

7. Injury & Violence

pg 124-125: Unintentional injury hospitalizations

pg 126-131: Mortality from unintentional injuries

pg 132-133: Unintentional injury mortality trends

pg 134-135: Hospitalizations for homicide

pg 136-137: Mortality from homicide

pg 138-139: Homicide mortality trends

pg 140-141: Domestic violence screening

pg 142: Program Spotlight - Injury Prevention Program

pg 249: Map 8: Motor Vehicle Crash (MVC) mortality rates (Appendix I)

pg 250: Map 9: Unintentional injury hospital discharge rates (Appendix I)

pg 251: Map 10: Unintentional injury mortality rates (Appendix I)

pg 252: Map 11: Homicide mortality rates (Appendix I)





Injuries and violence have been major public health concerns in Indian Country for many years.¹ Generally, injuries are separated into two categories: unintentional injuries, which result from events such as motor vehicle crashes, falls, accidental poisoning, or drowning; and intentional injuries, which are caused deliberately by one person to another or to himself, such as physical abuse, homicide, or suicide.

According to the most recently available national data for 1999-2011, intentional injuries are the leading cause of death for American Indian and Alaska Natives (AI/AN) ages 1-44 and the third leading cause of death for AI/AN of all ages combined.² Homicide is among the top five leading causes of death for AI/AN ages 1-44.² A 2010 study found that AI/AN women have the highest reported lifetime rates of domestic violence among all racial and ethnic groups, at 46%³, and Washington State survey data from 2011 show the highest overall rates of domestic violence injuries for AI/AN and blacks.⁴

Unintentional injuries are the third leading cause of death for AI/AN of all ages in Washington. The major causes of unintentional injury deaths are accidental poisonings (due to alcohol and drug overdoses) and motor vehicle accidents. The unintentional injury mortality rate for AI/AN in Washington is more than twice the rate for NHW in the state, and is also higher than rates for AI/AN in Idaho and Oregon. AI/AN mortality rates from homicide have significantly decreased since the 1990s. However, AI/AN death rates for homicide are still almost four times higher compared to NHW in the state.

This section presents hospitalization and mortality data for unintentional injury and homicide, as well as screening for domestic or intimate partner violence. Suicide-related data can be found in the chapter on Mental Health and Suicide.

1. Smith, R.J., and Robertson L.S. (2000). Unintentional Injuries and trauma. In Roades ER (ed.), *American Indian Health*, Baltimore, MD: Johns Hopkins University Press.

2. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS) [online]. (2013) [cited 2014 Sep 25]. Available from URL: www.cdc.gov/ncipc/wisqars

3. Black, M.C., Basile, K.C., Breiding, M.J., Smith, S.G., Walters, M.L., Merrick, M.T., Chen, J., & Stevens, M.R. (2011). *The National Intimate Partner and Sexual Violence Survey (NISVS): 2010 Summary Report*. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention.

4. Washington State Department of Health (2013). *Domestic Violence*. In *The Health of Washington State*. Retrieved from <http://www.doh.wa.gov/Portals/1/Documents/5500/IV-DV2013.pdf>.

Unintentional Injury Hospitalizations

In 2011, 7.1% of AI/AN hospitalizations in Washington were for unintentional injuries (Table 7.1). Overall, AI/AN had about the same percentage of unintentional injury hospitalizations as NHW, though the percentage for AI/AN males was higher than the percentage for NHW males. Men of both races had a higher proportion of unintentional injury hospitalizations than females. The age-adjusted hospitalization rate was lower for AI/AN females than AI/AN males (Figure 7.1). For both sexes, the AI/AN unintentional injury hospitalization rate was about 80% higher than the rate for their NHW counterparts in the state.

Data Source: Washington state hospital discharge data (CHARS), 2011, corrected for misclassified AI/AN race by the IDEA-NW Project.

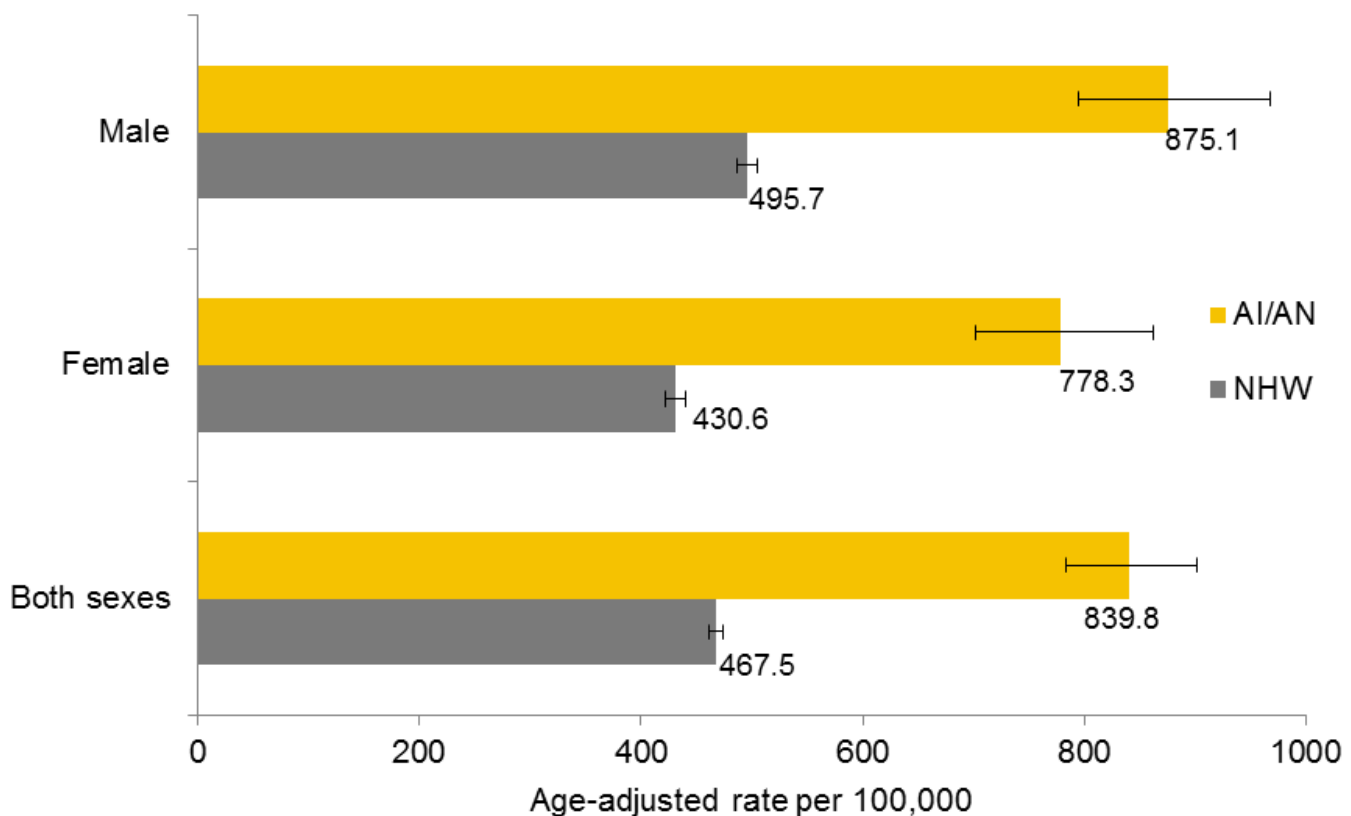
Data Notes: Injury manner and intent were determined using the External Cause of Injury Matrix developed for ICD-9 external cause codes, from the Centers for Disease Control and Prevention (CDC). ("ICD Injury Matrices," 2009)

