Injuries as a Public Health Problem
Learning Objectives

By the end of the session, attendees will be able to:
1. Understand the impact of severe injuries on AI/AN communities.
2. Learn injuries are not “accidents” but are predictable and preventable.
4. To foster collaboration with key stakeholders to prevent injuries.
IHS Injury Prevention Program

- Headquarters
- Area
- District
- Service Unit
- Tribal
- EHSC
Injury Prevention Program

- Program priorities – Motor Vehicle, Fall Prevention
- Training – IP Cores courses, IP Fellowship
- IP Tribal Cooperative Agreement funding – 40 grantees
  - TIPCAP newsletter, annual workshop
- Agency Federal Partners – CDC, BIA, NHTSA, US Fire, FH
- Advocacy / outreach / website
ANNUAL IHS

1. NCHS Vital Statistics System for numbers of deaths. Bureau of Census for population estimates
2. 1998-99 Trends in Indian Health
3. Inpatient Hospital Per Diem Rate, Federal Register: 1/24/01, Vol. 66, No. 16

1860 Deaths
7,358 Hospitalizations
353,398 Ambulatory Visits
$500 mill. + Inpatient Care Costs
$Billions Societal Costs
Accident: an unforeseen or unplanned event; or an event occurring by chance
Injury Types

**Unintentional Injury**
- unplanned/unexpected injuries (falls, MVC’s, drowning, burns, etc.)

**Intentional Injury**
- self-inflicted violence (suicide/attempt)
- homicide
- rape/sexual assault
- child/elder abuse
Death by Age

Natives die at younger ages than all the US
### Years of Potential Life Lost (YPLL) Before Age 65

**2010 United States**  
Am Indian/AK Native, Both Sexes  
All Deaths

<table>
<thead>
<tr>
<th>Cause of Death</th>
<th>YPLL</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Causes</td>
<td>167,928</td>
<td>100.0%</td>
</tr>
<tr>
<td>Unintentional Injury</td>
<td>43,055</td>
<td>25.6%</td>
</tr>
<tr>
<td>Suicide</td>
<td>14,730</td>
<td>8.8%</td>
</tr>
<tr>
<td>Heart Disease</td>
<td>14,689</td>
<td>8.7%</td>
</tr>
<tr>
<td>Malignant Neoplasms</td>
<td>14,524</td>
<td>8.6%</td>
</tr>
<tr>
<td>Liver Disease</td>
<td>11,290</td>
<td>6.7%</td>
</tr>
<tr>
<td>Homicide</td>
<td>8,827</td>
<td>5.3%</td>
</tr>
<tr>
<td>Perinatal Period</td>
<td>7,604</td>
<td>4.5%</td>
</tr>
<tr>
<td>Congenital Anomalies</td>
<td>7,209</td>
<td>4.3%</td>
</tr>
<tr>
<td>Diabetes Mellitus</td>
<td>4,307</td>
<td>2.6%</td>
</tr>
<tr>
<td>Influenza &amp; Pneumonia</td>
<td>2,340</td>
<td>1.4%</td>
</tr>
<tr>
<td>All Others</td>
<td>39,353</td>
<td>23.4%</td>
</tr>
</tbody>
</table>
Magnitude of the Injury Problem

- Unintentional injuries are the leading cause of death for AIAN ages 1-44 and the third leading cause overall
- Motor vehicle injuries are a leading type of injury death for ages 1-44
  - Second – Poisoning
    - Narcotics
    - Prescription drugs
    - Alcohol
  - Third – Drowning

- Mortality data for AIAN

CDC WISQARS 10/13 H Billie
# Leading Causes of Death for AI/AN
## 2006-2010, Both Sexes

<table>
<thead>
<tr>
<th>Rank</th>
<th>Age Groups 1-4</th>
<th>Age Groups 5-9</th>
<th>Age Groups 10-14</th>
<th>Age Groups 15-24</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Unintentional Injuries</td>
<td>Unintentional Injuries</td>
<td>Unintentional Injuries</td>
<td>Unintentional Injuries</td>
</tr>
<tr>
<td>2</td>
<td>Homicide</td>
<td>Malignant Neoplasms</td>
<td>Suicide</td>
<td>Suicide</td>
</tr>
<tr>
<td>3</td>
<td>Congenital Anomalies</td>
<td>Congenital Anomalies</td>
<td>Congenital Anomalies</td>
<td>Homicide</td>
</tr>
</tbody>
</table>
### Leading Causes of Death for AI/AN 2006-2010, males and females

