

6. Cancer

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Cancer is the second leading cause of death for AI/AN in the Pacific 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. Just as 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 cervical, breast, and colorectal cancer screenings as part of its reporting for the Government Performance and Reporting Act (GPRA).

In Washington, screening rates for breast and cervical cancers have remained relatively unchanged for the past five years. The 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 Washington 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 1992. Despite lower cancer incidence, AI/AN have higher cancer mortality rates than NHW. This is because AI/AN cancer diagnoses are more often made at later stages of illness, when the cancer has already spread and is less responsive to treatment.

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

Cancer Screenings: Cervical Cancer

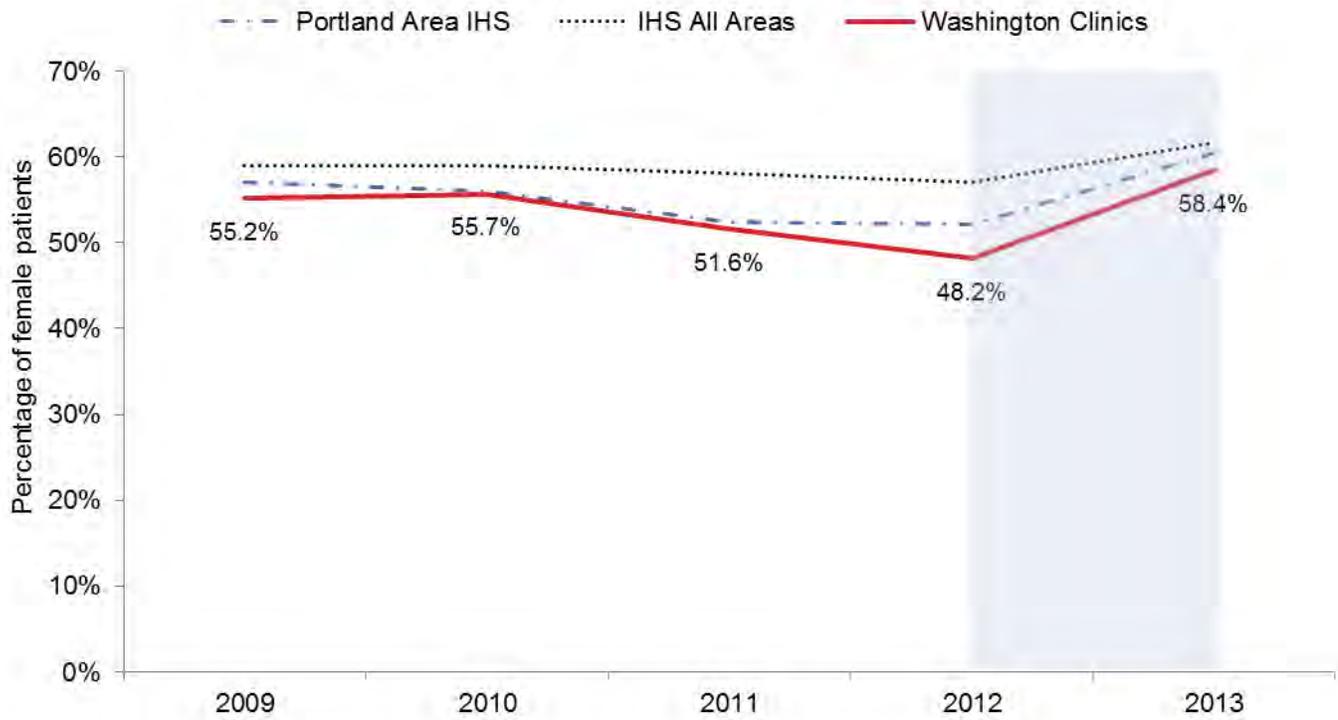
Pap screenings are used to detect early signs of cervical cancer. Women ages 21-65 should receive a cervical cancer screening at least once every three years. The U.S. has a Healthy People 2020 goal for 93% of women (ages 21-65) to receive a cervical cancer screening at least once every three years by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

From 2010-2012, Pap screening rates decreased within the Washington, Portland, and national IHS patient population (Figure 6.1). The 2012 screening rates for Washington clinics (48.2%), Portland Area IHS (52.1%), and national IHS (57.1%) were below the national goal of 59.5%. In 2013, Washington clinics had a lower average screening rate compared to the Portland Area IHS and national IHS. 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 Washington clinics. Washington clinics include non-urban federal and tribal Indian health facilities in Washington. 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.

Note: The shaded area shows the year when the definition for Pap screening rates changed.

Cancer Screenings: Breast Cancer

Mammograms are recommended for detecting breast cancer early and reducing deaths from breast cancer. Women ages 50 - 64 should receive a mammogram at least once every two years, and some organizations recommend that biennial screenings should begin at age 40. The U.S. has a Healthy People 2020 goal for 81.1% of women (ages 50-74) to receive a mammogram at least once every two years by 2020.