Table 7.1: Inpatient hospital discharges for unintentional injury by race and sex, Washington, 2011.

Sex	AI/AN N (%) [†]	NHW N (%) [†]
Male	563 (9.8%)	13,087 (8.2%)
Female	461 (5.3%)	13,987 (6.6%)
Both Sexes	1,024 (7.1%)	27,074 (7.3%)

[†]N = number of inpatient hospitalizations. The percentages were calculated using the total inpatient hospitalizations for each group: AI/AN male (5,731), AI/AN female (8,741), AI/AN total (14,472), NHW male (159,142), NHW female (212,276), NHW Total (371,418)

Figure 7.1: Age-adjusted hospital discharge rates for unintentional injury by race and sex, Washington, 2011.



Mortality from Unintentional Injuries

From 2006-2010, unintentional injury was the third leading cause of death for AI/AN in Washington. Table 7.2 and Figure 7.2 show the age-adjusted mortality rates for unintentional injury among AI/AN and NHW in Washington. The mortality rate for unintentional injuries was over two times higher for AI/AN compared to NHW. AI/AN males were about 60% more likely to die from unintentional injuries than females. Among AI/AN in the Northwest region, those living in Washington have the highest rates of unintentional injury deaths.

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

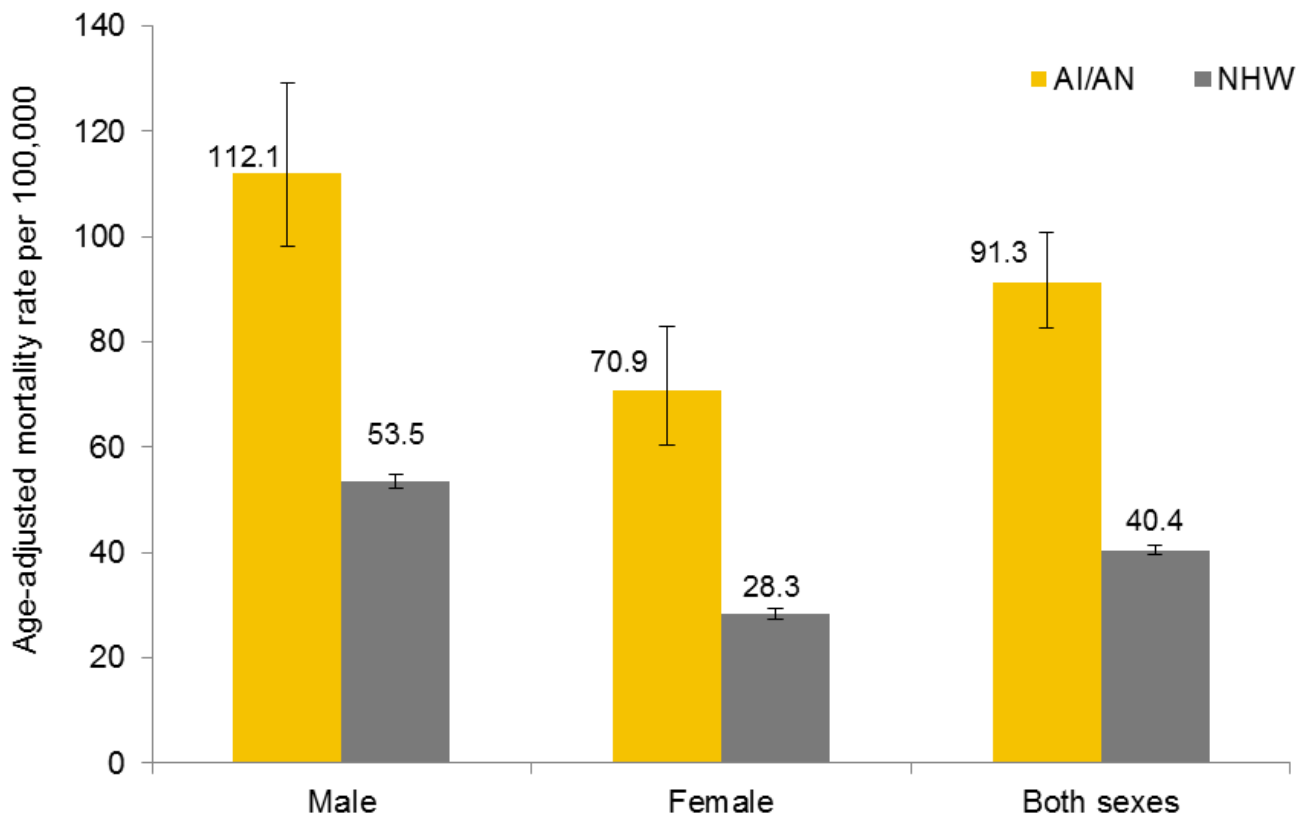
Table 7.2: Age-adjusted unintentional injury mortality rates by race and sex, Washington, 2006-2010.

