3. Mortality

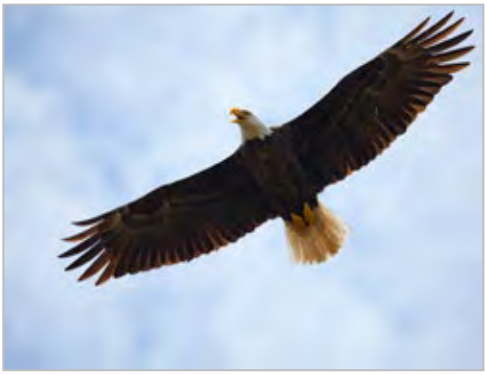
pg 42-43: Leading causes of death

pg 44-45: Mortality rates

pg 46-47: All-cause mortality trends

pg 48-49: Life expectancy at birth

pg 243: Map 2: All cause mortality rates (Appendix I)



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 the health of a community. Consistent monitoring of mortality is key to knowing whether interventions and programs are working or not. By examining the leading causes of mortality, we can identify new threats to health and well-being and focus limited resources. Comparing mortality across geography, gender and age groups shows us which populations are facing the greatest challenges, and allows us to identify areas of success that can be shared with others.

Nationally, the mortality rate for AI/AN is 964.4 per 100,000.[1] This is about 19% higher than the national rate for whites. In Washington, the all-cause mortality rate for AI/AN was 1233.6, which was 71% higher than the rate for NHW in Washington, and higher than the rates for AI/AN in Idaho and Oregon. Heart disease, cancer, unintentional injury, and diabetes 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 Washington. The largest disparities in unintentional injury mortality rates were seen among Washington AI/AN under the age of 30.

The statistics reported here show only the numbers; what they fail to capture is the profound impact each preventable or early death has on tribal communities. The loss of each young person who will never have the opportunity to grow into the leader he or she could have become is a tragedy. 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, of course, the premature passing of every elder results in a loss of the history, language and knowledge of their Tribe.

The following section provides detailed information on mortality rates and leading causes of death, as well as life expectancy estimates. Mortality rates for each specific topic area are presented throughout the report.

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 shows the top ten causes of mortality for AI/AN and NHW in Washington during 2006-2010. Both AI/AN and NHW shared the same top two causes of death: heart disease and cancer. These two leading causes accounted for a larger proportion of deaths among NHW (48%) than AI/AN (39%). Unintentional injury was the third leading cause for AI/AN, accounting for over twice as many deaths as for NHW. Diabetes and chronic liver disease were the fourth and fifth leading causes of death, respectively, for AI/AN, but these did not appear in the top five for NHW. Alzheimer's disease was the third leading cause of death for NHW, but only the ninth for AI/AN.

Data Source: Washington 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 Washington 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, Washington, 2006-2010.

Rank	AI/AN	N† (%)	NHW	N† (%)
1	Heart Disease	871 (19.3%)	Cancer	52,046 (24.6%)
2	Cancer	863 (19.2%)	Heart Disease	48,584 (23.0%)
3	Unintentional Injury	543 (12.6%)	Alzheimer's Disease	13,557 (6.4%)
4	Diabetes	212 (4.8%)	Chronic Lower Respiratory Disease	13,117 (6.2%)
5	Chronic Liver Disease	205 (4.7%)	Stroke	11,770 (5.6%)
6	Chronic Lower Respiratory Disease	199 (4.5%)	Unintentional Injury	11,050 (5.2%)
7	Stroke	171 (3.9%)	Diabetes	6,454 (3.1%)
8	Suicide	139 (3.2%)	Suicide	3,801 (1.8%)
9	Alzheimer's Disease	107 (2.4%)	Influenza & Pneumonia	3,250 (1.5%)
10	Influenza & Pneumonia	71 (1.6%)	Chronic Liver Disease	2,941 (1.4%)
Total deaths		4,408 (100%)		211,477 (100%)

