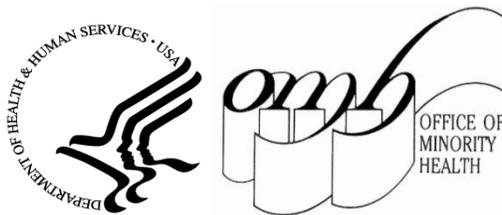


*DEPARTMENT OF HEALTH AND HUMAN SERVICES  
OFFICE OF MINORITY HEALTH*

**AMERICAN INDIAN/ALASKA NATIVE  
HEALTH RESEARCH ADVISORY COUNCIL  
(HRAC)**

**SECOND ANNUAL HEALTH RESEARCH REPORT  
FISCAL YEAR 2010**



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## Introduction

The *Second 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 American Indian and Alaska Native Health Research Advisory Council (HRAC) produced this report as a resource to share research findings, topics, and available Federal programs with Tribes. It includes submissions from the National Institute of Health (NIH) and the Agency for Healthcare Research and Quality (AHRQ).

## 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 Washington-based Tribal organizations. Federal partners participate in Council activities by providing input and support, and linkages with HHS' operating and staff divisions. These Federal partners include: Agency for Healthcare Research and Quality (AHRQ), Office of the Assistant Secretary for Planning and Evaluation (ASPE), Centers for Disease Control and Prevention (CDC), Intergovernmental Affairs (IGA), Indian Health Service (IHS), the National Institutes of Health (NIH) and the Office of Minority Health (OMH).

***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.

## The National Institutes of Health

The National Institutes of Health (NIH) is the steward of medical and behavioral research for the Nation. Its mission is the pursuit of fundamental scientific knowledge about the nature and behavior of living systems and the application of that knowledge to extend healthy life and reduce the burdens of illness and disability. The agency's goals are to: 1) foster fundamental creative discoveries, innovative research strategies, and their applications as a basis to advance significantly the Nation's capacity to protect and improve health; 2) develop, maintain, and renew scientific human and physical resources that will ensure the Nation's capability to prevent disease; 3) expand the knowledge base in medical and associated sciences in order to enhance the Nation's economic well-being and ensure a continued high return on the public investment in research; and 4) exemplify and promote the highest level of scientific integrity, public accountability, and social responsibility in the conduct of science.

The prevention, diagnosis, and treatment of diseases and conditions that disproportionately affect American Indian, Alaska Native, and Native American (AI/AN/NA) communities remain a priority for the NIH. The NIH will continue to promote its programs and funding opportunities to AI/AN/NA communities; bolster research activities to address the inadequate representation of these populations in biomedical research; and conduct and support health promotion initiatives and the translation of research findings into programs, educational/informational tools, and materials for dissemination into AI/AN/NA communities. Expanding the pool of scientists, researchers, and health professionals within AI/AN/NA communities is also essential in dealing with the many variables associated with improving the health of the communities. The NIH recognizes partnerships as a fundamental strategy to reach the communities. In addition to supporting research capacity-building projects, it will emphasize the development of partnerships among community organizations, churches, other minority and research-intensive institutions, the private sector, and other grant-funding entities.

This section represents a compilation of important programs supported in 2010 in the areas of research, capacity-building, and health education that are relevant to AI/AN/NA communities. These programs, listed by NIH Institute, Center, and Office, aim to address disparities in health experienced by AI/AN/NA communities and other medically underserved populations. This section is a resource that represents the breadth of the NIH portfolio, but it is by no means comprehensive.

**CLINICAL CENTER (CC)**

The Clinical Center (CC) at NIH is the Nation's largest hospital devoted entirely to the translation of scientific observations and laboratory discoveries into new approaches for diagnosing, treating, and preventing disease. As America's research hospital, it leads the global effort in training today's investigators and discovering tomorrow's cures. Its mission is to provide a versatile research environment enabling the NIH mission to improve human health by: 1) investigating the pathogenesis and natural history of disease; 2) developing state-of-the-art diagnostic, preventive and therapeutic interventions; 3) training the next generation of clinical researchers; and 4) ensuring that clinical research is safe, efficient, and ethical.

**Historical and Contemporary Factors Influencing the Lives of Reservation Based Native American Youth: Non-Lethal Suicidal Behavior**

*Project Type:* Pre-doctoral Fellowship in Community-Based Participatory Research (CBPR).  
*Population:* Native American – Nakoda and White Clay Nations of Fort Belknap, Montana.

*Description:* A collaborative study has been developed between the NIH, CC, Johns Hopkins University, and the Fort Belknap Tribal Council. The overall aim of this study is to further the understanding of non-lethal suicidal behavior by examining the relationships between risk and protective factors among reservation-based youth (ages 15-24 years).

*Publications:* Brockie, T., Becenti-Pigman, B., Doney, J., Wallen, G.R. (accepted for November, 2010). Human Subjects Protection in a Tribally-Governed Community: Respecting Sovereignty While Protecting Individuals and Communities. 138<sup>th</sup> American Public Health Association Annual Conference. Denver, Colorado.

Adams, K., Goodman, D., Brockie, T., Azar, K., Fisher, C., Feigenbaum, K., Halver, D., Revoir, J., Palucci, L., Haldane, S., Wallen, G.R. (July 2010). Utilizing CBPR Principles as a Mechanism for Delivery of EBP in Tribal Communities: Fort Belknap Research Symposium and Evidence-Based Practice Workshop. 2010 Nurse Leaders in Native Care Conference. Washington, DC.

**NATIONAL CENTER FOR COMPLEMENTARY AND ALTERNATIVE MEDICINE (NCCAM)**

The National Center for Complementary and Alternative Medicine (NCCAM) is the Federal government's lead agency for scientific research on the diverse medical and health care systems, practices, and products that are not generally considered part of conventional medicine. The mission of NCCAM is to: 1) explore complementary and alternative healing practices in the context of rigorous science; 2) train complementary and alternative medicine researchers; and 3) disseminate authoritative information to the public and professionals.

### **Traditional Healing Practices and CAM Utilization in the San Carlos Apache Tribe**

*Project Type:* Research.

*Population:* San Carlos Apache Tribe.

*Description:* The Integrative Medicine Attitudes Questionnaire (IMAQ) will be modified to be culturally relevant to the San Carlos Apache Tribe (SCAT) in order to determine the community members' knowledge, attitudes, and utilization of complementary and alternative methods (CAM) and traditional medicine. Data gained from the survey will be applied to develop new facilities and services for the SCAT and to ensure that the design of the new health facility meets members' needs and desires for expanded service.

### **Acupuncture and Diabetic Neuropathy Among Native Americans**

*Project Type:* Research.

*Population:* Native American in Southern California.

*Description:* Acupuncture could be a cost-effective intervention for diabetes-induced peripheral neuropathy. The project will establish data on the prevalence of peripheral neuropathy among Native Americans at a Southern California American Indian diabetes clinic. The study will then examine the effectiveness of acupuncture in this community to treat diabetic neuropathy, a complication of diabetes.

### **13<sup>th</sup> Annual Patty Iron Cloud National Native American Youth Initiative**

*Project Type:* Outreach Program.

*Population:* American Indian and Native American.

*Description:* NCCAM scientific staff served on a panel, made presentations, and mentored students at the 13<sup>th</sup> Annual Patty Iron Cloud National Native American Youth Initiative (NNAYI), an academic enrichment program. NNAYI is designed to better prepare American Indian and Native American (AI/NA) high school students to continue their education and pursue a career in the health professions and/or biomedical research. Native American youth came to DC for a week and spent two days at the NIH touring laboratories and attending lectures by staff.

### **INIHKD Conference 2010: Indigenous Medicines, Health Knowledge and Best Practices Conference**

*Project Type:* Conference Support.

*Population:* Indigenous Global Communities.

*Description:* During the May 24-28, 2010, conference at the Kiana Lodge in Poulsbo, Washington, NCCAM staff held a grantsmanship workshop. The International Network for

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Indigenous Health Knowledge and Development (INHKD) assembles indigenous health researchers, scholars, policymakers, and practitioners. These participants are dedicated to improving the health of indigenous peoples in Australia, New Zealand, Canada, and the United States through community-led health research, culturally-based health services delivery, indigenous health workforce development, and indigenous health policy advancement.

**22<sup>nd</sup> Annual Native Health Research Conference**

*Project Type:* Outreach and Conference Support.

*Population:* American Indian, Alaska Native, and Native American.

*Description:* The 22<sup>nd</sup> Annual Native Health Research Conference, entitled “Translating Research into Policy and Practice in Native Health,” was held July 27-30, 2010, in Rapid City, South Dakota. Individuals who are involved with and use health research in Native American communities attended the conference. The conference enhanced the collective ability to advance biomedical, behavioral, and health services research for their benefit. NCCAM staff also held a workshop.

**Equine-Assisted Substance Use Prevention for Northern Plains American Indian Adolescents**

*Project Type:* Research.

*Population:* Spirit Lake Dakota – Northern Plains American Indian.

*Description:* The aim of this project is to develop and pilot a culturally-based prevention program to reduce four primary risk domains for Northern Plains American Indian adolescents aged 10-14 years for developing substance use disorders. The program will target traditional protective factors (enculturation, family/community connectivity, spiritual coping, traditional health practices, and identity strength) and empirically supported behavioral protective skills.

**Development of a Pain Rehabilitation Program for American Indians with Chronic Pain that Incorporates Opioid Tapering**

*Project Type:* Research.

*Population:* Fond du Lac Band of the Lake Superior Chippewa.

*Description:* The aim of this project is to improve the care of Chippewa community members who experience chronic pain. Researchers will adapt an efficacious cognitive behavioral intervention for American Indian adults coping with chronic pain in order to reduce the use of opioid treatments. This study will evaluate the efficacy of the intervention through a randomized clinical trial.

**NATIONAL EYE INSTITUTE (NEI)**

The mission of the National Eye Institute (NEI) is to conduct and support research, training, health information dissemination, and other programs with respect to blinding eye diseases, visual disorders, mechanisms of visual function, preservation of sight, and the special health problems and requirements of the blind.

**Health Vision Community Awards**

*Project Type:* Community Outreach and Education.

*Population:* American Indian and Alaska Native.

*Description:* The Healthy Vision Community Awards Program provides individual awards (up to \$10,000) to stimulate collaborative initiatives supporting community eye health education programs. The Healthy Vision Community Awards are intended to strengthen the capabilities of community-based organizations to develop innovative eye health education and promotion projects.

*Publications:* <http://www.nei.nih.gov/nehep/resources/hvca/index.asp>

**Amblyopia in Astigmatic Children – Development and Treatment**

*Project Type:* Research.

*Population:* Native American – Tohono O’odham Nation.

*Description:* This research project is investigating the development of astigmatism and astigmatism-related amblyopia in young children. The Tohono O’odham Nation has a high prevalence of astigmatism, allowing large-scale studies of the development of these visual disorders, which should aid in developing improved guidelines for treatment and prevention. It was observed that overall prevalence of astigmatism is greater in the Tohono O’odham children than in non-Native American populations. Also, spectacle correction during the preschool years results in a significant improvement in best-corrected letter recognition acuity in astigmatic children by the time they reach kindergarten.

*Publications:* Harvey EM, Dobson V, Miller JM. Prevalence of high astigmatism, eyeglass wear, and poor visual acuity among Native American grade school children. *Optom Vis Sci* (2006); 83: 206–12.

Dobson V, Clifford-Donaldson CE, Green TK, Miller JM, Harvey EM. Optical treatment reduces amblyopia in astigmatic children who receive spectacles prior to kindergarten. *Ophthalmology* (2009); 116:1002-8.

**NATIONAL CANCER INSTITUTE (NCI)**

Consistent with its mission to conduct scientific research that will facilitate the control and prevention of cancer, the National Cancer Institute (NCI) will continue to conduct and support research to examine inequalities in cancer and the social, cultural, environmental, biological, and behavioral determinants of cancer, interactions among them, and mechanisms by which these factors contribute to disparities in early detection, cancer care, prevention, end-of-life, palliative, and quality-of-care. Further, NCI will continue to support initiatives to develop sustainable interventions and identify priority areas for future policy development to ameliorate cancer health disparities. Major areas of emphasis in research are to: 1) conduct basic research focused on identifying and reducing cancer health disparities; 2) conduct translational research focused on transferring basic knowledge to clinical practice in order to reduce cancer health disparities; 3) conduct clinical and applied research to assess effective prevention, diagnosis, and treatment options concentrated to reduce cancer health disparities; 4) determine evidence-based best practices for personalized medicine; and 5) improve understanding of causes of disparities to reduce and eliminate them.

**The Partnership for Native American Cancer Prevention (NACP)**

*Project Type:* Training.

*Population:* Native American – Navajo, Hopi and the Tohono O’odham Tribes.

*Description:* The Partnership for Native American Cancer Prevention (NACP) between Arizona Cancer Center (AZCC) and Northern Arizona University (NAU) successfully competed for the continuation of funding for the U54 program in FY 2009. The program has been renewed for the next five years, thereby providing the NACP with the opportunity to continue the successful activities it is undertaking among the Navajo, Hopi, and Tohono O’odham Tribal communities in Arizona. In this partnership, research programs of the AZCC are linked with American Indian student training programs and environmental research at NAU. A comprehensive plan was developed to enhance cancer research at NAU and to coordinate American Indian student recruitment and retention at NAU and the University of Arizona. The objectives of this program are to: 1) initiate robust cancer research at NAU, e.g., enhance faculty career development and train students in cancer research; 2) create stable, long-term cancer research, education, and outreach collaboration; and 3) improve institutional effectiveness in impacting the disparity in cancer in American Indians of the Southwest.

More than 153 Native American students have participated in this partnership program. NACP has sponsored a cancer education curriculum for Native Americans and a master’s degree in chemical carcinogenesis at UA/AZCC. Cancer research infrastructure is being developed at NAU and two Native American investigators were recruited and mentored as part of the partnership. NACP offers continuing medical cancer education for healthcare professionals; and the AZCC has begun colon cancer screening on the Navajo Nation. In collaboration with the American Indian Studies Program, an on-line training module for the ethical conduct of research among Americans was developed at UA.

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As a result of work done in the first cycle of funding, NACP is now poised to extend the education, prevention and treatment programs of the AZCC to Native American communities in the Southwest in specific and prescribed programs. Collaborative arrangements are underway among NACP, UA, NAU, the University of New Mexico, and various Native American Tribes in the Southwest for programs that will address cancer health disparities in each Native community. A major plan of the outreach program in the newly funded U54 partnership grant is to expand the cancer prevention activities and cancer control training for health professionals in all the participating Native American communities. There is also a plan to develop translational research activities within the partnership.

### **The Native American Research Centers for Health (NARCH)**

*Project Type:* Research Program.

*Population:* American Indian and Alaska Native.

*Description:* The NCI is committed to reducing cancer health disparities among American Indian and Alaska Native (AI/AN) populations through the Native American Research Centers for Health (NARCH) initiative. Research projects funded through this initiative are aimed at increasing research capacity of AI/AN research institutions and providing the much needed outreach efforts that would address observed cancer health disparities in AI/AN communities.

NARCH continues to carry out research projects that are relevant to the needs of specific Tribes in AI/AN communities. The result is increased awareness about cancer screening, diagnosis, and treatment with the ultimate objective of reducing cancer health disparities among AI/ANs. NCI is currently funding three NARCH projects focused on nicotine excretion, metabolism, and smoking cessation for Alaska Natives. NCI plans to continue the funding of these programs, as well as expand NCI efforts in the training and development of a cadre of AI/AN scientists and health professionals that would contribute significantly to the goals of reducing cancers that disproportionately affect these communities. There are plans to expand the program to all aspects of cancer and cancer health disparities research. To achieve this objective, NCI is participating in the FY 2010 funding opportunity announcement by NARCH.

### **Diné College and Mayo Clinic Partnership Program**

*Project Type:* Training Program.

*Population:* Native American.

*Description:* Diné College, a multi-campus, undergraduate Tribal college chartered by the Navajo Nation, partners with the Mayo Clinic through the NCI-supported Minority Institution/Cancer Center Partnership (MI/CCP) program. The partnership works with Native American students to increase their interest and commitment to biomedical research, special

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cancer research that will benefit their communities. This program is in its fourth year and aims to: 1) develop training programs that will enhance cultural competence of Mayo Clinic investigators regarding Native American (especially Navajo) values, beliefs, attitudes, and practices relative to cancer; 2) develop outreach education for Navajo Nation communities regarding causes and available treatments for various forms of cancer; and 3) train Diné College investigators in cancer research.

A number of curricula have been developed for students at Diné College. The Mayo Clinic provides summer internships for the students and research opportunities for faculty. Several Diné College students currently work in the "Spirit of EAGLES" cancer control and community awareness projects in Navajo communities. The curricula that were developed through this partnership have been integrated into the Diné College didactic curriculum. The work on the "Navajo Glossary" of cancer terminology continued during 2009. Plans for seeking funding from several sources for dissemination of the completed work are ongoing. Efforts are also being made to secure funding for the continuation of the Summer Research Enhancement program and the Cancer Education Curriculum.

**Developing Multilevel Interventions That Address Individual, Organizational, and Community-Level Aspects of Cancer Screening**

*Project Type:* Research Program.

*Population:* American Indian, Alaska Native, and Native American.

*Description:* This program, initiated in FY 2010, aims to determine differential effectiveness of treatment and/or prevention options to reduce unequal burdens of cancer in various population groups. The program will bring together experts to explore methods for evaluating cultural relevance, identifying constructs and behavioral theories relevant to screening, and disseminating results on new methods at conferences and in peer-reviewed publications; use internal resources and available mechanisms to explore older adults' screening challenges and decision-making processes; consult with extramural scientists to identify challenges to conducting multilevel research in cancer screening; fund supplements to evaluate statistical methods for application to multilevel cancer screening interventions; review, describe, and publish a summary of the behavioral cancer screening literature related to multilevel interventions; and encourage multilevel interventions in cancer screening, particularly among populations that experience disparities. New community-based Family Screening Intervention studies will be conducted to examine the impact and synergy of targeting individuals versus whole family and community units in underserved populations for cancer screening.

**The New Mexico Tumor Registry (NMTR)**

*Project Type:* Capacity-Building.

*Population:* American Indian and Alaska Native.

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*Description:* As a part of the Surveillance, Epidemiology and End Results (SEER) Program, the New Mexico Tumor Registry (NMTR) reports cancer cases for all residents of New Mexico, including AI/ANs. Due to NMTR's experience and expertise in collecting data from Indian Health Service (IHS) facilities, and because several of these facilities serve both New Mexico and Arizona residents, NMTR is providing technical assistance to the Arizona Cancer Registry by collecting AI/AN cases from IHS facilities in both states.

Through this program, the NCI is developing cancer surveillance infrastructure to ensure that data on all racial/ethnic population groups are adequately represented in its research resources. This NCI-supported activity has enabled the Arizona registry to report more complete case counts for AI/ANs. NCI's Surveillance Research Program will continue to support the collections of data on Arizona Indians.

### **The Comprehensive Umbrella of Research Experiences (CURE) program**

*Project Type:* Training Program.

*Population:* American Indian, Alaska Native, and Native American.

*Description:* Through the Comprehensive Umbrella of Research Experiences (CURE) program, the NCI awards administrative supplements to Principal Investigators (PIs) holding specific types of NIH research grants to improve the diversity of the research workforce by supporting and recruiting students and other eligible investigators from population groups shown to be underrepresented in biomedical research enterprise, such as Native Americans and Alaska Natives. In FY 2010, the NCI used its Cancer Center (P30) supplements to support research experiences for Native American high school and undergraduate students through its Partnership to Reduce Cancer Health Disparities program at the University of Arizona Cancer Center.

The NCI is intensifying efforts to provide science and math curriculum to K–12 school students from racial/ethnic underrepresented and underserved populations to foster knowledge, skills, and enthusiasm for cancer research. This expanded initiative is designed to attract students in elementary through high school grades from populations underrepresented in biomedical sciences into science and mathematics programs. The program will enhance students' interest in science by providing exciting curricula, effective study tools, scientific demonstrations, and access to cutting-edge scientific technologies. This effort will build a pipeline of students with interest in science and mathematics, increasing the chance of including science and cancer research in their career choices. The initiative will include programs tailored to needs of students at different levels such as science curricula, science conferences, summer camps, after-school programs, and science education outreach programs. This initiative will also include program evaluation and tracking of participants for up to 5 years after they have completed the program.

To-date, over 50 high school and undergraduate NA/AI students have been supported through the CURE program. This research training opportunity will increase the chance of these

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students including science and cancer research in their career and academic choices, as well as improve the diversity of future biomedical researchers focusing on cancer health disparities.

**The Southwest American Indian Collaborative Network (SAICN)**

*Project Type:* Community Outreach.

*Population:* American Indian.

*Description:* The NCI provided support for the Inter Tribal Council of Arizona, Inc. (ITCA) to establish the Southwest American Indian Collaborative Network (SAICN) to eliminate cancer health disparities among American Indians. This collaborative project involves three primary partners: ITCA, the Arizona Cancer Center (AZCC), and the Phoenix Indian Medical Center (PIMC), with input from the communities, the three Arizona universities, and genomics researchers from the Translational Genomics Institute (TGen). The SAICN cores are: Administrative, Data and Evaluation, Outreach and Service, Policy, Research, Training, and Education. The cores are designed to help assure that this occurs at many levels, thus allowing SAICN to increase and sustain delivery of interventions and to develop pilot studies using a collaborative approach.

A core organizational infrastructure, made up of six core services, has been implemented in order to support community-based participatory activities and the development of partnerships among communities, cancer prevention/care delivery systems, and research discovery/development systems. The cores were established and fully staffed during the first year of SAICN. NCI plans to continue the development of interventions and work with the ITCA and other partners to reduce cancer health disparities in the Native American population.

**The Northwest Tribal Cancer Navigation Program (NTCNP)**

*Project Type:* Research.

*Population:* American Indian and Alaska Native.

*Description:* The Northwest Tribal Cancer Navigation Program (NTCNP) is one of nine project sites for the NCI Patient Navigation Research Program (PNRP). The grantee for this cooperative agreement project is the Northwest Portland Area Indian Health Board (NPAIHB). NTCNP has implemented a model of patient navigation that uses lay or nurse-navigators and is culturally responsive to the needs of each of the Tribal groups that it serves. Each Tribe's local health board and the NPAIHB advisors provide advice and oversight of local activities.

In 2009, the NTCNP completed Year 4 of this 5-year project through which it is implementing patient navigation among Tribal federations in the Northwest region. Research design involves comparing outcomes among members in clinics receiving navigation and those that are not. Four Tribal clinics receive the services of a patient navigator and four are in

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the comparison condition. Those in the comparison condition will receive a detailed report on the cancer outcomes for patients who have had abnormal breast, cervical, colon, or prostate screenings.