Sex	AI/AN Rate (95% CI)	NHW Rate (95% CI)	AI/AN vs. NHW Rate Ratio (95% CI)
Male	112.1 (98.2, 129.1)	53.5 (52.2, 54.8)	2.1 (1.9, 2.3) ‡
Female	70.9 (60.5, 83.0)	28.3 (27.3, 29.4)	2.5 (2.2, 2.9) ‡
Both Sexes	91.3 (82.7, 100.9)	40.4 (39.6, 41.3)	2.3 (2.1, 2.5) ‡

CI = confidence interval

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

Figure 7.2: Age-adjusted unintentional mortality rates by race and sex, Washington, 2006-2010.

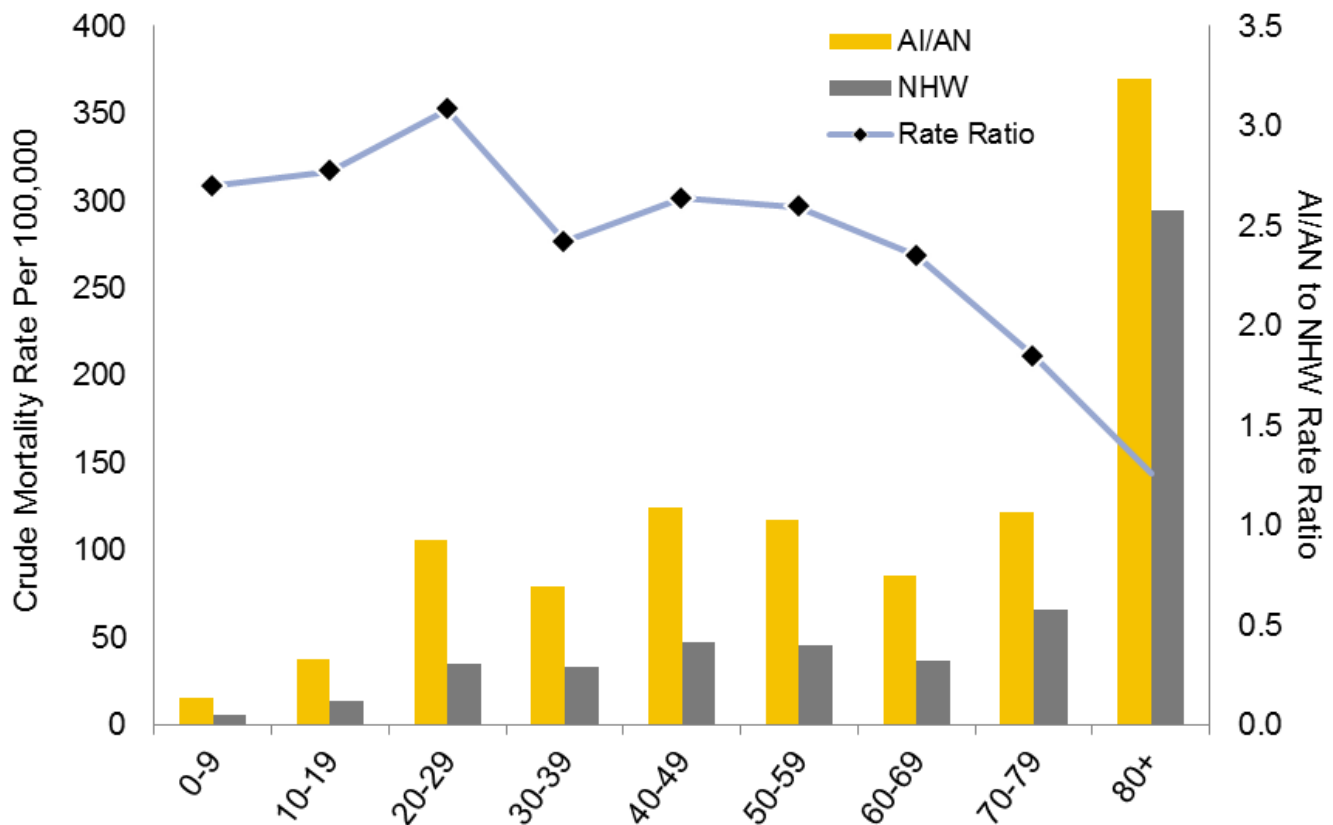


Unintentional Injury Mortality Across the Life Span

Figure 7.3 shows the death rates by age group for AI/AN and NHW (columns), and the rate ratio comparing the two populations (line). The AI/AN at highest risk for unintentional injury deaths were elders 70 and older. The largest disparities occurred in children and young adults, with all age groups under 20 experiencing more than 2.5 times the rate of unintentional injury deaths than their NHW counterparts. AI/AN aged 20-29 had both the highest unintentional injury death rates of any age group and the largest disparity compared to NHW at 3.1 times higher.

