



American Indian/Alaska Native
Health Research Advisory Council (HRAC)

Fourth Annual Health Research Report
Fiscal Year 2012



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INTRODUCTION

The *Fourth Annual Health Research Report* represents a compilation of findings related to important health research topics in American Indian and Alaska Native (AI/AN) communities. The AI/AN Health Research Advisory Council (HRAC) produced this report as a resource to share research findings, topics, and available federal programs with Tribes. Submissions were provided from the Agency for Healthcare Research and Quality (AHRQ), the Centers for Disease Control and Prevention (CDC), the Health Resources and Services Administration (HRSA), and the National Institutes of Health (NIH). Each research study in the report is identified by a specific health/disease area and an index is included at the end of the report.

HRAC BACKGROUND

The HRAC was established to provide HHS a vehicle for consulting with Tribes about health research priorities and needs in AI/AN communities, and collaborative approaches in addressing these issues and needs. The HRAC is comprised of elected Tribal officials, one delegate and one alternate from each of the 12 Indian Health Service (IHS) areas, and four National At-Large Members. Federal partners participate in Council activities by providing input and support, and linkages with HHS's operating and staff divisions. These federal partners include the Administration for Children and Families (ACF), AHRQ, the Office of the Assistant Secretary for Planning and Evaluation (ASPE), CDC, HRSA, the Office of Intergovernmental and External Affairs (IEA), IHS, NIH, the Office of Minority Health (OMH) and the Substance Abuse and Mental Health Services Administration (SAMHSA).

The HRAC serves three primary functions:

- Obtaining input from Tribal leaders on health research priorities and needs for their communities.
- Providing a forum through which HHS operating and staff divisions can better communicate and coordinate AI/AN health research activities.
- Providing a conduit for disseminating information to Tribes about research findings from studies focusing on the health of AI/AN populations.

AGENCY FOR HEALTHCARE RESEARCH AND QUALITY (AHRQ)

AHRQ's mission is to improve the quality, safety, efficiency, and effectiveness of health care for all Americans. The Agency works to fulfill this mission through one overarching program, health services research. Health services research examines how people get access to health care, how much care costs, and what happens to patients as a result of the care they receive. The principal goals of health services research are to identify the most effective ways to organize, manage, finance, and deliver high quality care, reduce medical errors, and improve patient safety. AHRQ conducts and supports health services research, both within AHRQ as well as in leading academic institutions, hospitals, physicians' offices, health care systems, and many other settings across the country.

Research Projects & Findings:

AHRQ Supported a Research Infrastructure Development Project Run by the Montana-Wyoming Tribal Leaders Council Which Included Several Studies (Cross cuts many categories)

Description: The Montana-Wyoming Tribal Leaders Council (TLC) was awarded a Minority Research Infrastructure Support Program (M-RISP) grant on September 30, 2003. At the time of the initial award, TLC had very limited research infrastructure and capacity, with four staff and two research partners. Tribes in the region were skeptical of research and had little experience. A structured approach to infrastructure development was implemented, focusing on engaging Tribes, expanding financial and administrative capacity, and building staff and partnerships. Several research studies were designed and implemented to increase both TLC and Tribal research experience.

Over the eight-and-a-half years of the M-RISP, the TLC engaged Tribes in research activities and created both the Rocky Mountain Tribal Epidemiology Center and the Rocky Mountain Tribal Institutional Review Board (IRB) to serve the Tribes in its region; increased its professional research staff to sustain and expand capacity; developed partnerships with academic institutions to augment substantive and technical research capacity; obtained numerous grants from a diverse set of federal agencies and foundations, many of which are multi-year and provide a solid foundation for sustainability of TLC research; and engaged in dissemination activities to contribute to knowledge of AI/AN health research and methods for engaging Tribes in research. Work on the grant was completed in March 2012.

Publication/Reference: Principal Investigator: Gordon Belcourt, Montana-Wyoming Tribal Leaders Council; Grant HS14034, 9/30/03–3/31/12.

Results of Baseline American Indian Consumer Assessment of Healthcare Providers and Systems (CAHPS®) Survey Lead to Implementation of Customer Service Quality Improvement Initiatives (Miscellaneous)

Description: The purpose of this project was to demonstrate the potential usefulness of the CAHPS® as a tool to identify opportunities for IHS quality improvement (QI) efforts. The Baseline American Indian CAHPS® survey was administered to 400 IHS patients in mid-2010 and the results were used by the joint IHS Tribal Working Group to develop specific quality improvement initiatives that were implemented in these IHS facilities in 2011. The Wind River

IHS/Tribal Working Group selected customer service as the targeted area for improvement. A QI strategy was developed to improve customer service that included presentations from three experts in customer service, monthly incentives tied to specific customer service indicators, and competition between the two Wind River IHS clinics. The implementation of the QI strategy began in March 2011 and continued through March 2012. In April 2012, the follow-up CAHPS® survey was conducted. Analysis of the follow-up survey data focused on assessing the impact of the QI strategy on the ratings of office staff courtesy and respect, office staff helpfulness, and on overall rating of the IHS. Results were positive and significant for all three measures. Results were disseminated to the Wind River IHS Leadership Team, the Eastern Shoshone and Northern Arapaho Tribal Health Directors, and at an all-staff IHS meeting. The IHS Leadership Team plans to develop additional QI initiatives making use of the CAHPS® approach.

Publication/Reference: Principal Investigator: Paul D. Cleary, Yale University; Grant HS16978, 09/01/07–09/29/17.

<https://cahps.ahrq.gov/about.htm> for information on AHRQ's CAHPS® program

Medical Home Model for Alaska Natives to be Assessed for Impact on Patient Care Delivery (Miscellaneous)

Description: The Southcentral Foundation (SCF), a Tribally-owned organization, implemented a patient-centered medical home (PCMH) in 1999 and 2000 in Anchorage, Alaska. In this project, the University of Alaska and the SCF partnered to determine the impact of the PCMH transformation on the characteristics and quality of patient care delivery, and to assess changes in health care delivery, such as quality and safety efforts, efforts to bring evidence to the point of care, use of information systems, and costs. The study focused on process and outcomes related to three components of the PCMH model: patient-provider match (empanelment); integrated primary care teams (team-based care); and increased access (often same day). It also included a cost assessment and time series analyses of primary care sensitive patient outcomes and patient service utilization from medical record data. The researchers found that emergent care utilization rates among all patients for any diagnosis were increasing before the PCMH implementation, dropped during the implementation, continued to decrease steadily immediately following the implementation, and subsequently leveled off. Hospitalization rates for any diagnosis were flat before and during the PCMH implementation, decreased immediately after the implementation, and then flattened out again in the later post implementation stage. Interview participants observed improved access to primary care services following the transition to the PCMH tempered by increased staff burnout. Additional themes of PCMH transformation included the building of patient provider relationships and the role of leadership in PCMH implementation. This PCMH model could have national implications for improving the health of the AI/AN population and may also be relevant to other practices serving diverse populations with multiple health disparities.

Publication/Reference: Principal Investigator: David L. Driscoll, University of Alaska at Anchorage; Grant HS19154, 7/01/10–6/30/12.

**Project to Improve Race and Health Status Data for Pacific Northwest States
(Miscellaneous)**

Description: The Improving Data and Enhancing Access-Northwest Project used the most complete roster of northwest AI/ANs to conduct record linkages with an array of health-related data systems in a three state region (Oregon, Washington State, and Idaho). It sought to more accurately characterize health status and clinical outcomes data for Northwest Tribal people, while working to minimize and eventually eliminate racial misclassification errors in state surveillance data systems. It disseminated results and developed concrete methods by which other states and Tribal Epidemiology Centers may implement similar programs. The grantee disseminated AI/AN mortality data and information about linkage methods at two recent conferences. AHRQ provided support for this project through funding received from the American Recovery and Reinvestment Act (ARRA) of 2009.

Publication/Reference: Principal Investigator: Victoria Warren-Mears, Northwest Portland Area Indian Health Board; Grant HS19972, 9/30/10–9/29/13.

**Project to Improve the Reporting of Race, Ethnicity, and Language in California
(Miscellaneous)**

Description: To identify, understand, and eliminate health care disparities, it is critically important to make headway in the way that hospitals and other providers and payers successfully collect consistent and accurate data regarding race, ethnicity, and language from their patients. This project integrated and improved upon methods for collection, auditing, and post-collection data imputing of race, ethnicity, and language data. The size of California, its diverse population, and large number of hospitals make California an important test bed for the development and dissemination of approaches that can work across a large spectrum of states. The grantee worked with AHRQ to develop a website to disseminate products to enhance race/ethnicity data reporting. In addition, the grantee wrote a section on data auditing for a joint manuscript with the other AHRQ funded grantees in this program. AHRQ provided support for this project through funding received from the ARRA.

Publication/Reference: Principal Investigator: David S. Zingmond, University of California, Los Angeles; Grant HS19963, 9/30/10–9/29/13.

**Project to Improve the Quality of Race and Ethnicity Data in Hospital Discharge and
Emergency Department Databases in New Mexico (Miscellaneous)**

Description: New Mexico's Improving the Quality of Race and Ethnicity Data Project contributed to reducing racial and ethnic health and health care disparities by improving the reliability of race, ethnicity, and Tribal affiliation hospital data in the state. Guided by a state advisory committee, between 5 and 10 pilot hospitals field tested training materials the project subsequently developed. These included hospital procedure, data collection, patient education, and train-the-trainer materials. Hospital discharge records were linked with birth certificate records and IHS records to track improvements. New Mexico established a model for the collection, reporting, and appropriate dissemination of Tribal identifier data for informal dissemination to other states and through a published manuscript. The grantee completed work on data linkages with other large datasets (Bureau of Vital Statistics) and incorporation of emergency department data is ongoing. Moreover, the grantee worked with the New Mexico Hospital Association and Health Insight New Mexico to coordinate training and education for all

levels of hospital staff. A Community Advisory Committee meeting was held on July 20, 2012 at the New Mexico Hospital Association offices in Albuquerque. This Committee has representatives from hospitals, academic institutions, community groups and the New Mexico Department of Health. AHRQ provided support for this project through funding received from the ARRA.

Publication/Reference: Principal Investigator: Michael Landen, New Mexico State Department of Health; Grant HS20033, 9/30/10–9/29/13.

AHRQ Includes American Indian and Alaska Native Data in its Annual National Healthcare Quality Report (NHQR) and National Healthcare Disparities Report (NHDR) (Miscellaneous)

Description: Wherever possible in the NHQR and NHDR, AHRQ reports on AI/ANs using national data. AHRQ works with IHS to provide estimates for AI/ANs receiving care from IHS and Tribal facilities, which are often not represented well in national data collections.

Funding for Annual American Indian/Alaska Native Health Research Conference

Description: AHRQ provided a small amount of funds to help support the annual National AI/AN Health Research Conference. The Fiscal Year (FY) 2012 conference was held in Seattle, WA.

Articles/Completed Studies:

AHRQ provided staff and logistical support to two large IHS Comparative Effectiveness Research efforts. These projects were funded with Office of Secretary (OS) ARRA Funds and were led by an IHS staff member on detail to AHRQ.

