

Study name: Sustaining Arctic Observing Network for Health

Project number: NI 5

Contact:

Dr Alan Parkinson

Arctic Investigations Program
Centers for Disease Control & Prevention
4055 Tudor Centre Drive. Anchorage Alaska
99508
USA

Tel: 907 729 3407

Mobile: no

Fax: 907 729 3429

Email: ajp1@cdc.gov

Abstract:

Human health is an integral component of the Arctic ecosystem. Life expectancy in arctic populations has greatly improved over the last 50 years due to a reduction in morbidity and mortality from infectious diseases, such as tuberculosis, and the vaccine preventable diseases of childhood and improved living condition and access to health care. However, significant health disparities remain between the indigenous and non indigenous populations in the arctic. Indigenous populations experience lower life expectancy, higher infant mortality; higher suicide rates higher rates of infectious diseases such as hepatitis b and tuberculosis and higher rates of some cancers. Health concerns of arctic peoples also include potential health impacts of environmental pollution, climate variability, and the rapid rate of modernization and associated social and cultural changes which may result in higher rates of obesity, diabetes, cardiovascular diseases and suicides.

The Centers for Disease Control and Prevention, Arctic Investigations Program, has established an International Circumpolar Surveillance (ICS) system for infectious diseases by creating a network of hospital and public health laboratories throughout the Arctic. The network allows collection and sharing of uniform laboratory and epidemiologic data among Arctic countries that will describe the prevalence of infectious diseases of concern to Arctic residents and assist in the formulation of prevention and control strategies. While currently focused on prevention and control of infectious disease the system also provides a model for standardized monitoring and respond to other non infectious health conditions of concern within Arctic regions. Many regional and national surveillance networks exist for monitoring health conditions of concern. Within the State of Alaska, the Alaska Surveillance, Epidemiology, and End Results (SEER) program collects and publishes cancer data as part of the National Cancer Institute's overall SEER program, and the Alaska Native Stroke Registry is a project to increase the understanding of stroke in Alaska Natives, with the goal of improving stroke care. Circumpolar linkage of such networks would facilitate international collaboration, international standardization of data collection international comparison of comparable data, thereby greatly adding to our knowledge of Arctic health, and enhancing design of treatment and prevention.

Project Status: Active

Project Progress 2007-2008:

A Network for surveillance of infectious diseases established 1999. The system operates in US Arctic (Alaska), northern Canada, Greenland, Iceland, Norway, Finland, Sweden. System links

hospital and public health laboratories throughout the Arctic. The network allows collection and sharing of uniform laboratory and epidemiologic data between Arctic countries that will describe the prevalence of infectious diseases of concern to Arctic residents and assist in the formulation of prevention and control strategies. Invasive Bacterial Diseases are monitored by the laboratory network. Bacteria (*Streptococcus pneumoniae*, *Haemophilus influenzae*, *Neisseria meningitidis*, groups A and B *Streptococcus*) isolated by culture from patients identified with invasive disease are forwarded to a reference laboratory. Identified cases are also reported to local public health personnel who review and provided patient clinical, demographic, and immunization history. Case and culture information is forwarded to the ICS coordinator at AIP for analysis, report generation and dissemination.

An ICS tuberculosis working group was established with participation from the US, Canada, Greenland/Denmark and the Russian Federation (lead country Canada).

The ICS viral hepatitis research working group established in Novosibirsk, Russian Federation, June 16, 2006, conducted meetings in Copenhagen, Denmark, October 16-17, 2007, and September 16-17, 2008. The purpose of this working group is to coordinate collaborative viral hepatitis research activities in circumpolar countries.

An ICS *Helicobacter pylori* working group was established and conducted a meetings in Copenhagen, Denmark, October 18, 2007, and September 18, 2008. The purpose of this working group is to coordinate collaborative research activities on *Helicobacter pylori* infections and diseases in circumpolar countries.

An ICS Sexually Transmitted Infections working group will be established following a working group meeting on Alaska Native Inuit, First Nations and Metis that was held in Anchorage, Alaska, US, April 16-17, 2008. A follow-up meeting is expected to occur at the 14th International Congress on Circumpolar Health, July 12-16, 2009, Yellowknife, NWT Canada.

Together with the Northern Forum, ICS conducted a workshop on Infectious Diseases and Surveillance Methods, in Moscow April 24-26, 2008. This workshop was attended by infectious disease experts from Moscow and 12 northern regions of the Russian Federation. The purpose of this workshop was to explore potential linkages, and sharing of surveillance information between public health authorities in northern regions of the Russian Federation and ICS participating countries.

A major objective of the IPY is the establishment of well-coordinated and Sustained Arctic Observing Networks (SAON) (www.arcticobserving.org). ICS represents an international circumpolar collaborative information system for infectious diseases and potentially could be considered a model SAON for human health. This concept was presented at the Sustainable Arctic Observing Networks II meeting in Edmonton, Alberta, Canada. April 9-11, 2008.

Plans 2009-2010:

ICS will continue surveillance of invasive bacterial diseases and related quality control programs in the US Arctic, northern Canada, Greenland, Iceland, Norway, Finland and northern Sweden during 2009-2010.

ICS will initiate standardized collection of tuberculosis data in the US Arctic, northern Canada and Greenland.

ICS will explore potential mechanisms for sharing of infectious disease surveillance information between public health authorities in northern regions of the Russian Federation and ICS participating countries.

Coordination of Hepatitis and *Helicobacter pylori* research activities will continue.

A circumpolar Sexually Transmitted Infections working group will be formed to explore collaborative research and intervention activities in circumpolar countries.

ICS will expand to include non-infectious disease problems important in Arctic communities. It is anticipated that an ICS surveillance system for Birth Defects will be established in 2009 (lead country Canada).

ICS will explore options for establishing a pilot community based monitoring system for the detection of climate sensitive zoonotic infectious diseases (potential linkages with AMAP, CAFF).

Preliminary results (if applicable):

Parkinson, AJ., Bruce MG, Zulz T. International Circumpolar Surveillance, an Arctic network for surveillance of infectious diseases. 2008. *Emerg. Infect Dis J.* 2008. 14 (1) 18-24.

Bruce, MG., Deeks, SL., Zulz, T., Druden, D., Navarro C., Lovegren, M., Jette, L., Kristinsson, K, Sigmundsdottir, G., Jensen, KB., Lovoll, O., Nuorti JP., Herva E., Nystedt, A., Sjostedt, A., Koch., Hennessey TW., Parkinson, AJ. International Circumpolar Surveillance for invasive pneumococcal disease, 1999-2005. *Emerg. Infect Dis J.* 2008. 14 (1) 25-33.

Bruce, MG., Deeks, SL., Zulz, T., Navarro, C., Palacios, C., Case, C., Hemsley C., Hennessy, T., Corriveau, A., Larke, B., Sobel, I., Lovegren M., DeByle C., Tsang R., Parkinson AJ. Epidemiology of Haemophilus influenzae serotype a, North American Arctic 200-2005. *Emerg. Infect Dis J.* 2008. 14 (1) 48-55

Expected Completion Date:

Ongoing