Department of Health and Human Services

The Department of Health and Human Services supports and conducts Arctic health research through the National Institutes of Health and the Centers for Disease Control and Prevention.

National Institutes of Health

The National Institutes of Health (NIH) is an agency of the Department of Health and Human Services. NIH is headquartered at Bethesda, Maryland, and is composed of 27 institutes and centers. NIH supports research on Arctic-related health issues through grants and contracts to non-Federal scientists and through the projects carried out by scientists in NIH laboratories and clinics.

NIH works with colleagues around the world to achieve its mission. In the area of Arctic research, NIH has fostered international research collaborations and agreements with a range of counterparts abroad. For example, NIH and its Canadian counterpart, the Canadian Institutes of Health Research (CIHR), signed a Letter of Intent on September 20, 2004, directed at strengthening research cooperation between the U.S. and Canada on the issues related to indigenous peoples. This agreement serves as a cornerstone for future bilateral health-related activities in the circumpolar region.

In May 2005, NIH hosted a delegation from CIHR, with representation from the Institute of Neurosciences, Mental Health and Addiction (INMHA), Institute of Genetics, and Institute of Aboriginal Peoples' Health Research (IAPHR). The primary purpose of this visit was to discuss the opportunities for moving forward on the 2004 NIH–CIHR Letter of Intent on collaboration in indigenous peoples' health research. A presentation was made on IAPHR activities and priorities as a platform for collaboration with NIH. In addition, the Fogarty International Center (FIC) hosted a roundtable discussion on the Regenerative Medicine and Nanomedicine initiative with the National Institute of Neurological Disorders and Stroke (NINDS), the National Institute of Mental Health (NIMH), and the National Institute on Drug Abuse (NIDA) at NIH and the Institute of Genetics of the CIHR. This initiative is a partnership involving CIHR and a number of other leading Canadian organizations, and the discussion focused on updating NIH on its current status, receiving feedback, and exploring future collaboration.

	Funding (thousands)	
	FY 04	FY 05
National Institutes of Health	25,000	22,000
Centers for Dis. Control/Prevent.	3,400	3,700
Subst. Ab. & Men. Health Serv. Ad.	25,900	21,200
Total	54,300	46,900

Fogarty International Center

The FIC's mission is to address global health challenges through innovative and collaborative research and training programs and to advance the NIH mission through international partnerships. As the designated focal point for Arctic issues at the NIH, FIC plays a key role in advancing bilateral and multilateral ties between and among governments, institutions, and scientists working on circumpolar issues. In 2004 and 2005, FIC led the development and conduct of two international scientific conferences on inhalant abuse and suicide, two critical Arctic health needs areas. FIC worked closely with all relevant NIH partners in developing and conducting these conferences, each of which provided insights to researchers and policymakers on gap areas and areas of potential collaboration. In addition, FIC, working across NIH and with CDC, has been a key partner in preparing for the International Polar Year (IPY) to take place in 2007–2008. FIC provided leadership and input to a range of groups working to prepare for IPY, including the Polar Research Board of the National Academies of Science, the Department of State, and the CDC.

National Institute on Aging

The National Institute on Aging (NIA) is continuing to fund the Age, Gene/Environment Sus-

ceptibility (AGES) Study: The Reykjavik Healthy Aging Study for the New Millennium introduced in 2001. This initiative was launched under the U.S. Arctic Research Plan and is part on the ongoing collaboration between NIA and the Icelandic Heart Association. The first round of data collection was completed in February 2006, with approximately 5,800 individuals examined on four physical and neuropsychological domains, including neurocognitive, cardiovascular, musculoskeletal, body composition, and metabolic functioning. A major aspect of the study is a cross-sectional examination of phenotypes to be used for candidate gene studies and to allow for a better understanding of factors contributing to disease in old age, apart from genetic factors. These phenotypes will also be examined in relation to specific mortality outcomes such as coronary heart disease, fractures, and cancers that are ascertained in Iceland. In addition, a large specimen bank and repository is being established as part of this study, and collaborations with interested investigators outside of the study are actively sought. A follow-up measure is planned for 2007–2011.

The NIA also continues to fund the Native Elder Research Center, located within the Division of American Indian and Alaska Native Programs of the Department of Psychiatry, School of Medicine, at the University of Colorado Health Sciences Center in Denver. The center coordinates a culturally relevant, scientifically meritorious research career development program targeted at American Indian (AI) and Alaska Native (AN) investigators, focusing on aging, health, and culture. The center augments ongoing partnerships with AI/AN communities to ensure access to and involvement of elders, their families, and local systems of care in aging.

National Institute on Alcohol Abuse and Alcoholism

Alcoholism continues to be one of the most important public health problems among Alaska Natives in the Arctic region. Alaska's alcohol consumption rate is among the highest in the nation. Alaska Natives have unusually high rates of drinking and associated health problems, including fetal alcohol syndrome. Furthermore, alcohol is substantially involved in accidents and injuries among both Alaska Natives and Alaska whites. A review of medical records indicated that alcohol was noted on the record of 37.5% of injuries to Alaska Natives and 15.5% of injuries to Alaskan Caucasians. Alcohol use has also been linked to child abuse, accidental death, assaults, rapes, and suicides in Alaska. The NIAAA goal is to identify the causes and consequences of alcohol consumption and to develop and validate effective treatment and prevention strategies for adverse health and behavioral consequences of drinking. The institute supported three projects in the Arctic region in FY 2003–2005. One project examined the economic and public health impact of raising alcoholic beverage taxes in Alaska. A second project examined the efficacy of a pharmacological treatment on relapse rates among alcohol-dependent Native Alaskans in treatment. The third project supports the development of a culturally specific alcohol abuse prevention intervention for Yupik Eskimo children.

National Institute on Drug Abuse

Since 1994 the National Institute on Drug Abuse (NIDA) has been funding basic and applied research on drug abuse in the Alaskan Native population. Several of these NIDA-funded research projects have published data on sexually transmitted disease in Alaskan Native drug users and have also focused on unemployment, HIV risk, and alcohol use. NIDA's current portfolio of Alaska-Native-relevant research focuses on the prevention of inhalant abuse; chronic stress and substance use; co-occurrence of substance use, depression, and risk of HIV/AIDS; and tobacco cessation programs for youth. During 2005, NIDA sponsored two scientific meetings that included research presentations addressing issues of Alaska Natives and aboriginal people in Canada. The first conference was entitled "Bridging Science and Culture to Improve Drug Abuse Research in Minority Communities" and the second meeting was entitled "Inhalant Abuse among Children and Adolescents: Consultation on Building an International Research Agenda." The latter conference included a description of a new research project on the implementation of inhalant abuse prevention programs in four relatively small communities in Alaska. In the first year the project mobilized the interest of communities to ensure their buy-in and the cultural appropriateness of the programs. The next steps included setting up retailer, family, and school environmental strategies and testing a prevention curriculum for fifth-graders based on life-skills training for Native Americans. Subsequent efforts will involve testing the school-based curriculum in 16 other Alaskan communities. A

complete description is available at international.drugabuse.gov/downloads/Inhalant_Summary.pdf.

National Institute of Allergy and Infectious Disease

Haemophilus influenzae type b

Before the introduction of a vaccine against *Haemophilus influenzae* type b (Hib) in the late 1980s, an estimated 16,000–25,000 children in the U.S. annually showed signs of invasive bacterial infection by Hib. Today, with the use of a conjugate vaccine developed with support from NIAID, Hib bacterial infection has been reduced by 99% in the U.S. Interestingly there is evidence that the Hib vaccine decreases the rate of Hib carriage among vaccinated children, decreasing the chance that unvaccinated children will be exposed.