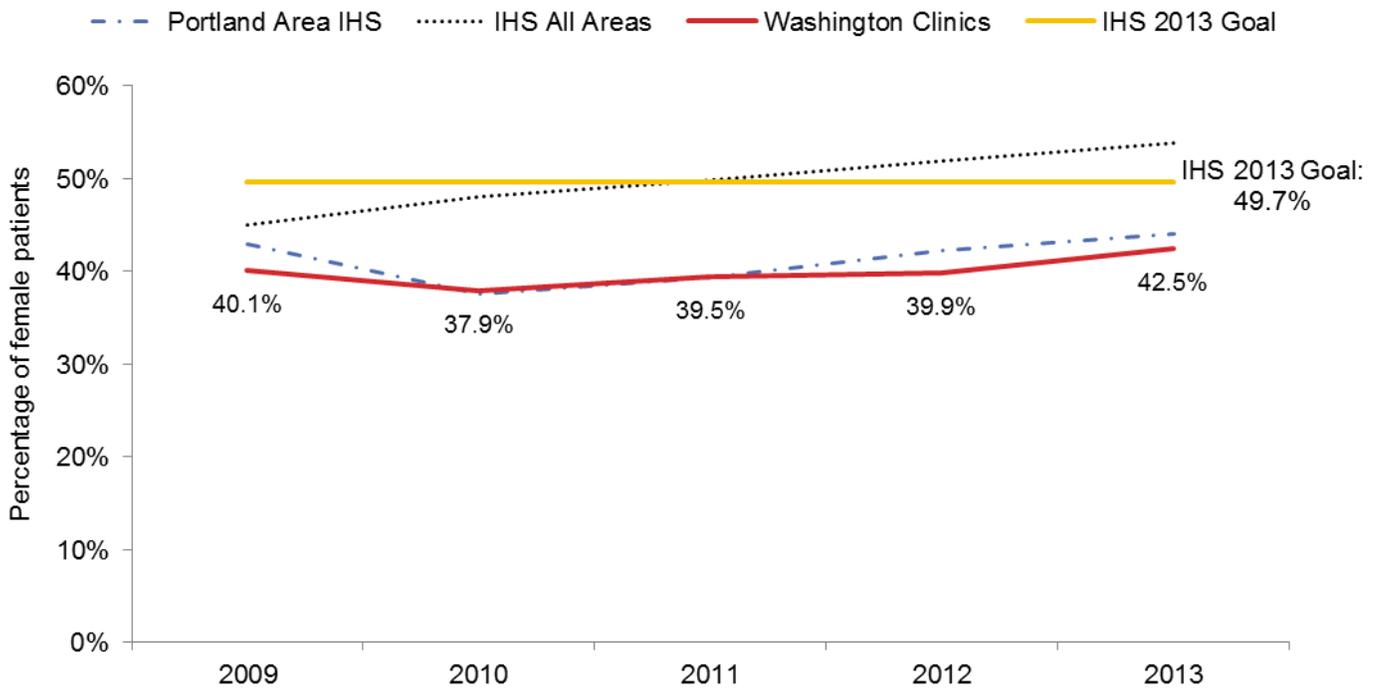
IHS tracks the percentage of AI/AN female patients ages 52-64 who have received at least one mammogram in the past two years. The 2013 goal for the measure was 49.7%.

The national IHS average for mammogram screening rates has steadily increased since 2009 and exceeded the national goal in 2013 (Figure 6.2). Mammogram screening rates in Washington clinics and the Portland Area IHS have not appreciably changed since 2009, and have remained below the national average. The 2013 mammogram screening rates in Washington and the Portland Area IHS were below the goal of 49.7%.

Data Source: Portland Area Indian Health Service.

Data Notes: Data labels only shown for Washington clinics. Washington clinics include non-urban federal and tribal Indian health facilities in Washington. 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.



Cancer Screenings: Colorectal Cancer

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

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

- a fecal occult blood test or fecal immunochemical test during the past year
- a flexible sigmoidoscopy in the past five years
- a colonoscopy in the past ten years

