

# 3. Mortality

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Mortality rates, also known as death rates, are a measure of the number of deaths in a community compared to the population size during a given time period. These statistics are one of the most fundamental measures of health of community. Consistent monitoring of mortality helps let us know if our interventions and programs are working or not. Examining leading causes of mortality show us where new threats are emerging, and where to focus limited resources.

Comparing mortality across regions, gender and age groups shows us which populations are facing greatest challenges, and allows us to identify those which have achieved successes that can be shared with others.

Nationally, the mortality rate for AI/AN is 964.4 per 100,000<sup>1</sup>. This is about 19% higher than the national rate for whites. In Oregon, the all-cause mortality rate for AI/AN was 1,068.2, which was higher than the rate for Idaho AI/AN, but lower than the rate for Washington AI/AN. Compared to NHW, the Oregon AI/AN mortality is 40% higher. Cancer, heart disease, and unintentional injury were the top causes of death for AI/AN in the state, which highlights the need to build upon initiatives aimed at supporting healthy lifestyles. Unintentional injury is of particular concern for youth in

Oregon. Although diabetes caused fewer deaths among AI/AN, disparities in diabetes mortality were particularly concerning with AI/AN dying of the disease at 2.8 times the rate of NHW.

Across the state, the highest AI/AN mortality rates occurred in the central and south east regions (containing Warm Springs and Burns Paiute tribal lands). The lowest rates occurred in the north west region (containing Grand Ronde and Siletz tribal lands).

The statistics reported here show only the numbers; what they fail to capture is the profound impact each preventable or early death has on the Tribal community. Loss of a young person who will never have the opportunity to grow into the leader he or she could have become is tragic. The death of a middle aged person may have the widest spread impact, as they are often vital members of the community upon whom both children and elders rely for support and care. And every elder who is lost too soon takes with them the history, language and knowledge of the tribe that is held by so few.

1. Espey DK, Jim MA, Cobb N, Bartholomew M, Becker T, Haverkamp D, et al. Leading causes of death and all-cause mortality in american indians and alaska natives. American journal of public health. 2014;104 Suppl 3:S303-11.

# Leading Causes of Death

Table 3.1 presents the top ten causes of death for Oregon. Both AI/AN and NHW shared the same top two causes of death, heart disease and cancer. However, these leading two causes accounted for a larger proportion of deaths among NHW (45%) than AI/AN (36%). Unintentional injury was the third leading cause for AI/AN, accounting for proportionally almost twice as many deaths as among NHW. Diabetes and chronic liver disease were the fifth and sixth leading causes of death respectively for AI/AN, but did not appear in the top five for NHW. Alzheimer's disease was the sixth leading cause of death for NHW but did not appear in the top ten causes for AI/AN. Throughout the five year period, the age-adjusted all-cause mortality rate for AI/AN was 1.4 times that of NHW.

**Data Source:** Oregon state death certificates, 2006-2010, corrected for misclassified AI/AN race.

**Data Notes:** ICD classification follows WISQARS; excludes deaths of infants under one year old. AI/AN includes all deaths with any mention of AI/AN race in either the Oregon state death certificate data or the Northwest Tribal Registry (NTR), which is maintained by the IDEA-NW Project at NPAIHB.

**Table 3.1: Top ten causes of death by race, Oregon, 2006-2010.**

Rank	AI/AN	% (N <sup>†</sup> )	NHW	% (N <sup>†</sup> )
1	Cancer	21.5% (441)	Cancer	23.7% (34,948)
2	Heart disease	14.7% (301)	Heart Disease	20.8% (30,572)
3	Unintentional injury	9.6% (196)	Chronic lower respiratory disease	6.2% (9,186)
4	Chronic lower respiratory disease	7.2% (148)	Stroke	5.9% (8,755)
5	Diabetes	6.0% (123)	Unintentional injury	4.9% (7,147)
6	Liver disease	5.4% (111)	Alzheimer's disease	4.1% (6,071)
7	Stroke	4.1% (83)	Diabetes	3.3% (4,808)
8	Suicide	2.8% (58)	Suicide	1.9% (2,815)
9	Influenza & pneumonia	1.9% (38)	Influenza & Pneumonia	1.6% (2,313)
10	Viral Hepatitis	1.4% (28)	Liver Disease	1.4% (2,089)
<b>Total deaths</b>		<b>2,048 (100%)</b>		<b>147,307 (100%)</b>