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

Figure 7.3: Age-specific unintentional injury mortality rates by race, Washington, 2006-2010.



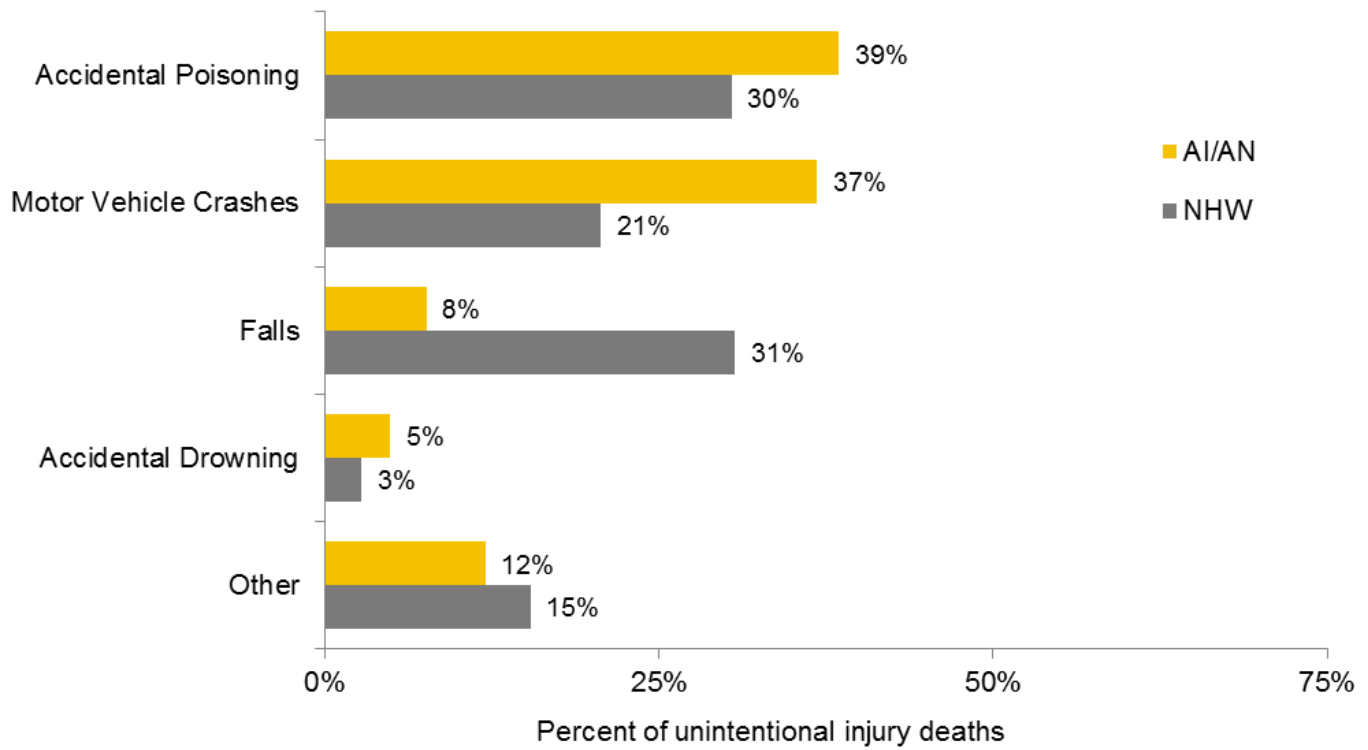
Note: Rate Ratio is a comparison of AI/AN to NHW rates; a value above 1 indicates AI/AN rates are higher than NHW. Black markers are shown for age groups in which the AI/AN rates are statistically significantly higher than NHW rates.

Causes of Unintentional Injury Deaths

For both AI/AN and NHW, the majority of unintentional injury deaths were from accidental poisonings and motor vehicle crashes (MVC). However, these two top causes accounted for about three quarters of all unintentional injury deaths among AI/AN, but only half for NHW (Figure 7.4). The majority of accidental poisoning deaths were due to accidental drug and alcohol overdoses. Poisonings from substances such as gas and vapors, pesticides, household chemicals, and other noxious substances made up less than 2% of poisoning deaths in both AI/AN and NHW.

NHW had a much higher proportion of unintentional injury deaths due to falls than AI/AN. This is possibly related to differences in age at death; AI/AN who died of injuries other than falls tended to be younger, while most deaths from falls among NHW occurred in those eighty years and older.

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

Figure 7.4: Leading causes of unintentional injury mortality by race, Washington, 2006-2010.