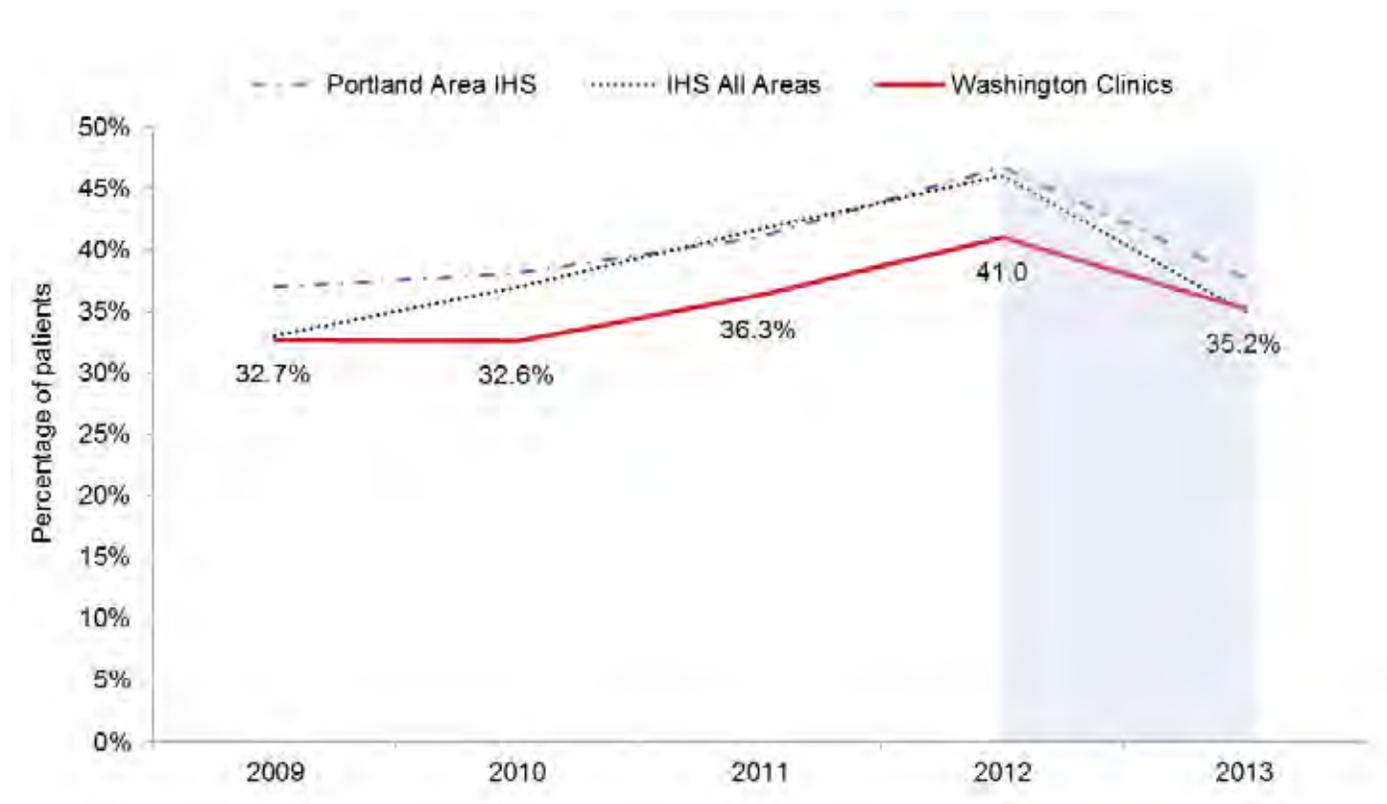
In 2013, IHS changed this measure's definition to the percentage of patients ages 50-75 who received a colorectal cancer screening.

Colorectal cancer screening rates increased across all areas from 2009-2012 (Figure 6.3). The screening rates in the Portland Area IHS (46.8%) and national IHS (46.1%) exceeded the 2012 goal of 43.2%, while the rate for Washington clinics (41.0%) fell below the goal. The drop in screening rates between 2012 to 2013 is likely due to the change in this measure's definition in 2013.

Data Source: Portland Area Indian Health Service.

Data Notes: Data labels only shown for Washington clinics. Washington clinics include non-urban federal and tribal Indian health facilities in Washington. 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.



Note: The shaded area shows the year when the definition for colorectal cancer screening rates changed.

Leading Cancer Incidence Sites

Table 6.1 shows the leading cancer incidence sites for AI/AN males and females in Washington. From 2006-2010, the most common cancer sites for AI/AN were cancers of the breast (in females), prostate (in males), lung, colon/rectum, and blood (leukemia, Hodgkin's lymphoma, non-Hodgkin's lymphoma, and multiple myeloma).

Data Source: Washington State Cancer Registry (WSCR) data, 2006-2010, corrected for misclassified AI/AN race by the IDEA-NW Project.

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

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

Rank	Males	N (%)	Females	N (%)
1	Prostate	202 (19.4%)	Breast	335 (30.2%)
2	Lung & Bronchus	136 (13.1%)	Lung & Bronchus	145 (13.1%)
3	Colorectal	111 (10.7%)	Colorectal	97 (8.7%)
4	Blood Cancers [†]	106 (10.2%)	Blood Cancers [†]	83 (7.5%)
5	Kidney & Renal Pelvis	73 (7.0%)	Uterine	80 (7.2%)
6	Liver & Intrahepatic Bile Duct	70 (6.7%)	Thyroid	48 (4.3%)
7	Bladder	61 (5.9%)	Kidney & Renal Pelvis	40 (3.6%)
8	Oral Cavity & Pharynx	43 (4.1%)	Pancreas	33 (3.0%)
9	Esophagus	28 (2.7%)	Cervix	29 (2.6%)
10	Stomach	25 (2.4%)	Melanoma	25 (2.3%)
Total	All Invasive Cancers	1,042 (100.0%)	All Invasive Cancers	1,110 (100.0%)

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

Cancer Incidence Rates

From 2006-2010, the incidence rate for all cancers combined was about the same for AI/AN and NHW in Washington (Table 6.2). For both races, the cancer incidence rate for males was about 22% higher than the rate for females. Compared to NHW, AI/AN had lower rates of female breast cancer and male prostate cancer, and higher rates of lung and colorectal cancers (Figure 6.4).