1) Comparative Effectiveness Research (CER) to Enhance the Delivery of Services Within the Indian Health Service (Miscellaneous)

The purpose of this project was to enhance CER research methodology within the IHS and develop a large dataset to allow IHS to conduct CER on IHS delivery models. In the fall of 2010, AHRQ, in collaboration with IHS, awarded a competitive task order contract to develop the infrastructure to link service data, pharmacy cost data, and health status measures to allow for CER to assist IHS in better serving its populations. The team successfully linked data from four IHS data sources and built a CER dataset covering 4 fiscal years (2007-2010) and including data on approximately 440,000 AI/ANs. The dataset was used to develop new methods for IHS to calculate health status scores for its clients and to identify ambulatory-sensitive inpatient admissions. Additional work created algorithms for estimating comprehensive treatment costs using data from across practice settings. After completing a pilot CER study examining the association between the use of education and case management services provided by a variety of health care providers and the use of hospital emergency department and inpatient services, the team provided training to IHS and Tribal researchers in the use of datasets for CER. The project successfully wrapped-up in the

summer of 2012 with all project materials, including the integrated CER dataset, research method and dataset documentation, and study findings delivered to IHS.

Publication/Reference: AHRQ Contract No. 290-2006-00020, 9/27/10–9/26/12.

2) Comparative Effectiveness of Quality Improvement Efforts Focuses on Chronically Ill Adults among American Indian/Alaska Native Communities (Miscellaneous)

The overall purpose of this project was to support the development of a longitudinal data infrastructure (LDI) for the IHS capable of building the capacity for CER, a type of patient centered outcomes research. After conducting a thorough evaluation of the technical functionality of IHS database systems and their data dictionaries (RPMS, C32 repository, NDW, and iCare), the project team successfully developed and tested an LDI that integrates clinical and administrative data for IHS clients across multiple settings of care. The LDI resolves several previous gaps in data sources available to IHS for research and quality improvement activities, providing IHS with coordination across data sources, well-documented data infrastructure, and significantly enhanced capacity for CER and patient-centered outcomes search. The initial LDI contains data derived from four IHS sites and is inclusive of events for over 300,000 patients across multiple years. It was used for two small feasibility studies that demonstrated the potential of the LDI for CER. The LDI is capable of being expanded and continuously updated to allow IHS greater research power. The project successfully concluded in November 2012 with the delivery of the LDI and detailed technical manuals to staff in IHS's Office of Information Technology. An important aspect of the development of the LDI was close work with Tribal entities including the United South and Eastern Tribes Epidemiology Center to provide them with skills development in utilizing the LDI and their own data sources to conduct CER responsive to local needs. AHRQ provided staff support to IHS in this project with funding received from ARRA.

Publication/Reference: AHRQ Contract No. 290-2009-000231, 9/01/10–11/30/12.

Use of a Tribal Language Not a Barrier to Colorectal Cancer Screening Among American Indians (Cancer)

Description: American Indians have one of the lowest colorectal cancer (CRC) screening rates for any racial/ethnic group in the U.S., yet reasons for their low screening participation are poorly understood. The researchers examined whether Tribal language use is associated with knowledge and use of CRC screening in a community-based sample of American Indians. They found that participants speaking primarily English were no more aware of CRC screening tests than those speaking primarily a Tribal language. Participants who spoke only a Tribal language at home and those who spoke both a Tribal language and English also showed a comparable likelihood of receipt of CRC screening. Study findings failed to support the concept that use of a Tribal language is a barrier to CRC screening among American Indians.

Publication/Reference: Gonzales AA, Garrouette E, Ton TG, et al. Effect of Tribal language use on colorectal cancer screening among American Indians. *J Immigr Minor Health*. 2012 Dec; 14(6):975–982. (Grant HS10854).

Study Delineates Effects of Smokeless Tobacco on Anxiety and Depression Among Two American Indian Tribes (Behavioral/Mental Health, Substance Related Disease)

Description: Rates of nicotine use are high in American Indians. Anxiety and depression tend to be associated with cigarette use, but the association of anxiety and depression with smokeless tobacco (ST) is less clear. This study is the first to examine psychiatric conditions and lifetime ST use in a large, geographically diverse American Indian community sample. The researchers asked if panic disorder, major depression, and posttraumatic stress disorder (PTSD) are related to lifetime ST use in two American Indian Tribes. The odds of lifetime ST use were 1.6 times higher in Northern Plains Tribal members with a lifetime history of PTSD after controlling for sociodemographic variables and smoking. In the Southwest, lifetime psychiatric disorders were not associated with lifetime ST use status. Increasing psychiatric co-morbidity was significantly linked to increased odds of ST use in both Tribes. Although approximately 30 percent of Tribal members were lifetime users of ST, the association with lifetime psychiatric disorders was not as strong as those observed with cigarette smoking. Understanding shared mechanisms between all forms of tobacco use with anxiety and depressive disorders remains an important area for investigation.

Publication/Reference: Sawchuk, CN, Roy-Byrne P, Noonan C, et al. Smokeless tobacco use and its relation to panic disorder, major depression, and post-traumatic stress disorder in American Indians. *Nicotine Tob Res.* 2012 Sep; 14(9):1048–1056. (Grant HS10854).

CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)/AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY (ATSDR)

Founded in 1946, CDC is the leading public health agency in the United States. CDC collaborates with stakeholders and partners to develop expertise, information, and tools to promote healthy people and communicates through health promotion; prevention of disease, injury, and disability; and preparedness for new and emerging health threats. CDC seeks to accomplish its mission by working with partners to monitor health; detect and investigate health problems; conduct research to enhance prevention; develop and advocate sound public health policies; implement prevention strategies; promote healthy behaviors; foster safe and healthful environments; and provide leadership and training. These functions are the backbone of CDC's mission. Each CDC center, institute, and office (CIO) undertakes these activities to conduct CDC's specific programs. The steps needed to accomplish this mission are based on scientific excellence and require well-trained public health practitioners and leaders dedicated to high standards of quality and ethical practice.

CDC shares its focus on health protection with its sister agency, ATSDR. First organized in 1985, ATSDR was created by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, more commonly known as the Superfund law. In 1986, Congress passed the Superfund Amendments and Reauthorization Act. The agency's mission is to serve the public through responsive public health actions to promote healthy and safe environments and prevent harmful exposures.

CDC/ATSDR policy requires that all agency programs consult with Tribal governments when they develop programs and activities that will affect Native populations. CDC is committed to continuing to work with federally recognized Tribal governments on a government-to-government basis, and strongly supports and respects Tribal sovereignty and self-determination for Tribal governments in the United States. CDC/ATSDR Tribal Support (Tribal Support), housed within the Office for State, Tribal, Local and Territorial Support, is the primary link between CDC, ATSDR, and Tribal governments. Tribal Support activities focus on fulfilling CDC's supportive role in ensuring that AI/AN communities receive public health services that keep them safe and healthy.

CDC and ATSDR focus on disease prevention and health promotion through research efforts and disease investigation. While there is still more work to be done to improve the health of AI/AN populations, CIOs across CDC and ATSDR continue to research; they have reported 15 studies and 122 publications on research efforts in Indian Country. Public health programming often followed the studies to improve the community's health. For further details on any entry, please contact Tribal Support.

Research Projects & Findings:

Research and Development

A Prospective Birth Cohort Study Involving Environmental Uranium Exposure in the Navajo Nation—“Navajo Birth Cohort Study” (Environmental Health) (ATSDR)

Description: The Navajo Birth Cohort Study (NBCS) is the first prospective epidemiologic study of pregnancy and neonatal outcomes in a uranium-exposed population. The purpose of the NBCS is to evaluate the potential association between environmental contaminants (i.e., uranium and other heavy metal exposures) and reproductive birth outcomes by recruiting Navajo mothers, assessing their uranium exposure at key developmental milestones, and then following their children post-birth to evaluate any associations with birth defects or developmental delays.

Arctic Investigations Program (AIP), AI/AN Research Efforts (Infectious Disease) (CDC)

Description: AIP’s program mission is the prevention of infectious disease in people of the Arctic and Subarctic, with particular emphasis on indigenous people’s health. AIP coordinates disease surveillance and operates one of only two Laboratory Response Network labs in Alaska. AIP is located on the Alaska Native Medical Center Campus in Anchorage.

- **Sanitation Services and Infectious Disease Risk in Rural Alaska (Infectious Disease):** AIP assessed increased infectious disease risk due to lack of in-home sanitation services. These studies have been used to advocate for increased funding for water and sanitation services in Alaska.
- **Response to Emergence of Replacement Pneumococcal Disease in Alaska Native Infants (Infant/Child Health):** AIP supported introduction of a new pneumococcal vaccine, PCV 13, in southwest Alaska. Usage results clarified that it provides protection for up to 75% of serious pneumococcal illnesses.
- **High Rates of Pediatric Dental Caries in Alaska Native Children (Infant/Child Health):** Results of an AIP investigation concluded that pediatric dental caries are approximately five times more common in the region than for the general U.S. childhood population. In 2012, AIP, along with two Alaska Native Tribal health organizations, undertook a cost-effectiveness study of caries prevention strategies.
- **Responding to Pandemic H1N1 Influenza in AI/AN Populations (Infectious Disease):** AIP has been addressing the increased influenza mortality among AI/AN people by leading a five-state investigation (Alaska, Arizona, New Mexico, Wyoming, Oklahoma) into risk factors for deaths. The study data have been collected and are undergoing analysis.

Publication/Reference: Arbour L, Parkinson A, Kulig J. Rural and Remote Health. 2010 June 18. Bell BP, Negus S, Fiore AE, Plotnick J, Dhotre KB, Williams J, Shapiro CN, McMahon BJ. Immunogenicity of an inactivated hepatitis A vaccine in infants and young children. *Pediatr Infect Dis J.* 2007; 26:116–22.

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AI/AN Infectious Diseases Analyses (Infectious Disease) (CDC)

Description: Ongoing epidemiologic/analytical collaborative projects with IHS, Alaska Native Tribal Health Consortium (ANTHC), AIP, other agencies and CDC divisions to detect and describe disease burden and health disparities for overall and specific infectious diseases among the AI/AN population. Analyses provide information for developing prevention strategies,

vaccination policies, and reducing health disparities related to infectious diseases. Findings increase awareness of specific infectious diseases, and highlight disease, person, and geographic target areas to further investigate health disparities.