The study clinics (and their associated navigators) are disbursed throughout the Northwest region (Washington, Oregon, and Idaho). In addition to providing navigation services to patients with an abnormal finding that may be indicative of cancer, patient navigators provide outreach to the community (e.g., health fairs) and support to families with a member who has had a cancer diagnosis (e.g., coordinating end-of-life services). NTCNP collects data related to breast, cervical, colon, and prostate cancers although navigators, as clinic employees, may provide navigation services to patients with any cancer diagnosis.

The navigation process involves assessing patients for barriers to care and assisting the patient and family in overcoming these barriers (e.g., payment, transportation, understanding prep instructions). In FY 2010, NCI continued funding of the outreach and accrual activities. The NTCNP-PNRP will continue to reach out to patients not on study to offer the chance to participate and contribute data; continue collection of data regarding barriers and actions to overcome them; and continue chart abstractions to develop longitudinal data regarding patients in the comparison clinics. The program will also implement satisfaction and quality of life surveys (mixed quantitative and qualitative modalities), as well as develop dissemination and sustainability activities.

In the past four years, over 100 individuals with abnormal cancer screening results have been navigated to timely resolution of the initial result; and over 20 cancer patients have been assisted in obtaining appropriate cancer care on a timely basis.

### **The Walking Forward Program**

*Project Type:* Community Outreach.

*Population:* Sioux Tribes of the Northern Plains and South Dakota.

*Description:* The NCI supports access to health services. The Walking Forward Program at the Rapid City Regional Hospital (RCRH) was first funded in 2002 by the NCI as one of six Cancer Disparity Research Partnership (CDRP) grantees. The goal of the program is to increase the access and enrollment of minority/underserved populations onto NCI cancer clinical trials.

The Walking Forward Program serves American Indians in the Northern Plains region living within the Rapid City community and three reservations in western South Dakota. The CDRP grant supports community research representatives (including Raylene Miner of the Cheyenne River Reservation Sioux Tribe, David Lone Elk of the Pine Ridge Oglala Sioux Tribe, and Carolyn Spotted Tail of the Rosebud Reservation Sioux Tribe) who live on the reservations and provide public outreach, education, and recruitment activities necessary to provide access to cancer care and treatment on NCI cancer clinical trials opened at RCRH.

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Through the community representatives' community education and outreach activities, there has been increased knowledge and awareness of NCI-sponsored clinical trials and screening programs among the various Sioux communities in the Northern Plains region. However, the participation of Native Americans and Alaska Natives in clinical trials, though showing some improvement, remains low.

**The Spirit of EAGLES Community Networks Program (SoE-CNP)**

*Project Type:* Research.

*Population:* Native American and Alaska Native (Northern Plains region).

*Description:* In FY 2008, the NCI supported Community-Based Participatory Research (CBPR) projects to develop opportunities for cancer control and prevention among Native Americans by addressing culturally relevant education, training, and research. This initiative provides opportunities at the Mayo American Indian/Alaska Native Initiative on Cancer – Spirit of EAGLES. Specifically, the Spirit of EAGLES Community Networks Program (SoE-CNP) will: 1) maintain established community-based networks in the Southeast, Northeast, Northern Plains, and multi-Tribal urban populations; 2) provide the infrastructure to support, expand and evaluate Tribal community-based participatory research on cancer prevention, control, treatment and quality of life interventions; 3) improve access to and utilization of culturally competent cancer interventions (from prevention to palliative care) using community-based participatory research methods; 4) expand training opportunities to increase the number of NCI Cancer Information Service researchers and communities that are competent at implementing CBPR studies; and 5) develop, implement, and evaluate a strategic plan for long-term maintenance and expansion of SoE-CNP CBPR studies and projects.

Since 2005, more than 30 community-based intervention studies have been ongoing or completed. Two ongoing community-driven studies, ANTHC Tobacco Control Program and Nicotine Exposure Among Alaska Natives and a clinical study examining nicotine measures, are currently underway.

**Native People for Cancer Control (NPCC)**

*Project Type:* Capacity-Building.

*Population:* Native Americans (Northwest United States).

*Description:* The NCI's Native People for Cancer Control (NPCC) program enhances existing relationships and programs and fosters partnerships to improve education, training, and research. The NCI will continue the development of interventions for Native Americans in the Northwest to increase awareness of cancer risks and the importance of early detection. This program, housed at the University of Washington, uses community-based participatory methods in an integrated, stepwise strategy to: 1) increase cancer education activities among

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American Indians and Alaska Natives; 2) build the capacity of Tribal Colleges and Universities (TCUs) to become partners and leaders in cancer-related investigation and dissemination efforts; 3) enhance training opportunities for Native researchers; 4) conduct community-based research on access to care, health promotion, and disease prevention activities targeting key cancer disparity issues; and 5) reduce cancer-related health disparities by increasing access to and use of feasible interventions.

Current projects include: 1) Tobacco Reduction Among Indian Youth; 2) HPV in Lakota and Caucasian Women: Epidemiology and Risk Factors; 3) Barriers to Cancer Clinical Trial Participation Among Native Elders; 4) Numeracy and Participation in Cancer Clinical Trials Among Native Elders; and 5) Influence of Cultural Factors on Mammography Use Among American Indian Women.

### **The Cherokee Nation Cancer Registry (CNCR)**

*Project Type:* Capacity-Building.

*Population:* The Cherokee Nation of Oklahoma.

*Description:* The NCI's Surveillance Research Program is partnering with the Cherokee Nation of Oklahoma to fund a pilot cancer registry with the goal of building an infrastructure that conforms to SEER standards in case finding, patient follow-up, data processing, data reporting, and quality assurance. The target population includes all American Indians residing in the Cherokee Nation's 14-county Tribal jurisdictional service area that are eligible for health care through Tribal or IHS facilities.

A Memorandum of Agreement (MOA) between the Cherokee Nation Cancer Registry (CNCR) and the Oklahoma Central Cancer Registry has enabled the registries to collaborate and share needed data. Data from the CNCR were used to obtain funding from CDC to establish the Cherokee Nation Comprehensive Cancer Control Program. Data from the CNCR has been successfully submitted to the NCI using the new SEER data management system. The CNCR continues to expand its data collection capacity and reported its results at the annual meeting of SEER PIs in November 2009.

## **NATIONAL HEART, LUNG, AND BLOOD INSTITUTE (NHLBI)**

The National Heart, Lung, and Blood Institute (NHLBI) provides global leadership for a research, training, and education program to promote the prevention and treatment of heart, lung, and blood diseases and enhance the health of all individuals so that they can live longer and more fulfilling lives. The NHLBI stimulates basic discoveries about the causes of disease, enables the translation of basic discoveries into clinical practice, fosters training and mentoring of emerging scientists and physicians, and communicates research advances to the public. It creates and supports a robust, collaborative research infrastructure in partnership with private and public organizations, including academic institutions, industry, and other government agencies. The Institute collaborates with patients, families, health care professionals, scientists, professional

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societies, patient advocacy groups, community organizations, and the media to promote the application of research results and leverage resources to address public health needs. The NHLBI also collaborates with international organizations to help reduce the burden of heart, lung, and blood diseases worldwide.

**Genetics of Coronary Artery Disease in Alaska Natives (GOCADAN)**

*Project Type:* Research, Educational, Capacity-Building.

*Population:* Alaska Native.

*Description:* The goals for the Genetics of Coronary Artery Disease in Alaska Natives (GOCADAN) project are to detect, characterize and map genes that influence quantitative risk factors for preclinical and overt cardiovascular disease (CVD) in Alaska Eskimos. The detection and mapping of such risk factor genes is a first step in predicting risks for individuals and will provide a focus for future efforts to identify these genes.

The GOCADAN study will lead the valuable therapeutic and prevention strategies for the Alaska Eskimo and other populations in the United States and the world, where the epidemics of obesity, diabetes and cardiovascular disease are increasing rapidly. Recent study findings support the public health data indicating that despite traditional lifestyles (i.e., substantial physical activity and traditional diets), CVD prevalence, particularly stroke, are high in Alaska Eskimos. Aggressive blood pressure and lipid lowering and smoking cessation are warranted to reduce this burden. The study continues to focus on quality control of data, systematic surveillance and identification of potential fatal and non-fatal CVD events. The study is also exploring the potential of surveillance for additional villages. Progress in training community members for research careers has been good. One Native Alaska physician is completing the second year of residency training, has presented an abstract, and is now working on completing a manuscript. Another Native Alaska physician has been awarded research training support and has submitted a manuscript for publication.

*Publications:* Ebbesson SOE, Roman MJ, Devereux RB, Kaufman D, Fabsitz RR, MacCluer JW, Dyke B, Laston S, Wenger CR, Comuzzie AG, Romenesko T, Ebbesson LOE, Nobmann ED, Howard BV (2008) Consumption of Omega-3 Fatty Acids is Not Associated with a Reduction in Carotid Atherosclerosis: The Genetics of Coronary Artery Disease in Alaska Natives Study. *Atherosclerosis* 199:346-353.

Rivellese AA, Patti L, Kaufman D, Zhu J, Annuzzi G, Vaccaro O, Ebbesson SO, Howard WJ, Riccardi G, Howard BV (2008) Lipoprotein Particle Distribution and Size, Insulin Resistance, and Metabolic Syndrome in Alaska Eskimos: The GOCADAN Study. *Atherosclerosis* 200:350-358.

Cutchins A, Roman MJ, Devereux RB, Ebbesson SOE, Umans JG, Zhu J, Weissman NJ, Howard BV (2008) Prevalence and Correlates of Subclinical Atherosclerosis in Alaska Eskimos: The GOCADAN Study. *Stroke* 39:3079-3082.

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Howard BV, Best L, Comuzzie A, Ebbesson SOE, Epstein SE, Fabsitz RR, Howard WJ, Silverman A, Wang H, Zhu J, Umans J (2008) C-Reactive Protein, Insulin Resistance, and Metabolic Syndrome in a Population with a High Burden of Subclinical Infection: Insights from the GOCADAN Study. *Diabetes Care* 32:2312-2314.

Eilat-Adar S, Xu J, PhD, Zephier E, Nobmann ED, Mattil CZ, O'Leary V, Howard BV (2009) Nutrition and Cardiovascular Disease in American Indians and Alaska Natives in Fatty Acids in Health Promotion and Disease Causation Editor: Ronald R. Watson, AOCS Press.

**Strong Heart Study (SHS) – Coordinating Center and Oklahoma Field Center**

*Project Type:* Research, Educational, and Capacity-Building.

*Population:* American Indian.

*Description:* The objectives of the Strong Heart Study (SHS) are to survey CVD morbidity and mortality rates among three geographically diverse groups of American Indians and to estimate their levels of CVD risk factors. Genomics technologies have been integrated with existing SHS genetic data to identify risk factors for obesity, diabetes, and CVD.

A total of 4,549 Tribal members (ages 45-74 years) from three centers in Arizona, Oklahoma, and the Dakotas participated in the study. As a result of the SHS, the general assumption that American Indians are at lower risk of developing CVD compared to the general population has been proven wrong. In addition, the Strong Heart Family Study (SHFS) has expanded upon previous genetic findings to more thoroughly characterize the various types of CVD and their risk factors, especially in the young. Families (3838 American Indians, average age 15 years from 94 families) have been re-examined to assess the biological and behavioral CVD risk factors (demographics, socioeconomic status, smoking, alcohol, medical and reproductive history, diet, depression, stress, trauma, and physical activity by accelerometer).

Furthermore, a continuing effort to maintain morbidity and mortality surveillance of the SHS cohort has been expanded to include new CVD events. The SHS has confirmed that diabetes is a major risk factor for CVD among American Indians. Gene-environment investigations have shown that behavioral factors such as alcohol intake, smoking, and socioeconomic factors including level of education, can modify the genetic effects of blood pressure phenotypes. Also, objectively measured data suggest that inactivity may be a problem among American Indian adults. These results warrant an increase in physical activity levels in this population.

*Publications:* De Marco, M., de Simone, G., Roman, M. J., Chinali, M., Lee, E.T., Russell, M. Howard, B.V., Devereux, R.B. Cardiovascular and Metabolic Predictors of Progression of Prehypertension into Hypertension: the Strong Heart Study. *Hypertension*, Vol. 54(5): 974-980, November 2009.

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Storti, K.L, Arena, V.C, Barmada, M.M., Bunker, C.H., Hanson, R.L, Laston, S.L, Yeh, J., Zmuda, J.M., Howard, B.V., Kriska, A.M. Physical Activity Levels in American-Indian Adults: the Strong Heart Family Study. *American Journal of Preventive Medicine*, Vol. 37 (6): 481-487, Dec 2009.

Egan, J.T., Leonardson, G., Best, L.G., Welty, T.K., Calhoun, D., Beals, J. Multidimensional Health Locus of Control in American Indians: The Strong Heart Study. *Ethnicity and Disease*, Vol. 19 (3): 338-344, 2009.

Franceschini N, Rose KM, Storti KL, Rutherford S, Voruganti VS, Laston S, Göring HH, Dyer TD, Umans JG, Lee ET, Best LG, Fabsitz RR, Cole SA, MacCluer JW, North KE. Social- and behavioral-specific genetic effects on blood pressure traits: the Strong Heart Family Study. *Circ Cardiovasc Genet.* Aug; 2(4):396-401 2009.

### **Arsenic Exposure, Cardiovascular Disease and Diabetes in Native Americans**

*Project Type:* Research, Educational, and Capacity-Building.

*Population:* Native American.

*Description:* The objective of the Arsenic Exposure, Cardiovascular Disease and Diabetes in Native Americans project is to evaluate the association of inorganic arsenic exposure, as determined by the sum of inorganic and methylated arsenic species in urine, and arsenic biotransformation with the risk of cardiovascular disease and diabetes in 4,549 Native Americans who participated in the SHS.

A total of 1,168 urine samples have been analyzed for urine arsenic species (arsenite, arsenate, methylarsonate (MA), dimethylarsinate (DMA), and arsenobetaine), total arsenic, and the following metals: antimony, cadmium, lead, molybdenum, selenium, tungsten, and zinc. An initial analysis showed low to moderate inorganic arsenic exposure and confirmed long-term constancy in arsenic exposure and urine excretion patterns in American Indians from three US regions over a 10-year period. Further analyses of 600 samples are in progress to correlate arsenic exposure and cardiovascular and pulmonary health.

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*Publications:* Navas-Acien A, Jason G Umans, Barbara V Howard, Walter Goessler, Kevin A Francesconi, Ciprian M Crainiceanu, Ellen K Silbergeld, Eliseo Guallar. Urine arsenic concentrations and excretion patterns in American Indian communities over a 10-year period – The Strong Heart Study. *Environ Health Perspect* 2009; 117:1428-1433.

Navas-Acien A, Silbergeld EK, Pastor-Barriuso R, Guallar E. Arsenic exposure and prevalence of type 2 diabetes in US adults: Updated findings from the National Health Nutrition and Examination Survey, 2003-2006. *Epidemiology*. 2009; 20:816-20.

**Tribal College Faculty and Tribal Health Professionals Development Project**

*Project Type:* Training Program, Educational, and Capacity-Building.

*Population:* American Indian.

*Description:* NARCH NHLBI-supported projects, the IHS, and the NIH through the National Institute of General Medical Sciences (NIGMS) established an initiative to support NARCH which is designed to develop opportunities for conducting research and research training responsive to the needs of Native American communities.

The NHLBI actively participates in the NARCH and, through NIGMS and an agreement with the IHS, supports four NARCH projects. The purpose of these projects is to increase the capacity in basic epidemiology research among Tribal colleges or university faculty and Tribal health professionals. The primary objective is to develop and conduct skill-building workshops to enhance research capacity. These skills will be immediately applicable to their current positions in the health field. This activity started during FY 2010 with an aim to build capacity among the Tribal college faculty and Tribal health professionals working in health research and other health fields. The project will foster relationships between academic institutions and Tribal communities by providing a forum for collaboration.

**The Prevalence of Congenital Heart Disease in Native Americans in Wisconsin**

*Project Type:* Training Program, Educational, and Capacity-Building.

*Population:* American Indian.

*Description:* Congenital heart disease is the most common birth defect encountered in Wisconsin and there is evidence that the incidence may be nearly twice the expected rate in Native Americans. This pilot NARCH project is aimed at determining the actual rate of congenital heart disease in Native Americans in Wisconsin and to identify possible risk factors. This project started during FY 2010.

### **Summer Research Training Institute for AI/AN Health Professionals**

*Project Type:* Training Program, Educational, and Capacity-Building.

*Population:* American Indian.

*Description:* The overall goal of the Summer Research Training Institute for AI/AN Health Professionals, as a part of NARCH, is to develop a cadre of highly trained AI/AN biomedical and health researchers who are culturally competent and responsive to the specific concerns of American Indian communities, and who can bring the benefits of academic research to these communities to reduce health disparities. This project started during FY 2010. The project will assess training needs and offer up-to-date classes on a variety of topics of relevance to career advancement in AI/AN health-related research.

### **Oral Flora, Periodontitis, and Vascular Dysfunction in Young Native Americans**

*Project Type:* Training Program, Educational, and Capacity-Building.

*Population:* American Indian.

*Description:* The overall goal of this project is to examine the possible relationship between periodontal disease and vascular disease in AI/ANs ages 18-40 years. Cardiac disease is the leading cause of mortality in AI/AN adults and the proposed studies aim to establish a link with prevalent periodontal disease. This project started during FY 2009 and will examine the relationship between gum disease and blood vessel function that leads to hardening of the arteries (atherosclerosis). The complex populations of bacteria that live in the mouth will be characterized and correlated with gum disease and vascular dysfunction. The patients with gum disease will be treated and re-evaluated for vascular function and for changes in the bacterial populations.

## **NATIONAL HUMAN GENOME RESEARCH INSTITUTE (NHGRI)**

The National Human Genome Research Institute (NHGRI) led the NIH's contribution to the International Human Genome Project, which had as its primary goal the sequencing of the human genome. This project was successfully completed in April 2003. Now, the NHGRI's mission has expanded to encompass a broad range of studies aimed at understanding the structure and function of the human genome and its role in health and disease. Toward that end, NHGRI supports the development of resources and technology that will accelerate genome research and its application to human health. A critical part of the NHGRI mission continues to be the study of the ethical, legal and social implications (ELSI) of genome research. NHGRI also supports the training of investigators and the dissemination of genome information to the public and to health professionals.

### **Web-based Genomic Research Resource**

*Project Type:* Educational Material Development and Capacity-Building.

*Population:* American Indian and Alaska Native.

*Description:* NHGRI has developed a contract with the National Congress of American Indians to develop a web-based genomic research resource, explaining the benefits and potential risks of genomic research. The resource will be vetted by those within the American Indian and Alaska Native community to ensure it is effective and appropriate. The development of the resource will begin late 2010, and be completed in 2011.

*Publications:* [www.ncai.org](http://www.ncai.org)

### **Community Genetics Forum**

*Project Type:* Community Outreach and Educational.

*Population:* Native American.

*Description:* NHGRI sponsors an annual community genetics forum, aimed at developing model engagement activities around the country. The 2010 forum was held in Salt Lake City; and two Native American communities were directly included in the planning. The forum brought together approximately 400 people in conversation around genomics and health, specifically related to heart disease, cancer, and diabetes. A final report is forthcoming from the contractor which will detail how many individuals from each community attended. One of the two Native American community groups (the Indian Walk-In Center) will be presenting their forum experiences at the upcoming 2010 American Public Health Association Meeting in Denver, Colorado.

*Publications:* <http://www.genome.gov/19518473>

### **Summer Workshop in Genomics (Short Course)**

*Project Type:* Training Program.

*Population:* Alaska Native.

*Description:* This annual training program is for undergraduate and graduate faculty from minority-serving institutions (MSIs). Participants attend 6 days of lectures, tours, and training at the NIH campus in Bethesda. Participants include teachers and students from TCUs. The 2010 Short Course was held August 1-6, 2010. Participants from the Southcentral Foundation in Anchorage, Alaska attended.

*Publications:* <http://www.genome.gov/10000217>

### **Engaging Tribal Participation in Research Through Priority Setting and Regulation**

*Project Type:* Research.

*Population:* American Indian – Squaxin Island Tribe.

*Description:* The recruitment of AI/ANs to participate in research is complicated by a long and troubled history. This project will develop, implement and document processes to increase Tribal participation in research by identifying health research priorities and a research regulation process that reflects the priorities and concerns of Tribal community members.

### **Indigenous Communities and Human Microbiome Research**

*Project Type:* Research.

*Population:* American Indian.

*Description:* This project is an investigation of the implications of research on ancient and contemporary human microbiomes for the social and ancestral identities of indigenous people. Community members will take part in focus groups, individual survey interviews, and public meetings to discuss the ways in which local variations in human microbiomes related to differences in environment, lifestyle, and culture may have implications for health disparities, population histories, and social and ancestral identities. Local communities also will be engaged in discussions about how to conduct ethically and culturally appropriate microbiome research using contemporary samples from some members.

### **Center for Genomics and Healthcare Equality**

*Project Type:* Research Center.

*Population:* American Indian and Alaska Native.

*Description:* The overall goal of the Center for Genomics and Healthcare Equality is to explore the implications of genomics for medically underserved communities—particularly American Indian and Alaska Native communities. The investigators have developed collaborative relationships with three AI/AN Tribal organizations and with a research center dedicated to Alaska Native health concerns.

### **Population Architecture of Genes and Environment (PAGE)**

*Project Type:* Research.

*Population:* American Indian and Native American.

*Description:* Population Architecture of Genes and Environment (PAGE) is a collaborative study examining well-replicated findings from genome-wide association studies in a large consortium of well-phenotyped, population-based, and ethnically diverse cohorts involving >80,000 participants. The study aims to assess generalizability across diverse ethnic groups,

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examine associations across a breadth of important phenotypes, and identify genetic and environmental modifiers.

PAGE includes approximately 7,000 participants from the SHS, which comprises 13 American Indian Tribes and communities in four states: seven Tribes from southwestern Oklahoma (Apache, Caddo, Comanche, Delaware, Fort Sill Apache, Kiowa, and Wichita), three Tribes from Arizona (Gila River and Salt River Pima/Maricopa, and Ak-Chin Pima/Papago), and three Sioux Tribes from South/North Dakota (Oglala Sioux, Cheyenne River Sioux, and Spirit Lake Communities). There are also approximately 388 AI/AN participants from the Women's Health Initiative whose affiliations are unspecified.

### **Washington Internship for Native Students (WINS) Summer Program**

*Project Type:* Training Program.

*Population:* American Indian.

*Description:* In an effort to recruit individuals of American Indian, Alaska Native and Native Hawaiian descent into the NIH Summer Internship Program, the NHGRI Intramural Training Office (ITO) sponsored a summer student from American University's Washington Internships for Native Students (WINS) program for the summer of 2010. This is the second year that NHGRI has participated in the WINS program. The summer intern works in an NHGRI Senior Research Investigator's lab. The intern summed up the experience well by stating, "I am finding lots of new data that I am passing off to the other members in the lab in hopes that they can use it for their own research."