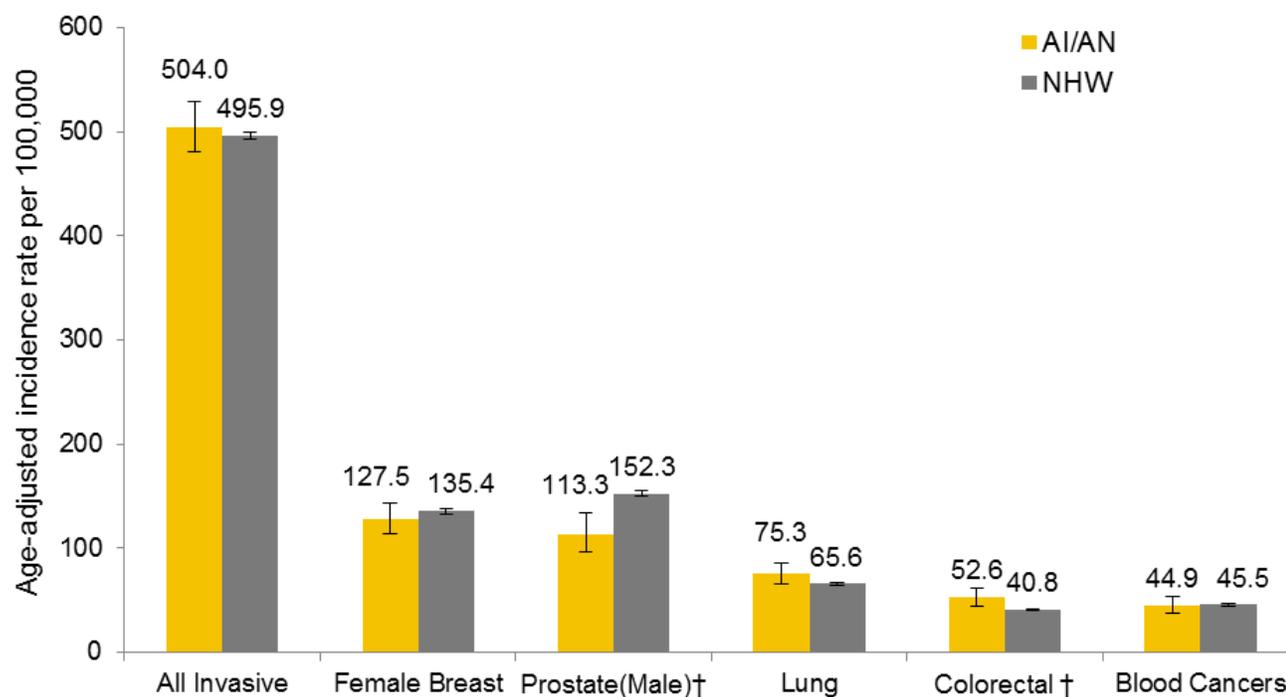
Data Source: Washington State Cancer Registry (WSCR) data, 2006-2010, corrected for misclassified AI/AN race by the IDEA-NW Project.

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

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

Sex	AI/AN Rate (95% CI)	NHW Rate (95% CI)	AI/AN vs. NHW Rate Ratio (95% CI)
Male	567.5 (526.7, 611.8)	555.7 (551.4, 560.1)	1.02 (0.96, 1.09)
Female	464.8 (435.3, 496.3)	451.5 (447.3, 455.6)	1.03 (0.97, 1.09)
Both Sexes	504.0 (480.1, 529.1)	495.9 (492.9, 498.9)	1.02 (0.97, 1.06)

CI = confidence interval

Figure 6.4: Age-adjusted incidence rates for leading cancer sites by race, Washington, 2006-2010.† Indicates a statistically significant difference ($p < .05$)