† N = number of deaths

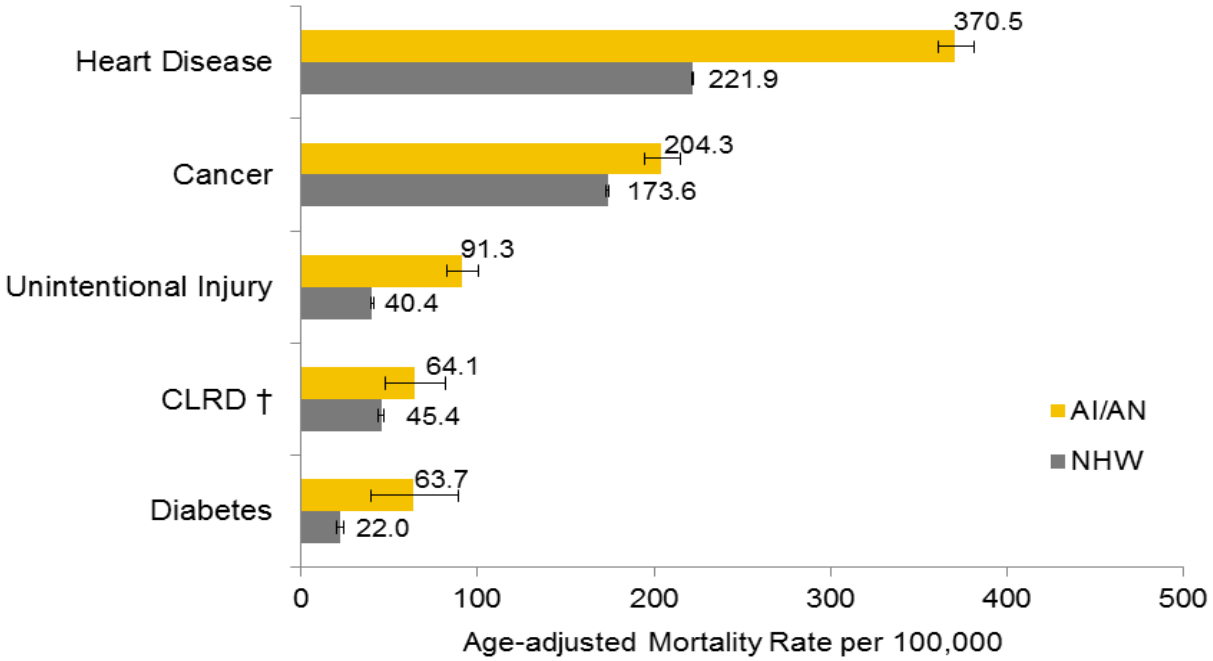
Mortality Rates

From 2006-2010, the all-cause mortality rate for AI/AN was 1.7 times higher than the rate for NHW in Washington. Figure 3.1 shows the five highest age-adjusted mortality rates for AI/AN in Washington. AI/AN rates were higher than NHW rates for these five causes of death. AI/AN mortality rates for liver disease (not shown) and diabetes are notable for particularly large disparities when compared to NHW; AI/AN rates were about four times higher for liver disease and nearly three times higher for diabetes.

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

Data Notes: AI/AN includes all deaths with any mention of AI/AN race in either the Washington 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, Washington, 2006-2010.



