



THE IHS PRIMARY CARE PROVIDER

A journal for health professionals working with American Indians and Alaska Natives



July 2014

Volume 39 Number 7

Introduction to *The Provider's* July 2014 Special Issue on Injury Prevention

Lawrence R. Berger, MD, MPH, Academic Director, IHS Injury Prevention Fellowship Program; Clinical Assistant Professor of Pediatrics, University of New Mexico, Albuquerque, NM.

This year's Special Provider Issue on Injury Prevention focuses on the injury prevention activities of the Northwest Tribal Epidemiology Center. Tribal Epidemiology Centers (TECs) are "organizations who serve American Indian/Alaska Native Tribal and urban communities by managing public health information systems, investigating diseases of concern, managing disease prevention and control programs, responding to public health emergencies, and coordinating these activities with other public health authorities." There are currently 12 TECs nationwide (www.ihs.gov/epi/index.cfm?module=epi_tec_tecs).

All the TECs share a common core funding through cooperative agreements with the Indian Health Service's Division of Epidemiology and Disease Prevention. They also have core goals in common. Each center is unique, however, in that their priorities and approaches are directed by the Tribal or

urban Indian leadership in their designated areas.

Based upon my review of their individual websites, the TECs with the most involvement with injury prevention appear to be the Alaska Native Epidemiology Center, Inter-Tribal Council of Arizona Tribal Epidemiology Center, and the Northwest Tribal Epidemiology Center. Other TECs have addressed specific injury-related topics in some depth. The Albuquerque Area Southwest Tribal Epidemiology Center, for example, has extensive experience in conducting Behavioral Risk Factor Surveillance System (BRFSS) surveys and youth risk and resiliency surveys. The Urban Indian Health Institute Epidemiology Center has developed comprehensive resources related to motivational interviewing.

Established in 1997, the Northwest Tribal Epidemiology Center has incorporated injury prevention as a component of its overall mission "to provide health-related research, surveillance, and training to improve the quality of life of American Indians and Alaskan Natives." The process of building and sustaining an area-wide injury prevention program is described in the article by Canniff, et al. Examples of the Northwest TEC's

In this Issue...

116 Introduction to *The Provider's* July 2014
Special Issue on Injury Prevention

117 Building a Regional Tribal Injury Prevention
Program: Challenges and Opportunities

120 Improving Data on Child Passenger Safety:
Survey Methods from the "Native Children
Always Ride Safe" (Native CARS) study

125 Improving American Indian and Alaska
Native Injury Statistics: Using Record
Linkage to Correct Racial Misclassification
in a State Trauma Registry

131 NPTC Formulary Brief: Antidepressants for
Management of Neuropathic Pain

133 Meetings of Interest

133 Electronic Subscription Available

134 Position Vacancies

contributions to injury epidemiology are the articles on improving injury data through data linkage and refining methods to better track the usage of child passenger safety devices. In addition to their epidemiologic research regarding both intentional and unintentional injuries, the NPAIHB, Northwest TEC, and their partners have produced numerous resources for

use in American Indian and Alaska Native communities, from “toolkits” to mass media materials; and developed new approaches to collaboration among Tribes, universities, health centers, and state agencies that can serve as models for community ownership of health initiatives.

Building a Regional Tribal Injury Prevention Program: Challenges and Opportunities

Bridget Canniff, MALD (corresponding author), Project Director, Injury Prevention Program, Northwest Portland Area Indian Health Board, 2121 SW Broadway, Suite 300, Portland, OR 97201, bcanniff@npaihb.org, 503-228-4185; Victoria Warren-Mears, PhD, RD, LD, Director, Northwest Tribal Epidemiology Center, Northwest Portland Area Indian Health Board, 2121 SW Broadway, Suite 300, Portland, OR 97201, vwarrenmears@npaihb.org, 503-228-4185; Luella Azule, BS, Injury Prevention Coordinator, Northwest Portland Area Indian Health Board, 2121 SW Broadway, Suite 300, Portland, OR 9720, lazule@npaihb.org, 503-228-4185.

The Northwest Portland Area Indian Health Board (NPAIHB) and Northwest Tribal Epidemiology Center have conducted community programs and research in injury prevention since the 1990s. As the leading cause of death among American Indians/Alaska Natives (AI/AN) aged 1-44 in Idaho, Oregon and Washington between 1999-2010,¹ injuries are widely recognized as a top public health issue, and one that disproportionately affects AI/ANs.² NPAIHB works to promote awareness and knowledge of the leading causes of injury among Northwest AI/AN, and support tribal communities in providing education and developing sound policies to prevent injury and death.

NPAIHB's current Injury Prevention Program (IPP) is funded through the Indian Health Service (IHS), under the Tribal Injury Prevention Cooperative Agreement Program (TIPCAP). This funding began in September 2010, and continues through August 2015. The TIPCAP program, which is focused on unintentional injury prevention, grew out of collaborative efforts with the California Rural Indian Health Board (CRIHB) and the Oklahoma City Area Inter-Tribal Health

Board (OCAITHB). These three Health Boards and their respective Tribal Epidemiology Centers (TECs) formed the Tribal Epidemiology Center Consortium (TECC). The TECC was funded under by a cooperative agreement with the Centers for Disease Control and Prevention (CDC) from 2006-2012. The TECC partners held a series of injury prevention summits, one in each of their service areas, and together produced the “Injury Prevention in Indian Country Toolkit.”³ The toolkit has been distributed to over 100 tribes across the country, and is being actively used to plan and implement injury prevention activities in many tribal communities.

The TECC Injury Prevention collaborative served as the springboard for launching a comprehensive Injury Prevention Program (IPP) at NPAIHB. With funding from IHS, NPAIHB now supports a fulltime Injury Prevention Project Coordinator, Luella Azule (Yakama Nation/Umatilla). Ms. Azule had previously worked at NPAIHB for the Cancer project and Northwest Native American Research Center for Health (NW NARCH). She also served on the IHS Tribal Steering Committee for Injury Prevention from 2001-2005. She has completed the IHS Level I and Level II Injury Prevention courses, served on the IHS TIPCAP Advisory Committee (2010-2013), and has been a certified Child Passenger Safety (CPS) Technician since October 2011. Ms. Azule serves as the primary contact for tribes seeking information on unintentional injury prevention, delivers regular updates to tribes on recommended resources, and provides training and technical assistance on unintentional topics including child passenger safety, motor vehicle safety, elder falls, and other key issues. She also works closely with other key NPAIHB staff working on injury-related projects. These staff members include Dr. Jodi Lapidus and Tam Lutz (Lummi) of Native CARS (Native Children Always Ride

Safe): and Colbie Caughlin of NPAIHB’s suicide prevention Project THRIVE (Tribal Health: Reaching Out Involves Everyone. Technical support is provided to the project by Sujata Joshi and Janine Dankovchik of IDEA-NW (Improving Data and Enhancing Access – Northwest); Dr. Tom Becker, Director of the Northwest Native Research Center for Health; Dr. Thomas Weiser, Portland Area Office IHS Medical Epidemiologist based at NPAIHB; and CDR Celeste Davis, Portland Area Office IHS Director Division of Environmental Health Services.

Along the path to creating a full-time Injury Prevention Program, there have been several challenges for the NPAIHB. The first challenge was lack of awareness of the impact of injury in Native communities in the Northwest. Unlike other causes of mortality and hospitalizations – such as heart disease or diabetes – injuries are often perceived as unpredictable, unavoidable, and unpreventable “accidents.”⁴ NPAIHB works to change these perceptions through education and training. A major message is that people can make choices (such as wearing seatbelt, installing smoke alarms, and not drinking and driving) that will protect them from injury. At the same time, tribes can enact and enforce policies, and invest in infrastructure, that lead to reduced rates of injury. Collaboration and partnerships are a vital aspect of the NPAIHB’s injury prevention work. The NPAIHB works closely with the Northwest Tribes, the Portland Area Office Indian Health Service Division of Environmental Health Services, the CDC National Center for Injury Prevention and Control, state injury prevention programs, and other local and regional partners.

Underfunding for Indian Health in general is widely noted as a challenge to providing preventive and clinical services in AI/AN communities.⁵ Underfunding of injury prevention programs is especially acute in American Indian and Alaska Natives communities, as recognized by the National Congress of American Indians (NCAI)⁶ and the National Indian Health Board (NIHB).⁷ Few Northwest tribes have access to sufficient funding to support their own Injury Prevention programs. NPAIHB is meeting these challenge by providing Northwest tribes with a steady stream of information and resources; cultivating relationships with key tribal program personnel and tribal leaders; offering training opportunities at multiple levels, from brief introductions to injury prevention topics to funding support for Child Passenger Safety Technician training; providing technical assistance to tribes on injury-related programs and policy development; and generally seeking to provide consistent and reliable access to high-quality and up-to-date information and services. The Injury Prevention Coordinator distributes an average of 35 IP resources per quarter, carefully reviewing websites, articles, toolkits, webinars, and other materials, and sending related information by email to an IP listserv to tribal contacts. The Coordinator also attends most NPAIHB Quarterly Board meetings, hosted by various tribal sites, and other regional meetings, providing opportunities to cultivate relationships and provide information

to the tribes. The establishment of a regional Injury Prevention program at NPAIHB allows us to maximize limited resources, ensure that all tribes benefit from the information, as we work to encourage tribes to seek additional resources to develop their own local programs.

NPAIHB’s IPP program is still growing, but it has already documented many successes. Among these is a steady rise in requests for training and technical assistance from Northwest Tribes. Since 2009, NPAIHB has offered between one to three overview injury prevention trainings per year, both in Portland and at tribal sites. At least four Northwest tribal employees, most of whom have been members of the Northwest Tribal Injury Prevention Coalition, have completed the IHS Level I Introduction to Injury Prevention Training over the past four years, and one also completed Level II. In May 2014, we piloted an abbreviated 6-hour course based on SNAP (“Safe Native American Passengers”) attended by many Washington tribes. This modified SNAP was developed in collaboration with IHS and NPAIHB’s Native Children Always Ride Safe (Native CARS).

