

Sustainable Futures: A Health Perspective

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This presentation....

1. Sustainable Futures

- who's responsible and how are we doing

2. Key Factors:

- climate change
- water conservation and protection
- air pollution and smoking
- life saving medications
- persistent environmental contaminants

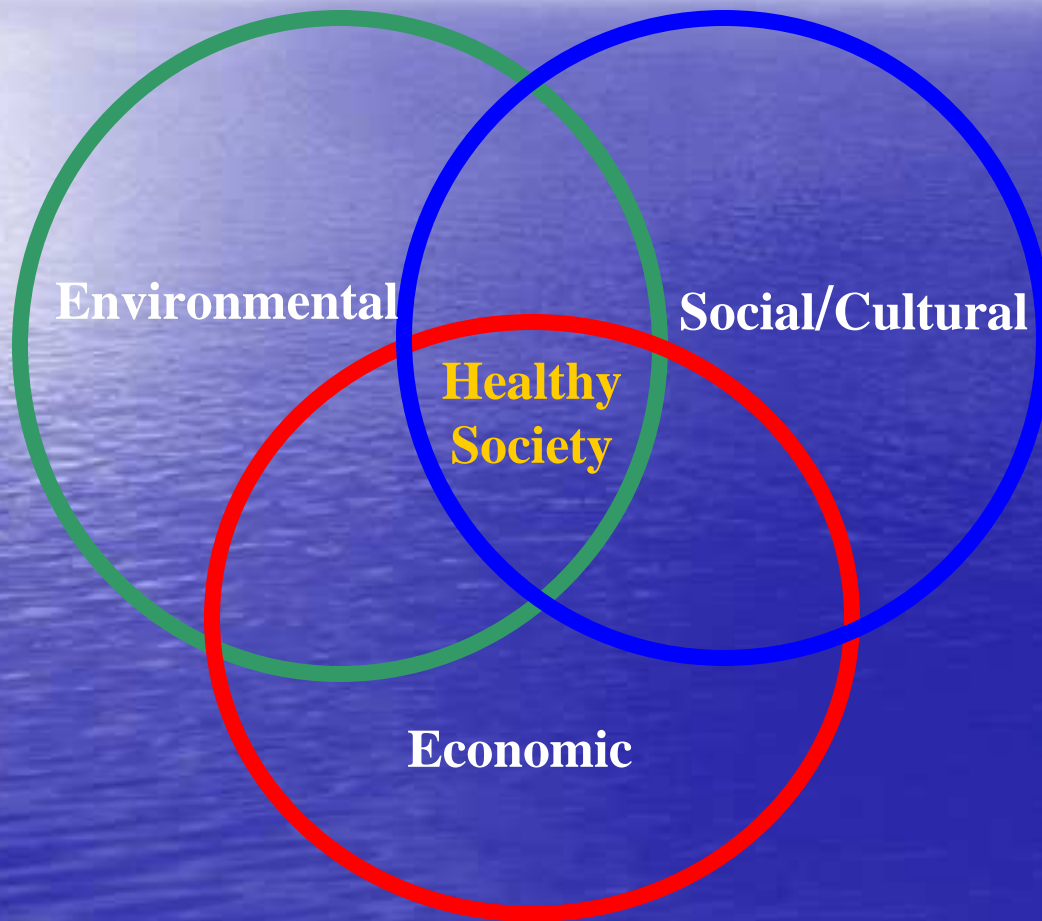
3. Sustainable Futures

- final thoughts

Sustainable Futures: My Biases

- **Health is physical, social and mental well-being**
- **Health efforts need to focus on children (family)**
- **Health is an equity issue**
- **Health Promotion and Disease Prevention significantly reduce economic costs of health care**
- **Health is everybody's business**

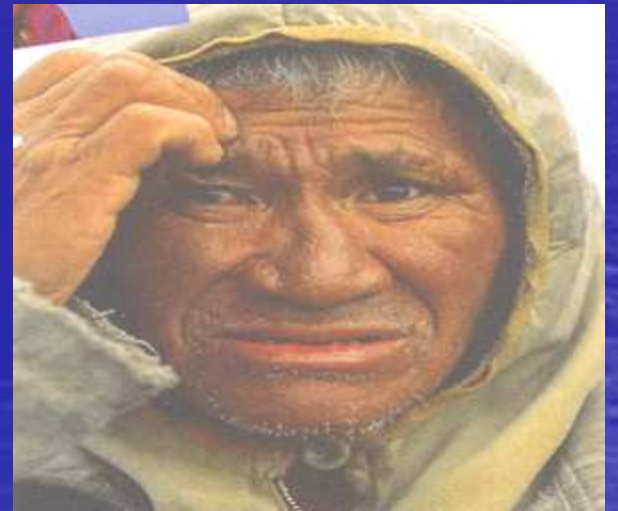
Everyone can contribute to a Sustainable Future ...where do you fit?