<table>
<thead>
<tr>
<th>Rank</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Unintentional Injuries</strong></td>
<td><strong>Unintentional Injuries</strong></td>
<td><strong>Malignant Neoplasms</strong></td>
<td><strong>Malignant Neoplasms</strong></td>
</tr>
<tr>
<td>2</td>
<td><strong>Suicide</strong></td>
<td><strong>Liver Disease</strong></td>
<td><strong>Heart Disease</strong></td>
<td><strong>Heart Disease</strong></td>
</tr>
<tr>
<td>3</td>
<td><strong>Homicide</strong></td>
<td><strong>Heart Disease</strong></td>
<td><strong>Unintentional Injuries</strong></td>
<td><strong>Diabetes Mellitus</strong></td>
</tr>
</tbody>
</table>

**CDC WISQARS 10/13  H Billie**
2006-2010, US, Unintentional Injury Deaths
Crude rates per 100,000, Ages 1-44, Both Sexes

- All Races: 26.56
- White: 28.65
- Black: 22.28
- AIAN: 35.22
- Asian/PI: 8.02

CDC WISQARS 10/13  H Billie
2006-2010 Intentional Injury Deaths
Crude rates per 100,000, Ages 1-44, Both Sexes

16.32
14.21
30.45
18.1
7.07

All Races  White  Black  AIAN  Asian/PI

CDC WISQARS 10/13  H Billie
2006-2010 Unintentional Injury Deaths, US, AIAN ages 1-44, both Sexes

N=5028

- MV Traffic: 50.6%
- Poisoning: 26.7%
- Drowning: 4%
- Natural Env.: 3%
- Fall: 2%
- Pedestrian: 2%
- Other land transport: 2%
- Fire/burn: 1.9%
- Suffocation: 1.8%

CDC WISQARS 10/13  H Billie
2006-2010 Suicides, US, AIAN
Ages 1-44, Both sexes

N=1,612

Suffocation: 49%
Firearm: 34%
Poisoning: 11%
Other: 6%
2006-2010 Homicides, US, AIAN
Ages 1-44, Both Sexes

N=978

- Firearm: 47%
- Cut/Pierce: 22%
- Unspecified: 18%
- Other: 13%
Years of Potential Life Lost (YPLL) Before Age 75
2006 – 2010, US, AIAN, Both Sexes, All Deaths

- Unintentional Injury: 302,003
- Heart Disease
- Malignant Neoplasms: 87,090
- Suicide
- Liver Disease
- Perinatal Period
- Homicide: 52,418
- Congenital Anomalies
- Diabetes Mellitus: 40,013
- Influenza & Pneumonia
- All Others

CDC WISQARS 10/13
Years of Potential Life Lost

- A measure of premature mortality (early death)
- Provides insight into impact of injury-related death on society compared to other leading causes of death
- 2005-2007 AIAN have a life expectancy 4.1 years less than U.S. all races population (73.6 years to 77.7 years, respectively)
- Years lost before age 75
  - subtracts each deceased person's age at death from 75
  - if your predetermined end point was 75 years and a person died at age 17, the YPLL would equal 75 years - 17 years = 58 YPLL.
Years of Potential Life Lost (YPLL) Before Age 75
2006 – 2010, US by Race, Both Sexes, Percent of All Deaths

- Unint. Injury
- Suicide
- Homicide

<table>
<thead>
<tr>
<th>Race</th>
<th>Unint. Injury</th>
<th>Suicide</th>
<th>Homicide</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>16.7</td>
<td>5.9</td>
<td>1.9</td>
</tr>
<tr>
<td>Black</td>
<td>9.9</td>
<td>1.9</td>
<td>9.2</td>
</tr>
<tr>
<td>Asian/PI</td>
<td>11.4</td>
<td>6.3</td>
<td>2.9</td>
</tr>
<tr>
<td>AI/AN</td>
<td>23.3</td>
<td>6.7</td>
<td>4.2</td>
</tr>
<tr>
<td>All races</td>
<td>15.3</td>
<td>5.1</td>
<td>3.7</td>
</tr>
</tbody>
</table>

CDC WISQARS 10/13  H Billie
2010 Violent Deaths from 16 NVDRS States

Age adjusted rates per 100,000

- **All Races**: 19.27
- **White**: 18.7
- **Black**: 21.68
- **AIAN**: 23.26

CDC WISQARS 10/13  H Billie
National Violent Death Reporting System States

- Unintentional firearm
- Homicide
- Legal Intervention
- Suicide
- Undetermined intent
- Homicide followed by Suicide

CDC WISQARS  H Billie
Cost of Injuries

- AI/AN Lifetime cost all injuries $2.1 billion
- MV accounts 45% lifetime costs & 58% lifetime medical cost
- Treatment of Injury is the single largest Expenditure for IHS CHS
- Societal cost – annual medical care, rehabilitation, lost wages, disability, legal, etc

