News *from the* Center for Alaska Native Health Research

Building and increasing research capacity to help improve the health of Alaska Natives.

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Working Together to Build a Center for Alaska Native Health Research

The National Institutes of Health, National Center for Research Resources awarded a five-year grant to the University of Alaska Fairbanks (UAF) to establish the Center for Alaska Native Health Research (CANHR) to investigate weight, nutrition, and health in Alaska Natives. The funding comes through a program for Centers of Biomedical Research Excellence (COBRE).

Partnerships with other institutions is one of the keystones of the CANHR strategy. The Center is being developed in partnership with the Yukon-Kuskokwim Health Corporation (YKHC). CANHR has offices at UAF and the University of Alaska Anchorage (UAA). These partnerships facilitate the participatory research model and multidisciplinary research approach of the Center.

Four out of 10 Americans will be obese or significantly overweight in the next 10 years.

The Center's primary goal is to build research capacity at the University of Alaska in order to contribute to knowledge about factors that will improve the health of Alaska Natives. Both UAF and UAA currently lack the numbers and breadth of health and biomedical researchers sufficient to accomplish this goal. CANHR will address this problem by hiring new researchers.

A second goal is to increase local capacity to conduct health research. In spring 2003, CANHR contracted with YKHC to hire a research partner based in Bethel. During the data-gathering phase of the projects, local people will be trained to help facilitate focus groups, conduct interviews, and assist with anthropometric data collection.

At the heart of the Center are three specific research projects related to important aspects of obesity: diet and nutrition, culture/behavior, and genetics. The three principal investigators are developing the projects jointly. This multidisciplinary approach is a challenging, but ultimately rewarding process and is yet another way for the Center to build on the partnership model. (See related articles on the Center's three projects.)

By working together through all aspects of the projects, research partners at the University, health corporation, and local levels assure that the research conducted by the Center is driven by the health needs of Alaska Natives. ■

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Message from the Director

We at the Center for Alaska Native Health Research have focused our efforts on developing the relationships between our center and its staff, Yup'ik villages, the Yukon-Kuskokwim Health Corporation, and residents of villages potentially interested in working on projects related to obesity, diabetes, and heart disease.

The problem facing our country is enormous and growing. Understanding why this is happening and what can be done to improve health among Alaska Natives is our focus. We know that research done in other parts of the world can inform us and help us, but we need research that can improve our local understanding of, and prevention of, obesity, diabetes, and cardiovascular disease in Alaska. As Paul John, Elder from Toksook Bay, told the participants in our workshop on Genetics Education for Native Americans (in Yup'ik, through a translator), "I want to eat what my blood tells me to eat!" Elders know that the way we are created, the blueprint of our genes, tells us what diet, what activities and what lifestyle best fits us. We hope both to clarify what these are and better assist communities in promoting their health.

Obesity takes 7 years off of one's life, and being overweight potentially reduces life expectancy by three years.

Our center has agreements at this time with a number of villages in the Y-K region, but we are already discussing the work with other regional Native groups. ■

Gerald V. Mohatt, Director

Genetics Education for Native Americans

What are genes? How can genetics research benefit health? What should communities know before engaging in genetic health research? These topics and others were discussed last October in Bethel at a Genetics Education for Native Americans (GENA) workshop. The two-day workshop was sponsored by the University of Alaska's Center for Alaska Native Health Research and brought together medical professionals, YKHC Board members, and community leaders from the region. Topics included basic genetic principles, participatory genetic research projects, patterns of inheritance, and Native cultural issues relevant to research.

Linda Burhansstipanov and Lynne Bemis of the Native American Cancer Research Corporation, a native owned and operated non-profit, developed and facilitated the workshop. Participants discussed topics such as traditional knowledge and the relevance of genetics in health today. "I really enjoyed listening to the wisdom of elders and their thoughts on the health of Alaska Natives," said Bert Boyer, PhD, lead investigator on the genetics project for the Center. Biomedical research has led to improvements in the treatment and prevention of numerous diseases, and researchers in Alaska are just beginning to understand the role genes play in determining appropriate medications to prevent or treat diseases in the Y-K. Researchers in Alaska hope to examine the role of genes in body composition and diseases such as diabetes, heart disease, and obesity. The GENA workshop was the first of many workshops sponsored by the Center that will provide information about health research to communities in the Y-K region. ■

Gerald Mohatt, Director & PI

What is a gene?

