

# Disparities in Cancer among American Indians/Alaska Natives in Wisconsin, 2007-2011



American Indians and Alaska Natives (AI/ANs) face persistent health disparities, including a high incidence of cancer, when compared with people of other races. Cancer is also the leading cause of death among AI/AN populations.<sup>1</sup> Several studies show that rates of cancer incidence and mortality vary significantly among AI populations within the United States, and AI/ANs in Northern Plains states including Wisconsin experience notably higher rates.<sup>2-5</sup> Wisconsin AIs have the highest lung cancer incidence rate among American Indians in the U.S. Wisconsin AI women have the third highest overall cancer incidence rate and Wisconsin AI men have the fifth highest overall rate.<sup>6</sup>

## Understanding the Numbers

Wisconsin has 11 federally recognized tribes. Wisconsin tribal health centers provide both direct health services and Contract Health Services (CHS). Each tribe has a specified Contract Health Service Delivery Area (CHSDA), a geographic area in which direct services must be provided to American Indians who live in that area. A CHSDA includes 1) counties with all or a portion of a federally recognized tribal reservation, 2) counties with off reservation trust lands and 3) counties adjacent to these other counties. In Wisconsin, there are 32 CHSDA counties (of 72 counties). There are no CHSDA counties located in the southeastern region of Wisconsin. Consequently, Milwaukee, Waukesha and Racine counties, with 19% of the AI/AN statewide population and approximately 14% of AI/AN cancer cases, are not included in CHSDA data.

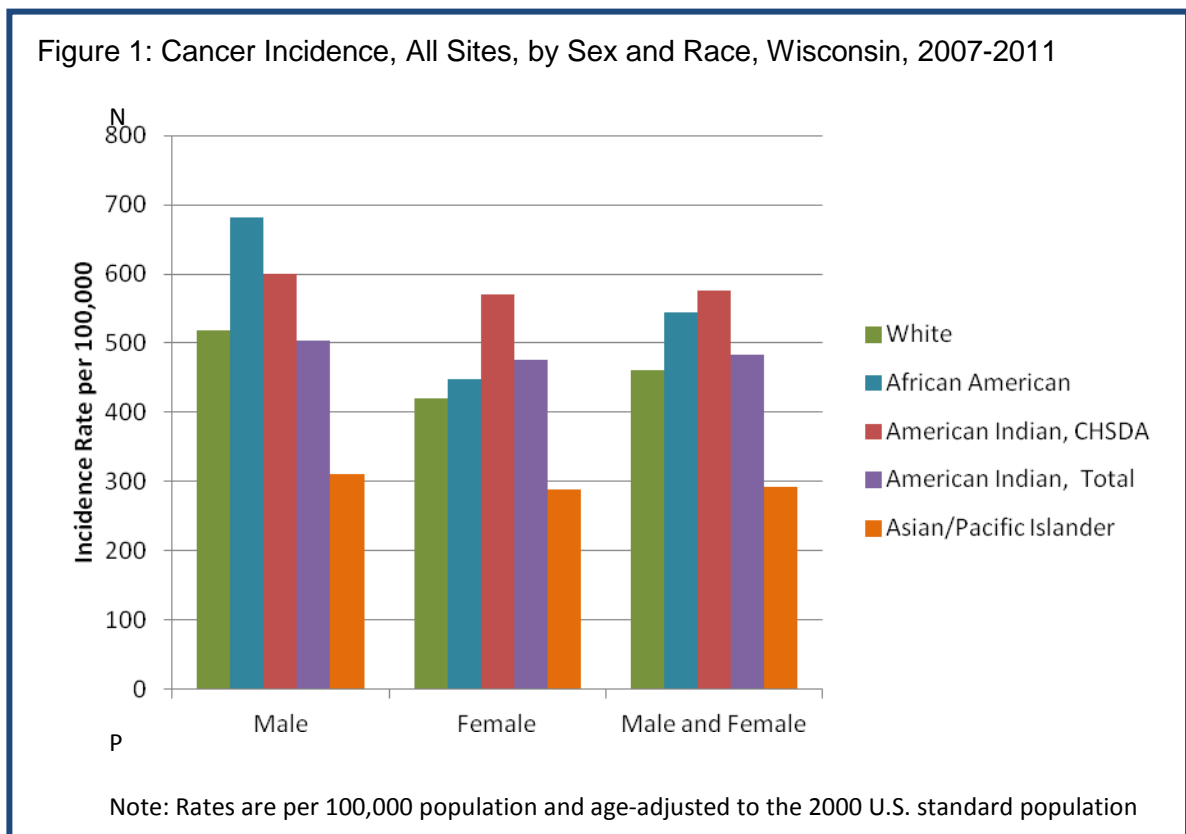
The collection of accurate data on cancer incidence and mortality among AI/ANs is hampered by racial misclassification in cancer case reports. The national standard used to address AI/AN misclassification is to focus on cases among AI/AN residents of CHSDA counties.<sup>7</sup> Of the estimated 68,745 AI/ANs in Wisconsin in 2011, 62% resided in the 32 CHSDA designated counties. Of the 1,005 Wisconsin AI cancer cases reported to the Wisconsin Cancer Reporting System during 2007-2011, 75% were among residents of CHSDA counties. This report presents data on newly diagnosed

