

# 6. Cancer

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Cancer is the second leading cause of death for AI/AN in the Northwest and nationwide. Cancer occurs when cells in the body begin to grow abnormally and spread throughout the body. The severity, progression, and the ability to screen for and treat cancer often depend on the place in the body where the abnormal growth first occurs. Some cancer sites (such as lung, breast, and prostate cancers) are relatively common, while others are rare. While there are many risk factors for cancer, there are also many strategies to reduce the risk for developing cancer, and to improve survival and quality of life for cancer patients.

Perhaps the most important strategy to reduce cancer mortality is early detection. The primary clinical tool to detect cancer early is by routine cancer screening tests. Cancer screening tests can detect cancer in its early stages, which can improve treatment outcomes and survival for cancer patients. IHS tracks those cancers for which valid screening tests exist (cervical, breast, and colorectal cancers) as part of its reporting for the Government Performance Reporting Act (GPRA).

In Oregon, screening rates for breast and cervical cancers increased between 2009 and 2013. IHS began tracking colorectal cancer (CRC) screening in 2006 and initiated a CRC Screening Task Force in 2007 to support improvement in CRC screening rates. The impact of this national and regional effort is seen in improvements in CRC screening from 2009 to 2012.

The most common cancer sites for AI/AN in Oregon are lung, breast, prostate, blood, and colorectal cancers. Cancer incidence rates for AI/AN are similar to rates for NHW in the state and have remained relatively stable since 1996. However, compared to NHW in the state, a smaller percentage of AI/AN cancer patients have their cancers detected in the earliest stages. A diagnosis made at late stages of illness when the cancer may already have spread is less responsive to treatment and leads to increased mortality, which is also seen among AI/AN in Oregon, with mortality rates 30% higher than those of NHW.

This section presents data on cancer screening, incidence, stage at diagnosis and mortality for AI/AN in Oregon.

# Cancer Screening: Cervical Cancer

Pap screenings are used to detect early signs of cervical cancer. The U.S. goal is for 93% of women (ages 21-65) to receive a cervical cancer screening at least once every three years (Healthy People 2020).

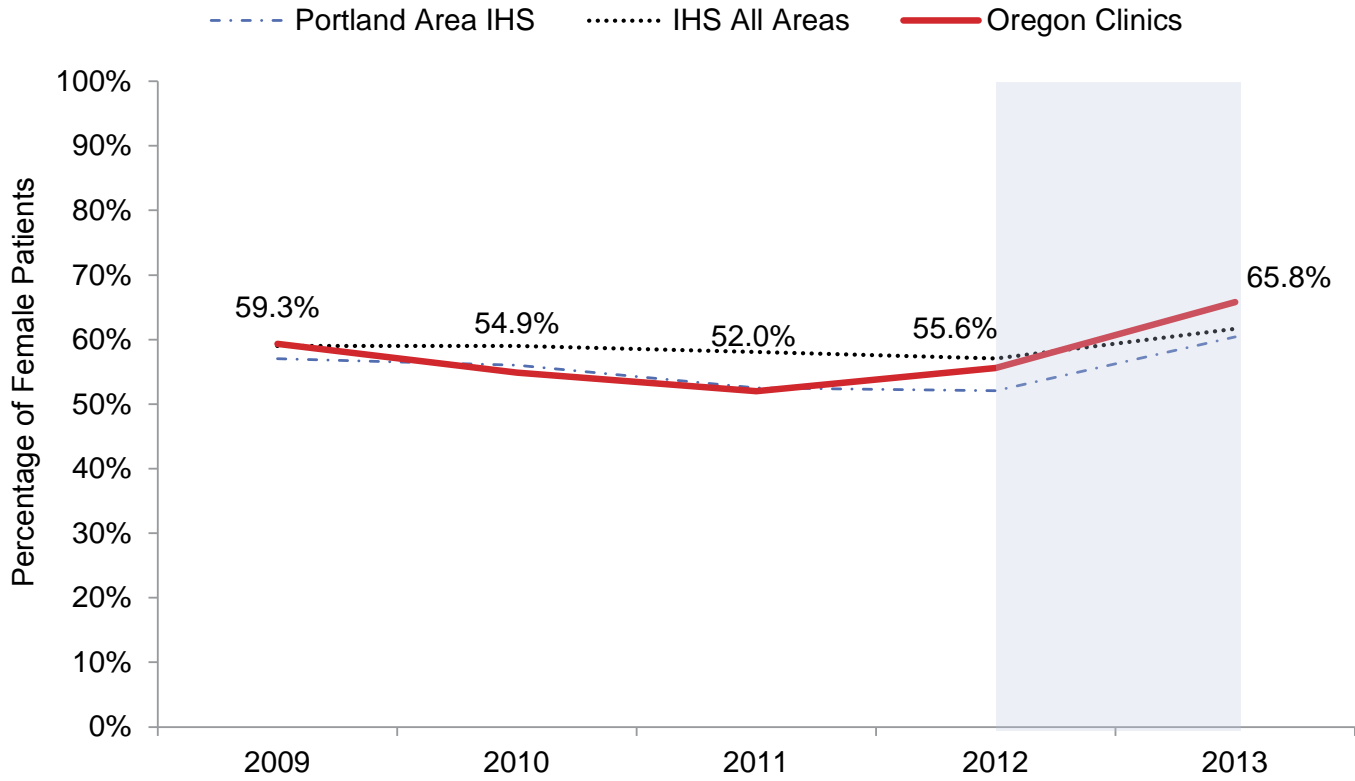
Until 2012, IHS measured the percentage of female AI/AN patients ages 21-64 who received a Pap screen within the past three years. The 2012 IHS goal for this measure was 59.5%. In 2013, IHS changed the definition for this measure to the percentage of women ages 25-64 who received a Pap screening within the previous four years.