Access to high-quality, relevant local data on injury is another challenge for injury prevention initiatives. NPAIHB seeks to provide tribal communities with health data they can use for program and policy development, as well as for supporting grant applications and other funding requests. In collaboration with NPAIHB’s IDEA-NW project, IPP helps guide development and dissemination of injury data to the tribes. IPP worked with IDEA-NW on the injury section of the Northwest American Indian and Alaska Native Mortality report.⁸ Both programs, along with other NPAIHB projects, are involved in the development of state-specific and tribal-specific community health profiles and related fact sheets. These present tribes with the most recent injury data, corrected for racial misclassification.

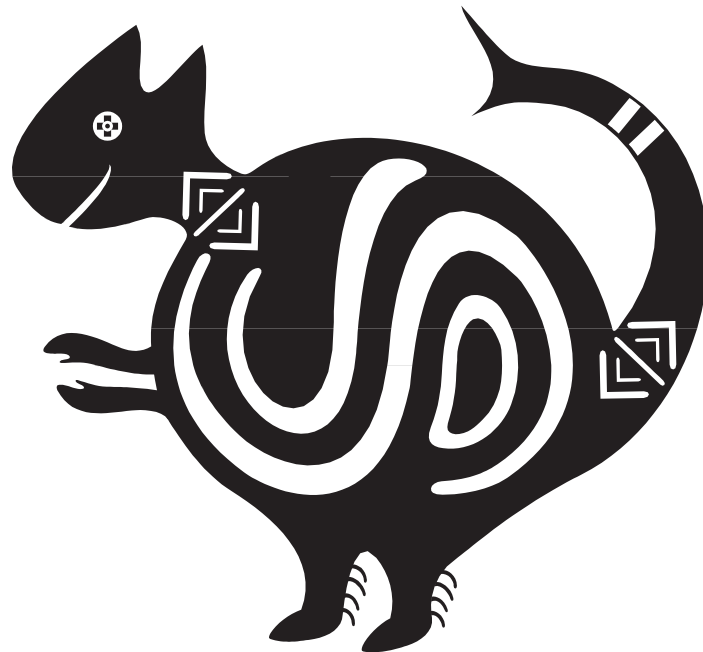
The continued success of NPAIHB’s IPP will depend on three key factors: program staff expertise and dedication, interest and buy-in from the tribes and tribal leadership, and expanded access to financial and material resources. NPAIHB is working hard to develop all three, and is committed to providing high-quality, relevant, and culturally-appropriate information and services to the Northwest Tribes.

References:

1. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS) [online]. (2005) [cited 19 May 2014]. Retrieved from www.cdc.gov/ncipc/wisqars.
2. Murphy T, Pokhrel P, Worthington A, et al. Unintentional injury mortality among American Indians and Alaska Natives in the United States, 1990-2009. *Am J Public Health*. 2014; 104(S3):S470-S480.
3. Northwest Portland Area Indian Health Board, California Rural Indian Health Board, Oklahoma City Area Inter-

Tribal Health Board. Injury Prevention in Indian Country Toolkit. <http://www.crihb.org/health-resources/injury-prevention/injury-prevention-toolkit.html>

4. Mock C, Joshipura M, Quansah R, Arreola-Risa C. Advancing injury prevention and trauma care in North America and globally. *Surg Clin North Am.* 2007;87(1):1-19.
5. Warne D, Frizzell LB. American Indian health policy: Historical trends and contemporary issues. *Am J Public Health.* 2014; 104(S3):S263-S267.
6. National Congress of American Indians. Resolution #FTL-04-050: Requesting Congress to appropriate an additional \$3 million in FY05 and \$5 million in FY06 to support nationwide Tribal Injury Prevention Programs. (2004). Accessed May 28, 2014 Retrieved from http://www.ncai.org/attachments/Resolution_ILBnExszE_uqhJiQKtHtFjmwhWbmPgyjzYdpRrJOOfhFZSHTeLu_ftl04-050.pdf
7. National Indian Health Board. Creating a Legacy of Honor and Trust: Striving for Health Parity for All American Indians and Alaska Natives. (2013). Retrieved from http://www.nihb.org/docs/07112013/FY%202015%20IHS%20budget%20full%20report_FINAL.pdf
8. Northwest Portland Area Indian Health Board. Northwest American Indian and Alaska Native Mortality. Portland, OR: Northwest Tribal EpiCenter, 2012. Accessed May 28, 2014 Retrieved from http://www.npaihb.org/images/epicenter_docs/NWIdca/2012/nov2012/NativeMortalityReport_email.pdf



Improving Data on Child Passenger Safety: Survey Methods from the “Native Children Always Ride Safe” (Native CARS) Study

Nicole H. Smith, MPH, (corresponding author), Biostatistician, Northwest Portland Area Indian Health Board, 2121 SW Broadway, Suite 300, Portland, OR, 97201, 1-888-867-8983, nativecars@npaihb.org; Tam D Lutz, MPH, MHA, Doctoral Candidate, Project Director, Northwest Portland Area Indian Health Board, 2121 SW Broadway, Suite 300, Portland, OR, 97201, 503.416.3271, TLutz@npaihb.org; Jodi A Lapidus, PhD, Investigator, NW Tribal Epidemiology Center, Northwest Portland Area Indian Health Board, Portland, OR, Professor, Department of Public Health and Preventive Medicine, Oregon Health & Science University, 2121 SW Broadway, Suite 300, Portland, OR, 97201

Introduction

In the early 2000s, the Northwest Tribal Epidemiology Center (The EpiCenter) noticed a growing disparity in motor vehicle fatalities for American Indian and Alaska Native (AI/AN) children. The motor vehicle death disparity increased at least 10 percentage points between 1999 and 2002, with AI/ANs having the highest rate at 27.04 deaths per 100,000, compared to 16.28 per 100,000 for Whites in 2002.¹ We wanted to investigate whether low rates of child safety seat use could help explain the disparity.

In 2003, with funding from the Indian Health Service’s Native American Research Centers for Health (NARCH, grant 1U269400013-01), six Northwest tribes conducted a child safety seat survey. While a number of existing observation methods captured use of seat belts by vehicle occupants,^{2,3,4} these Northwest Portland Area Indian Health Board member tribes were interested in determining proper use of specific child safety seats (infant seats, forward-facing harness seats, and booster seats). To assist the tribes with their goals, the EpiCenter partnered with Harborview Injury Prevention Center in Seattle and developed a survey instrument and method to capture whether a child was riding in an age- and size-appropriate restraint. We administered this survey in summer 2003 and found that age and size-appropriate child safety seat use ranged from 25% to 55% by tribe.⁵ Forty percent of children were completely unrestrained in the vehicle, which was substantially higher than the 12% of unrestrained children in the general population in these same states, as reported by the National Highway Transportation and Safety Administration (NHTSA).^{5,6} We concluded that children in these tribes rode inadequately

restrained, and culturally-appropriate efforts were needed to address child restraint use in the Northwest tribes. At the tribes’ request, the EpiCenter pursued funding for child safety seat interventions.

In 2008, we received funding from National Institute on Minority Health and Health Disparities (grant 5 R24 MD002763) to use a community-based participatory research approach to develop and test community-specific interventions to increase child safety seat use in these same six Northwest Tribes. The tribes named the project Native Children Always Ride Safe (Native CARS). In this study, all six tribes received the intervention in a staggered design. Three tribes designed and implemented interventions from 2009-2011 and three tribes did so from 2011-2013. This gave us an evaluation time point in 2011 to compare child safety seat use in intervention tribes to tribes that had not yet implemented interventions. The child safety seat survey was administered at three time points – at baseline in 2009, in 2011, and again in 2013. Our baseline results have been discussed elsewhere,⁷ and our intervention results will be shared in the near future. This paper discusses the child safety seat survey methods we developed for the Native CARS study.

Background

We know that child safety seats work. Child safety seats reduce the risk of death in passenger cars by 71% for infants, and by 54% for children ages 1 to 4 years.⁸ We also know that American Indian children have the highest motor vehicle fatality rate of any race in the United States, with death rates 2-3 times higher than other races.⁹ What remains unknown for many tribal communities is the proportion of children who are properly restrained when traveling in motor vehicles.¹⁰ Establishing the frequency and patterns of child passenger restraint use can have many important benefits for a community. These include assessing community needs, identifying those at risk for motor vehicle injuries, connecting individuals with appropriate resources, guiding and evaluating tribal programs, and tracking improvements over time. Child safety seat use data can readily be used to apply for grants to fund child safety seat efforts. Perhaps most importantly, conducting a child safety seat survey makes a statement that reducing motor vehicle injuries is a community priority.

The EpiCenter has developed a rigorous methodology to

Table 1. Information collected in the Native CARS vehicle survey.

Recorded/Observed:	Asked:
Date	Driver’s consent to participate
Data collector’s initials	Driver’s race/ethnicity
Site	Whether any children in the vehicle were AI/AN
Time of day	Distance from home in minutes
Driver’s sex	Driver’s age
Driver seat belt use	Driver’s relationship to the child
Number of people in the vehicle	
Whether the number of passengers exceeds the available seats	Child’s age
Vehicle type (Car, Truck, Van/SUV)	Child’s weight
Child’s gender	Whether child is 4’9” tall
Child’s seating location (front/back)	
Restraint used by child	

assess proper child passenger restraint that we used for three purposes: 1) to determine the percent of children age 8 and younger riding properly restrained; 2) to identify risk factors associated with improper child restraint (both incorrect type of restraint and unrestrained); and 3) to evaluate the effectiveness of interventions implemented as part of the Native CARS study between 2009 and 2013. This method has been tested, modified, re-tested, and has been used to collect information on over 5400 children traveling in over 3600 vehicles in the Northwest.

Survey instrument

Our method consists of an observational survey and a short driver interview. Table 1 contains a list of elements collected in the survey. Factors that we found to be consistently related to proper restraint of children in vehicles included driver seat belt use, short trip, child age, and driver relationship to the child. We also mapped where all passengers were seated in the vehicle, and whether they were using seat belts or child safety seats. More detailed information (age, height and weight) was recorded for each child passenger younger than age 13. The final section of the survey included open-ended questions customized to the needs and interests of each tribe, such as driver opinions on booster seat guidelines, why they were or were not using a child safety seat, where they accessed child passenger safety information, and whether they were in favor of a tribal child passenger safety law.

