Publications

Doyle, John T; Redsteer, Margaret Hiza; Eggers, Margaret J "Exploring Effects of Climate Change on Northern Plains American Indian Health" Clim Change (2013): 120(3),


Kipp, B. Crystallized versus Fluid Intelligence in American Indian Children diagnosed with Fetal Alcohol Syndrome. Alcoholism: Clinical and Experimental Research, 29, p. 47.


Shah, Vallabh O; Ghahate, Donica M; Bobelu, Jeanette; Sandy, Phillip; Newman, Sara; Helitzer, Deborah L; Faber, Thomas; Zager, Philip 'Identifying barriers to healthcare to reduce health disparity in Zuni Indians using focus group conducted by community health workers. Clinical and translational science (2014)

**Scientific Research**

Dr. Jovanka Voyich Kane's project, "Understanding MRSA on Montana’s Indian Reservations

- Research progress made in collaboration with a rural population of Native Americans.
- The significant increase in the number of CAMRSA infections over the past few years triggered an intense search for the factors responsible for their emergence and hyper-virulence.
- Through INBRE funding, her research continues to address significant knowledge gaps relevant to human disease caused by *S. aureus*.
- The results from this funding are beginning to answer clinically relevant questions regarding *S. aureus* nasal colonization and adaptations that *S. aureus* has incurred in the nasal niche.
- Application of research findings reduced the incidence of *S. aureus* in a particular population.

"Remediating Early Childhood Caries in Native American Children: A Descriptive Study," led by Project Leader Dr. Elizabeth Kinion

- Takes place on an American Indian Reservation in Montana as a collaborative CBPR project among MSU, a tribal college, and a tribal health department.
- The examination of children revealed *Streptococcus mutans*, an acquired bacterium, in 49% of the children's saliva and in 43% of their plaque. Data from the oral exam indicated that even though dental restorations have been performed on 67% of the children, decay continues to occur (43%).
- The project team developed an intervention study focusing on the child, the family and the community in order to reduce the incidence of ECC in the community.
- The overarching goal of follow-up research was to decrease the incidence of ECC in this American Indian community by implementing the principles of CBPR that address ECC as a preventable infectious disease. The community has placed overall oral health care as one of their priorities.
- Collaboration among the Tribal Health Department (THD) and Aaniiih Nakoda College (ANC) includes Indian Health Services and is positioned to serve the community effectively for years to come.

Dr. Patti Holkup, Project Leader for "Historical Trauma and Unresolved Grief: A Culturally Anchored Intervention for American Indians," works collaboratively in her CBPR project with Emily Salois, MSW, ACSW; Dr. Gyda Swaney, Department of Psychology, UM; and Grief Counselors Melveena Malatare and Mary Louise Deroche (Blackfeet Nation).

- To describe the experience of grief among Blackfeet adults, nine phenomenological interviews were collected and analyzed, with the assistance of graduate students involved in the UM Indians into Psychology Program.
• Inventory of Traumatic Grief, the Historical Loss Scale, and the Historical Loss Associated Symptoms Scale.
• Concepts of resilience and coping needed to be measured, and the following measures were included in retreats numbers 5 and 6: the Brief COPE, Interpersonal Support Evaluation List, the Brief Resilience Scale, the Kessler-6, the PANAS Scale, and two qualitative evaluatory questions.
• Through an extension of funding from MT INBRE, the team provided a grief retreat intervention for interested people in the Fort Peck community, giving them an opportunity to determine if they would like to participate in this research program. Because the grief retreat intervention was viewed as a benefit in the two communities involved, they have found ways to conduct two grief retreats independently.
• One participant commented that "It is of great importance for Native American communities to understand their grief and how they cope as well as prove to them how resilient they are as a people and that not every research [study] about their experiences has to be negative."

Applying indigenous community-based participatory research principles to partnership development in health disparities research.

Abstract
This case study of community and university research partnerships utilizes previously developed principles for conducting research in the context of Native American communities to consider how partners understand and apply the principles in developing community-based participatory research partnerships to reduce health disparities. The 7 partnership projects are coordinated through a National Institutes of Health-funded center and involve a variety of tribal members, including both health care professionals and lay persons and native and nonnative university researchers. This article provides detailed examples of how these principles are applied to the projects and discusses the overarching and interrelated emergent themes of sharing power and building trust.

Int J Environ Health Res. 2013 Sep 17. [Epub ahead of print]
Detection and source tracking of Escherichia coli, harboring intimin and Shiga toxin genes, isolated from the Little Bighorn River, Montana.
Hamner S1, Broadaway SC, Berg E, Stettner S, Pyle BH, Big Man N, Old Elk J, Eggers MJ, Doyle J, Kindness L, Good Luck B, Ford TE, Camper AC.

Abstract
The Little Bighorn River flows through the Crow Indian Reservation in Montana. In 2008, Escherichia coli concentrations as high as 7179 MPN/100 ml were detected in the river at the Crow Agency Water Treatment Plant intake site. During 2008, 2009, and 2012, 10 different
serotypes of E. coli, including O157:H7, harboring both intimin and Shiga toxin genes were isolated from a popular swim site of the Little Bighorn River in Crow Agency. As part of a microbial source tracking study, E. coli strains were isolated from river samples as well as from manure collected from a large cattle feeding operation in the upper Little Bighorn River watershed; 23% of 167 isolates of E. coli obtained from the manure tested positive for the intimin gene. Among these manure isolates, 19 were identified as O156:H8, matching the serotype of an isolate collected from a river sampling site close to the cattle feeding area.

- DNA fingerprinting and serotyping of E. coli isolates obtained from CAFO manure and river sampling support the hypothesis that CAFO manure may be a source of E. coli detected in the Little Bighorn River upstream of Wyola. The large amount of manure concentrated in the feedlot area, and the proximity of the feedlot area to what we have termed the CAFO drainage ditch, is of concern. Manure seepage may enter a ditch that flows south from the feedlot area down through a roadside culvert before draining into the forested area on the north bank of the Little Bighorn River. Detection of the eae virulence gene in 23% of the manure isolates tested during 2011 is of public health concern, given the potential of eae+ strains of E. coli to colonize the intestines of humans, livestock, and wildlife and cause disease (Jerse & Kaper 1991; Vlisidou et al. 2006).

"Exploring Effects of Climate Change on Northern Plains American Indian Health"
Doyle JT1, Redsteer MH, Eggers MJ.

Abstract

American Indians have unique vulnerabilities to the impacts of climate change because of the links among ecosystems, cultural practices, and public health, but also as a result of limited resources available to address infrastructure needs. On the Crow Reservation in south-central Montana, a Northern Plains American Indian Reservation, there are community concerns about the consequences of climate change impacts for community health and local ecosystems. Observations made by Tribal Elders about decreasing annual snowfall and milder winter temperatures over the 20th century initiated an investigation of local climate and hydrologic data by the Tribal College. The resulting analysis of meteorological data confirmed the decline in annual snowfall and an increase in frost free days. In addition, the data show a shift in precipitation from winter to early spring and a significant increase in days exceeding 90° F (32° C). Streamflow data show a long-term trend of declining discharge.

- Elders noted that the climate changes are affecting fish distribution within local streams and plant species which provide subsistence foods. Concerns about warmer summer temperatures also include heat exposure during outdoor ceremonies that involve days of fasting without food or water. Additional community concerns about
the effects of climate change include increasing flood frequency and fire severity, as well as declining water quality. The authors call for local research to understand and document current effects and project future impacts as a basis for planning adaptive strategies.