- **Infectious Diseases:** 1) Analysis of overall and specific infectious disease hospitalizations among the AI/AN population using IHS data to provide recent infectious disease hospitalization rates, high-risk diseases, and high-risk areas to focus further study and prevention measures for the reduction of infectious diseases in the AI/AN population. 2) Analysis of the occurrence of overall and specific infectious disease hospitalizations among the Alaska Native population using IHS data. This analysis provides recent infectious disease hospitalization rates, high-risk diseases, and high-risk areas to focus further study and prevention measures for the reduction of infectious diseases in Alaska Native communities.
- **Molluscum Contagiosum (Infectious Disease):** Case/control study was analyzed to describe the epidemiology and risk factors that contribute to the high incidence of molluscum contagiosum among children in two specific AI/AN communities. This work will help target outreach and education activities with the long-term goal of reducing disease incidence in these communities.
- **Prion Disease (Miscellaneous):** Ongoing analysis of mortality data for AI/ANs with prion disease as a cause of death. Current available data are used to determine the occurrence of the disease among this population, including in chronic wasting disease endemic areas.
- **IHS/NDI Linkage Project (Cancer):** Committee member and investigator on studies analyzing deaths among AI/AN infants and infectious diseases among all AI/AN deaths. Design and analysis is proceeding for both studies. These studies use newly created death dataset with IHS AI/AN race-corrected data which allow for more accurate calculation of death rates among AI/ANs. Health disparities will be examined by comparing death rates for AI/ANs with those for non-Hispanic whites.
- **Lymphocytic Choriomeningitis Virus (Infectious Disease):** Medical chart review was conducted on a subset of IHS patients diagnosed with lymphocytic choriomeningitis virus (LCMV) to verify diagnosis and estimate incidence of this rodent-borne disease. The medical chart review found that LCMV was diagnosed very rarely, and is thought to occur infrequently in AI/AN populations.
- **Dog Bite Injuries (Miscellaneous):** Analysis of AI/AN hospitalizations and outpatient visits for dog bite injuries with focus on affect related to tick-borne diseases and rabies. Dog bites were found to be a significant public health threat among AI/AN children living in the Alaska, Southwest, and Northern Plains West regions, which indicate that enhanced animal control and education efforts should reduce dog bite injuries and emerging infectious diseases.
- **Tickborne Diseases (Infectious Disease):** 1) Analysis of Rocky Mountain spotted fever (RMSF) among AI/ANs using IHS inpatient and outpatient visit data. The incidence and high risk areas for RMSF were determined. 2) Analysis of ehrlichiosis among AI/ANs using IHS inpatient and outpatient visit data. In this first analysis of ehrlichiosis among AI/ANs, incidence was estimated to describe trends and high risk areas.
- **Neurologic Diseases (Miscellaneous):** 1) Analysis of Parkinson disease-associated IHS inpatient and outpatient patient-based data to describe prevalence among the AI/AN

population. 2) Analyzed amyotrophic lateral sclerosis (ALS)-associated IHS inpatient and outpatient patient-based data to describe occurrence of ALS among AI/ANs.

- **Respiratory diseases (Infant/Child Health):** 1) Collaborated on an analysis of lower respiratory tract infection hospitalizations among AI/AN children to describe risk factors. 2) Assisted in analysis of bronchiectasis outpatient visits among Alaska Native children.
- **Gastroenteritis (Infectious Disease):** Published analysis of the occurrence of gastroenteritis hospitalizations among AI/ANs prior to and after the introduction of the rotavirus vaccine to describe the effect of the vaccine on hospitalizations. The findings underscored the importance of rotavirus vaccine among this population.

Publication/Reference: Holman RC, Hennessy TW, Haberling DL, et al. Increasing trend in the rate of infectious disease hospitalizations among Alaska Native people, 2001–2009. *Int J Circumpolar Health* (in press).

Singleton RJ, Valery PC, Morris P, et al. Indigenous children from three countries with non-cystic fibrosis chronic suppurative lung disease/bronchiectasis. *Pediatr Pulmonol*. 2013. doi: 10.1002/ppul.22763. [Epub ahead of print].

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CDC Health Disparities & Inequalities Report—United States, 2011 (Miscellaneous) (CDC)

Description: CDC published its first periodic health disparities and inequalities report, which includes information on AI/ANs. *The CDC Health Disparities & Inequalities Report—United States, 2011*, is the first in a series of periodic, consolidated assessments that highlight health disparities by sex, race, ethnicity, income, education, disability status, and other social characteristics in the U.S. The report provides analysis and reporting of the recent trends and ongoing variations in health disparities and inequalities in selected social and health indicators, both of which are important steps in encouraging actions and facilitating accountability to reduce modifiable disparities by using interventions that are effective and scalable.

Publication/Reference: <http://www.cdc.gov/minorityhealth/CHDIRreport.html>

CDC Health Disparities & Inequalities Report—United States, 2011: Motor Vehicle-Related Mortality (Miscellaneous) (CDC)

Description: To assess the extent of disparities in motor vehicle-related crashes among people of all ages, CDC analyzed data from the National Vital Statistics System (NVSS). AI/ANs and males had the highest motor vehicle-related death rates.

Publication/Reference: West BA, Naumann RB. CDC health disparities and inequalities report—United States, 2011: Motor Vehicle-Related Mortality. *MMWR Supplement*. 2011;60:52–5.

Disparities in Motor Vehicle-Related Deaths among Females—United States, 2005–2009 (Miscellaneous) (CDC)

Description: To assess disparities in motor vehicle-related death rates by race/ethnicity among females in the United States, CDC analyzed 2005–2009 data from the NVSS. AI/AN females had the highest motor vehicle-related death rates.

Publication/Reference: West BA, Naumann RB. Disparities in motor vehicle-related deaths among females—United States, 2005–2009. *J Women's Health*. 2013; 22(6):471–4.

Health, United States 2012 Annual Report (Miscellaneous) (CDC)

Description: CDC also published the 2012 version of *Health, United States*, an annual report on national trends in health statistics on such topics as birth and death rates, infant mortality, life expectancy, morbidity and health status, risk factors, use of ambulatory and inpatient care, health personnel and facilities, financing of health care, health insurance and managed care, and other health topics. The report includes fact sheets on minority populations, including AI/ANs.

Publication/Reference: <http://www.cdc.gov/nchs/hus.htm>

International Collaboration on Fall Prevention—Reaching an Underserved Population (Miscellaneous) (CDC)

Description: Conducted a literature search of fall prevention among Aboriginal populations and produced a final report which includes recommendations or guidelines on prevention strategies.

Motor Vehicle Traffic-Related Pedestrian Deaths—United States, 2001–2010 (Miscellaneous) (CDC)

Description: To determine traffic-related pedestrian death rates by sex, age group, race/ethnicity, and urbanization level, CDC analyzed 2001–2010 data from the NVSS. The results of that analysis indicated that persons aged >75 years and those categorized as AI/AN had the highest death rates, and age group differences varied by race/ethnicity.

Publication/Reference: Naumann RB, Beck LF. Motor vehicle traffic-related pedestrian deaths—United States, 2001–2010. *MMWR*. 2013; 62(15):277–82.

Nicotine Exposure and Metabolism in Alaska Native Adults Research Study (Substance Related Disease) (CDC)

Description: The objective of the study was to generate information on nicotine and carcinogen exposure in underserved Alaska Natives. Chemical analysis showed that Alaska Natives who use iq'mik are exposed to more nicotine than Alaskans who use commercial ST products.

Publication/Reference: Benowitz NL, Renner CC, Lanier A, Tyndale RF, Hatsukami DK, Lindgren B, Stepanov I, Watson CH, Sosnoff CS, Jacob P. Exposure to nicotine and carcinogens among southwestern Alaska Native cigarette smokers and smokeless tobacco users. *Cancer Epidemiol. Biomarkers & Prevention*. 2012;2(6):934–42.

Zhu AZ, Binnington MJ, Renner CC, Lanier AP, Hatsukami DK, Stepanov I, Watson CH, Sosnoff CS, Benowitz NL, Tyndale RF. Alaska Native smokers and smokeless tobacco users with slower CYP2A6 activity have lower tobacco consumption, lower tobacco-specific

nitrosamine exposure and lower tobacco-specific nitrosamine bioactivation. *Carcinogenesis*. 2013;34(1):93–101.

Hearn BA, Renner CC, Ding YS, Vaughan-Watson C, Stanfill SB, Zhang L, Polzin GM, Ashley DL, Watson CH. Chemical analysis of Alaskan iq'mik smokeless tobacco. *Nicotine Tob Res*. 2013;15(7):1283–8.

Evaluation

Economic Costs of Motor Vehicle Crashes and Economic Benefits of Prevention for the San Carlos Apache Tribe (Miscellaneous) (CDC)

Description: This study builds on detailed intervention data and evaluation work to examine the economic effects of the San Carlos Apache (SCA) Tribal Motor Vehicle Injury Prevention Program. From 2001 through 2008, economic costs associated with medical care and productivity losses to the SCA Tribe totaled more than \$57 million.

Publication/Reference: Piland NF, Berger LR, Naumann RM. Economic costs of motor vehicle crashes and economic benefits of prevention for the San Carlos Apache Tribe. *The IHS Primary Care Provider*. 2010;35(12):272–7.

Effective Strategies to Reduce Motor Vehicle Injuries among AI/ANs (Miscellaneous) (CDC)

Description: Currently funding six Tribes, one Tribal organization and one Alaska Native consortium from 2010 to 2014 to design or tailor, implement, and evaluate Native American community-based interventions with demonstrated effectiveness for preventing motor vehicle injuries. Among many midpoint outcomes, five of the eight programs seeking to increase seatbelt use have seen an increase in community seatbelt use. Final results for all programs expected in spring of 2015.

Fond du Lac Community Biomonitoring Study (Environmental Health) (ATSDR)

Description: This project evaluates body burdens of priority contaminants in a population-based sample of members of the Fond du Lac community living within the St. Louis River area of concern. Results will inform and guide public health actions to reduce exposures to environmental contamination and to enhance protection of more highly exposed or at-risk subpopulations through a public health action plan focused on the risks and benefits of consuming fish and other Great Lakes resources.

Technical Assistance/Capacity Building

AIP, AI/AN Research Efforts: Skin and Soft Tissue Infections in Rural Alaska (Infectious Disease) (CDC)

Description: The Yukon Kuskokwim Health Corporation, a Tribal health organization in southwest Alaska, requested CDC assistance through an Epi-Aid mechanism to improve prevention and control of skin and soft tissue infections caused by methicillin-resistant *Staphylococcus aureus*. AIP responded with a three-week field investigation in the villages with the highest infection rates.

Association of Bisphenol A, Arsenic Levels, and Diabetes among Persons Living in the Cheyenne River Sioux Tribe (Environmental Health) (CDC)

Description: Provided technical assistance for a study conducted with the Cheyenne River Sioux Tribe (CRST). The goal of the study was to quantify bisphenol A (BPA) and arsenic concentrations in a Native American population, specifically in people living in the CRST Reservation, and assess the association between these environmental chemicals and the clinical disorder diabetes mellitus. Levels of BPA and speciated arsenic in participants' urine were similar to reference levels from the U.S. population. Further data analysis is underway to investigate associations between biomonitoring results and diabetes status.

Community Based Participatory Research

RMSF Research Activities Impacting AIs (Infectious Disease) (CDC/ATSDR)

Description: In addition to two studies, conducted four emergency response Epi-Aids in FY 2012 on Arizona Tribal lands.

