Study name: Climate Change and Impacts on Human Health in the Arctic: An International Workshop on Emerging Threats and Response of Arctic Communities to Climate Change

Project number: NI 4

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Abstract:

Arctic Climate Impact Assessment was published in 2005 and was the first comprehensive scientific assessment of climate change in the Arctic (Arctic Council 2005). The assessment also provides recommendations by which communities, researchers and policy makers can begin to address the challenges posed by climate change.

The impact of climate change on human health of Arctic residents will depend on many factors. Much research remains to be done on the relationship between climate change and individual and community health. Climate will continue to influence public health in small and remote communities of the Arctic. The recent record of warming, and potential continued warming of the Arctic, combined with the multiple mechanisms by which climate impacts health indicate an urgent need for adopting community based monitoring strategies that would identify both emerging threats and opportunities.

The purpose of this workshop is to bring together researchers from circumpolar countries to: 1) update current knowledge on the impact of climate change on human health, 2) examine the principle conclusions and recommendations of the ACIA on human health to determine potential items for action 3) examine the feasibility of implementing community based monitoring strategy with and across regions to measure and report a common set of climate, health status, environmental, infrastructure and ecosystem indicators.

Project Status: Completed

Project Progress 2007-2008:
The workshop was convened as part of the 2008 Alaska Forum on the Environment (AFE, www.akforum.com). This widely recognized annual event promotes cooperation, communication and education on a wide variety of environmental issues and concerns, and attracts participants from government agencies, industry, universities, non profit and tribal organizations. Climate change was a major focus of the 2008 event. The AFE provided the opportunity to gather an international panel of researchers from circumpolar countries to share their expertise on climate change and the impact on human health in the Arctic). The workshop format consisted of presentations by invited speakers and discussions that focused on: 1) what is being seen at the

village level, 2) what monitoring is being done in Alaska, 3) what is needed, and 4) what could be monitored in a village setting?

The proceedings of this workshop can be accessed at the Arctic Human Health Initiative Web Site at www.arctichealth.org

Preliminary results (if applicable):
The workshop supported the conclusion that resident indigenous populations of the Arctic are uniquely vulnerable to climate change because of their close relationship with, and dependence on, the land, sea and natural resources for their cultural, social, economic and physical well being. Direct health threats from climate change include morbidity and mortality resulting from increasing extreme events (storms, floods, increased heat and cold) and an increased incidence of injury and mortality associated with unpredictable ice and storm conditions. Indirect effects continue to include increased mental and social stress related to changes in environment and loss of traditional lifestyle, potential changes in bacterial and viral diseases, and access to quality water sources. Some regions will be at risk for increasing illness due to failing sanitation infrastructure resulting changes in permafrost and storm surge. Some regions will also experience changes in diet resulting from changes in subsistence species distribution and accessibility. This may have negative impacts on health as diet shifts from a traditional diet to a more western diet are associated with increases in “modern diseases” such as obesity, diabetes, cardiovascular disease and cancer. Projected warming will affect the transport, distribution and behavior of contaminants, and human exposure in northern regions, further threatening the safety of the traditional food supply.

It was reemphasized that these changes are taking place in the context of ongoing cultural and socioeconomic changes. Climate change represents another of many sources of stress on these northern societies and cultures as it affects the relationship between the people and the land and environment, which will further stress communities and individual psychosocial health. Communities must be prepared to identify, document, and monitor changes in their region in order to support adaptations to shifts in their local environment. The basis of this understanding will be the ability to collect, organize and understand information that indicates changes taking place and emerging threats, as well as their potential impacts.

The workshop reaffirmed the principle conclusions and recommendations of the ACIA report on actions needed to address the impact of climate change on human health in the Arctic. Much still remains to be done to establish a relationship between climate change and individual and community health. There remains an urgent need to implement community based monitoring strategies. A network of such communities, within and across regions, reporting a common set of similarly measured climate, health status, and infrastructure and ecosystem observations would serve to identify both emerging threats as well as new opportunities.

The workshop concluded that elements of community based monitoring strategy could include:

1. The identification of communities and segments of the population at greatest risk. These should be targeted for assessment of existing or potential health risks, vulnerabilities, and engagement in the design of community based monitoring and formulation of intervention and adaptation strategies.
2. Identification of community leaders or project managers. In Alaska, communities have access to training in emergency preparedness and implementation of the Incident Command System for managing community emergencies. This system could be utilized for the management of incidents related to climate change (eg village evacuation, unsafe ice conditions, threats to the sanitation infrastructure).
3. Evaluation of existing capacity, resources, motivation, and infrastructure needed to establish a community based monitoring system.
4. Identification and creation of regional partnerships. Linkage with, and engagement of, appropriate tribal, public health and wildlife agencies, non governmental organizations, and universities engaged in climate change activities and research are important as

potential funding sources and to ensure local, regional, national and international coordination of monitoring, research and prevention and control activities.

5. Identification, selection and monitoring of basic indicators for climate change and community health (Table I). The selection of site- or village-specific indicators should be guided by local concerns.
6. Expansion of community based monitoring systems to include other communities both regionally and internationally. Linkage of community based monitoring systems to include other communities is important for the detection of trends in climate and health impacts over larger geographic regions. This should include sharing standardized protocols for monitoring climate change indicators, community health, and standardization of key climate-health indicators.
7. Develop contingency plans, communication networks, education programs and early warning systems. (e.g, village evacuation contingencies, posting of dangerous ice or weather conditions, alternate travels routes, alternate food sources, food storage/preservation methods, alternate water sources).

Areas for additional work include: 1) coordination of monitoring of and research into change in contaminant transport and bioavailability, 2) documentation, assessment and communication of current adaptive measures being used by others, 3) greater utilization of indigenous perspectives and knowledge in monitoring and understanding of change and impacts, and 4) enhancement of local capacity to take advantage of the opportunities created by local environmental change.

The workshop concluded that there are currently relatively few programs examining the feasibility of implementing community based monitoring strategies in the Arctic. However there are several pilot programs underway in the Canadian North, assessing current surveillance networks, capacity at the community level to monitor acute and chronic disease, and other health determinants related to climate change. www.arcticnet-ulaval.ca; http://www.qanuippitaa.com/