Pap screening rates decreased within the Oregon patient population from 2009 to 2011, but have since increased to 55.6% in 2012 (Figure 6.1). In 2013, Oregon clinics had a higher screening rate compared to the Portland Area and national IHS. In 2012, the screening rates for all three areas were below the 2012 IHS goal of 59.5%. The increase in rates across all areas between 2012 and 2013 is likely due to the change in this measure's definition.

**Data Source:** Portland Area Indian Health Service.

**Data Notes:** Data labels only shown for Oregon clinics. The shaded area shows the year when the definition for pap screening rates changed. Oregon clinics include non-urban federal and tribal Indian health facilities in Oregon. Portland Area IHS clinics include non-urban federal and tribal Indian health facilities in Idaho, Oregon, and Washington.

**Figure 6.1: Pap screening rates for IHS female patients, 2009-2013.**



# Breast Cancer

Mammograms are an important tool for detecting breast cancer early. Women ages 50-64 should receive a mammogram at least once every two years. The U.S. goal is for 81.1% of women (ages 50-74) to receive a mammogram at least once every two years (Healthy People 2020).

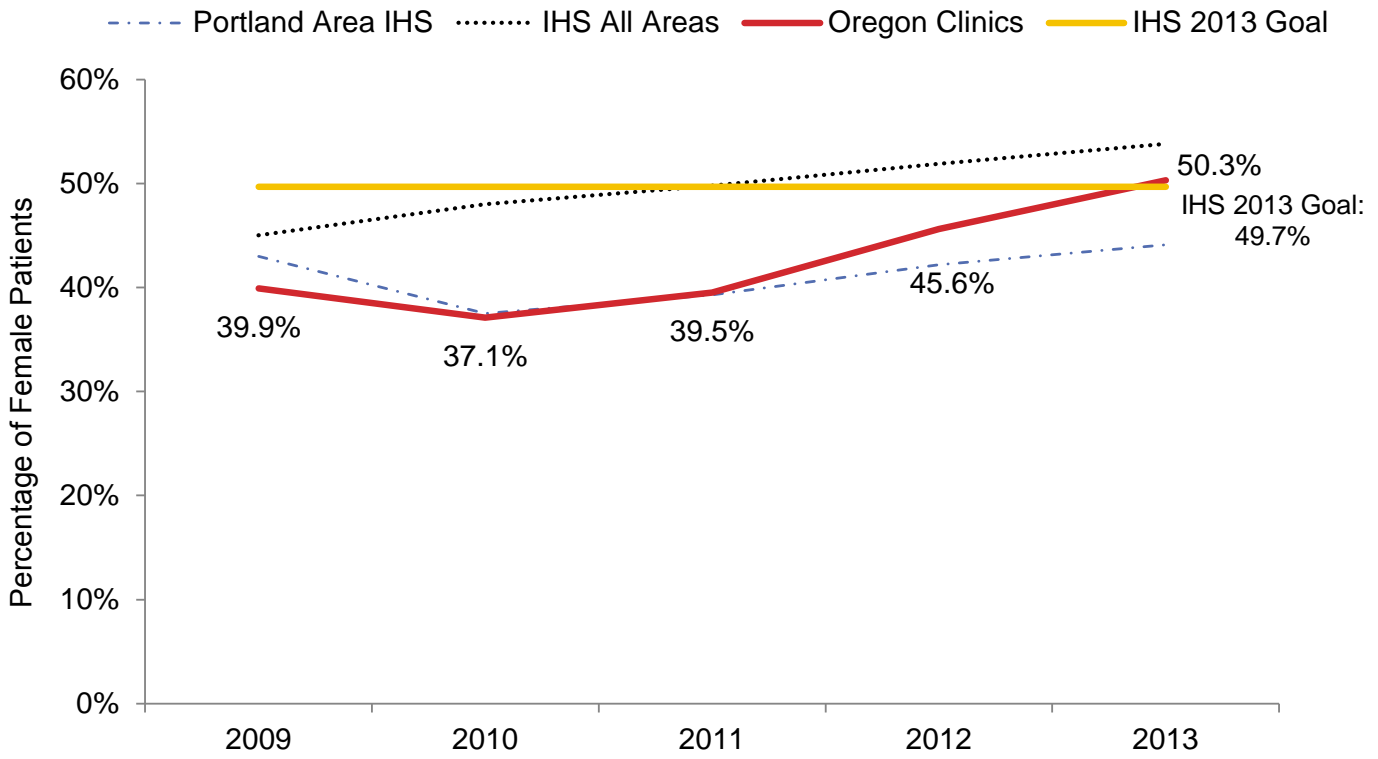
IHS tracks the percentage of AI/AN female patients ages 52-64 who have received at least one mammogram in the past two years. The 2013 goal for the measure was 49.7%.