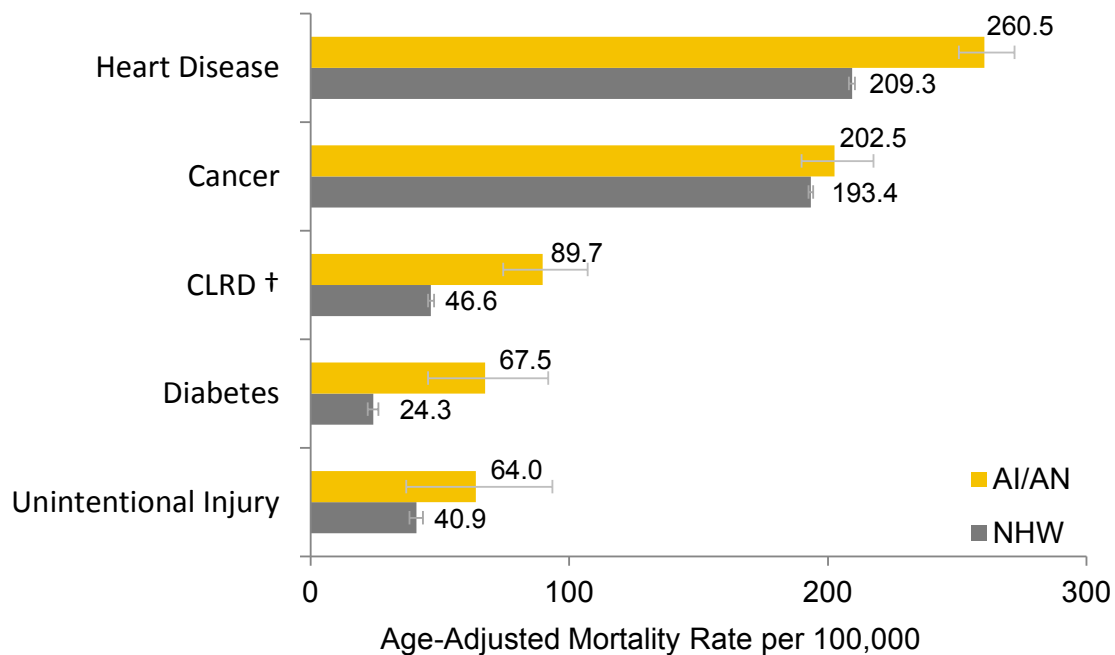
<sup>†</sup> N = number of deaths

# Mortality Rates

Figure 3.1 shows the five highest age-adjusted death rates from 2006-2010 in Oregon. AI/AN rates were higher than NHW for all five causes of death. AI/AN rates of death due to liver disease (not shown) and diabetes are notable for particularly large disparities – 3.6 times higher for liver disease and 2.8 times higher for diabetes.

**Data Source:** Oregon state death certificates, 2006-2010, corrected for misclassified AI/AN race.

**Data Notes:** ICD classification follows WISQARS; excludes deaths of infants under one year old. AI/AN includes all deaths with any mention of AI/AN race in either the Oregon state death certificate data or the Northwest Tribal Registry (NTR), which is maintained by the IDEA-NW Project at NPAIHB.

**Figure 3.1: Top five age-adjusted mortality rates for AI/AN, Oregon, 2006-2010.**

† Chronic Lower Respiratory Disease

# All-Cause Mortality Rates

Figure 3.2 presents the all-cause mortality rates for AI/AN and NHW in Oregon. The mortality rate for AI/AN males was 22% higher mortality than females, and AI/AN rates were higher than NHW for both sexes. For males, AI/AN mortality rates were 35% higher than NHW males; for females the difference was larger at 53% higher for AI/AN.

Compared to other AI/AN in the region, Oregon's population was in the middle; all-cause mortality rates were higher than those seen among Idaho AI/AN, but lower than those seen among Washington AI/AN.