cancer cases (incidence) and deaths from cancer (mortality) for all racial groups in Wisconsin, including AI/ANs in CHSDA counties as well as AI/ANs for the entire state.

## Comparing the Rate of New Cancer Cases Across Races (Cancer Incidence)

Over 2007-2011, the likelihood of being diagnosed with cancer in Wisconsin varied greatly by race and sex (Figure 1):

- The cancer incidence rate for AI/ANs in CHSDA counties was the highest of any racial group for both genders combined and for females.
- The incidence rate among AI/AN men in CHSDA counties was second highest, exceeded only by the rate among African American men.
- Incidence rates for AI/ANs in CHSDA counties were approximately 20% higher for both genders than when calculated for AI/ANs statewide.

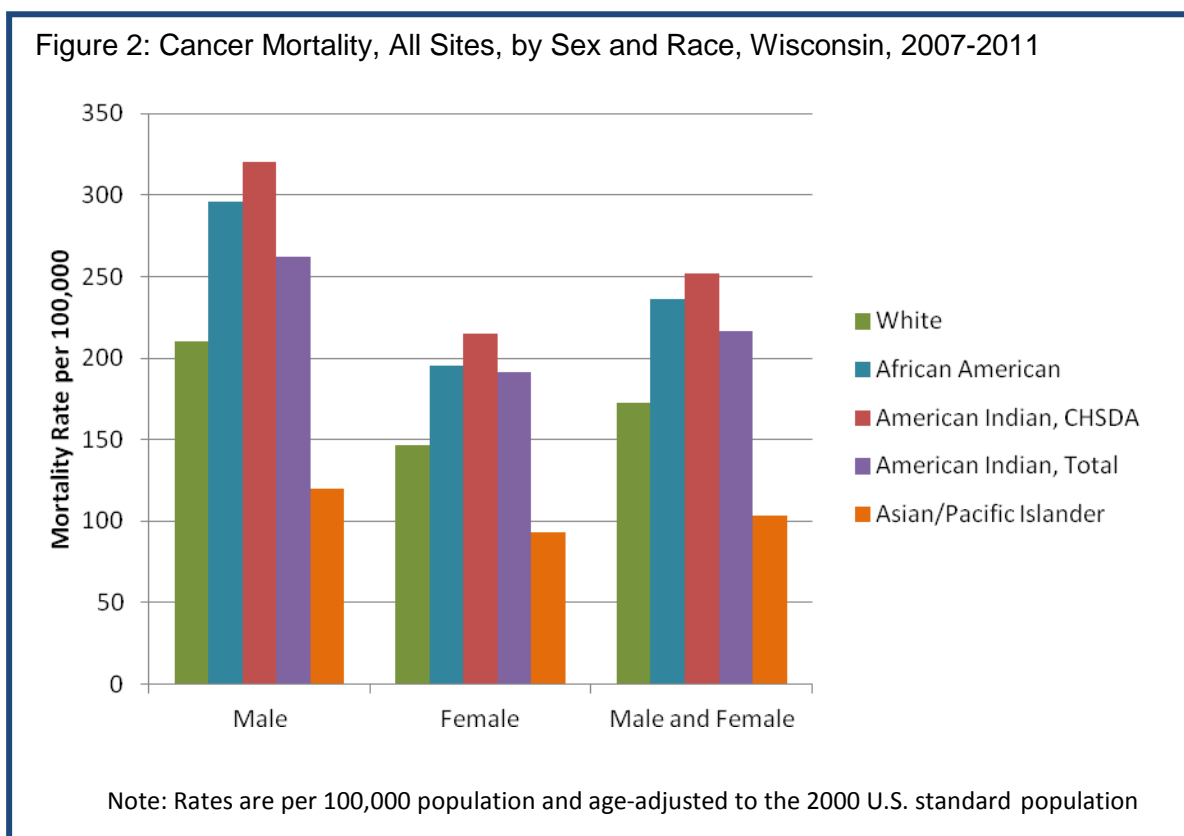


Source: Wisconsin Cancer Reporting System

## Comparing the Rate of Cancer Deaths Across Races (Cancer Mortality)

The risk of dying from cancer over the period 2007-2011 differed markedly among racial groups and men and women in Wisconsin (Figure 2):

- CHSDA AI/ANs have the highest cancer mortality rates among all racial groups – for men, women and both sexes combined.
- Age-adjusted cancer mortality rates for AI/ANs were approximately 17% higher for residents of CHSDA counties than when calculated for AI/ANs statewide.



Source: National Center for Health Statistics

## Differences in the Rate of New Cancer Cases Between AI/ANs and Whites (Disparity in Incidence)

One way to measure disparities between different groups is the rate ratio – in this case, the ratio of the AI/AN rate to the White rate for cancer incidence in this section, and cancer mortality in the next.

Table 1 shows the ratio of the CHSDA AI/AN incidence rate compared to the White incidence rate in Wisconsin over 2007-2011 both for all cancers, and the most common cancers among AI/ANs.