The mammogram screening rate in the national IHS patient population has steadily increased since 2009 (Figure 6.2). The mammogram screening rate for Oregon clinics has increased since 2010, and was higher than the Portland Area IHS rate in recent years. Oregon clinics and the national IHS met the 2013 goal for this measure.

**Data Source:** Portland Area Indian Health Service.

**Data Notes:** Data labels only shown for Oregon clinics. Oregon clinics include non-urban federal and tribal Indian health facilities in Oregon. Portland Area IHS clinics include non-urban federal and tribal Indian health facilities in Idaho, Oregon, and Washington.

**Figure 6.2: Mammogram screening rates for IHS female patients, 2009-2013.**



# Colorectal Cancer

Colorectal cancer screenings can identify colorectal cancer in its early stages and improve treatment outcomes. The U.S. goal is for 70.5% of adults (ages 50-75) to be screened for colorectal cancer by (Healthy People 2020).

Up until 2012, IHS tracked the percentage of patients ages 51-80 who received any of the following screenings:

- fecal occult blood test or fecal immunochemical test during the past year
- double-contrast barium enema (DCBE)
- flexible sigmoidoscopy in the past five years
- colonoscopy in the past ten years

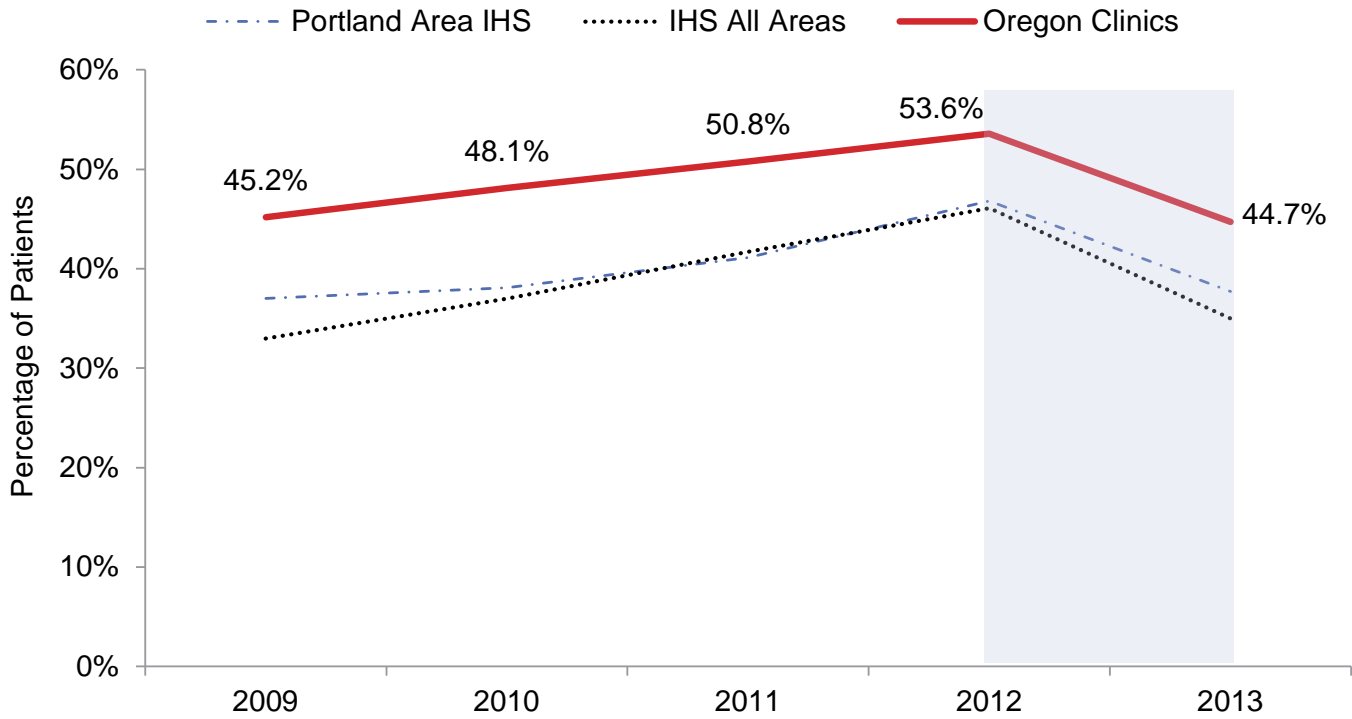
In 2013, IHS changed this measure's definition to the percentage of patients ages 50-75 who received a colorectal cancer screening and eliminated DCBE as a screening test.

Colorectal cancer screening rates increased across all areas from 2009-2012 (Figure 6.3). The screening rate for Oregon clinics has been consistently higher than screening rates for the Portland Area and national IHS. All three areas exceeded the 2012 goal of 43.2%. The drop in screening rates between 2012 and 2013 is likely due to the change in this measure's definition.