NIAID provided support for a three-year pilot intervention trial that was initiated in FY 2002 in three Alaska Native villages known to have high numbers of asymptomatic carriers of Hib. The goal was to determine if Hib conjugate vaccine could be given to persons of all ages to eliminate or reduce Hib colonization. The researchers hoped to determine what treatment most effectively eliminated the Hib reservoir from a village. Several treatment regimes were compared, including a comparison of treatment with the Hib conjugate vaccine, with and without the antibiotic rifampin, to that of treatment with rifampin alone (the standard treatment).

Various immunologic parameters were measured before and after Hib vaccination. Prior to vaccination, Hib carriers had a higher IgG antibody level than controls, as well as higher serum bactericidal activity (SBA). Both groups responded to vaccination with increased IgG and SBA levels. These results suggest that Hib colonization can induce an immune response, so Hib carriage in these communities is likely due to multiple factors rather than an overall lack of immune response.

Hepatitis C

Hepatitis C virus (HCV) is a blood-borne agent that usually causes chronic infection of the liver, leading to severe progressive liver diseases such as cirrhosis and primary liver cancer and resulting in an estimated 12,000 deaths per year in the U.S.

There is poor understanding at present of the mechanisms of virus-induced immune failure and pathogenesis. Studies suggest that dynamic interactions between HCV and the infected host—such as the genetic evolution of HCV in response to host neutralizing antibodies and CD4 and CD8 T cell activity against virus proteins—are linked to the persistence of infection and progression of chronic liver disease.

NIAID has long supported a large study of the relationship between HCV replication, evolution, and disease progression in Alaska Natives and American Indian populations. In studies published in April 2006 in *Clinical Infectious Diseases*, it was shown that, at least in Alaska Natives, sporadic episodes of viral control in patients with chronic HCV infection are more common than had been appreciated. This clinically surprising, and potentially very important, observation, if independently confirmed, could open new avenues for the development of future therapies.

In ongoing studies, serum samples, stored in a serum bank dating back over 30 years and representing approximately 1,000 subjects, in conjunction with a large clinical and virology database, are being studied for HCV genetic evolution in the context of host immune responses in different clinical settings. Results from these studies, in the well-defined Alaska Native populations, will provide additional important insights regarding the natural history of hepatitis C, HCV persistence, and liver disease progression.

Histocompatibility and Immune Recognition

In FY 2004 and 2005, NIAID, in conjunction with several other NIH institutes and centers and the Juvenile Diabetes Research Foundation International, continued its support of the International Histocompatibility Working Group (IHWG) through a resource-related research project cooperative agreement at the Fred Hutchinson Cancer Research Center in Seattle, Washington. The IHWG is a network of more than 200 laboratories in over 70 countries that collect and share data on genes of the human leukocyte antigen (HLA) complex.

The Alaskan Yupik project was an integral part of one of the seven projects conducted by the Fred Hutchinson Cancer Research Center. Researchers analyzed HLA genes in the Yupik cohort to determine the different types of histocompatibility genes and their frequency in that population. Data from the Yupik population were placed with data from thousands of other individuals to catalog and enable discoveries about human diversity in the HLA region of the genome. The project ended officially in June 2005 but was extended through June 2006 without funding.

National Cancer Institute

Division of Cancer Control and Population Sciences

Alaska Native Tumor Registry. The Alaska Native Tumor Registry was initiated in 1974 as a collaboration between the National Cancer Institute, the NIH, and the CDC using procedures developed by the National Cancer Institute's Surveillance, Epidemiology and End Results Program. In 1989 the National Cancer Institute entered into an interagency agreement with the Alaska Native Medical Center through the Indian Health Service, with technical assistance provided by the University of New Mexico. In 1999 the Alaska Native Tumor Registry became an official part of the Surveillance, Epidemiology and End Results (SEER) program. Accurate information on the unique cancer patterns occurring in this population is useful for provider education and training, program planning, studies of cancer etiology, evaluation of screening programs, and the development of interventions to improve patient care and programs for cancer prevention and risk reduction. The Alaska Native Tumor Registry is participating in several research projects, including a study of breast cancer and exposure to environmental organochlorines among Alaska Native women and the Nicotine Research and Tobacco Control Program. The registry will play an important role in the collaborative project between the U.S. and Canada described below.

Cancer Burden in Native Populations in the U.S. and Canada. With a difference of 6.4 years in life expectancy compared to the general population, the First Nations and Inuit populations of Canada experience similar health disparities as American Indian and Alaska Natives in the U.S., who experience life expectancies 4.7 years less than the general U.S. population. In Canada, cancer is the third leading cause of death, following injuries/poisonings and cardiovascular disease. In the U.S., cancer is the second leading cause of death for American Indians and the leading cause of death for Alaska Natives. In addition, five-year survival of American Indians and Alaska Natives is poorer than the general population. A better understanding of the cancer burden in these culturally and genetically related populations exposed to differing health care and social environments could lead to improved understanding of risk factors for cancer and effective preventive interventions.

In September 2004, Canadian Institutes of Health Research (CIHR) President Dr. Alan Bernstein and NIH Director Dr. Elias Zerhouni signed an agreement intended to strengthen research cooperation on health issues of priority to American Indian, Alaska Native, Canadian First Nations, Métis, and Inuit populations of the U.S. and Canada. This represents important institutional support for a collaborative project under development through the CDC, the National Cancer Institute, the Indian Health Service, and several health organizations in Canada. The purpose of the project is to assemble existing cancer surveillance data on American Indian/Alaska Native populations in the U.S. and First Nations and Inuit populations of Canada into a North American cancer surveillance and cancer burden profile that will be useful for better identifying cancer risk factors and high risk groups, learning more about and improving our ability to generate accurate data, and promoting collaboration between the U.S. and Canada. Several challenges face the collaborating partners, including the fact that the health agencies in the U.S. and Canada operate independently with distinct systems of health care and health data collection. The complexity and political sensitivity of indigenous health issues and autonomous tribal governments, U.S. health information privacy laws and their Canadian equivalents, tribal distrust of research and government, and tribal taboos related to cancer pose additional challenges for this project. This project will address the need to improve cancer surveillance for Native peoples in North America by assembling existing data for a North American cancer profile and promoting cross-border collaborative research addressing data gaps.

Network for Cancer Control Research among American Indian and Alaska Native Populations. The National Cancer Institute, through its Surveillance Research Program, Division of Cancer Control and Population Sciences, supports the Network for Cancer Control Research between American Indian and Alaska Native Populations. Established in 1990, this network of researchers working among American Indians and Alaska Natives developed a National Strategic Plan for Cancer Prevention and Control Research in 1992. The National Cancer Institute shares support for network meetings with the Mayo Comprehensive Cancer Center.

Northwest Portland Tribal Registry Project. Over the last two decades, health care delivery for Northwest American Indians and Alaska Natives has evolved from a centralized system maintained

by the Indian Health Service (IHS) to a diverse and complex environment. The Northwest Tribal Registry Project was developed in January 1999 by the Northwest Tribal Epidemiology Center, a tribally operated program located at the Northwest Portland Area Indian Health Board (NPAIHB) in Portland, Oregon. Through a contract with the National Cancer Institute, the existing disease registry has completed record linkage studies with state vital statistics data. The goal is to ascertain the incidence and prevalence of diseases such as cancer among Northwest American Indians and Alaska Natives with an accuracy not previously possible. A critical difference between the Northwest Tribal Registry Project and previous linkage studies is the longitudinal focus on building trend data.

Patterns of Cancer Care Among Native Americans. Limited information is available about contemporary cancer care among Native American populations. Data have been combined from several sources, including SEER and the IHS, augmented by abstracting data from medical records in a sample of cancer patients. The first project focused on the linkage of SEER and IHS data files to evaluate the completeness and quality of data elements. A current effort involves gathering data on patterns of care for American Indians and Alaska Natives living in South Dakota.

Native Cancer Information Resource Center and Learning Exchange. Native C.I.R.C.L.E. has been in operation as a national clearinghouse for cancer education materials specific to American Indian and Alaska Native communities since 1998. The center has become the educational arm for the American Indian/Alaska Native Leadership Initiative on Cancer, funded as a cooperative agreement. The center has the most up-to-date bibliography in the nation on cancer affecting American Indians and Alaska Natives.

