stages.
7. During 1998-2002, Oregon's M/I ratio for lung cancer was 0.81, suggesting a poor prognosis for this disease. The M/I ratio was worse for men than women. Lung cancer is the leading cancer site for YPLL with 4,361 years lost annually.

LUNG CANCERS FAST FACTS

FIGURE VII-D-1

| Lung Cancers Fast Facts | | | | |
|---|------------------------------|--------------|---------------|--|
| Oregon 2002 | | | | |
| | All Sexes¹ | Male | Female | |
| Cancer Incidence | | | | |
| All Cases Total | 2,446 | 1,299 | 1,147 | |
| In situ | 2 | 2 | 0 | |
| Localized | 415 | 210 | 205 | |
| Regional | 592 | 311 | 281 | |
| Distant | 1,173 | 634 | 539 | |
| Unstaged | 264 | 140 | 124 | |
| Invasive Rates | | | | |
| Oregon Crude | 69.4 | 74.2 | 64.7 | |
| Oregon Age-adjusted | 67.6 | 80.5 | 58.1 | |
| Oregon Current Annual Trend (5-Year) | -1.7 | *-3.0 | -0.6 | |
| US SEER Age-adjusted ² | 61.1 | 77.6 | 49.1 | |
| US SEER Annual Trend ^{2a} | *-2.3 | *-2.9 | *-1.8 | |
| Cancer Mortality | | | | |
| Total Deaths | 2,057 | 1,061 | 996 | |
| Mortality Rates | | | | |
| Oregon Crude | 58.4 | 60.7 | 56.2 | |
| Oregon Age-adjusted | 56.7 | 66.5 | 49.4 | |
| Oregon Current Annual Trend (5-Year) | -1.1 | -3.3 | +1.3 | |
| US Age-adjusted ³ | 55.8 | 74.9 | 41.8 | |
| US Annual Trend ⁴ | n/a | *-1.9 | +0.2 | |
| Prognosis and Burden⁵ | | | | |
| Prognosis: M/I Ratio | 0.81 | 0.82 | 0.79 | |
| Burden: YPLL before age 65 | 4,361 | 2,330 | 2,032 | |

* Indicates a statistically significant trend
M/I = Mortality-to-Incidence Ratio
YPLL = Years of Potential Life Lost
n/a = Not available

¹ All Sexes counts may exceed male/female combined due to additional sex coding
² Year 2001, SEER 9 Registry data, SEERSTAT 5.2.2
^{2a} Years 1997-2001, SEER 9 Registry data, SEERSTAT 5.2.2
³ 2002 mortality rate calculated from CDC Wonder: <http://wonder.cdc.gov>
⁴ Annual Report to the Nation on the Status of Cancer, most current trend of 3 years or more.
⁵ Calculations based on combined years 1998-2002

STAGE AT DIAGNOSIS

Lung cancer is typically asymptomatic in the early stages, and currently there are no widely accepted screening methods for this cancer type. Therefore, the majority of lung cancers are diagnosed at a late stage. (See Figure VII-D-2.) However, the national lung screening trial is currently evaluating the effectiveness of spiral CT (Computed Tomography—an x-ray imaging technique) as a potential screening tool to detect early stage lung cancer compared to a standard chest x-ray. Late detection contributes to the fact that lung cancer has one of the poorest prognoses of all cancers.

Regardless of the absence of population-based screening recommendations, there are several consistent patterns in the percentage of early stage diagnoses for lung cancer by sex, age, and population density.

Women have a higher percentage of early stage diagnoses. (See Figure VII-D-3).

Oregonians diagnosed before age 30 have the highest percentage of early stage diagnoses. After age 50, the percentage of early stage diagnoses increases with age. (See Figure VII-D-4.)

