Errata

Corrected 17 January, 2017

Previously, colorectal cancer was erroneously omitted as the second leading cancer, by frequency, among Alaska Native Women in the Interior Tribal Health Region from 1984 through 2013 (pg. 91, column 3, row 2). That omission has been corrected and the leading cancers have been renumbered accordingly.

Corrected 17 February, 2017

Previously, the colorectal cancer counts for Alaska Native women from 1999 through 2013 were incorrectly displayed as the total counts for both Alaska Native women and men combined (pg. 37, fifth column of table; Women -> Alaska Native -> Count). That error has been corrected. No other values in the table were affected by the change.
Introduction
This report provides detailed information on cancer incidence and mortality over the 45-year period 1969-2013 from the Alaska Native Tribal Health Consortium’s (ANTHC) Alaska Native Tumor Registry. Cancer remains the leading cause of death among Alaska Native (AN) people with an average of 177 AN cancer deaths and over 400 new cases of cancer diagnosed per year (2009-2013).

Cancer incidence and mortality data for the US white (USW) population is included to provide a population for comparing cancer rates. Comparisons with other groups help to describe similarities and differences and may show areas for improvement. These data can also be used for health status monitoring, strategic planning, and evaluation in order to decrease cancer incidence and mortality.

Methods
AN population estimates were gathered from the US Census (1970, 1980, and 1990) and from National Center for Health Statistics’ bridged population series for AN people (1981–2010) from the SEER*Stat website (1). Population estimates, cancer incidence, and cancer mortality data for USWs were obtained from the National Cancer Institute’s SEER Program SEER*Stat database (2).

Cancer incidence data among AN people are from the Surveillance, Epidemiology, and End Results (SEER) Alaska Native Tumor Registry, a population-based registry that collects data about AN people who lived in Alaska at the time of their cancer diagnosis and who met eligibility requirements for Indian Health Service (IHS) benefits (3). Cancer incidence rates were expressed as average annual rates per 100,000 population for selected time periods between 1969-2013. USW cancer incidence data for both 1999-2013 and 2009-2013 were obtained from a SEER*Stat data set which was based on 18 registries (4,5). USW trend data for 1974–2013 were obtained from a SEER*Stat data set based on 9 registries (6). Current AN and USW mortality rates were based on data for the years 2007-2011 and mortality trends were based on data for the years 1992-2011. These mortality rates were obtained from SEER*Stat (7).

Cancer data and demographic information for AN patients are collected from medical records including pathology reports, provider dictations, and discharge summaries from the Alaska Native Medical Center in Anchorage, AK, as well as other Alaska regional medical facilities. All medical record abstracting was completed using detailed coding and staging guidelines established by the SEER program(8).
Primary cancer site, pathology, behavior, and grade coding followed the International Classification of Diseases for Oncology, 2nd and 3rd editions (9,10). Cancer sites of origin were grouped according to SEER primary site groups. Less than 1% of the cases were identified from death certificates alone; 90% of cancers were confirmed histologically by pathology examination. Data were processed through a standard set of computerized edits. SEER data quality was also monitored through periodic record review and other SEER data quality improvement activities.

Calculation of rates, rate ratios (RRs), and 95% confidence intervals were computed using SEER*Stat statistical software version 8.1.5 (2). Rates for AN people were age-adjusted to the US Census 2000 standard population using the direct method for comparison with USW rates. Rate ratios are expressed as the AN rate divided by the USW rate. Cancer incidence rates for each tribal health region within Alaska were compared with the average annual cancer incidence rates for all AN statewide.
Executive Summary

Leading Cancers Among Alaska Native People
For the years 2009-2013, a total of 2,123 cases of invasive cancer were diagnosed compared to 1,866 from the prior five year period, 2004-2008. From 2009-2013, the most frequently diagnosed invasive cancers among AN men and women combined were: colorectal cancer (368 cases, 17.3% of all cancers), female breast cancer (328 cases, 15.4% of all cancers), lung cancer (324 cases, 15.3% of all cancers), and prostate cancer (109 cases, 5.1% of all cancers). These four leading cancers accounted for 53.2% of all invasive cancer diagnoses.