- **Brown Dog Tick Population Dynamics Study:** To determine seasonal emergence patterns and life cycles of ticks. The findings of this study suggested that tick activity increases beginning in March on the reservation, and that at least two complete life cycles of ticks are occurring over the course of a year.
- **RMSF Rodeo Project:** A pilot collaborative project involving CDC's National Center for Emerging and Zoonotic Infectious Diseases and CDC's National Center for Environmental Health, the affected reservation, the IHS, the state of Arizona, USDA, and private donors (Bayer, PetSmart Charities). The project delivered appropriately timed and integrated pet care and tick control techniques to every participating home. At the conclusion of the study, 99% of dogs were tick-free.

Publication/Reference: Bjork A, Holman RC, Callinan LS, Hennessey TW, Cheek JE, McQuiston JH. Dog bite injuries among American Indian and Alaska Native Children. *J Pediatr.* 2013 Jun;162(6):1270–5.

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Folkema AM, Holman RC, McQuiston JH, Cheek JE. Trends in clinical diagnoses of Rocky Mountain spotted fever among American Indian/Alaska Native people, 2001–2008. *Am J Trop Med Hyg.* 2012;86:152–8.

JH McQuiston, MA Guerra, MR Watts, E Lawaczek, C Levy, WL Nicholson, J Adjemian, DL Swerdlow. Evidence of exposure to spotted fever group rickettsiae among Arizona dogs outside a previously documented outbreak area. *Zoonoses and Public Health.* 2011 Mar;58(2):85–92.

HEALTH RESOURCES AND SERVICES ADMINISTRATION (HRSA)

The Centers of Excellence (COE) within the Health Resources and Services Administration (HRSA) serve as innovative resource and education centers to recruit, train, and retain underrepresented minority students and faculty at health professions schools. Programs are implemented to improve information resources, clinical education, curricula, and cultural competence as they relate to minority health issues. The ultimate goal of the program is to strengthen the national capacity to produce a highly qualified healthcare workforce that reflects the racial and ethnic diversity of the U.S. population. The following research project is among those that HRSA's COE oversees related to Native Americans.

Research Project & Findings:

Research

Behavioral/Mental Health Evidenced Based Practice (EBP) with American Indians and Other Native Populations (Behavioral/Mental Health)

Description: Dr. Wendy Peters is Native Hawaiian and began her faculty fellowship on September 1, 2012, located at the Center for Rural Health in the School of Medicine at the University of North Dakota, Grand Forks. The fellowship is adapting a treatment process for use with Native Americans regarding historical trauma, such as factors caused by colonization or removal from the land, and its impact on these persons going forward. Since that time, Dr. Peters has worked to create a pilot study to advance a positive practice outcome where effectiveness and clinical utility is supported by research and cultural adaptation of the Inner Counselor[®] (IC[®]). The IC[®] integrates the intrinsic connections between the conscious and subconscious levels of the mind to enhance emotional, mental, and physical health. This is the first step in Dr. Peters's project to develop an EBP for use in treatment of American Indians and other Native populations. Considered an alternative to traditional therapies, IC[®] holds the potential to bring resolution to individual trauma, as well as to treat and mitigate the effects of intergenerational trauma, the most sweeping and dominant social determinant in relation to Native American health disparities today. To that end, Dr. Peters has been awarded seed grant funding for this initial pilot and has written and submitted a follow-up grant application to continue her research.

NATIONAL INSTITUTES OF HEALTH (NIH)

The mission of the National Institutes of Health (NIH) is to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, to lengthen life, and to reduce illness and disability. The prevention, diagnosis, and treatment of diseases and conditions that disproportionately affect AI/ANs communities remain an NIH priority. The NIH continues to support activities aimed at conducting research relevant to health concerns within the AI/AN populations, increasing representation of AI/ANs in biomedical and behavioral research workforce, building capacity for biomedical research within AI/AN communities, developing educational/informational tools to disseminate health information, and community-based participatory research approaches to develop culturally relevant and community-based interventions.

This report contains examples of the breadth of the NIH programs supported during FY 2012 in five key types of research projects—Research and Development, Evaluation, Training/Education, Technical Assistance/Capacity Building, and Community-Based Participatory Research relevant for AI/AN communities.

Research Project & Findings:

Research and Development

Midcareer Investigator Award: Suicidal Behaviors (Behavioral/Mental Health)

Description: This midcareer investigator award supports a research program, ongoing career development activities, and mentoring in the area of interventions for suicidal youth. Specific projects include participation in the cross-site evaluation of the suicide prevention programs funded by the Garrett Lee Smith Memorial Suicide Prevention Act, including programs focused on AI/AN populations, and a treatment development and effectiveness study of a community-based suicide prevention program developed in collaboration with Ojibwe reservations in the upper Midwest.

Publication/Reference: Pisani, AR., Wyman, PA, and Petrova, M, et al. Emotion regulation difficulties, youth-adult relationships, and suicide attempts among high school students in underserved communities. *Journal of Youth Adolescence*. 2013;42(6):807–20.

<http://link.springer.com/article/10.1007%2Fs10964-012-9884-2/fulltext.html>

Community Intervention to Reduce Tobacco Use among Pregnant Alaska Native Women (Cancer)

Description: Developing effective tobacco cessation interventions during pregnancy for AI/AN people is a national priority and will contribute to the U.S. public health objective of reducing tobacco-related health disparities. This project aims to evaluate the efficacy of a novel, multi-component intervention for reducing tobacco use during pregnancy that uses both individually targeted and community-level components delivered by female elders (Native Sisters). Efficacy of the intervention will be compared with the control condition at week 36 gestation and at six months post-partum. The long-term objective is to determine effective interventions for Alaska Native women that will ultimately reduce the risk of tobacco-related maternal, fetal, and infant adverse health outcomes.

Spirit of EAGLES Community Network Program II, SoE-CNP II (Cancer)

Description: The research conducted by the Mayo Clinic and the Alaska Native Tribal Health Consortium at the Alaska Native Medical Center in Anchorage uses biomarker feedback to motivate tobacco cessation in pregnant Alaska Native women. The project investigates biomarkers of tobacco exposure in maternal-infant paired specimen samples obtained from pregnant women who smoke during pregnancy, who use smokeless tobacco, and who are non-tobacco users.

Findings: The observations included developing and disseminating Cancer 101, a culturally relevant training program for AI/ANs, and adding new modules including: 1) Role of the Gene in Cancer; 2) Biospecimens and Biobanking; and 3) Chronic Conditions and Cancer. The Northwest Tribal Cancer Control Project has also funded seven community programs, and collaborated with the National Indian Health Board (NIHB) to sponsor the 40th Annual Conference of the Youth Track.

Publication/Reference: Adams, AK., LaRowe, TL, and Cronin, KA, et al. The Healthy Children, Strong Families Intervention: Design and Community Participation. *Journal of Primary Prevention*. 2012;33(4):175–85.

<http://link.springer.com/content/pdf/10.1007%2Fs10935-012-0275-y.pdf>

New Mexico State University and Fred Hutchinson Cancer Research Center Partnership (Cancer)

Description: The partnership conducts a study entitled, “Where Health and Horticulture Intersect: A Navajo Wellness Collaboration.” This study seeks to intervene and to reduce the overall cancer risk by increasing vegetable and fruit intake, which might protect against many cancers and particularly colorectal cancer. Within the Southwest region, AI/AN populations have higher rates of stomach cancer compared to non-Hispanic Whites, which may be due to dietary factors.

Findings: Preliminary results indicate increased vegetable and fruit intake may lead to improved health with positive impacts on cancer incidence among people of the Navajo Nation.

Publication/Reference: Aune, D., Lau, R, and Chan, DS, et al. Nonlinear Reduction in Risk for Colorectal Cancer by Fruit and Vegetable Intake Based on Meta-analysis of Prospective Studies. *Gastroenterology*. 2011;141(1):106–18.

<http://www.sciencedirect.com/science/article/pii/S0016508511005221#>

Partnership for Native American Cancer Prevention (NACP) Between the Arizona Cancer Center (AZCC), the University of Arizona and the Northern Arizona University (NAU) (Cancer)

Description: The research project on The Cancer Risk Factors and Screening Behaviors of the Hopi Tribe in Arizona conducted a culturally appropriate cancer-focused risk factor survey among the Hopi; continued capacity building on the Hopi Reservation with the Hopi Team includes staff from Hopi Tobacco Program, Hopi Diabetes program, Hopi Cancer Support Services, and the Director of Community Health for the entire Tribe. Four on-reservation focus groups have been completed and a formal technical report submitted to the Tribe. This approach could identify factors associated with cancer, assist development of preventative prevention

programs for the Hopi people, and provide a model for survey development and implementation for other NA communities in Arizona.

Publication/Reference: Nuno, T., Gerald, JK, and Harris, R, et al. Comparison of Breast and Cervical Cancer Screening Utilization Among Rural and Urban Hispanic and American Indian Women in the Southwestern United States. *Cancer Causes and Control*. 2012;23(8):1333–341. <http://link.springer.com/content/pdf/10.1007%2Fs10552-012-0012-0.pdf>

Ambulatory Cardiac Monitor to Address Heart Disease in American Indian Population (Cardiovascular Disease)

Description: This Small Business Innovation Research (SBIR) project has developed a prototype of an ultra-low power, wireless, electrocardiograph sensor for ambulatory monitoring of heart disease. Planning is underway to conduct usability surveys of the device in an American Indian population. Improving access to quality diagnostic tools such as this device will help to decrease disparities in health outcomes for American Indian populations.

Arsenic Exposure, Cardiovascular Disease and Diabetes in Native Americans (Cardiovascular Disease)

Description: The aim of this study is to evaluate the association of inorganic arsenic exposure with the risk of cardiovascular disease and diabetes in 4,549 Native Americans who participated in the Strong Heart Study. Urine samples from 5,095 subjects were analyzed for urine arsenic species, and the following metals: antimony, cadmium, lead, molybdenum, selenium, tungsten, and zinc.

Findings: The association between arsenic and diabetes was restricted to participants with poor diabetes control. Further, increasing urine arsenic concentrations were associated with increased albuminuria, suggesting a role for arsenic as a kidney disease risk factor. In a family-based genetic study of variation in arsenic metabolites, linkage analysis identified a known gene (AS3MT) and three new regions. This observation supports genetic factors like AS3MT, and perhaps other genes accounting for the variable distribution of arsenic metabolites in urine of AI populations.

Publication/Reference: Gribble, MO., Howard, BV, and Umans, JG. Arsenic Exposure, Diabetes Prevalence, and Diabetes Control in the Strong Heart Study. *American Journal of Epidemiology*. 2012;176:865–74. <http://aje.oxfordjournals.org/content/176/10/865.full.pdf+html>

Genetics of Coronary Artery Disease in Alaska Natives (Cardiovascular Disease)

Description: The goals for Genetics of Coronary Artery Disease in Alaska Natives (GOCADAN) are to detect, characterize, and map genes that influence risk factors for preclinical and overt cardiovascular disease (CVD) in Alaska Eskimos. Despite traditional lifestyles (i.e., physical activity and traditional diets), CVD and particularly stroke are high in Alaska Eskimos. Therefore, aggressive blood pressure control, lipid lowering, and smoking cessation are warranted to reduce this burden.

Findings: Work from the GOCADAN study shows an association between endogenous fatty acid desaturation and cardiovascular mortality among Alaskan Inuits. In addition, uric acid is independently associated with both chronic kidney disease and hypertension in Alaska Eskimos.