Genes are very small structures inside almost every cell of the body. Genes are the instructions, or blueprints, that tell our body how to grow and develop, build necessary proteins, and thus determine an individual's characteristics, such as eye color and blood type. It is estimated that there are about 30,000 genes, each of which is an instruction guiding the cells of the body to grow and survive. Genes come in pairs and are made of strands of genetic material called deoxyribonucleic acid, or DNA. They line up similar to beads on a string to form larger structures called chromosomes.

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Genetics of Obesity Research Project

The prevalence of obesity and diabetes has dramatically increased in the last decade. Obesity is a complex disorder that is influenced by environmental and genetic factors. This CANHR project is designed to understand the contribution and interaction of genetic, behavioral, and nutritional factors that contribute to body weight gain in Alaska Natives.

The intent of this research is to identify genes or genetic markers associated with body weight and obesity. Such information is quite complex because the genetic material in the cell does not act alone. The combination of many different genes and their interaction with environmental factors contribute to body weight. Our study is unique in that we are investigating the interaction of several risk factors (genetic, behavioral, and nutritional). The information we obtain will ultimately be used to develop health intervention programs designed to keep individuals at a healthy weight and reduce their risk of related diseases.

Information will be collected and analyzed on the current health condition of individuals, as well as on their family history of obesity. We will take blood samples for DNA isolation (genetic material). Our goal is to identify the contribution of genetic risk factors in the development of obesity. In collaboration with other research scientists associated with CANHR, we will also study the interactions between genetic risk factors, diet, and behavior (lifestyles) so that we can determine the conditions within a family or community that contribute to being overweight. In addition we hope to evaluate the role of obesity in the development of other health concerns in the community such as heart disease or diabetes. ■

Bert Boyer, PI

Participatory Research in Action

Faculty and staff of the Center for Alaska Native Health Research spent the summer and fall of 2002 visiting communities, presenting information about the Center, and talking with community members about their health. The Center is currently working in the Y-K region but, as it grows, hopes to expand to other areas of the state. Interested communities will work with the Center to collect information, disseminate results, and develop health programs targeting health concerns identified by the communities.

Each trip usually lasts about a week, with stops in two to three communities. "This has really been a tremendous opportunity for us to meet and talk with people from rural villages, and it's been very encouraging to see the level of interest in the projects," remarked Jerry Mohatt, Director of the Center. In addition to presenting information at a community meeting, members of the research team also spend time in the local schools talking about various topics from career guidance to basic biology.

Through a partnership with Yukon-Kuskokwim Health Corporation, the University has hired Elizabeth Ruppert, a research coordinator in the Y-K region who will work directly with communities and provide technical and cultural insights on the projects. The University will also be hiring translators, community advisors, and data collectors for this project. ■

Bert Boyer, PI Genetics of Obesity

Diet & Nutrition Knowledge Project

The Diet & Nutrition Knowledge project is now preparing the forms and procedures expected to be used in the upcoming nutrition surveys. Our priority is to develop an easily understood and effective nutrition survey that accurately describes dietary practices in Y-K communities. An exciting new diet survey tool has been developed this winter that accurately reflects eating habits over a three-day period. These short records are easily completed and interpreted, and are as accurate as the earlier more time consuming methods.

This spring, we will pilot test this methodology in Alaska to determine its applicability to the CANHR Diet & Nutrition Knowledge project. To ensure accurate and complete records, we are now hiring and training nutrition assistants who will be able to assist respondents with their dietary recalls. We will train the new staff to use the nationally established NDS-R dietary assessment software with a special emphasis on the quick analysis of Alaskan foods. A well trained assistant can enter a written diet survey into a laptop computer with great accuracy in little more than ten minutes, whereas a detailed 24 hour food recall taken in person may take up to thirty minutes. We are excited to understand the changing eating practices seen throughout Alaska and, in particular, to identify ways to reduce health risks via diet in the Y-K Delta. ■

Bret Luick, PI

CANHR Staff

To support the research being conducted by the Center, several people work "behind the scenes" to make sure that things run smoothly. Alisa Jenny is the CANHR Field Research Coordinator. She facilitates and manages the fieldwork, and will supervise the data collection phase of the projects. In addition, Alisa is the liaison between CANHR and its various IRB's and human subjects committees. Michelle Dondanville is the Program Coordinator/Assistant to the Director. She provides administrative support and assists with proposal preparation. Judy Romans is CANHR's Travel Coordinator. She supports the program by coordinating all travel arrangements necessary to get research teams out to the villages and bring people in for meetings. Judy is also the front office receptionist and the first person many people talk to when they visit CANHR.