In 2005 the National Cancer Institute assisted the Native C.I.R.C.L.E. in funding the semi-annual meetings of the Network for Cancer Control Research among American Indian and Alaska Native Populations, in Rochester, Minnesota, and Rockville, Maryland.

Division of Cancer Biology

EBV Expression in Nasopharyngeal Carcinoma. The University of North Carolina–Chapel Hill is conducting research to determine the role of the Epstein–Barr virus (EBV) in the etiology of nasopharyngeal carcinoma (NPC), an epithelial malignancy that develops with high incidence in southern China, in northern Africa, and among Eskimos. The viral genes that are expressed in NPC include the latent membrane proteins LMP1 and 2 and a new family of mRNAs, transcribed through the BamHI A fragment. Glutathionein transferase fusion proteins will be synthesized to produce monospecific antisera to identify the proteins in transfected cell lines and in NPC tumor tissues. The proteins will be tested for interactions with cellular proteins and for transactivation of the LMP1 promoter. To investigate the high incidence in specific populations and to explore a possible genetic contribution to NPC, additional NPC samples will be obtained from Chinese, Caucasian, Black, and possibly Inuit Americans.

National Heart, Lung, and Blood Institute

NHLBI has supported the Genetics of Coronary Artery Disease in Alaska Natives (GOCADAN), which is a working partnership between the Native-owned corporation that manages the health care of the Alaska Natives of Norton Sound and investigators from the Strong Heart Study. The Strong Heart Study is an 18-year study of cardiovascular disease (CVD) in American Indians. GOCADAN presents an important opportunity to examine the marked increase in the prevalence of atherosclerosis and coronary artery disease among the indigenous peoples of American Indian and Alaskan descent. Furthermore, this is the first project to identify and map genes that contribute to the risk of CVD in this unique and understudied population. The Eskimo villages that are participating in GOCADAN are located in remote areas around the Norton Sound region of Alaska, where the traditional Eskimo lifestyle is slowly being eroded by mechanization and a westernized diet and where there has been relatively little outside genetic influence. The initial five-year (FY 2000–2004), $7.8 million study documented CVD and related risk factors among 1,214 Alaska Natives who are members of approximately 40 families. During 2005 the initial GOCADAN study was extended to continue through 2010. This will enable a thorough reexamination of the family cohort. Early findings indicate high levels of smoking consumption, low but rising levels of diabetes, and blood pressures and cholesterol levels that are similar to the general U.S. population.

NHLBI and the Canadian Institutes of Health Research (CIHR) cosponsored a Working Group meeting in July 2004 titled “Research with Arctic

Peoples: Unique Research Opportunities in Heart, Lung, Blood and Sleep Disorders" to address three objectives related to research with Arctic peoples. The meeting included investigators from Greenland, Iceland, and Russia, as well as Canada and the U.S. The meeting concluded with a list of recommendations for future research priorities, barriers, and solutions to Arctic research (available at www.nhlbi.nih.gov/meetings/workshops/arcticpeoples.htm). A summary of the working group recommendations was published in the February 2006 issue of the *International Journal of Circumpolar Health*.

National Institute on Mental Health

NIMH, in partnership with other agencies, has held two major conferences to introduce the importance of suicide prevention in indigenous youth in the Americas for the International Polar Year in 2007. In September 2005, NIMH and the Fogarty International Center sponsored a half-day symposium on international suicide prevention research at the XXII World Congress of the International Association of Suicide Prevention (IASP) in Durban, South Africa. The presentations featured findings from evidenced-based interventions and current information on the prevalence, risk factors, and prevention strategies in circumpolar countries.

In February 2006, NIMH held a second conference in conjunction with the IHS, the Canadian Institutes of Health Research, Health Canada, and the Assembly of First Nations and Inuit Tapiriit Kanatomi. The goals of this meeting were to foster knowledge exchange on suicide prevention strategies, increase the number of indigenous researchers, and promote collaborative projects. Recommendations that arose from the conference focused on increasing the dialogue between communities and researchers in order to capture traditional cultural knowledge and practices and to refocus treatment on life-affirming messages rather than on suicide and death.

National Institute of Environmental Health Sciences

NIEHS has been at the forefront of working toward addressing dietary questions raised by Native people living in villages throughout Alaska. Issues include the risks associated with environmental contaminants bioaccumulating in traditional foods and how they compare with the health, social, economic, and cultural consequences that could result from a shift to alternative, market-based diets.

Many Alaska Natives obtain the majority of their diet through the harvest of wild foods, foods that are collected from the land and sea near their villages. Often the local economy is similarly driven. Such is the case with the villages of Atka and St. Paul, Aleut villages dependent on traditional foods collected from the Bering Sea. NIEHS funded a four-year project, focused on establishing a model for addressing traditional food concerns and designed to demonstrate methods for increasing village-based leadership and cooperation among communities, researchers, and government agencies. Over the next four years the project will develop a curriculum about dietary risks and benefits in rural Alaska and disseminate it throughout the state. If successful, these efforts will provide the capacity to address widespread popular concerns about the contamination of the Alaskan traditional food supply and a methodology for villages to examine other food types that may be widely consumed and potentially suffer from contamination because of environmental releases.

Another NIEHS-funded project, Alaska Community Action on Toxics, works in partnership with fifteen communities in the Norton Sound region of Alaska to find effective means to limit the release of contaminants in the natural environment and to mitigate the human health effects. The majority of the residents of these villages are Inupiat and Yupik, indigenous people who depend on the harvest of wild foods to sustain them and their ways of life. Collaborative work will include constructing a database of information regarding formerly used defense sites (FUDS) in the region and the contaminants found at these sites. Building on successful work at St. Lawrence Island, Alaska, investigators will develop a model for exchanging information among the communities about those strategies that proved effective with the government agencies responsible cleaning up FUDS in the region. They will work with village leaders to provide training to oversee FUDS clean-up work, establish independent monitoring programs for contaminants, and develop an environmental health care curriculum for the diagnosis and treatment of human health problems associated with environmental contaminants.

The investigators will work with regional health care providers to develop an information exchange for health care professionals in the Norton Sound region to discuss the diagnosis and effective

treatment of human health effects of environmental contaminants. They will analyze historical data from the Alaska Birth Defects Registry and work with regional health care providers to collect data on the frequency of birth defects among children in the region.

Another goal of the project is to build the research capacity in the affected communities. A pilot study will analyze breast milk samples for the presence of contaminants. This study will help residents design a methodology for conducting research on contaminants that may be important factors affecting the health of their communities so that they can be fully engaged in future human health and contaminants studies planned for the region. This methodology will include protocols for environmental sampling near FUDS in the region, examining body burdens of contaminants in residents, and documenting incidences of environmental diseases.

National Center on Minority Health and Health Disparities

NCMHD was charged by Congress to lead the Federal effort in health disparities research, research capacity-building, and outreach. The NCMHD has fostered many initiatives to address health disparities through collaborations across the DHHS) and through implementing and nurturing its congressionally mandated programs. Below is an overview of NCMHD programs that have supported research in the Arctic region, in countries such as Finland, Sweden, Canada, Russia, and Norway.

The NCMHD administers two loan repayment programs that support its mission to attract health professionals to careers in clinical and health disparities research. The programs—Health Disparities Research (HDR-LRP) and Loan Repayments for Clinical Researchers from Disadvantaged Backgrounds (ECR-LRP)—provide loan repayment of up to $35,000 per year to qualified doctoral degree professionals in exchange for two years of service in health disparities research or clinical research. These programs promote a diverse and strong scientific work force of individuals from health disparity, medically underserved, and disadvantaged communities. In FY 2005 these programs supported 12 researchers specifically targeting their research studies towards the Alaska Native and/or Native American communities. Examples of HDR-LRP awardees' research projects at the University of Alaska Fairbanks include Ethnographic Research of Cultural–Behavioral Influences on Health among Alaska Natives, and Trauma and Treatment Paths for Alaska Native Children, Families, and Communities.