**Data Source:** Portland Area Indian Health Service.

**Data Notes:** Data labels only shown for Oregon clinics. The shaded box shows the year when the definition for colorectal cancer screening changed. Oregon clinics include non-urban federal and tribal Indian health facilities in Oregon. Portland Area IHS clinics include non-urban federal and tribal Indian health facilities in Idaho, Oregon, and Washington.



**Figure 6.3: Colorectal cancer screening rates for IHS patients, 2009-2013.**

# Leading Cancer Incidence Sites

Table 6.1 shows the leading cancer incidence sites for AI/AN males and females in Oregon. From 2006-2011, there were 520 newly diagnosed cancers for AI/AN males and 612 newly diagnosed cancers for AI/AN females. The most common cancer sites for AI/AN men were cancers of the lung, prostate, and blood. Breast cancer was the most common cancer site for AI/AN women, followed by lung cancer and blood cancers.

**Data Source:** Oregon State Cancer Registry (OSCaR), 2006-2011, corrected for misclassified AI/AN race by the IDEA-NW Project.

**Data Notes:** Incidence counts and rates include invasive cancers and in situ urinary bladder cancer.

**Table 6.1: Leading cancer incidence sites for AI/AN by sex, Oregon, 2006-2010.**

Rank	Males	N (%)	Females	N (%)
1	Lung & Bronchus	90 (17.3%)	Breast*	159 (26.0%)
2	Prostate	87 (16.7%)	Lung & Bronchus	99 (16.2%)
3	Blood Cancers†	57 (11.0%)	Blood Cancers†	41 (6.7%)
4	Colorectal*	55 (10.6%)	Colorectal*	55 (9.0%)
5	Liver & Intrahepatic Bile Duct	30 (5.8%)	Uterine	36 (5.9%)
6	Kidney & Renal Pelvis	27 (5.2%)	Kidney & Renal Pelvis	29 (4.7%)
7	Bladder	22 (4.2%)	Liver & Intrahepatic Bile Duct Pancreas	18 (2.9%)
8	Pancreas	20 (3.8%)	Cervix* Melanoma Thyroid	17 (2.8%)
<b>Total</b>	All Invasive Cancers	520 (100.0%)	All Invasive Cancers	612 (100.0%)

\* Screenable cancers

† Blood cancers include leukemia, Hodgkin lymphoma, non-Hodgkin lymphoma, and multiple myeloma

# Cancer Incidence Rates

From 2006-2011, AI/AN males in Oregon had a lower overall cancer incidence rate than NHW in the state. The rate for AI/AN females was similar to the rate for NHW females (Table 6.2). For both races, males had higher cancer incidence rates than females, though the gap between sexes was smaller for AI/AN.

Figure 6.4 shows the age-adjusted incidence rates for most common cancer sites among AI/AN in Oregon, with comparisons to NHW. AI/AN had significantly lower rates of prostate cancers than NHW in the state, and had significantly higher rates of lung and liver/bile duct cancers. The rate of lung cancer was 32% higher for AI/AN. The AI/AN rate for liver and intrahepatic bile duct cancers was 2.4 times higher than the NHW rate.

**Data Source:** Oregon State Cancer Registry (OSCaR), 2006-2011, corrected for misclassified AI/AN race by the IDEA-NW Project.

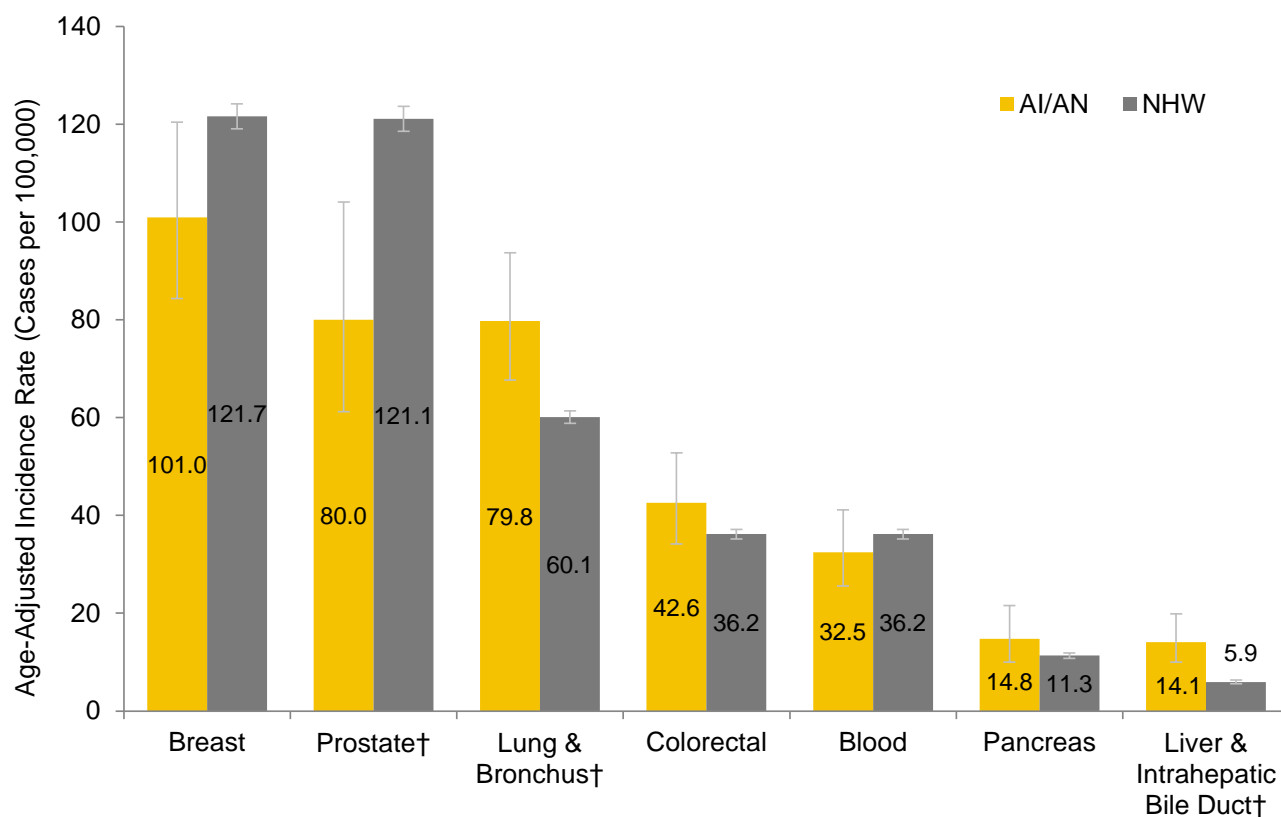
**Data Notes:** Incidence counts and rates include invasive cancers and in situ urinary bladder cancer.