† CLRD = chronic lower respiratory disease

All-Cause Mortality Trends

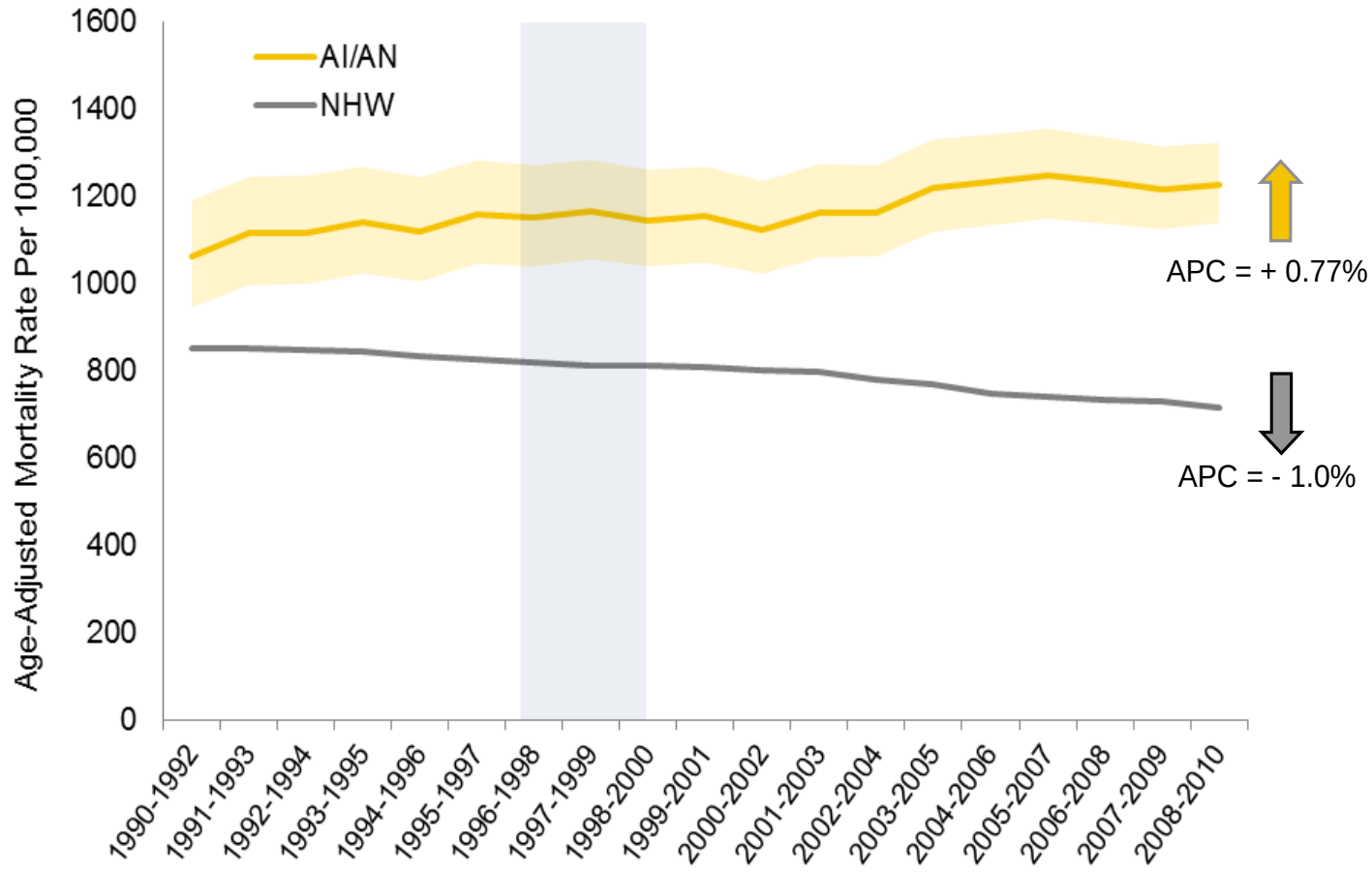
Figure 3.2 shows all-cause mortality trends for the AI/AN and NHW population in Washington between 1990 and 2010. The rates shown are three-year rolling averages, and the yellow shaded section around the AI/AN line represents a 95% confidence interval band.

AI/AN mortality rates have remained consistently higher than NHW rates during this time period, and have gradually risen at an average rate of 0.77% per year. On the other hand, NHW rates have decreased slightly. As a result, the gap between the races has grown. This trend has become more pronounced in the most recent decade.

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.

Figure 3.2: AI/AN and NHW all-cause mortality rates, Washington, three year rolling averages, 1990-2010.



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.

Life Expectancy at Birth

Life expectancy at birth for Washington AI/AN was 8.6 years lower than that of NHW in the state (Figure 3.3). AI/AN men tend to die 8.2 years earlier than NHW men, while AI/AN women die 8.8 years earlier than NHW women. AI/AN females can expect to live 3.7 years longer than their male counterparts, while NHW females live 4.1 years longer than male NHW.