The NCMHD Community-Based Participatory Research Program (CBPR) aims to develop effective community-based participatory research programs, which will accelerate both the translation of research advances to health disparity communities and the elimination of health disparities.

The University of Alaska Fairbanks' Center for Alaska Native Health Research and the Yukon Kuskokwim Health Corporation are collaborating to design, plan, and implement a CBPR project called Ellangneq (Awareness), which has the following aims:

- To determine the highest-priority behavioral health need in a preventative intervention in the largest Alaska Native cultural group, the Yupik of southwestern Alaska, through a CBPR process led by a group of Yupik leaders who will constitute the Yupik Research Coordinating Council (YRCC);
- To develop a manual of interventions appropriate to a multilevel and multifactorial culturally based intervention procedure at the community, family, and individual levels;
- To pilot test a universal, selective, or combined preventative intervention model for the behavioral health need identified; and
- To design a five-year project for a randomized, community-based prevention trial to compete for the next round of funding.

The process involves a partnership led by a Yupik Research Coordinating Council in which university researchers and community partners become co-researchers. The knowledge acquired from this research project can contribute to the design of prevention projects for small, remote, rural contexts and small neighborhoods in the U.S., as well as internationally within the developing world and circumpolar north.

The Minority Health and Health Disparities International Research Training (MHIRT) program enables U.S. institutions to tailor short-term basic science, biomedical, and behavioral mentored student international research training opportunities to address global issues related to eliminating health disparities. Students participating in the MHIRT program address cultural, linguistic, and ethical issues associated with biomedical, clinical, or behavioral health research. The program has exposed students to research training opportunities in Sweden, Russia, and Finland. While in these countries, the students have the opportunity

to conduct health disparities research in areas such as cell biology, molecular biology, toxicology, endocrinology, genetics, and pharmacology.

A Florida International University (FIU) MHIRT program focuses on providing international research training opportunities to U.S. students. FIU's nursing faculty will partner with foreign nursing faculty at the University of Tampere, Finland, and other institutions in Europe to provide minority undergraduate and graduate nursing students with international research training focused on clinical research about disparities in the care of chronically ill patients and their families. Students become part of a faculty research team, choose a topic of interest within the area of health disparity in chronic illness care, and continue their study in a European country with an international mentor. Students will take additional courses focused on research conduct, culture and health, skill development, attitudes, team roles, and the rationale underlying the research. They will also learn about the other country, its culture, and the health needs of ill patients and families. They will be mentored in research throughout their current educational program and will participate actively in the research team and contribute to disseminating the collaborative research through publications and presentations toward promotion of a research career. Over the four years of the FIU MHIRT grant, it plans to recruit and mentor 19 undergraduate students and 6 graduate students.

The Project EXPORT Centers of Excellence Program promotes minority health and/or health disparities research; encourages the participation of members of health disparity populations in biomedical and behavioral research, prevention, and intervention activities through education and training; and builds research capacity in minority-serving institutions.

The University of Alaska Anchorage's three-year Project EXPORT grant established a Center for Minority Health Research, for and with Alaska Natives. The program, through the Alaska Native Science Research Partnerships for Health (ANSRPH), had three aims. Alaska Natives were mentored and trained to initiate and conduct health science research with disparate minority populations in Alaska. Non-Native researchers were mentored and trained to work within cross-cultural settings. Health science research partnerships (with the Alaska Native Health Board, for example) were fostered for the development of new investigations and for building on historic or current endeavors.

National Institute of Neurological Disorders and Stroke

Alaska Native Stroke Registry. The Alaska Native Medical Center maintains several Alaska Native disease registries, including ones for cancer and diabetes. These registries have existed for several decades and have provided valuable data for epidemiological studies of disease trends and for clinical studies of heath care management and treatment intervention outcomes in the Alaska Native population.

This hospital-based stroke registry started in the fall of 2005 at the Alaska Native Medical Center in Anchorage. Its purpose is to study the unique determinants of stroke in Native Americans/Alaska Natives, a population with an increasing incidence of stroke. A pilot stroke registry, targeting Yupik Eskimos living in the Yukon–Kuskokwim Delta and Bristol Bay regions, will establish registry infrastructure and data gathering methods. The registry will then expand statewide and will include all Alaska Native subgroups. Ultimately this information will be used to construct uniquely tailored prevention and intervention programs that are pertinent to Alaska residents, as well as people from other regions of the U.S.

National Library of Medicine

NLM has served as the primary repository of electronic resources on Arctic health-related issues, through the development of a web site: arctichealth.org. In 2001 the Arctic Health web site was moved to the University of Alaska, where it has been supported with $65,000 annually. NML continues to contribute with recent updates focused on the International Polar Year.

Centers for Disease Control and Prevention

Arctic research programs of the Centers for Disease Control and Prevention (CDC) are focused on improving public health in Arctic communities. For the period 2004–2005, programs were conducted by the National Center for Infectious Disease (NCID), the National Center for Environmental Health (NCEH), and the National Institute for Occupational Safety and Health (NIOSH). These programs represent an excellent example of interagency cooperation and collaboration with the

Alaska Division of Public Health, the Alaska Native Medical Center, the Alaska Native Tribal Health Consortium, the Indian Health Service (IHS), the Alaska Area Native Health Service (AANHS), local and regional Native health corporations, universities, and other state and local agencies and organizations.

The CDC's goals include:

- Healthy People in Every Stage of Life: All people, and especially those at greater risk of health disparities, will achieve their optimal lifespan with the best possible quality of health in every stage of life.
- Healthy People in Places: The places where people live, work, learn, and play will protect and promote their health and safety, especially those at great risk of health disparities.
- People Prepared for Emerging Health Threats: People in all communities will be protected from infectious, occupational, environmental, and terrorist threats.
- Healthy People in a Healthy World: Peoples around the world will live safer, healthier, and longer lives through health promotion, protection, and health diplomacy.

National Center for Infectious Diseases

Infectious diseases are a continuing menace to all peoples of the globe, regardless of age, gender, lifestyle, ethnic background, and socioeconomic status. They cause suffering and death, curb sustainable economic development, and impose an enormous financial burden on all societies. Arctic populations have long endured the debilitating effects of both endemic and epidemic infectious diseases, the effects of which have impacted both social and economic development in circumpolar regions of the globe.

The Arctic Investigations Program (AIP), located in Anchorage, Alaska, is one of three U.S. field stations operated by the National Center for Infectious Diseases. The mission of AIP is prevention of infectious diseases among residents of all ages who live in the Arctic and Subarctic regions, and in particular the elimination of health disparities that exist among the indigenous populations of these regions. Research on the prevention and control of infectious diseases in these remote and widely scattered populations with limited resources is accomplished through the development of partnerships with communities; local, regional, and Native health organizations; universities; other divisions, programs and centers within CDC; the National Institutes of Health; the Indian Health Service; and the State of Alaska.

Streptococcus pneumoniae

Rates of invasive pneumococcal infection (bacteremia and meningitis caused by *Streptococcus pneumoniae*) for Alaska Natives are the highest in the U.S. and are approximately five times higher than non-Natives living in Alaska. This disease is most common in the very young and the elderly. The case fatality from pneumococcal infection is highest in the elderly. Once fully susceptible to antibiotics, *Streptococcus pneumoniae* has acquired resistance to commonly used antibiotics, which has complicated therapy. A 23-valent pneumococcal polysaccharide vaccine has been licensed for use in adults in the U.S. since 1983. The overall effectiveness against invasive pneumococcal disease among immuno-competent persons above 65 years of age is 75%; however, efficacy may decrease with increasing age.