Table 1. Lifetime costs of AI/AN injuries: All injuries and selected causes, 2000 ($ millions)

<table>
<thead>
<tr>
<th></th>
<th>Medical costs</th>
<th>Productivity Loss</th>
<th>Administrative Costs</th>
<th>Total Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Injuries</td>
<td>$489</td>
<td>$1,477</td>
<td>$211</td>
<td>$2,176</td>
</tr>
<tr>
<td>Motor Vehicles</td>
<td>285</td>
<td>610</td>
<td>83</td>
<td>978</td>
</tr>
<tr>
<td>Suicide</td>
<td>19</td>
<td>156</td>
<td>20</td>
<td>194</td>
</tr>
<tr>
<td>Falls</td>
<td>30</td>
<td>89</td>
<td>16</td>
<td>135</td>
</tr>
<tr>
<td>Homicides</td>
<td>16</td>
<td>94</td>
<td>19</td>
<td>129</td>
</tr>
<tr>
<td>Fires</td>
<td>19</td>
<td>30</td>
<td>7</td>
<td>56</td>
</tr>
</tbody>
</table>

Source: The Economic Burden of Injuries Involving American Indians and Alaska Natives: A Critical Need for Prevention; September IHS Primary Care Provider Vol 32, #9
IHS CHS average annual expenses treatment of injuries, poisoning 2002

<table>
<thead>
<tr>
<th>Category</th>
<th>Annual Expense</th>
<th>Average Annual Expense per case</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inpatient</td>
<td>$41,063,269</td>
<td>$14,378</td>
</tr>
<tr>
<td>Outpatient</td>
<td>$13,200,209</td>
<td>$752</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$54,263,478</td>
<td></td>
</tr>
</tbody>
</table>

Source: The Economic Burden of Injuries Involving American Indians and Alaska Natives: A Critical Need for Prevention; September IHS Primary Care Provider Vol 32, #9
Unintentional Injury Death Rates
American Indians and Alaska Natives Compared
to U.S. All Races, 1973-2005

Source: Division of Program Statistics, Demographic Statistics Team, Indian Health Service.
Adjusted for age and for misreporting of AI/AN race on the state death certificates. Rates per 100,000 population.
Public Health Approach

Injury Surveillance
- Define the Problem
  - Who, What
- Identify Risk Factors
  - What works?
- Evidence based programs
- Implement & Evaluate
  - Prevention
Public Health Approach Strengths/Assets

• Accurately identifies local injury priorities based on data
• Set local priorities
• Collaboration with Key stakeholders
• Applies multiple approaches to address injury problems
• Measures the success of prevention activities (best practice, evidence base)
What prevents the problem?

- Modify the environment
  - Roadway
  - Home
  - Gun storage

- Enact and enforce safety legislation

- Educate the public
  - Target media campaigns
Identify Risk Factors

Population at risk
(age, gender, specific group)

• Location(s) of events
• Environment
• other factors
Injury Prevention Projects & Successes
Percentage Seat Belt Use

Data Source: NHTSA, IHS, Tribe
AI/AN Child Passenger Safety

- % Child Seat Safety Use
  - AI/AN 30 %
  - All US 85 %
Hardrock Council on Substance Abuse
Injury Prevention Program
Mary Robertson-Begay, IP Coordinator

- Fall Prevention – Home hazard reduction
- Hired welder & assistant to build ramps & steps for elders
- Homes over 40 yrs old
- $18,750 IHS Injury Prevention Supplemental
IHS, US Fire, and Tribal Headstart Partnership
Provide and install smoke alarms in AI/AN homes
Est 20,000 smoke alarms have been installed

Source: IHS - Harold Cully, Oklahoma Area IHS
Fire-Related Death Rates

Data Source: IHS mortality data for AI/AN; Black/White: NCHS mortality, CDC WISQARS
Northern Native American Health Alliance

• Creating Caring Communities – CCC
  – Community, Schools to reduce bullying
• Show measureable decreases in truancy and disturbances at local schools
  – Surveys, records, school data

• TIPCAP 2014
Alaska Suicide Prevention

- Tanana Chiefs – Fairbanks - Cyndi Nation
- 33 Villages
- Crisis Response Teams
  - Safe Talk
  - QPR
  - Mental Health First Aid
  - ASIST
  - Post-vention Connects
NN Child Fatality Review

- Developing policy
- Review child deaths
- Multi-disciplinary approach
- Social Services as lead
  – Thomas Cody
Collaboration

• Injury Prevention
  Behavioral Health
• At-risk population
• Resources
• Service delivery