Human Health in the Arctic Region

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Human Health in the Arctic Region
Where are we going?

- What is the CDC’s AIP?
- Human Health in the Arctic
  - What are the Concerns of Arctic Peoples?
- IPY and the Arctic Human Health Initiative
- Human Health Beyond the IPY
  - The expanding role of the Arctic Council
- Questions?
Mission:

- To prevent infectious disease morbidity and mortality in people of the Arctic and Subarctic
- Special emphasis on diseases of high incidence and concern among indigenous people
AIP Priority Areas:

- Vaccine-preventable diseases
- Elimination of health disparities
- Emerging infectious diseases
- Preparedness and response
  - Local, national and International public health threats
- Circumpolar health promotion
“Protecting the public health in the Arctic is a team sport!!”

Partners
- Alaska Native Tribal Health Organizations
- State of Alaska Division of Health
- University of Alaska
- Private health care providers
- Other US federal partners: IHS, NIH, USGS, CDC
- International organizations
  - Public Health Institutes
  - Universities
  - International Union for Circumpolar Health
  - Arctic Council
Arctic Human Health

- Improved over the last 50 years
  - Vaccines
  - Better housing & sanitation
  - Better health care delivery
Vaccine Preventable Diseases

- **Haemophilus influenzae** type b
  - Children < 5 years
  - Pediatrics 2006;118:421-9

- **Streptococcus pneumoniae**
  - Children < 2 years
  - Before and after PCV7 vaccine
  - Vaccine 2005; 23:5464-73
Vaccine Preventable Diseases

- Hepatitis b
  - Liver cancer

Hepatocellular Carcinoma
Alaska Native Children < 20 years of age

- 16 cases
- 0 Cases

Year:

CDC/IHS Vaccine Demonstration Program (1981-82)
Statewide Vaccine Program (1983)
Yukon Kuskokwim Delta
Statewide
Challenges to Health and Wellness
Health Disparities

- Life expectancy 64.9 years vs 76.7 years for US
- Unintentional injury mortality 3.3 times US rate
- Suicide 4.2 times rate for US all races
- Cancer mortality is 1.5 times US all races
- Infant mortality 8.7/1000 vs 7.2/1000 for US
- Higher rates of some infectious diseases:
  - Pneumonia caused by Respiratory syncytial virus
  - Invasive bacterial diseases
  - Stomach problems caused by *Helicobacter pylori*
Challenges to Health and Wellness

- Health impacts of:
  - Environmental contaminants
  - Impact on the traditional food supply
Challenges to Health and Wellness

Health impacts of:
- Rapid economic change and modernization—“the modern diseases”
  - Obesity
  - Diabetes
  - Cancer
  - Suicides
  - Cardiovascular diseases

Rates of death by suicide by Alaska Natives, Greenlanders, and Eastern Arctic* Inuit, 1960-2003
Challenges to Health and Wellness

- Health impacts of:
  - Climate Change
Cooperation on Circumpolar Health

- International Union for Circumpolar Health
- Northern Dimension in Public Health and Social Wellbeing
- Barents Euro Arctic Council
- Northern Forum
- Arctic Council
  - Arctic Monitoring and Assessment Program
  - Sustainable Development Working Group
Human Health Assessment Group: Focus on contaminants and human health

Human Health Projects:
Survey of Living Conditions in the Arctic (SLiCA)
Children & Youth of the Arctic Telemedicine
International Circumpolar Surveillance (ICS)
Arctic Human Health Initiative (AHHI)
The Arctic Human Health Initiative

• US lead Arctic Council IPY coordinating project
• Aim:
  - “Increase awareness and visibility of health concerns of Arctic peoples, foster human health research, and promote health strategies that will improve health and well being of all Arctic residents.”

www.arctichealth.org
Objectives:
- Expand networks
- Promote international collaboration on health research and health promotion in areas of:
  - Health disparities
  - Health effects of:
    - Environmental pollution
    - Rapid social & economic change
    - Climate Change
- Promote outreach education communication
- Promote synergy and strategic direction of Arctic human health research and health promotion
The Arctic Human Health Initiative

- Networks
  - International Circumpolar Surveillance (US-ICS)
  - International Network of Circumpolar Health Researchers (Canada)
  - Arctic Monitoring and Assessment Program-Human Health Assessment Group (Denmark)
International Circumpolar Surveillance Network

- Reference labs
- Clinical labs
Participants shown in dark grey

Latitude 60° North

Russia

Finland

Sweden

Norway

United States Arctic (Alaska)

Greenland

Iceland

Northern Canada
International Circumpolar Surveillance Future Directions (IPY):