The data collection form was printed on a single sheet of

legal-sized paper. Interviewers carried clipboard storage cases to store data collection packets, made up of a pre-numbered survey form, information about the study, information on child safety seats, and contact information for their local child passenger safety seat technician. Each observational interview took three to five minutes to administer.

Observation sites

We conducted observational interviews in parking lots such as the community center, health clinic, gas station, trading post, grocery store, elementary school, preschool or Head Start. Community site coordinators made a list of all potential observation sites and we attempted to collect data at each location, after obtaining permission from the proprietors. Few locations denied permission; those that did cited non-solicitation policies or unsafe parking lot conditions (e.g. ongoing construction). We limited the number of surveys collected at preschools and elementary schools to less than 40% of our total sample to avoid oversampling specific age groups. We found trading posts, grocery stores and gas stations to be ideal sites for the survey as people were less likely to be in a hurry, there was a more continuous flow of vehicles entering and leaving the site, and outside of school hours, children of all ages were equally likely to be found there.

Vehicle selection

We attempted to make contact with every vehicle that

appeared to have a child passenger age 8 or younger. We chose 8 years because children less than age 8 or less than 4'9" in height are recommended and/or required by state law to use a child safety seat when traveling in a vehicle. Because children under age 13 are recommended and/or required to ride in the back seat, if children age 9-12 were passengers in a selected vehicle, we collected information on their height, restraint, and seating as well. Once a vehicle had been approached and the driver had been asked to participate, we collected data even if the child passenger was over age 8. We did not collect personally identifying information such as names or license plate numbers during the interviews. We excluded buses, motorcycles, or other commercial vehicles. When drivers refused to participate, we recorded driver seat belt use, but did not record any information about passengers.

Survey protocol

Observational interviews were conducted when cars were stopped, either as a vehicle first pulled in, or right before the vehicle departed and after occupants had a chance to secure their restraints. The interviewer approached vehicles, introduced himself/herself to the driver and explained the survey. After ensuring confidentiality, the interviewer requested permission to conduct the survey. Upon obtaining the driver's verbal consent, the interviewer proceeded with the interview and observation. Once complete, the interviewer thanked the driver and gave information on child safety seats and a token of appreciation (\$5 gift card).

We hired local community members to collect data at each tribe. In some tribes, we worked with tribal employment offices to find data collectors, while at others, our Native CARS site coordinators contacted individuals they knew who were interested in temporary work. All observers received a systematic, comprehensive training on age-appropriate child restraint methods and the survey protocol. They then practiced approaching vehicles, asking child's age and size, assessing child restraint use, and filling out the remainder of the data collection form. NPAIHB staff supervised the data collection, reviewed completed forms, and provided feedback to the interviewers. For safety considerations, interviewers wore fluorescent safety vests, which also served to identify them as operating in an official capacity. We conducted observational interviews during daylight hours, which was safer for interviewers and was also when children were most likely to be traveling. For consistency, we conducted all surveys in the spring. This allowed us to obtain a reliable comparison of child safety seat use over time, avoid potential seasonal biases, and collect data while school was in session.

Sample size

We observed 200 vehicles at each of three separate time points (2009, 2011, 2013) in each of the six participating tribes. We selected a sample size that would give us enough power to detect a conservative increase of 15-17 percentage points in proper child restraint use in intervention communities versus no

change in other communities. The time needed to complete data collection depended on the number of interviewers, as well as the density of traffic at the sites. We completed 200 surveys in as few as two days or as many as 20. Response rates varied from 85%-97% by tribe. In 2003, when our only goal was to obtain a reliable estimate of proper child safety seat use in each tribe, we completed 100 surveys per tribe. Tribal Epidemiology Centers (TECs) may be able to assist tribes that wish to do a child safety seat survey to determine the sample size needed based on their goals.

Data analysis and Results

We defined proper child passenger restraint according to the guidelines set forth by American Academy of Pediatrics and the National Highway Transportation Safety Administration at the time the study began (2009).^{11,12} Children should ride in a rear-facing infant seat until at least one year of age and after that, remain rear-facing until they reach the top height or weight limit of the car seat. After that, children should ride in a forward-facing harness seat until they reach the top weight or height limit of that seat. Then, children should ride in a booster seat until the seat belt fits properly, usually when the child reaches 4'9" in height. Children age 12 and younger should ride in the back seat whenever possible.

We designated each child we observed as properly, improperly or unrestrained according to these guidelines and based on reported age and size. Figure 1 illustrates the proportion of children properly restrained in the six tribes overall by year and Figure 2 shows proper restraint by child age and year. Results examining correlates of proper and improper use in six tribes have been previously reported.²

Limitations

This methodology has some limitations. Some drivers may incorrectly report a child's age, weight, or height, which may lead to misclassification of some children as properly or improperly restrained. However, relying on reported age is likely more accurate than estimating age. Interviewers did not enter the vehicles to assess whether safety seat choice, installation, belt placement, and fit were correct. Such assessments would require that the interviewers be certified child passenger safety technicians. Drivers who declined to participate were less likely to be wearing a seat belt, and by association, their child passengers would be less likely to be properly restrained. This could result in an overestimation of proper child restraint use. It's possible that drivers and children have different restraint behavior in parking lots than on a road, such as removing seat belts to drive through a parking lot. This could result in an underestimation of proper restraint use. As the survey method was consistent across years, these potential biases do not impact the observed increases in proper restraint use. Finally, the survey can be time- and resource-intensive. To address this, we have developed a modified survey that is faster to administer, and will be available soon at nativecars.org.

Figure 1. Restraint status of children traveling in vehicles on or near six Northwest tribal reservations over time (n=1811, 1785, 1755, respectively for 2009, 2011, and 2013).

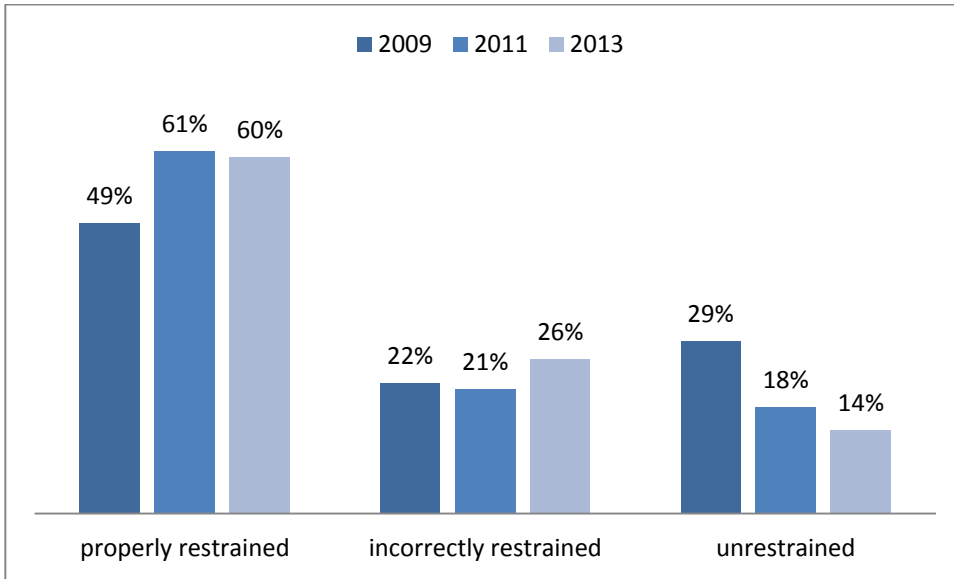
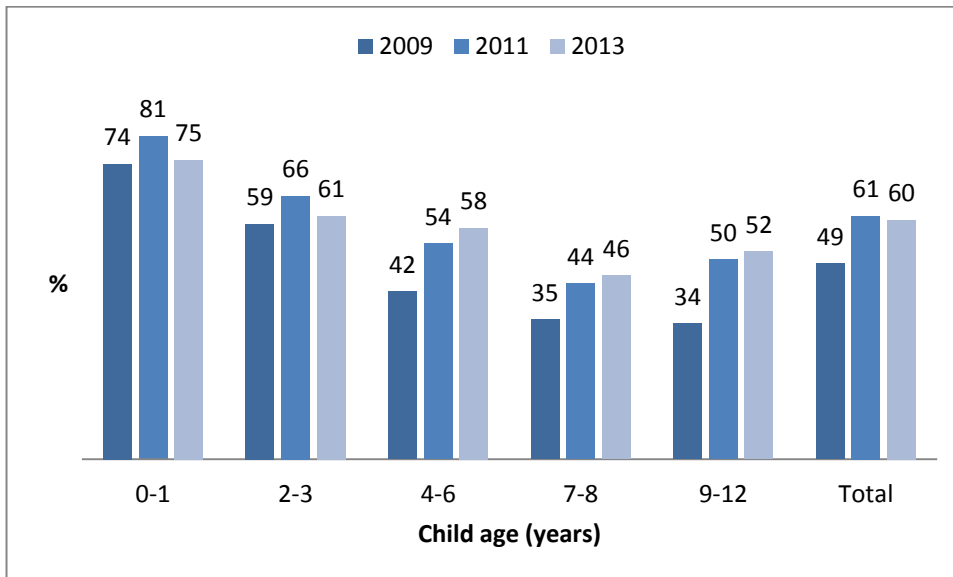


Figure 2. Percent of properly restrained children by child’s age.