## **NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES (NIAID)**

The National Institute of Allergy and Infectious Diseases (NIAID) conducts and supports basic and applied research to better understand, treat, and ultimately prevent infectious, immunologic, and allergic diseases. For more than 60 years, NIAID research has led to new therapies, vaccines, diagnostic tests, and other technologies that have improved the health of millions of people in the United States and around the world.

### **Viral Host Interactions in Hepatitis C**

*Project Type:* Research.

*Population:* Alaska Native and Indigenous People.

*Description:* This project is designed to study the relationship between HCV genetic evolution and host immune responses in the resolution or persistence of infection and progression or non-progression of chronic liver disease. The study, in a cohort of Alaska Native and Indigenous People (ANIP), utilizes a serum bank dating back 30 years and a large clinical and virological database of approximately 1000 subjects over the past 8 years.

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Several results have been obtained, including the association of HCV genotype 1 with spontaneous recovery from HCV infection. Whether this finding is related to some unique immune response in this ANIP cohort is not yet known. Studies also confirm that the presence of liver fibrosis (by biopsy) is associated with Type 2 diabetes, steatosis, and duration of infection in this cohort.

Publications: McMahon BJ, Bruden D, Bruce MG, Livingston S, Christenson C, Homan C, Hennessy TW, Williams J, Sullivan D, Rosen HR, and Gretch DR. Adverse outcomes in Alaska Natives who recovered from or have chronic hepatitis C infection. *Gastroenterology* 138:922-931. 2010.

Mason L, Palmer B, Castelblanco N, Kassam N, Bulson L, Livingston S, McMahon B, Kuchroo V, Gretch DR, Rosen H. Negative immune regulator TIM-3 is overexpressed in Hepatitis C infection and its blockade rescues dysfunctional CD4+ and CD8+T cells. *Journal of Virology* 83(18):9122-30. 2009.

Li H, Thomassen L, Majid A, McMahon BJ, Bruden D, McArdle S, Bano N, Chung M, Carithers R, Perkins JD, Sullivan DG, Gretch DR. Investigation of putative multisubtype hepatitis C virus infections in vivo by heteroduplex mobility analysis of core/envelop subgenomes. *Journal of Virology* 82(15):7524-32. 2008.

Li H, McMahon B, McArdle S, Bruden D, Sullivan D, Shelton D, Deubner H, Gretch DR. Hepatitis C virus envelope glycoprotein co-evolutionary dynamics during chronic hepatitis C. *Virology* 375(2):580-91. 2008.

Bruce MG, Bruden D, McMahon BJ, Christensen C, Homan C, Sullivan DG, Deubner H, Williams J, Livingston S, and Gretch DR. Clinical Significance of Elevated Alpha-Fetoprotein in Alaska Native Patients with Chronic Hepatitis C. *Journal of Viral Hepatitis* 15(3):179-87. 2008.

Sullivan D, Bruden D, Deubner H, McArdle S, Chung M, Christensen C, Hennessy T, Homan C, Williams J, McMahon BJ, Gretch DR. Hepatitis C virus infection dynamics are associated with long-term histological outcome of chronic hepatitis C. *Journal of Infectious Diseases* 196(2):239-48. 2007.

Livingston SE, Deubner H, McMahon BJ, Bruden D, Christensen C, Hennessy TW, Bruce MG, Sullivan D, Homan C, Williams J, Gretch DR. Steatosis and hepatitis C in an Alaska Native/American Indian population. *International Journal of Circumpolar Health* 65(3):253-260. 2006.

Bruce MG, Bruden D, McMahon BJ, Christensen C, Homan C, Sullivan DG, Deubner H, Hennessy T, Williams J, Livingston S, and Gretch DR. Hepatitis C infection in Alaska Natives with persistently normal, persistently elevated or fluctuating alanine aminotransferase levels. *Liver International* 26(6):643-49. 2006.

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Christensen C, Bruden D, Livingston S, Deubner H, Homan C, Smith K, Oh E, Sullivan D, Gretch DR, William-s J, McMahan B. Diagnosis of accuracy of a fibrosis serum panel FIBROspect II compared to Knodell and Ishak liver biopsy scores in hepatitis C patients. *Journal of Viral Hepatitis* 13:652-65. 2006.

Scott JD, McMahan B, Bruden D, Sullivan DG, Homan C, Christensen C, Gretch DR. High rate of spontaneous HCV RNA negativity after establishment of chronic infection in Alaska Natives. *Clinical Infectious Diseases*. 42(7):945-52. 2006.

### **Population Genetics of Mycobacterium Tuberculosis During Disease Epidemics**

*Project Type:* Research.

*Population:* Native Americans – First Nation Reserves and Métis Communities in Canada.

*Description:* The goal of this project is to study how bacterial strains, responsible for a pre-1920 tuberculosis (TB) epidemic in North American Indian communities, have changed genetically over time and determine if these changes play a role in the spread of TB to other Native communities in Canada.

To date, the project's findings show that Mycobacterium tuberculosis, the pathogen that causes TB, spreads into new human communities before TB disease becomes evident at public health clinics. Even in situations that are not typically considered conducive to the spread of TB, there is evidence that the organism persists at a low level for a long time (up to 100 yrs). These findings have implications for public health strategies because focusing only on areas of high population density may not eradicate the complete reservoir for this pathogen, allowing outbreaks to continue.

*Publications:* Pepperell C, Hoepfner VH, Lipatov M, Wobeser W, Schoolnik G, Feldman MW. Bacterial genetic signatures of human social phenomena among M. tuberculosis from an Aboriginal Canadian population. *Mol Biol Evol* 27(2):427-40. Feb 2010. PMID Pending.

### **Rapid Diagnosis of MDR TB from Sputum using a Small Fully Integrated Nucleic Acid**

*Project Type:* Research.

*Population:* American Indian, Alaska Native, and Native American.

*Description:* The project's goal is to develop a handheld device for the rapid diagnosis of drug resistant TB, at a price that allows its use in health clinics globally. If successful, the diagnostic instrument will allow patients to be evaluated early with potential to reduce disease transmission within the community.

AI/AN individuals who are patients at the Seattle, Washington public health clinic can potentially be enrolled in this clinical study. All TB patients who meet study inclusion criteria,

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irrespective of race or ethnicity, will have the option to consent to the use of their sputum in this project. The endpoints of the clinical study are to evaluate the device, not provide information about the enrolled sputum donors.

### **Human and Mouse Antibodies Against Influenza Virus**

*Project Type:* Research.

*Population:* American Indian and Alaska Native.

*Description:* The goal of this project is to develop an influenza vaccine strategy that is more effective against seasonal virus changes than the current method, which is typically a year behind the circulating viruses. The researchers will characterize the antigenic sites recognized by human antibodies induced by vaccination or infection in the human population.

Experiments were performed to measure the quality of antibody response to influenza vaccines in the elderly, which are typically low. The results reveal an inverse relationship between pre-immunization antibody levels and antibody increase after vaccination. Thus, the low frequency of antibody responses in elderly subjects is simply because they have high pre-immunization antibody levels.

*Publications:* Gulati U, Keitel WA, Air GM; Increased antibodies against unfolded viral antigens in the elderly after influenza vaccination.; 2007 Jul; Influenza Other Respi Viruses; 1; 4; 147-156.

### **Hepatitis C Cooperative Research Centers**

*Project Type:* Research Initiative.

*Population:* Native American.

*Description:* These Centers will advance the understanding of HCV-host interactions. The underlying mission of the Centers is to close the gaps that currently exist with regard to defining successful immune response and identifying new targets for antiviral drugs, vaccines, and other therapeutic strategies for the prevention or treatment of acute and chronic HCV infection.

### **Immune Reconstitution to Aspergillus**

*Project Type:* Research.

*Population:* Native American and Alaska Native.

*Description:* Recipients of transplanted hematopoietic stem cells can be at risk for a fungal disease called invasive aspergillosis (IA). The principal investigator (PI) is studying the immune response mechanisms that may lead to development of strategies to prevent and treat fungal infections.

### **Improvement in Paired Donation Program**

*Project Type:* Research.

*Population:* Native American and Alaska Native.

*Description:* The goal of this new project is to develop a computerized algorithm and new laboratory methods that will help end-stage renal disease patients who have willing but incompatible living donors find a match with other incompatible donor/recipient pairs.

### **Immune Response to Polyomavirus Infection**

*Project Type:* Research.

*Population:* Native American and Alaska Native.

*Description:* BK virus (BKV) infection is a complication of kidney transplantation. The PI is studying how the immune system reacts to BKV infection. Data analyses will help in the development of vaccines and immunotherapy against this infection.

### **RELIVE**

*Project Type:* Research.

*Population:* Native American and White.

*Description:* This project is a clinical study looking at the long-term outcomes of living organ donors (kidney and lung).

### **Hematopoietic Stem Cell and Cord Blood Transplantation**

*Project Type:* Research.

*Population:* Native American and Alaska Native.

*Description:* This new project will identify genetic variations between donors and recipients within the major histocompatibility complex and natural killer cell inhibitory receptor genomic regions that cause post-transplant complications in unrelated donor hematopoietic stem cell and cord blood transplantation.

### **T Cell Recognition of Allogeneic Peptide/MHC Ligands**

*Project Type:* Research.

*Population:* Native American and Alaska Native.

*Description:* The goal of this project is to understand the molecular interactions of the transplant recipient's T cells with the donor major histocompatibility complex (a set of

molecules displayed on cell surfaces that are responsible for lymphocyte recognition and antigen presentation), which results in graft-versus-host disease in hematopoietic stem cell transplantation.

### **IL-21 and Immune Mediated Viral Control**

*Project Type:* Research.

*Population:* Native American.

*Description:* Project four of the NIAID-supported cooperative agreement U19AI083024, “Immune Regulation of Virus Clearance and Tissue Injury at Sites of Infection,” is relevant to Native American health. The goal of this project is to identify how T cells become reprogrammed during the immune response to respiratory infection to limit damage to the lung.

### **Clinical Trials in Organ Transplantation – Adults and Children**

*Project Type:* Research.

*Population:* Native American.

*Description:* These clinical trials represent a consortium of several networks exploring outcomes and immune mechanism of solid organ transplantation.

### **Solid Organ Transplantation in HIV: Multi-Site Study**

*Project Type:* Research.

*Population:* Native American.

*Description:* This project is a clinical study looking at the outcomes of liver and kidney transplantation in subjects with HIV infection.

### **Intramural NIAID Research Opportunities (INRO)**

*Project Type:* Outreach.

*Population:* American Indian and Alaska Native.

*Description:* This is an exploratory/outreach program to recruit research trainees from populations underrepresented in biomedical research. Intramural NIAID Research Opportunities (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 American Indian collegiate partners. Of the 192 applications received

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for INRO 2010, 7 were from AI/AN populations. Of those, two attended INRO and subsequently signed on for a research traineeship at NIAID.

**NATIONAL INSTITUTE ON AGING (NIA)**

The National Institute on Aging (NIA) leads a broad scientific effort to understand the nature of aging and to extend the healthy, active years of life. In 1974, Congress granted authority to form the NIA to provide leadership in aging research, training, health information dissemination, and other programs relevant to aging and older people. Subsequent amendments to this legislation designated the NIA as the primary Federal agency on Alzheimer's disease research. The Institute's mission is to: 1) support and conduct genetic, biological, clinical, behavioral, social, and economic research related to the aging process, diseases and conditions associated with aging, and other special problems and needs of older Americans; 2) foster the development of research and clinician scientists in aging; and 3) communicate information about aging and advances in research on aging to the scientific community, health care providers, and the public.

**Native Elder Research Center**

*Project Type:* Research Project and Capacity-Building.

*Population:* American Indian, Alaska Native, and Native American.

*Description:* The University of Colorado Denver and Health Sciences Center's Native Elder Research Center (NERC) is a NIA Resource Center on Minority Aging Research (RCMAR). Programmatic aims include expanding partnerships with AI/AN/NA communities ensuring continuous access and involvement of Native elders, their families, and local systems of care in the aging research process; and preparing AI/AN/NA investigators for successful research careers at the interface of aging, health, and culture and for reducing differentials in health status.

This project supported the 20<sup>th</sup> Annual IHS Research Conference in Portland, Oregon; the 4<sup>th</sup> Navajo Nation Human Research Review Board Conference in Window Rock, Arizona; and the 8<sup>th</sup> Alaska Native Research Conference in Anchorage, Alaska. Of special note, previous Native Investigators (NIs) from Cohort 4 organized and chaired the IHS Research Conference; and a former NI from Cohort 5 chaired the Alaska Native Research Conference.

Lastly, the collaboration with the Division of Diabetes Treatment and Prevention, IHS, specifically the Special Diabetes Program for Indians' Competitive Grant Program which began with supplemental funding to the NERC/RCMAR in PGY-08, continues to grow. Indeed, two of the NIs in the current cohort are using data from this project to fulfill their secondary data analytic projects. The investigators presently enjoy strong working relationships with 66 grantees, representing 103 reservations, urban Indian programs, and villages. These activities serve as vehicles for disseminating information about the activities, for engaging local audiences in meaningful ways, and for facilitating our research partnerships with these communities.

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The NERC program constitutes the first, and to date the only, systematic approach to preparing AI/AN/NA health professionals for successful research careers at the interface of health, aging, and culture with special emphasis on Native elders. The recruitment, retention, and subsequent productivity of past and present NIs are impressive. They, in turn, are supported by an extremely accomplished core/affiliated faculty and advisory panel that has been productive as scientists working with the target population.

The NERC/RCMAR has been built upon a programmatic foundation that extends and leverages its own resources. The Advisory Panel represents direct links to the national service and advocacy organizations most relevant to the reduction of health status differentials between Native and non-Native elders and to improving the former's access to needed care. The investigators' ability to both recruit qualified NIs into the program cohorts speaks to the relevance, merit, and desirability of this effort.

*Publications:* Jolly SE, Kao C, Bindman AB, Korenbrot C. Cardiac Procedures Among American Indians and Alaska Natives Compared to Non-Hispanic Whites Hospitalized with Ischemic Heart Disease in California. *Gen Intern Med.* 2010; 25(5):430-434. Epub 2010 Jan 27 PMID: 20107917.

Jolly SE, Burrows NR, Chen SC, Li S, Jurkovitz CT, Nan/a AS, Norris KC, Shiipak MG. Racial and Ethnic Differences in Albuminuria in Individuals with Estimated GFR Greater than 60 mL/min/1.73 m<sup>2</sup>: Results from the Kidney Early Evaluation Program (KEEP). *Am J Kidney Dis.* 2010; 55(3 Suppl 2):S15-22. PMID: 20172444.

Jolly SE, Noonan CJ, Roubideaux YD, Goldberg JH, Ebbeson SO, Umans JG, Howard BV. Albuminuria among Alaska Natives - Findings from the Genetics of Coronary Artery Disease in Alaska Natives (GOCADAN) Study. *Nephron Clin Pract* 2010; 115(2):c107-c113. PMID: 20407273.

### **Arizona Alzheimer's Disease Core Center**

*Project Type:* Research.

*Population:* American Indian and Native American: Zuni Elderly Program, Navajo Nation and associated caregiver programs, Tohono O'odham Nation, Hopi Tribe, White Mountain Apache Tribe, San Carlos Apache Tribe, Camp Verde Apache Tribe, Colorado River Indian Community, Gila River Indian Community, Ft. McDowell Indian Community, Ak-Chin Indian Community, Pascua Yaqui Tribe, Prescott Yavapai Tribe, Hualapai Tribe, and Salt River Pima Maricopa Indian Community.

*Description:* The Banner Alzheimer's Institute will conduct outreach activities to: 1) increase knowledge and awareness about dementia for Native American communities throughout Arizona for both community members and health care workers, and 2) work with selected Tribes to further develop education, outreach and research plans designed in collaboration

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with the community to meet their specific needs in a culturally competent manner. The literature regarding actual burden of dementia in general and Alzheimer's disease in particular in Native Americans is limited.

This project is on-going and 7 educational programs have been provided to 197 Native Americans with one focused outreach providing daylong training to 40 Hopi Nation family/professional caregivers. In terms of research, efforts to contact 8 participants lost to follow-up from the prior cohort continue. Somewhat unexpectedly, since they did not focus on research but rather relationship building, promoting awareness, and establishing credibility, the outreach efforts have resulted in new referrals to the research cohort (9 in 2009, all unsolicited, one has been enrolled). The outreach team is confident that this trend can be continued because the research effort has achieved a critical threshold of visibility and credibility in the Native American community.

**NATIONAL INSTITUTE OF BIOMEDICAL IMAGING AND BIOENGINEERING (NIBIB)**

The mission of the National Institute of Biomedical Imaging and Bioengineering (NIBIB) is to improve health by leading the development and accelerating the application of biomedical technologies. The Institute is committed to integrating the physical and engineering sciences with the life sciences to advance basic research and medical care. This is achieved through: research and development of new biomedical imaging and bioengineering techniques and devices to fundamentally improve the detection, treatment, and prevention of disease; enhancing existing imaging and bioengineering modalities; supporting related research in the physical and mathematical sciences; encouraging research and development in multidisciplinary areas; supporting studies to assess the effectiveness and outcomes of new biologics, materials, processes, devices, and procedures; developing technologies for early disease detection and assessment of health status; and developing advanced imaging and engineering techniques for conducting biomedical research at multiple scales.

**Patty Iron Cloud National Native American Youth Initiative (NNAYI)**

*Project Type:* Community Outreach, Educational, and Capacity-Building.

*Population:* American Indian, Alaska Native, and Native American.

*Description:* The NIBIB provided support for the Patty Iron Cloud National Native American Youth Initiative (NNAYI), held in Washington, DC, in June 2010. The goal of this initiative is to increase the number of AI/AN students entering health professions and biomedical research careers.

**NATIONAL INSTITUTE OF ARTHRITIS AND MUSCULOSKELETAL AND SKIN DISEASES  
(NIAMS)**

The mission of the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) is to support: 1) research into the causes, treatment, and prevention of arthritis and musculoskeletal and skin diseases; 2) the training of basic and clinical scientists to carry out this research; and 3) the dissemination of information on research progress in these diseases.

### **Understanding Rheumatic Disease in Oklahoma Tribal Members**

*Project Type:* Research.

*Population:* American Indian – Chickasaw Nation.

*Description:* As part of the NARCH program, sponsored by the IHS, the NIAMS is supporting efforts by the Chickasaw Nation Health System to improve the health status of Native Americans who suffer from rheumatic diseases.

### **Navajo Bone Health Study**

*Project Type:* Research.

*Population:* American Indian – Navajo Nation.

*Description:* This study is to assess the bone health of Navajo Nation members. Its purpose is to enable the Navajo Nation to plan screening and culturally appropriate education and intervention programs. This study leverages resources that NCI researchers developed as part of their Navajo EARTH Cohort Study.

### **Summer Internship Program and Post-Baccalaureate Fellows Program**

*Project Type:* Training Program.

*Population:* Native American.

*Description:* Through its Summer Internship Program and Post-baccalaureate Fellows Program, NIAMS exposes talented students from underprivileged backgrounds to basic elements of research in NIAMS disease areas, in combination with science education, training, and mentoring. Staff promotes the program at various meetings, including the American Indian Science and Engineering Society (AISES) Annual Conference.

### **Patty Iron Cloud Program for the National Youth Initiative for Biomedical Research**

*Project Type:* Training Program.

*Population:* Native American.

*Description:* NIAMS participates in planning and implementing the annual Patty Iron Cloud Program for the National Youth Initiative for Biomedical Research (sponsored by the

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NCMHD). AI/AN students receive special lectures and guided tours of NIAMS labs and research facilities; and they are encouraged to apply for training programs.

**Trans-NIH American Indian and Alaska Native Health Communications and Information Work Group**

*Project Type:* Community Outreach.

*Population:* Native American.

*Description:* The Trans-NIH American Indian and Alaska Native Health Communications and Information Work Group, led by NIAMS, coordinates efforts to develop and disseminate health information targeting AI/AN communities. It partners with the IHS to disseminate quarterly NIH information kits to approximately 1600 Community Health Representatives.

Since the inception of the project in January 2008, the NIH has sent more than 7000 information kits to Community Health Representatives in the areas of bone health, cancer diagnosis and treatment, diabetes, drug abuse prevention, physical activity, stroke, and sudden infant death syndrome. As the leading member of the work group, the NIAMS sponsors exhibits at and provides materials for events organized for Native Americans (e.g., the National Indian Health Board Annual Consumer Conference, the American Association of Indian Physicians Conference, various Pow Wows).

**Multi-Cultural Outreach Initiative**

*Project Type:* Community Outreach.

*Population:* Native American.

*Description:* The Multi-Cultural Outreach Initiative helps to address disparities in accessing information about NIAMS disease areas among minority populations, including Native Americans. Its goals are to: 1) improve availability of research-based, culturally relevant information; 2) emphasize that better health relies on research; and 3) involve organizations and other agencies. The Institute has convened advisory work groups to offer guidance in developing and disseminating messages and products for four populations: American Indians, Alaska Natives, Native Hawaiians and Other Pacific Islanders; African Americans; Asian Americans; and Hispanics/Latinos. Work groups had their first meeting in June 2010.

**EUNICE KENNEDY SHRIVER NATIONAL INSTITUTE OF CHILD HEALTH AND HUMAN  
DEVELOPMENT (NICHD)**

The NICHD conducts and supports research on all stages of human development, from pre-conception to adulthood, as well as developmental disabilities (intellectual and physical) to better understand health issues of children, adults, families, and communities.

**Creating Partnerships in Identifying Health Needs of Foster Care Indian Youth**

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*Project Type:* Community Outreach.  
*Population:* Native American.

*Description:* This project will gather and disseminate information to encourage American Indian and non-American Indian communities and service agencies to work together to develop strategies to reduce the mental and physical health burden often experienced by American Indian youth transitioning out of foster care. The findings from this project and the collaborations and relationships resulting from it will lead to the development and implementation of culturally appropriate services, programs, and policy advocacy strategies at the county and state levels to address the needs of Native American foster children.

### **Consequences of Summertime for Adolescent Development**

*Project Type:* Community Outreach.  
*Population:* Native American.

*Description:* This study will gather information on Native American adolescents' summertime activities as multiple indicators of their adjustment during the following school year using body mass index/obesity, academic achievement, emotional well-being, and social behavior problems through adolescent and parent reports. This study will help clarify the summer activities/arrangements that are likely to play a role in the development of problematic developmental outcomes, as well as those associated with the promotion of positive youth development.

### **Promoting Cognitive Development from Infancy in a Northern Plains Tribe**

*Project Type:* Community Outreach.  
*Population:* Native American – Northern Plains Tribe.

*Description:* This project will explore possible solutions to emerging evidence for language delay in infants and toddlers from a Northern Plains Tribe utilizing community consultants and focus groups. This project addresses a question of key significance in efforts to address the underperformance of American Indian students and the extent of their language development at school entry—which is directly related to parent-child interaction and the language environments in their homes.

### **Newborn Screening for SCID in a High-Risk Population Tribe**

*Project Type:* Research.  
*Population:* Native American – Western Navajo Reservation in Arizona.