“Human beings are the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.”
(First Principle. Rio, 1992)

Sustainable Futures start with 'Health for All'we are not there yet!

- **Environmental factors alone cause**
 - 25% of global deaths (Smith et al 1999)
 - 7.3 million annual deaths (UNEP/WHO, 2005)
- **Compared to those who die from environmental factors.....10x suffer disability, lost quality of life and cultural, social and economic losses**
- **>90% of those who die or are affected are poor and living in developing countries**



Key factors for a Sustainable Future

If....

- Increasing socio-economic 'wealth' = better health
- Being indigenous = relatively poorer health
- Countries with the most educated populations = lowest global birthrates
- Vibrant social/cultural programs, clean environments and stable/strong economies = healthy society

Then...

- How can I make a difference?
- What will make the biggest difference in sustainable and healthy futures?
- Can we take action or are we powerless?

Case 1. Climate change and health - public expectation and political resolve

0.2 m annual global deaths due to climate change impacts on agriculture, severe weather events and disease vector migration (WHO/UNEP, 2005)

IPCC (2004) predicts a 2.5 C increase in global temperature over the next century

McMichael et al (1998) predict

- 6x increase in population at risk of water shortage
- 3x increase in population at risk of hunger
- 2x increase in those at risk of malaria

Kyoto Accord difficult to negotiate

- designed to curb rate of global warming through reduced emissions (carbon credits), several key countries have NOT signed/ratified

Climate change...

Scientific controversy beginning to decline (Arctic Ocean ice melt already very visible, mosquito vectors already expanding, desertification expanding in several countries)

Public understanding growing that CC is important to health as well as the environment; cannot be arrested, only slowed down

'Economic fear' of cost to curb carbon dioxide emissions immense among developed countries

Political unwillingness to act uniformly and aggressively in some countries, calls for a 'new agreement' from some

Polls indicate public ready to act, politicians and some economic sectors not



How do we slow the change in climateand gain time to adapt?

Off hydrocarbons, go renewable

- wind turbines and solar energy: technology which works, under-used

Change mentality

- 'I can afford it, thus I can waste it'
- 'There is nothing I can do to solve such a large issue'

Individual energy savings make a difference

- small savings add up, I can help
- the 10% solution? solar/geothermal, better insulation, lighting

Price is the tipping point in developed countries

- make energy saving devices very affordable (subsidies, gifts)

Engage industry and communities

- partners in new technology (very low W light bulbs, conserver appliances, electric vehicles, real time electrical metering)
- powerful social marketing (climate change and big Macs)

Make climate change about health

Case 2. Managing water quality and water quantity

- **Canada has a responsibility!**

25% of the world supply of surface fresh water, large underground aquifers and relatively good regional distribution

- **Little work to manage or protect an 'inexhaustible supply'**

- **Treated water is low cost and used for all purposes in urban areas**



Management of the water resource

1.7 m annual global deaths due to poor sanitation/hygiene/water quality (WHO/UNEP, 2005)

No or Little reliable treated water

Polluting substances (petroleum, chemical waste, phosphorus, domestic and animal sewage, runoff)

No or Aging infrastructure: leaks, connected storm and sanitary sewer pipes, *E. coli* and protozoan outbreaks with system failures (filters, maintenance, training)

Sprawling cities need higher chlorination residuals to protect end of pipe users; chlorination byproducts (THMs), taste, odour and use issues

Health and Economic costs (cost of disease, disability, lost labour, recreational issues, lost tourism, etc)

No rocket science needed to address water management

Community engagement/awareness of need to protect and conserve water. Bad water kills even in Canada!