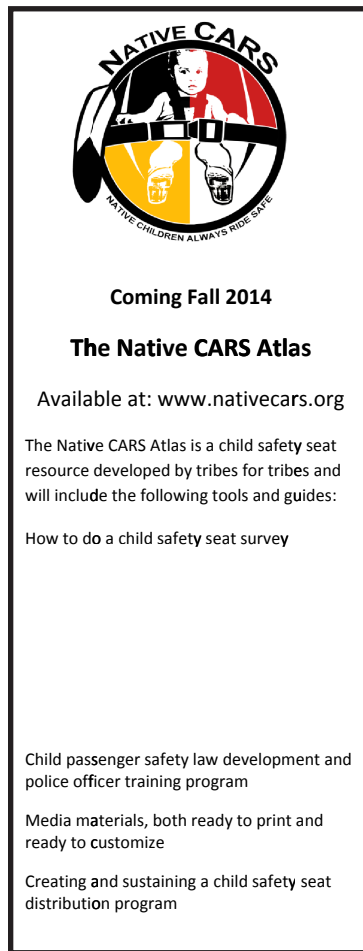
Conclusions

Despite limitations, this methodology provides more detailed insight into child safety seat use in communities than methods that categorize restraint use solely as “yes” or “no”. The Native CARS observational interview methodology is a useful tool to identify risk factors for children riding unrestrained and incorrectly restrained in motor vehicles. The

tribes that have implemented this survey have utilized their data to develop innovative methods for improving child passenger safety that are customized to their local needs. They have also been able to evaluate the effectiveness of their program and policy efforts by repeating the survey and seeing a marked increase in child safety seat use in their communities.

Due to its success, Native CARS has now entered a dissemination phase, where processes and materials will be

Figure 3. The Native CARS Atlas



modified and shared broadly. For a step-by-step guide to conducting a community child safety seat assessment and many other child passenger safety materials, please watch nativecars.org for upcoming information and resources (Figure 3). We anticipate that Tribal Epidemiology Centers will play a vital role in using the Native CARS resource as TECs can assist with data analysis, provide technical assistance, and arrange for child passenger safety technician training and certification. TECs could also assist tribes in securing Tribal Transportation Program (TTP) funding if child passenger safety is part of the tribe's safety plan.

Acknowledgments

We would like to acknowledge the six NW tribes that implemented the Native CARS study, specifically, the site coordinators whose hard work and expertise made the project a success. Beth Ebel, our co-Investigator and director of Harborview Injury Prevention and Research Center, lent the project her experience, ideas, and dedication to child passenger safety and made this project possible in the first place.

References

1. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS) [online]. (2002) Accessed May 27 2014. Retrieved from www.cdc.gov/ncipc/wisqars.
2. Leaf WA, Solomon MG. Safety Belt Use Estimate for Native American Tribal Reservations. 2005, Report Number DOT HS 809 921. Washington, D.C.: National Highway Traffic Safety Administration.
3. Tribal Epidemiology Center Consortium (TECC). Injury Prevention Toolkit. Accessed May 27, 2014. Retrieved from <http://www.crihb.org/health-resources/injury-prevention/injury-prevention-toolkit.html>.
4. Price JD, Newsad RS, House D. Development of a web-based occupant protection data collection and warehouse system for use in Indian Country. *IHS Primary Care Provider*. 2008. 33(7):213-216.
5. Lapidus JA, Smith NH, Ebel BE, Romero FC. Restraint use among Northwest American Indian children traveling in motor vehicles. *Am J Public Health*. 2005 November; 95(11): 1982-1988. doi: 10.2105/AJPH.2004.052514 PMID: PMC1449472 Restraint Use Among Northwest American Indian Children Traveling in Motor Vehicles
6. US Department of Transportation. Misuse of child restraints. Washington DC: National Highway Traffic Safety Administration; 2004. DOT HS 809 671. Accessed May 27, 2014. Retrieved from <http://www.nhtsa.dot.gov/people/injury/research/Misuse/images/misusescreen.pdf>.
7. Lapidus JA, Smith NH, Lutz T, Ebel BE. Trends and correlates of child passenger restraint use in 6 Northwest Tribes: The Native Children Always Ride Safe (Native CARS) Project. *Am J Public Health*. 2013;103(2): 355-361. doi: 10.2105/AJPH.2012. 300834
8. Department of Transportation (US), National Highway Traffic Safety Administration (NHTSA). Traffic Safety Facts: Occupant Protection. March 2014. DOT HS 811 892. Accessed May 27,2014. Retrieved from <http://www.nrd.nhtsa.dot.gov/Pubs/811892.pdf>.
9. Centers for Disease Control and Prevention. Injuries among American Indians/Alaska Natives (AI/AN): Fact Sheet. Retrieved from <http://www.cdc.gov/motorvehiclesafety/native/factsheet.html>.
10. Department of Transportation (US), National Highway Traffic Safety Administration (NHTSA). Fatal Motor Vehicle crashes on Indian Reservations 1975-2002. April 2004. DOT HS 809 727.
11. American Academy of Pediatrics, Committee on Injury, Violence, and Poison Prevention. Policy Statement-Child Passenger Safety. *Pediatrics* 2011. (doi:10.1542/peds.2011-0213) Accessed May 27,2014. Retrieved from <http://pediatrics.aappublications.org/content/early/2011/03/21/peds.2011-0213.abstract>.
12. American Academy of Pediatrics. Car Seats: Information for Families 2014. Accessed May 27, 2014. Retrieved from <http://www.healthychildren.org/English/safety-prevention/on-the-go/Pages/Car-Safety-Seats-Information-for-Families.aspx>.

Improving American Indian and Alaska Native Injury Statistics: Using Record Linkage to Correct Racial Misclassification in a State Trauma Registry

Jenine Dankovchik, BSc (Corresponding Author), Biostatistician, IDEA-NW Project, Northwest Portland Area Indian Health Board, 2121 SW Broadway, Suite 300, Portland, OR 97201, Ph # 503-416-3265, Fax # 503-228-8182, jdankovchik@npaihb.org; Megan J. Hoopes, MPH, Former Project Director, IDEA-NW Project, OCHIN, 1881 SW Naito Parkway, Portland, OR 97201, Ph # 503-943-2630, hoopesm@ochin.org; Sujata Joshi, MSPH, Project Director, IDEA-NW Project, Northwest Portland Area Indian Health Board, 2121 SW Broadway, Suite 300, Portland, OR 97201, Ph # 503-416-3261, sjoshi@npaihb.org; Kristyn Bigback, MPH, Support Specialist/Statistician, IDEA-NW Project, Northwest Portland Area Indian Health Board, 2121 SW Broadway, Suite 300, Portland, OR 97201, Ph # 503-228-4185, kbigback@npaihb.org; Thomas Weiser, MD, MPH, Medical Epidemiologist, Portland Area Indian Health Service, Assigned to the Northwest Tribal EpiCenter, Northwest Portland Area Indian Health Board, 2121 SW Broadway, Suite 300, Portland, OR 97201, Ph # 503-228-4185, tweiser@npaihb.org; Victoria Warren-Mears, PhD, RDN, FAND, Principal Investigator, Director, Northwest Tribal EpiCenter, Northwest Portland Area Indian Health Board, 2121 SW Broadway, Suite 300, Portland, OR 97201, Ph # 503-228-4185, vwarrenmears@npaihb.org.

Introduction

There are about 200,000 American Indians and Alaska Natives (AI/AN) in Washington State, or 3% of the population. This includes members of the 29 federally-recognized tribes with reservation lands in the state, as well as AI/AN from tribes outside the state. The urban AI/AN population continues to grow, and today nearly 70% of Washington AI/AN live in or near cities.¹

AI/AN in Washington state are at high risk for injuries, and are more likely than the general population to die as a result of a traumatic injury.² Based on Washington State death certificate data, corrected for misclassified AI/AN race, unintentional injury is the leading cause of death for AI/AN aged 1-54 years in Washington State.³ AI/AN suicide rates are 1.7 times higher than the general population while homicide rates are 3.7 times

higher.² In 2011, AI/AN hospitalization rates for injuries were 1.8 times higher than the non-Hispanic white population in Washington State.⁴ However, death certificate and hospital discharge data provide an incomplete picture of injuries. Trauma registry data can supplement these sources by providing information on injury cases, severity, quality of care, and outcomes for those who survive their injuries long enough to be seen in a hospital.⁵

Misclassification of AI/AN patients as White, Black, or Other Races on hospital intake forms and medical records has been well documented.^{6,7,8} Since most state trauma registries draw their race information from these sources, it is likely that AI/AN race is also misclassified in trauma registries. Racial misclassification of AI/AN underestimates the true injury morbidity and mortality burden for this population,^{7,8,10} and limits the utility of trauma registry data for understanding and responding to injuries as a public health priority in this population.¹¹

One method to address racial misclassification is record linkage with lists of known AI/AN individuals, also known as tribal registries. Improving Data and Enhancing Access - Northwest (IDEA-NW), a project of the Northwest Tribal Epidemiology Center within the Northwest Portland Area Indian Health Board (NPAIHB), maintains the Northwest Tribal Registry (NTR), an enumeration of the AI/AN population in Idaho, Oregon and Washington. The NTR was founded in 1999 in response to numerous requests from NPAIHB member tribes for tribe-specific health data. At the time, more Northwest tribes were taking over management of their health care systems. As a result, the Portland Area Indian Health Service (PAIHS) area office downsized and became less able to provide health surveillance data at the community level. In addition, it was becoming clear that racial misclassification in public health data hindered the ability to produce accurate AI/AN health information. To address this issue, the NTR was created with seed money from the IHS and a grant from the National Cancer Institute. Through data sharing agreements with the PAIHS and resolutions from all 43 NPAIHB member tribes, the NTR was established using the PAIHS area patient file as the primary data

source. Because the IHS patient file only captures about 57% of the AI/AN population in the Northwest,⁶ the NTR has been augmented with individual tribal enrollment data, tribal clinic registration data, and Urban Indian Health Organization patient data. These additional data were obtained through data sharing agreements with participating tribes and clinics, and inclusion has changed over the years. At the time of this linkage, the NTR contained the PAIHS patient file, the Seattle Indian Health Board patient registration data, and clinic registration data from one additional tribe.

Using probabilistic linkage, we matched the NTR with the Washington Trauma Registry (WTR), a statewide trauma registry which collects data from 77 trauma-designated hospitals in Washington. This includes one Level I trauma center, and four which provide pediatric and rehabilitation care. There are no IHS hospitals in the PAIHS region of Idaho, Oregon and Washington, and Veterans Administration hospitals do not report to the WTR.

The goal of this study was to evaluate the completeness and accuracy of race information within the WTR, examine factors associated with racial misclassification, and determine the extent to which AI/AN injury rates, patterns, and outcomes in Washington differed after correcting misclassified records.