A new 7-valent pneumococcal conjugate vaccine (PCV7) was licensed in 2000 for the prevention of pneumococcal disease in infants and young children. Since then, routine use of PCV7 has resulted in a 90% decrease in invasive disease in children less than two years old. This decline was seen among both Alaska Native and non-Native children. This has eliminated the long-standing health disparity suffered by Alaska Native children for vaccine-type disease. Because the vaccine protects against the acquisition of new colonizing vaccine-type pneumococcus, vaccination has had the indirect effect of reducing transmission from vaccinated children to older children and adults. As a result, disease rates in adults declined by 60% for vaccine serotypes. In addition, because vaccine-type pneumococci tend to be more often drug-resistant, the percentage of invasive pneumococci nonsusceptible to penicillin fell from 24% in 2000 to 15% in 2005.

AIP's efforts to prevent pneumococcal disease include ongoing pneumococcal disease surveillance, case investigation, and efforts to evaluate the best ways to promote and use pneumococcal vaccines in the U.S. Arctic. This includes statewide laboratory surveillance, including confirmation, serotyping, antimicrobial susceptibility testing, and molecular methods of diagnosis and characterization through the use of polymerase chain reaction and pulsed-field gel electrophoresis. AIP also collaborates on pneumococcal disease prevention through the International Circum-

polar Surveillance, with all participating countries involved in surveillance and standardization of laboratory methods.

Haemophilus influenzae

Haemophilus influenzae type b (Hib) was the most common cause of bacterial meningitis in preschool-aged children prior to the development and widespread use of protein conjugate vaccines. Routine immunization of all Alaska Native infants with an Hib conjugate vaccine began in 1991, reducing the incidence of invasive Hib infection more than ten-fold by 1993. The effectiveness of these vaccines is largely due to the induction of circulating antibodies and the interruption of oropharyngeal carriage, leading to protection of susceptible children through herd immunity. Despite high vaccination rates and the success of Hib conjugate vaccines in preventing disease, cases continue to occur among fully and partially vaccinated Alaska Native children at rates higher than for children in the general U.S. population. Investigations into causes for the persistent cases included a community-wide colonization survey in rural Alaska communities that revealed a continued reservoir of Hib colonization among school-aged children and adults, indicating ongoing transmission. A case-controlled study of Hib-colonized persons who revealed no immunologic deficiencies at the time of colonization showed that the response to the vaccine was robust among children and adults. Future studies into factors related to transmission and virulence factors among disease-causing organisms (such as excess capsule production) are planned.

A recent outbreak of *Haemophilus influenzae* serotype A (Hia) disease among Alaska Native children raised concerns about the emergence of a new pathogenic type. Data from the International Circumpolar Surveillance revealed that an elevated rate of Hia was also present in Inuit children of northern Canada. In response, in 2004 AIP developed a rapid response plan to investigate each case of invasive *H. influenzae* disease in children less than 10 years old in Alaska to determine risk factors for disease acquisition, prevalence of colonization of the causal agent among close contacts and the general community, immunologic response to infection, and effectiveness of chemoprophylaxis used to treat persons colonized with non-b serotypes. This effort is expected to provide some of the data necessary for developing a prevention strategy in case non-b-type *Haemophilus* should increase as a public health threat.

Methicillin-Resistant Staphylococcus aureus

In the past ten years, community-acquired MRSA soft tissue infections have become a problem among certain populations. In Alaska, outbreaks of furuncles (boils) associated with *S. aureus* have long been a problem, especially in rural villages, although reports suggest that episodic clusters also occur in urban areas. Past investigations by AIP have revealed that MRSA has become the predominant *S. aureus* type (more than 85% of isolates) in large parts of rural Alaska and has increased in urban Alaska, too. Risk factors for acquisition of MRSA infections in rural villages include prior increased use of antimicrobials, household members with boils, use of crowded saunas, and use of a sauna with evidence of MRSA surface contamination. The public health response to this outbreak has included a revision of treatment guidelines emphasizing more careful use of antibiotics and recommendations for community education regarding judicious use of antibiotics and the proper cleaning of home saunas. In addition, in 2005 the AIP established surveillance for MRSA infections in an urban location and a rural location to better understand the epidemiology of the disease and to characterize the circulating types by their Staphylococcal chromosomal cassette carrying the mec A gene, the presence of virulence factors, and antimicrobial resistance elements.

Helicobacter pylori

High rates of *Helicobacter pylori* infection have been documented in Alaska Natives. In general, *Helicobacter pylori* causes stomach ulcers, and gastritis in about 10% of persons infected has been associated with iron deficiency anemia and the development of gastric cancer. Past research has established that Alaska Natives have high rates of *H. pylori* infection that is acquired early in childhood and that these infections are associated with high rates of antimicrobial resistance, frequent treatment failures, and a high rate of recurrence. In addition, gastric cancer rates among Alaska Natives are three times higher than the general U.S. population. Ongoing studies on *Helicobacter pylori* infection in three groups—urban Alaska Natives, rural Alaska Natives, and urban non-Natives following successful treatment of infection—are now being completed. These studies indicate that reinfection rates are much higher in urban than non-urban residents; risk factors for reinfection are being evaluated. Also, to promote diagnosis of antimicrobial resistance among clini-

cal *H. pylori* infections, AIP has evaluated a rapid fluorometric technique for determining Clarithromycin resistance, a key antimicrobial in *H. pylori* treatment. AIP also supported a recently completed study of *H. pylori* treatment among children with iron deficiency anemia that shows anemia to be refractory to eradication of *H. pylori* infection.

Respiratory Syncytial Virus and Respiratory Disease

The highest published RSV hospitalization rate was reported in Native infants from Alaska's Yukon–Kuskokwim (YK) Delta. These illnesses have been implicated in a cycle of repeated lung infections requiring hospitalizations leading to severe lung damage and bronchiectasis in some children. Ongoing disease surveillance, which has been conducted in this region since 1993, has shown a remarkably high RSV hospitalization rate of 156 per 1,000 infants per year. During this period, lower respiratory tract infections (LRTIs) accounted for 67% of all infant hospitalizations, and 32% of the hospitalizations were associated with RSV infection. Introduction of a monoclonal antibody treatment (palivizumab) has prevented illness among the highest-risk infants, but a prevention strategy for other children is lacking. Additionally, although the rate of RSV hospitalization in YK Delta children decreased from 178 per 1,000 infants per year (1994–1997) to 104 per 1,000 infants per year (2001–2004), the rate of non-RSV LRTI hospitalizations increased, and the overall LRTI hospitalization rate remained stable at 284 per 1,000 infants per year.

Recent efforts have been to enhance utilization of palivizumab in rural Alaska and to use surveillance data to determine what months of the year it needs to be administered to high-risk children. Also, a recent study to evaluate the non-RSV burden of respiratory hospitalizations among Alaska Native children was begun in 2005 using polymerase chain reaction diagnostics to detect infection of nine viral pathogens. This is intended to provide an understanding of what pathogens have increased to replace the declining burden of disease due to RSV.

National Center for Environmental Health

CDC's National Center for Environmental Health (NCEH) strives to promote health and quality of life by preventing or controlling diseases or deaths that result from interactions between people and their environment. NCEH conducts research in the laboratory and in the field to investigate the effects of the environment on health. They track and evaluate environment-related health problems through surveillance systems, and they also help domestic and international agencies and organizations prepare for and respond to natural, technologic, humanitarian, and terrorism-related environmental emergencies.

The National Center for Environmental Health's Division of Environmental Hazards and Health Effects will continue a study of human exposure to environmental pollutants in the Arctic. The Maternal Organics Monitoring Study (MOMS) collects serum and urine samples from mothers during one pre-natal visit and umbilical cord blood samples at delivery from Alaska Natives. These samples are analyzed for persistent organic pollutants, non-persistent pesticides, and trace metals, as well as for various nutritional markers. Pregnant women are enrolled at the Yukon–Kuskokwim Delta Regional Hospital in Bethel in collaboration with the Yukon–Kuskokwim Health Corporation Delta and in communities in the Aleutian and Pribilof Islands in collaboration with the Aleutian–Pribilof Island Association. Additional sites may be added as the study progresses.

