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# Climate change (cc) and Health

- 1989 assessment of cc health impacts, WHO
- 1996 review, McMichael et al
- 2004 Global burden of disease and injury caused by cc WHO (McMichael et al)
- 2008 report, WHO Kobe centre, WHO Commission on social determinants of health
- 2008 World health day theme, WHO

# First time resolution

- On cc and health was adopted at the 2008 World Health Assembly aiming at drawing attention of the public and policy-makers to the serious risks.
- The work should be carried out in close collaborations with other organizations of the UN and national and international agencies.

# A draft work-plan Oct 2008

- Advocacy and awareness-raising
- Partnership w other UN agencies and other sectors at national, regional and international levels to ensure that health protection and health promotion are central to cc adaptation and mitigation policies
- Promotion and support for the generation of scientific advice
- Strengthening of health systems to cope w the health threats posed by cc, including emergencies related to extreme weather events and sea level rise

# Lancet and University College London Institute for Global Health Commission

- May 16, 2009 Managing the health effects of climate change
- Statement:  
CC is the biggest global threat of the 21st century

# The Lancet Commission

- Stresses the connection between cc and population growth
  - a reduction in growth rate would help mitigate cc while speeding up poverty reduction and development
  - a decline can be achieved by empowering women, reducing poverty, and meeting family planning needs

# Acute effects

- Malnutrition
- Diarrhoeal diseases
- Vector-borne diseases

# Chronic effects

- Acute health problems can lead to chronic conditions
- Increasing heat exposure can worsen pre-existing conditions and mental health problems



# Chronic effects

- Climate change exposures are a threat to health security particularly for the poor and disadvantaged in the slum areas in urban areas

# Climate changes in the Arctic

- outpace current climate model predictions
- are already impacting local communities who have observed profound changes in local environments

thus

-The Arctic can play a vital part in preparing the world for what is to come



# -unique relationship with nature

# -unique vulnerability

## **Direct health threats** from cc

- \*increasing extreme events (storms, floods, increased heat and cold) and
- \*unpredictable ice and storm conditions

## **Indirect health threats** from cc

- \*mental and social stress related to environmental changes and loss of traditional life style
- \*changes in viral and bacterial diseases
- \*decreased access to quality water sources

Failing sanitation infrastructure due to changes in permafrost

# Direct health threats

- Morbidity and mortality resulting from increasing extreme events (storms, floods, increased heat and cold)
- Increased incidence of injury and mortality associated w unpredictable ice and storm conditions

# Indirect health threats

- Increased mental and social stress related to changes in the environment and loss of traditional life style
- Potential changes in bacterial and viral diseases
- Decreased access to quality water sources

- Failing sanitation infrastructure resulting from changes in permafrost and storm surge
- Changes in diet resulting from changes in subsistence species distribution and accessibility

# Involuntary Diet-shift

- From traditional to more western diets resulting in obesity, diabetes, cardiovascular disease and cancer
- Warming will affect the transport, distribution and behaviour of contaminants, further threatening the safety of traditional food supply

# Changes take place in the context

- of ongoing cultural and socioeconomic changes –a source of stress as it affects the relationship between the people and the land and the environment
- will further stress communities and individual psychosocial health



# Climate change represents

- another of many sources of stress on the people in the Arctic as it affects the relationship between the people and the land and the environment which will further stress communities and individual psychosocial health.
- Resulting in national, regional and even local differences

# Epidemiology in the Arctic of infectious diseases

High rates of invasive

*Streptococcus pneumoniae*, *Haemophilus influenzae* and *Mycobacterium tuberculosis*

Sharp seasonal epidemics of viral respiratory infections

Overuse of antimicrobials has led to multiresistance of certain bacterias

# Housing and sanitation

- Are important determinants of infectious disease transmission in many Arctic regions
- Melting of permafrost or flooding may result in higher morbidity in respiratory infections, increased rates of skin infections and diarrheal diseases

# Speculations of effects of cc

- Increased rate of food-borne botulism and gastroenteritis
- Animal species change habit resulting in new spread of pathogens as the beaver move north spreading *Giardia intestinalis* and foxes spreading *Echinococcus multilocularis*

# Vector-borne diseases

- Mosquito or tick borne infections
- West Nile entered the US in 1999 spreading to northern Manitoba
- TBE in Sweden has increased and spread dramatically to new areas since the mid 80s.
- Borrelia (ticks) and Puumala-virus (voles)

# Public Health Response in the Arctic

- Region specific detection of significant trends in emerging climate related infectious diseases
- -by linking regional monitoring systems to share standardized information on climate sensitive infectious diseases of mutual concern

# The International Circumpolar Surveillance - ICS



Figure 2. The International Circumpolar Surveillance system participating regions (dark gray), laboratories (small dots), and reference laboratories (large dots).