**Table 6.2: Cancer incidence rates by race and sex, Oregon, 2006-2010.**

Sex	AI/AN Rate (95% CI)	NHW Rate (95% CI)	AI/AN vs. NHW Rate Ratio (95% CI)
Male	421.4 (379.6, 467.9)	463.4 (458.5, 468.3)	0.9 (0.83, 0.99) <sup>†</sup>
Female	416.1 (380.5, 454.6)	405.9 (401.2, 410.6)	1.0 (0.95, 1.11)
Both Sexes	414.2 (387.4, 442.7)	429.4 (426.0, 432.7)	1.0 (0.91, 1.02)

CI = confidence interval

<sup>†</sup> Indicates a statistically significant difference ( $p < .05$ ).

**Figure 6.4: Age-adjusted incidence rates for leading cancer sites by race, Oregon, 2006-2010.**

<sup>†</sup> Indicates a statistically significant difference ( $p < .05$ )

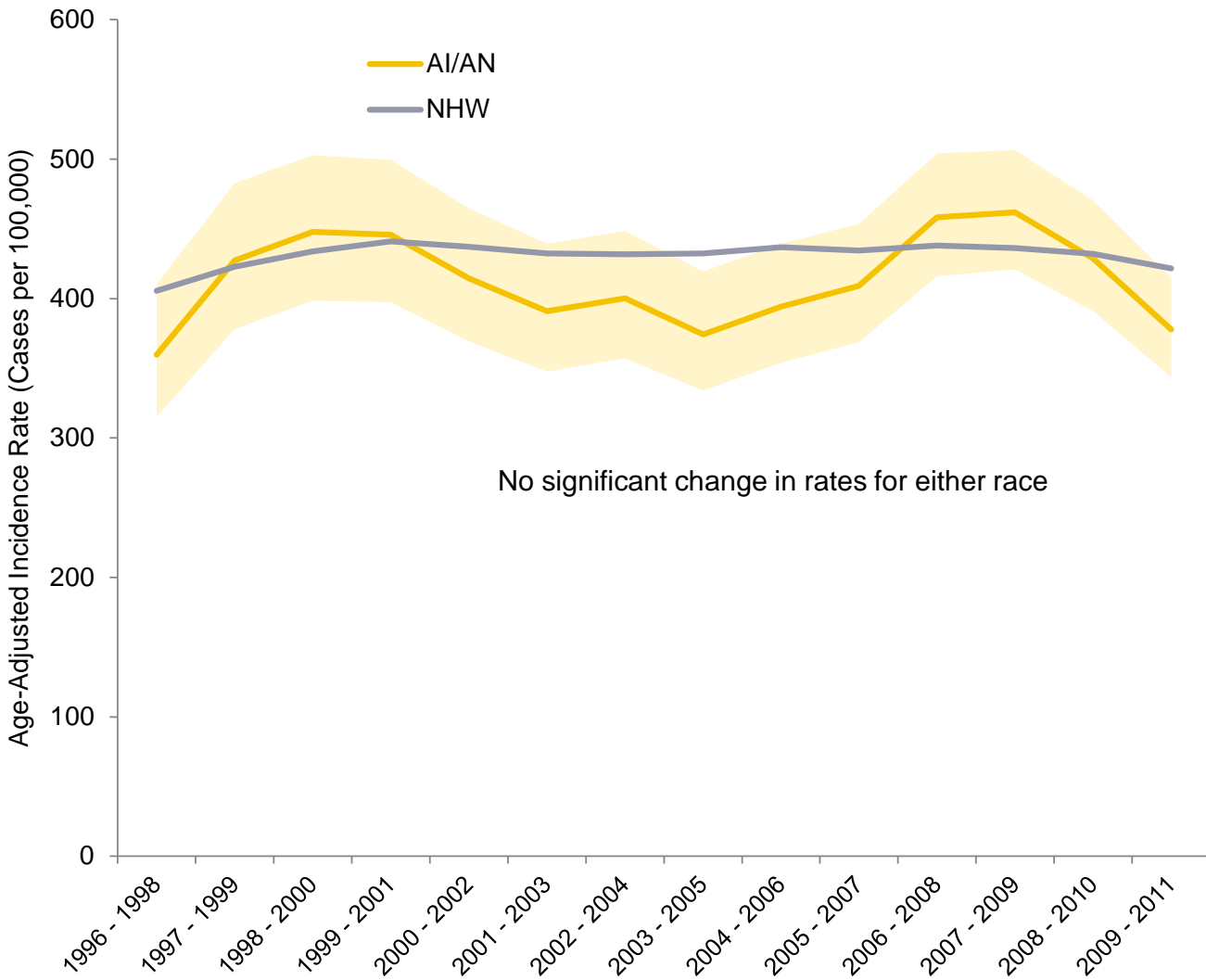
# Cancer Incidence Trends

Figure 6.5 shows trends in age-adjusted cancer incidence rates for AI/AN and NHW in Oregon. From 1996-2011, there was no observable upward or downward trend for AI/AN or NHW. For most years, AI/AN incidence rates have been similar to or slightly lower than NHW rates.

**Data Source:** Oregon State Cancer Registry (OSCaR), 1996-2011, corrected for misclassified AI/AN race by the IDEA-NW Project.

**Data Notes:** Incidence counts and rates include invasive cancers and in situ urinary bladder cancer.