*Description:* Severe Combined Immunodeficiency (SCID) screening is being offered to infants born on the Western Navajo Reservation in Arizona. Navajo infants have at least a 20-

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fold higher incidence of SCID than the general population, due to a gene mutation found in these individuals. Navajo infants diagnosed with SCID will receive bone marrow transplants. Screening tests are being designed for newborns diagnosed with SCID before infections occur. A pilot testing program in a high-risk population on the Navajo Indian Reservation, where 1 in 2,000 infants is born with SCID, will be performed.

### **Perinatal Assessment of At-Risk Populations**

*Project Type:* Research.

*Population:* Native American.

*Description:* Measurements of fetal heart rate, movement, and the coupling between movement/changes in heart rate are being studied on fetuses and infants from a low social economic status population in New York and from a rural population on the Pine Ridge Reservation in South Dakota. Sudden Infant Death Syndrome (SIDS) risk is influenced by the prenatal environment. The results support the hypotheses that measures of electrocortical function during early infancy may not only provide predictors of subsequent neurobehavioral outcomes, but of all indices of abnormal brain maturation during gestation. This research is developing a more complete picture of why certain infants are at risk for SIDS and other neurodevelopmental disorders.

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Effects of alcohol and smoking during pregnancy on infant autonomic control. *Developmental Psychobiology*. 2009 Apr; 51 (3):234-42. Fifer, William P; Fingers, Sherri Ten; Youngman, Mitzi; Gomez-Gribben, Esperanza; Myers, Michael M.

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Sleeping position and electrocortical activity in low birth weight infants. *Archives Of Disease In Childhood. Fetal And Neonatal Edition*. 2005 Jul; 90 (4):F311-5 Sahni, R; Schulze, K F; Kashyap, S; Ohira-Kist, K; Fifer, W P; Myers, M M.

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Effects of sleeping position and time after feeding on the organization of sleep/wake states in prematurely born infants. *Sleep*. 1998 Jun 15; 21 (4):343-9 Myers, M M; Fifer, W P; Schaeffer, L; Sahni, R; Ohira-Kist, K; Stark, R I; Schulze, K F.

### **Genetics of Spontaneous Pelvic Organ Prolapse in the Mouse**

*Project Type:* Research.

*Population:* Native American.

*Description:* Ethnic and racial associations with inherited and spontaneous pelvic organ prolapse (S-POP) are being studied to indicate if women of European and Hispanic heritage are at a higher risk for development of S-POP than African, Asian, or Native American women. Identifying the gene that causes S-POP in mice will lead to a better understanding of the developmental, environmental, and genetic origins of prolapse in humans. Pelvic organ prolapse is a common and serious problem in humans in which genetics play a major role.

### **NICHD Cooperative Multicenter Neonatal Research Network**

*Project Type:* Research.

*Population:* Native American.

*Description:* The NICHD Neonatal Research Network is investigating the safety and efficacy of treating and managing strategies for newborn infants, including Native Americans, in a clinical trial of early, low-dose hydrocortisone therapy to prevent bronchopulmonary dysplasia. Individualized follow-up assessments will be designed based on these newborn infants' risk. The follow-up program works closely with the Neonatal Scatter Bed Program of the General Clinical Research Center to achieve follow-up rates consistently above 85 percent for research studies and 100 percent for recent trials.

*Publications:* Target ranges of oxygen saturation in extremely preterm infants. *The New England Journal Of Medicine*. 2010 May 27; 362 (21):1959-69 SUPPORT Study Group of the Eunice Kennedy Shriver NICHD Neonatal Research Network; Carlo, Waldemar A; Finer, Neil N; Walsh, Michele C; Rich, Wade; Gantz, Marie G; Laptook, Abbot R; Yoder, Bradley

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### **Enhancing Research Capabilities to Encourage Minorities in Scientific Professions**

*Project Type:* Capacity-Building.

*Population:* American Indian.

*Description:* This grant will provide an Office of Research Development, which is a place where faculty and underrepresented minority and women students can get timely information on grant possibilities, help in writing grants, and overall assistance in understanding the complex array of grant possibilities available at NIH to students. Professions will be equally represented and there will be a commitment to increasing efforts in recruiting and retaining students interested in science and science research, with a particular emphasis on underrepresented minority students.

### **Translating Research into Policy and Practice in Native Health at the Native Research Network (NRN)**

*Project Type:* Training Program.

*Population:* Native American.

*Description:* This training program aims to focus on: 1) the discussion of the significance of translating research in Native populations and how it might be used to influence health policy and practice; highlighting research and initiatives supported by NICHD; and 2) identification of future directions to support and sustain translational research that has potential impact on social determinants of health in Native populations.

### **Building Research Capacity at Tribal Colleges and Universities**

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*Project Type:* Capacity-Building.

*Population:* American Indian.

*Description:* A forum at the Society for Advancement of Chicanos and Native Americans in the National Science Meeting will occur to explore American Indian health concerns and research priorities. Additionally, there will be a venue for sharing information about NICHD programs that facilitate capacity development in research administration and in academic/community partnerships. Information will be shared regarding NICHD- and NIH-sponsored programs designed to assist in building research capacity at TCUs and other institutions of higher learning, with demonstrated special commitment to the encouragement of and assistance to faculty, students, and investigators at TCUs.

**NATIONAL CENTER ON MINORITY HEALTH AND HEALTH DISPARITIES (NCMHD)**

The National Center on Minority Health and Health Disparities (NCMHD) promotes minority health and leads, coordinates, supports, and assesses the NIH effort to reduce and ultimately eliminate health disparities. To achieve its mission, NCMHD seeks to: 1) conduct and support basic, clinical, social and behavioral health disparities research; 2) promote infrastructure development and training; 3) foster emerging programs; 4) disseminate information; and 5) reach out to minority and other health disparities communities. Below are examples of NCMHD projects that address the health needs of AI/AN populations. NCMHD also provides leadership on the NIH Health Disparities Strategic Plan and Budget, a comprehensive and continuously evolving document that sets the overarching health disparities agenda for the entire agency. The plan is approved by the National Advisory Council on Minority Health and Health Disparities, and focuses on three major goals: 1) to conduct and support intensive research on the pathophysiological, epidemiological, and societal factors underlying health disparities; 2) to expand and enhance research capacity to create a culturally competent workforce; and 3) to engage in aggressive, proactive community outreach, information dissemination, and public health education.

### **Native Youth Enrichment Program**

*Project Type:* Research.

*Population:* American Indian and Alaska Native.

*Description:* This project has established a Native Youth Enrichment Program (NYEP) that is an innovative, culturally-based, 4-week program that runs in the summer. The program is for 120 students in grades 7-10 and is open to AI/AN youth attending three Pacific Northwest school districts' Indian Education programs (Highline, Kent, and Seattle School districts), as well as one Tribal school (Suquamish). The project is a science, technology, engineering, and mathematics (STEM) career path program followed by monthly booster sessions. The NYEP is housed at the university-wide interdisciplinary Indigenous Wellness Research Institute (IWRI) at the University of Washington. IWRI and its associated research scientists, staff, and their affiliates provide a supportive and fertile environment for the program. IWRI is directed

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and staffed almost entirely by AI/AN individuals, with leading Federally-funded AI/AN health science researchers at the helm.

**Addressing Diabetes/CVD Health Disparities Among American Indians:  
A Transdisciplinary Approach**

*Project Type:* Research.

*Population:* American Indian and Alaska Native.

*Description:* AI/AN individuals are at increased risk for Type 2 diabetes when compared to other Americans, a gap that continues to widen. CVD, which has become the number one cause of death among AI/AN individuals, is now more common among AI/AN populations than in the U.S. general population. It is increasing not only in prevalence, but also in associated mortality. The greatest risk factor for CVD in the AI/AN population is diabetes. Both CVD and diabetes share common risk factors, such as weight and lipid levels, which in turn are strongly related to diet and exercise behaviors. Effective preventive interventions focused on these behaviors hold promise for diminishing the diabetes and CVD disparities experienced by AI/AN individuals. The goal of this project is to assess the viability and sustainability of an intervention that makes electronic tools accessible to participants. The purpose of the tools is to increase exercise and to track diet and exercise among overweight/obese AI/AN individuals living in Denver and Albuquerque. The project is being administered at two IHS-funded urban Indian clinics. A transdisciplinary team from the Centers for American Indian and Alaska Native Health, within the Colorado School of Public Health at the University of Colorado Denver, is leading the study.

**American Indian and Alaska Native Health Disparities**

*Project Type:* Research, Training, Community Outreach, Educational, and Capacity-Building.

*Population:* American Indian and Alaska Native.

*Description:* This NCMHD Center of Excellence conducts projects leading to understanding and improving: 1) the detection and management of depression in primary care; 2) the contribution of traditional healing practices to reduced risk of diabetes and cardiovascular disease; 3) the availability of Medicaid insurance on patient outcomes and survival among cancer patients; 4) the built environment in increasing physical activity levels and select metabolic health outcomes; 5) the early psychosocial interventions for injury survivors at high risk of posttraumatic stress disorder; 6) the evidence-based follow-up of cancer survivors by Tribal health care providers; 7) the elevated risk of chronic liver disease; 8) the communication of risk information on renal disease to patients with Type 2 diabetes; 9) the implicit racial biases and stereotypes of primary care providers; and 10) oral health prevention for young children. The project builds on previous work by pursuing unexpected insights emerging from current projects, by involving former AI/AN mentees as investigators, by enhancing an innovative outreach and dissemination program, by broadening institutional and Tribal collaborations, and by attracting new investigators to the program's agenda.

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*Publications:* Racial disparities in health status: A comparison of the morbidity among American Indian and U.S. adults with diabetes. O’Connell J, Yi R, Wilson C, Manson SM, Acton KJ. Diabetes Care. 2010 Jul;33(7):1463-70. Epub 2010 Mar 31. PMID: 20357367.

**Oklahoma Center on American Indian Diabetes Health Disparities**

*Project Type:* Research, Training, Community Outreach, Educational, and Capacity-Building.  
*Population:* American Indian.

*Description:* The Oklahoma Center on American Indian Diabetes Health Disparities (OCAIDHD) confronts health disparities by focusing on the expertise of a multi-disciplinary, multi-college team of diabetes researchers on specific biological, physiological, behavioral, and cultural stressors of the disease. The Center also has added non-university strengths via its partnership with the Oklahoma City Area Inter-Tribal Health Board (covering all Tribes in Oklahoma, Kansas, and Texas) and its Southern Plains Center on American Indian Epidemiology. The OCAIDHD is directed by an American Indian researcher, which is a significant part of its ability to relate to American Indian people who continue to endure health disparities in the face of unprecedented medical technology for diabetes.

**Center for Health Research in Tribes in SD-MT-WY**

*Project Type:* Research, Training, and Community Outreach.  
*Population:* American Indian.

*Description:* The Center for Health Research with Aberdeen Area Tribes is a project of the University of South Dakota (USD) in partnership with the Aberdeen Area Tribal Chairman’s Health Board, Sinte Gleska University, and the Health Disparities Research Center within Sanford Research/USD. Through this relationship, the partners are engaged in: 1) advancing the science directed towards impacting health disparities through the conduct of a significant study on a treatment for urinary incontinence in American Indian women; 2) evaluating a model for preconception health promotion in young American Indian women; 3) uniting resources to conduct activities supportive of American Indian students wishing to pursue careers in health professions and/or research; and 4) increasing the dissemination and utilization of scientific and health information relevant to health diversity populations.

## **Native Healing and Wellness Conference**

*Project Type:* Conference.

*Population:* American Indian.

*Description:* The primary objectives of the conference were to: 1) provide specific clinical skills for working with AI/AN communities regarding mental health and substance abuse; 2) continue to build on knowledge regarding substance abuse and mental health disparity issues of greatest concern to urban, rural, and reservation American Indian communities; 3) continue to refine practices that have been developed in Tribal communities to address such issues and/or show promise of being effective; and 4) provide an opportunity for Tribal organizations to connect and collaborate with researchers and research institutions and to network with other Tribal communities.

The Tribal Communities Transforming Mental Health Conference was held Sept 8-11, 2009, at the Great Wolf Lodge in Grand Mound, Washington. This was a coordinated effort with the University of Washington Alcohol & Drug Abuse Institute (ADAI), the Washington State American Indian Health Commission (AIHC), and the Washington State Indian Policy Advisory Committee (IPAC). The conference planning committee was comprised of Tribal delegates from both IPAC and AIHC with staff support from ADAI and the Washington State Office of Indian Policy (OIP). The conference attracted approximately 200 attendees representing 27 Tribes and 5 Recognized American Indian Organizations (RAIOs). The conference offered three tracks: 1) policy and research; 2) behavioral health service provision; and 3) six hours of professional ethics and law training for mental health credentialing. The conference planning committee pulled together a large agenda with about 30 expert presenters from a variety of backgrounds. Presentation topics included: 1) Historical Trauma and Micro-aggression Distress; 2) Treatment of Posttraumatic Stress Disorder in Native Combat Veterans; 3) AI/AN Cultural Renewal Movements – Mental Health and Wellness Strategies; 4) Use of Motivational Interviewing with Native Clients; and 5) Barriers to Care and Intimate Partner Violence among Native Women in Primary Care.

*Publications:* A conference publication is pending and is expected to be published in mid-to-late 2010.

## **Consortium for Community-Based Research in Native American Health**

*Project Type:* Research, Training, and Community Outreach.

*Population:* American Indian.

*Description:* This project aims to redress the health concerns and reverse the health disparities experienced by American Indians living in Montana. The Consortium for Community-Based Research in Native American Health was developed out of a dual request by American Indian communities seeking to replicate successful CBPR projects and by researchers seeking an entree to address American Indian health concerns and disparities. The project's specific aims

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are to: 1) address the health disparities faced by Montana's American Indian populations; 2) establish an enduring, adaptable and conducive infrastructure for researchers, medical and public health practitioners, and American Indian community members; 3) develop 12-25 CBPR pilot projects that address needs identified by American Indian communities; 4) develop mentoring relationships for students to engage actively in research dealing with health issues of Montana's American Indians; and 5) develop an understanding of the community structures and processes to address concerns and disparities.

*Publications:* Community-based participatory research in Indian Country: Improving health through water quality research and awareness. Cummins C, Doyle J, Kindness L, Lefthand MJ, Bear Dont Walk UJ, Bends AL, Broadway SC, Camper AK, Fitch R, Ford TE, Hamner S, Morrison AR, Richards CL, Young SL, Eggers MJ. *Fam Community Health*. 2010 Jul-Sep;33(3):166-74. PMID: 20531097.

Contextualizing CBPR: Key Principles of CBPR meet the Indigenous research context. Laveaux D, Christopher S. Pimatisiwin. 2009 Jun 1; 7(1):1. PMID: 20150951.

### **Child Safety Seat Intervention for Pacific Northwest Tribes**

*Project Type:* Community-Based Participatory Research (CBPR).

*Population:* American Indian.

*Description:* Motor vehicle crashes are the leading cause of death for American Indian children. The Northwest Portland Area Indian Health Board Project seeks to address this issue. Research has demonstrated that proper use of age-appropriate child restraint systems can substantially reduce the number of fatal injuries in motor vehicle accidents. However, many American Indian children still ride completely unrestrained or improperly restrained when traveling. Using a CBPR model, a team of partners from Northwest Tribes, Northwest Portland Area Indian Health Board and Harborview Injury Prevention Center at University of Washington has begun planning, implementing, and evaluating child safety interventions in six Northwestern Tribal communities. Tribes are involved in every facet of the research process, including interpretation and future planning based on results.

### **Using CBPR to Implement Smoking Cessation in an Urban American Indian Community**

*Project Type:* Community-Based Participatory Research (CBPR).

*Population:* American Indian and Alaska Native.

*Description:* This NCMHD CBPR initiative has developed the All Nations Breath of Life (ANBL) intervention to address the high smoking and low quit rates among AI/AN populations. This culturally-tailored smoking cessation program was developed by the American Indian Health Research and Education Alliance, a partnership organization composed of the Kansas University Medical College (KUMC) and several community-based organizations. The ANBL intervention has been developed and pilot tested and is being

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implemented in an urban AI/AN community of the Kansas City Metroplex. One of the aims of this project is infrastructure development for the Heart of America Indian Center, the proposed primary implementation site for the ANBL intervention. A cost-effectiveness analysis of the program to help determine its sustainability will be conducted.

**Native Navigators Across the Cancer Continuum (NNACC)**

*Project Type:* Community-Based Participatory Research (CBPR).

*Population:* American Indian.

*Description:* The Native Navigators Across the Cancer Continuum (NNACC) is a CBPR project based on partnerships among three American Indian communities in Colorado, South Dakota, and Michigan. The goal of this project is for the partners to collaborate, refine, expand, and adapt various navigator models used within each partners' setting to address American Indian community and patients' needs throughout the continuum of cancer care. Through collaboration, the NNACC partners share successful components of their ongoing navigation models and refine, adapt, and expand existing programs to be relevant to their local American Indian communities and clinical settings. Outcome measures include, but are not limited to: 1) comprehensive navigator-in-service training programs; 2) community education interventions; 3) evaluation data documenting an increase in community participants' knowledge and intended behaviors; 4) tracking data documenting increased and timely access to diagnostic and treatment services; and 5) documentation of dissemination of findings to community participants, their respective communities, and others.

**Impact of Pneumococcal Conjugate Vaccine on Disease and Colonization Among Native American Communities**

*Project Type:* Research.

*Population:* American Indian.

*Description:* Within the U.S. some American Indian populations, like the Navajo and the White Mountain Apache Tribes, suffer from pneumococcal disease much more often than people in the general U.S. population. It is not known why pneumococcus disproportionately afflicts these communities, but it is known that this health disparity can be significantly reduced through vaccination. The broad, long-term objective of this research is the reduction of pneumococcal disease among Navajo and White Mountain Apache communities and, by extension, epidemiologically similar communities domestically and internationally, through the implementation of highly effective pneumococcal vaccine strategies. The specific objective of this project is the investigation of the mechanism of infection at a population level and the impact of 13-valent pneumococcal conjugate vaccine introduction on pneumococcal ecology, population transmission dynamics, and invasiveness-characteristics resulting from vaccine induced antibody pressure. In addition, researchers are systematically studying the circulating disease-causing and nasopharyngeal-colonizing strains of

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*Streptococcus pneumoniae* (pneumococcus) among Navajo and White Mountain Apache communities.

**Central Plains Center for American Indian Health Disparities (CPC-AIHD)**

*Project Type:* Research, Training, and Community Outreach.

*Population:* American Indian.

*Description:* The long-term goal of this project is to reduce health disparities among American Indians in the Central Plains through quality CBPR and to enhance opportunities for American Indian students entering the health professions by supporting pipeline programs from high school through college and into graduate and medical school. The specific aims for the CPC-AIHD are to: 1) create an interdisciplinary, CBPR center for health disparities research in American Indian communities in the Central Plains; 2) provide methodological support to health disparities; 3) create an educational pipeline from high school to graduate school in a health profession for American Indian high school students, and 4) enlist the help of the local and regional American Indian communities in all parts of the research process through community advisory boards and research staff.

**Building Research Infrastructure for the Crow Community**

*Project Type:* Building Research Infrastructure and Capacity (BRIC).

*Population:* American Indian – Crow Reservation.

*Description:* The focus of the NIH-BRIC project is to develop research, education, and human infrastructure at Little Big Horn College (LBHC). The long-term goal of the project is to attract external grant funding, while better preparing LBHC American Indian students to transfer from two-year programs at the community college level to four-year programs at degree-granting institutions. The NIH-BRIC program also promotes the pursuit of graduate study by American Indian students and supports wider employment opportunities.

**NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES (NIEHS)**

Human health and human disease result from three interactive elements: environmental factors, individual susceptibility, and age. The mission of the National Institute of Environmental Health Sciences (NIEHS) is to reduce the burden of human illness and dysfunction from environmental causes by understanding each of these elements and how they interrelate. The NIEHS achieves its mission through multidisciplinary biomedical research programs, prevention and intervention efforts, and communications strategies that encompass training, education, technology transfer, and community outreach.

### **Navajo Uranium Assessment and Kidney Health Project and the DINÉ Network for Environmental Health Project**

*Project Type:* Research and Community Outreach.

*Population:* Native American – Navajo People.

*Description:* Projects address the health impact of past uranium mining at more than 1,000 mining and milling sites, with special focus on chronic kidney disease and contamination of drinking water from unregulated sources. The aim is to develop acceptable safe alternative water sources, as well as to calculate risks for kidney disease from contaminated water.

### **Training on Metal Exposure and Children’s Preschool Neurodevelopment and Interdisciplinary Training in Neurodevelopment Toxicology**

*Project Type:* Research and Training.

*Population:* Native American.

*Description:* Both research and training focus on the ongoing birth cohort study of 750 mothers and their children at a former hard rock mining community at the Tar Creek Superfund mega-site in Oklahoma. To-date children have been followed to age 2 years, involving collection of samples (blood, hair nails) analyzed for lead, manganese, and arsenic. This project is funded through the Children’s Hospital of Boston for the research component and through Harvard University for the training component.

### **Domoic Acid Neurotoxicity in Native Americans**

*Project Type:* Research.

*Population:* Native American.

*Description:* This study looks at a cohort of 635 Native Americans to determine the incidence and prevalence of domoic acid related illness in this at-risk group and to identify both exposure and host factors. Participants are randomly selected from four U.S. and one Canadian Tribe representing five at-risk groups: infants, young children, older children, adults, and elderly.

### **Alaska Community Action on Toxins**

*Project Type:* Research and Community Outreach.

*Population:* Native American – Primarily Inupiat and Yupik Indigenous Peoples.

*Description:* Researchers analyze historical data from the Alaska Birth Defects Registry and work with health care providers to collect data and analyze breast milk for contaminants. The goal is to limit release of contaminants and mitigate human health effects of pollution. This is

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a project funded by NIEHS through Environmental Health and Justice in Norton Sound, Alaska, working in partnership with 15 communities.

**Science Education Partnership Award**

*Project Type:* Education.

*Population:* Native American.

*Description:* This active high school and undergraduate training program prepares students for graduate training and research careers. The program has established strong partnerships with local high schools in environmental science education and utilizes the Short-Term Educational Experiences for Research (STEER) program to stimulate commitment to environmental science careers.

**Cheyenne River Sioux Tribal Council for Environmental Justice on Cheyenne River**

*Project Type:* Community Outreach and Education.

*Populations:* Native American – Cheyenne River Sioux Tribe.

*Description:* The central goal of this project is to foster awareness of environmental health issues among Tribal members; and to drive an organized agenda of environmental health activities, planning, and policy for the betterment of Tribal health and ecology of the reservation. Cultivating trainers, conducting a survey and media campaign, and establishing an environmental health advisory board will help achieve the central goal. This project is the result of a collaboration of NIEHS with the Cheyenne River Sioux Tribe, the University of New Mexico, and the Black Hills Center for American Indian Health.