Unintentional Injury Mortality Trends

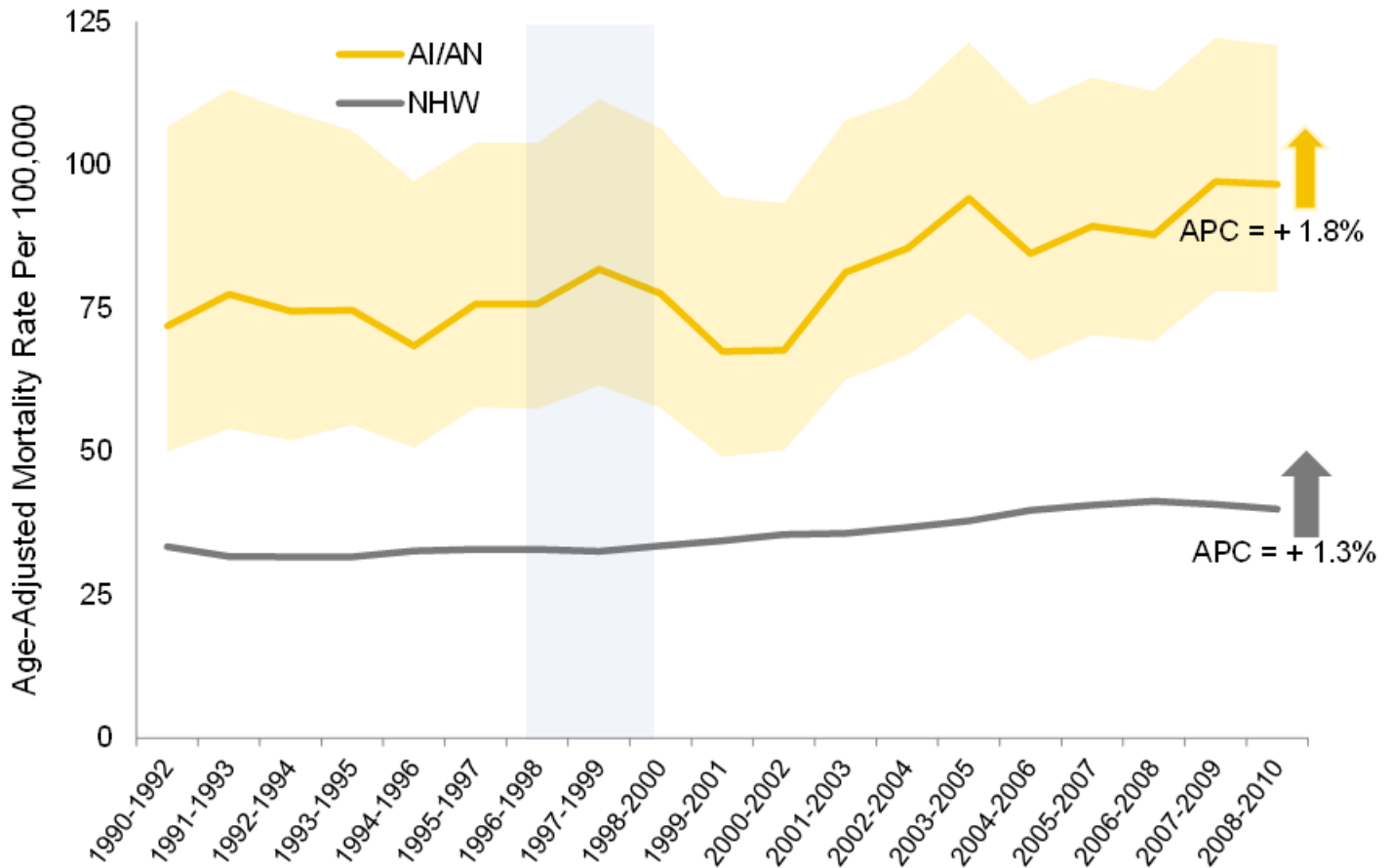
Figure 7.5 shows unintentional injury mortality trends for the AI/AN and NHW population in Washington between 1990 and 2010. The yellow shaded section around the AI/AN line represents a 95% confidence interval band.

AI/AN unintentional injury rates have consistently been higher than NHW rates throughout this time period. Both races saw increases, in particular from 1999 onward. AI/AN rates increased on average by 1.8% per year, and the rate for females increased more rapidly than the rate for male AI/AN. The gap between AI/AN and NHW unintentional injury rates did not change throughout this time period.

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 7.5: Age-adjusted unintentional injury mortality rates, three year rolling averages, by race, Washington, 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.

Hospitalizations for Homicide

In 2011, 0.7% of AI/AN hospitalizations in Washington were related to homicide (Table 7.3). AI/AN of both sexes had a higher proportion of homicide-related hospitalizations compared to NHW, but the difference was larger for males (1.4% for AI/AN males vs. 0.3% for NHW males). Compared to their NHW counterparts, the age-adjusted hospitalization rates for homicide were 4.8 times higher for AI/AN females and 6.1 times higher for AI/AN males (Figure 7.6). There is considerable uncertainty in these estimates, as demonstrated by the wide confidence intervals around the AI/AN rates.