**Figure 6.5: Age-adjusted cancer incidence rates, three-year rolling averages, by race, Oregon, 1996-2011.**



# Stage at Diagnosis

Stage at diagnosis describes the extent to which a cancer has spread in the body. In most cases, cancers that are diagnosed at an earlier stage are less severe and easier to treat. Cancer registries use five main categories to describe stage at diagnosis:

- In-situ: Cancer cells are only present in the layer of cells in which they developed
- Localized: Cancer cells are only present in the organ where the cancer began
- Regional: Cancer cells have spread beyond the primary organ to nearby tissues, organs, or lymph nodes
- Distant: Cancer cells have spread to distant tissues, organs, or lymph nodes
- Unstaged: Not enough information to determine the stage

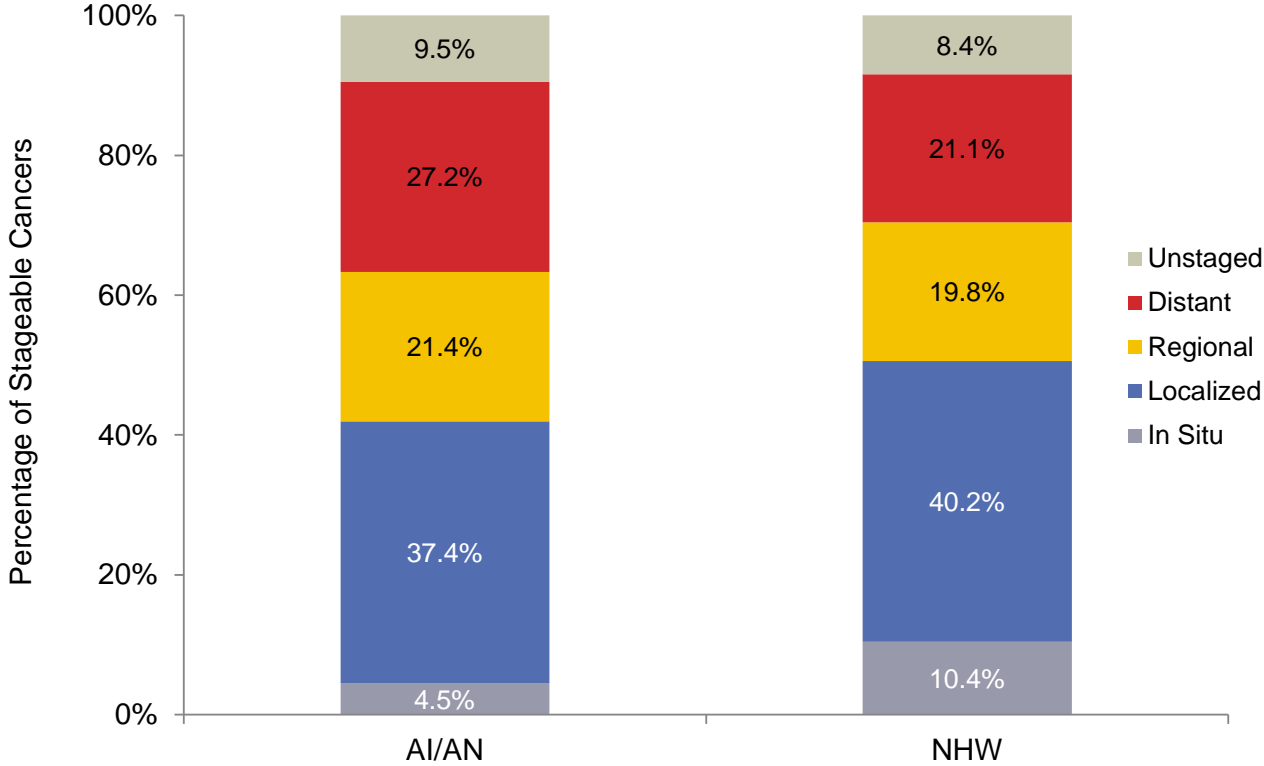
Compared to NHW in the state, a smaller proportion of AI/AN in Oregon are diagnosed during the earlier stages of their cancers (Figure 6.6). From 2006-2011, less than 5% of cancers among AI/AN were diagnosed during the earliest (in situ) stage of cancer, compared to 10.4% of cancers among NHW. About 27% of AI/AN cancers and 21% of NHW cancers were diagnosed when the cancer had spread to distant organs and tissues.