Repair infrastructure, decouple all municipal storm/sanitary sewers

Mandatory sewage treatment (tertiary where possible)

Water conservation and flow reduction programs

- showers, watering, toilets, washers, education

Target small water systems

- install, maintain, inspect, reassure, protect
- train, train, train

Rational agricultural use programs and watershed protection

Rational industrial use and treatment of water

Case 3. Air pollution and smoking – twin killers, twin disablers

Annual global deaths due to:

- Indoor air (respiratory disease) **1.6 m**
- polluted urban air (NO_x SO_x O₃ PM) **0.8 m** (WHO/UNEP, 2005)
- smoking **4.9 m** (WHO, 2007)

Air pollution is a major and complex global issue

- developed and developing countries

Smog

- from vehicles, industry, dust, open fires
- affected by geography, transboundary movement, weather inversions

Indoor smoke from indoor fuel use

Air pollution and smoking

Airborne contaminants clearly linked to

- lung irritation*, cough*, asthma* (children)
- emphysema, lung cancer, premature death
- smoking **increases** effects of air pollution on health

Costs are staggering

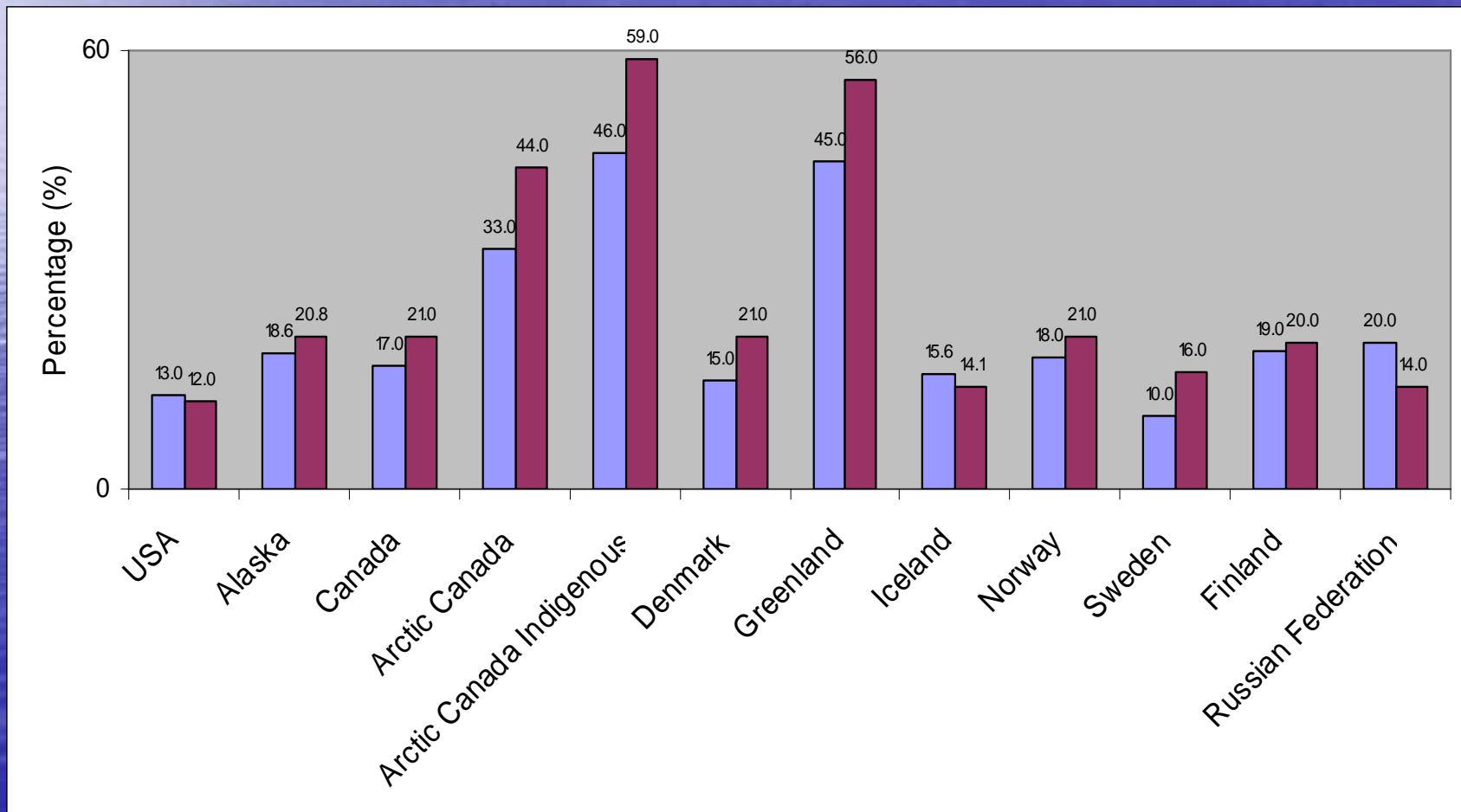
- cost of air pollution in Canada with <1% of global population (hospitalization, treatment, drugs, lost productivity, lives lost) is ca **\$ 8 billion** (Ontario Med. Assoc.)