Cancer Incidence Trends

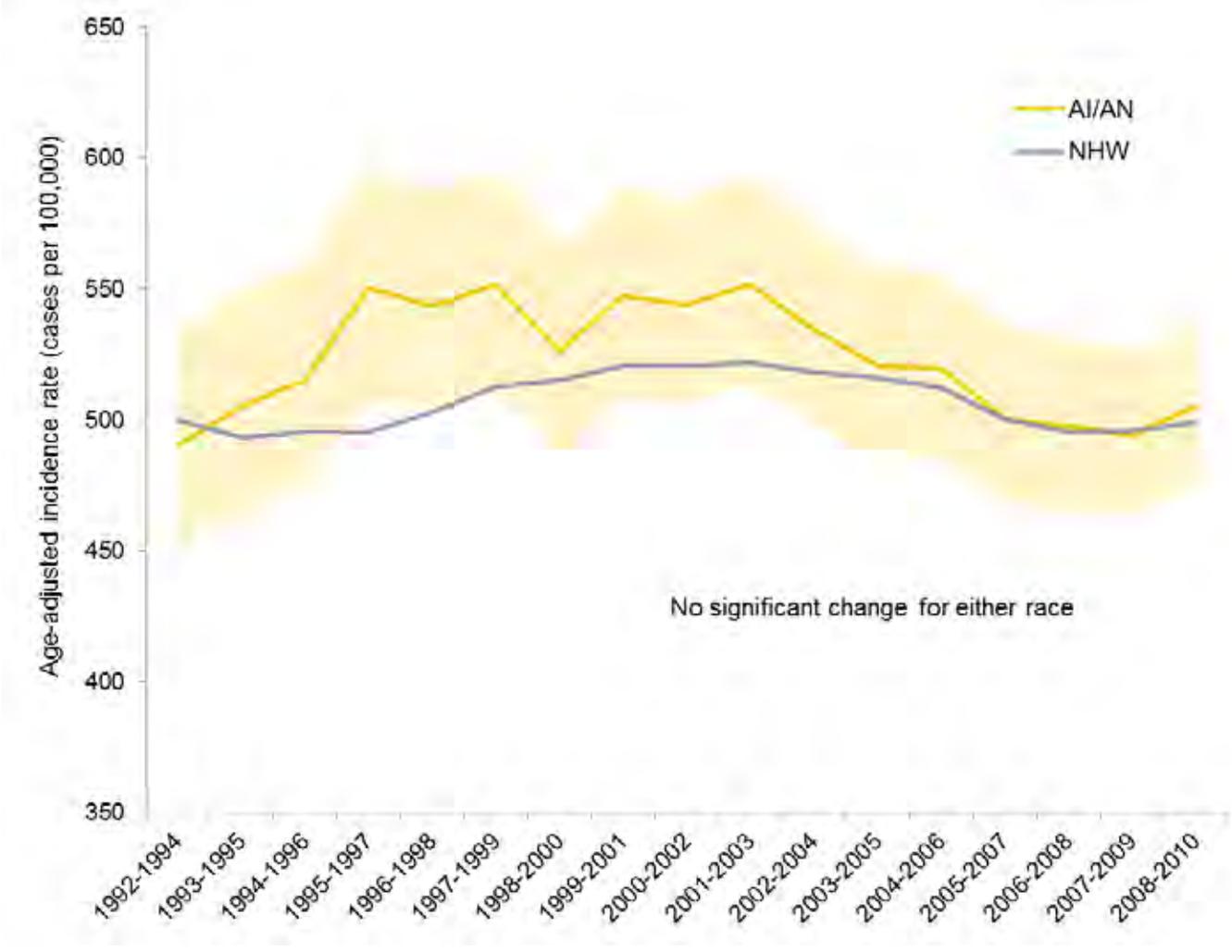
Figure 6.5 shows the trend in age-adjusted cancer incidence rates for AI/AN and NHW in Washington. The yellow shaded section around the AI/AN line represents a 95% confidence interval band.

From 1992-2010, there was no observable upward or downward trend in rates for either race. AI/AN cancer incidence rates were higher than NHW rates from the mid-1990s to mid-2000s. In recent years, AI/AN and NHW have had comparable cancer rates.

Data Source: Washington State Cancer Registry (WSCR) data, 1992-2010, corrected for misclassified AI/AN race by the IDEA-NW Project.

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

Figure 6.5: Age-adjusted cancer incidence rates, three year rolling averages, by race, Washington, 1992-2010.



Stage at Diagnosis

Stage at diagnosis describes the extent to which a cancer has spread in the body. 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:

