

Reducing Disparities of Motor Vehicle Crash Injury and Mortality Among American
Indians and Alaska Natives

David C. Grossman, MD, MPH
Harborview Injury Prevention and Research Center

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Author contact information: David Grossman, MD, MPH
Harborview Injury Prevention and Research Center
325 Ninth Ave. Box 359960
Seattle, WA 98104
Voice: 206.521.1537
Fax: 206.521.1562

Epidemiology of Motor Vehicle Crash Injury Among American Indians and Alaska Natives

Motor vehicle crashes are the leading cause of death among American Indians and Alaska Natives in the United States between the ages of 1 and 44 years of age. During the year 2000, 785 AI/AN people lost their lives due to injuries from motor vehicle incidents, a rate of 32.5 deaths per 100,000 population¹. Altogether, an estimated 25,310 Years of Potential Life Lost (YPLL) among AI/AN under age 65 were attributable to motor vehicle related injuries, representing approximately 19% of all YPLL¹.

Great disparities exist between the rate of death and injury from motor vehicles for AI/ANs and other U.S. residents. According to the National Center for Health Statistics (NCHS), the rates of MV injury deaths among AI/ANs are approximately two to five-fold higher than for the whole U.S. The proportion of YPLL attributable to motor vehicle injuries in the general U.S. population (10.3%) is approximately half of that reported for AI/AN's . These disparities may even be greater since it is well recognized that racial misclassification exists for injury deaths. For example, according to the Indian Health Service (IHS), the age-adjusted rates of motor vehicle injury death for the years 1994-96 was 16.3 for all of the U.S., 45.9 for all IHS areas, and 54 per 100,000 after adjusting for racial misclassification of death certificates². In contrast, the NCHS reports that the age adjusted AI/AN mortality rate for the same period was 31.7 per 100,000. The higher rates of injury deaths reported by IHS are also related to the method used by IHS to calculate rates, which involves using different numerators and denominators than NCHS. The IHS uses its service population as the denominator. In contrast, the NCHS uses the

census population, which includes a higher proportion of AI/ANs residing in urban and off-reservation areas.

The largest proportion of deaths of AI/ANs from motor vehicle crashes in the year 2000 were due to occupant injuries from traffic crashes (n=350; 45% of all motor vehicle injuries) and pedestrian injuries (n=129; 16.4%)³. There were very few counts of deaths related to bicycles (n=8) or motorcycles (n=14) and the rates of these mechanisms were not higher compared to the overall U.S. rate. Many motor vehicle crash injuries were listed as ‘unspecified’ mechanism (n=272, 34.6%).

Though national rates of MV injury among AI/AN people are two-fold higher than overall U.S rates, considerable regional variation exists. **Table 1** details the rates of MV injury deaths during 1994-96 (the last year detailed injury mechanism data were available from IHS) by each IHS administrative area and demonstrates that some areas have much higher rates of death than others do. For example, age-adjusted MV death rates were highest in the Navajo Area (85.8 per 100,000, or over five times the U.S. rate) and lowest in Alaska (27.7 per 100,000). However, the mortality rate in every region exceeded the US all races rate (16.3 per 100,000) by a considerable margin.

The temporal trends for MV and pedestrian mortality are illustrated in **Figures 1 and 2** respectively. Both graphs demonstrate a substantial decrease in the rates of overall age-adjusted MV and pedestrian mortality rates for AI/AN people, relative to other races.

There is substantial variation in the risk of mortality by age. **Figure 3** shows that the highest risk age group is from age 15-29 years. For every age group, AI/ANs have the highest rate of MV mortality, indicating that this disparity is pervasive across all age groups.

Non-fatal injuries also occur disproportionately among AI/AN people. Though national data on non-fatal injuries are not available by race or ethnicity, one study from Washington estimated the rate ratios (comparing AI/ANs to the state population) for occupant injuries and pedestrian injuries leading to hospitalization were 1.9 and 2.3 respectively ⁴.

Motor vehicle injuries are composed of a spectrum of different types of injuries. The term ‘traffic injuries’ applies when a passenger car or light truck vehicle collides with another vehicle, pedestrian, motorcyclist, bicyclist, or stationary object while on a public roadway. Traffic injuries can be further subdivided into occupant and non-occupant injuries. The term “non-traffic” injury applies to deaths and injuries that occur when a motor vehicle is parked or not on a public roadway. The vast majority of deaths and injuries occur as ‘traffic injuries’. This review will emphasize these types of injuries.

Methods

For this review, I searched the following sources for information on risk and protective factors for MV injury, strategies or ongoing programs to reduce MV injury: PubMed (National Library of Medicine, includes published medical and public health literature from 1966-present, using MESH headings: Indian, North American AND Accidents, Traffic); PSYCHINFO (includes social science and behavioral science literature after 1970; using search terms: American-Indians and Motor -Traffic-Accidents); the Native Health Database (University of New Mexico Libraries); the website of the National Highway Traffic Safety Administration (NHTSA) (using the following key terms: American Indian OR Native American OR tribe OR tribal); and the Indian Health

Service. Sources of potential data were retrieved from the WISQARS and WONDER interactive query sites of the Centers for Disease Control, the Behavioral Risk Factor Survey System website, and the Fatality Analysis Reporting System of NHTSA.

II. Risk and Causal Factors

Risk and protective factors for motor vehicle traffic crash injuries can be categorized as being associated with the driver/passenger behavior, the vehicle, and the environment. Risk and protective factors have been well elucidated for crashes in the U.S. but there are relatively few analytic studies or reports that have attempted to examine specific risk factors for crashes among American Indians and Alaska Natives (AI/AN). Ethnic-specific data are difficult to find in national sources of traffic and crash records. Few include race as a variable or over sample minority populations to assure an adequate sample size for statistical precision. The following sections address what is known from the peer-reviewed scientific literature, key federal agencies related to injury prevention, or other health agencies.