Publication/Reference: Jolly, SE., Mete, M, and Wang, H, et al. Uric acid, hypertension, and chronic kidney disease among Alaska Eskimos: the Genetics of Coronary Artery Disease in Alaska Natives (GOCADAN) study. *Journal of Clinical Hypertension*. 2012;14:71–77.
<http://www.ncbi.nlm.nih.gov/pubmed/22277138>

Strong Heart Study: Coordinating Center and Oklahoma Field Center (Cardiovascular Disease)

Description: The objectives of the Strong Heart Study are to survey cardiovascular disease morbidity and mortality rates among three geographically diverse groups of American Indians and identify risk factors for obesity, diabetes, and CVD.

Findings: Results include proving the general assumption, that American Indians are at lower risk of developing CVD compared to the general population, to be incorrect; diabetes continues to be a major risk factor for CVD in American Indians. A modest amount of exercise is associated with a lower risk of diabetes, and may represent a potential intervention for American Indians. Further, the biomarker glycohemoglobin (HbA1c) has emerged as a novel predictor of stroke in American Indians.

Publication/Reference: Karas, MG., Devereux, RB, and Wiebers, DO, et al. Incremental Value of Biochemical and Echocardiographic Measures in Prediction of Ischemic Stroke: The Strong Heart Study. *Stroke*. 2012;43:720–26.
<http://stroke.ahajournals.org/content/43/3/720.full>

Follow-Up Studies of a Genome-Wide Association Analysis in Pima Indians (Diabetes, Obesity)

Description: Heritable factors might account for up to 40-70 percent of inter-individual variability in body weight. The Pima Indians of Arizona have a very high prevalence of obesity, and body mass index (BMI) is highly heritable. The process of producing and depositing fatty cells (adipogenesis) in the body is regulated by various signaling cascades (i.e., MAPK signaling), but their role in regulating fatty cells is poorly defined. The protein kinase MAP2K3 activates the MAPK signaling pathway. In genome-wide association studies (GWAS), genetic variants that might predispose Pima Indians to Diabetes/Obesity were studied to help identify specific sites on genes, which could predict or identify BMI.

Findings: Validated genetic variants (called single nucleotide polymorphisms or SNPs) were linked to the MAP2K3 gene. Additionally, there was a positive association between MAP2K3 expression levels and the BMI of the donor. Other data supported a role for MAP2K3 in adipogenesis and in dysregulating genes that are involved in fat cell production and fat metabolism. Similar observations were made in non-Hispanic Whites from the General Practice Implementation in Asia of Normoglycaemic Targets (GIANT) study.

Publication/Reference: Bian, L., Traurig, M, and Hanson, RL, et al. MAP2K3 is reproducibly associated with body mass index in Native Americans and Caucasians and is involved in hypothalamic inflammation. *Human Molecular Genetics*. 2013;Jul 3. [Epub ahead of print].

Next Generation Sequencing to Identify Genes for Type 2 Diabetes and Obesity (Diabetes, Obesity)

Description: The genetics of diabetes and pre-diabetes is still in its early phases where most of the studies have focused on genome-wide variation at the single nucleotide polymorphism (SNP) level. Although recent GWAS have uncovered many SNPs with small effects on type 2 diabetes or obesity, these SNPs explain relatively little of the heritability of these traits. With the development of highly accurate and high-throughput next generation sequencing, this study will detect and quantify SNP variants that could influence both pre-diabetic traits and type 2 diabetes mellitus in Pima Indians, with findings relevant for other AI/AN populations.

Publication/Reference: Huang, K., Yellapantula, V., Baier, L, and Dinu, V. NGSPE: A pipeline for end-to-end analysis of DNA sequencing data and comparison between different platforms. *Computers in Biology and Medicine*. 2013;43(9):1171–76.
<http://www.sciencedirect.com/science/article/pii/S0010482513001492#>

PECRB-Research on Type 2 Diabetes Mellitus—Gila River Indian Reservation (Diabetes, Obesity)

Description: The Pima Indians of Arizona have a high prevalence of obesity. In 1988, more than 80 percent of Pima Indians between the ages of 20 and 55 years had a BMI > 27 kg/M² and the incidence of obesity has been steadily increasing. The Pima Indians also have the highest reported incidence and prevalence of type 2 diabetes mellitus in the world, and this characterized by obesity, insulin resistance, insulin secretory dysfunction, and increased rates of endogenous glucose production. The interagency agreement between the NIH and the IHS is to provide funding for the administration of the Phoenix Epidemiology and Clinical Research Branch (PECRB). The scientific mission of PECRB is to determine the etiology (causes) of type 2 diabetes and obesity.

Publication/Reference: Muller, YL., Hanson, RL, and Knowler, WC, et al. Identification of genetic variation that determines human trehalase activity and its association with type 2 diabetes. *Human Genetics*. 2013;132:697–707.
<http://link.springer.com/article/10.1007%2Fs00439-013-1278-3>

Structural Analysis of Candidate Genes, For Type 2 Diabetes and Obesity (Diabetes, Obesity)

Description: A candidate gene for type 2 diabetes in Pima Indians is one that has a known physiological function in a type 2 diabetes/obesity relevant pathway or is associated with diabetes/obesity in another human population or animal model.

Findings: In the past year, more than 30 physiologic candidate genes and all their variants were sequenced and genotyped for associations with BMI or diabetes using two large population-based samples of individuals collected from the Gila River Indian Community.

Publication/Reference: Dong, Y., Guo, T, and Traurig, M. *SIRT1* is associated with a decrease in acute insulin secretion and a sex specific increase in risk for type 2 diabetes in Pima Indians. *Molecular Genetics and Metabolism*. 2011;104:661–65.

<http://www.sciencedirect.com/science/article/pii/S109671921100254X>

Native American Satellite Diagnostic and Treatment Core (Elder Health)

Description: American Indians experience a high prevalence of obesity, diabetes, hypertension, and cardiovascular disease – all possible risk factors for Alzheimer’s Disease (AD). The University of Texas Southwest Alzheimer’s Disease Center has a long-standing relationship with the Choctaw Nation, which covers 15,000 square miles in southeastern Oklahoma and comprises 80,000 members. A specific aim of the Native American Satellite Diagnostic and Treatment Core is to provide dementia diagnosis and treatment to the Choctaw Nation through in-person visits to Oklahoma and monthly telemedicine clinics. Recent research activities include assessing the prevalence of the ApoE4 allele in Native Americans with AD (a much lower prevalence has been found and suggests that reversible factors might be more important in this population than in Whites), linking the degree of Native American heritage with diabetes and hypertension, and applying distance technology to employ neuropsychological testing in native communities.

Publication/Reference: Weiner, MF., Rossetti, HC, and Harrah, K. Videoconference diagnosis and management of Choctaw Indian dementia patients. *Alzheimers and Dementia: the Journal of the Alzheimer’s Association*. 2011;7(6):562–66.

<http://www.ncbi.nlm.nih.gov/pubmed/22055972>

Native Elder Research Center (NERC) of the Resource Centers on Minority Aging Research (RCMAR) Program (Elder Health)

Description: The Native Elder Research Center (NERC) at the University of Colorado is the only National Institute on Aging-supported Resource Center on Minority Aging Research devoted to Native Elder health. Its aims include expanding partnerships with AI/AN communities to ensure continuous access and involvement of Native elders, their families, and local systems of care in aging research; preparing AI/AN investigators for research careers at the interface of aging, health, and culture; and reducing differentials in health status.

Publication/Reference: Stewart, AL, Thrasher, AD., Goldberg, J, and Shea, JA. A framework for understanding modifications to measures for diverse populations. *Journal of Aging and Health*. 2012;24(6):992–1017.

<http://www.ncbi.nlm.nih.gov/pubmed/22495768>

Teresi, JA., Stewart, AL, and Stahl, SM. Fifteen years of progress in measurement and methods at the resource centers for minority aging research. *Journal of Aging and Health*. 2012;24(6): 985–91.

<http://www.ncbi.nlm.nih.gov/pubmed/22904184>

Quality of Epilepsy Treatment and Costs in Older Americans by Race—QUIET CARE (Elder Health, Neurological Health)

Description: This study will use retrospective Medicare claims data to examine the current quality of epilepsy care across racial/ethnic groups of older Americans, including Whites, Native Americans, African Americans, and Hispanics, and will assess geographic variations in care.

The study will identify opportunities for quality of care improvements and healthcare cost reductions, which will aid in future development of interventions at the provider, patient, or system level, to improve healthcare for older minorities with epilepsy.

Findings: Epilepsy is a major public health problem among Medicare beneficiaries. Prevalence of epilepsy among Native American beneficiaries was lower than that reported among residents of the Navajo Nation who received care from the Indian Health Service.

Publication/Reference: Faught, E., Richman, J, and Martin, R, et al. Incidence and prevalence of epilepsy among older U.S. Medicare beneficiaries. *Neurology*. 2012;78(7):448–53.
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3280050/pdf/znl448.pdf>

Domoic Acid Neurotoxicity in Native Americans (Environmental Health)

Description: Over the past 30 years there has been a dramatic increase in the number of harmful algal blooms (HABs) in coastal waters throughout the world. As a result, there are now more toxic algal species, more algal toxins, and more geographic areas affected. One of these marine organisms, pseudo-nitzschia, produces a neurotoxin. Domoic Acid (DA) is found in razor clam harvesting beaches on Native American reservations in the Pacific Northwest. Recent data indicate that this population is currently at risk for significant, but preventable, neurobehavioral impairment caused by amnesic shellfish poisoning (ASP) from razor clam consumption. A prospective longitudinal study of a population of Native Americans (ages 6 months to 75 years) from three Tribes, as compared with case controls of identified cases of ASP, will be implemented. The health impacts of chronic, low level exposures to DA over time will be determined, as well as the host factors associated with DA neurotoxicity. A new model of ASP, to include the potential for delayed or latent toxicity, recovery, and recurrence will be tested with state-of-the-art procedures for assessing human exposure (mobile technology) and behavioral neurotoxicity in infants, children, adults, and geriatric groups.

Publication/Reference: Grant, KS., Burbacher, TM., Faustman, EM, and Gratttan, L. Domoic Acid: Neurobehavioral Consequences of Exposure to a Prevalent Marine Biotxin. *Neurotoxicology and Teratology*. 2010;32(2):132–41.
<http://www.sciencedirect.com/science/article/pii/S0892036209001767#>

PAHs: New Technologies and Emerging Health Risks (Environmental Health)

Description: The Superfund Research Program (SRP) grantees at Oregon State University (OSU) successfully completed several research projects with the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) using community-based participatory research methods. For example, OSU conducted focus group sessions on defining health, discussion of environmental health concerns, and the importance of smoked food as a cultural tradition. A follow-up analysis of salmon smoked using traditional practices found very high levels of polycyclic aromatic hydrocarbons (PAHs, which are both carcinogenic and mutagenic air pollutants produced as byproducts of fuel burning) as compared to commercial products.