**Data Source:** Oregon State Cancer Registry (OSCaR), 2006-2011, corrected for misclassified AI/AN race by the IDEA-NW Project.

**Data Notes:** Incidence counts and rates include invasive cancers and in situ urinary bladder cancer.



Figure 6.6: Stage at diagnosis for incident cancer cases by race, Oregon, 2006-2011.



# Leading Cancer Mortality Sites

Table 6.3 shows the leading cancer mortality sites for AI/AN males and females in Oregon. From 2006-2012, lung cancer was the most common cause of cancer deaths for AI/AN in the state, accounting for 25.7% of cancer deaths among males and 28.5% of cancer deaths among females. Blood cancers were the second leading cause of cancer deaths for AI/AN males, followed by colorectal and prostate cancers. Breast cancer was the second leading cause of cancer deaths for AI/AN females, followed by colorectal and blood cancers. It is notable that two of the three screenable cancers were among the top three causes of cancer mortality.

**Data Source:** Oregon state death certificates, 2006-2012, corrected for misclassified AI/AN race by the IDEA-NW Project.

**Data Notes:** Mortality rates exclude deaths from benign cancers.

**Table 6.3: Leading cancer mortality sites for AI/AN by sex, Oregon, 2006-2012.**

Rank	Males	N (%)	Females	N (%)
1	Lung & Bronchus	78 (25.7%)	Lung & Bronchus	90 (28.5%)
2	Blood Cancers†	34 (11.2%)	Breast*	43 (13.6%)
3	Colorectal*	27 (8.9%)	Colorectal*	30 (9.5%)
4	Prostate	26 (8.6%)	Blood Cancers†	19 (6.0%)
5	Liver & Intrahepatic Bile Duct	22 (7.2%)	Pancreas	18 (5.7%)
6	Pancreas	21 (6.9%)	Ovary	13 (4.1%)
7	Kidney & Renal Pelvis	14 (4.6%)	Liver & Intrahepatic Bile Duct	10 (3.2%)
<b>Total</b>	All Invasive Cancers	304 (100.0%)	All Invasive Cancers	316 (100.0%)

\* Screenable cancers

† Blood cancers include leukemia, Hodgkin lymphoma, non-Hodgkin lymphoma, and multiple myeloma

# Cancer Mortality Rates

From 2006-2012, AI/AN in Oregon had higher cancer mortality rates compared to NHW in the state (Table 6.4). AI/AN males had a mortality rate that was 20% higher than their NHW counterparts, and AI/AN females had a rate that was 36% higher than NHW females. For both races, the cancer mortality rate for males was higher than the rate for females.

For many leading cancer sites, AI/AN had higher cancer mortality rates than NHW in Oregon, though the only statistically significant differences were for lung and liver cancers (Figure 6.7). The largest disparity was for liver cancer; the rate for AI/AN was nearly twice the rate for NHW.