Methods

Using the probabilistic linkage software Link Plus (version 2.0; Atlanta, GA), we matched the NTR to the WTR. The WTR includes data from all trauma patients who are discharged with an ICD-9-CM diagnosis of 800-904, 910-959, 994.1, 994.7, 994.8; and meet one or more of the following criteria: activated the Trauma Resuscitation Team, dead on arrival or died in facility, transferred into or out of the facility by EMS, transported by air from the scene, pediatric trauma patients (ages 0-14), or adults with length-of-stay in the reporting facility of more than 48 hours.¹² The WTR does not represent the entire population of trauma cases in the state, as the registry excludes injury patients who do not meet the eligibility criteria or who present to a hospital that does not report to the WTR. For the present study, we obtained all WTR trauma cases occurring between 2005 and 2009, the most current complete 5-year data period available as of the time of the linkage (N=111,701 records).

The NTR includes all AI/AN in Idaho, Oregon and Washington who have enrolled at an Indian Health Service (IHS) or Tribal health care facility from 1986-2012. We obtain the complete registry list from the PAIHS, and then restrict the data set to AI/AN registrants using several fields for which "Indian Status" can be assessed (Indian blood quantum, tribe of enrollment/affiliation, and classification (an RPMS-specific designation)). All non-AI/AN records and records for which race could not be determined are removed. Additionally, we include a subset of records from earlier versions of the NTR for facilities that had previously reported registration data to the PAIHS but no longer do so. Through a data sharing agreement

with the Seattle Indian Health Board (SIHB), we expanded the NTR to include their urban clinic patient registration data annually since 2008. Established in 1970, the SIHB is a non-profit, multi-service community health center that targets urban AI/AN in the Puget Sound region of Washington. The patient registry used for this analysis included all patients who accessed care at one of SIHB's clinics and self-identified as AI/AN between 2007 and 2010. By augmenting the NTR with the SIHB patient records, we estimate that the NTR captures about 81% of Washington's AI/AN population.¹³ The NTR does not represent AI/AN who have not accessed IHS, Tribal or SIHB health care facilities, members of tribal groups that are not federally recognized, and others who self-identify as AI/AN but do not meet IHS eligibility criteria. The NTR likely underrepresents medically underserved AI/AN who have not used I/T/U facilities due to access barriers, and AI/AN who do not use I/T/U facilities because they have private insurance through an employer or spouse.

Date of birth, name and Social Security number were used to match records between the two datasets. Probabilistic linkage methods allow for accurate matching of individuals across data sources, even when they contain missing information or differ slightly. Four members of the study team, including staff from SIHB and the WTR, conducted clerical review of uncertain pairs and assigned match status by consensus. Trauma cases that matched a record in the NTR were reported to the state registry staff in order to improve the quality of race information within the WTR.

Pre-linkage AI/AN records were defined as those with any mention of AI/AN race or a Tribe name in the original WTR dataset; post-linkage AI/AN records included both pre-linkage AI/AN records as well as any records that had a match in the NTR. Records that matched with the NTR but were not originally coded as AI/AN in the trauma registry were considered misclassified.

Intent and mechanism of injury were coded according to the ICD9-CM external cause-of-injury matrix.¹⁴ Cases were selected using the ICD-9-CM codes 800.0-959.9 (excluding 908-909, 910-924, and 930-939), per the National Trauma Databank data standards. Injury severity score (ISS) was calculated in the Collector Database (Dicorp®, Forest Hill, MD). The ISS is used to score patients with injuries to multiple parts of the body, and ranges from 1 (minor injury) to 75 (unsurvivable injury).¹⁵ Death was defined as dead on arrival (DOA), death in emergency department, or death in hospital.

We compared the proportion of AI/AN cases pre- and post-linkage using binomial z test of proportions, and calculated crude rates (per 1,000 population). Rate denominators were calculated using the National Center for Health Statistics (NCHS) bridged-race population estimates.¹⁶ We used multivariable logistic regression to identify characteristics associated with misclassification. The threshold for statistical significance was set at $p < 0.05$ for all statistical tests. All statistical analyses were conducted using SAS software (version

9.4; SAS Institute Inc., Cary, NC). The study was approved by the Institutional Review Boards of the Portland Area Indian Health Service and Washington State Department of Health.

Calculation of population-based rates using trauma registry cases is problematic due to limited inclusion criteria¹². Patients who are treated in health care facilities that do not report to the WTR, or who die without medical attention, are not represented in the registry. It is not known to what extent the WTR captures AI/AN injuries in the state, and how that representativeness may differ from other populations. Therefore, we have not calculated population-based rates for comparison with other published data or with other populations. Comparison of pre- and post-linkage AI/AN rates is presented here as a measure of the impact of misclassification only.

Results

The WTR contained 111,701 records of injuries occurring between 2005 and 2009. Prior to linkage, the WTR contained 1,777 AI/AN records. Linkage with the NTR identified 2,251 matches between the two datasets, of which 1,262 (56.1%) were misclassified as a race other than AI/AN in the state dataset. Most of these were coded as white (64.7%) or were missing race information (29.2%). Correcting the race coding of these cases increased the total number of AI/AN records in the WTR from 1,777 (1.6% of WTR records) to 3,039 (2.7% of WTR records – see Figure 1). Linkage increased ascertainment of AI/AN trauma cases by 71.0% and revealed a misclassification prevalence of 41.5%.

Prior to linkage, the crude AI/AN injury rate was 2.6 per

Figure 1. Data linkage between the Northwest Tribal Registry and Washington Trauma Registry.

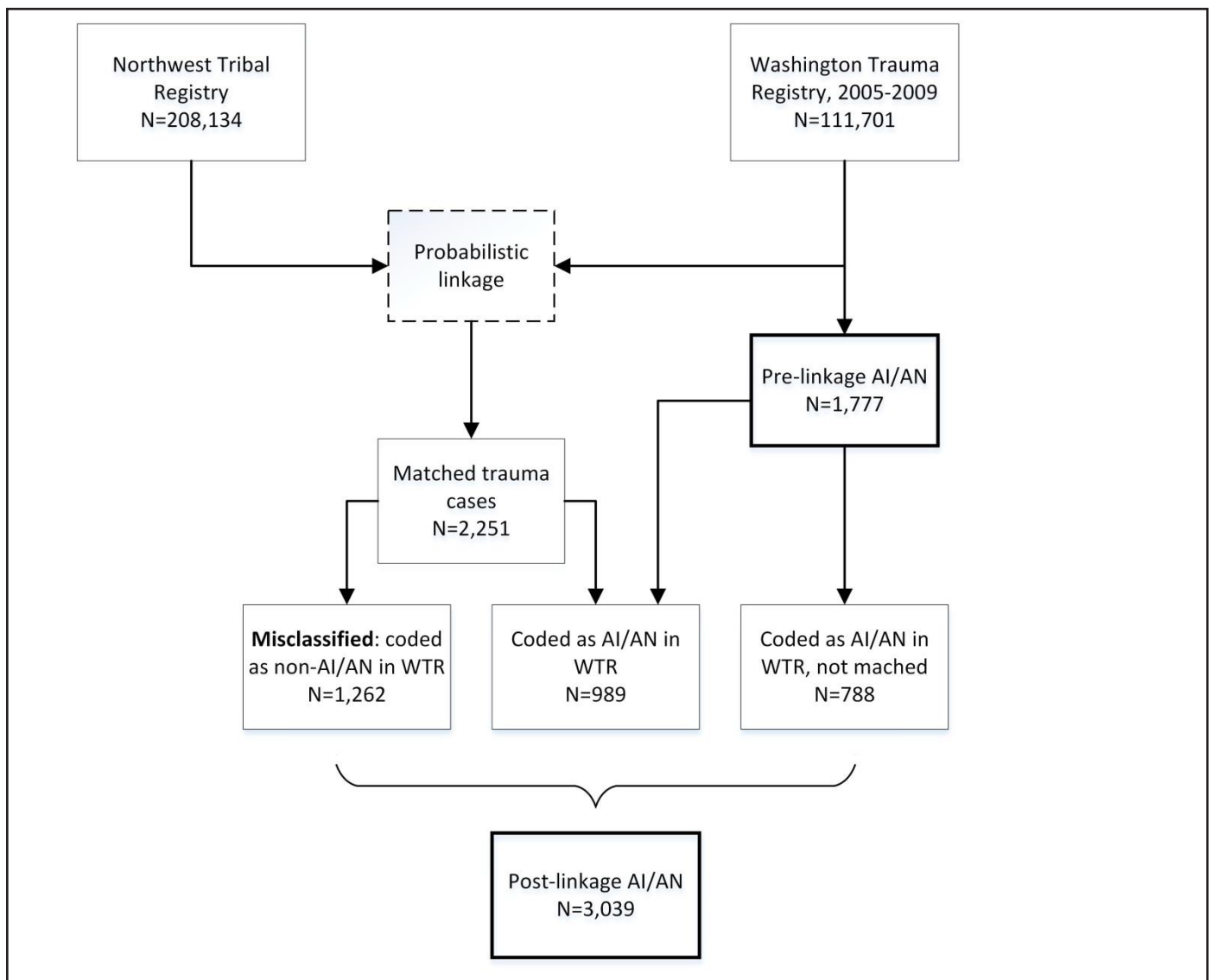
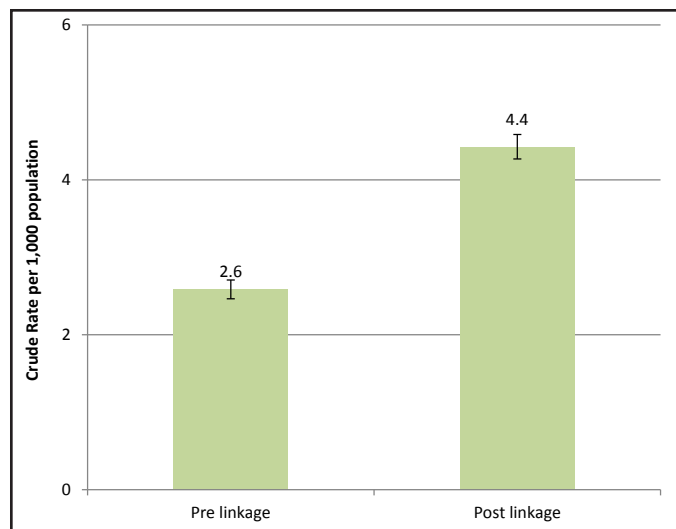


Figure 2. Effect of linkage on crude AI/AN trauma injury rates, Washington, 2005-2009.