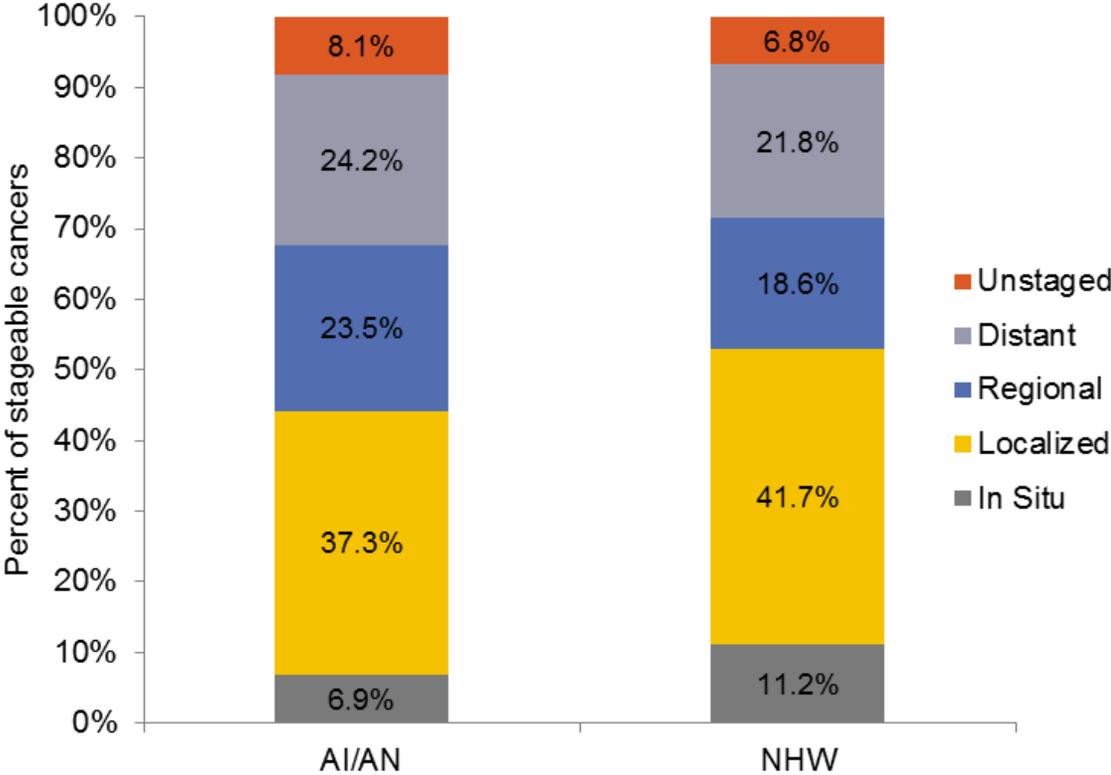
- **In-situ:** Cancer cells are only present in the layer of cells in which they developed
- **Localized:** Cancer cells are only present in the organ where the cancer began
- **Regional:** Cancer cells have spread beyond the primary organ to nearby tissues, organs, or lymph nodes
- **Distant:** Cancer 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 Washington AI/AN are diagnosed during the earlier stages of their cancers (Figure 6.6). Between 2006-2010, approximately 44% of new cancers among Washington AI/AN were diagnosed during the earlier (in situ or localized) stages of cancer, 24% were diagnosed during the regional stage, and 24% were diagnosed during the distant stage. In contrast, 53% of new cancers among NHW were diagnosed during the in situ or localized stages, 18% during the regional stage, and 22% during the distant stage.

Data Source: Washington State Cancer Registry (WSCR) data 2006-2010, corrected for misclassified AI/AN race.

Data Notes: Excludes cases with cancers that cannot be staged or are missing stage data.

Figure 6.6: Stage at diagnosis for incident cancer cases by race, Washington, 2006-2010.



Leading Cancer Mortality Sites

Table 6.3 shows the leading cancer mortality sites for AI/AN males and females in Washington. From 2006-2010, lung cancer was the most common cause of cancer deaths for AI/AN in the state. Lung cancer accounted for 24.5% of cancer deaths among males and 30.0% of cancer deaths among females. Breast cancer accounted for 12.6% of cancer deaths among AI/AN females. Colorectal cancer was the second leading cause of cancer deaths for AI/AN males (10.8%) and the fourth leading cause for AI/AN females (7.3%).

Data Source: Washington state death certificates, 2006-2010, corrected for misclassified AI/AN race by the IDEA-NW Project.

Data Notes: Mortality rates include deaths from all invasive cancers.

Table 6.3: Leading cancer mortality sites for AI/AN by sex, Washington, 2006-2010.

Rank	Males	N (%)	Females	N (%)
1	Lung & Bronchus	107 (24.5%)	Lung & Bronchus	128 (30.0%)
2	Colorectal	47 (10.8%)	Breast	54 (12.6%)
3	Liver & Intrahepatic Bile Duct	46 (10.6%)	Blood Cancers [†]	32 (7.5%)
4	Prostate	34 (7.8%)	Colorectal	31 (7.3%)
	Blood Cancers [†]	34 (7.8%)		
5	Esophagus	21 (4.8%)	Pancreas	27 (6.3%)
	Pancreas	21 (4.8%)		
6	Kidney & Renal Pelvis	19 (4.4%)	Ovary	21 (4.9%)
7	Brain & Central Nervous System	16 (3.7%)	Uterine	19 (4.4%)
8	Bladder	13 (3.0%)	Liver & Intrahepatic Bile Duct	16 (3.7%)
9	Oral Cavity & Pharynx	11 (2.5%)	Kidney & Renal Pelvis	11 (2.6%)
	Stomach	11 (2.5%)		
10	Melanoma	5 (1.1%)	Cervix	9 (2.1%)
Total	All Invasive Cancers	436 (100.0%)	All Invasive Cancers	427 (100.0%)

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

Cancer Mortality Rates

From 2006-2010, AI/AN had cancer mortality rates that were approximately 38% higher than NHW in the state (Table 6.4). For both races, the cancer mortality rate for males was about 34% higher than the rate for females. Compared to NHW, AI/AN had significantly higher rates of lung, colorectal, and liver cancers (Figure 6.7).