FIGURE VII-D-2

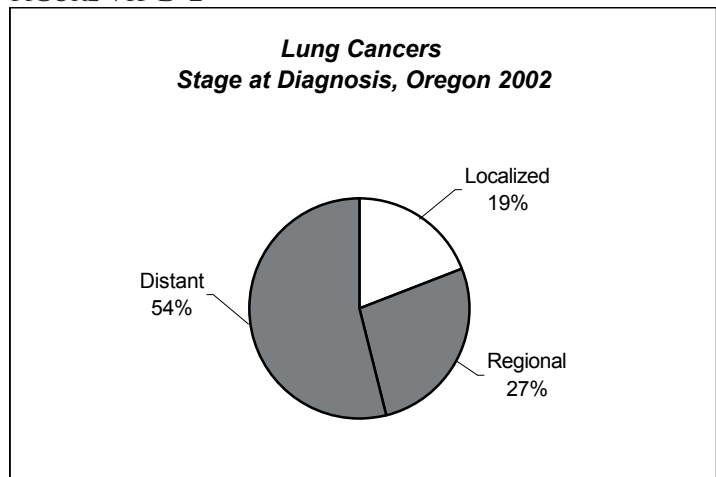


FIGURE VII-D-3

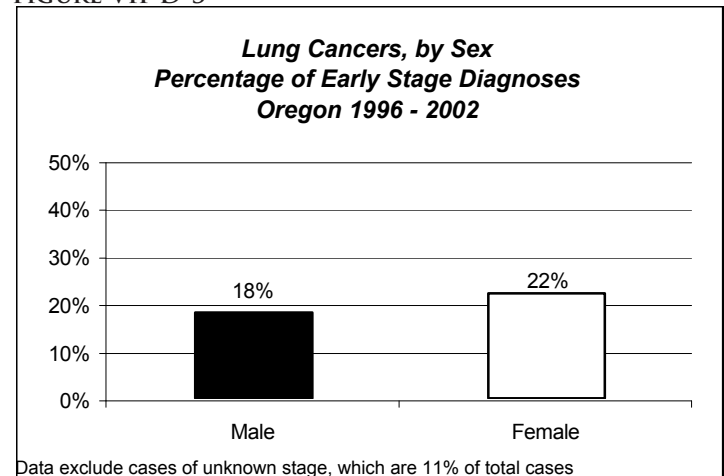
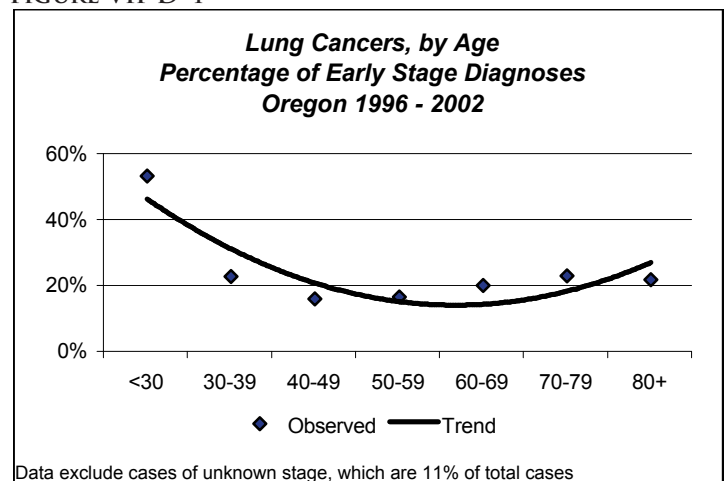
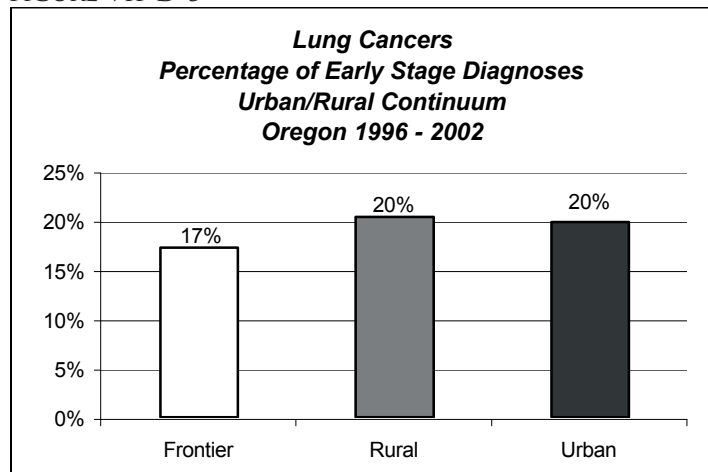