1,000 population per year. After linkage, correction of misclassified cases increased the AI/AN injury rate to 4.4 per 1,000 (Figure 2). The rate ratio of 1.7 (95% confidence interval (CI) 1.6-1.8) demonstrated a statistically significant increase in the estimated AI/AN injury rate following linkage.

Table 1 compares the pre vs. post-linkage number of AI/AN cases for selected injury characteristics. Linkage significantly increased the proportion of AI/AN injuries in all categories, with the greatest relative changes seen for homicides, firearm injuries, penetrating injuries, and injuries caused by being struck by or against a person or object. Prior to linkage, 4.1% of all homicide victims in the registry were AI/AN patients. After the linkage, this increased to 6.7% ($p < 0.001$), a relative increase of 2.6 percentage points (by comparison, AI/AN comprise approximately 2.9% of the state population in Washington).¹⁷ Firearm injuries increased from 2.3% of the registry to 4.0% after adding misclassified AI/AN cases, and the proportion of penetrating injuries that were AI/AN increased from 2.8% to 4.4%. Although the risk of death among AI/AN patients in the WTR was very similar to that seen among white patients, linkage did impact the

proportion of all deaths that were AI/AN. Using the pre-linkage race coding, 1.7% of all deaths were AI/AN. After linkage this proportion increased to 2.4% of all deaths ($p = 0.003$).

Odds ratios for factors associated with misclassification of AI/AN in the WTR are shown in Table 2. Transportation by helicopter (OR=1.96, 95% CI 1.30-2.96) and other methods (OR=1.36, 95% CI 1.12-1.65) was associated with higher odds of misclassification, compared with those transported by ground ambulance. AI/AN injured in metropolitan counties were more likely to be misclassified than those injured in rural counties (OR=1.24, 95% CI 1.01-1.54). AI/AN injured in regions that did not include a large tribe were more likely to be misclassified than those in a region with a large tribe (OR=2.30, 95% CI 1.86-2.84). There was a lower likelihood of misclassification for AI/AN treated at a Level I trauma center, AI/AN who were transferred to another facility for care, and AI/AN with suicide/self-harm related injuries. The model was also adjusted for age, sex, ICU admission, injury severity score, death, and mechanism of injury; however, none of these factors were significantly related to misclassification.

Discussion

Trauma registry data are an important tool in tribal public health surveillance, providing comprehensive information about the causes, circumstances, and outcomes of AI/AN injuries.

Table 1. Change in AI/AN cases following linkage, Washington Trauma Registry Cases, 2005-2009.

	Total cases in WTR	AI/AN cases pre-linkage	AI/AN cases post-linkage	Percent Change
		N	N	
Penetrating Injuries	7,981	226	353	56.2%***
Death	3,271	54	77	42.6%**
Firearms injuries	2,501	57	99	73.7%***
Motor Vehicle Crash Injuries	24,550	552	856	55.1%***
Struck By/Against Injuries	6,674	172	280	62.8%***
Head & Neck Injuries	36,806	691	1,146	65.8%***
Suicides	1,630	45	58	28.9%*
Homicides	7,047	290	474	63.4%***
Injuries in which no safety equipment was used	58,478	1,110	1,803	62.4%***
Severe ISS cases	23,333	431	704	63.3%***
Cases admitted to ICU	20,118	400	661	65.3%***

Comparison by binomial z test of proportions
 ICU = intensive care unit; ISS = Injury Severity Score
 * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

However, for these data to be useful to AI/AN researchers and health professionals, errors in race coding must be corrected to allow for complete and accurate identification of AI/AN cases.

Record linkage with AI/AN registries provides a straightforward and relatively inexpensive means of addressing racial misclassification in trauma registries. Our linkage between the Washington Trauma Registry and the Northwest Tribal Registry demonstrated that nearly half of the AI/AN cases in the WTR were misclassified. Without correcting this misclassification, the registry data vastly underestimate AI/AN injury rates and the magnitude of disparities experienced by the AI/AN population in Washington.

Our analysis of characteristics associated with misclassification found that AI/AN injured in urban areas and in regions not including a large tribes were more likely to be misclassified, a finding that has been demonstrated in several previous studies.^{18,19,20,21} This may be due to the fact that there are no IHS or Tribal health facilities nearby, no obvious geographic boundaries, and the proportion of AI/AN in the population is small. Medical staff working in urban hospitals and clinics may be less attuned to the AI/AN population and more inclined to harbor stereotypes and misconceptions about where AI/AN live, their appearance, and so on.¹ Those who were treated at lower level trauma centers and who were not transferred were more likely to be misclassified. This may imply a need for more comprehensive race data collection training at smaller facilities. Finally, AI/AN with unintentional injuries were more likely to be misclassified than those with suicide-related injuries. This could be related to the presence of surrogate reporters (i.e., family members) who accompany suicide patients to the trauma center, or indicate a difference in trauma centers' data collection practices for suicide/self-harm trauma cases.

Conclusion

Linkage of the Washington Trauma Registry with the Northwest Tribal Registry enhanced the ascertainment of AI/AN injury cases, and produced more accurate estimates of injury morbidity and mortality for this population. Through the work of Tribal Epidemiology Centers and other AI/AN research organizations, tribal registries can be established and expanded to better represent this population. While no registry will ever capture the entire AI/AN population, augmenting IHS patient records with urban Indian health facility and tribal clinic registration lists will greatly increase the effectiveness of this work.

The IDEA-NW project has established successful partnerships to conduct record linkages with injury surveillance systems in Idaho, Oregon, and Washington. We also work closely with NPAIHB's Injury Prevention Program (IPP) to disseminate linkage-corrected injury data to NPAIHB's 43 member tribes. Northwest tribes can use these data to plan and implement injury prevention programs that meet the needs of their communities. The IPP has used linkage-corrected data to

Table 2. Factors associated with AI/AN misclassification within the Washington Trauma Registry, 2005-2009.

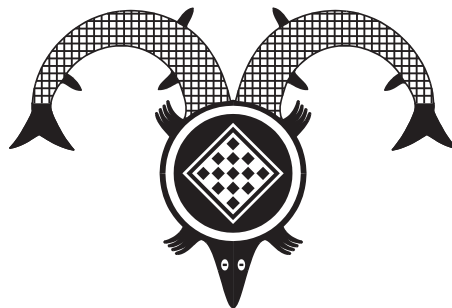
	Odds Ratio	95% Confidence Interval
Intent*		
Unintentional	1.0 (reference)	
Suicide/self-harm	0.37	(0.19, 0.74)
Homicide/assault	0.88	(0.70, 1.09)
Other/unspecified	0.71	(0.31, 1.62)
Transportation Mode**		
Ground Ambulance	1.0 (reference)	
Helicopter Ambulance	1.96	(1.30, 2.96)
Other	1.36	(1.12, 1.65)
Transfer Status**		
Transferred	1.0 (reference)	
Direct	1.45	(1.11, 1.89)
County of Injury*		
Urban	1.0 (reference)	
Rural	1.24	(1.01, 1.54)
Region of Injury***		
Includes large tribe	1.0 (reference)	
Does not include large tribe	2.30	(1.86, 2.84)
Trauma Center Level**		
Level I	1.0 (reference)	
Level II	2.08	(1.49, 2.89)
Level III	1.17	(0.90, 1.52)
Levels IV-V/no designation	1.24	(0.91, 1.69)
<i>Calculated by multivariable logistic regression</i>		
<i>Adjusted for age, sex, ICU admission, injury severity score, death, and mechanism of injury</i>		
* p<0.05, ** p<0.01, ***p<0.001		

prioritize the training, resources, and technical assistance they provide to Northwest tribes in the areas of motor vehicle safety, prevention of elder falls, helmet use, home and fire safety, and drowning prevention. This confirms the importance of continuing efforts to provide linkage-corrected injury data for use in the planning, implementation and evaluation of injury prevention programs in AI/AN communities.

References

1. Urban Indian Health Commission. Invisible Tribes: Urban Indians and Their Health in a Changing World. Seattle, WA: Urban Indian Health Commission, 2007.
2. Dankovchik J, Hoopes MJ, Kakuska E. Northwest American Indian And Alaska Native Mortality. Portland, Oregon: Northwest Portland Area Indian Health Board 2012.
3. Hoopes M, Dankovchik J. Leading Causes of Death by Age Group American Indians/Alaska Natives, Washington, 2005-2009 Northwest Tribal EpiCenter2012 [cited 2013 April 10th]. Retrieved from: http://www.npaihb.org/images/epicenter_docs/