Findings: This SRP has been proactive in establishing equal partnerships when working with Tribes (see Harding A, et al., 2012 below). The findings of the publication have been adapted for other Tribal projects. SRP investigators and trainees at OSU will meet in September 2013, with the CTUIR in Pendleton, Oregon. SRP investigators and trainees will be engaged in

collaborative research starting fall 2013 with the Swinomish Indian Tribal Community and the Samish Nation (located in Washington State) and the CTUIR.

Publication/Reference: Harding, A., Harper B, and Stone D, et al. Conducting Research with Tribal Communities: Sovereignty, Ethics, and Data-Sharing Issues. *Environmental Health Perspectives*. 2012;120(1):6–10.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3261947/pdf/ehp.1103904.pdf>

Interdisciplinary Center on Epigenetics, Science and Society (Genome, Workforce Development)

Description: This exploratory center focuses on assessing ethical, legal, and social implications that may develop as our scientific understanding of epigenetics advances. An interdisciplinary group of investigators from Oregon Health and Science University and other regional institutes will undertake preliminary social science to study cases in epigenetics; investigate the translation of epigenetic science to cancer diagnostics and therapy; examine law and policy implications of epigenetic knowledge; and prepare a training program, including a plan to recruit and retain minority students.

Perinatal Assessment of At-Risk Populations (Infant/Child Health)

Description: The studies focus on testing healthy term and at-risk, prematurely born infants in response to physiological challenges associated with changes in sleep state, sleep positions, and orthostatic tilt. The objectives are to improve understanding of the physiological mechanisms that underlie sudden infant death syndrome (SIDS) in order to develop non-invasive tests and identify infants at greatest risk. The researchers predict that adverse prenatal exposures will be associated with altered electrical patterns in the brain, in both premature infants and in the high-risk sample of infants from the Northern Plains.

Publication/Reference: Isler, JR., Tarullo, AR, and Grieve, PG, et al. Toward an Electro cortical Biomarker of Cognition for Newborn Infants. *Dev Sci*. 2012;15(2):260–71.

<http://onlinelibrary.wiley.com/doi/10.1111/j.1467-7687.2011.01122.x/full>

Prenatal Alcohol and SIDS and Stillbirth (PASS) Network: The Safe Passage Study (Infant/Child Health)

Description: The PASS Research Network conducts the Safe Passage Study and includes Native American populations. This study uses Auditory Brainstem Responses (ABR) and Otoacoustic Emissions (OAE) to determine how deficits in brainstem function might be prenatally associated with maternal alcohol intake and other possible risk factors. The study will improve prevention and intervention strategies and increase knowledge of the importance of hearing screening and follow-up of high-risk newborns in American Indian populations to ensure improved occupational, financial, and healthcare practitioners' communication outcomes of children from economically disadvantaged groups.

Findings: As of January 2013, the Northern Plains study had obtained almost 1,200 ABR and OAE exams on newborns or neonates at one month of age; by the end of the study, they expect to have nearly 3,000 ABR and OAE exams completed.

Gene Expression Profiling on Insulin Resistance and Obesity (Obesity)

Description: This project uses gene expression profiling to identify genetic susceptibility for diabetes and its predictors: insulin resistance, insulin secretory dysfunction, and obesity. Gene expression profiles in tissue samples from non-diabetic Pima Indians will assess more than 1 million known and predicted genes across the entire genome with the aim of identifying individual susceptibility to diseases like diabetes.

Findings: A total of 225 skeletal muscle samples and 250 adipose tissue samples from non-diabetic Pima Indians metabolically phenotyped for body composition and insulin action are collected to date. Because follow-up data is available on the diabetic status of volunteers, the goal is to identify a prediabetic exon expression profile in this population.

Publication/Reference: Bian, L., Hanson, RL, and Ossowski V, et al. Variants in *ASK1* are associated with skeletal muscle mRNA expression, *in vivo* insulin resistance, and type 2 diabetes in Pima Indians. *Diabetes*. 2010;59:1276–82.

<http://diabetes.diabetesjournals.org/content/59/5/1276.long>

Amblyopia in Astigmatic Children—Development and Treatment (Ophthalmic)

Description: This research project investigates the development of astigmatism and astigmatism-related amblyopia in young children from the Tohono O’odham Nation, which has a high prevalence of astigmatism.

Findings: Study shows that the visual disorder, astigmatism is common among preschool Tohono O’odham children. In addition, a keratometer, operated by trained non-medical personnel, can screen for childhood astigmatism quickly and effectively. This research underlies three major recommendations to assure proper care for children with astigmatism: 1) Screening of every child by three years of age; 2) An eye examination of astigmatic children to determine the need for eyeglasses; and 3) Arrangements for children to receive eyeglasses, including a system for quick, easy, and inexpensive replacement (if needed).

Publication/Reference: Harvey, EM., Dobson, V, and Miller JM, et al. Prevalence of Corneal Astigmatism in Tohono O'odham Native American Children 6 Months to 8 Years of Age.

Investigative Ophthalmology and Visual Science. 2011;52(7):4350–355.

<http://www.iovs.org/content/52/7/4350.long>

Brief Intervention for Substance Using Native Youth (Substance Related Disease)

Description: This project will develop and test a school-based motivational intervention (MI) with the goal of conducting a clinical trial to evaluate a culturally congruent, school-based MI, which targets substance use among Native American high school students. Few substance abuse preventative interventions have been tested for efficacy for the AI/AN populations; this study will help address this gap and inform prevention practice.

Drug Use among Young Indians: Epidemiology & Prediction (Substance Related Disease - Drugs)

Description: This project continues a 30-year surveillance effort assessing the levels and patterns of substance use among American Indian adolescents attending reservation schools. Findings

will guide recommendations for the design of drug, alcohol and violence prevention programs that will be effective for American Indian youth.

Findings: Study indicates that rates of inhalant use among younger Native American youth (grade 4-6) are generally lower as compared with their non-Native American counterparts. However, rates of alcohol and marijuana use are significantly higher, which may indicate that Native American children could be experiencing greater social and environmental pressures to use alcohol and drugs at an earlier age as compared to non-Native American children.

Publication/Reference: Miller, KA., Stanley, LR, and Beauvais, F. Regional differences in drug use rates among American Indian Youth. *Drug and Alcohol Dependence*. 2012;126:35–41. www.sciencedirect.com/science/article/pii/S0376871612001366#

Native American Research Centers for Health (NARCH) Initiative (Substance Related Disease, Infectious Disease, Traditional Healing, and Diabetes)

Description: The NARCH initiative is a collaboration between the IHS and the NIH that supports partnerships between AI/AN Tribes and organizations and institutions that conduct intensive biomedical, behavioral, and health services research. The NARCH initiative also strengthens opportunities for conducting research training, and faculty development to meet the needs of AI/AN communities. One project will recruit ANs with gastric cancer to identify H. pylori pathogenic virulence and host factors associated with gastric cancer. Other initiatives include chronic pain rehabilitation for AIs; prevention of intentional injury; improving research infrastructure and health research training skills for trainees; community-based participatory research; providing technical assistance and support for research projects aimed at solving physical activity, drug abuse, and addiction health outcomes; and family-based alcohol and drug-prevention interventions. Additional projects are focused on traditional healing practices and complementary medicine utilization, acupuncture for treating diabetic neuropathy, pain management, and substance use prevention and recovery.

Risk Factors for Alcoholism in Native Americans (Substance Related Disease - Alcohol)

Description: These studies determine the genetic, clinical and neurobehavioral factors related to alcohol abuse in reservation-dwelling Mission Indians, and are aimed at identifying risk and protective factors related to alcohol dependence in Native Americans.

Findings: Study suggests that Mission Indians have a distinct cluster of biological and behavioral risk factors for alcohol dependence and that initiating alcohol use during adolescence is particularly harmful. Identification of unique endophenotypes (behavioral phenotypes) and several chromosome regions are linked to alcohol dependence phenotypes and other co-morbidities.

Publication/Reference: Ehlers, CL., Gizer, IR., Gilder, DA, and Yehuda, R. Lifetime history of traumatic events in an American Indian community sample: Heritability and relation to substance dependence, affective disorder, conduct disorder and PTSD. *Journal of Psychiatric Research*. 2013;47(2):155–61. <http://www.sciencedirect.com/science/article/pii/S0022395612003147#>

Zuni MICRA Project (Substance Related Disease)

Description: This project aims to adapt and test a combination of evidence-based methods, motivational interviewing, and a community reinforcement approach (MICRA), in preparation for a formal substance abuse treatment intervention trial in Zuni Pueblo communities. The generalizability of MICRA will be tested for use with other Tribes. This project is representative of only a few studies that are testing the efficacy of culturally congruent treatment interventions for substance abuse in Indian Country and will inform best practices for optimal treatment.

Publication/Reference: Greenfield, BL, and Venner, KL. Review of Substance Use Disorder Treatment Research in Indian Country: Future Directions to Strive Toward Health Equity. *American Journal of Drug and Alcohol Abuse*. 2012;38(5):483–92.
<http://informahealthcare.com/doi/full/10.3109/00952990.2012.702170>

Training/Education

Indigenous HIV/AIDS Research Training (I-HART) Program (Behavioral/Mental Health)

Description: I-HART was developed to increase the number of AI/AN health researchers who successfully garner major grants for Tribal priority health issues. The I-HART program targets the junior and mid-career AI/AN university-based researchers and individuals conducting research in AI/AN communities to hone their competitive grant making, research, and publications skills for mental health and HIV/AIDS initiatives. The program has recruited nine fellows who were paired with experienced senior scientists and participated in a number of training activities.

Publication/Reference: Pearson, CR., Walters, KL., Simoni, JM., Beltran, R, and Nelson, KM. A Cautionary Tale: Risk Reduction Strategies Among Urban American Indian/Alaska Native Men Who Have Sex with Men. *AIDS Educ Prev*. 2013;25(1):25–37.
<http://guilfordjournals.com/doi/pdf/10.1521/aeap.2013.25.1.25>

Family Cancer Literacy to Promote Mammography Screening among Navajo Women (Cancer)

Description: This activity focuses on developing a family-based cancer literacy intervention that includes culturally and linguistically appropriate education on breast cancer to promote mammography screening among Navajo women. Among AI/AN women, breast cancer is more likely to be diagnosed at an advanced stage and the five-year breast cancer survival rates are lower than any other ethnic group. Among Navajo women scheduled for mammography screening appointments, the no-show rate is about 80 percent. The investigators hope to encourage Navajo women to get mammography screening to reduce breast cancer morbidity and mortality. This intervention may be implemented for other Tribes.

The Partnership for Native American Cancer Prevention Training Program (Cancer)

Description: The training program by The Partnership for Native American Cancer Prevention (NACP) is aimed at: a) developing effective transition steps to increase the number of Native American students in the cancer research and health sciences pipeline; and b) implementing a cancer research training program to improve the retention of Native American undergraduates at the participating universities and prepare them to enter graduate programs in cancer-related

research and healthcare. The goal is to increase the number of Native American students entering graduate and professional schools in cancer and biomedical fields.