A. Host Factors

Driver/passenger behavior

Several behavioral factors stand out as being particularly important risk factors for a motor vehicle crash, and for injury following a crash. Perhaps the most important, and most accessible, are whether the driver was intoxicated by alcohol, and whether the occupants were wearing seat belts at the time of the crash. Alcohol is a significant health problem for most AI/AN tribes and communities. The effect of alcohol on driving performance is well known to be associated with a steeply increased risk of crash. Firm data on the incidence of crashes associated with driving under the influence (DUI) of alcohol are difficult to obtain for the AI/AN population. According to the FARS surveillance system, there were 436 AI/AN persons killed in 384 car crashes (note that the number is significantly lower than the NCHS or IHS estimate, which probably

reflects significant undercounting and racial misclassification) in 2001. 119 of these 384 (31%) crashes were judged by police to involve alcohol as a causal factor. However, since all of these were fatal crashes, and many did not result in autopsies, there may be significant concern that FARS underestimates the proportion of alcohol-associated crashes, particularly in rural settings. Campos-Outcalt et al reported that in Arizona during 1979-1988, the rate of alcohol crash fatalities was 38.7 and 44.1 per 100,000 for urban and rural AI/AN males respectively, and 9.5 and 9.0 per 100,000 population for urban and rural female AI/AN residents⁵. Another study, using linked IHS registration data and state traffic crash records from a two-county area of Washington, found that 45% and 19% of rural and urban AI/AN drivers involved in police-reported crashes were intoxicated, compared to 9% and 13% of the other rural and urban drivers.⁶

Alcohol intoxication of pedestrians is also an important risk factor for collisions with pedestrians. In one study of pedestrian fatalities from Arizona, American Indians were over twice as likely as any other race to have a blood alcohol concentration (BAC) of over 0.20 g/dl and 50% more likely to have a BAC between .15-.199 gm/dl.⁷ In another study from New Mexico, American Indians were found to be at 8 fold higher risk of a pedestrian death, and 90% of these deaths who were tested had a median BAC of 0.24.⁸

Safety belts

Safety belts are one of the most important innovations in automotive safety and represent a vitally important cornerstone of any motor vehicle injury prevention effort. Almost all newer model passenger cars and light trucks all now have 3-point restraints, which join a shoulder and lap belt into one dynamic unit. Some late model passenger cars have a 3-point restraint in the rear middle seat but most still have a lap belt in this position. The

use of safety belts is associated with a 40-60 percent reduction in death for front seat drivers and passengers. Though the National Highway Traffic Safety Administration tracks seat belt use carefully for the nation, ethnic-specific estimates are unavailable for Native Americans since NHTSA classifies race as White, Black and other race. Furthermore, surveyors classify race based on appearance of the occupants, which elevates the risk of racial misclassification. Many tribes and IHS facilities track seat belt use rates for their local population, but I could not find a representative survey of seat belt use for any larger geographic unit. Among American Indians involved in crashes in central Washington, it was reported that only 44 percent of rural AI/ANs and 70% of urban AI/ANs were belted at the time of the crash, compared to 73% and 76% of their non-Indian counterparts⁶. The large discrepancy between rural and urban seat belt use rates may have been due to the absence of a tribal law in the rural reservation zone. An analysis of the CDC Behavioral Risk Factor Surveillance System from 1988 determined that the rate of self-reported belt use among AI/ANs ranged from 25% in the Western states to 64% in the Plains states⁹. Several other studies using self-report data also indicated belt use rates of around 60% in the Montana area.

National data from the FARS system indicate that, in 2001, among the 203 fatally injured AI/AN drivers involved in traffic crashes, restraint status was available for 87%. Of these, only 26% (45/176) of drivers were properly restrained. Among drivers known to be intoxicated, restraint use was only 4% (3/68). These proportions were similar for AI/AN passengers as well.

Speeding

There are few national or regional data available regarding the role of speeding in crashes involving AI/AN's. The only source of data is from FARS, which indicates that speeding was a primary factor in almost twice as many of fatal crashes (20% vs. 11%) for AI/ANs as whites.

Prior Offenses

Of the fatal crashes in the US in 2001, approximately 20% of AI/AN drivers had a prior DUI conviction, compared to 7% of white drivers. The history of a previously reported crash was similar between these groups (23% AI/AN; 27% white). A major problem has been non-reporting of convictions between tribal and state courts. Last month, New Mexico signed an agreement to share traffic convictions with the Navajo Nation.

B. Vehicle And Collision Factors

The primary determinants of crash risk are thought to be behavioral and environmental¹⁰. However, the crashworthiness of a vehicle is also an important factor that may be associated with survival or a reduced risk of injury from a crash. Heavier, stiffer vehicles are generally associated with increased protection during a crash. Light trucks and sport utility vehicles (SUV) meet these criteria but these types of vehicles are also more likely to be involved in rollover crashes. Furthermore, pick-up trucks are a hazard for occupants sitting in the cargo area¹¹. There are few sources of data regarding the possible association of occupant ethnicity and vehicle type. In the study in Washington State, AI/AN drivers were more likely to be driving a pick-up truck during a crash (36% vs. 28.5%). According to FARS, the proportion of AI/AN drivers involved in fatal crashes

who were in light trucks (which includes pick-ups, SUV's, and minivans) was 36% in 2001, compared to 33% for whites. However, there was a substantial difference in the rate of rollover fatal between whites and AI/ANs. Forty seven percent of crashes involving AI/ANs included a rollover, compared to 29% of crashes involving whites. Given that there were not large differences in vehicle type between the groups, this finding may be related to differences in the quality of the roadway. Rollovers greatly increase the risk of ejection of unbelted occupants and occupant ejection increases the risk of a fatality by 3-5 fold. Thirty-five percent of AI/AN occupants were ejected totally or partially from their vehicles during crash, compared to 23.6% of white occupants.