FIGURE VII-D-4



Although the percentage of lung cancer diagnosed at an early stage is similar for Urban and Rural counties, Frontier counties (extremely rural with < 6 persons per square mile) have a lower percentage of early stage cases. (See Figure VII-D-5.)

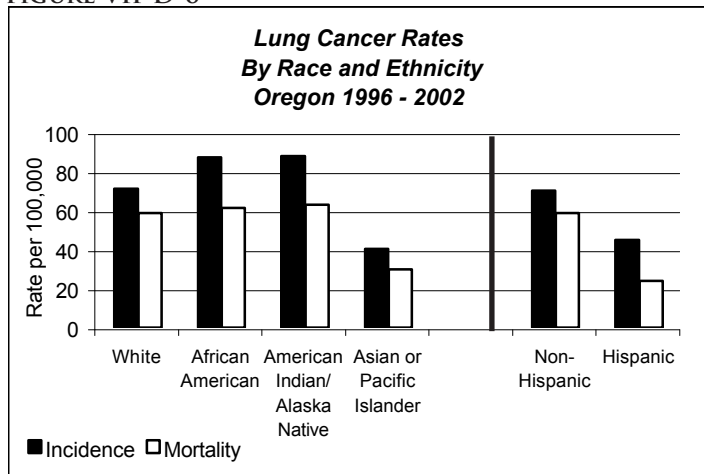
FIGURE VII-D-5



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), lung cancer rates vary by race and ethnicity. (See Figure VII-D-6.) Among the four race categories, American Indian/Alaskan Natives (AI/AN) have the highest rate of lung cancer incidence and mortality, and Asian/Pacific Islanders (A/PI) have the lowest lung cancer incidence rates in Oregon. As is seen with colorectal cancer, AI/AN have higher lung cancer incidence than is seen nationally, which may be partially explained by the improved race reporting for this group in Oregon. Paralleling the nation, Hispanics in Oregon have lower lung cancer incidence and mortality rates than Non-Hispanics. As is seen with incidence, mortality rates among AI/AN in Oregon are higher than the national rates for this population.

FIGURE VII-D-6



Variations by race and ethnicity for lung cancer rates could be related to variations in smoking rates among the different populations. (See Figure VII-D-7.) AI/AN report the highest percentage while A/PI report the lowest percentage of smokers in the adult population. Hispanics report lower smoking rates than Non-Hispanic Whites.

Unlike many other cancer sites, Whites have the highest Mortality to Incidence ratio (M/I) for lung cancer. As seen with other cancer sites, Hispanics have a lower M/I ratio than Non-Hispanics. Higher M/I ratios mean poorer prognosis. (See Figure VII-D-7.)

African Americans (AA) have the lowest percentage of lung cancers diagnosed at an early stage and have a higher M/I ratio than AI/AN. (See Figure VII-D-8.) While Whites and AI/AN have comparable percentages of lung cancer cases diagnosed in an early stage, Whites have a higher M/I ratio, which indicates poorer prognosis. Interestingly, the low M/I ratio for Hispanics is not a result of differences in the stage of diagnosis between Hispanics and Non-Hispanics. (See Figure VII-D-8.) These differences may represent incompatibility between how the Cancer Registry and Center for Health Statistics report race and ethnicity. This divergence could also result if Hispanics are more likely to leave Oregon after a diagnosis of lung cancer than are Non-Hispanics.