Findings: The programs developed thus far are Health STAR (Successful Transition and Academic Readiness); STEP (Summer Transitional Enrichment Program); Research, Research Exchange and Internships; and Pathfinders Summer Institute. Sixty five (65) Native American students participated in the transition programs in 2012/2013 while 86 students were involved in cancer research with NACP investigators in the same period.

Intramural Research Opportunities (INRO) (Infectious Disease)

Description: INRO is an outreach program to recruit research trainees from populations underrepresented in biomedical research. INRO marketing includes direct listserv communication and tailored emails to AI/AN intermediaries, such as the American Indian Graduate Center and the National Indian Education Association; print ads (SACNAS News, Winds of Change, and Tribal College Journal); support and presence at key conferences (Society for Advancement of Chicanos and Native Americans in Science and American Indian Science and Engineering Society); and ongoing relations with AI collegiate partners.

Findings: Of the 151 applications received for INRO 2012, three were from AI/AN applicants. Of those, two attended INRO and one registered for a research traineeship at the NIAID. The NIAID also sponsored two American Indians as graduate students.

Native Voices: Native Peoples' Concepts of Health and Illness Exhibition Interviews via Mobile App (Miscellaneous)

Description: The NIH iPad app highlights interviews from National Library of Medicine (NLM) Native Voices Exhibition that features Native people who share concern for the individuals and communities affected by epidemics, government policies, and the inhibition of Native culture. Contemporary stories of renaissance, recovery, and self-determination are delivered electronically to promote healthy lifestyles and healthcare. The iPad app allows outreach to an expanded population and permits educational dialogue among diverse communities and improved health communication and health outcomes.

Publication/Reference: Apple iTunes: NIH/NLM/Native Voices.

Trans-NIH American Indian and Alaska Native Health Communications and Information Work Group (Miscellaneous)

Description: This work group has representation from 19 NIH Institutes and Offices and coordinates efforts to develop and disseminate health information on AI/AN communities. The work group collaborates with the IHS to disseminate quarterly NIH information kits to 1,600 AI/AN community health representatives to raise awareness on the availability of the NIH's science-based health information. Since the inception of the project in January 2008, the NIH has sent more than 12,000 information kits to community health representatives on wide-ranging topics including arthritis, cancer diagnosis and treatment, diabetes, drug abuse prevention, heart health, dental health, depression and suicide, stroke, asthma, and women's health.

National Multicultural Outreach Initiative (Musculoskeletal Disease)

Description: This initiative addresses disparities in accessing information on bone, joint, muscle, and skin diseases, including improvements in the availability of research-based information and emphasizing the importance of research on improved health.

Findings: In March of 2013, national distribution of four research-based, patient-centric, culturally relevant health planners for multicultural populations, including a specific health planner for AI/AN and Native Hawaiian communities, was concluded. The health planners were developed with guidance from AI/AN workgroup members who were affiliated with the Navajo Nation, Sioux, Klamath Tribes of Oregon, Laguna Tribe in New Mexico and pilot-tested in two American Indian sites – Oklahoma and Idaho. Stakeholder focus groups indicated planner recipients appreciated receiving culturally relevant information and the interactive format of the planners using reminder stickers, and appointment tracking prompted positive health actions and increased awareness of health information on bones, joints, muscles, and skin.

Advancing American Indian/Alaska Native Substance Abuse Research (Substance Related Disease)

Description: The NIH collaborated to disseminate the research presented at a 2010 conference on “Advancing American Indian/Alaska Native (AI/AN) Substance Abuse Research,” which resulted in a special edition of *The American Journal of Drug and Alcohol Abuse*. This special edition is the first ever journal comprised almost exclusively of empirical reports or reviews of research databases on AI/AN alcohol and drug use, including; (1) indigenous approaches and perspectives; (2) the etiology of substance use; (3) treatment and services research; and (4) prevention.

Publication/Reference: Allen, J., Ching, C, and Fok, T, et al. Umyuangcaryaraq “Reflecting”: Multidimensional Assessment of Reflective Processes on the Consequences of Alcohol Use among Rural Yup’ik Alaska Native Youth. *American Journal of Drug and Alcohol Abuse*. 2012; 38(5):468–75.

<http://informahealthcare.com/toc/ada/38/5>

NCRE II: Native Children's Development in the Context of Substance Use (Substance Related Disease)

Description: The Native Children's Research Exchange (NCRE) holds annual meetings focused on substance use and child development in AI/AN populations. NCRE supports mentoring, development, and networking among investigators at all career stages. It also facilitates interaction, publications, presentations, and information exchange among investigators studying child development in AI/AN communities, and fosters collaborative AI/AN child development research on substance use.

Publication/Reference: Whitesell, NR., Beals, J., Crow, CB., Mitchell, CM, and Novins, DK. Epidemiology and Etiology of Substance Use among American Indians and Alaska Natives: Risk, Protection, and Implications for Prevention. *American Journal of Drug and Alcohol Abuse*. 2012;38(5):376–82.

<http://informahealthcare.com/doi/full/10.3109/00952990.2012.694527>

Bridges to the Baccalaureate Program (Workforce Development)

Description: The Bridges to the Baccalaureate program is designed to help AI/AN students make the transition from two-year post-secondary educational institutions to four-year baccalaureate-degree granting colleges and universities. Examples of activities supported through the Bridges program include laboratory research experiences, mentoring and academic counseling programs, curriculum enrichment, visiting lectureships, and course development. The NIH supports several Tribal Colleges through partnerships with major institutions. For example, Montana State University, Bozeman partners with Blackfeet Community College, Little Big Horn Community College, Salish Kootenai College, and many others. The expected long-term outcome is greater participation within the biomedical and behavioral research enterprise from students from populations currently underrepresented in the sciences.

The Institutional Research and Academic Career Development Award (IRACDA) (Workforce Development)

Description: The IRACDA combines a traditional, mentored postdoctoral research experience with an opportunity for AI/AN students to develop academic skills through workshops. The primary goal of the IRACDA program is to develop a diverse group of highly trained biomedical and behavioral scientists to address the nation's biomedical, behavioral, and clinical research needs. Other goals are to develop a cadre of researchers to motivate the next generation of scientists at minority serving institutions (MSIs), and to promote linkages between research-intensive institutions and MSIs that can strengthen research and teaching collaborations. The NIH provides support to the University of Kansas, which partners with Haskell Indian Nations University, the University of Minnesota-Duluth, which partners with Fond du Lac Community College and Lake Superior College; and the University of North Carolina, which partners with the University of North Carolina at Pembroke. These programs support a number of postdoctoral AI/AN scholars. The expected long-term outcome of the NIGMS's ongoing career development is greater participation of students from underrepresented populations in science.

Building Bridges: Health Science Education in Native American Communities (Workforce Development)

Description: The University of Nebraska Medical Center, with the support of the Aberdeen Area Tribal Chairmen's Health Board, worked with Tribal schools and communities in Nebraska and South Dakota to develop, implement, and evaluate science curricula targeting Native American students' grades in the K-12 program. The project's long-term goals are to promote student interest in science, foster a more science literate public, and ultimately increase the number of Native Americans entering health and science careers. A key aspect of this project is to improve science instruction in the classrooms serving Native American partners

Biomedical Partnership for Research Education Pipeline in Alaska (Alaska BioPREP) (Workforce Development)

Description: The key aim of this project is to keep Alaska Native students in high school through graduation because their science courses are focused, challenging, and relevant. Simultaneously, the project aims to enrich the learning atmosphere for teachers and, through parents and local healthcare providers, aims to bridge the native community. The goal is to retain more students in college with lasting impacts that will include: a) recruitment to biomedical and health careers; b) assisting communities to appreciate the scientific and ethical complexities that must be considered to form public health policy and practice; c) encouraging discussion of the scientific

underpinnings of health decisions in local communities; and d) informing local and state health policy.

Hazardous Material Worker Health and Safety Training (Workforce Development)

Description: The NIEHS Worker Education and Training program funds a national network of over 100 non-profit health and safety training entities that are organized into 20 consortia. The program provides training on the handling of hazardous materials (Hazmat) and waste and trains workers who are involved in emergency response to Hazmat incidents. These include courses for Native Americans (including Tribal employees of natural resource, law enforcement, emergency medical, and fire service, public works agencies) in First Responder Awareness Level, First Responder Operations Level, Incident Management Systems, Clandestine Drug Lab Awareness (responding to methamphetamine labs – an epidemic on Tribal lands), Weapons of Mass Destruction Awareness, Radiological/Nuclear Awareness, and Mass Casualty Incident Triage.

Findings: In FY 2012, the Alabama Fire College (AFC) and the Native American Fish and Wildlife Society (NAFWS) provided training to approximately 1,700 trainees, including 205 Native American and public safety responders. A number of these courses prepared them to respond safely in the event of a disaster, whether natural or manufactured, that may involve Hazmat.

Publication/Reference: Mukherjee, S., Overman, L., Leviton, L., and Hilyer, B. Evaluation of Worker Safety and Health Training. *American Journal of Indian Medicine*. 2000;38(2):155–63. [http://onlinelibrary.wiley.com/doi/10.1002/1097-0274\(200008\)38:2%3C155::AID-AJIM6%3E3.0.CO;2-7/pdf](http://onlinelibrary.wiley.com/doi/10.1002/1097-0274(200008)38:2%3C155::AID-AJIM6%3E3.0.CO;2-7/pdf)

MARC Ancillary Training Activities (Workforce Development)

Description: The NIH has formed relationships with professional scientific societies to develop innovative programs aimed at increasing the number of biomedical scientists from AI/AN populations. These societies include the American Society for Cell Biology, the American Society for Microbiology, the Society for Advancement of Chicanos and Native Americans in Science, and the Federation of American Societies for Experimental Biology. The NIH supports the capacity of the societies to sponsor activities that engage students and faculty members in the biomedical sciences, including visiting scientist programs, summer research opportunities, and scholarships that enable attendance at national scientific meetings. The NIH currently provides support to the Society for Advancement of Chicanos and Native Americans in Science. A large number of Native American students attend the annual SACNAS conference.

Research Initiative for Scientific Enhancement (RISE) (Workforce Development)

Description: The RISE program provides support for faculty and student development activities, which can include workshops, specialty courses, travel to scientific meetings, and research experiences. RISE also offers some support for institutional development, which includes limited funds for the renovation or remodeling of existing facilities to provide space for an investigator to carry out developmental activities, limited equipment purchases, and the development of research courses. The NIH currently provides support to Salish Kootenai College, Haskell Indian Nations University, and the University of North Carolina at Pembroke. Fifteen students participate in RISE-sponsored developmental activities at these institutions.

Science Montana: Engaging 4-H Teens with Bioscience Research (Workforce Development)

Description: Many Montana high school students, particularly those in rural and often isolated areas, have limited, if any, exposure to scientists and thus often lack the awareness and the role models needed to consider bioscience study and careers. This project, “Science Montana: Engaging 4-H Teens with Bioscience Research,” engages rural teens, addresses future scientific workforce needs, and leverages the expertise of state scientists. The project collaborates with MSU's Howard Hughes Medical Institute Undergraduate Biology Program and the NIH-funded IDeA Networks of Biomedical Research Excellence Program, and builds on the resources and infrastructure of the Montana 4-H program with statewide 4-H clubs including Montana's seven Native American reservations.