C. Environmental Factors

There are a number of environmental factors that distinguish fatal crashes among AI/ANs and other drivers. Eighty percent of fatal crashes involving AI/ANs occurred on rural roads, compared to 63% of crashes involving whites. According to FARS, there were no meaningful differences in roadway conditions (e.g. wet, icy, etc) at the time of fatal crashes involving AI/ANs and those involving other races. Approximately 6% of fatalities in 2001 occurred on dirt or gravel roads, compared to only 2% of white fatalities. The incidence of nighttime fatal crashes (9pm-6am) was not different between AI/AN's and whites. However, the proportion of crashes that occurred in settings with poor lighting was somewhat higher (37% vs. 31%) for AI/AN fatalities.

III. Best Practices for Reducing Motor Vehicle Injury

There have been several recent literature syntheses to systematically review the effectiveness of community-based interventions to reduce motor vehicle injuries. One of the best syntheses was compiled by the CDC's Task Force on Community Preventive Services¹². After a critical systematic review of the world's literature on the topic of occupant safety, the task force developed recommendations and indicated the strength of evidence behind these recommendations (**Table 2**).

The main categories of interventions include the use of child safety seats, the use of safety belts, and reducing alcohol-impaired driving. For child safety seats, the task force believes there is strong evidence to promote child safety seat laws, distribution and education campaigns, and sufficient evidence to recommend community-wide information and enforcement campaigns, and incentive and education programs. Of note, the task force did not believe sufficient evidence existed to recommend education-only programs for child passenger safety.

For safety belts, the task force recommended safety belt laws, primary seat belt laws, and enhanced enforcement programs by law enforcement, all of which had strong evidence behind them.

To reduce alcohol-impaired driving, the task force strongly recommended 0.08 blood alcohol content laws, lower BAC levels for inexperienced drivers (including zero tolerance laws), minimum legal drinking age laws (which is age 21 in all states), sobriety checkpoints, and intervention training programs for servers^{i, ii}.

Another excellent review of different interventions to reduce MV injuries was published as a supplement in the American Journal of Preventive Medicine (Volume 16, Issue 1,

ⁱ Each of these interventions, and the evidence supporting them, is reviewed in detail on the task force website at: <http://www.thecommunityguide.org/mvoi/default.htm>.

Supplement 1, Pages 1-87 (January 1999). Findings from these systematic reviews included the following points:

- Programs promoting child safety seats appear to be effective but are limited in their measures of long term effectiveness
- There are insufficient data regarding programs promoting rear seat position for children
- Primary seat belt laws enacted by states are associated with a decrease in rates of death by 3-46%.
- Driver education programs are not associated with a reduction in the risk of crash or injury.
- Graduated driver licensing programs for new teen drivers are associated with a reduction in the risk of crash injuries.
- Random alcohol screening, through breath testing of randomly stopped drivers, and sobriety checkpoints, are effective in reducing crash injuries, especially alcohol related crashes.
- Low blood alcohol concentration laws for younger drivers appear to be effective in reducing crash injuries
- Ignition interlock devices appear to lead to substantial reductions in the rate of drunk driving recidivism

There are also three systematic reviews in the Cochrane database of systematic reviews (www.cochranelibrary.com) of interventions to prevent pedestrian injury. These include interventions to increase visibility of pedestrians (and bicyclists), to conduct safety

education programs for pedestrians; and to use traffic calming measures (e.g. roundabouts, speed bumps) to reduce ambient traffic speed.

The following conclusions were derived from these reviews:

- ❑ Traffic calming in 8 studies led to an overall average reduction in occupant crash deaths of 37% after the introduction of these interventions. Among those studies reporting crash injuries as the outcome, the reduction was 11%. For pedestrian-motor vehicle collisions (n=13 studies), there was no evidence of effect.¹³
- ❑ Interventions to improve pedestrian visibility: There were no trials found that examined the effect of visibility aids (e.g. reflector strips) on the reduction of injuries or collisions with pedestrians. A number of trials examined the effect of these aids on driver perception, but the results of this review were inconclusive. Despite its potential promise, there is insufficient evidence to recommend this strategy.¹⁴
- ❑ A review of 15 randomized controlled trials of pedestrian safety education programs, 14 of which were conducted with children. None of the trials examined the effect of these programs on actual injuries; six assessed the effects of the program on observed behavior. There was considerable variation in the outcomes of these studies, leading the authors to conclude that the true effect of this type of safety education on injuries is still unknown.¹⁵

IV. Past and Current Efforts to Reduce Motor Vehicle Injury among American Indians

The federal entities with a current stake in efforts to reduce MV injuries among AI/AN people include the Bureau of Indian Affairs, the CDC National Center for Injury

Prevention and Control , the Indian Health Service, the National Highway Traffic Safety Administration and the Maternal Child Health Bureau. In addition to federal agencies, other stakeholders include state health departments and governors' highway safety programs, tribal programs, and some non-profit organizations (e.g. Safe Kids Campaign). Past and current efforts are reviewed for each of these programs. Potential future opportunities are also discussed.