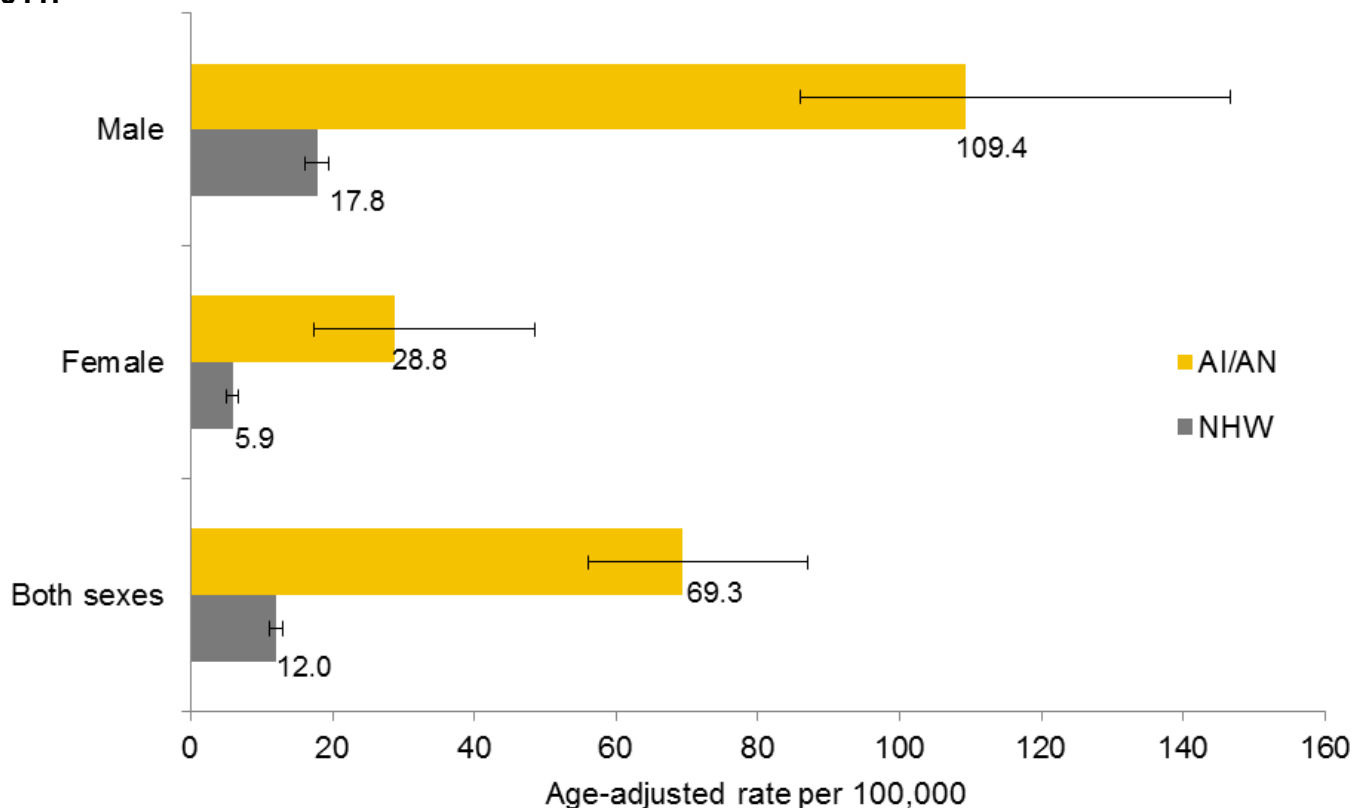
Data Source: Washington state hospital discharge data (CHARS), 2011, corrected for misclassified AI/AN race by the IDEA-NW Project.

Data Notes: Injury manner and intent were determined using the External Cause of Injury Matrix developed for ICD-9 external cause codes, from the Centers for Disease Control and Prevention (CDC). ("ICD Injury Matrices," 2009)

Table 7.3: Inpatient hospital discharges for homicide by race and sex, Washington, 2011.

Sex	AI/AN N (%) [†]	NHW N (%) [†]
Male	82 (1.4%)	445 (0.3%)
Female	20 (0.2%)	148 (0.1%)
Both Sexes	102 (0.7%)	593 (0.2%)

[†]N = number of inpatient hospitalizations. The percentages were calculated using the total inpatient hospitalizations for each group: AI/AN male (5,731), AI/AN female (8,741), AI/AN total (14,472), NHW male (159,142), NHW female (212,276), NHW Total (371,418)

Figure 7.6: Age-adjusted hospital discharge rates for homicide by race and sex, Washington, 2011.

Mortality from Homicide

Table 7.4 and Figure 7.7 shows the age-adjusted homicide rates among AI/AN and NHW in Washington from 2006-2010. AI/AN males were about twice as likely to die from homicide than AI/AN females, and almost four times as likely to die from homicide than NHW males. The homicide rate for AI/AN was almost four times higher than for NHW. AI/AN in Washington had higher homicide mortality rates than AI/AN in Oregon and Idaho.

It should be noted that, due to small numbers, the rates presented here may be unstable (as seen in the wide confidence intervals). Statistical tests take into account this level of uncertainty, and thus the rate ratio comparisons with NHW shown in Table 7.4 can be interpreted as reflecting a true disparity, while differences in the actual rate estimates alone may not.

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

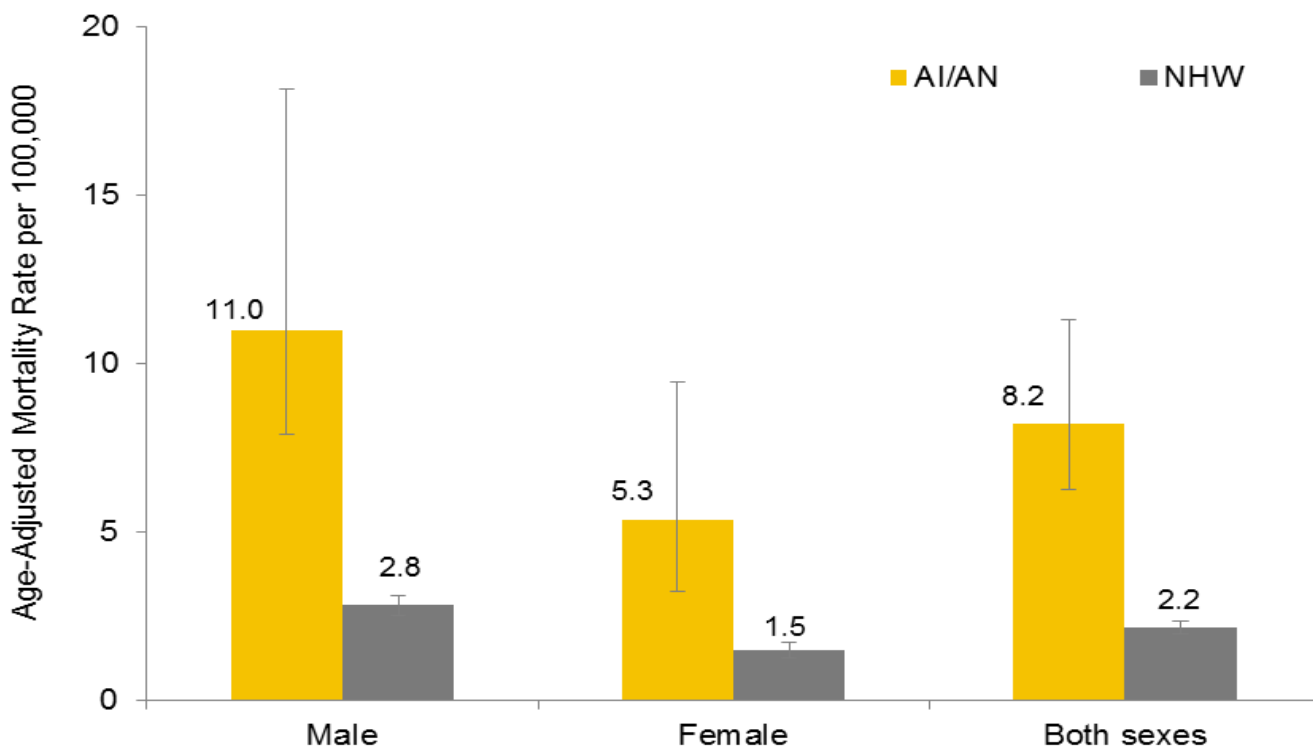
Table 7.4: Age-adjusted homicide mortality rates by race and sex, Washington, 2006-2010.