**NATIONAL INSTITUTE OF DENTAL AND CRANIOFACIAL RESEARCH (NIDCR)**

The mission of the National Institute of Dental and Craniofacial Research (NIDCR) is to improve oral, dental, and craniofacial health through research, research training, and the dissemination of health information. NIDCR accomplishes its mission by: 1) performing and supporting basic and clinical research; 2) conducting and funding research training and career development programs to ensure an adequate number of talented, well-prepared and diverse investigators; 3) coordinating and assisting relevant research and research-related activities among all sectors of the research community; and 4) promoting the timely transfer of knowledge gained from research and its implications for health to the public, health professionals, researchers, and policy-makers.

**Promoting Behavioral Change in American Indian Mothers and Children**

*Description:* The Center for Native Oral Health Research at the University of Colorado Denver was funded by NIDCR to study several aspects of Early Childhood Caries (ECC). In this research project, a randomized controlled trial, the effectiveness of a behavioral

intervention (motivational interviewing) on preventing ECC in a Northern Plains Tribe will be assessed. The intervention will be conducted in collaboration with the American Indian community to assure the development of culturally appropriate educational and health promotional materials that emphasize the value of family oral health from birth. In addition to understanding the effectiveness of this intervention on preventing ECC, the results of the study will provide an enhanced understanding of how this approach will influence moderators and mediators of the intervention. The specific caries patterns in the American Indian children and costs of the program will be assessed.

### **Preventing Caries in Preschoolers: American Indian Head Start Programs**

*Description:* The Center for Native Oral Health Research at the University of Colorado Denver was funded by NIDCR to study several aspects of ECC. This research project, a randomized study, will address the prevention of ECC in children enrolled in the Head Start program of a southwestern American Indian nation. An oral health promotion approach will be developed and delivered with fluoride varnish in the Head Start setting by community oral health workers. In addition to evaluating the prevention of ECC, the study will glean information about program costs and the changes in knowledge, attitudes, and behaviors of families.

### **Prevention of Adult Caries (PACS)**

*Description:* This research project, a randomized, double-blind, multi-center, placebo-controlled, parallel group Phase III clinical trial tests the hypothesis that a chlorhexidine dental coating, compared to a placebo coating, will reduce adult dental caries in at-risk adults over a 13-month observation period. The efficacy of the chlorhexidine coating on both root and coronal caries is being assessed. One of the four centers contributing subjects is a dental clinic of a Native American Health Care Corporation.

### **Streptococcus Mutans and Dental Caries in Native American Children**

*Description:* The objective of this prospective cohort study is to identify risk factors for ECC among infants and toddlers of a Northern Plains Tribe and determine if *Streptococcus mutans* alone or in combination with environmental factors increases the risk of ECC. This research project will provide valuable information on the acquisition of the cariogenic bacteria in American Indian children. The investigators will determine the incidence of ECC through age 36 months and explore such issues as the transmission and virulence of *Streptococcus mutans* and the composition of total cultivable flora over time. In addition, the investigators will seek to identify behavioral, dietary, and nutritional risk factors that may contribute to the disease.

**NATIONAL INSTITUTE OF MENTAL HEALTH (NIMH)**

The National Institute of Mental Health (NIMH) envisions a world in which mental illnesses are prevented and cured. The mission of NIMH is to transform the understanding and treatment of

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mental illnesses through basic and clinical research, paving the way for prevention, recovery and cure. For the Institute to continue fulfilling this vital public health mission, it must foster innovative thinking and ensure that a full array of novel scientific perspectives are used to further discovery in the evolving science of brain, behavior, and experience. In this way, breakthroughs in science can become breakthroughs for all people with mental illnesses. In support of this mission, NIMH will generate research and promote research training to fulfill the following four objectives: 1) promote discovery in the brain and behavioral sciences to fuel research on the causes of mental disorders; 2) chart mental illness trajectories to determine when, where, and how to intervene; 3) develop new and better interventions that incorporate the diverse needs and circumstances of people with mental illnesses; and 4) strengthen the public health impact of NIMH-supported research. To reach these goals, the NIMH divisions and programs are designed to emphasize translational research spanning across bench, bedside, and practice.

### **Developing Community-Based Interventions for American Indian Mental Health**

*Project Type:* Career Development Award.

*Population:* American Indian (with a focus on Navajo youth and their families).

*Description:* This career development award is designed to provide comprehensive mentored research training in community-based mental health services for American Indian adolescents (age 12-16), with a focus on Navajo youth and their families. The training includes coursework, mentoring, and applied research related to developing and implementing culturally tailored mental health services. Results of the first phase of the research have been presented at two national conferences, and manuscripts for publication are currently under review.

### **Gene-Environment Interplay, Development, and Emotional Disorders**

*Project Type:* Mentored Career Development Award.

*Population:* American Indian and Alaska Native.

*Description:* Through this mentored career development award, a clinical psychologist will use a genome-wide association-informed candidate gene approach to investigate gene by environment interactions on the development of anxiety and depression across several different environmental risk categories. Two existing longitudinal samples, the Caring for Children in the Community sample and the Great Smoky Mountain Study sample, will be employed.

### **Indigenous HIV/AIDS Research Training (IHART) Program**

*Project Type:* Research Education.

*Population:* American Indian and Alaska Native.

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*Description:* I-HART was developed to increase the number of AI/AN health researchers to successfully garner major grants for Tribal priority health issues. The I-HART program will target junior and mid-career AI/AN community/Tribal-based researchers and AI/AN university-based researchers to hone their competitive grant making skills for mental health and HIV/AIDS research grant acquisition.

**Mental Illness and Community Reentry in a Multi-Ethnic Population of Female Inmates**

*Project Type:* Research.  
*Population:* American Indian.

*Description:* This project will assess the role of mental illness among Hispanic, Native American, and White women moving to rural environments from prison, examine their provision of social support in the reentry process, and determine strategies to strengthen and sustain their community connections and access to formal and informal helping resources.

**The Mentorship in Mental Health Research Program**

*Project Type:* Research Education and Training.  
*Population:* American Indian, Sinte Gleska University, Antelope, South Dakota.

*Description:* This program will develop TCU faculty who conduct high quality, culturally appropriate, and community-supported mental health research among AI/AN/NA communities. The initial project is between the University of Nebraska at Lincoln, Nebraska, and the Sinte Gleska University, Antelope, South Dakota.

**Mid-Career Investigator Award: Suicidal Behaviors**

*Project Type:* Mid-Career Mentoring Award.  
*Population:* Ojibwe Reservations in the Upper Midwest.

*Description:* This award supports an overall research program, ongoing career development activities, and mentoring in the area of interventions for suicidal youth. Specifically, the project involves a treatment development and effectiveness study of a community-based suicide prevention program collaboratively developed with the Ojibwe reservations in the upper Midwest.

**Multilevel Analysis of American Indian Mental Health, Illness, and Service Use**

*Project Type:* Research.  
*Population:* American Indian – Southwest and Northern Plains Tribes.

*Description:* This project aims to determine the demography of mental illness; place mental illness in community and family context through the development of multilevel models; and

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extend the multilevel models to determine the family, community, and geospatial context of service use, including both biomedical and traditional modalities.

**Multi-Method Ethnographic Assessment of Behavioral Health Reform in New Mexico**

*Project Type:* Research.

*Population:* American Indian, Hispanic, and White.

*Description:* In collaboration with the State of New Mexico, this project assesses New Mexico's reform in managed mental health service delivery for low-income populations. The project will assess whether the reform decreases barriers to care for these underserved groups and its effect on the viability of existing services rendered in safety-net institutions.

**National Native American Youth Initiative**

*Project Type:* Training and Education.

*Population:* American Indian and Alaska Native.

*Description:* The National Native American Youth Initiative is an intense academic enrichment and reinforcement program designed to better prepare AI/AN high school students to remain in the academic pipeline and pursue a career in the health professions and/or biomedical research.

**Research Supplements to Promote Diversity in Health-Related Research**

*Project Type:* Training.

*Population:* Underrepresented racial and ethnic groups (including AI/AN/NA populations), individuals with disabilities, and individuals from disadvantaged backgrounds.

*Description:* This program promotes diversity in the biomedical, behavioral, clinical and social sciences research workforce by providing support to individuals at the high school, undergraduate, graduate, postdoctoral, and investigator career stages that come from groups that have been shown to be underrepresented in science.

**White Mountain Apache Tribe – Johns Hopkins University NARCH Approach to Prevention of Intentional Injury in Apache Youth**

*Project Type:* Research.

*Population:* White Mountain Apache Indians.

*Description:* The NIMH supported a subproject through the NARCH program administered by the IHS. The subproject employed CBPR methods to understand and characterize non-suicidal self-injury among Apache youth in order to design and pilot an intervention to prevent continued or chronic self-injury in this population.

## **New Mexico Access to Research Careers in Mental Health**

*Project Type:* Research Training.

*Population:* Native American.

*Description:* The broad goal of this program was to recruit and train a cadre of undergraduates from diverse backgrounds to pursue research careers relevant to the mission of NIMH. The University of New Mexico (UNM) has one of the largest Hispanic enrollments of any major U.S. university and the largest number of American Indian students. This program recruits students that have historically been underrepresented in the biomedical and behavioral sciences, students from disadvantaged backgrounds, and students with disabilities. UNM Career Opportunities in Research (COR) students pursue research and substantive training, as well "hands-on" experience in research mentorships, summer internships, colloquia, and seminars.

Since the beginning of this program, 47 percent of all program graduates have earned a master's or doctorate degree (18 doctorate and 25 master's degrees thus far). Considering only students who completed training 5 years ago or more, 44.2 percent have completed a master's degree, 32.7 percent a doctorate, and the unduplicated success and promise rate for a graduate degree is 80.7 percent.

## **Phase II: Opening the Pipeline for Native High Schools**

*Project Type:* Research Training.

*Population:* Native Americans from four Communities: Hopi, Fort Peck Reservation in Montana (Assiniboine/Sioux Tribes), Native Hawaiians, and the Wampanoags (Cape Cod, Massachusetts).

*Description:* The goal of this grant is to establish a summer program to improve the opportunity for Native American high school students to engage in science education and pursue careers in the biomedical sciences at leading institutions, and to provide training to their teachers in the content and pedagogical methods of biomedical sciences.

## **Resilience Through the High School Years**

*Project Type:* Research.

*Population:* American Indian, Ojibwe.

*Note:* Project leverages funding with R01-DA13580.

*Description:* This project is a longitudinal study of cultural and individual factors which influence risk and resilience for mental, emotional, and behavioral disorders in Ojibwe participants. The prospective study follows children through high school, a period of increased risk for emotional, behavioral, and substance use problems. This study will show

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the progression of mental health and substance use disorders among a large sample of Indigenous adolescents. The investigators are in the process of fitting highly sophisticated multi-wave models of mental health trajectories. This type of modeling has never been done with Indigenous adolescents. Preliminary data suggest that there is an important prevention/intervention window for Indigenous early adolescents at ages 10-12 years prior to early use and early psychological symptoms associated with use. Findings indicate that delaying onset of use by intervening during this critical period could have substantial effects on long-term substance use outcomes.

*Publications:* Whitbeck LB, Yu M, McChargue DE, Crawford DM. Depressive symptoms, gender, and growth in cigarette smoking among indigenous adolescents. *Addict Behav.* 2009 May;34(5):421-6. Epub 2008 Dec 25. PubMed PMID: 19167169; PubMed Central PMCID: PMC2664542.

Whitbeck LB, Yu M, Johnson KD, Hoyt DR, Walls ML. Diagnostic prevalence rates from early to mid-adolescence among indigenous adolescents: first results from a longitudinal study. *J Am Acad Child Adolesc Psychiatry.* 2008 Aug 47 (8):890-900. PubMed PMID: 18596558; PubMed Central PMCID: PMC2643437.

### **Southwest Youth and the Experience of Psychiatric Treatment**

*Project Type:* Research.

*Population:* American Indian – Southwest Tribes.

*Description:* This study examines the experience of Native American adolescents receiving psychiatric treatment according to two culturally different approaches: the traditional approach of the Navajo society and a contemporary psychiatry approach. Perception of treatment, level of distress, and patterns of interaction between youths, family, and providers of care are assessed prospectively.

## **NATIONAL INSTITUTE OF GENERAL MEDICAL SCIENCES (NIGMS)**

The mission of the National Institute of General Medical Sciences (NIGMS) is to support basic biomedical research that increases understanding of life processes and lays the foundation for advances in disease diagnosis, treatment, and prevention. NIGMS-funded researchers seek to answer important scientific questions in fields such as cell biology, biophysics, genetics, developmental biology, pharmacology, physiology, biological chemistry, bioinformatics, computational biology, selected aspects of the basic behavioral sciences, and specific cross-cutting clinical areas that affect multiple organ systems. The NIGMS also provides leadership in training the next generation of scientists and increasing the diversity of the scientific workforce to assure the vitality and continued productivity of the research enterprise. Several AI/AN/NA activities are supported through the NIGMS Minority Opportunities in Research (MORE) Division.

### **Native American Research Centers for Health (NARCH)**

*Project Type:* Research Project, Training Program, and Capacity-Building.

*Population:* American Indian, Alaska Native, and Native American.

*Description:* NARCH is a collaborative program with the IHS to improve and expand health research involving AI/AN Tribes and people. This collaboration is designed to enhance and expand the capacity and skills of Tribal organizations and Native American researchers to conduct high-quality biomedical and behavioral health research and to apply successfully for competitive research grants.

There are 17 active NARCH centers, representing over 450 Tribes that are participating in the NARCH program. Hundreds of Native science students and researchers have participated at all levels, from high school to graduate students. Many AI/AN junior faculty have started their first grant-funded research with NARCH funds and half of the NARCH centers have already progressed to receiving direct NIH grants.

### **Bridges to the Baccalaureate Program**

*Project Type:* Training Program.

*Population:* American Indian, Alaska Native, and Native American.

*Description:* The Bridges to the Baccalaureate program is a program designed to make available to the biomedical science research enterprise and to the Nation the intellectual talents of an increasing number of underrepresented groups. It does so by facilitating the transition of students from associate- to baccalaureate-degree granting institutions. The program promotes effective inter-institutional partnerships that lead to improvement in the quality and quantity of underrepresented students being trained as the next generation of scientists. 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 MORE Division at NIGMS currently supports several Tribal colleges through partnerships with major institutions. These include the UNM-Gallup Branch Community College, Diné College at Tsaile, Diné College at Shiprock (through New Mexico State University); Blackfeet Community College, Chief Dull Knife College (through Montana State University- Bozeman); Red Crow Community College, Stone Child College, and Salish Kootenai College (through the University of Montana-Missoula); Haskell Indian Nations University (through the University of Kansas); Fond du Lac Tribal and Community College (through the University of Minnesota-Duluth); and Fort Belknap College, Fort Peck Community College, and Little Big Horn College.

The expected long-term outcome of NIGMS's ongoing training activities is greater participation of minority students in science. More specific goals and measures are outlined in

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applicants' funding proposals, and they vary from institution to institution. These outcomes are peer-reviewed when grantees submit renewal applications at the end of their funding period, and they are one consideration in providing continued funding for a program.

The Bridges programs listed above are quite successful in meeting their goals and objectives. One program in particular, Bridges to the Baccalaureate Program at New Mexico State University which partners with UNM-Gallup Branch Community College, Diné College at Tsaile (Arizona), and Shiprock (New Mexico), has enjoyed great success in spite of the considerable distance among the partner institutions. This program is hugely successful with 70 percent of the students transferring to four-year colleges and completing their bachelor's degree. The program has already conferred 69 bachelor's, 20 master's and 12 doctorate degrees.

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

*Project Type:* Training Program.

*Population:* American Indian, Alaska Native, and Native American.

*Description:* The Institutional Research and Academic Career Development Award (IRACDA) combines a traditional, mentored, postdoctoral research experience with an opportunity to develop teaching skills through mentored assignments at a MSI. The goals of the program are to provide a resource to motivate the next generation of scientists at MSIs and to promote linkages between research-intensive institutions and MSIs that can lead to further collaborations in research and teaching.

The MORE Division at NIGMS currently provides support to the University of Kansas which partners with Haskell Indian Nations University; University of Minnesota-Duluth which partners with Fond du Lac CC and Lake Superior College; and University of North Carolina which partners with the University of North Carolina at Pembroke. These programs support a number of postdoctoral scholars who are classified as American Indian, Alaska Native, or Native Americans.

The expected long-term outcome of NIGMS's ongoing career development is greater participation of minority students in science. More specific goals and measures are outlined in applicants' funding proposals, and they vary from institution to institution. These outcomes are peer-reviewed when grantees submit renewal applications at the end of their funding period, and they are one consideration in providing continued funding for a program.

**Initiative for Minority Student Development (IMSD)**

*Project Type:* Training Program.

*Population:* American Indian, Alaska Native, and Native American.

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*Description:* The Initiative for Minority Student Development (IMSD) encourages domestic private and public educational institutions with fully developed and funded research programs to initiate and/or expand innovative programs to improve the academic and research capabilities of underrepresented minority students and to facilitate their progress toward careers in biomedical research. The application may be directed toward the development of underrepresented minority scientists who are in any phase of their career development, from the undergraduate level through the PhD. Awards under this program use the institutional education project grant mechanism. The MORE Division at NIGMS currently provides support to Montana State University and the University of Arizona, which have significant numbers of Native American students in their IMSD programs.

The expected long-term outcome of NIGMS's ongoing training activities is greater participation of minority students in science. More specific goals and measures are outlined in applicants' funding proposals, and they vary from institution to institution. These outcomes are peer-reviewed when grantees submit renewal applications at the end of their funding period, and they are one consideration in providing continued funding for a program.

### **Research Initiative for Scientific Enhancement (RISE)**

*Project Type:* Training Program, Educational, and Capacity-Building.

*Population:* American Indian, Alaska Native, and Native American.

*Description:* The Research Initiative for Scientific Enhancement (RISE) provides support for faculty and student development activities, which can include on-campus or off-campus workshops, specialty courses, travel to scientific meetings, and research experiences at on-campus or off-campus laboratories. Support is also available for evaluation activities. RISE 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 MORE Division at NIGMS currently provides support to Salish Kootenai College, Haskell Indian Nations University, and the University of North Carolina at Pembroke. A total of 22 students participate in RISE-sponsored developmental activities at these institutions. The expected long-term outcome of NIGMS's ongoing training activities is greater participation of minority students in science. More specific goals and measures are outlined in applicants' funding proposals, and they vary from institution to institution. These outcomes are peer-reviewed when grantees submit renewal applications at the end of their funding period, and they are one consideration in providing continued funding for a program.

### **MARC Ancillary Training Activities**

*Project Type:* Community Outreach and Educational.

*Population:* American Indian, Alaska Native, and Native American.

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*Description:* The MORE Division at NIGMS has formed relationships with professional scientific societies to develop innovative programs aimed at increasing the number of underrepresented minority biomedical scientists. 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. With NIGMS support, the societies have sponsored activities that engage minority students and faculty members in the biomedical sciences, including visiting scientist programs, summer research opportunities, and scholarships enabling attendance at national scientific meetings and conferences. The MORE Division at NIGMS currently provides support to the Society for Advancement of Chicanos and Native Americans in Science. The annual Society for Advancement of Chicanos and Native Americans in Science (SACNAS) conference is attended by a large number of Native American students.

### **Community Outreach**

*Project Type:* Community Outreach.

*Population:* American Indian, Alaska Native, and Native American.

*Description:* The MORE Division at NIGMS is actively engaged in staff outreach visits to MSIs to explain new program requirements, review incoming applications, and monitor ongoing programs. In addition, NIGMS staff makes presentations at regional workshops, targeted at MSIs not currently funded by NIGMS, to introduce the workshop participants to NIH and NIGMS and familiarize them with the Institute's efforts to recruit minorities into science careers. NIGMS also provides outreach through several websites designed to provide information on ongoing NIGMS minority programs and initiatives. In addition to staff outreach efforts, NIGMS provides extramural funding for technical assistance activities performed by third parties, such as professional societies.

In 2009, the MORE Division Director made a staff visit to Little Big Horn College in Montana. The MORE staff routinely attends meetings, such as the AISES and SACNAS, to provide conference support. In July 2010, the MORE staff attended the annual 22<sup>nd</sup> Native Health Research Conference in Rapid City, South Dakota.

## **NATIONAL INSTITUTE OF NURSING RESEARCH (NINR)**

The National Institute of Nursing Research (NINR) supports clinical and basic research to build the scientific foundation for clinical practice, prevent disease and disability, manage and eliminate symptoms caused by illness, and enhance end-of-life and palliative care. The Institute's scientific focus spans multiple disciplines and unites the biological and behavioral sciences to better understand the complex interactions between the physiological factors of health and disease and an individual's knowledge, beliefs, and behavior. NINR's focus on science that spans the full disease spectrum and all stages of life enables the Institute to explore and address

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some of the most important challenges affecting the health of the American people. The NINR, with its patient-centered research focus, is acutely cognizant of the special needs of minority and underserved populations, including AI/ANs. NINR conducts a range of activities related to eliminating health disparities in underrepresented populations, including AI/ANs, and to training new investigators underrepresented in the research community.

**Interactions Between Mothers and Their Premature American Indian Infants**

*Project Type:* Research.

*Population:* American Indian – Lumbee Tribe of Southeastern North Carolina.

*Description:* This is a longitudinal study of the interactive behaviors of American Indian mothers and their premature infants from the Lumbee Tribe in Southeastern North Carolina. The study is exploring factors affecting mother-child interactions, including mothers' responses to having a premature infant in the Neonatal Intensive Care Unit (NICU) and their experiences in parenting their prematurely born children.

**Native Navigation Across the Cancer Continuum in Comanche Nation**

*Project Type:* Research Project, Community Outreach, Educational, and Training Program.

*Population:* Native American – Comanche Nation.

*Description:* This multidisciplinary project (nursing, public health, and statistics) employs a community-based participatory approach to examine the use of trained individuals, Native Navigators, to assist members of their Tribe to navigate the health care system in order to receive needed education and services. The project will determine to what extent Native Navigator-initiated Native American community education workshops improve knowledge regarding cancer prevention, screening, and treatment among Native American participants.

**Building a Sustainable Indian Tribal Infrastructure for Translational Research**

*Project Type:* Educational and Capacity-Building.

*Population:* American Indian and Alaska Native – Suquamish Tribe, Port Gamble S'Klallam Tribe).

*Description:* This project seeks to establish a partnership infrastructure between an academic health center and rural Tribes to enhance Tribal capacity to engage in behavioral science translational research. The program draws upon social learning theory, employing a community-based participatory research approach to assist the Tribes in conceptualizing, planning, and submitting evidenced-based translational research grants for their communities.

**NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE (NINDS)**

The mission of the National Institute of Neurological Disorders and Stroke (NINDS) is to reduce the burden of neurological disease—a burden borne by every segment of society and people all over the world—through discovery of fundamental knowledge of the nervous system and application of that knowledge to better understand and address neurological disorders. To achieve its mission, NINDS invests across the spectrum of basic, translational, and clinical neuroscience research.