There are also differences in the percentage of cases that were unstaged at diagnosis by race and ethnicity. Generally, a lung cancer is not staged at diagnosis because of an extremely poor

FIGURE VII-D-7

| Percentage of Adults Who Smoke By Race and Ethnicity Oregon 2000 - 2001 | |
|--|----------------|
| Race and Ethnicity | Percent |
| American Indian | 44% |
| African American | 27% |
| White (Non-Hispanic) | 21% |
| Hispanic | 18% |
| Asian/Pacific Islander | 14% |

prognosis or because of comorbidities (or advanced age) contraindicate surgery and/or treatment. 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.

Although the percentage of unstaged lung cancer cases is similar among Hispanics and Non-Hispanics, there is variation in the percentage of unstaged, or unknown stage, lung cancer cases among the four race categories. However, there is no clear correlation between the high percentage of unstaged cases and poor prognosis by race. (See Figure VII-D-8.)

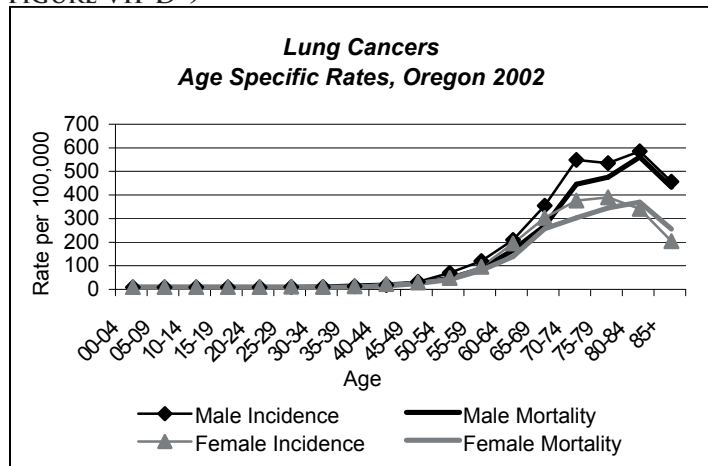
FIGURE VII-D-8

| Lung Cancers, Prognosis Indicators By Race and Ethnicity Oregon 1996 - 2002 | | | |
|--|------------------|-------------------------------|-------------------------|
| Race and Ethnicity | M/I Ratio | Percent of Early Stage | Percent Unstaged |
| Alaskan Indian/Alaska Native | 0.72 | 15% | 17% |
| African American | 0.74 | 12% | 11% |
| White | 0.83 | 15% | 16% |
| Asian/Pacific Islander | 0.70 | 14% | 12% |
| Non-Hispanic | 0.84 | 14% | 16% |
| Hispanic | 0.53 | 14% | 17% |

AGE-SPECIFIC INCIDENCE AND MORTALITY

Lung cancer incidence increases with age until age 75 when rates begin to taper off. Oregon's age-specific data show incidence rates higher among men than women for all age groups. Mortality rates show similar sex and age patterns. (See Figure VII-D-9.)