- AI/ANs have significantly higher rates of lung, colorectal, kidney, oral/pharynx, cervical and liver cancers than Whites.
- The extent of disparity varies by cancer site. For example, lung and kidney cancers are over twice as common among AI/ANs than Whites and cervical cancer and liver cancers are three times more common.
- AI/ANs had similar incidence rates of breast and prostate cancers as Whites.

Table 1. Cancer Incidence for CHSDA AI/ANs and Whites, Wisconsin, 2007-2011

Cancer Site	Rate		Number of cases		AI/White Rate Ratio
	White	CHSDA AI/AN	White	CHSDA AI/AN	
All Sites	461.3	<b>576.3*</b>	137,566	761	<b>1.2</b>
Lung and Bronchus	59.3	<b>133.7*</b>	17,803	150	<b>2.3</b>
Prostate	134.7	132.3	19,406	74	1.0
Breast	124.9	118.5	19,415	95	0.9
Colon and Rectum	40.6	<b>58.2*</b>	12,252	72	<b>1.4</b>
Kidney and Renal Pelvis	16.2	<b>34.4*</b>	4,807	50	<b>2.1</b>
Non-Hodgkin Lymphoma	20.6	23.8	6,111	26	1.2
Oral Cavity and Pharynx	11.1	<b>19.5*</b>	3,357	29	<b>1.8</b>
Cervix	5.4	<b>18.9*</b>	719	17	<b>3.5</b>
Liver and Intrahepatic Bile Duct	5.2	<b>16.6*</b>	1,585	19	<b>3.2</b>
Ovary	13.0	16.4	2,026	13	1.3
Leukemia	15.9	16.1	4,635	22	1.0
Pancreas	12.2	13.9	3,703	15	1.1
Uterus	14.7	13.8	4,537	24	0.9

\* AI/AN rate is significantly different than the rate for Whites (p<0.05).

Source: Wisconsin Cancer Reporting System

### Differences in the Rate of Deaths from Cancer Between AI/ANs and Whites (Disparity in Cancer Mortality)

Table 2 shows the ratio of the CHSDA AI/AN cancer mortality rate to the White rate in Wisconsin.

To analyze mortality by individual cancer site, it was necessary to combine ten years of data because of the relatively small number of cancer deaths among AI/ANs in Wisconsin in a five year period.

Table 2 shows that CHSDA AI/ANs in Wisconsin over the period 2002-2011:

- Had higher mortality rates from lung, colorectal, prostate, liver and kidney cancers compared to Whites.
- Were approximately twice as likely to die from cancers of the lung or kidney.