Mostly women and children affected

- home heating/cooking, bystander smoke exposure
- children/youth most vulnerable

Very High Tobacco Use by Indigenous Youth (15-19 yrs) in Arctic Canada and Greenland, especially females

■ Male ■ Female



Improving air quality and eliminating smoking is possible now...we can do it!

Proven strategies for better Urban Air Quality:

- eliminating 2 stroke engines, reducing sulfur in fuels
- reducing stack emissions (current technology)
- less energy from fossil fuels
- fewer and less polluting personal vehicles, vehicle testing
- transnational cooperation (cross-boundary pollution)

Proven strategies for better Indoor Air Quality:

- vented indoor cook stoves
- solar or gas based energy source for cook stoves
- eliminate indoor smoking

Proven smoking cessation strategies:

- increase prices
- health labeling, ban advertising and visible point of sale
- reverse social-cultural acceptance
- Framework Convention on Smoking (WHO)?

Case 4. Providing life saving medications and better health care where they matter

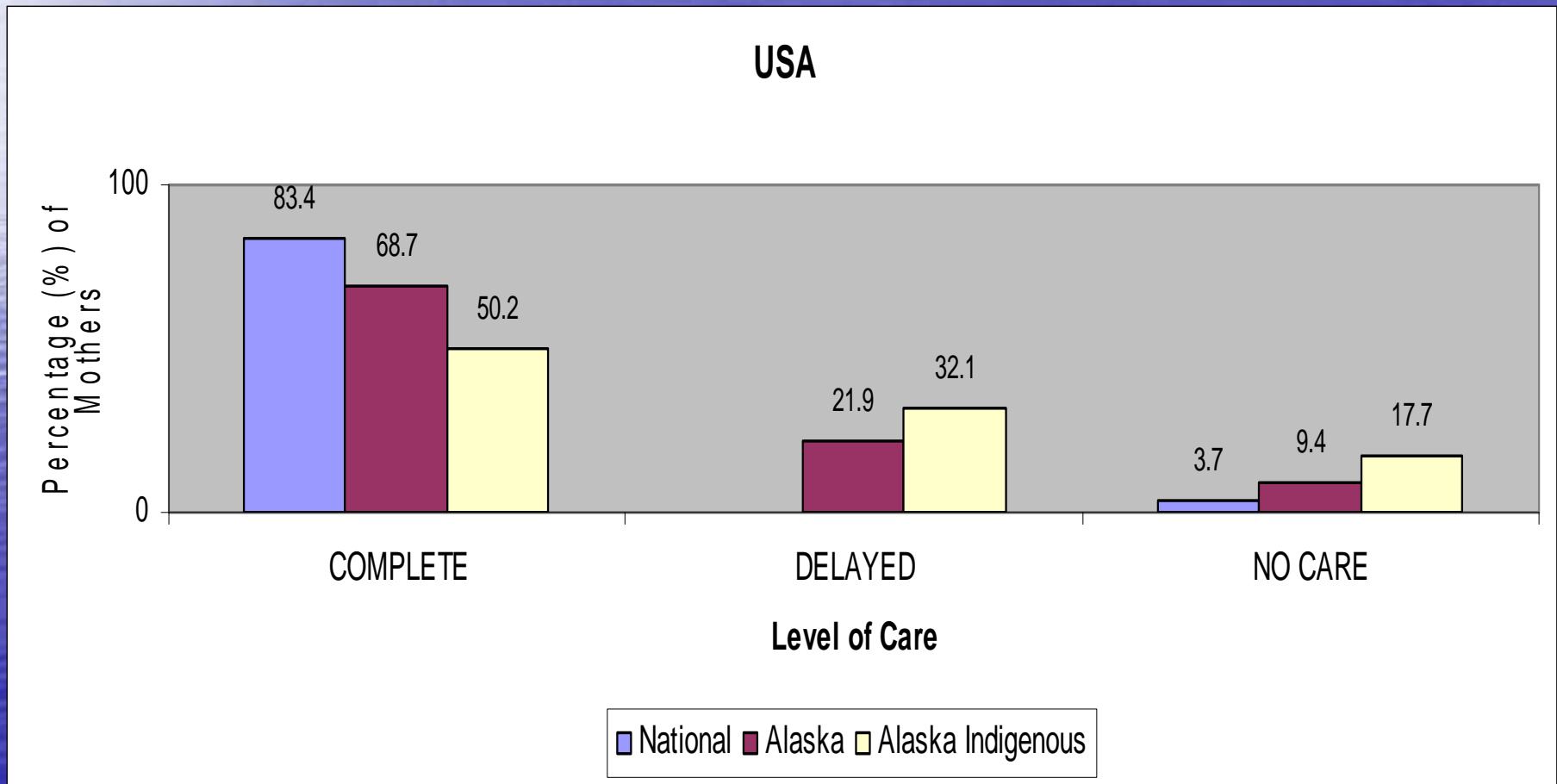
Children, mothers and the elderly are most often at highest risk and most vulnerable to impacts of health determinants