Sex	AI/AN Rate (95% CI)	NHW Rate (95% CI)	AI/AN vs. NHW Rate Ratio (95% CI)
Male	11.0 (7.9, 18.2)	2.8 (2.5, 3.1)	3.89 (2.83, 5.33) [‡]
Female	5.3 (3.2, 9.4)	1.5 (1.3, 1.7)	3.58 (2.26, 5.68) [‡]
Both Sexes	8.2 (6.3, 11.3)	2.2 (2.0, 2.4)	3.78 (2.91, 4.91) [‡]

CI = confidence interval

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

Figure 7.7: Age-adjusted homicide mortality rates by race and sex, Washington, 2006-2010.



Homicide Mortality Trends

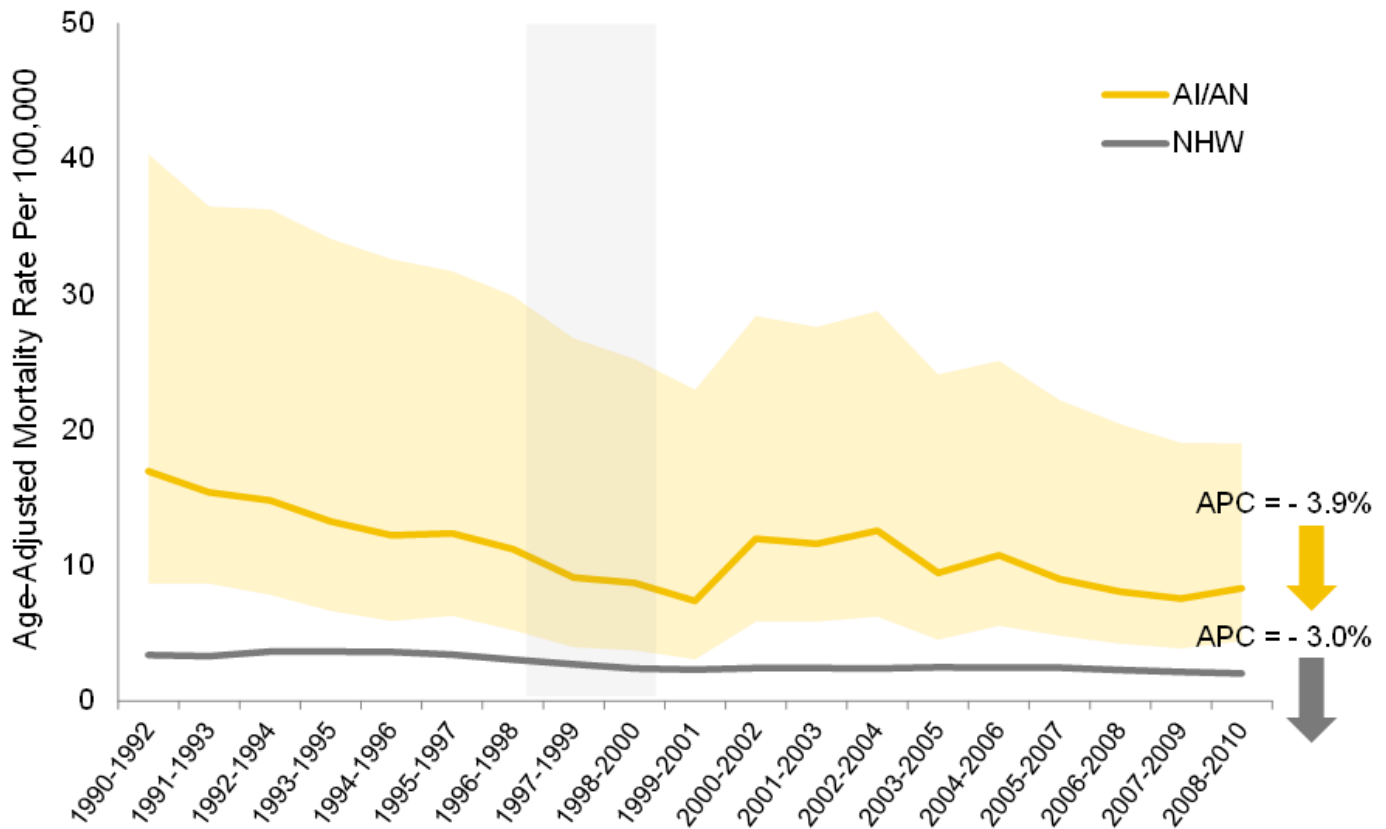
Figure 7.8 shows homicide mortality trends for the AI/AN and NHW population in Washington between 1990 and 2010. The yellow shaded section around the AI/AN line represents a 95% confidence interval band.