A. Indian Health Service

The Indian Health Service, as the lead federal health agency for AI/AN people, has a natural role in the prevention of MV injuries. The IHS injury prevention program, within the Office of Environmental Health and Engineering, is primarily responsible for initiating local programs to conduct surveillance and initiate local interventions. The injury program has a strong training infrastructure to increase the pool of capable personnel to address injury issues at a tribal level. In addition to the three short introductory courses offered, the program also offers a year-long fellowship training program to train specialists. The IHS injury fellowship program, and the new program development fellowship, are both designed to increase the capacity of IHS to train specialists to design, implement and evaluate local injury prevention intervention and surveillance projects. Fellows produce a written report of their work, many of which have been reformatted for publication in the IHS Primary Care Provider publication or a scientific journal. The impact of the fellowship has been far-reaching, leading to a new, dedicated cadre of injury prevention professionals at a local, district, and area level. From 1987-1999, there were 18 fellowship projects related to MV crash and pedestrian injuries, most of which were descriptive epidemiological studies.

The IHS injury program has also spearheaded the development of several MV safety campaign modules for use by communities and tribes in their injury prevention efforts. These have primarily focused on occupant safety and drunk driving. These include the “Cross My Heart” campaign, which included a kit with culturally specific messages, communication tools, and suggestions on the conduct of an occupant safety campaign. The IHS has also co-sponsored an Indian Lifesavers conference to bring together injury control and highway safety professionals working in Indian settings to discuss occupant safety. They have also sponsored several ‘None for the Road’ conferences and campaign materials to promote anti-drunk driving campaigns by tribes. Finally, the IHS has also adapted the Safe Communities program from NHTSA, and promoted this program with tribal communitiesⁱⁱⁱ. There have been notable successes with occupant safety documented by the IHS program. Some of the better publicized, and evaluated, efforts include efforts to pass and enforce seat belt laws on the Navajo Nation, improve road safety on the White River Apache reservation¹⁶. Both of these efforts resulted in documented decreases in injury. Other, more recent efforts, but without published evaluations of their impact, include the passage of tribal seat belt laws on reservations (e.g. Pine Ridge, Warm Springs, Yakama), at least two of which were fellowship-related projects.

Bureau of Indian Affairs

The BIA is responsible for roads on Indian reservation land, unless these monies have been compacted or contracted by tribes. The Federal Lands Highways Program currently provides about \$275 million annually for Indian Reservation Roads (IRR). These funds have supported many accomplishments, including 1,400 projects being administered by

ⁱⁱⁱ see: (<http://www.nhtsa.dot.gov/people/outreach/safecomm/ServiceCenter/scnews/features7.html>)

the BIA and tribal governments; 42 percent of the funds are administered through self-determination contracts/agreements. The Indian reservation road system has 55,900 miles of road of which 33,600 are unpaved roads. Despite the sizable federal investment that has been made in the roads and bridges in the IRR system, the majority of roads in Indian and Alaska Native communities remain unpaved or in poor condition.

In conjunction with NHTSA, the BIA administers a separate Indian Highway Safety Program that draws its funds from the Section 402 Highway Safety funds allocated to states and tribes. The allocation of funding for the Indian Highway Safety Program (IHSP) is set at 0.75% of the total national funding pool of all Section 402 funds. Some Section 402 funds allocated to states (see NHTSA) also flows to tribes through direct contact between these entities. To receive IHSP funding, tribes apply competitively for these grants. Funds are used primarily to promote NHTSA objectives, which are primarily occupant safety and sober driving practices, and police traffic services. The program awards only 15-20 proposals each year. In comparison, all fifty states receive a proportionate allocation of 402 funds on a non-competitive basis. The section 402 monies this program received in FY 02 was \$1,147,000. In addition, they received an extra \$56,000 in funds for child passenger safety training programs, and \$124,000 for data systems. Ninety five percent of these funds must go to tribes or tribal entities; the BIA retains only 5% for administrative overhead. The Region VI office of NHSTA oversees the efforts of this program. The IHS injury program has not had significant involvement with the program. It is difficult to evaluate the success of this program without further data.

National Highway Traffic Safety Administration

NHTSA is the lead traffic safety agency in the federal government and is in the U.S. Department of Transportation. NHTSA has a longstanding memorandum of agreement with the Indian Health Service to provide technical assistance and some funding for injury prevention projects. A major role NHTSA plays is in overseeing the BIA Highway Safety Program office (see above), and to reach out to tribes on other initiatives that NHTSA sponsors, such as the Safe Communities Program and other campaigns. Tribes can apply for special initiative NHTSA funds for some projects but they are not always eligible to apply. NHTSA has placed a greater emphasis on diversity initiatives and outreach in recent years, and has attempted to create partnerships to address crash injuries. For example, they have a cooperative agreement with the National Indian Education Association to address injury control among children. They maintain a website specifically for tribes and others working in Indian and Native communities (see: <http://www.nhtsa.dot.gov/multicultural/nativeamerican/indian-alaska-index.html>) They also recently asked the regional offices and state highway safety offices to document their efforts to reach out to special populations, including Indian tribes (see <http://www.nhtsa.dot.gov/nhtsa/whatis/regions/DiversityOutreach.pdf>).

Centers for Disease Control/ National Center for Injury Prevention and Control

A memorandum of agreement also exists between the IHS injury prevention program and CDC's injury center, NCIPC, in Atlanta (personal communication: David Wallace, 4/03). The NCIPC pays the salary and expenses of 1.0 FTE epidemiologist to work with IHS on injury epidemiology and training issues. This collaboration has resulted in a number of significant improvements, including the production of valuable data reports on injuries

among AI/ANs, and the inclusion of AI/AN race in WISQARS, the interactive query system for injury data maintained by NCIPC. For most RFA's for extramural research from NCIPC, tribes are specifically mentioned as eligible to apply, though I am unaware of any past cooperative agreements or grants with Indian entities. For FY 2003, NCIPC is also proposing to fund 4 tribes with demonstration projects to implement and tailor evidenced-based programs to reduce injuries.