- Prenatal care, health promotion, vaccination, early childhood education worst among poor and indigenous
- Rates of infectious diseases are highest among poor and indigenous
- Delivery and supplies of life saving medications (blood pressure management, cholesterol reductions, antibiotics, anti-virals, etc) worst among the poor and indigenous



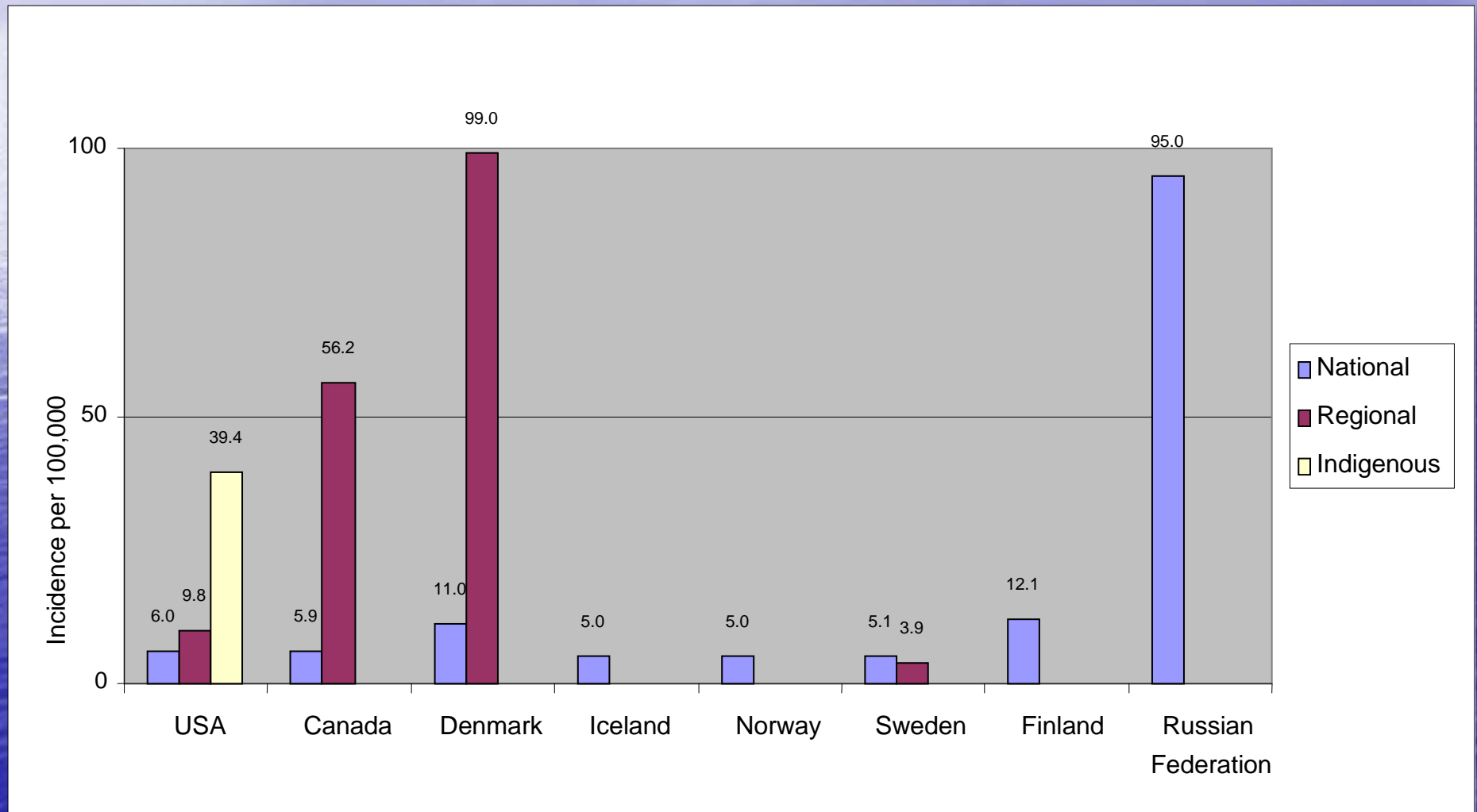
Poorer Prenatal Care among Indigenous People, e.g., Alaska (SDWG, 2005)