SEPA in New Mexico (Workforce Development)

Description: American Indians and Hispanics have historically been under-represented in the scientific fields and recently there has been a steady decline in the number of American Indian and Hispanic students graduating with science and engineering bachelor's degrees from high Hispanic enrollment institutions and Tribal Colleges. This multi-faceted science enrichment program aimed towards students enrolled in Tribal and non-Tribal (predominantly Hispanic) middle schools, their science teachers, families, and the community-at-large in rural New Mexico. The program is a school- and community-based health education and participatory research program that incorporates intergenerational and science-inquiry community-based learning experiences to explore research, health-promoting nutrition, and physical activity for the prevention of chronic diseases.

Summer Internship Program in the Neurological Sciences (Workforce Development)

Description: The NIH supports an annual Summer Internship Program for academically talented and diverse high school, undergraduate, graduate, and medical students. The purpose is to provide students with a stimulating and rewarding research experience and to encourage their pursuit of advanced education and future careers in neurological science research. The Program has targeted Native Americans for recruitment by developing relationships with schools and Tribal Councils on reservations, and by extending outreach to areas densely populated by Native students.

Findings: In FY 2012, the NIH hosted three Lakota, one Dakota, two Navajo, one Blackfoot, one Pueblo, and two Native Hawaiian students. The Tulalip Tribe in Washington and several Tribes in Omaha initiated recruitment efforts. Since 2007, the NIH has supported 16 Native American students, and 11 of the students have presented their data at scientific meetings.

American Indian and Alaska Native Genetics Research Center (Genome)

Description: The National Congress of American Indians Policy Research Center, with support from the NIH, developed this web-based resource guide (<http://genetics.ncai.org/>). The goal is to provide Tribal leaders and AI/AN populations with information on the science behind genetics, and tools and information to make their own informed decisions on genetics research. Authors of resource guides include Native authors with genetics research expertise specific for Native communities.

Oklahoma Native American Research Centers for Health (NARCH VI) (Infectious Disease)

Description: The purposes of this project are to encourage competitive research, develop better diagnostic and prognostic tests for rheumatic diseases, and reduce the morbidity and mortality rates of infections in mothers and children. This project should increase the research capacity of the Tribes (Chickasaw, Creek, Choctaw, and Cherokee) and the University of Oklahoma and enhance research-related outreach to Native American communities. This research addresses health disparities among the Tribes and is one pathway through which investigators hope to develop a cadre of Native American scientists and health professionals to conduct biomedical, clinical, and behavioral research that is competitive for NIH funding.

Environmental Health Information Partnership (EnHIP) (Miscellaneous)

Description: By using information technology and environmental health information, EnHIP strengthens institutional capacity to reduce health disparities. The program includes three Tribal Colleges and Universities (TCUs), Oglala Lakota College, South Dakota, Diné College, Arizona, and Haskell Indian Nations University, Kansas; the University of Alaska, Anchorage; 14 Historically Black Colleges and Universities; and three Hispanic Serving-Institutions. This program helps TCUs to make use of NLM resources in their curricula and community outreach projects. Faculty, staff, and students received training in toxicology, environmental health, and other electronic resources, and participated in meetings on scientific issues, government and non-government programs, and funding opportunities.

Publication/Reference: Factsheet URL: <http://sis.nlm.nih.gov/outreach/enhipfactsheetportrait.pdf>

Create Health Information Resources and Technologies that Address Health Disparities (Miscellaneous)

Description: This initiative aims to build services for health disparity information, including population-specific culturally, and linguistically appropriate websites that focus on issues of particular populations or geographic areas; general consumer health websites; and print resources detailing health disparities.

Findings: Resources specific for Native Americans include the American Indian Health (AIH) Web Portal (<http://americanindianhealth.nlm.nih.gov>); the Chicasaw Health Information Center (CHIC); the Arctic Health Web Site (<http://arctichealth.nlm.nih.gov>); and a Native American Health page (<http://www.nlm.nih.gov/medlineplus/nativeamericanhealth.html>).

American Indian and Alaska Native Health Disparities (Behavioral/Mental Health)

Description: The Center for American Indian and Alaska Native Health Disparities aims to address high rates of psychosocial trauma that are faced by many AI/AN communities by advancing innovation approaches for the amelioration of trauma-related health disparities. Research projects include developing 1) methods for detection and intervention in primary care settings and 2) treatment methods. The Center uses research, training, and community-focused tools and initiatives to explore consequences of trauma exposure and health disparity outcomes.

Publication/Reference: Sawchuk, CN. Roy-Byrne, P, and Noonan, A, et al. Smokeless Tobacco Use and its Relation to Panic Disorder, Major Depression, and Posttraumatic Stress Disorder in American Indians. *Nicotine and Tobacco Research*. 2012;14(9):1048–56.
<http://ntr.oxfordjournals.org/content/14/9/1048>

Trauma Screening, Brief Intervention and Referral among AI/AN Adults (Behavioral/Mental Health)

Description: The focus of this project is to explore the health impacts and outcomes of traumatic events and PTSD in adults of AI/AN communities. PTSD in the AI/AN population is poorly understood but is associated with significant adverse health outcomes, including marked comorbidity with other behavioral health disorders and increased health service utilization. This community-based participatory research evaluates behavioral health screening and detection in primary care settings for AI/AN communities, such as, trauma screening tools.

Publication/Reference: Brooks, E., Manson, SM., Bair, B., Dailey, N, and Shore, JH. The Diffusion of Telehealth in Rural American Indian Communities: a Retrospective Survey of Key Stakeholders. *Telemedicine Journal and E-Health*. 2012;18(1):60–66.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3306586>

Center for Native Oral Health Research at the University of Colorado, Denver (Infant/Child Health)

Description: This Center focuses on early childhood caries (ECC), which develop in a disproportionately high number of AI/AN children, and periodontal disease in adolescents with type 2 diabetes. Projects include: a) a randomized clinical trial to test the efficacy of a behavioral intervention using culturally appropriate health messaging for the prevention of ECC in a Northern Plains Tribe; b) a randomized clinical trial to determine whether an oral health promotion program delivered by community oral health workers in the Head Start setting is effective at preventing ECC; and c) a study to characterize the status of periodontal health in urban-dwelling adolescents at high risk for type 2 diabetes.

Native American Engagement in HIV Clinical Research (NAEHCR) (Infectious Disease)

Description: In 2012, NAEHCR was funded to increase the participation of Native American communities in NIAID-funded HIV/AIDS clinical trials. This project represents a collaboration between the Office of HIV Network Coordination’s Legacy Project and the National Native American AIDS Prevention Center in Denver. The main goals of NAEHCR are to build relationships among local Native communities and local HIV clinical research staff, and to increase awareness of clinical research and research advances among urban NA communities.

Findings: The NAEHCR was piloted in Denver and Seattle. In the first year, an advisory group of community consultants, comprised of eight to ten urban AI/ANs, was established to provide input on the project, materials development, evaluation plans, and long-term engagement efforts. Two focus groups were held and community surveys were collected as part of the formative research needed to guide the project. The data provided important information about the Native community’s knowledge, attitudes, and understanding of clinical research and were used to modify training curriculum and materials to meet the needs of the local Native communities.

***Streptococcus mutans* and Dental Caries in Native American Children (Infectious Disease, Oral Health)**

Description: This multilevel prospective cohort study explores risk factors for ECC development in children of a Northern Plains Tribe to determine if the caries-causing bacteria, *Streptococcus mutans*, alone or in combination with social, behavioral, and environmental factors, increase the risk of ECC.

Center for Health Research in Tribes in SD-MT-WY (Miscellaneous)

Description: The Center for Health Research with Aberdeen Area Tribes uses the Tribal participatory research model. Studies include investigating treatment for urinary incontinence in American Indian women and evaluating preconception health promotion in young American Indian women. The Center aims to strengthen community awareness of health disparities research, provide expert technical assistance, training, and educational support to Tribal health and physical activity programs, and advance development of Tribally-tailored programs in the prevention of childhood obesity.

Publication/Reference: Hanson, JD. Understanding Prenatal Health Care for American Indian Women in a Northern Plains Tribe. *Journal of Transcultural Nursing*. 2012;23(1):29–37.
<http://tcn.sagepub.com/content/23/1/29.long>

Exploratory Center on Minority Health and Health Disparities in Smaller Cities (Obesity)

Description: The basis for the Exploratory Center on Minority Health and Health Disparities in Smaller Cities is that smaller cities and towns versus very large cities differ in important ways that influence the character and potential solutions for health disparities. The objective of this center is to support researchers from many disciplines to conduct research in strengthening understanding of the multiple determinants of health disparities in smaller cities, and explore novel approaches to eliminate them. The center leads programs and initiatives exploring the health impact of local contamination of the food supply that might contribute to overweight and obesity among American Indian children and youth in Native American communities.

Publication/Reference: Schell, LM, and Gallo, MV. Overweight and Obesity Among North American Indian Infants, Children, and Youth. *American Journal of Human Biology*. 2012; 24(3):302–13.
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3514018/pdf/nihms418223.pdf>

Elluum Tungiinun – Toward Wellness (Substance Related Disease)

Description: Alaska Natives are faced with significant health disparities associated with alcohol use disorders and suicide. This community-based participatory research program uses culturally-based preventative interventions to reduce suicide risk and co-morbid underage drinking among Alaska Native Yup'ik Eskimo youth.

Findings: Five protective factors were identified: 1) internal, 2) external, 3) limits, 4) community/family, and 5) low protection. Patterns differed markedly by the community and age of Yup'ik Eskimo youths. Methods proposed in the study overcome the inherent problems in community-based participatory research intervention studies across disparate sites/communities of Alaska Native Yup'ik Eskimo youths, and have broad implications for usefulness beyond community-based participatory research studies.

Publication/Reference: Henry, D., Allen, J, and Rasmus S, et al. Patterns of protective factors in an intervention for the prevention of suicide and alcohol abuse with Yup'ik AN youth. *American Journal of Drug and Alcohol Abuse*. 2012;38(5):476–82.
<http://informahealthcare.com/doi/abs/10.3109/00952990.2012.704460>

Preventing Underage Drinking by Southwest California Indians (Substance Related Disease - Alcohol)

Description: This project aims to reduce underage drinking and associated health risks among Native American reservation-dwelling youth by reducing access to alcohol, enhancing enforcement to prevent drinking and driving, and providing individual level screening and brief interventions.

Findings: Native American youth are more likely than Whites to initiate drinking/heavy drinking at a younger age, are less likely to get alcohol from home, but more likely to access it from family sources or theft from a store. Preventative interventions to reduce alcohol availability to underage youth on reservations can be effective; a substantial proportion will accept Motivational Interviewing for behavior change.

Publication/Reference: Friese, T., Grube, JW, and Seninger, S, et al. Drinking Behavior and Sources of Alcohol: Differences Between Native American and White Youth. *Journal of Studies on Alcohol and Drugs*. 2012;72(1):53–60.

www.ncbi.nlm.nih.gov/pmc/articles/PMC3001681/pdf/jsad53.pdf

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