The research projects are supported by Scarlett Hutchison, research assistant on the Cultural Understandings of Health project, and Janell Smith, a research associate at UAA's Institute for Circumpolar Health Studies who is working on the Diet and Nutrition Knowledge project. Jean James rounds out the staff. As former Executive Officer of the Institute of Arctic Biology, Jean is a consultant to CANHR, providing valuable assistance with budgets, contracts, and special projects. ■

Contributing Factors to Obesity

Over 300,000 deaths per year are attributed to obesity, and severely obese children may expect to loose 8-13 years of life because they are obese early in their life. Why is obesity on the rise? Is it all due to lack of activity and overeating? Experts believe that activity and diet contribute significantly to body weight gain, but that approximately 70% of the variation in body weight is genetically determined.

Bret Luick, PI Nutrition Project

Alisa Jenny, Janell Smith, and Cécile Lardon visiting a village.

Cultural Understandings of Health Project

Yup'ik people have their own knowledge, beliefs, and practices that help people be healthy and well. Over time, some of the Yup'ik traditional knowledge and practices have changed, but others have not. This project will work with elders and other people in the Y-K region who know about health, well being, and culture to gain a new understanding of how culture and health are related.

First we will ask community members questions about their understandings of health. What kinds of things should people do if they want to be healthy? What should they not do? What else do they need in their lives to be well? How can communities help their members lead good lives? With this knowledge, we will then develop an interview that can be used by researchers and health workers who are interested in learning about a person's well being. The information collected will also be used to understand the connections between weight, nutrition, and culture. This is a five-year project that is divided into three steps.

First, this research project will interview people and hold group meetings to gather information about culture, health, and well being. Second, all three research projects will collect health data in seven Y-K villages and Bethel. This information will include people's weight, nutrition, genetics, and an interview on health and well being. Finally, in the fourth year, the project will work with two of the villages to develop ways in which the information that was collected by the researchers can be used to improve people's health, including reducing weight and improving eating habits. ■

Cécile Lardon, PI

Connections Between Obesity and Behavior: What it Means to Alaska Natives

Obesity and related illnesses such as diabetes and heart disease are on the rise in America, especially among American Indians and Alaska Natives. In order to maintain the same weight, calorie consumption and use must be in balance. This balance is influenced by genes, metabolism, environment, culture, and behavior.

Culture and the environment can directly influence people's behavior, by affecting what foods we choose to eat, when we eat, and how much we eat. Environment can influence eating behavior by making some foods available and others more difficult to come by, including the animals that can be hunted or fished, the berries and other foods that can be gathered, and even what is available in our stores.

These connections between weight, behavior, and culture are especially important to Native communities, which have changed significantly over the past 100 years. Technology has made some things easier, such as heating a house or traveling. However, diets have changed, moving away from the animals and plants of the traditional Yup'ik subsistence diet toward a diet that includes many Western store-bought food items. For many Yup'ik people, this means the balance between what they eat and their physical activity has changed to make them less healthy. The Center projects will help us understand better the connections between our genes, our culture and environment, and our individual behavior. This knowledge can help health providers provide better care and communities make healthy choices. ■

Cécile Lardon, PI Cultural Understandings of Health

Jean James, Michelle Dondanville & Judy Romans in the CANHR office

Diet and Healthy Weight

Nutrition is essential for growth and development, health, and well being. For thousands of years, foods from the ocean, rivers, and land have been nourishing Alaska Natives. Many physical health benefits of a traditional Native diet have been reported recently. Low incidences of heart disease, diabetes, and some cancers in Alaska Native populations have been attributed, in part, to traditional food consumption. Changes in the consumption of traditional foods with nutrient-poor store bought foods may be connected to the increasing occurrence of these diseases in Alaska.

Overweight results when a person eats more calories from food (energy) than he or she expends. For each individual, body weight is the result of a combination of genetic, metabolic, behavioral, environmental, cultural, and socioeconomic influences. Behavioral and environmental factors are large contributors to overweight and obesity, and provide the greatest opportunity for actions and interventions designed for prevention and treatment.

The 2000 Dietary Guidelines recommends that Americans choose a variety of grains, especially whole grains, and a variety of fruits and vegetables daily. Some evidence suggests that fats in fish and marine mammals are associated with lower blood glucose and blood lipid levels. Understanding the health benefits of a traditional Alaska Native diet is important for each individual's decision-making about his/her personal dietary choices. Another important nutritional aspect of subsistence foods is that people expend energy while harvesting them. The activities surrounding hunting, fishing, gathering, and preserving traditional foods contribute to an active lifestyle. ■

Elizabeth "Wiz" Ruppert and Scarlett Hutchison

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In conjunction with the University of Alaska Anchorage

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