V. RECOMMENDATIONS

The following recommendations are submitted for consideration by the National Injury Prevention Tribal Steering Committee (TSC) in its deliberations on how to reduce disparities in rates of motor vehicle crash injuries and fatalities between AI/AN population and the U.S. population at-large. These recommendations are solely the opinion of the author and do not necessarily represent the opinions of the TSC or the Indian Health Service.

I. Improving Surveillance for Crash Injuries

The underpinning of any public health effort must include adequate surveillance systems that capture variables to identify specific populations of interest.

There are few sources of data available to track rates of crashes, crash injuries that identify AI/AN drivers and/or passengers. Many state highway crash record systems do not record driver or passenger race, and some states undercount crashes occurring on Indian reservations because of poor reporting to the state. The national Fatality Analysis Reporting System (FARS) now includes a race variable (derived from the death

certificate), which is a major step forward. The quality of data collected can be improved for crash surveillance involving crashes on reservation roads. The fact that such a large proportion of crashes were classified as ‘unspecified mechanism’ infers that appropriate data were missing to render a judgement. Often, this is related to the level of law enforcement training on crash investigation.

Recommendation 1-1: Tribal health boards and epidemiology centers may be able to provide assistance with the prospective linkage of state motor vehicle crash data to tribal enrollment or IHS registration data to identify AI/AN drivers and passengers in car crashes. Additional linkages can be performed with hospital discharge data if personal identifiers are present in the health data. Such linkages have been successfully demonstrated at the Harborview Injury Prevention and Research Center, and have been adopted by the Northwest Portland Indian Health Board for improved health surveillance of multiple health conditions.

Recommendation 1-2: In the absence of tribal crash data systems, tribes should work with state and regional highway safety offices to gain access to local data from FARS and general crash files before it is transmitted to the national program. In many cases, these data are now geo-coded and crash data for a reservation area can be extracted without knowing the race of drivers and passengers if state crash data does not have this variable. Where such cooperation does not exist, the Administrator of NHTSA should work to ensure that tribes receive assistance from the state and regional offices.

Recommendation 1-3. The use of population as a denominator for crash rates is inferior to using “miles driven”, since exposure of people to driving changes over time. As indicated with national trends, death rates per 100 million miles driven indicate sharp

drops in MV death rates, compared to relatively flat trends demonstrated when population is used for the denominator. The TSC should work with NHTSA to develop denominator estimates for driving exposure in the AI/AN population.

Recommendation 1-4: The IHS and BIA should work together to regularly update the status of tribal laws regarding occupant safety, including whether restraint laws are primary or secondary, child restraint laws, and laws regarding drunk-driving. The findings of this periodic survey should be widely disseminated and available on the IHS and BIA websites.

II. Research Programs

There is a remarkable paucity of high quality, scientific research addressing large disparities in MV crash injury and death rates in the AI/AN population. Of the 20,274 scientific articles on traffic crashes in MEDLINE journals, only 36 (0.18%) specifically address crashes among AI/ANs. Advances in research can lead to important policy changes and public health practices.

Recommendation 2-1: The TSC should work with the CDC/NCIPC to develop an RFA for a cooperative agreement tailored for tribal-university research partnerships to address motor vehicle crash injuries. Tribes should be the primary applicant and develop local partnerships with university investigators and CDC funded injury control research centers to address issues of specific tribal interest. CDC can model these cooperative agreements similar to the NARCH (Native American Research Centers in Health) initiative sponsored by the National Institutes of Health. The regional epidemiology centers would also make suitable partners for these efforts.

Recommendation 2-2: To increase capacity for injury research in Indian communities, new Indian and Native investigators should be identified and sponsored for advanced training in public health research techniques. The TSC should work with the NCIPC to sponsor traineeships for AI/AN graduate students working in injury control. The TSC can also work with the IHS scholarship program to target health professions scholarships for AI/AN students in schools of public health who concentrate their efforts on injury control.

Recommendation 2-3: Tribes face some unique challenges in injury control. Law enforcement is complicated by overlapping jurisdictions of tribal, state and county jurisdictions. Tribal law enforcement and judicial systems are often seriously understaffed. Attempts by tribes to regulate the sale and possession of alcohol are often defeated by bootleggers and other illegal actions. These challenges pose a serious obstacle to the achievement of optimal injury control. Research focused on eliminating or reducing these barriers should be specifically considered.

Recommendation 2-4: Accounting for the short and long-term costs of injuries can provide a persuasive case for prevention when educating policy-makers. Since policymakers generally consider the cost impact of interventions in their jurisdiction, more research is needed on how these costs can be estimated for AI/AN communities. A companion report to the TSC addresses these issues.

III. Evidence-based Public Health Practice

Recommendation 3-1: Sufficient evidence exists to promote certain public health prevention practices with greater enthusiasm than others. For example, community campaigns that largely rely on public information are unlikely to succeed without active

law enforcement participation. By working with funders, the TSC should work to ensure that grants and cooperative agreements for tribes reflect sound evidence-based practices. Where insufficient evidence exists to promote specific practices, well-designed evaluation plans should accompany proposed interventions

IV. National and Tribal infrastructure

Currently, there are overlapping programs and interests among federal agencies related to motor vehicle injury control. The BIA administers NHTSA Section 402 funds, but NHTSA also works closely with IHS on highway safety programs.