Preliminary results from MOMS suggest that lead concentrations in Bethel are two times higher than in northern Alaska, where steel shot is the predominant form of ammunition used for hunting animals, waterfowl in particular, which make up part of the Native subsistence diet. A study was conducted to identify whether lead shot used for hunting is a source of lead exposure in Alaska Natives. A cross-sectional exposure assessment study utilized isotope ratio (IR) methodology to compare the isotopic profiles of blood lead in Alaska Native women of Bethel and Barrow, lead shot samples from Bethel and Barrow, and lead mineral and ore from a large smelter in Torreon, Mexico, implicated as the source of the lead in the shot. The lead IRs from Torreon were significantly different from the blood samples of residents in Bethel and Barrow, implying a different source of lead exposure.

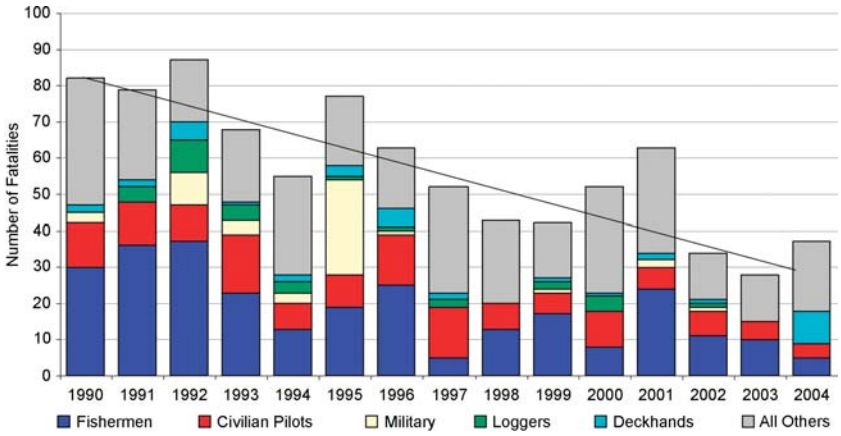
A study of environmental contaminants as cofactors in breast cancer in Alaska Natives is nearing completion. Two hundred study subjects were enrolled, and analysis of their serum is complete. A unique aspect of this study is the inclusion of serum collected from the women over time and stored in the Alaska Area Specimen Bank. By analyzing stored serum and serum collected for

this study, researchers will be able to model exposure to organochlorines over time. Preliminary results indicate a decline in levels of PCBs as well as DDT and its metabolites. No relationship was found between breast cancer and PCBs or DDT. Analysis of adipose tissue collected during breast biopsy will be completed this summer.

National Institute for Occupational Safety and Health

Occupational Injury Prevention

The National Institute for Occupational Safety and Health (NIOSH) is the Federal agency responsible for conducting research and making recommendations for preventing work-related injury and illness. NIOSH has made a concerted effort to decrease the number and rate of work-related injuries in the U.S. Arctic through its establishment of the Alaska Field Station (AFS). During 1990–2004, the number of occupational fatalities in Alaska decreased by 60%, an average decrease of almost four deaths per year. AFS was established to specifically target industries that face extreme hazards due to the Arctic environment. This report contains information on recent progress in preventing work-related injuries in the air transportation industry, the commercial fishing industry, and during subsistence activities, as well as summarizing NIOSH's international work. NIOSH continues its commitment to preventing work-related injuries in the Arctic through research, outreach with industry and community partners, and active prevention activities.



Occupational fatalities in Alaska by occupation, 1990–2004. The total was 862.

Air Transportation

Air transportation is the main method for transporting goods and people between rural Arctic villages and larger Alaskan cities. This dependence on aviation, in conjunction with long distances, rapidly changing weather, and often poor local airport infrastructure, presents numerous challenges to commercial pilots. Between 1990 and 2002, aviation crashes in Alaska caused 130 occupational pilot deaths. As part of the Alaska Interagency Aviation Safety Initiative, NIOSH conducted a survey of air taxi and commuter operators and pilots across the state between August 2001 and January 2002. In 2004 and 2005 the final results of these surveys were published in two articles appearing in *Aviation, Space and Environmental Medicine*. When NIOSH compared companies with high fatal accident rates to other companies, it found that pilots who worked for companies with high fatal accident rates:

- Were three times more likely than pilots who worked for other companies to fly daily into unknown weather conditions;
- Had less career flight experience than their counterparts who worked for companies without high fatal accident rates; and
- Worked an average of ten more hours per week than their counterparts who worked for companies without high fatal accident rates.

These results have been used by the nonprofit Medallion Foundation and local Federal offices to target their prevention activities. During the 10-year period of 1990–1999, there was an average of 11 fatal occupational aviation accidents per year; however, since the start of the initiative (2000–2004), that number had been reduced to an average of seven fatal occupational aviation accidents per year. NIOSH will continue to work with other Federal agencies, industry, and local safety organizations to improve aviation safety in the Arctic.

Commercial Fishing

The commercial fishing industry is a vital component of Alaska's economy. The crab fishing vessels operating in the Bering Sea have historically had the highest work-related fatality rate of all fishing operations in Alaska. NIOSH has worked with the U.S. Coast Guard, industry, and safety organizations to develop practical injury prevention solutions, evaluate these interventions, and organize scientific conferences to discuss findings. From 1990 through 2004, deaths in commercial fishing in Alaska declined by 77%, due to stronger safety policies under the Commercial Fishing Industry Vessel Safety Act and partnerships between CDC/NIOSH, the U.S. Coast Guard, and other programs and agencies

In addition to collecting information on fatal work-related events, NIOSH also conducts sur-

veillance for non-fatal injuries occurring to Alaskan workers. NIOSH found that severe injuries in the commercial fishing industry most commonly were caused by deck machinery and fishing gear. In November 2004 the NIOSH Alaska Field Station partnered with the NIOSH Spokane Research Laboratory to develop engineering solutions for hazards posed by fishing machinery and gear. An emergency-stop system for use on capstan-style deck winches, typically found on purse seine fishing vessels, has been developed and tested at sea. These winches have a long history of causing severe or fatal injuries to fishermen, who can become entangled in the capstan as the purse line is being retrieved. The "e-Stop" system adds a switch that can immediately shut off hydraulic power at the winch in the event someone becomes entangled, thus stopping it in time to prevent a serious injury or fatality. This technology is the latest effort in ongoing injury prevention partnerships between CDC/NIOSH, other government agencies, NGOs, industry, and workers.

Additionally, in 2005 NIOSH evaluated the Commercial Fishing Industry Vessel Safety Act requirements. When NIOSH compared victims from fishing vessel sinkings to survivors, it found that victims were 7 times more likely not to have worn an immersion suit and 15 times more likely not to have used a life raft. This study shows that immersion suits and life rafts save lives and that training in the use of equipment and the enforcement of current regulations is needed.

Subsistence Injuries

NIOSH has also started to characterize the injuries that occur during subsistence activities to formulate recommendations for injury prevention. Subsistence hunting, fishing, and gathering are common ways to supplement food supplies for people living in rural Alaska. It is also an important part of the Alaska Native lifestyle and tradition. However, the nature of these activities and the harsh Alaskan environment may introduce multiple hazards that could cause serious injury.

Injury events were identified using the Alaska Trauma Registry (ATR), a population-based surveillance system that compiles comprehensive information on all injuries requiring hospitalization in Alaska. Cutting instruments, firearms, and falls were the three most common causes of injury. Efforts are being made to prevent these injuries, including firearm safety programs and local training in the safe use of knives and other cutting instruments. Cleats or spike boot covers are also being made available in these communities to help decrease falls on ice and snow.