-
- NW-Idea/2012/COD%20tables_WA_0509_new.pdf*
4. Improving Data and Enhancing Access - Northwest. Linkage-corrected Comprehensive Hospital Abstract Reporting System (CHARS) data - 2011 records (unpublished). 2014.
 5. Pollock DA. Trauma registries and public health surveillance of injuries. Proceedings of the International Collaborative Effort on Injury Statistics Bethesda, MD: National Center for Health Statistics, Centers for Disease Control; 1995. p. 11-1-6.
 6. Hoopes MJ, Taulii M, Weiser TM, Brucker R, Becker TM. Including self-reported race to improve cancer surveillance data for American Indians and Alaska Natives in Washington state. *Journal of Registry Management*. 2010;37(2):43-8.
 7. Sugarman JR, Soderberg R, Gordon JE, Rivara FP. Racial misclassification of American Indians: its effect on injury rates in Oregon, 1989 through 1990. *American Journal of Public Health*. 1993;83(5):681-4.
 8. Sugarman JR, Holliday M, Ross A, Castorina J, Hui Y. Improving American Indian cancer data in the Washington State Cancer Registry using linkages with the Indian Health Service and Tribal records. *Cancer*. 1996;78(7 Suppl):1564-8.
 9. Boehmer U, Kressin NR, Berlowitz DR, Christiansen CL, Kazis LE, Jones JA. Self-reported vs administrative race/ethnicity data and study results. *American Journal of Public Health*. 2002;92(9):1471-2.
 10. Puukka E, Stehr-Green P, Becker TM. Measuring the health status gap for American Indians/Alaska Natives: getting closer to the truth. *American Journal of Public Health*. 2005;95(5):838-43.
 11. Hicks KR, Morones R, Wallace D, Bill NM. Public health practice and the IHS Injury Prevention Program: Guiding principles. *The IHS Primary Care Provider*. 2007;32(9):274-80.
 12. Washington State Department of Health. Washington State Trauma Registry Inclusion Criteria 2010 [cited 2013 August 12th]. Retrieved from: <http://www.doh.wa.gov/Portals/1/Documents/Pubs/530113.pdf>.
 13. Hoopes MJ. Northwest Tribal Registry, 9th Version (NTR9) Data Assessment. Portland, OR: Northwest Tribal Epidemiology Center: Northwest Portland Area Indian Health Board, 2012.
 14. Center for Disease Control and Prevention. Tools for classifying ICD Codes 2011 [cited 2012 August 23rd]. Retrieved from: http://www.cdc.gov/nchs/injury/injury_tools.htm.
 15. Baker SP, O'Neill B, Haddon W, Long WB. The Injury Severity Score: A method for describing patients with multiple injuries and evaluating emergency care. *The Journal of Trauma*. 1974;14(8):187-96.
 16. National Center for Health Statistics. Bridged-race intercensal estimates of the resident population of the United States for July 1, 2000-July 1, 2009, by year, county, single-year of age (0, 1, 2, ..., 85 years and over), bridged race, Hispanic origin, and sex. October 26, 2012. Retrieved from www.cdc/nchs/nvss/bridged_race.htm.
 17. US Census Bureau. American FactFinder: Total Population by Race. 2012.
 18. Grossman DC, Krieger JW, Sugarman JR, Forquera RA. Health status of urban American Indians and Alaska Natives: A population-based study. *JAMA*. 1994;271(11):845-50.
 19. Bertolli J, Lee L, Sullivan P. AI/AN Race/Ethnicity Data Validation Workgroup. Racial misclassification of American Indians/Alaska Natives in the HIV/AIDS reporting systems of five states and one urban health jurisdiction, U.S., 1984-2002. *Public Health Reports*. 2007;122:382-92.
 20. Thoroughman, Frederickson D, Cameron HD, Shelby LK, Cheek JE. Racial misclassification of American Indians in Oklahoma state surveillance data for sexually transmitted diseases. *American Journal of Epidemiology*. 2002;155(12):1137-41.
 21. Harwell TS, Miller SH, Lemons DL, Helgersson SD, Gohdes D. Cancer incidence in Montana: rates for American Indians exceed those for whites. *American Journal of Preventive Medicine*. 2006;30(6):493-7.





**Indian Health Service
National Pharmacy and Therapeutics Committee
Antidepressants for Management
of Neuropathic Pain
NPTC Formulary Brief
May 2014**



Background:

In May 2014, the Indian Health Service National Pharmacy and Therapeutics Committee (NPTC) reviewed the role of anti-depressants as part of a comprehensive integrated pain management strategy for the I.H.S. service population.

Discussion:

Peer reviewed publications comprising the work product of a variety of well-respected national and international review and guidelines committees were thoroughly reviewed. These included recommendations from the Cochrane Review Committee, British National Institute for Clinical Excellence, American Academy of Neurology, Canadian Pain Society, European Federation of Neurologic Societies, and International Association for the Study of Pain.

The review focused on the two anti-depressant drug classes, Tricyclic Anti-Depressants (TCAs) and Serotonin Norepinephrine Reuptake Inhibitors (SNRIs), for which reasonable clinical evidence exists regarding efficacy in the management of pain. Generally, both TCAs and SNRIs are advocated by experts as first line agents of equal efficacy in the management of neuropathic pain, particularly painful diabetic peripheral neuropathy and post-herpetic neuralgia.

Findings:

Systematic reviews of anti-depressants for neuropathic pain management revealed substantive deficits in the quality of supportive clinical data which was largely limited by poor study design subject to the influence of bias. Examples included high dropout rates, lack of intention to treat analysis, and inadequate study power.

The NPTC identified several important issues regarding the use of anti-depressant pharmacotherapy for neuropathic pain management.

- First, substantial opportunity for cost-avoidance was identified regarding use of tricyclic agents relative to more expensive and arguably less efficacious SNRIs such as Duloxetine.
- Second, some evidence supports selection of a secondary amine TCA (i.e. Imipramine or Nortriptyline) over a tertiary amine TCA (i.e. Amitriptyline) due to a better side effect profile.
- Thirdly, clinicians must be aware of the potential for harm when prescribing anti-depressants for pain management, particularly for elders or those prone to the anti-cholinergic, sedative, or arrhythmogenic side effects of these drugs.
- Finally, while TCAs and SNRIs remain an important part of the pharmacologic armamentarium for management of neuropathic pain, it must be understood that high-quality clinical evidence supporting their use is limited by bias.
- Based on clinical evidence and agency utilization data, the NPTC modified the National Core Formulary (NCF) to include one medication from each of the above classes; amitriptyline (tertiary amine), nortriptyline (secondary amine) and venlafaxine (serotonin norepinephrine reuptake inhibitor).

If you have any questions regarding this document, please contact the NPTC at IHSNPTC1@ihs.gov. For more information about the NPTC, please visit the NPTC website.

References:

1. Institute of Medicine. Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research. Available at <http://www.iom.edu/Reports/2011/Relieving-Pain-in-America-A-Blueprint-for-Transforming-Prevention-Care-Education-Research.aspx>

2. Prevalence and Characteristics of Painful Diabetic Neuropathy in a Large Community-based Population in the United Kingdom. Abbott, C. Phd et al., *Diabetes Care*, October 2011, 34(10) pp 2220-2224.
3. Treatment of chronic non-cancer pain. Turk et al. *Lancet* 2011; 377: 2226–35
4. Musculoskeletal symptoms and non-REM sleep disturbance in patients with “fibrositis syndrome” and healthy subjects. Moldofsky H, Scarisbrick P, England R, et al *Psychosom Med* 1975; 37:341–345.
5. The management of treatment resistant depression in disorders on the interface of psychiatry and medicine: fibromyalgia, chronic fatigue syndrome, migraine, irritable bowel syndrome, atypical facial pain, and premenstrual dysphoric disorder. Gruber AJ, Hudson JI, Pope HG, Jr. *Psychiatr Clin North Am* 1996; 19:351–369
6. United States Department of Health and Human Services, Healthy People 2020. (2011, June 29).
7. American Geriatrics Society Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. The American Geriatrics Society 2012 Beers Criteria Update Expert Panel. *Journal of the American Geriatrics Society*, 2012.
8. Institute of Safe Medication Practices: www.ismp.org
9. Institute of Medicine. *Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research*. Available at <http://www.iom.edu/Reports/2011/Relieving-Pain-in-America-A-Blueprint-for-Transforming-Prevention-Care-Education-Research.aspx>
10. Prevalence and Characteristics of Painful Diabetic Neuropathy in a Large Community-based Population in the United Kingdom. Abbott, C. Phd et al., *Diabetes Care*, October 2011, 34(10) pp 2220-2224.
11. Treatment of chronic non-cancer pain. Turk et al. *Lancet* 2011; 377: 2226–35
12. Musculoskeletal symptoms and non-REM sleep disturbance in patients with “fibrositis syndrome” and healthy subjects. Moldofsky H, Scarisbrick P, England R, et al *Psychosom Med* 1975; 37:341–345.
13. The management of treatment resistant depression in disorders on the interface of psychiatry and medicine: fibromyalgia, chronic fatigue syndrome, migraine, irritable bowel syndrome, atypical facial pain, and premenstrual dysphoric disorder. Gruber AJ, Hudson JI, Pope HG, Jr. *Psychiatr Clin North Am* 1996; 19:351–369
14. United States Department of Health and Human Services, Healthy People 2020. (2011, June 29).
15. American Geriatrics Society Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. The American Geriatrics Society 2012 Beers Criteria Update Expert Panel. *Journal of the American Geriatrics Society*, 2012.
16. Institute of Safe Medication Practices: www.ismp.org
17. Up To Date
18. Institute of Medicine. *Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research*. Available at <http://www.iom.edu/Reports/2011/Relieving-Pain-in-America-A-Blueprint-for-Transforming-Prevention-Care-Education-Research.aspx>
19. Prevalence and Characteristics of Painful Diabetic Neuropathy in a Large Community-based Population in the United Kingdom. Abbott, C. Phd et al., *Diabetes Care*, October 2011, 34(10) pp 2220-2224.
20. Treatment of chronic non-cancer pain. Turk et al. *Lancet* 2011; 377: 2226–35
21. Musculoskeletal symptoms and non-REM sleep disturbance in patients with “fibrositis syndrome” and healthy subjects. Moldofsky H, Scarisbrick P, England R, et al *Psychosom Med* 1975; 37:341–345.
22. The management of treatment resistant depression in disorders on the interface of psychiatry and medicine: fibromyalgia, chronic fatigue syndrome, migraine, irritable bowel syndrome, atypical facial pain, and premenstrual dysphoric disorder. Gruber AJ, Hudson JI, Pope HG, Jr. *Psychiatr Clin North Am* 1996; 19:351–369
23. United States Department of Health and Human Services, Healthy People 2020. (2011, June 29).
24. American Geriatrics Society Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. The American Geriatrics Society 2012 Beers Criteria Update Expert Panel. *Journal of the American Geriatrics Society*, 2012.
25. Institute of Safe Medication Practices: www.ismp.org

MEETINGS OF INTEREST

Advancements in Diabetes Seminars

Monthly; WebEx

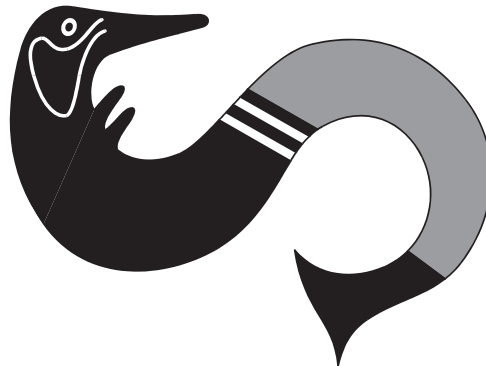
Join us monthly for a series of one-hour WebEx seminars for health care program professionals who work with patients who have diabetes or are at risk for diabetes. Presented by experts in the field, these seminars will discuss what's new, update your knowledge and skills, and describe practical tools you can use to improve the care for people with diabetes. No registration is necessary. The accredited sponsors are the IHS Clinical Support Center and IHS Nutrition and Dietetics Training Program.