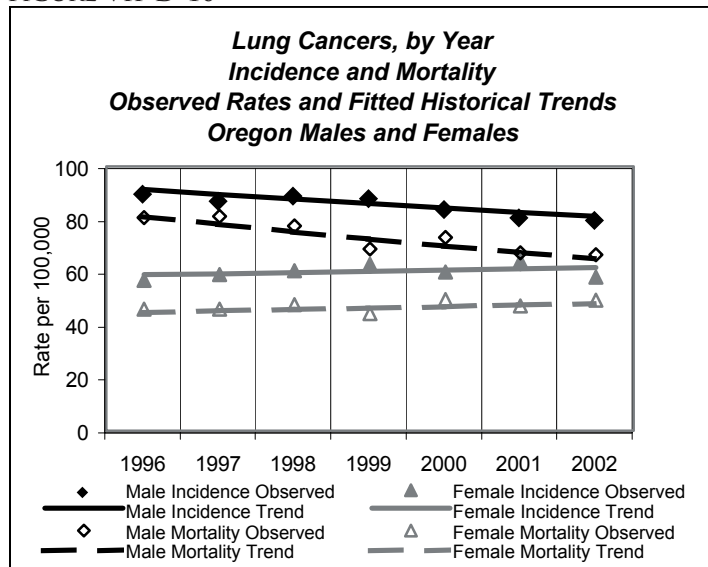
FIGURE VII-D-9



HISTORICAL TRENDS (1996-2002)

Lung cancer incidence for men in Oregon has been decreasing 2% a year while incidence for women in Oregon has been increasing 1% a year since 1996. (See Figure VII-D-10.) Nationally, lung cancer incidence has been decreasing for both men and women, 2% a year for men and 1% a year for women, over a similar time period.

FIGURE VII-D-10



Following incidence trends, lung cancer mortality has been decreasing for men and increasing for women since 1996. (See Figure VII-D-10.) Mortality has been decreasing nearly 4% a year for men and increasing 1% a year for women. Nationally among men there has been a 4% annual decrease over a similar time period compared to $\frac{1}{2}$% a year increase among women since 1995. However, lung cancer mortality is difficult to compare over this time period due to changes in coding in 1999 that significantly impact the mortality numbers for lung cancer. Please see the *Technical Section* for information about the change to ICD-10 mortality coding.

REGIONAL VARIATION (COMBINED FIVE-YEAR RATES: 1998-2002)

Much of the state has higher lung cancer incidence rates than the national rate. (See Figure VII-D-11.) Lung cancer incidence is higher than is seen nationally for all of the northern counties, and many of the coastal counties and the southwest portion of the state. Portions of the Willamette Valley and Central Oregon have incidence rates similar to those seen nationally. Only a small portion of the eastern region, including the counties of Baker and Malheur, have lung cancer incidence rates lower than the national average.

Lung cancer mortality is more variable across the state. (See Figure VII-D-12.) As seen with incidence, the northern counties have higher mortality rates than the national average. But only parts of Southwestern Oregon have higher mortality rates. Most of Central Oregon, parts of the coast, and Eastern Oregon have lung cancer mortality rates at or below the rate seen nationally.

Areas of high incidence and mortality, such as the northern counties in Oregon, may indicate areas that would benefit from targeted tobacco cessation programs.

FIGURE VII-D-11

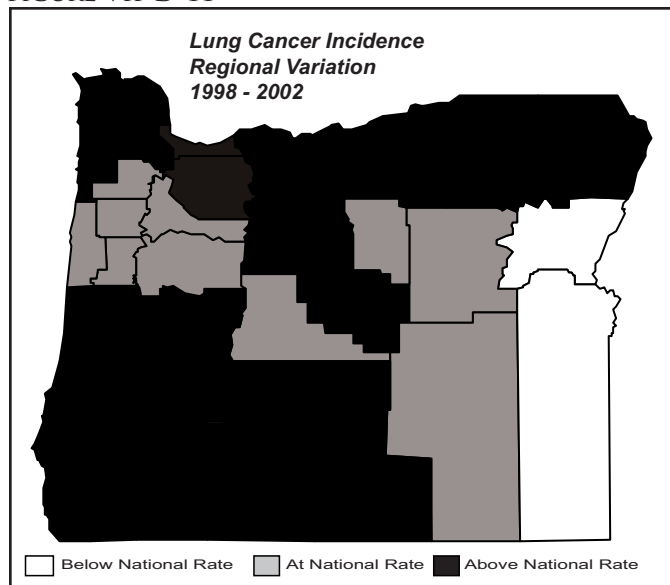


FIGURE VII-D-12