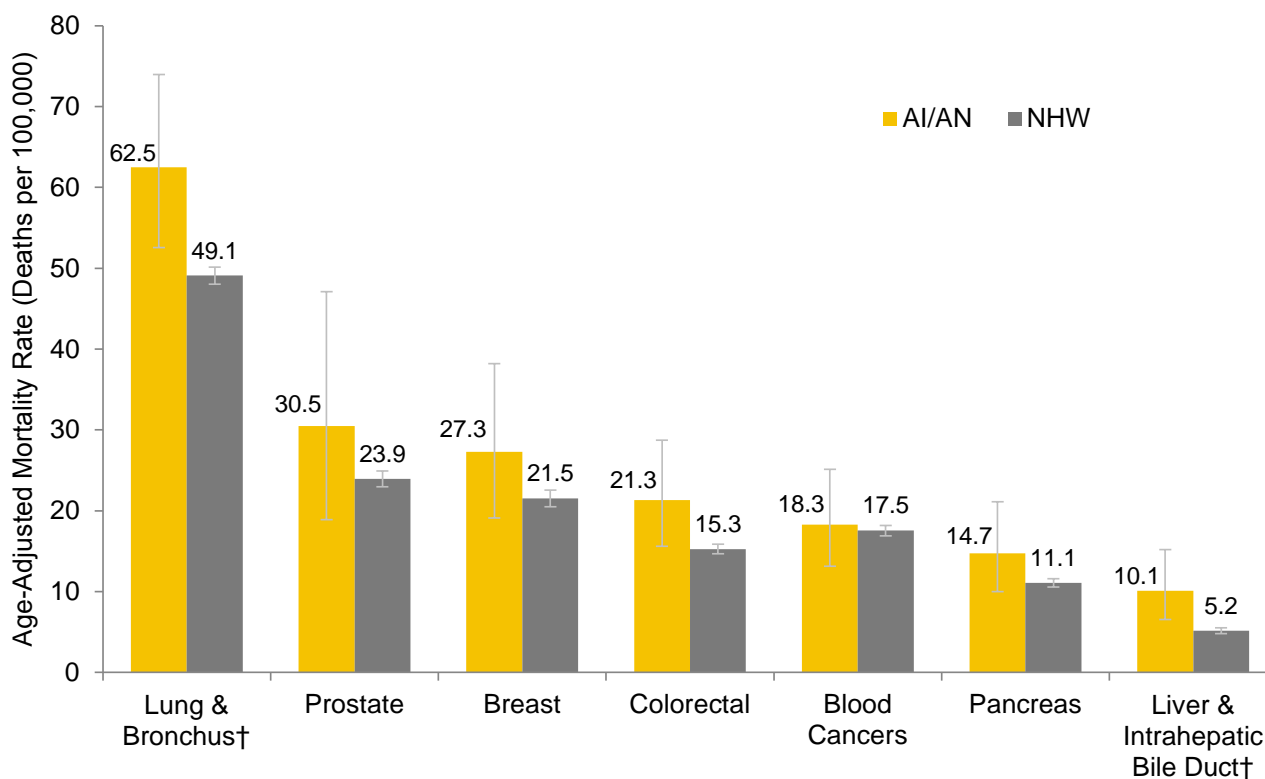
**Data Source:** Oregon state death certificates, 2006-2012, corrected for misclassified AI/AN race by the IDEA-NW Project.

**Data Notes:** Mortality rates exclude deaths from benign cancers.

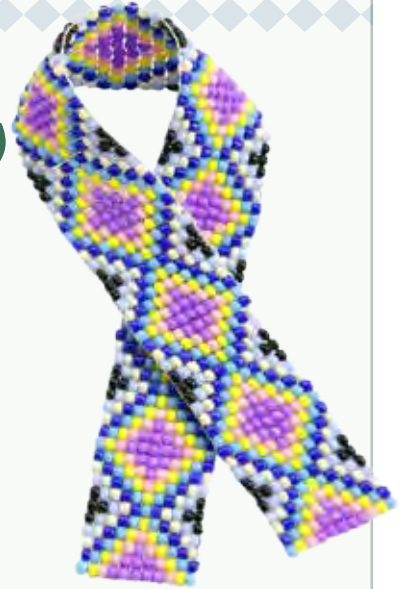
**Table 6.4: Cancer mortality rates by race and sex, Oregon, 2006-2012.**

Sex	AI/AN Rate (95% CI)	NHW Rate (95% CI)	AI/AN vs. NHW Rate Ratio (95% CI)
Male	249.1 (217.7, 284.5)	208.2 (205.2, 211.1)	1.2 (1.07, 1.34) <sup>†</sup>
Female	207.1 (183.0, 233.9)	152.5 (149.8, 155.3)	1.4 (1.22, 1.52) <sup>†</sup>
Both Sexes	223.8 (204.7, 244.5)	175.6 (173.6, 177.7)	1.3 (1.18, 1.38) <sup>†</sup>

CI = confidence interval

<sup>†</sup> Indicates a statistically significant difference ( $p < .05$ ).**Figure 6.7: Age-adjusted mortality rates for leading cancer sites by race, Oregon, 2006-2012.**<sup>†</sup> Indicates a statistically significant difference ( $p < .05$ ).

## ***Program Spotlight: Northwest Tribal Comprehensive Cancer Project (NTCCP)***



In collaboration with 43 Northwest tribes, the NTCCP works toward cancer-free tribal communities by taking an integrated and coordinated approach to cancer control. The NTCCP was the first tribal recipient of a Comprehensive Cancer Grant from the CDC. NTCCP has been at the forefront in developing and implementing strategies to address cancer in tribal communities. These strategies include developing a tribal comprehensive cancer plan, forming a multi-state tribal cancer coalition, and designing a tribal behavioral risk factor survey.

NTCCP's goals are to:

- Facilitate a process for Northwest tribes to promote cancer risk reduction strategies
- Provide information on the most current early detection, screening and treatment practices through education and resource materials.
- Provide education regarding quality of life for cancer patients, their families and caretakers
- Coordinate and collaborate with local and national cancer organizations and individuals
- Improve Indian-specific cancer control data

NTCCP coordinates three tribal cancer coalition meetings per year. These meetings provide a forum for tribal programs, cancer centers, local and state health departments, non-profits, and private organizations to network and share resources. NTCCP also provides technical assistance to tribes to implement local cancer control plans, provides toolkits and educational materials to promote cancer screening, and assists tribes with data and funding resources. The Northwest Tribal Comprehensive Cancer Program is funded by a cooperative agreement from the Centers for Disease Control and Prevention.

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