For information on upcoming seminars and/or previous seminars, including the recordings and handouts, click on this

link and see Diabetes Seminar Resources: <http://www.diabetes.ihs.gov/index.cfm?module=trainingSeminars>

Available EHR Courses

EHR is the Indian Health Service's Electronic Health Record software that is based on the Resource and Patient Management System (RPMS) clinical information system. For more information about any of these courses described below, please visit the EHR website at http://www.ihs.gov/CIO/EHR/index.cfm?module=rpms_ehr_training. To see registration information for any of these courses, go to <http://www.ihs.gov/Cio/RPMS/index.cfm?module=Training&option=index>.



Electronic Subscription Available

You can subscribe to *The Provider* electronically. Any reader can now request that he or she be notified by e-mail when the latest issue of *The Provider* is available on the Internet. To start your electronic subscription, simply go to *The Provider* website (<http://www.ihs.gov/Provider>). Click on the "subscribe" link; note that the e-mail address from which you are sending this is the e-mail address to which the electronic notifications

will be sent. Do not type anything in the subject or message boxes; simply click on "send." You will receive an e-mail from LISTSERV.IHS.GOV; open this message and follow the instruction to click on the link indicated. You will receive a second e-mail from LISTSERV.IHS.GOV confirming you are subscribed to *The Provider* listserv.

POSITION VACANCIES

Editor's note: As a service to our readers, The IHS Provider will publish notices of clinical positions available. Indian health program employers should send brief announcements as attachments by e-mail to the.provider@ihs.gov. Please include an e-mail address in the item so that there is a contact for the announcement. If there is more than one position, please combine them into one announcement per location. Submissions will be run for four months and then will be dropped, without notification,, but may be renewed as many times as necessary. Tribal organizations that have taken their tribal "shares" of the CSC budget will need to reimburse CSC for the expense of this service (\$100 for four months). The Indian Health Service assumes no responsibility for the accuracy of the information in such announcements.

Psychiatrist

Zuni Comprehensive Community Health Center; Zuni, New Mexico

The Zuni Comprehensive Community Health Center (Indian Health Service) has an opening for a full-time psychiatrist to see adults and children. We do psychotherapy, crisis work, trauma work, as well as work with families, couples, and groups. You will have the opportunity to impact and design mental health for the community as a whole. We are shielded from managed care. You have an opportunity to provide psychotherapy to your patients and families without worrying about insurance approvals. You are not merely hired as a prescriber, but as a biopsychosocial psychiatrist. In this job, you have a chance to feel good about the care you are providing, in a setting that is personally and professionally stimulating, and in a place where your skills are needed and valued. Additional advantages include market pay, no call, and excellent federal benefits.

We are located on the Zuni reservation. The Zuni Pueblo is one of the oldest continuously inhabited Native American villages in the US, estimated to be at least 800-900 years old. The Zuni are located on their ancestral lands and have one of the most intact Native American cultures in the country. Zuni tradition and the Zuni language are a living and vibrant part of daily life in the community. Zuni is nestled amongst beautiful redrock mesas and canyons. It is considered high desert at 6000 - 7000 feet and is located in the northwestern region of New Mexico, along the Arizona border.

For more information or to apply, contact Michelle Sanchez, Zuni Service Unit Behavioral Health; telephone (505) 782-7312; e-mail michelle.sanchez2@ihs.gov. (3/14)

Staff Clinician

Department of Health and Human Services, National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases, Division of Intramural Research Phoenix, Arizona

The Diabetes Epidemiology and Clinical Research Section (DECRS), Phoenix Epidemiology and Clinical Research Branch (PECRB), National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) conducts research in the epidemiology and prevention of type 2 diabetes, its complications, and related conditions, primarily among American Indians in the southwestern United States. The section is recruiting a staff clinician to take part in clinical research activities. The position is located in Phoenix, Arizona on the campus of the Phoenix Indian Medical Center.

The staff clinician will work in an interdisciplinary, collaborative environment and have the following responsibilities: a) medical director of the DECRS research clinics, supervising nurse practitioners and medical assistants, and overseeing clinic schedules and operations; b) principal or associate investigator of randomized clinical trials in prevention of diabetes or its complications; c) principal or associate investigator of epidemiologic investigations of type 2 diabetes and related conditions; and d) associate investigator in a randomized clinical trial of optimizing weight gain in pregnancy and effects on the mother and child. There are outstanding opportunities to collaborate with experts in epidemiology, clinical research, physiology, genetics, and biostatistics. Ample clinical, laboratory, and computing resources are available.

The position requires licensure to practice medicine in one of the United States or D.C. and board eligibility or certification, preferably in internal medicine, pediatrics, family practice, or preventive medicine. Clinical or epidemiological research training and experience are desirable. Salary and benefits will be commensurate with experience and qualifications. Outside candidates and current federal employees (civilian or commissioned corps) are encouraged to apply.

Interested candidates may contact William C. Knowler, MD, DrPH, Chief, DECRS, c/o Ms. Charlene Gishie. To apply, please send a cover letter; CV with publications list; and names and contacts of three references to Ms. Charlene Gishie, National Institutes of Health, 1550 E. Indian School Rd, Phoenix, AZ 85014; e-mail charlene.gishie@nih.gov. The deadline to submit an application is March 7, 2014.

NIDDK is a component of the National Institutes of Health (NIH) and the Department of Health and Human Services

(DHHS). All positions are subject to a background investigation. DHHS and NIH are Equal Opportunity Employers. (1/14)

Family Practice Physicians (2)

Cass Lake IHS Hospital; Cass Lake, Minnesota

Leech Lake Reservation is an open reservation located in Minnesota's Northwoods region. Towering pines fringe many of the lakes found within its boundaries. Wild rice beds, deep forests, and shimmering lakes, two of which are among the largest in the state, abound. There are approximately 1,050 square miles within the reservation, nearly all of which is within the boundaries of the Chippewa National Forest.

When you locate here, you are looking for a quality of life for both your workers and your family. That is why it will be worth your while to find out how much Leech Lake can offer with its natural beauty, friendly communities, good schools, and various civic, cultural, and historical organizations. The area also provides many quality outdoor recreational activities, from fishing and boating in the summer to nordic and alpine skiing in the winter. Though Leech Lake's natural beauty, civic attractions, and recreational activities are things to behold, they pale in comparison to the friendliness of the people of the Leech Lake area.

The population within the reservation boundaries is estimated at 91,800. Nearly fifty-eight percent are between the ages of 16 and 65. The resident American Indian population on

the reservation has been estimated at 7,763 by the census. Most of the population is concentrated in eight communities dispersed across the reservation. Adjacent to the reservation, there are three major area economic centers: Bemidji, which is 13 miles to the west of Cass Lake; Grand Rapids, which lays 54 miles to the east of Cass Lake; and Walker, roughly 23 miles to the south of Cass Lake.

The Cass Lake Indian Hospital is owned and operated by the Federal Government as a Public Health Service, Indian Health Service Facility. We have a staff of 120 employees, six of whom are physicians and five nurse practitioners; there is a contracted emergency department service. Additional services include ambulatory clinic, dental, optometry, audiology, laboratory, radiology, physical therapy, and diabetes clinic. Our Facility has 13 beds; we had 223 discharges and 1,398 patient days in FY '05. According to the most recent data, we have 99,503 outpatient visits annually, 5,612 Dental visits, and 2,763 Optometry visits; there are 20,512 registered patients. The Leech Lake Tribe operates mental health, substance abuse, podiatry, and diabetes clinics, as well as seven other clinics staffed by various professionals.

For additional information, contact Antonio Guimaraes, MD, Clinical Director (family medicine at telephone (218) 335-3200; e-mail antonio.guimaraes@ihs.gov), or Tony Buckanaga, Physician Recruiter, at telephone (218) 444-0486; e-mail tony.buckanaga@ihs.gov. (1/14)



THE IHS PRIMARY CARE PROVIDER

A journal for health professionals working with American Indians and Alaska Natives



THE IHS PROVIDER is published monthly by the Indian Health Service Clinical Support Center (CSC). Telephone: (602) 364-7777; fax: (602) 364-7788; e-mail: the.provider@ihs.gov. Previous issues of THE PROVIDER (beginning with the December 1994 issue) can be found on the CSC Internet home page (<http://www.ihs.gov/Provider>).

Opinions expressed in articles are those of the authors and do not necessarily reflect those of the Indian Health Service or the Editors.

Circulation: The PROVIDER (ISSN 1063-4398) is distributed on the CSC website to health care providers working for the IHS and tribal health programs, to medical schools throughout the country, and to health professionals working with or interested in American Indian and Alaska Native health care. If you would like to subscribe, go to <http://www.ihs.gov/Provider>.

Publication of articles: Manuscripts, comments, and letters to the editor are welcome. Items submitted for publication should be no longer than 3000 words in length, typed, double-spaced, and conform to manuscript standards. PC-compatible word processor files are preferred. Manuscripts may be received via e-mail.

Authors should submit at least one hard copy with each electronic copy. References should be included. All manuscripts are subject to editorial and peer review. Responsibility for obtaining permission from appropriate tribal authorities and Area Publications Committees to publish manuscripts rests with the author. For those who would like more information, a packet entitled "Information for Authors" is available by contacting the CSC at the address above or on our website at www.csc.ihs.gov.