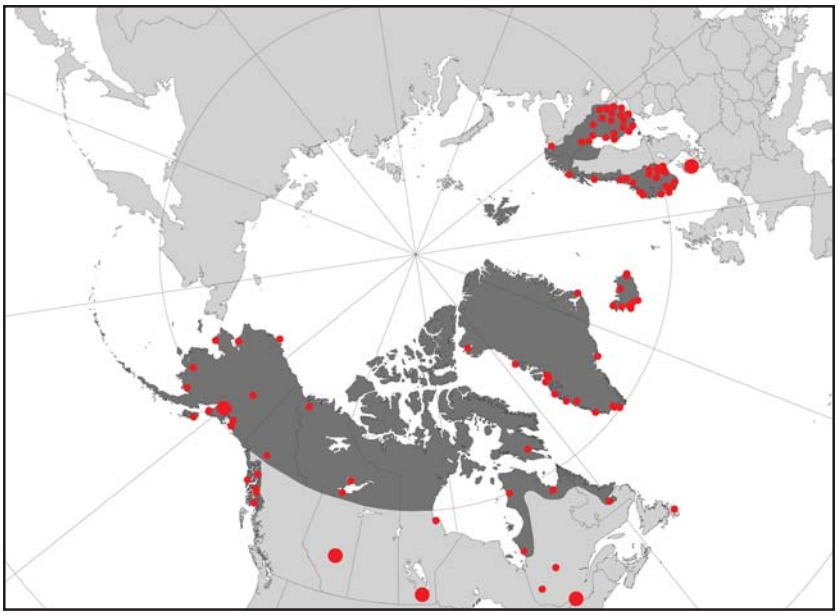
International and Circumpolar Collaboration, Conferences, and Workshops

The NIOSH Alaska Field Station has continued its international research in partnership with commercial fishing research scientists and injury prevention program workers, the circumpolar health networks, and the World Health Organization's International Safe Communities Program.

A representative from the NIOSH Alaska Field Station co-chairs the International Union for Circumpolar Health's Injury and Occupational Safety and Health Working Groups. In addition, the AFS staff continues to work on hypothermia and cold-water drowning, on the prevention of worker deaths in Alaska, and on deaths of scientific field workers in Alaska. In addition, AFS staff have continued to provide technical assistance to colleagues at Karolinska Institute, Stockholm, Sweden; Linkopping University, Sweden; The Alberta Injury Prevention Center, Alberta, Canada; and Harstad Safe Communities, Harstad, Norway. They also assisted in planning and vetting Occupational Safety and Health submissions for the 13th International Congress on Circumpolar Health held in Novosibirsk, Siberia, Russia, in June 2006.

International Circumpolar Surveillance Initiative

The ICS network was established in 1999 by the CDC's Arctic Investigations Program, first linking clinical and public health laboratories in Alaska and northern Canada for the surveillance of invasive diseases caused by *Streptococcus pneumoniae*. Greenland joined the pneumococcal surveillance network in 2000, followed by Iceland, Norway, and Finland in 2001. In 2000 an expand surveillance of other invasive bacterial diseases caused by *Haemophilus influenzae*, *Neisseria meningitidis*, and groups A and B streptococcus was implemented in the U.S. Arctic and northern Canada. A northern region of Sweden joined ICS in 2003. Surveillance of invasive disease caused by these bacteria was chosen because rates of these diseases are elevated in indigenous northern peoples, strains of these bacteria may acquire antibiotic resistance, these bacteria are routinely cultured in the clinical laboratory, and diseases caused by clinically important serotypes of *Streptococcus pneumoniae*, *Haemophilus influenzae*, and *Neisseria meningitidis* are preventable by vaccine.



Locations of clinical and hospital laboratories (small red dots), reference laboratories (large red dots), and countries (shaded) participating in the International Circumpolar Surveillance of infectious diseases during 2004–2005.

Rates of invasive pneumococcal disease (commonly pneumonia and bacteremia) for the period 1999–2005 were higher in Alaska Native and northern Canadian aboriginal populations than in non-Native and non-aboriginal populations. The highest rates occur in Native and aboriginal children under the age of two years. Analysis of pneumococcal serotypes causing disease in Arctic northern American populations indicates that 78–84% of invasive pneumococcal disease could potentially be prevented. In Alaska, statewide use of the infant 7-valent conjugate vaccine began in 2001. Immunization programs using both the 23-valent adult vaccine and the 7-valent conjugate vaccine were begun in two northern Canadian regions in 2002. Continued surveillance of invasive pneumococcal disease in these regions will monitor the impact and effectiveness of these vaccine programs.

Prior to 1991, rates of invasive *Haemophilus influenzae* type b (Hib) disease in the U.S. Arctic were among the highest in the world. However, since the introduction of conjugate vaccine programs in 1991, the rates of invasive Hib disease have declined by 92%. Universal vaccine programs for invasive Hib disease began in Canada in 1992, and there have been similar reductions in rates of the disease there. Surveillance in 2000–2005 show that overall rates of Hib remain elevated in the U.S. Arctic compared to the general U.S. population. The most common serotype in northern Canada was serotype a.

Continued surveillance for invasive diseases caused by all serotypes of *Haemophilus influenzae* in Arctic countries is important to be able to monitor the impact of conjugate vaccine programs and the potential emergence of other serotypes that may replace Hib as a major cause of severe diseases in Arctic populations.

Similarly, surveillance of diseases caused by *Neisseria meningitidis* showed that in the U.S. Arctic, the highest rates of disease occurred in Alaska Native children less than two years old (19.5 per 100,000). As in the case of *Streptococcus pneumoniae* and *Haemophilus influenzae*, continued surveillance of invasive diseases caused by *Neisseria meningitidis* allows for the monitoring of disease trends in populations and the detection of clusters of disease, and it provides serogroup information critical for vaccine recommendations.

The transfer of the Arctic Council chair to the Russian Federation for 2005–2006 presents a unique opportunity to explore the possibility of expanded ICS activities to include the northern regions of the Russian Federation. Other plans for ICS include the continued surveillance of invasive diseases caused by *Streptococcus pneumoniae*, *Haemophilus influenza*, *Neisseria meningitidis*, and groups A and B streptococcus in the U.S. Arctic, northern Canada, Greenland, and one region of northern Sweden and expansion in 2006 of the surveillance of diseases caused by *Haemophilus influenza*, *Neisseria meningitidis*, and groups A and B streptococcus to include Iceland and Norway. The surveillance of other diseases, such as tuberculosis, HIV/AIDS, and hepatitis, as well as those infectious diseases that may emerge as a consequence of climate change, can be added to ICS as the need and support arise.

International Polar Year: Arctic Human Health Initiative

The Arctic Human Health Initiative (AHHI) is a U.S.-led IPY (2007–2008) Arctic Council (AC) project that aims to increase the visibility and awareness of health concerns of Arctic peoples, foster human health research, and promote health protection strategies that will improve the health and well-being of all Arctic residents. The AHHI is co-coordinated by the Department of State, the U.S. Centers for Disease Control and Prevention's Arctic Investigations Program, the National Institutes for Health's Fogarty International Center, and the International Union for Circumpolar Health.

The AHHI core project will seek to advance the joint circumpolar human health research agendas

of the Arctic Council (www.arcticcouncil.org), an eight-nation intergovernmental forum for sustainable development and environmental protection, and the working groups of the International Union for Circumpolar Health (IUCH). Current AC human health activities include monitoring the human health impact of anthropogenic pollutants, climate variability, and infectious diseases and expanding and assessing tele-health innovations in Arctic regions. The IUCH (www.iuch.org) promotes international cooperation, research, scientific information exchange, and education in the areas of Arctic health policy, birth defects and genetics, cancer, diet and heart, environmental health and subsistence food security, family health, fetal alcohol syndrome, health surveys, HIV/AIDS, STDs, indigenous peoples' health, infectious diseases, injury prevention, occupational safety and health, population-based planning, tobacco and health, and women's health. An anticipated outcome of the AHHI will be the development of an organizational infrastructure for coordinating human health research activities in Arctic regions.