Data Source: Washington state death certificates, 2006-2010, corrected for misclassified AI/AN race by the IDEA-NW Project.

Data Notes: Mortality rates include deaths from all invasive cancers.

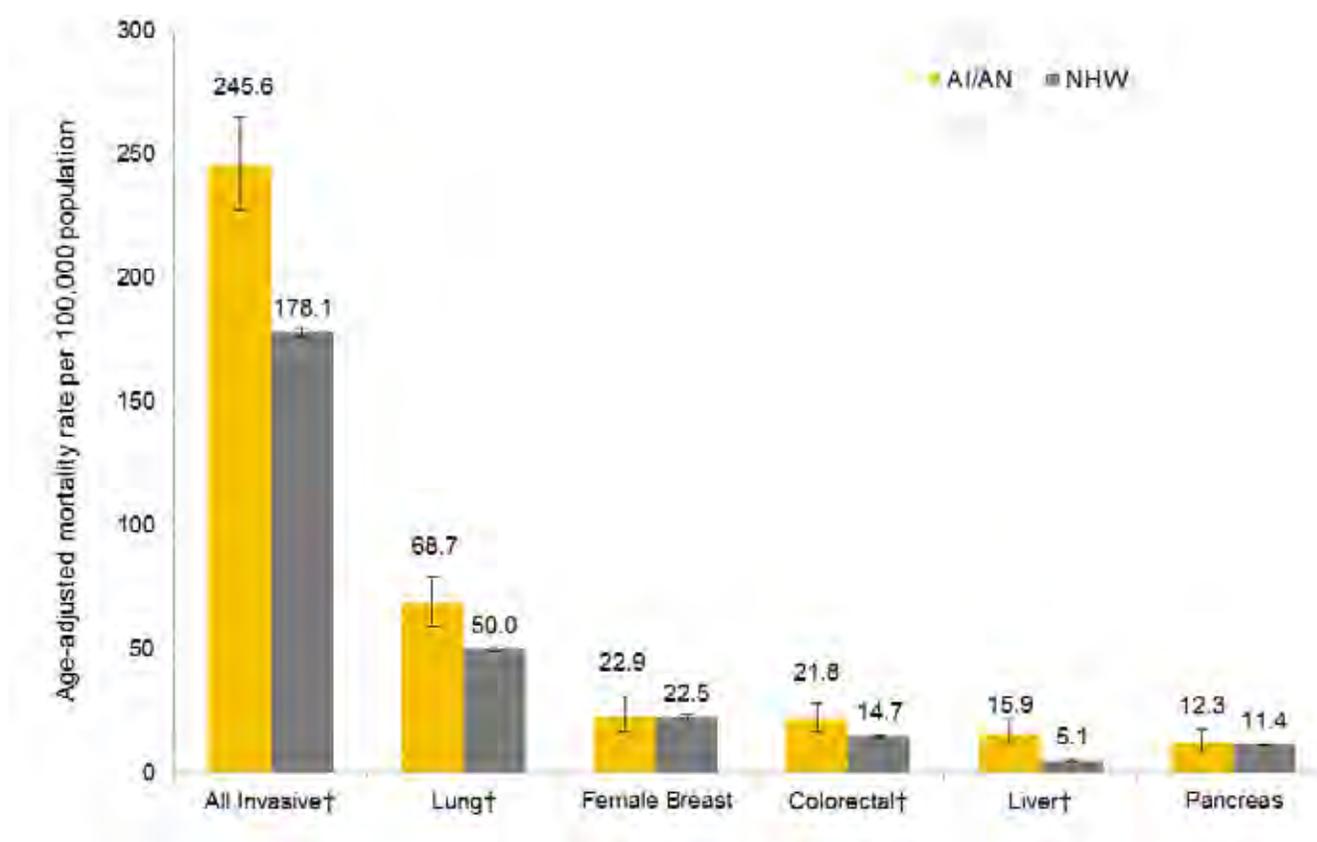
Table 6.4: Cancer mortality rates by race and sex, Washington, 2006-2010.

Sex	AI/AN Rate (95% CI)	NHW Rate (95% CI)	AI/AN vs. NHW Rate Ratio (95% CI)
Male	290.2 (258.3, 326.0)	209.8 (207.2, 212.5)	1.38 (1.26, 1.52) [‡]
Female	216.8 (194.9, 240.8)	155.5 (153.0, 158.0)	1.39 (1.27, 1.53) [‡]
Both Sexes	245.6 (227.4, 265.1)	178.1 (176.3, 179.9)	1.38 (1.29, 1.48) [‡]

CI = confidence interval

‡ Indicates a statistically significant difference (p<.05).

Figure 6.7: Age-adjusted mortality rates for leading cancer sites by race, Washington, 2006-2010.