**Table 3.2: All-cause mortality 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	1190.7 (1104.6, 1282.9)	880.8 (873.8, 887.9)	1.4 (1.3, 1.4) <sup>†</sup>
Female	976.3 (911.0, 1045.5)	636.8 (1629.9, 643.7)	1.5 (1.4, 1.6) <sup>†</sup>
Both Sexes	1068.2 (1016.2, 1122.5)	745.7 (740.8, 750.7)	1.4 (1.4, 1.5) <sup>†</sup>

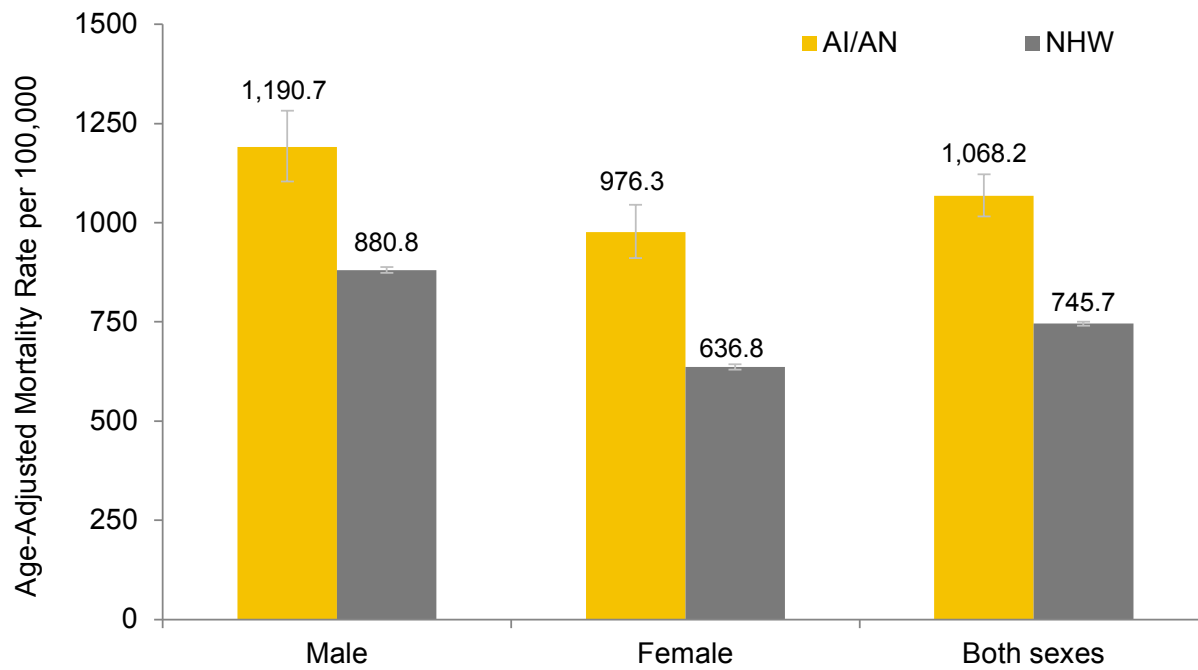
CI = confidence interval

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

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



Figure 3.2: AI/AN and NHW all-cause mortality rates, Oregon, 2006-2010.



# Life Expectancy at Birth

Figure 3.3 displays life expectancy at birth for AI/AN and NHW by sex, as estimated from life tables calculated based on linkage-corrected death certificate data (see appendix for abridged life tables). Life expectancy at birth can be thought of as the average number of years a baby born today would be expected to live, given current mortality patterns. Life expectancy for Oregon AI/AN was 74.8 years. This was the longest life expectancy for AI/AN in the three Northwest states at 3.4 years longer than AI/AN in Washington, and 0.3 years longer than those in Idaho.

Across the Northwest, female AI/AN had a life expectancy 3.7 years longer than male AI/AN. The gender gap among the Oregon population was 3.9 years.

Compared with their NHW counterparts, life expectancy at birth was 4.7 years lower for Oregon AI/AN. The gap between races was greater for females than males: AI/AN females had a life expectancy 5 years shorter than their NHW counterparts, versus 4.4 years for males.

**Data Source:** Oregon state death certificates, 2008-2010, corrected for misclassified AI/AN race by the IDEA-NW Project.

**Data Notes:** Life tables were generated using death counts and mortality rates computed from Oregon state death certificate data.

Figure 3.3: Life expectancy at birth by race and sex, Oregon, 2008-2010.