**Alaska Native Stroke Registry (ANSR)**

*Project Type:* Research.

*Population:* Alaska Native.

*Description:* The Alaska Native Stroke Registry (ANSR) developed a state-wide surveillance system to determine the incidence of stroke in the AN/AI population in Alaska. The ANSR was supplemented to identify novel barriers to vascular risk reduction and opportunities to intervene for successful stroke and heart prevention.

The American Recovery and Reinvestment Act-funded pilot work has produced a survey instrument to assess stroke and myocardial infarction, vascular risk, medication adherence, the role of social health networks, community social organization, health-illness beliefs, explanatory models of disease, health locus of control, and barriers to physical activity. Information from this survey would guide the development of a cultural intervention targeting vascular risk factors.

*Publications:* Horner RD, Day GM, Lanier AP, Provost EM, Hamel RD, Trimble BA. *Stroke mortality among Alaska Native people.* Am J Public Health. 2009 Nov; 99 (11):1996-2000.

**Specialized Neuroscience Research Program (SNRP)**

*Project Type:* Research Training and Capacity-Building.

*Population:* Alaska Native.

*Description:* The Specialized Neuroscience Research Program (SNRP) cooperative agreement at the University of Alaska Fairbanks supports infrastructural development and promotes increased efforts to recruit and retain Alaska Native and other underrepresented students to improve their success rates in biomedical career paths.

Alaska Native undergraduate students from the SNRP program have entered and excelled in biomedical graduate research programs at Stanford University, the Mayo Clinic, the University of Illinois at Urbana-Champaign, and the University of California-San Diego due to neuroscience faculty outreach over the last 10 years. Since 2000, the Alaska Basic Neuroscience Program has graduated 16 PhD students and 17 MS/MA students. At the undergraduate level, neuroscience faculty have conducted research projects with over 100

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students—an average of 10 students per year. A total of 22 AN/AI students (2 graduate and 20 undergraduate) have been trained by the SNRP PIs.

**Outreach at Annual Meetings for Medical and Scientific Societies Representing American Indians and Native Americans**

*Project Type:* Community Outreach.

*Population:* Alaska Native and American Indian.

*Description:* NINDS program staff members attend and continue to be invited to the annual meetings for the Association of American Indian Physicians (AAIP) and SACNAS to provide information to students on education and training opportunities through one-on-one interactions and networking activities. The one-on-one interactions, as well as the dissemination of available grant opportunities, have been reported as being most helpful to the students and early stage career investigators. In addition, the NINDS program has been invited to partner with SACNAS to participate in its Leadership Development Institute aimed at supporting graduate student researchers.

**OFFICE OF BEHAVIORAL AND SOCIAL SCIENCES RESEARCH (OBSSR)**

The Office of Behavioral and Social Sciences Research (OBSSR) provides leadership and direction for the development of trans-NIH programs to increase the scope of, and support for, behavioral and social sciences research. OBSSR aids in defining an overall strategy for the integration of these disciplines across NIH institutes and centers; develops initiatives to stimulate research in the behavioral and social sciences arena; and promotes studies to evaluate the contributions of behavioral, social, and lifestyle determinants in the development, treatment, and prevention of illness and related public health problems.

**NARCH V Program at the National Congress of American Indians Policy Research Center (NCAIPRC) and University of New Mexico and University of Washington**

*Project Type:* Research.

*Population:* American Indian and Alaska Native communities.

*Description:* This NARCH V program is a research project on the promoters and barriers to CBPR in AI/AN communities. Its primary aims are to identify best practices, tools, and measurement instruments for use by partnerships nationwide and identify variability of CBPR projects within diverse underserved communities nationwide.

*Publications:* Wallerstein N, Duran B (2010). Community-Based Participatory Research Contributions to Intervention Research: The Intersection of Science and Practice to Improve Health Equity. *American Journal of Public Health*, 2010;100:S40–S46.doi:10.2105/AJPH.2009.184036.

**NATIONAL CENTER FOR RESEARCH RESOURCES (NCRR)**

The National Center for Research Resources (NCRR) provides laboratory scientists and clinical researchers with environments and tools that they can use to prevent, detect, and treat a wide range of diseases. NCRR supports health activities relevant to AI/AN/NA communities through the Institutional Development Award (IDeA), the Research Centers in Minority Institutions (RCMI), the Science Education Partnership (SEPA) Award, and the Clinical and Translational Science Award (CTSA) programs.

**Alaska INBRE: Environmental Agents and Disease**

*Project Type:* Capacity-Building.

*Population:* Alaska Native.

*Description:* The IDeA Networks of Biomedical Research Excellence (INBRE) at the University of Alaska supports biomedical workforce training in Alaska. This training starts early in high schools located in rural communities and remote Alaska Native villages. The INBRE also engages students' parents and communities, particularly in the villages. The program emphasizes pre-college programs for Alaska Natives and support for undergraduate research. The INBRE network includes students and faculty from lead and partner campuses, government laboratories, K-12 sites, Tribal organizations and Tribally controlled health corporations. The INBRE funds student stipends for summer research experiences and other undergraduate research opportunities to build and support the pipeline leading toward health careers for Alaska Native students. The Alaska INBRE supports the Alaska Native Science and Engineering Program (ANSEP) to integrate outreach, recruitment, retention, and placement strategies to promote success in college; and it encourages graduate study. ANSEP has increased retention rates of Native Americans in engineering programs (73 percent vs. national average of 27 percent).

**Montana INBRE: A Multidisciplinary Research Network**

*Project Type:* Capacity-Building.

*Population:* American Indian.

*Description:* The Montana INBRE supports student education to increase scientific and technical knowledge in the state's workforce and to develop community-based health research on Montana's Indian reservations to ultimately improve health in Native American communities. In Montana seven Tribal colleges, including Little Big Horn, Chief Dull Knife, Blackfeet, Fort Belknap, Fort Peck, Salish Kootenai, and Stone Child, are brought together under the IDeA Program to collaborate on biomedical research projects with undergraduate and research universities across the state. Over 20 students worked as interns on the project entitled "Exposure Assessment to Environmental Contaminants on the Crow Reservation" at Little Big Horn College. Two additional NIH grants were developed and funded, in part, from the progress achieved by INBRE-funded projects.

### **Nebraska Research Network in Functional Genomics: The Little Priest Tribal College (LPTC)**

*Project Type:* Research.

*Population:* Native American.

*Description:* The Little Priest Tribal College's INBRE research project, "Aura Imaging, Iridology and Sclerology Research," demonstrates the complexity of the human organism and the importance of the many homeostatic mechanisms that work in concert to give a person health and vitality. It offers the interns hands-on research experience that is equivalent to their level of education and commensurate with their cultural experience; supports the students' goals to pursue degrees in health-related fields and satisfies their desire to provide a service to the larger community of the Winnebago Tribe; and exposes the students to current technology and demonstrates an immediate, relevant, and practical application.

### **New Mexico INBRE Program**

*Project Type:* Capacity-Building.

*Population:* American Indian.

*Description:* The INBRE program at New Mexico University (NM-INBRE) is involved in reaching out to American Indian communities through a variety of mechanisms. Significant inter-programmatic outreach collaboration exists between NM-INBRE and the NIH NIGMS-funded program "Bridges-to-the-Future, Associate to Baccalaureate Degree for American Indian Students Program" through the "Bridge to Native American Students in Community Colleges" project. The NM-INBRE research portfolio includes a new pilot project which enrolls a large percentage of students from the Navajo, Ute, and Jicarilla Apache Nations and provides opportunities for students to directly participate in biomedical research while they are enrolled in this first stage of the pipeline. The community-based Zuni Health Initiative correlates cultural links to health disparities, with potential for education and developing interventions to improve the health status of students' Tribal communities.

*Publications:* Jean W. MacCluer, Marina Scavini, Vallabh O. Shah, Shelley A. Cole, Sandra L. Laston, V. Saroja Voruganti, Susan S. Paine, Alfred J. Eaton, Anthony G. Comuzzie, Francesca Tentori, Dorothy R. Pathak, Arlene Bobelu, Jeanette Bobelu, Donica Ghahate, Mildred Waikaniwa and Philip G. Zager. Genetic Effects on Measures of Renal Disease among Zuni Indians: The Zuni Kidney Project. American J of Kidney Disease. Nov 2009.

Malhotra Alka A et al, Family Investigation of Nephropathy and Diabetes Research Group. Genome-wide linkage scans for type 2 diabetes mellitus in four ethnically diverse populations-significant evidence for linkage on chromosome 4q in African Americans: the family investigation of nephropathy and diabetes research group. Diabetes Metab Res Rev 25 8, 2009 Nov pp.740-7.

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Raj Dominic S C DS, Carrero Juan J JJ, Shah Vallabh O VO, Qureshi Abdul R AR, Bárány Peter P, Heimbürger Olof O, Lindholm Bengt B, Ferguson Jennet J, Moseley Pope L PL, Stenvinkel Peter P. Soluble CD14 levels, interleukin 6, and mortality among prevalent hemodialysis patients. *Am J Kidney Dis* 54 6, 2009 Dec pp.1072-80.

Vallabh O. Shah, Jeannette E. Ferguson, Lucy A. Hunsaker, Lorraine M. Deck and David L. Vander Jagt. Natural Products Inhibit LPS-induced Activation of Pro-inflammatory Cytokines in Peripheral Blood Mononuclear Cells. *Natural Product Research*. 2009 July.

### **North Dakota INBRE: Health and the Environment**

*Project Type:* Capacity-Building.

*Population:* Native American.

*Description:* The North Dakota INBRE supports and expands efforts to engage Native American students in undergraduate research. It has established a genetics-based undergraduate-driven research program on pre-eclampsia at Turtle Mountain Community College in the Native American community. An Introduction to Research course has recently been developed by Native American faculty for the Cankdeska Cikana Community College. In addition, the North Dakota INBRE funded and stabilized the K-12 portion of the Indians into Medicine Program. The K-12 portion of the Indians into Medicine Program produced over 25 percent of the Nation's Native American physicians.

### **Oklahoma INBRE**

*Project Type:* Capacity-Building.

*Population:* Native American.

*Description:* At the Harold Hamm Oklahoma Diabetes Center, researchers are investigating the genetic and environmental factors influencing 14 diabetes-related genetic traits in American Indian sibling pairs. The identification of genetic and environmental components of diabetes risk is necessary so that effective, culturally appropriate intervention and treatment strategies can be developed. In addition, Comanche Nation Tribal College has used the Oklahoma INBRE to build its capacity to offer more STEM programming and to develop science coursework.

The Comanche Nation College Science/Math Classroom is now completed with new lab desks, lab stations, lab cabinets, lab equipment, and 15 microscopes. These new additions have made a great impact on learning in the biology class. Students are now able to perform more learning activities with these new additions and thus increase their knowledge in the fields of science. The total number of science and bath students at Comanche Nation College during this time was 115.

### **The South Dakota INBRE**

*Project Type:* Capacity-Building.

*Population:* Native American.

*Description:* The South Dakota INBRE develops human resources for undergraduate and graduate programs in the biomedical sciences and bioinformatics; instills a culture of research; and provides a pipeline for students interested in biomedical research at South Dakota's predominantly undergraduate institutions and Tribal colleges. Two Tribal colleges, Oglala Lakota and Sisseton Wahpeton Colleges, have received funding from the South Dakota INBRE.

### **The Center for Alaska Native Health Research (CANHR): Investigating Obesity and Chronic Disease-Related Risk Factors of Alaska Natives**

*Project Type:* Capacity-Building.

*Population:* Alaska Inupiat and Yup'ik Eskimo.

*Description:* The overall goal of CANHR, which is supported through a COBRE award, is to achieve a permanent and sustainable research center at the University of Alaska Fairbanks with the primary theme of investigating obesity and chronic disease-related risk, control, and prevention among Alaska Natives. The CANHR employs a collaborative research model that works with Yup'ik Eskimo and other Alaska Native communities, Tribal health care organizations, and individuals to frame research questions, develop methodologies and procedures, and to interpret and apply data to prevention and treatment of diabetes, cardiovascular diseases, mood disorders, and substance abuse. The CANHR has joined with other NIH-funded Alaska research projects to combine Alaska Inupiat and Yup'ik health research data sets representing almost 4,000 people, giving scientists a better understanding of Alaska Eskimo's health risks and protections.

*Publications:* Rivkin, I, Lopez, EDS, Quaintance, TM, Trimble, J, Hopkins, S, Fleming, C, Orr, E, Mohatt, GV. (Accepted 04/10). Value of Community Partnership for Understanding Stress and Coping in Rural Yup'ik Communities: The CANHR Study. *Journal of Health Disparities Research and Practice*.

Pasker, R., Dickson, M., Wiener, H., M., Jeannet, M.A., O'Brien, D., Tiwari, H.K., Boyer. B.B. "Gene by environment interactions between four candidate genes for obesity and omega-3 polyunsaturated fatty acids (PUFAs) in Yup'ik Eskimos." *American Society for Human Genetics*, October 2009.

Moses SK, Whiting AV, Muir DC, Wang X, O'Hara TM. Organic nutrients and contaminants in subsistence species of Alaska: Concentrations and relationship to food preparation method. *Int J Circumpolar Health*. 2009 Sep; 68(4):354-71.

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Oppel, S., A.N. Powell, D.M. O'Brien 2010. "An income strategy for egg production – a case study for incorporating individual dietary variation in nutrient allocation research." *Oecologia* in press.

**Pacific Center for Emerging Infectious Diseases Research**

*Project Type:* Capacity-Building and Research.

*Population:* Native Hawaiians.

*Description:* The Pacific Center for Emerging Infectious Diseases Research at the University of Hawaii Manoa conducts research on the emergence and spread of newly-recognized infectious diseases, with special attention to those that disproportionately affect underserved ethnic minorities and disadvantaged or marginalized communities in Hawaii and the Asia-Pacific region. There has been progress in understanding the molecular epidemiology of various pathogens, identifying unique bacterial strains among Native Hawaiians and Polynesians, and understanding the host immune responses to infectious diseases. Recent publications address rheumatic fever in American Samoa and the molecular epidemiology of dengue in Hawaii.

*Publications:* Erdem G, Mizumoto C, Esaki D, Abe L, Johnson D, Yamaga K, Effler PV, Reddy V, Lim A, Kaplan EL. Unusual emm types among clinical isolates of *Streptococcus pyogenes* in Hawaii, a region with high- incidence acute rheumatic fever. *Pediatr. Infect. Dis. J.* 2008.

Erdem G, Mizumoto C, Esaki D, Reddy V, Kurahara D, Yamaga K, Abe L, Johnson D, Yamamoto K, Kaplan EL. Group A streptococcal isolates temporally associated with acute rheumatic fever in Hawaii: Differences from the Continental United States. *Clin Infect Dis.* 2007 Aug 1; 45(3).

Erdem Guliz, Dodd Anna, Tuua Anita, Sinclair Sandra, I'atala Tagi'ilima F, Marrone James R, Tuua Benjamin. Acute rheumatic fever in American Samoa. *Pediatr Infect Dis J* 26 12, 2007 Dec pp.1158-9.

**The RCMi Program at the University of Hawaii Manoa: Research Outcomes Accelerating Discoveries for Medical Applications and Practice**

*Project Type:* Capacity-Building.

*Population:* Native Hawaiian populations.

*Description:* The RCMi program at the University of Hawaii Manoa provides resources to conduct research on diseases that disproportionately impact Native Hawaiian populations such as acute rheumatic fever and Kawasaki disease. The objectives of the research are to identify Group A streptococci types responsible for acute rheumatic fever in Hawaii, especially among

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Samoans, and to determine the responses to these specific infections so that improved prevention strategies and treatments may be developed.

*Publications:* Bennett SN, Drummond AJ, Kapan DD, Suchard MA, Pybus OG, Holmes EC, Gubler DJ. Epidemic dynamics revealed in dengue evolution. *Mol Biol Evol.* 2010 Apr; 27(4):811-8. Epub 2009 Dec 4.

Bennett SN. Evolutionary Dynamics of Dengue Virus. In *Frontiers in Dengue Virus Research*, eds. Hanley KA, Weaver SC. 2010, pp. 157-72.

Kang HJ, Bennett SN, Dizney L, Sumibcay L, Arai S, Ruedas LA, Song JW, Yanagihara R. Host switch during evolution of a genetically distinct hantavirus in the American shrew mole (*Neurotrichus gibbsii*). *Virology.* 2009 May 25; 388(1):8-14. Epub 2009 Apr 23. Erratum in: *Virology.* 2009 Aug 15; 391(1):148.

Kang HJ, Bennett SN, Sumibcay L, Arai S, Hope AG, Mocz G, Song JW, Cook JA, Yanagihara R. Evolutionary insights from a genetically divergent hantavirus harbored by the European common mole (*Talpa europaea*). *PLoS One.* 2009 Jul 7; 4(7):e6149.

Lieberman MM, Nerurkar VR, Luo H, Cropp B, Carrion R Jr, de la Garza M, Collier BA, Clements D, Ogata S, Wong T, Martyak T, Weeks-Levy C. Immunogenicity and protective efficacy of a recombinant subunit West Nile virus vaccine in rhesus monkeys. *Clin Vaccine Immunol.* 2009 Sep; 16(9):1332-7. Epub 2009 Jul 29.

Patil AV, Rychak JJ, Allen JS, Klibanov AL, Hossack JA. Dual frequency method for simultaneous translation and real-time imaging of ultrasound contrast agents within large blood vessels. *Ultrasound Med Biol.* 2009 Dec; 35(12): 2021-30. Epub 2009 Oct 13.

**RCMI Clinical Research Infrastructure at the University of Hawaii Manoa: Development of Metabolic Syndrome in Native Hawaiian and Samoan Adolescents/Hawaii Youth Metabolic Study (HYMS)**

*Project Type:* Research.

*Population:* Native Hawaiian and Samoan children.

*Description:* The RCMI program supports a community-based observational study on the development of metabolic syndrome (MS) in overweight Native Hawaiian and Samoan children. The study goals are to determine the prevalence of MS in overweight Native Hawaiian and Samoan youth; examine the pattern of physical and laboratory markers associated with MS in high-risk children; and examine the relationship between maternal gestational diabetes, birth weight, and growth rate in the first 3 years of life with the development of MS.

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RCMI investigators have developed many prevention programs that focus on childhood obesity, including the first Eating Disorders and Obesity (EDO) prevention program implemented in Hawaii to address a spectrum of weight and body image issues in boys; a Healthy Body Image (HBI) curriculum designed to promote healthy lifestyles among 4-6th graders; and studies aimed at comparing perspectives about body size, food-related behavior, and exercise attitudes among Hawaiian teens.

**Indian Health Service's (IHS) Native American Centers for Health**

*Project Type:* Community-Based Participatory Research (CBPR).

*Population:* American Indian.

*Description:* In 2009, NCRR entered into a multi-year agreement with the IHS to co-fund a major national study of CBPR approaches for addressing health disparities in Indian Country through a NARCH grant to the National Congress of American Indians Policy Research Center, with sub-awards to the University of New Mexico and the University of Washington. The project seeks to determine conditions under which CBPR in Native communities is most effective. It will result in a testable model of CBPR practice, produce site-specific and aggregate reports about promoters and inhibitors of CBPR in Native communities, and allow for the comparison of Native data-to-data from other communities of color.

**University of Iowa's Institute for Clinical and Translational Science: Streptococcus Mutans and Dental Caries in Native American Children**

*Project Type:* Research.

*Population:* Native American.

*Description:* The CTSA at the University of Iowa is supporting a study to identify risk factors for ECC among AI/AN infants and toddlers and to determine if *Streptococcus mutans* alone, or in combination with environmental and behavioral factors, increases risk of caries in Native American children. The study is looking at transmission of *Streptococcus mutans* in Native American children, the incidence of ECC in Native American children through age 36 months, and the dietary and nutritional risk factors for acquisition of virulent *Streptococcus mutans* clones and ECC in Native American infants and toddlers.

**NCRR Science Education Partnership Award (SEPA) Biomedical Partnership for Research Education Pipeline in Alaska (Alaska BioPREP)**

*Project Type:* Educational and Community Outreach.

*Population:* Alaska Native – Aleut, Alutiiq, Yupik, Inupiaq, Athabascan, Tlingit, Native Hawaiian/Pacific Islander, Hispanic, African American, and White.

*Description:* This project has the following four main goals: 1) rural Alaska high school students will gain an appreciation of the importance of STEM education and molecular

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biological approaches to the practice of medicine and health policy in their daily lives; 2) community-based model will blend the resources of local school teachers and health providers; 3) encourage biomedical and health careers; and 4) increase biomedical literacy in Alaska communities.

The first two years of SEPA funding were planning years for the Alaska BioPREP program. Teachers from four new schools joined BioPREP in summer 2010 and will have active research projects during the 2010-11 school year. The locations are: Kaktovik (pop. 286), Wainwright (pop. 501), the alternative high school in Anchorage (pop. 290,000), and Petersberg (pop. 2973). The program at Mt. Edgecumbe boarding high school, primarily serving the Alaska Native community, will continue. Of the 10 high school students in the 6-week summer 2010 intensive biomedical research program at the University of Alaska Fairbanks (UAF), four are Alaska Native or American Indian and six are Caucasian. A new genetics and biotechnology module is being piloted during the 2-week summer residential program at UAF that is for nine middle and high school students. The long-standing and popular Biomedicine module also continues, with eight participants. A new program element, the Regional Program, will be piloted in the town of Barrow (pop. 4119). The 13 high school student participants will use much of the same curriculum as the new Genetics and Biotechnology module.

*Publications:* <http://www.alaska.edu/inbre/outreach/alaska-bioprep/>

**NCRR Science Education Partnership Award (SEPA): Breaking Barriers – Health Science Education in Native American Communities**

*Project Type:* Educational.

*Population:* American Indian – Omaha, Santee, Winnebago, Sisseton-Wahpeton, Yankton, and Rosebud Tribes.

*Description:* The long-term goal of the SEPA Breaking Barriers project is to stimulate student interest in science, to encourage exploration of health careers, and ultimately to increase Native American representation in health and science fields. The target population was Native American students grades K-8 and their classroom teachers.

Over the past 5 years this program has had direct contact with some 3,000 people. More than 40 percent were members of American Indian Tribes. The program has produced culturally relevant materials, including curricula, laboratory safety posters, and role model posters and teaching materials. The latter resources highlight American Indians (and one Alaska Native) in health and science professions. The materials that were produced have been disseminated locally, regionally, nationally, and internationally. The cornerstone of the educational efforts has been the trust that has been developed with the partner schools and communities.

Among the most successful efforts have been teacher professional development workshops and summer science camps for middle school students. The teacher workshops have been

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instrumental to providing teachers, who work in isolated schools on Indian reservations, with resources to improve their science instruction. Efforts include repeated visits to the schools to ensure that teachers are comfortable with novel curricular ideas and to help ease their physical isolation from professional colleagues. Students attending camps have explored a myriad of science activities and discovered a host of potential health career opportunities. The long-term goal remains increasing the numbers of American Indian science and health professionals.