A key element of the AHHI will be developing new, and expanding existing, human health surveillance, monitoring, and research networks. These circumpolar networks will allow the monitoring of diseases of concern in Arctic communities through the development of standardized study protocols, data collection, laboratory methods, and data analysis. Once established, these networks will allow monitoring of disease prevalence over time, determination of risk factors for disease, and evaluation and implementation of disease prevention and control strategies. Networks also provide opportunities for the development of sustainable partnerships between communities and researchers through community-based monitoring activities.

A focus of the AHHI is the establishment of research activities related to human health issues of concern to Arctic residents. Priority areas include the human health impact of:

- Regional and intercontinentally transported anthropogenic pollution in Arctic regions;
- Oil, gas, and other sustainable development activities;
- Contaminants and zoonotic infectious diseases, particularly as they relate to the traditional food supply;
- Climate variability, also as it relates to the traditional food supply;
- Infectious diseases, including tuberculosis, HIV/AIDS, hepatitis, vaccine-preventable diseases, and emerging infectious diseases such as SARS;
- The changing Arctic environment, as it affects the evolution, ecology, and emergence of zoonotic disease, particularly avian influenza;
- Chronic diseases such as cancer, cardiovascular diseases, obesity, and diabetes; and
- Behavioral issues, such as suicide, interpersonal violence, and substance abuse, and unintentional injuries.

Research activities will include the use of culturally sensitive health interview surveys, which are a useful tool for characterizing health and risky behaviors, the health status of populations, and the development of culturally appropriate interventions.

In the area of health communication, several symposia and topic-specific workshops are planned before, during, and following IPY, which will allow the development of new collaborations, evaluations of advances made in the health of Arctic peoples, assessments of the health disparities that remain, and examinination of future risks to the health and well-being of all Arctic residents. Details regarding AHHI specific projects, plans, and progress can be found at www.arctichealth.org.

Substance Abuse and Mental Health Services Administration

Cooperative Agreements for the Comprehensive Community Mental Health Services for Children and Their Families Program

Under this program the Center for Mental Health Services (CMHS) provides grants and cooperative agreements for states and tribal governments to develop systems of care for children with severe emotional disturbance, along with their families. Grantees include the Yukon Kuskokwim Health Corporation's People Working Together Project in Bethel, which completed the six years of funding at the end of September 2005. Key program elements of their system of care initiative were sustained by the corporation and program partners and were expected to continue to function successfully and serve children and families in the remote villages of southeast Alaska in the post-Federal funding phase. The Fairbanks Native Association's Ch'eghutsen' Project completed their third of six years of funding under a coopera-

tive agreement at the end of September 2005 and were developing their system for providing comprehensive services to Alaska Natives in Fairbanks and the surrounding remote villages.

Circles of Care Program

Supported by CMHS, this program provides grants for tribes and urban Indian communities to plan, design, and assess culturally specific mental health services system models for American Indian and Alaska Native children and their families. There were no grants awarded this year for a new cohort of Circles of Care. However, bidders meetings were held by contractors, and several Alaska Native corporations submitted proposals for the next cohort of Circles of Care grants announced in October 2005.

Alaska Fetal Alcohol Syndrome/ Alcohol-Related Birth Defects Program

Alaska has had a relatively high incidence of fetal alcohol syndrome/alcohol-related birth defects (FAS/ARBD) births. The overall goal of this program was to improve the practice of identifying, preventing, and treating FAS/ARBD. The project was a comprehensive, integrated approach to FAS, involving prevention, intervention, and service delivery in Alaska. It was a $5.8-million Congressionally earmarked project that was jointly funded by the Center for Substance Abuse Prevention and the Center for Substance Abuse Treatment. The project provided prevention activities, including education and training of service providers, public school students and their families, and the general public. Interventions included family planning, alcohol treatment, and other services for women of childbearing age at high risk for having a child with FAS/ARBD. The project ended in September 2005.

Fetal Alcohol Spectrum Disorders Center for Excellence

Supported by the Center for Substance Abuse Prevention and funded for approximately $38 million for five years (through FY 2006), the Fetal Alcohol Spectrum Disorders Center for Excellence coordinates activities to ensure that advances in both science and practice are synthesized and efficiently disseminated to the field. Among the center's activities are:

- Studying adaptations of innovative clinical interventions and service delivery improvement strategies for children and adults with fetal alcohol syndrome or alcohol-related birth defects and their families;
- Identifying communities that have exemplary comprehensive systems of care for these individuals so that they can provide technical assistance to other communities attempting to set up similar systems of care;
- Providing technical assistance to communities that do not have comprehensive systems of care for these individuals and their families;
- Developing innovative techniques for preventing alcohol use by women in childbearing years; and
- Supporting 35 subcontractors to integrate evidence-based practices to eliminate alcohol consumption by pregnant women or improve functioning and quality of life of those with a fetal alcohol spectrum disorder. Subcontracts were awarded in FY 2005 to initiate the planning year. The Bristol Bay Area Health Corporation, located in southwest Alaska, was one of the 35 subcontractors funded to serve rural communities. Bristol Bay developed a plan in FY 2005 to implement both FASD prevention and treatment services in FY 2006.

State Targeted Capacity Expansion Screening, Brief Intervention, Referral and Treatment Program

Through a grant with the Cook Inlet Tribal Council, the Screening, Brief Intervention, Referral and Treatment program enhances screening, referral, brief intervention, and treatment services for adults and establishes those services for adolescents. Its overarching goal is to reduce substance use by participating patients.

Targeted Capacity Expansion— American Indians/Native Alaskans Program

The project will expand service to provide residential substance abuse treatment to 32 Alaska Native Elders annually. The project is through the Cook Inlet Tribal Council, and clients are drawn from throughout the state. The grantee uses a therapeutic community treatment model, modified for Alaska Native culture and conceptualized as a "Therapeutic Village of Care."

Enhanced New Life Project

The Enhanced New Life Project expands a comprehensive continuum of care for 12 additional adolescents living in interior and northern Alaska. Services are provided through the Fairbanks Native Association and range from residential co-occurring disorders treatment to outpatient chemical dependence treatment. The continuum of care embraces an evidence-based treatment model integrating

conventional western treatment and traditional Athabascan healing techniques, practices, and principles.

Pregnant/Post-Partum Women Program

This program expands the availability of comprehensive, high-quality residential substance abuse treatment coupled with primary health, mental health, and social services to women and their children. The grant funds the Fairbanks Native Associations' Women and Children's Center for Inner Healing to expand its services through the Healthy Women–Healthy Children Project. It provides critical medical and substance abuse treatment services, including residential services, particularly to Alaska Native women in isolated rural areas with limited health care available.

Treatment of Persons with Co-Occurring Substance Related and Mental Disorders

This grant to the State of Alaska is designed to improve the identification and treatment of individuals with co-occurring disorders throughout a diverse delivery system. Alaska has committed to addressing SAMHSA goals of improved screening, assessment, treatment, and training, which is accomplished by developing infrastructure and focusing on staffing competency, credentialing and licensure, financial planning and reimbursement, and information sharing and data collection.

Treatment for Homelessness Grants

The goal of the Treatment for Homelessness Grants is to reduce substance abuse among Anchorage's population of homeless individuals with substance abuse disorders by expanding and strengthening services. Wraparound and case management services are provided to move homeless people who chronically abuse substances toward self-sufficiency in health and basic needs, including housing.

Through the Homeless Addictions Treatment Program in Anchorage, the Rural Alaska Community Action Program provides services for homeless, late-stage chronic alcoholics by using engagement, detoxification, case management, and life skills training.

The Cook Inlet Tribal Council operates the Transitions Program in the Recovery Services Division. The Transitions Program is a one-stop access point for health care, mental health care, self-sufficiency services, social supports, housing and substance abuse treatment, and follow-up services for persons with chronic alcoholism.