Table 2. Cancer Mortality for CHSDA AI/ANs and Whites, Wisconsin, 2002-2011

Cancer Site	Rate		Number of Deaths		AI/White Rate Ratio
	White	CHSDA AI/AN	White	CHSDA AI/AN	
All Malignant Cancers	177.0	<b>257.5*</b>	104,173	510	<b>1.5</b>
Lung and Bronchus	46.7	<b>87.7*</b>	27,178	174	<b>1.9</b>
Colon and Rectum	15.7	<b>23.8*</b>	9,396	41	<b>1.5</b>
Breast	22.0	27.6	7,174	32	1.3
Prostate	25.7	<b>45.8*</b>	5,999	19	<b>1.8</b>
Liver and Intrahepatic Bile Duct	4.6	<b>12.6*</b>	2,692	27	<b>2.7</b>
Pancreas	11.1	11.2	6,526	24	1.0
Kidney and Renal Pelvis	4.4	<b>9.8*</b>	2,606	22	<b>2.2</b>
Non-Hodgkin Lymphoma	7.2	9.0	4,281	16	1.2
Leukemia	8.1	8.1	4,744	15	1.0

\* AI/AN rate is significantly different than the rate for Whites (p<0.05).

Source: National Center for Health Statistics

## Summary of Key Points

- Cancer incidence rates among AI/ANs in CHSDA counties were the highest of any racial group in Wisconsin for females and both sexes combined, and the second highest for males.
- AI/ANs in CHSDA counties experienced the highest cancer mortality rate among all racial groups in Wisconsin.
- AI/ANs in CHSDA counties experienced higher rates of cancer incidence and mortality than AI/ANs in Wisconsin statewide.
- For several common cancer sites, incidence and mortality rates are significantly higher among AI/ANs in CHSDA counties than among Whites.
- Both lung cancer incidence and mortality rates for CHSDA AI/ANs are significantly higher than they are for Whites.

- Incidence rates for breast and prostate cancers among CHSDA AI/ANs are similar to White rates, but mortality rates are higher than Whites.
- The disparity in many cancers experienced by CHSDA AI/ANs could be reduced through an increase in prevention behaviors and access to standard screening tests.

## Acknowledgement

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## Data Sources

Copeland G et al. (eds). *Cancer in North America: 2007-2011. Volume Two: Registry-specific Cancer Incidence in the United States and Canada*. Springfield, IL: North American Association of Central Cancer Registries, Inc. May 2014.

National Cancer Institute, Surveillance, Epidemiology, and End Results (SEER) Program. *SEER\*Stat Mortality - All COD, Aggregated With State, Total U.S. (1990-2011)*. Released July 2014. Available at [www.seer.cancer.gov](http://www.seer.cancer.gov).

## References

1. US Department of Health and Human Services. *Health, United States, 2011: With Special Feature on Socioeconomic Status and Health*. Hyattsville, MD: National Center for Health Statistics; 2012.
2. White MC, Espey DK, Swan J, et al. Disparities in cancer mortality and incidence among American Indians and Alaska Natives in the United States. *Am J Public Health*. 2014;104 Suppl 3:S377-87.
3. Bliss A, Cobb N, Solomon T, et al. Lung cancer incidence among American Indians and Alaska Natives in the United States, 1999-2004. *Cancer*. 2008;113(5 Suppl):1168-78.
4. Becker TM, Espey DK, Lawson HW, et al. Regional differences in cervical cancer incidence among American Indians and Alaska Natives, 1999-2004. *Cancer*. 2008;113(5 Suppl):1234-43.
5. Perdue DG, Perkins C, Jackson-Thompson J, et al. Regional differences in colorectal cancer incidence, stage and subsite among American Indians and Alaska Natives, 1999-2004. *Cancer*. 2008;113(5 Suppl):1179-90.
6. North American Association of Central Cancer Registries. *Cancer in North America: 2007-2011, Volume Two: Registry-specific Cancer Incidence in the United States and Canada (Updated 7/8/14)*. Available at <http://www.naaccr.org/LinkClick.aspx?fileticket=OaVQ6eeM0nA%3d&tabid=93&mid=433/>. Accessed 04/23/15.
7. Espey DK, Jim MA, Richards T, et al. Methods for improving the quality and completeness of mortality data for American Indians and Alaska Natives. *Am J Pub Health* 2014;104 Suppl 3:S286-94.