Incidence Rates Comparison: Alaska Native (AN) vs US White (USW)
For the years 2009-2013, rates among AN people exceeded those among USWs for nasopharyngeal (RR=17.25), stomach (RR=3.21), colorectal (RR=2.21), kidney (RR=1.47), lung (RR=1.46), and liver cancer (RR=1.45). Although cancer of the nasopharynx is diagnosed relatively infrequently (27 diagnoses from 2009-2013), the rate ratio is exceptionally high at 17.25. In contrast, AN rates were lower than USWs for the following cancers: melanoma (RR=0.22), lymphocytic leukemia (RR=0.32), prostate (RR=0.45), urinary bladder (RR=0.58), and non-Hodgkin lymphoma (RR=0.71). During these years, the average annual age-adjusted cancer incidence rate among AN women for all sites combined was 23.3% higher than among USW women while the rate for all sites combined among AN men was similar to that of USW men.

Trends in Cancer Incidence
Colorectal cancer (CRC): Since the mid-1980’s, USW CRC incidence rates have declined significantly, while AN CRC incidence rates have been relatively stable. During this same time period, AN CRC incidence rates have remained significantly higher than those among USWs.

Breast cancer: From the 1970s to mid-1990s, breast cancer incidence rates increased dramatically. However, since the mid-1990s there appears to have been no significant change in these rates. While AN breast cancer incidence rates were once much lower than USWs, breast cancer incidence rates are now similar to those among USW women.

Lung cancer: Since the 1970s, lung cancer incidence rates appear to have increased among AN people and these rates have remained consistently higher than USW rates since the early 1980s.

Prostate cancer: In contrast to the other leading cancers, prostate cancer incidence among AN males has remained relatively stable since the early 1970s and consistently lower than USW males.
**Age-Specific Rates**

Age-specific incidence rates were calculated for the 15-year period, 1999-2013. During this time period, nearly 70% of AN cancer diagnoses were among people 50-79 years of age. For all cancer sites combined, AN people age 40-49, 50-59, and 70-79 had significantly higher incidence rates than the corresponding age groups among USWs. Colorectal, stomach, and nasopharyngeal cancer rates were significantly higher among all AN people age 30 and above; lung cancer rates were significantly higher for age 40 and above; gallbladder cancer rates were significantly higher for age 50 and above; and kidney cancer rates were significantly higher for age 50-79. USW men had significantly higher prostate cancer rates than among AN people age 40 and above; significantly higher urinary bladder cancer rates for age 50 and above; and significantly higher leukemia rates for age 60 and above.

**Tribal Health Region**

For the purposes of this report, the AN population is distributed over 12 tribal health regions (refer to the map and Tribal Health Regions table provided). Each region was compared to the AN statewide average annual incidence rate for the years 2004-2013. For all sites combined, no tribal health region was significantly higher than the AN statewide average rate; however, the Yukon-Kuskokwim region had a significantly lower rate than the AN statewide average rate (RR=0.80).

**Colorectal cancer:** Compared with the AN statewide average rate, colorectal cancer incidence rates were higher in the Arctic Slope region (RR=1.94) and lower in the Southeast region (RR=0.71).

**Breast cancer:** Compared with the AN statewide average rate, breast cancer incidence rates were higher in the Southeast region (RR=1.44) and the Interior region (RR=1.41) and lower in the Yukon-Kuskokwim region (RR=0.51) and the Northwest Arctic region (RR=0.53).

**Lung cancer:** Regional lung cancer incidence rates were not significantly different than the AN statewide average rate.

**Prostate cancer:** Compared with the AN statewide average rate, prostate cancer incidence rates were higher in the Kodiak region (RR=2.64) and in the Southeast region (RR=1.53).

**Mortality Rates**

Between 1992-2011, a total of 2,784 AN deaths due to cancer were reported. Mortality rates among AN people exceeded those of USWs for all sites combined (RR=1.30) and for selected sites: nasopharyngeal (RR=21.00), stomach (RR=3.66), kidney (RR=2.24), colorectal (RR=1.86), liver (RR=1.77), esophageal (RR=1.67), lung (RR=1.34), and pancreatic (RR=1.29) cancer. Mortality rates among AN people were lower than USW mortality rates for melanoma of the skin (RR=0.26), brain & nervous system (RR=0.33),
non-Hodgkin lymphoma (RR=0.56), urinary bladder (RR=0.62), myeloid & monocytic leukemia (RR=0.63), and prostate cancer (RR=0.68).

For the time period 2007-2011, statewide AN mortality rates for stomach cancer (R=3.87), kidney cancer (RR=2.38), colorectal cancer (RR=2.28), lung cancer (RR=1.51), and all sites combined (RR=1.42) were higher than USW rates. Breast cancer mortality rates for AN women and USW women were similar (28.3 vs 21.7 per 100,000, respectively) as were prostate cancer mortality rates for AN men and USW men (16.1 vs 20.6 per 100,000, respectively).
References