Recommendation 4-1: Given the limited resources available to address this issue, the TSC should consider involving the BIA Highway Safety Program more closely in its efforts, including having non-voting liaison memberships for both BIA and NHTSA on the TSC. Similarly, the TSC should advocate for closer involvement of the IHS injury prevention program in the judging, granting, and execution of awards to applicants of the BIA Highway Safety Program. Close cooperation with IHS injury program staff can greatly enhance the potential success of tribal projects.

Recommendation 4-2: Law enforcement is a critical stakeholder in tribal efforts to reduce MV injuries. Most tribal law enforcement monies flow from the Bureau of Indian Affairs. BIA law enforcement representatives should be engaged in the Highway Safety Program and IHS sponsored MV injury control efforts. Local injury professionals should be strongly encouraged to develop partnerships with local law enforcement agencies.

Recommendation 4-3: Key stakeholders are needed at the tribal transportation level. Despite strong efforts to train injury prevention professionals within the Indian Health Service, many key policy decisions affecting motor vehicle safety are not made by tribal

health or IHS professionals. Instead, if they are made, it could be by transportation planning personnel. The TSC should closely examine opportunities to train tribal transportation personnel in injury control practices. This could take the form of a series of graduated courses, or a separate fellowship. Because of the small size of some tribes, it may never be possible to have a dedicated position for highway safety; however, most tribes have transport directors who could assume this role.

Recommendation 4-4: The IHS injury prevention program is deeply embedded in the Office of Environmental Health and Engineering. Most of the area specialists are sanitarians or environmental health specialists, as are many of the local professionals. Other health and non-health disciplines are underrepresented, perhaps because of the placement within Environmental Health. Many now consider injury to as much as behavioral concern as environmental. The TSC should consider advocating for recognition of the injury program as a separately recognized division under the Office of Environmental Health and Engineering. The main goal should be to maximize interdisciplinary involvement and raise the visibility of the program both within the agency and for Congress.

Recommendation 4-5: The TSC should consider the development of a self-assessment tool, or report card, for use by tribal governments to determine the extent to which they follow best practices in motor vehicle safety. Gaps between existing practice and best practice should form the basis for tribal self-advocacy to become ‘best-performers’. Best performers should be recognized by TSC and other groups, as well as become eligible for priority discretionary funding. An example of this process was recently illustrated by a fellow’s project related to child passenger safety.¹⁷

Recommendation 4-6: The presence of a strong tribal or IHS emergency medical services system enhances the infrastructure of an injury prevention program. Throughout the nation, EMS agencies are becoming an integral part of injury prevention efforts. Furthermore, the provision of high quality basic, intermediate and advanced EMS care to crash victims in the fields is likely to mitigate injury and improve survival. The TSC should consider working with IHS and tribes to link EMS services and advocate for the provision of state-of-the-art care.

V. Advocacy

It is clear that insufficient resources exist to properly address the traffic safety problems faced by tribes. Section 402 funds are disproportionately low relative to the size of the population and disparate need. Unlike states, few, if any, tribes can enjoy annual funding for highway safety improvements. The funding for the IHS injury program is not commensurate with the scope of the problem, relative to funding for other health problems. This problem will not improve without grass-roots efforts by tribes to address these inequalities with Congress.

Recommendation 5-1: The TSC should develop a legislative and regulatory strategy to bring attention to the need for improved funding for motor vehicle injury prevention to Congress. Specifically, efforts should be expended to:

Suggest legislation to increase the proportion of Section 402 funds available to Indian tribes and tribal consortia to at a minimum to the proportion of AI/ANs in the total population, now at approximately 1.5%. NHTSA is currently undergoing reauthorization of its program, presenting a great opportunity for change.

Work with Interior appropriations staff in the House and Senate for higher funding for the IHS injury prevention program and its designation as a separate division and ‘line item’ in the IHS budget.

Request that the Senate Committee on Indian Affairs jointly sponsor a hearing with the Senate Committee on Transportation on Indian highway motor vehicle occupant safety.

Work with the Native American House of Representatives Congressional Caucus to elevate the visibility of injury through the sponsorship of Capitol Hill briefing sessions with congressional staff.

Advocate for increased funding for FTE’s for BIA and tribal law enforcement, so that the ratio of officers to the population is comparable to the surrounding state.

Recommendation 5-2: Engage the executive branch and other potential federal and tribal partners to raise the visibility of this problem, for example:

Request a National Transportation Safety Board (NTSB) study of motor vehicle injuries among AI/AN people. The NTSB is independent agency that wields great influence over transportation policy in the U.S.

- ❑ Work with White House staff to develop a Presidential Executive Order that requires all federal agencies to provide the White House with an annual summary of programs and projects related to MV injury control.
- ❑ Engage the Federal Highway Administration of the Department of Transportation to hold states accountable for attention to highway safety projects on Indian reservation land, while fully respecting issues of tribal sovereignty.
- ❑ Engage the tribal liaison representative to advisory committee of the National Center for Injury Prevention and Control and encourage more attention to Indian motor vehicle safety issues by NCIPC.
- ❑ Engage the area tribal health boards, National Congress of American Indians, and other Indian organizations to elevate the visibility of motor vehicle injury as a key problem .