*Publications:* <http://www.unmc.edu/sepa>

**NCRR Science Education Partnerships Award (SEPA): Environmental Health Science Education for Rural Youth**

*Project Type:* Educational.

*Population:* Salish Kootenai College American Indian Tribal community.

*Description:* The goals of this program are to: 1) offer innovative training experiences and career development opportunities in biomedical science; 2) increase enrollment in post-secondary science education; and 3) improve science literacy by making information and materials culturally appropriate and comprehensible to a broad audience, including Native Americans, rural residents, and groups most affected by environmental health problems and disparities in health outcomes.

Highlights include a monthly newsletter ([www.umt.edu/cehs/k12\\_outreach.html](http://www.umt.edu/cehs/k12_outreach.html)); student internships; partnerships with Region 10 EPA, Alaska InterTribal Council, NSF Big Sky Science Project, and Clark Fork Watershed Education Program; and on-line resources for teachers. The project has impacted approximately 5,710 students, teachers and community members to date.

*Publications:* Jones et al, Science Education and Public Engagement: An International Journal, 1(2): 51-55 (2007).

Ward et al., The Big Sky Model: A regional collaboration for participatory research on environmental health; Journal of Higher Education Outreach & Engagement; Vol 12(3): 103-115, (2008).

Adams et al, The Big Sky Inside: Measuring rural indoor air quality and its impact on the community. The Science Teacher, Vol 76(4), 40-45 (2009).

### **NCCR Science Education Partnership Award (SEPA) North Star**

*Project Type:* Research Training and Community Outreach.

*Population:* American Indian, Native American, Asian/Pacific Islander; Asian; African American; White.

*Description:* This award aims to increase the number of students from educationally and/or economically disadvantaged backgrounds who pursue science careers via: Pre-med Student Pipeline internship program at the University of Alaska Anchorage; Statewide Alaska Student Scientist Corps; Facility-based Student Science Guide program at Imaginarium Science Discovery Center; Job Shadowing/Mentorship Program; Research-based and student-led exhibit, demonstration, and multimedia presentations; Teacher Professional Development (TPD); and the North Star website.

All student participants enrolled in the 2008-2009 program have graduated from high school. All seniors are enrolled in college, most stating that they will pursue science careers. Highlights of the project include the establishment of the Student Science Guide at Imaginarium for enhancement of career skills; an established year-long “shadowing” mentor program; and the creation of the North Star website at <http://www.northstarak.org/>.

### **NCCR Science Education Partnership Award (SEPA) K-12: Virtual Clinical Research Center & Medical Ignorance Exploratorium**

*Project Type:* Educational.

*Population:* Hispanic, American Indian, African American, Asian-Pacific Islander, and White.

*Description:* This project aims to: 1) Build stepwise a prototype -Virtual Clinical Research Center for K-12 learners and mentors (diverse peers, experts, and patients); 2) Develop the Medical Ignorance Exploratorium as a hybrid K-12 cybercafé/health science museum with a navigable, game-like, 3D environment; 3) Rigorously evaluate its impact and effectiveness; and 4) Disseminate widely to additional K-12 schools and communities.

Five percent of the students are still in high school, while almost all the others are attending or have graduated from community or 4-year colleges—most in Tucson with science or pre-professional careers (with 1 percent in military service and 6 percent not tracked). Of the students, 37 were admitted to or attending medical school, 54 admitted to or completed graduate school (with 37 in master’s, 12 in PhD, and 4 in MD/PhD programs) and 17 in health professional schools. Twenty-three percent are doing research.

*Publications:* Witte, Marlys H. MD; Crown, Peter PhD; Bernas, Michael MS; Garcia, Francisco A.R. MD, MPH; "Ignoramics" in Medical and Premedical Education; Journal of Investigative Medicine: October 2008 - Volume 56 - Issue 7 - pp 897-901.

**NATIONAL INSTITUTE ON DRUG ABUSE (NIDA)**

The mission of the National Institute on Drug Abuse (NIDA) is to lead the Nation in bringing the power of science to bear on drug abuse and addiction. This charge has two critical components. The first is the strategic support and conduct of research across a broad range of disciplines. The second is ensuring the rapid and effective dissemination and use of the results of that research to significantly improve prevention, treatment and policy as it relates to drug abuse and addiction.

**Blending Addiction Science and Practice: Evidence-Based Treatment and Prevention in Diverse Populations and Settings**

*Project Type:* Research Conference.

*Population:* Open, but included particular outreach to Native Americans.

*Description:* This NIDA-sponsored conference, held in Albuquerque, New Mexico, in April 2010, included a track of presentations focused on AI/AN preventive and treatment intervention science. NIDA also sponsored an AI/AN mentoring program at this conference, providing support for 14 individuals to attend this program and engage in grant development and mentoring activities. Over 1000 attendees attended this conference with the training and mentoring program being attended by 14 early career Native research scholars.

**Developing and Implementing Community Prevention Systems for Indian Country: Opportunities, Challenges, and Future Directions**

*Project Type:* Capacity-Building.

*Population:* American Indian and Alaska Native.

*Description:* This NIDA supported meeting, held May 5-6, 2010, explored community prevention systems models used in other communities and considered their relevance and practical application for AI/AN communities. Meeting participants identified necessary next steps for bringing these approaches to this population.

**Grant Development Workshop**

*Project Type:* Training Program.

*Population:* American Indian and Alaska Native.

*Description:* NIDA conducted a grant development workshop at the International Indigenous Health Knowledge and Development Conference held in Poulsbo, Washington on May 24, 2010. Staff from NCCAM and an NIDA supported American Indian investigator also presented in this workshop.

### **Building Bridges: Advancing American Indian/Alaska Native (AI/AN) Substance Abuse Research – A State of the Science and Grant Development Workshop**

*Project Type:* Research Meeting and Capacity-Building.

*Population:* American Indian and Alaska Native.

*Description:* NIDA, in collaboration with OBSSR, NCI and NIAAA, will hold a meeting in October 2010 for emerging AI/AN researchers and their Tribal partners. The meeting will showcase state-of-the-science AI/AN substance abuse research, identify research needs, and provide training and technical assistance in NIH grant writing and partnership development.

### **Support for Native Research Network Conference**

*Project Type:* Training Program and Educational.

*Population:* American Indian and Alaska Native.

*Description:* NIDA provided support for students and speakers to attend the Native Research Network meeting in Rapid City, South Dakota, on July 27-30, 2010. NIDA staff and NIDA-funded investigators conducted two drug abuse symposia at this conference.

### **Native Children's Research Exchange Conference 2010: Native Children's Development in the Context of Substance Use**

*Project Type:* Research Conference.

*Population:* American Indian and Alaska Native.

*Description:* This will be the first R13 supported meeting of the Native Children's Research Exchange.

### **Dissemination of Drug Abuse Information to the Indian Health Service Community Health Representatives (CHR)**

*Project Type:* Community Outreach and Educational.

*Population:* American Indian and Alaska Native.

*Description:* Through the trans-NIH AI/AN workgroup, NIDA sponsored the distribution of drug abuse public health information for the March mailing. The workgroup reaches 1500 community health representatives in its mailings.

### **The NIDA American Indian/Alaska Native Researchers and Scholars Workgroup**

*Project Type:* Capacity-Building, Training, and Educational.

*Population:* Native American (from various Nations).

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*Description:* The NIDA American Indian/Alaska Native Researchers and Scholars Workgroup provides recommendations to NIDA for research that furthers understanding of substance abuse and addiction in AI/AN populations and mentors scholars on drug abuse research in AI/AN populations. A workshop on scientific writing, attended by 8 trainees, was held at the 2010 NIDA Blending Addiction and Practice conference.

**NIDA Staff American Indian, Alaska Native Coordinating Committee**

*Project Type:* Capacity-Building and Community Outreach.  
*Population:* American Indian and Alaska Native.

*Description:* NIDA has formed a Staff AI/AN Coordinating Committee with the goal of increasing the focus on this population and infusing a greater focus on AI/ANs in programs throughout the Institute. AI/AN outreach and development activities are supported.

**Native American Research Centers for Health (NARCH) Initiative**

*Project Type:* Research Initiative.  
*Population:* American Indian and Alaska Native.

*Description:* Through the NARCH, NIDA provided support for four new projects in 2010, bringing the total to 12. These included Equine-Assisted Substance Use Prevention, Development of a Pain Rehabilitation Program for American Indians with Chronic Pain, CBPR Approach to Preventing Intentional Injury, and Improving Health Research Skills for Trainees.

**Native American Research Centers for Health (NARCH) Initiative (Continuing Support for Ongoing Research Projects in 2010)**

*Project Type:* Research Initiative.  
*Population:* American Indian and Alaska Native.

*Description:* NIDA continued to support eight ongoing NARCH programs including studies of: CBPR, Tribal college substance use, Native mothers and substance use, the oral history of sobriety, factors related to methamphetamine abuse, physical activity and drug use, intentional injury, and a family listening intervention.

**Students Supported to Attend Research Institutes**

*Project Type:* Training, Educational.  
*Population:* American Indian and Alaska Native.

*Description:* NIDA provided support for an American Indian student to attend the Johns Hopkins Center for American Indian Health Winter Institute. NIDA also provided support for

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students to attend a drug abuse epidemiology course at the Northwest Portland Area Indian Health Board Summer Research Training Institute for AI/AN Health Professionals.

**CBPR with Tribal Colleges-Universities: Alcohol Problems-Solutions**

*Project Type:* Research.

*Population:* American Indian and Alaska Native.

*Description:* This project will use CBPR methods to conduct the first investigation of alcohol, drug and mental disorders (ADM) at TCUs and is a preliminary step on a path toward developing culturally appropriate and sustainable interventions at TCUs.

**Caring for Our Generations: Supporting Native Mothers and Their Families**

*Project Type:* Research.

*Population:* American Indian and Alaska Native.

*Description:* Caring for Our Generations: Supporting Native Mothers and Their Families is a 4-year developmental project to explore maternal health behaviors, maternal substance use, risk factors for substance use during and after pregnancy, and protective factors that support healthy maternal behaviors.

**Native Pathways to Sobriety: Pacific Northwest Oral Life Histories**

*Project Type:* Research.

*Population:* American Indian and Alaska Native.

*Description:* Alcohol and drug abuse and dependence represent major problems for AI/AN individuals and their communities. The present study will look at information about resiliency and recovery factors and inform development of prevention and treatment strategies.

**Tobacco Cessation Treatment for Alaska Native Youth**

*Project Type:* Research.

*Population:* Alaska Native youth of the Yukon-Kuskokwim Delta region.

*Description:* This study proposes to develop a behavioral intervention for tobacco cessation that is culturally appropriate for youth of the Yukon-Kuskokwim Delta region. Developing effective tobacco cessation interventions for Alaska Native youth may ultimately reduce their risk of cancer and other tobacco-related disease.

### **Factors Related to Substance Use Development in Young American Indian Adolescents**

*Project Type:* Research.

*Population:* American Indian and Alaska Native adolescents.

*Description:* The goal of this project is to better understand emergent substance use among young adolescent American Indians and identify risk and protective factors that may provide windows of opportunity for prevention.

### **A Community Trial in Alaska to Prevent Youth's Use of Legal Products to Get High**

*Project Type:* Research.

*Population:* American Indian and Alaska Native adolescents.

*Description:* This efficacy trial will integrate quantitative methods with community participation in a hybrid research model that combines the rigor of science with the unique cultural heritage of each study community. The significance of this study is its potential to produce an intervention to prevent youths' use of inhalants and other harmful legal products in remote rural and sustainable communities across the U.S.

Significant increases in knowledge of harms related to harmful legal product (HLP) use and decreases in perceived availability of HLPs were observed. Although limited by the absence of randomized control groups in the preliminary study design, the results of this study provide encouragement to pursue mixed strategies for the reduction of HLP use among young people in Alaskan frontier communities.

*Publications:* Grunewald, P J, Johnson, K, Shamblen, S R, Ogilvie, KA, Collins, D. Reducing adolescent use of harmful legal products: intermediate effects of a community prevention intervention. *Substance Use & Misuse*. 2009; 44 (14): 2080-98.

### **Drug Use Among Young Indians: Epidemiology & Prediction**

*Project Type:* Research.

*Population:* American Indian and Alaska Native.

*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. Despite historically high rates of inhalant use among Indian youth, their rates are now similar to their non-Indian counterparts. Indian fourth to sixth grade students are displaying patterns of use that parallel those of older students with the possible implication that they are subjected earlier to societal attitudes that encourage drug use.

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*Publications:* Miller, K A, Beauvais, F, Burnside, M Jumper-Thurman, PA. Comparison of American Indian and non-Indian fourth to sixth graders' rates of drug use. *Journal of Ethnicity in Substance Abuse.* 2008; 7 (3):258-67.

**Ecological Factors and Drug Use of Native Hawaiian Youth**

*Project Type:* Research.

*Population:* American Indian, Alaska Native.

*Description:* The long-term objective of this KOI proposal is to develop the applicant's research capabilities in the area of substance use in Indigenous youth populations (e.g., American Indian youth and Native Hawaiian youth), ultimately allowing the grantee to successfully develop and conduct Federally-funded drug and alcohol research with these populations. Findings indicated that youth in the study were part of large extended networks of families and that these networks became a defining characteristic of the rural communities in the study.

*Publications:* Okamoto, S K, Helm, S, Po'a-Kekuawela, K, Chin, C I H, Nebre, L H. Community risk and resiliency factors related to drug use of rural Native Hawaiian youth: an exploratory study. *Journal of Ethnicity in Substance Abuse.* 2009; 8 (2): 163-77.

**California-Arizona Clinical Trials Network Node**

*Project Type:* Research.

*Population:* American Indian and Alaska Native.

*Description:* The University of California, San Francisco; the University of Arizona; and contributing community treatment programs propose to continue a partnership to lead a node in the National Drug Abuse Treatment Clinical Trials Network. This research node has the potential to accelerate the advance of clinical trials and translational research.

In one project, the Real Men Are Safe (REMAS) intervention had superior effectiveness for reducing unprotected sexual occasions in the psychosocial outpatient programs compared to methadone. At the 6-month follow-up, the adjusted mean change for REMAS completers in psychosocial outpatient was greater than for REMAS completers in methadone programs.

*Publications:* Calsyn, D A, Campbell, A N C, Crits-Christoph, P, Doyle, S R, Tross, S, Hatch-Maillette, M A, Mandler, R. Men in methadone maintenance versus psychosocial outpatient treatment: differences in sexual risk behaviors and intervention effectiveness from a multisite HIV prevention intervention trial. *Journal Of Addictive Diseases.* 2010 Jul; 29 (3): 370-82.

### **Finding Strength in Culture: A Video Series for American Indian Parents**

*Project Type:* Research.

*Population:* American Indian and Alaska Native.

*Description:* The aim of this project is to develop and test a potential media-based bridge connecting American Indian peoples and mainstream protective intervention approaches. The proposed video series will serve as a bridge to facilitate a connection among American Indian peoples and mainstream protective intervention approaches, particularly those geared towards substance use.

### **Evidence-Based Practices and Substance Abuse Treatment for Native Americans**

*Project Type:* Research.

*Population:* American Indian and Alaska Native.

*Description:* The specific aims of this project are to: 1) describe the use of specific Evidence-Based Practices (EBPs) in substance abuse treatment programs serving AI/AN communities; 2) describe process decisions for implementing EBPs; and 3) identify better dissemination methods of EBPs to substance abuse treatment programs serving AI/AN communities.

### **Ojibwe Pathways Through the High School Years**

*Project Type:* Research.

*Population:* Ojibwe Tribe.

*Description:* The effects of early onset substance abuse on transition to regular use and associated mental health and behavioral outcomes during the critical high school years will be investigated. Preventions aimed at reducing early onset alcohol and drug use among Ojibwe children will be developed and implemented. The growth curve results indicated that smoking increased for both adolescent boys and girls across time. Depressive symptoms were associated with an increase in cigarette smoking for girls, but not boys.

*Publications:* Whitbeck, LB, Yu, M, McChargue, D E, Crawford, D M. Depressive symptoms, gender, and growth in cigarette smoking among indigenous adolescents. *Addictive Behaviors*. 2009 May; 34 (5): 421-6.

### **Phase II: Opening the Pipeline for Native High Schools**

*Project Type:* Research.

*Population:* American Indian and Alaska Native.

*Description:* The primary goal of this project is to increase the probability that students at high schools in four Native communities will pursue undergraduate and graduate training in

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biomedical sciences and medicine. The health relatedness of the project includes increasing educational expectations and understanding of substance abuse psychology and encouraging community change.

**In-Home Prevention of Substance Abuse Risks in Native Teen Families**

*Project Type:* Research.

*Population:* White Mountain Apache, San Carlos Apache, and Navajo teen mothers from four Western U.S. Indian reservations.

*Description:* This NIDA-administered randomized controlled trial will evaluate the effects of the Family Spirit intervention, a prenatal/early childhood home visiting program to reduce maternal and child behavioral risks for lifetime drug abuse.

**Vulnerability to Drug Abuse: Effects of Stressors and Stress**

*Project Type:* Research.

*Population:* American Indian and Alaska Native.

*Description:* This project's application is based on the Great Smoky Mountains Study, a longitudinal, community-based study of 1,420 participants who were assessed first in 1993, at ages 9-13. The focus of the application is to examine several biomarkers of stress in the context of stressor exposure. An eight-syndrome model fit well at all ages and with both genders. It included social anxiety, separation anxiety, oppositional defiant, and conduct syndromes, along with a multidimensional attention deficit-hyperactivity syndrome (i.e., inattention, hyperactivity, and impulsivity) and a unidimensional major depression/generalized anxiety syndrome.

*Publications:* Sterba, S K; Copeland, W; Egger, H L; Costello, E J; Erkanli, A; Angold, A. Longitudinal dimensionality of adolescent psychopathology: testing the differentiation hypothesis. *Journal Of Child Psychology And Psychiatry, And Allied Disciplines*. 2010 Aug; 51 (8): 871-84.

**Community Partnership to Affect Cherokee Adolescent Substance Abuse**

*Project Type:* Research.

*Population:* Cherokee.

*Description:* The overall objective of the project is to strengthen a partnership between the Florida Atlantic University College of Nursing and a Native American Indian (Cherokee) community to affect substance abuse among Cherokee adolescents by developing and testing a culturally-competent, school-based intervention.

### **Clinical Trial Network: Southwest Node**

*Project Type:* Research.

*Population:* American Indian and Alaska Native.

*Description:* A pragmatic trial of disulfiram for cocaine dependence using a medication management model is proposed. This work supports the Clinical Trial Network's mission of improving drug abuse treatment in the United States, implementing rigorous scientific multi-site trials of substance abuse treatment real-world interventions, and facilitating the dissemination of EBPs.

### **Zuni MI/CRA Project**

*Project Type:* Research.

*Population:* Zuni Pueblo.

*Description:* This is a Behavior Therapy Development proposal to adapt and test a combination of evidence-based methods, motivational interviewing and community reinforcement approach (MICRA), with the Zuni Pueblo in preparation for a formal clinical trial. After development and testing, generalizability of MICRA for use with other Tribes will be assessed.

### **Contextual Risk Factors for Substance Use in Adolescent Reservation-Dwelling American Indians**

*Project Type:* Research.

*Population:* American Indian.

*Description:* The present project proposes a structured program of mentoring, training, and supervised research to increase the candidate's capacity to conduct high-quality research blending state-of-the-art qualitative and quantitative methodologies.

### **Understanding Racial Disparities in Teen Methamphetamine Use**

*Project Type:* Research.

*Population:* Native American and Caucasian.

*Description:* This study will provide a comprehensive portrait of the risk and protective factors associated with adolescent methamphetamine use. The long-term goal of the research is to explore how racial and economic stratification serves to produce health disparities, in order to reduce race- and economic-based disparities.

**NATIONAL LIBRARY OF MEDICINE (NLM)**

The National Library of Medicine (NLM), in Bethesda, Maryland, is a part of the NIH, U.S. Department of Health and Human Services (HHS). Since its founding in 1836, NLM has played a pivotal role in translating biomedical research into practice. It is the world's largest biomedical library and the developer of electronic information services that deliver trillions of bytes of data to millions of users every day. Scientists, health professionals, and the public in the U.S. and around the globe search the Library's online information resources more than 1 billion times each year. The Library is open to all and has many services and resources—for scientists, health professionals, historians, and the general public. NLM has over 14 million books, journals, manuscripts, audiovisuals, and other forms of medical information on its shelves, making it the largest health-science library in the world.

**Environmental Health Information Partnership (EnHIP)**

*Project Type:* Capacity-Building.

*Population:* American Indian.

*Description:* NLM's Environmental Health Information Partnership (EnHIP) strengthens institutional capacity to reduce health disparities through use of information technology and environmental health information. The program includes 3 Tribal colleges: Oglala Lakota College (South Dakota), Diné College (Arizona), and Haskell Indian Nations University (Kansas); 14 Historically Black Colleges and Universities (HBCUs); and 3 Hispanic-Serving Institutions.

This program, which started in 1991, has helped the TCUs incorporate use of NLM resources in their curricula and in community outreach projects. Faculty, staff and students received training in NLM's toxicology, environmental health, and other electronic resources, and participated in meetings about scientific issues, government and non-government programs, and funding opportunities. The program has also supported development of related local programs and projects.

At Diné College, funding has supported digitization of original materials for inclusion in the Navajo Ethno-Medical Encyclopedia Project (NEME), a repository of traditional Navajo Indian medical and healing knowledge accumulated over many centuries. The Environmental Institute at Diné College is developing a "Tox Town" scene that depicts a southwestern reservation. Oglala Lakota College is coordinating disaster activities for the college and participating in drills and meeting with other Tribal organizations and other institutions on the reservation to increase the awareness of the importance of disaster preparedness.

## **Create Health Information Resources and Technologies That Address Health Disparities**

*Project Type:* Community Outreach.

*Population:* American Indian and Alaska Native.

*Description:* The aim of this project is to build a range of information services to address health disparities. This includes population-specific, culturally and linguistically appropriate websites that focus on issues of particular populations or geographic areas, as well as general consumer health websites and print resources with information useful to health disparities.

The American Indian Health (AIH) web portal is a freely available information service dedicated to issues affecting the health and well-being of all North American Indians. Developed in collaboration with an American Indian user group, the website ([americanindianhealth.nlm.nih.gov/](http://americanindianhealth.nlm.nih.gov/)) is an inclusive source of programs and health information for both consumers and health professionals serving American Indians, bringing together pertinent health and medical resources, including consumer health information, the results of research, traditional healing resources, and links to other websites.

The Arctic Health website ([www.arctichealth.org](http://www.arctichealth.org)) is a collaborative effort between NLM and the Alaska Medical Library at the University of Alaska, Anchorage. The service brings together, in one location, reliable information on diverse aspects of the Arctic environment and the health of northern peoples, including information from hundreds of local, state, national, and international agencies, as well as from professional societies, universities, Alaska Natives, and indigenous communities.