† Indicates a statistically significant difference (p<.05)

Cancer Mortality Trends

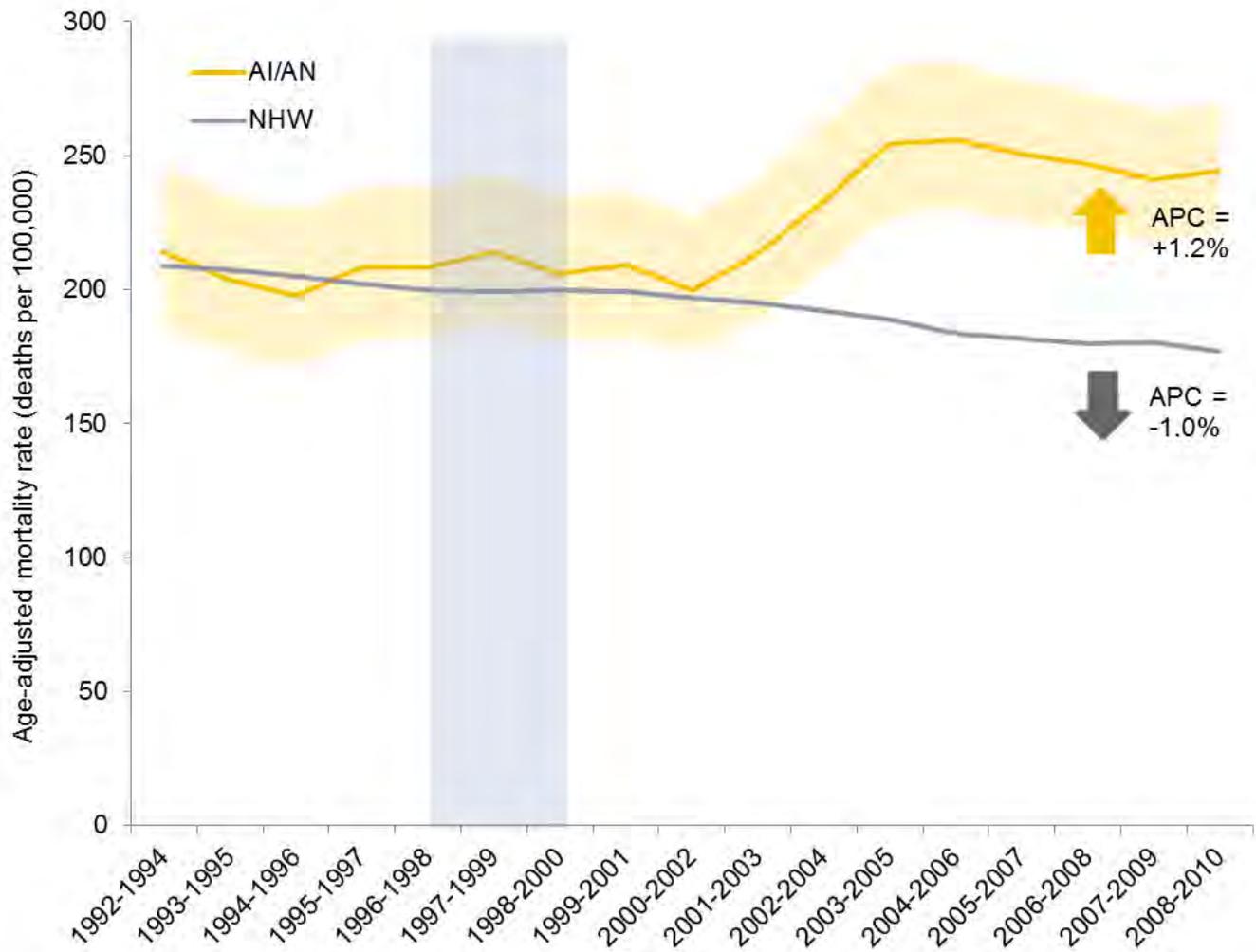
Figure 6.8 shows the trend in cancer mortality rates for AI/AN and NHW in Washington since 1992. The yellow shaded section around the AI/AN line represents a 95% confidence interval band.

AI/AN cancer mortality rates did not change between 1992 to 2002, increased from 2002 to 2004, and have since remained stable. The cancer mortality rate for NHW has steadily decreased by 1% per year since 1992. The disparity in cancer mortality rates between AI/AN and NHW has widened over time. While rates for the two races were similar in the early 1990s, the AI/AN cancer mortality rate has been approximately 38% higher than the NHW rate in recent years.

Data Source: Washington state death certificates, 2006-2010, corrected for misclassified AI/AN race by the IDEA-NW Project.

Data Notes: APC = Annual Percentage Change. Cause of death coding on death certificates underwent a change from ICD-9 to ICD-10 between 1998 and 1999. Data shown in the trend charts in this report have not been adjusted to reflect this change. Comparability ratios for the broad categories reported here show that the change did not have a large impact for these statistics, however any abrupt changes between 1998 and 1999 should be interpreted with caution.

Figure 6.8: Age-adjusted cancer mortality rates, three year rolling averages, by race, Washington, 1992-2010.



Note: The shaded rectangle indicates the year cause of death coding changed from ICD-9 to ICD-10. Any abrupt changes between 1998 and 1999 should be interpreted with caution.

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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