Data Source: Washington state death certificates, 2006-2010, 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 Washington state death certificate data.

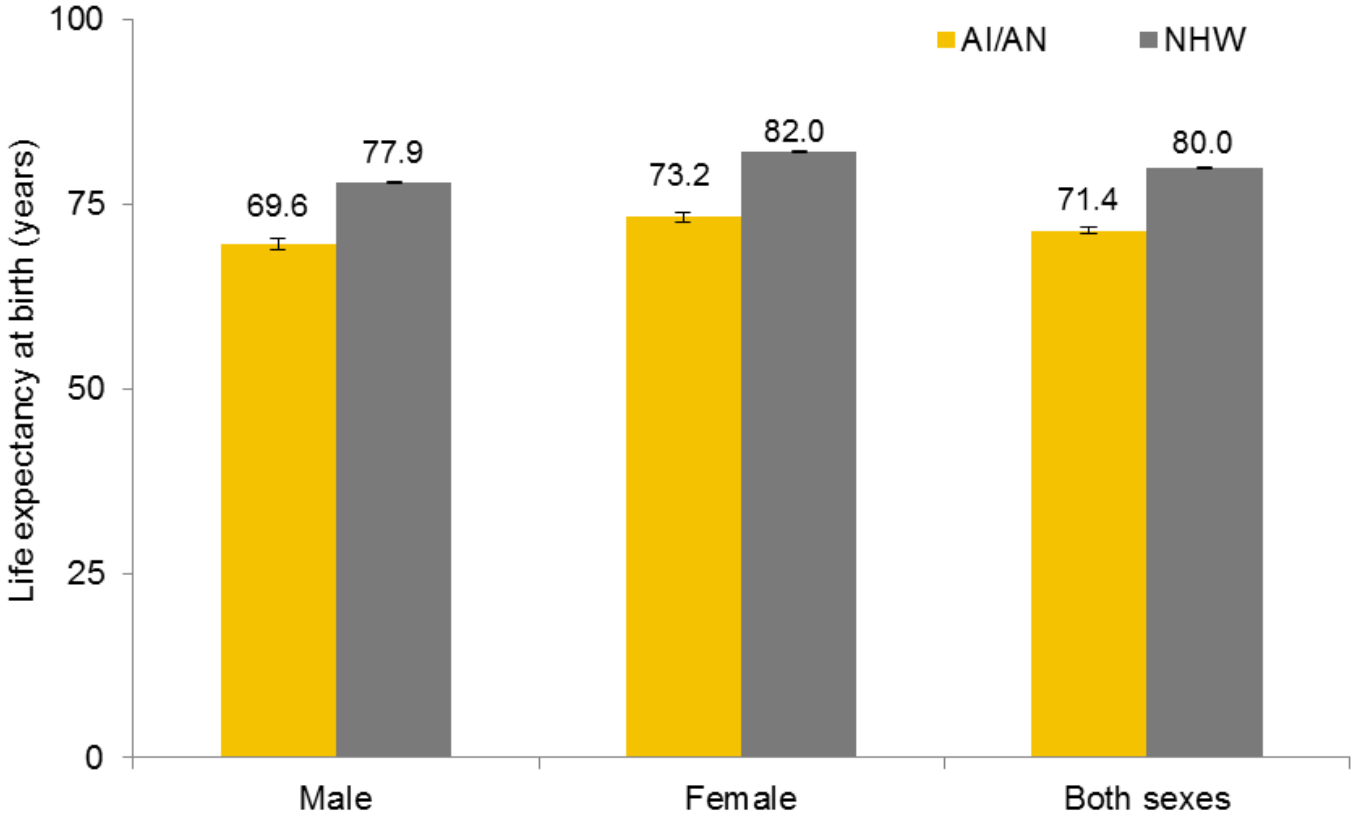



Figure 3.3: Life expectancy at birth by race and sex, Washington, 2008-2010.