The Chickasaw Health Information Center (CHIC) is a public-private project jointly supported by NLM, the Chickasaw Nation, and Computercraft, a private science and technology company owned by a Chickasaw family. The CHIC is a consumer health information center in the Carl Albert Indian Health Facility in Ada, Oklahoma. Computercraft developed and hosts the CHIC website and also developed a mobile kiosk. NLM provides training for staff and health care providers, as well as guidance about effective information provision practices.

*Publications:* <http://www.arctichealth.org>, <http://americanindianhealth.nlm.nih.gov>

## **Native American Information Fellowship Program**

*Project Type:* Educational.

*Population:* American Indian, Alaska Native, and Native Hawaiian.

*Description:* The Native American Information Fellowship Program provides an opportunity for representatives from American Indian Tribes, Native Alaskan villages, and the Native Hawaiian community to learn about NLM and the National Network of Libraries of Medicine. It also improves access to health information and health information technology for their communities.

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The NLM has worked with several Tribes to support this Tribal fellowship program. Fellows have been supported from the Mandan, Hidatsa, and Arikara Nations (Three Affiliated Tribes), Ft. Berthold Reservation, North Dakota; the Nez Perce Tribe, Lapwai, Idaho; the Navajo Nation from Tuba City, Arizona; urban Indians; and two Native Hawaiians. Participants in the program have implemented information access and use activities on their reservations or within their communities.

**Cankdeska Cikana Community College, Spirit Lake Nation, Ft. Totten, North Dakota**

*Project Type:* Capacity-Building.

*Population:* American Indian.

*Description:* The NLM provides support for strengthening capacity at Cankdeska Cikana Community College, Spirit Lake Nation, Ft. Totten, North Dakota. Support is directed to the college library for development, outreach, and training/assistance of users in accessing quality health information. Enhanced library services also emphasize outreach to the Spirit Lake Nation Tribal community.

The College has benefitted from this program in the following ways: strengthening of Tribal college library and staff support; improvement in library management skills of library staff; enhancement of the library's health-related collection; and additional library staff outreach, training, and assistance to Tribal college students and Tribal community members seeking health information. Partnerships have also been developed between the Tribal college library and health promotion and wellness programs in the community. Health focus topics include healthy food, dental health, suicide prevention, nutrition, family/dating violence, child abuse, diabetes, and substance abuse.

**NATIONAL INSTITUTE ON ALCOHOL ABUSE AND ALCOHOLISM (NIAAA)**

The National Institute on Alcohol Abuse and Alcoholism (NIAAA) provides leadership in the national effort to reduce alcohol-related problems by: 1) conducting and supporting research in a wide range of scientific areas including genetics, neuroscience, epidemiology, health risks and benefits of alcohol consumption, prevention, and treatment; 2) coordinating and collaborating with other research institutes and Federal programs on alcohol-related issues; 3) collaborating with international, national, state, and local institutions, organizations, agencies, and programs engaged in alcohol-related work; and 4) translating and disseminating research findings to health care providers, researchers, policymakers, and the public.

**Preventing Underage Drinking by Southwest California Indians**

*Project Type:* Research and Research Capacity Development.

*Population:* American Indian youth in and around 9 Southern California Mission Indian reservations.

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*Description:* The goal of the project is to reduce underage drinking among Native American reservation dwelling youth. The community-based environmental prevention program will focus on: 1) reducing underage access to alcohol; 2) preventing underage drinking and driving through enhanced enforcement; and 3) individual level interventions including screening and brief interventions. Two hundred in-clinic surveys have been completed and analyzed. A survey of 36 Native American Tribal leaders found that: 1) a substantial proportion of reservation youth would accept Motivational Interviewing (MI) for behavior change (but few are actually ready to engage); and 2) MI intervention is well-suited to prevent underage drinking in this youth population.

### **Risk Factors for Alcoholism in Native Americans**

*Project Type:* Research.

*Population:* Native American Mission Indians in San Diego County.

*Description:* The researchers are conducting studies aimed at more clearly identifying risk and protective factors related to alcohol dependence and alcohol related problems in reservation dwelling Mission Indians. They are also studying the clinical and neurobehavioral consequences of alcohol abuse in Native American adolescents and children.

The findings suggest that Mission Indians have a distinct cluster of biological and behavioral risk factors for alcohol dependence. The results demonstrate that initiation of alcohol use during adolescence is particularly malignant for Mission Indians. Mission Indian adolescent drinkers are significantly more likely to develop alcohol dependence than those who begin drinking later in life. Additionally, measures of the neurotoxic effects of adolescent alcohol dependence suggest that it has detrimental consequences on the developing brain and behavior.

Studies in Mission Indian adults suggest a somewhat unique course of alcoholism and comorbidity, as well as an identifiable cluster of genetic risk factors for alcoholism. Unique endophenotypes have been identified and several chromosome regions have been linked to alcohol dependence phenotypes, as well as other co-morbid disorders. These studies will not only allow for the identification of factors associated with risk for and consequences of alcohol dependence in these Tribes, but they should also eventually guide the development of prevention and intervention programs.

*Publications:* Ehlers CL, Gilder DA, Gizer IR, Wilhelmsen KC. Heritability and a genome-wide linkage analysis of a Type II/B cluster construct for cannabis dependence in an American Indian community. *Addict Biol* 14(3): 338-348, 2009.

Gilder DA, Lau P, Ehlers CL. Item response theory analysis of age of first use of cannabis and lifetime cannabis use disorder criteria in an American Indian community sample. *Journal of Studies on Alcohol and Drugs*, 70(6): 839-849, 2009.

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Ehlers CL, Phillips E, Gizer IR, Gilder DA, Wilhelmsen KC. EEG spectral phenotypes: heritability and association with marijuana and alcohol dependence in an American Indian community study. *Drug Alcohol Depend*, 15; 106(2-3):101-10, Jan 2010.

Ehlers CL, Gizer IR, Phillips E, Wihelmsen KC. EEG alpha phenotypes: linkage analyses and relation to alcohol dependence in an American Indian community study. *BioMedCentral Medical Genetics* 2010, 11:43.

### **AI Reservation-Based Fetal Alcohol Spectrum Disorder (FASD) Prevention**

*Project Type:* Exploratory/Developmental Research and Capacity-Building.

*Population:* American Indian – Red Cliff Band of Lake Superior Chippewa Tribe.

*Description:* The researchers seek to reduce drinking and Fetal Alcohol Spectrum Disorder (FASD) rates among American Indian women of childbearing age in a reservation community. They will assess the relevance, feasibility, and sustainability of evidence-based FASD preventive interventions and select one for adaptation and pilot testing in preparation for a randomized control trial in multiple reservations.

The investigators have completed the analysis of initial focus group data to inform the cultural adaption of an evidence-based FASD preventive intervention. They have met with the Community Advisory Board to review the adapted intervention and discuss piloting this intervention on a small scale, modifying the adapted intervention based on results of the pilot work and delineating next steps for the project, including seeking additional funding to conduct a randomized control trial in this and neighboring Tribal communities.

### **Trial of FAS Prevention and Diagnosis Among Indians**

*Project Type:* Research.

*Population:* Four Tribes of Northern Plains American Indians – Cheyenne River Sioux Tribe, Sisseton Wahpeton Sioux Tribe, Turtle Mountain Chippewa Tribe, Flathead Indian Reservation.

*Description:* The aims of the project are to: 1) implement a comprehensive, culturally sensitive, standardized trial of universal, selective, and indicated fetal alcohol syndrome (FAS) prevention strategies in four American Indian communities; 2) conduct formative evaluation of the programs; and 3) assess the effectiveness of the program in a pre-post, control group design.

All aspects of this project are on track, including: the major prevention trial and the nested studies, the refinement of the FAS clinical diagnosis, the maternal risk and protective factors of FAS, the prevalence of drinking and abstinence among Plains Indians, and psychological and behavioral tests for best diagnosing FASD.

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*Publications:* Aragón AS, Kalberg WO, Buckley D, Barela-Scott LM, Tabachnick BG, May PA. Neuropsychological study of FASD in a sample of American Indian children: processing simple versus complex information. *Alcohol Clin Exp Res.* 2008 Dec; 32(12):2136-48.

May PA, Gossage JP, Kalberg WO, Robinson LK, Buckley D, Manning M, Hoyme HE. Prevalence and epidemiologic characteristics of FASD from various research methods with an emphasis on recent in-school studies. *Developmental Disabilities Research Review*, 2009; 15(3):176-92.

### **Family Intervention of Youth AOD in Indian Communities**

*Project Type:* Research and Capacity-Building.

*Population:* Klamath Tribes – Confederated Tribes of Warm Springs Reservation.

*Description:* The researchers are testing a community-based, culturally appropriate intervention for American Indian youth. The project uses a multiple baseline design and tailors the family interventions to each of three American Indian communities. They are developing resources to address the communities' alcohol and other drugs (AOD) needs in the form of a Family Resource Center at each site.

Employing a multiple baseline, the researchers have collected baseline measures and carried out the year-long family intervention at all three Tribal sites. The Family Resource Centers have been established for the sites and were in full operation during the intervention phase of the project. Final data collection and data analysis is underway.

*Publications:* Boyd-Ball AJ. A culturally responsive, family-enhanced intervention model. *Alcohol Clin Exp Res.* 2003 Aug; 27(8):1356-60.

### **Prenatal Alcohol Consumption Among Native American Women in San Diego County**

*Project Type:* Research.

*Population:* Native American Women of Childbearing Age.

*Description:* The study will examine the effectiveness of two methods of screening, brief intervention, and referral for risky alcohol consumption among Native American women who are or have the potential to become pregnant. The study will test if either culturally-adapted web-based or peer-counseling methods are superior to treatment as usual.

### **Alcohol Treatment & Health Disparity in American Indians**

*Project Type:* Research.

*Population:* Urban Dwelling Native American.

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*Description:* Native American clients seeking treatment for alcohol problems will be assessed to determine baseline demographic and clinical characteristics and response to treatment. The research team will relate the effect of treatment to clinical outcomes, including abstinence, number of drinking days, alcohol-related problems, psychological distress, and general medical problems. Recruitment, while problematic early on, has improved. Loss of subjects to follow-up has been the major problem in relating treatment to clinical outcomes. Whereas, by design, all participants identified their primary residence as urban, there have been problems because some clients become homeless or relocated to reservations after discharge. The researchers are working on new approaches to follow-up for these participants.

**NATIONAL INSTITUTE OF DIABETES AND DIGESTIVE AND KIDNEY DISEASES (NIDDK)**

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) conducts and supports research on many chronic and costly diseases affecting the public health. Several diseases studied by the NIDDK are among the leading causes of disability and death in the Nation; all affect seriously the quality of life of those suffering from them. The strategic vision that guides the NIDDK is improved health and quality of life for all Americans, through basic and clinical research to address the diseases and disorders within the Institute's statutory research mandate. A number of diseases and disorders that disproportionately impact the health of minority populations in the United States receive high priority in NIDDK research areas. These include diabetes, obesity, nutrition-related disorders, hepatitis C, sickle cell disease, and kidney diseases. The NIDDK will continue to support research and to encourage specific efforts in these areas of health disparity in order to advance the foundation of knowledge in the biomedical sciences.

**National Diabetes Prevention Program (DPP)**

*Description:* The NIDDK-led landmark Diabetes Prevention Program (DPP) clinical trial was designed and conducted in collaboration with IHS to ensure that American Indians were well represented in the study cohort. As a result, the benefits of the DPP drug (metformin) and lifestyle interventions for preventing diabetes was established to be equally as effective in American Indians as in the DPP cohort as a whole. This was a significant finding in a population that is at extremely high risk for developing Type 2 diabetes. IHS continues to work with NIDDK to enhance the DPP follow-up study, the DPP Outcomes Study (DPPOS), and DPP translational efforts.

**Diabetes Mellitus Interagency Coordinating Committee (DMICC)**

*Description:* The Diabetes Mellitus Interagency Coordinating Committee (DMICC), chaired by the NIDDK, and of which IHS is a member, helps facilitate coordination of Federal diabetes research. In 1997, Congress established the Special Diabetes Program for Indians (SDPI), administered by IHS, to address the growing problem of diabetes in those communities. Participation as a DMICC member organization has provided IHS with valuable input for this important program. This involvement also ensured that these communities were

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provided opportunities to participate in the design of clinical trials and to participate in efforts to translate research findings to the real world by other DMICC member organizations. In addition, collaboration with NIDDK helped IHS to establish and implement targeted demonstration projects aimed at diabetes prevention and cardiovascular disease risk reduction in American Indian groups.

**Action for Health in Diabetes (Look AHEAD)**

*Description:* The purpose of Look AHEAD is to assess the long-term health impact of interventions designed to achieve and sustain weight loss over the long-term. The Action for Health in Diabetes (Look AHEAD) Clinical Trial includes a Southwest American Indian clinical center at the NIDDK Phoenix Epidemiology and Clinical Research Branch in Arizona.

**Type 2 Diabetes in Adolescents and Youth (TODAY)**

*Description:* The purpose of TODAY is to identify the best treatment for Type 2 diabetes in children and teens, with a focus on minority youth. Seventy-eight percent of the TODAY cohort is comprised of individuals from racial/ethnic minority groups. The study began recruitment in May 2004, recruitment was completed in November 2009, and the intervention phase will continue through November 2011. The participants average 14 years of age, all had diabetes for less than two years at the time they entered the study, and are 22 percent White, 34 percent African American, 35 percent Hispanic, and 5 percent American Indian.

**Genetic Determinants of Obesity in Pima Indians**

*Description:* The Pima Indians of Arizona have the highest prevalence of Type 2 diabetes mellitus of any population in the world. Obesity is also extremely common and several types of analyses in the past decade have indicated that obesity in this population has major genetic determinants. In 2009, a genome-wide association study using over 500,000 single nucleotide polymorphisms was conducted and completed on approximately 1500 members of the Pima Indian population of the Gila River Indian Community in Arizona. Analyses are currently being done to identify regions of the genome that harbor a single nucleotide polymorphisms associated with measures of body fatness and also to identify differential expression of genes in fatter versus lean members of the population. Combinatorial analyses are also being conducted to identify regions of the genome that have both genotypic and gene expression associations indicating genetic determinants of gene expression that influence body composition.

**Family Investigations of Diabetes and Nephropathy (FIND)**

*Description:* Family Investigations of Diabetes and Nephropathy (FIND) is carrying out studies to elucidate the genetic susceptibility to kidney disease in patients, especially those with diabetes mellitus. African Americans, Hispanic Americans, and Native Americans

appear to have an increased incidence and prevalence of diabetic as well as non-diabetic renal disease, and these populations are particularly targeted in FIND. The major goals of the FIND study are to acquire sets of families, as well as case-control sets, with well-characterized diabetic nephropathy; establish a secure master database; and to localize and identify genes that influence susceptibility to diabetic nephropathy and end stage renal disease (ESRD). FIND recruited European American, African American, Mexican American, and American Indian populations to assess genetic contributions that may be specific to various populations.

### **Diabetic Nephropathy**

*Description:* The NIDDK has a substantial portfolio of clinical investigation of diabetic nephropathy in Americans Indians, supported through the intramural program. In addition to the portfolio of laboratory intervention, NIDDK also supports several small pilot studies evaluating interventional methods. Several of these clinical studies are evaluating the factors that affect therapeutic response. A randomized study is examining the response to converting enzyme inhibitors. Another randomized, double-blinded, placebo-controlled clinical trial is underway in Pima Indians to determine whether blockade of the renin-angiotensin system can prevent or attenuate the development and progression of early diabetic kidney disease in Type 2 diabetes. A clinical intervention is underway in Pima Indians to determine if angiotensin-converting enzyme inhibitors are effective in slowing the progression of advanced diabetic kidney disease. State-of-the-art measures of kidney structure and function are being made serially in Pima Indians to identify the factors responsible for the development and progression of diabetic kidney disease. Other research is using proteomic methods to evaluate potential urinary markers of progression.

### **National Diabetes Education Program (NDEP) Multicultural Campaigns**

*Description:* The NIDDK launched the National Diabetes Education Program (NDEP) with the Centers for Disease Control and Prevention (CDC) in 1997 to change the way diabetes was treated. Since its inception, NDEP has taken a multicultural approach to address its goals of improving diabetes management, treatment, and outcomes for populations disproportionately affected by diabetes, including African Americans, Asian Americans and Pacific Islanders, American Indians and Alaska Natives, and Hispanic/Latino Americans. NDEP promotes early diagnosis and prevention of diabetes, thus reducing morbidity and mortality associated with the disease. NDEP components include public awareness and education campaigns, special population approaches, community-based interventions, health system changes, and an inclusive partnership network.

### **Prevention and Control of Type 2 Diabetes in the Pima Indians of Arizona**

*Description:* NIDDK, community leaders, and community members have developed and produced several health education materials to promote the message that “Diabetes can be prevented.” These materials include two videos, “Close to the Heart: Breastfeeding Our Children, Honoring Our Values,” which encourages breastfeeding to prevent obesity and Type

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2 diabetes; and “Message of Hope: We Can Prevent Diabetes in Native American Communities.” Members of the Gila River Indian Tribe participated in this effort.

**National Kidney Disease Education Program (NKDEP)**

*Description:* NIDDK initiated the National Kidney Disease Education Program (NKDEP) in the summer of 2000. Since then, NKDEP has worked to reduce the burden of chronic kidney disease (CKD) and ESRD, especially among communities most impacted by the disease. ESRD disproportionately impacts racial and ethnic minorities, particularly African Americans, Hispanics, and Native Americans; and Native Americans are 1.8 times more likely than Whites to develop ESRD.

## The Agency for Healthcare Research and Quality

The Agency for Healthcare Research and Quality's (AHRQ) mission is to improve the quality, safety, efficiency, and effectiveness of health care for all Americans. AHRQ supports research that helps people make more informed decisions and improves the quality of health care services.

### CURRENT PROJECTS

#### **Indian Tribes and a Yale Research Team are Collaborating on CAHPS® III Quality Improvement Projects**

*Description:* Yale researchers together with the Eastern Shoshone and Northern Arapaho Tribes of the Wind River Indian Reservation and the Fort Peck Indian Reservation Tribes (Assiniboine and Sioux) in Montana are collaborating on two quality improvement projects. At Wind River, the Tribal Health Directors and the IHS leadership team are collecting baseline Health Plan CAHPS® Survey data. Results are to be reported to the Tribal-IHS Working Group. At the Fort Peck Indian Reservation, the Yale team is working with the Tribal Health Director to collect baseline data in the Tribally-operated dialysis unit with the CAHPS® In-Center Hemodialysis Survey. After review of the data, quality improvement interventions will be developed, with implementation scheduled for fall 2010. (Grant U18 HS16978-04.)

#### **Electronic Clinical Data to Assist in Assessing Comparative Effectiveness of QI Efforts**

*Description:* Over the past decade, the IHS has developed a national information technology infrastructure that allows for the routine, reproducible measurement of ambulatory quality of care across a spectrum of conditions for AI/AN communities. This infrastructure represents a model for evaluating the use of a nationally integrated health information system to conduct comparative effectiveness research (CER) and ultimately identify the most capable quality improvement activities. This project will use electronic clinical data from the IHS national health information systems to create a longitudinal database linking quality of care measures for diabetes, cardiovascular disease, and cancer screening over a 9-year period. A second objective will be to conduct two comparative analyses to determine the effectiveness of delivery system interventions—the use of an advanced electronic health record (EHR) and a chronic care model (Improving Patient Care) to assess health care quality and outcomes for diabetes, cardiovascular care, and cancer screening. AHRQ is providing staff support to IHS in this project with funding received from the American Recovery and Reinvestment Act of 2009.

#### **Comparative Effectiveness of Disease Management by IHS Advanced Practice Pharmacists**

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*Description:* This project seeks to create an IHS data base/data infrastructure that will support the conduct of CER and to conduct a comparative effectiveness study of a health system delivery strategy designed to improve health outcomes among AI/ANs with diabetes and CVD. The data infrastructure will help identify interventions designed to improve health outcomes and reduce documented disparities. It will be based upon 3 consecutive years of data from 4 IHS data sources and will include health status measures, group codes (provider, clinic, drug, pharmacy), and cost measures. Data will be included from each of the 12 IHS regions (~650,000 patients). The CER study will compare disease management by advanced practice pharmacists with other health care providers within the IHS. Pharmaceutical care and the expanded role of pharmacists have been associated with many positive diabetes-related outcomes, including improved clinical measures, improved patient and provider satisfaction, and improved cost management. Within the IHS, 22 percent of pharmacists are advanced practice pharmacists who are nationally credentialed and locally privileged to provide prescriptive pharmacy care and clinical monitoring for acute and chronic disease management. AHRQ is providing staff support to IHS in this project with funding received from the American Recovery and Reinvestment Act of 2009.

**ARTICLES**

**Study Links Funding Levels of Tribal Health Programs to Outcomes**

*Description:* Tribally Operated Health Programs (TOHPs) provide care nationally to more than one-third of the 1.8 million AI/ANs who obtain services from the IHS. Many unnecessary hospitalizations can be prevented with access to comprehensive effective ambulatory care. This study found that higher IHS funding levels for TOHPs in California were associated with lower rates of hospitalization for ambulatory care-sensitive conditions (HASCs) by the AI/ANs who used them. On average, IHS funding pays for less than 49 percent of the medical care provided by TOHPs in California. For TOHPs with funding less than 60 percent of what the Federal government pays for Federal employee medical care (benchmark), the HASC rate dropped 12 percent for every 10 percent increase in funding. Even when adjusted for confounding characteristics, the funding effect was between 9 and 11 percent. The authors concluded that additional funding of Tribal program health care is likely to improve outcomes of care for the AI/AN population.

*Publications:* Korenbrot C, Kao C, Crouch JA. Funding of Tribal health programs linked to lower rates of hospitalization for conditions sensitive to ambulatory care. *Medical Care* 2009 Jan;47(1):88-96.

**Collaboration Between Choctaw Nation, AHRQ, and IHS Yields the American Indian Survey, an Adaptation of CAHPS®**

*Description:* The Consumer Assessment of Healthcare Providers and Systems (CAHPS®) surveys measure patients' experiences with ambulatory and facility-level care. Since these surveys are not adapted for ethnic and linguistic minority populations, the Choctaw Nation Health Service (CNHS) Program and AHRQ agreed to explore developing a survey to collect patient experience-of-care data to evaluate care received by patients at different CNHS clinics. AHRQ and the CAHPS® consortium, together with the IHS, worked with CNHS to develop a CAHPS® American Indian Survey. They conducted a mail survey of the Choctaw population that yielded 696 surveys (a 58 percent response rate). This collaboration and CBPR helped to produce a useful survey tool that can be used by other American Indian Tribes and by the IHS.

*Publications:* Weidmer-Ocampo B, Johansson P, Dalpoas, D, and others. Adapting CAHPS for an American Indian population. *J Health Care for the Poor Underserved*. 2009; 20:695-712.