AI/AN homicide rates have consistently been higher than NHW rates throughout this time period. AI/AN rates have decreased on average 3.9% per year. NHW homicide rates have also decreased, but not as quickly. As a result, the disparity between the two populations has decreased over the time period. The majority of the AI/AN downward trend occurred between 1990 and 1999, while homicide rates for both races have been steady since 2000.

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 7.8: Age-adjusted homicide mortality rates, three year rolling averages, by race, Washington, 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.

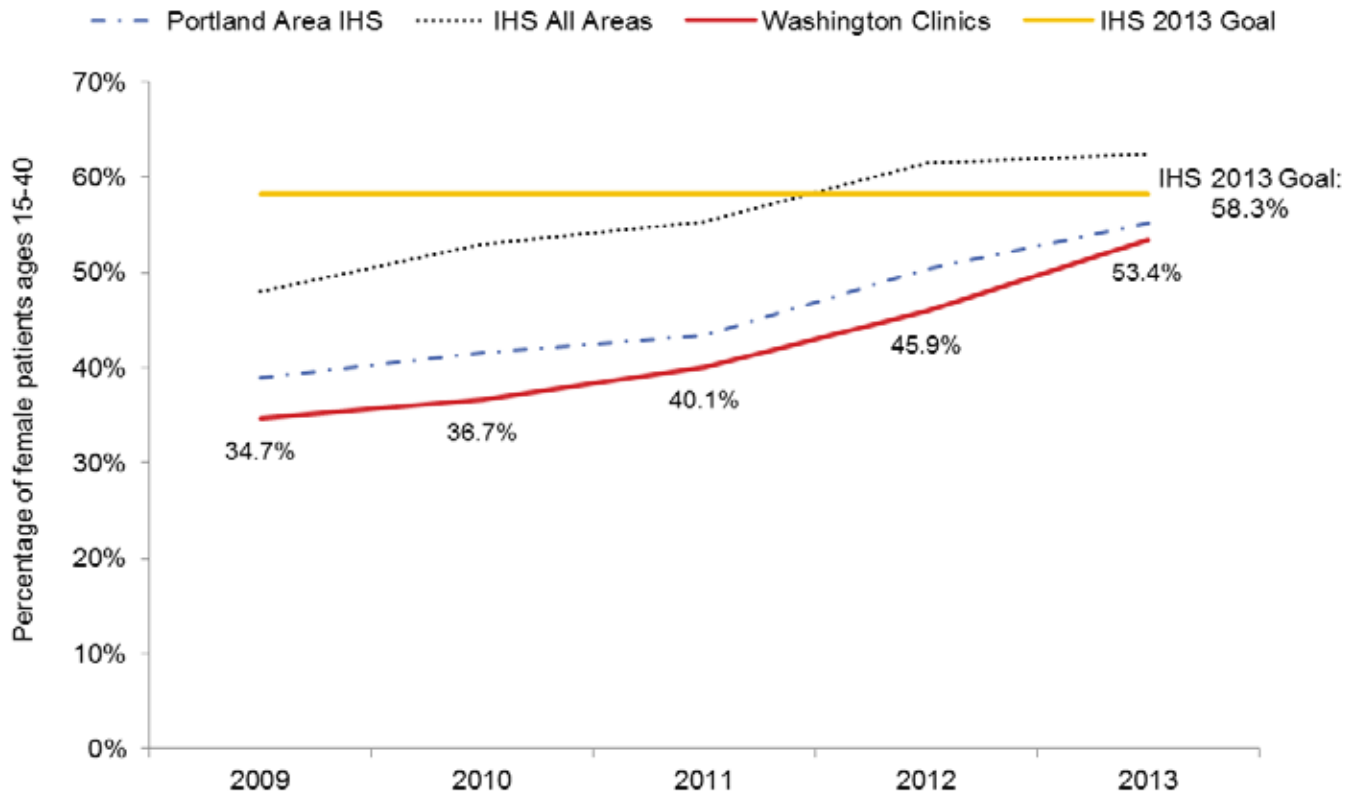
Domestic and Intimate Partner Violence Screening

IHS tracks the percentage of AI/AN female patients ages 15-40 who were screened for domestic or intimate partner violence in the past year. The domestic violence screening rate has steadily increased for Washington clinics, the Portland Area IHS, and the national IHS since 2009 (Figure 7.9). The screening rate for Washington clinics has consistently been lower than the rates for the Portland Area and national IHS. In 2013, the screening rates for Washington clinics and the Portland Area IHS did not meet the 2013 goal of 58.3%.

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 7.9: Domestic violence screening rates for IHS female patients, 2009-2013.



Program Spotlight: Injury Prevention Program

The Injury Prevention Program (IPP) works to develop and implement effective injury prevention strategies across the 43 Northwest Tribes. The IPP coordinates a Northwest Tribal Injury Prevention Coalition, whose members represent Northwest tribes, transportation safety organizations, and other key stakeholders. The IPP and Coalition members completed a 5-year Tribal Injury Prevention Plan in 2012, and are now working on implementing injury prevention and education strategies, with an emphasis on motor vehicle safety and elder falls prevention. The IPP also contributes to the collection, analysis and interpretation of injury data. The IPP is funded through a cooperative agreement with the Indian Health Service.

The IPP's goals are to:

- Provide a central location for coordination and dissemination of injury prevention resources and expertise for Northwest tribes.
- Collaborate with Northwest tribes to provide information, technical assistance and training for injury prevention, and to increase IP-related activities at the tribal level.
- Collect and evaluate community-specific data on injuries among American Indians in the Northwest, and support development of reducing injuries in targeted communities.

For more information, contact:
Luella Azule (Yakama/Umatilla)
Program Coordinator

lazule@npaihb.org

503-416-3263

http://www.npaihb.org/epicenter/project/injury_prevention_program