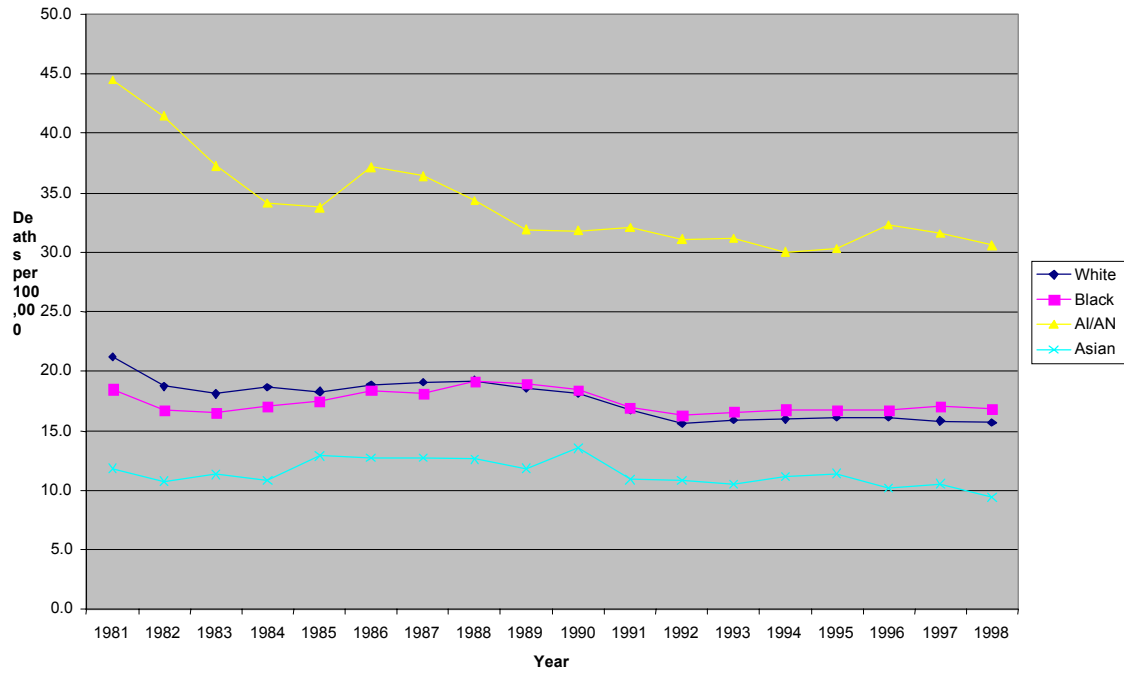
VI. Provision of Incentives and Disincentives

A major underlying force promoting change in traffic safety laws is the use of federal incentives and penalties for passing occupant safety legislation. For example, the Department of Transportation may withhold highway construction funds from states that have not passed specific legislation regarding primary seat belt laws or drunk driving. In the mid-1980's the automotive industry financed many of the restraint coalitions to promote state laws mandating seat belt use, in a maneuver to avoid airbag mandates. To my knowledge, tribes have not been subject to either incentives or disincentives.

Recommendation 6-1: The TSC should explore the feasibility of linking highway safety funding and Indian Reservation Road funds to tribal passage of key legislative milestones related to occupant safety, such as seat belt use and DUI legislation.

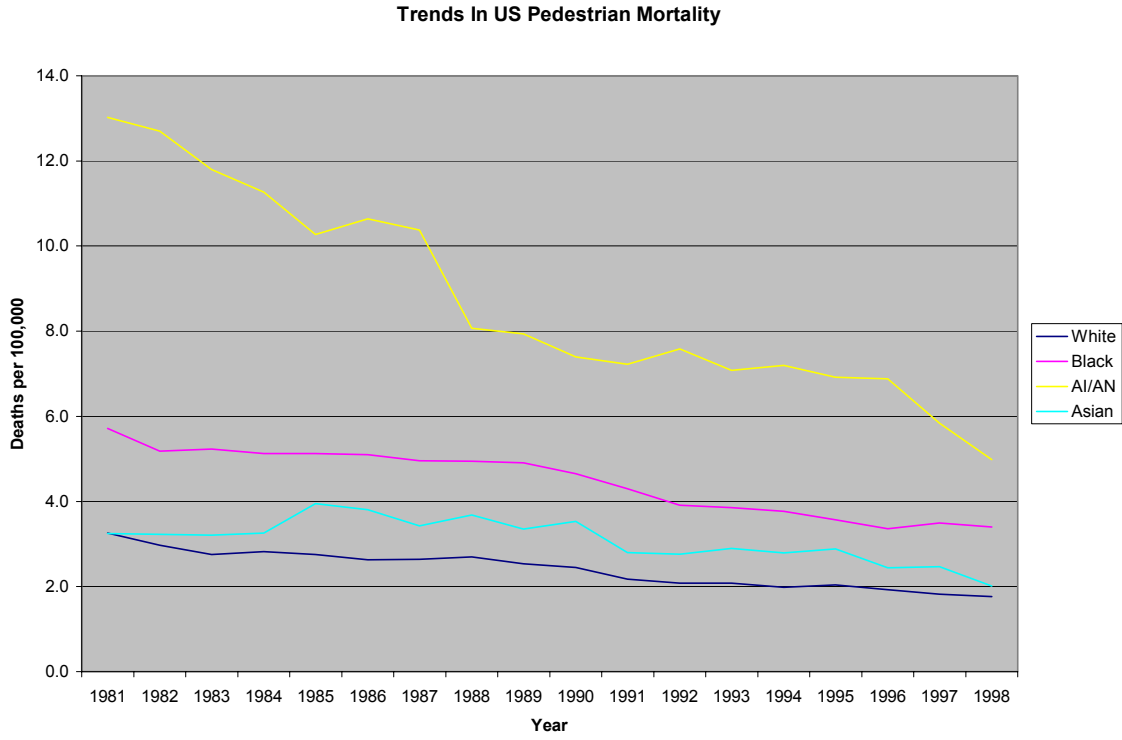
Figure 1: Motor Vehicle Death Rate Trends, By Race, 1981-1998,