Arctic Council
  Sustainable Development Working Group
    Steering Committee
      Working Groups

Surveillance

Invasive Bacterial Disease (US lead)
Tuberculosis (Canada lead)
Others?
  Climate Sensitive Infectious Disease
  Birth Defects

Research

Viral Hepatitis (Denmark)
Helicobacter pylori (US lead)
Other ? STI’s
Outbreak or puumalaviridis infection in Sweden

- Virus carried in voles, transmitted by inhalation of rodent excreta
- Causes hemorrhagic fever with renal syndrome
- 474 cases in outbreak
- 30% hospitalized
- 2 deaths
- Outbreak related to climate

Pettersson et al. Emerging Infectious Disease 14(5) 808-810 2008
DISTRIBUTION OF
Clethrionomys glareolus
The Arctic Human Health Initiative

• Networks
  – International Circumpolar Surveillance (US-ICS)
  – International Network of Circumpolar Health Researchers (Canada)
  – Arctic Monitoring and Assessment Program-Human Health Assessment Group (Denmark)
The Arctic Human Health Initiative

- Changing Arctic Environment
  - Inuit Health in Transition (Canada/Denmark)
  - Investigating Obesity and Chronic Diseases and Related Risk Factors in Alaska Natives (US-CANHR-UAF)
  - Negotiating Pathways to Adulthood: Social Change and Indigenous Culture in Circumpolar Communities (US-UAF)
  - Genetics and Environmental Risk Factors for Complex Diseases: A Study of the Saami population (Sweden)
The Arctic Human Health Initiative

• Changing Arctic Environment
  – Arctic Community-Based Environmental Monitoring, Observation and Information Stations Phase I: Bering Sea Sub-Network (US-APIA)
  – Exposure to Persistent Organic Pollutants and Breast Cancer (Denmark)
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• **Infectious Diseases**
  – Burden of Infectious Diseases in Greenland (Denmark)
  – Hepatitis B in Aboriginal Populations in the Arctic (Canada)
  – Evaluation of impact of pneumococcal vaccine in Nunavik (Canada)
  – Prevalence of Human papilloma virus and cervical dysplasia in Northwest Territories (Canada)
  – Engaging communities in the monitoring of zoonoses, country food safety and wildlife health (Canada)
  – Sexually transmitted diseases in northern frontier populations (Canada)
The Arctic Human Health Initiative

- **Behavioral Health**
  - A dialog among allies: Good practice in suicide prevention (Canada/Denmark)
  - Cognitive Behavior Therapy (US-NF)
  - Advancing Alcohol and Drug Abuse Treatment in the Circumpolar North (US-NF)

- **Health Surveys**
  - Survey of living conditions in the Arctic (Denmark-SLICA)
  - Integration of Health-Saami Inuit
The Arctic Human Health Initiative

• Symposia/Conferences
  – International Workshop on Human Health Impacts of Climate Change in the Arctic February 2008 (US)
  – 14th International Congress on Circumpolar Health Yellowknife, Canada (July 2009)
    • AHHI “Legacy”
  – AMAP HHAG Research Program Workshop 2009 (Canada/Denmark)
  – Pressures and Impacts and well-being of indigenous people of the Arctic: Invitational International Symposium and Symposium Publication 2010 (Canada)
  – IPY Oslo Science Conference June 8-12, 2010 (Norway)
    • AHHI Symposium
The Arctic Human Health Initiative

- Outreached Education Communication
  Research and Graduate Studies: University of Oulu, Finland
  - Research program for Circumpolar Health and Wellbeing
  - Graduate School of Circumpolar Wellbeing Health and Adaptation
  - International Joint Master’s Program in Circumpolar Health and Wellbeing
Human Health Assessment Group: Focus on contaminants and human health

Human Health Projects:
- Survey of Living Conditions in the Arctic (SLiCA)
- Children & Youth of the Arctic
- Telemedicine
- International Circumpolar Surveillance (ICS)
- Arctic Human Health Initiative (AHHI)
Human Health Assessment Group (HHAG): Focus on contaminants and human health

Human Health Expert Group (HHEG)
Role:
• Develop a human health agenda
• Set priorities
• Evaluate proposals
• Make recommendations
• Serve as a focal point for health
• Provide guidance on information exchange
Recommendations

- Support the development of a strategic plan for human health activities within the Arctic Council
- Identify human health priorities that require action, and make recommendations to the Arctic Council
- Provide country support for arctic networks that enhance collaboration on health concerns of Arctic peoples
- Promote forums to exchange information on best practices.