MV Death Trends by Year



source: National Center for Health Statistics, CDC

Figure 2: Pedestrian Mortality Trends, by Race, 1981-1998

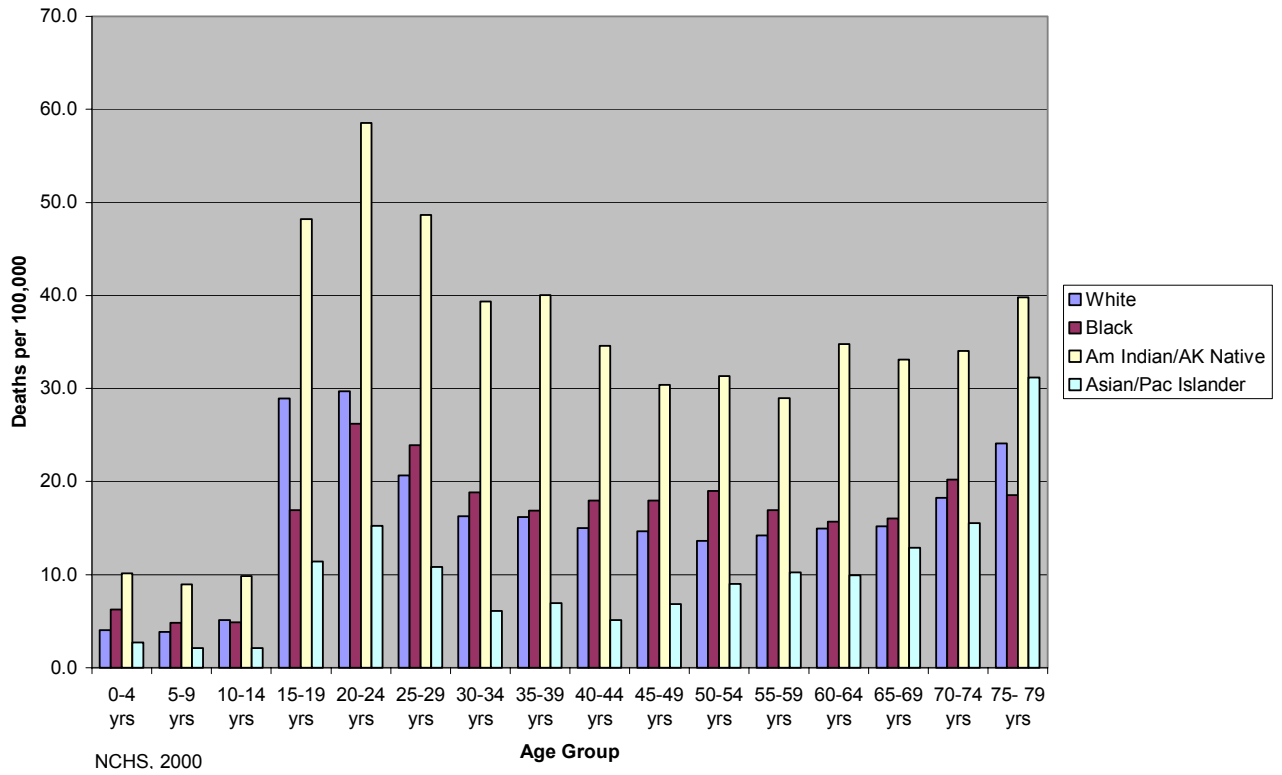


source: National Center for Health Statistics, CDC

Figure 3.

Motor Vehicle Mortality Rates by Age Group and Race, Year 2000

Motor Vehicle Death Rates by Age and Race



source: National Center for Health Statistics, CDC

Table 1: Motor Vehicle Mortality by IHS Service Area, 1994-1996 (Rates per 100,000)

AREA	Number Deaths	Adjusted Rate	Pedestrian-related (%)
<i>US All Races</i>	93,320	16.3	<i>n/a</i>
<i>All IHS Areas</i>	3565	54.0	22.7
Aberdeen	295	71.9	17.8
Alaska	127	27.7	22.4
Albuquerque	202	62.1	30.0
Bemidji	253	83.1	17.7
Billings	167	74.9	16.3
California	153	23.7	19.0
Nashville	129	42.0	20.9
Navajo	722	85.8	30.7
Oklahoma	504	39.0	17.1
Phoenix	388	65.1	25.5
Portland	325	42.7	18.5
Tucson	86	68.2	21.6

Source: 1998-1999 Indian Health Focus: Injuries, Indian Health Service

Table 2

Findings from the Task Forces on Community Preventive Services

On Motor Vehicle Occupant Safety

Intervention	Recommendation
Interventions to Increase the Use of Child Safety Seats	
Child safety seat use laws	Recommended (Strong evidence)
Community-wide information + enhanced enforcement campaigns	Recommended (Sufficient evidence)
Distribution + education programs	Recommended (Strong evidence)
Incentive + education programs	Recommended (Sufficient evidence)
Education-only programs	Insufficient Evidence to determine effectiveness
Interventions to Increase the Use of Safety Belts	
Safety belt use laws	Recommended (Strong evidence)
Primary enforcement laws (versus secondary enforcement laws)	Recommended (Strong evidence)
Enhanced enforcement programs	Recommended (Strong evidence)
Interventions to Reduce Alcohol-Impaired Driving	
0.08% blood alcohol concentration (BAC) laws	Recommended (Strong evidence)
Lower BAC laws for young or inexperienced drivers	Recommended (Sufficient evidence)
Minimum legal drinking age laws	Recommended (Strong evidence)
Sobriety checkpoints	Recommended (Strong evidence)
Server intervention training programs (face-to-face instruction with management support)	Recommended (Sufficient evidence)

source: Community Preventive Services Task Force, Centers for Disease Control.

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