(% with complete, delayed or no care)

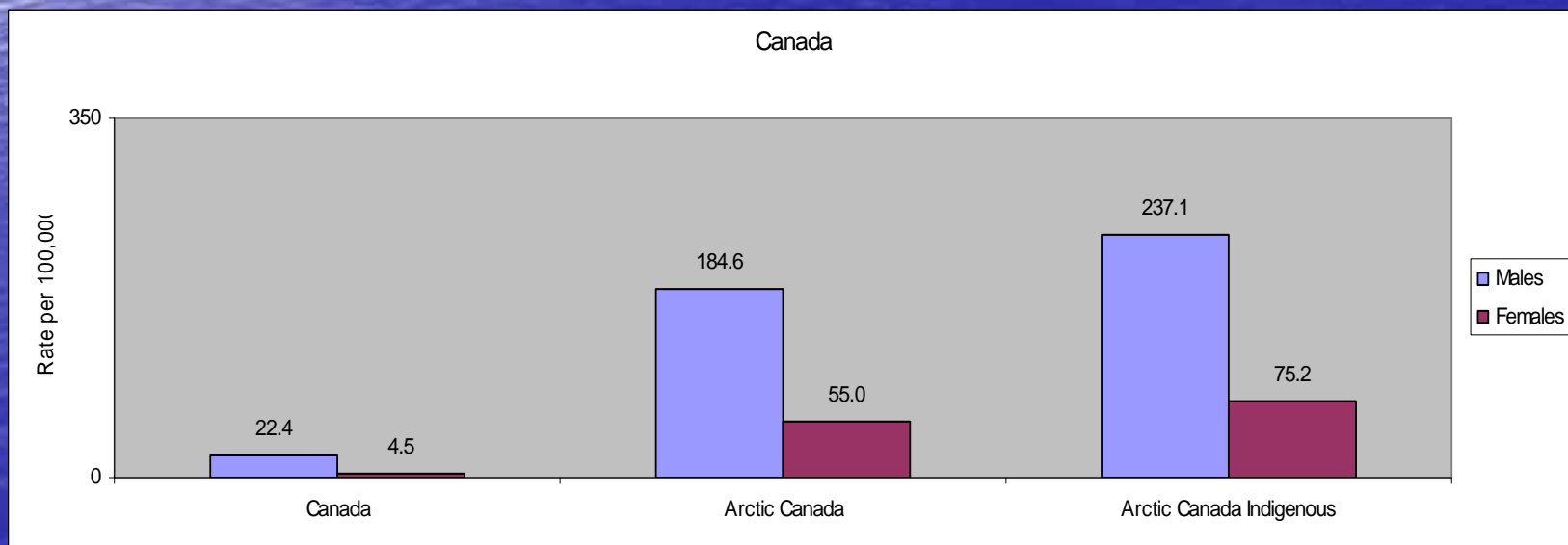
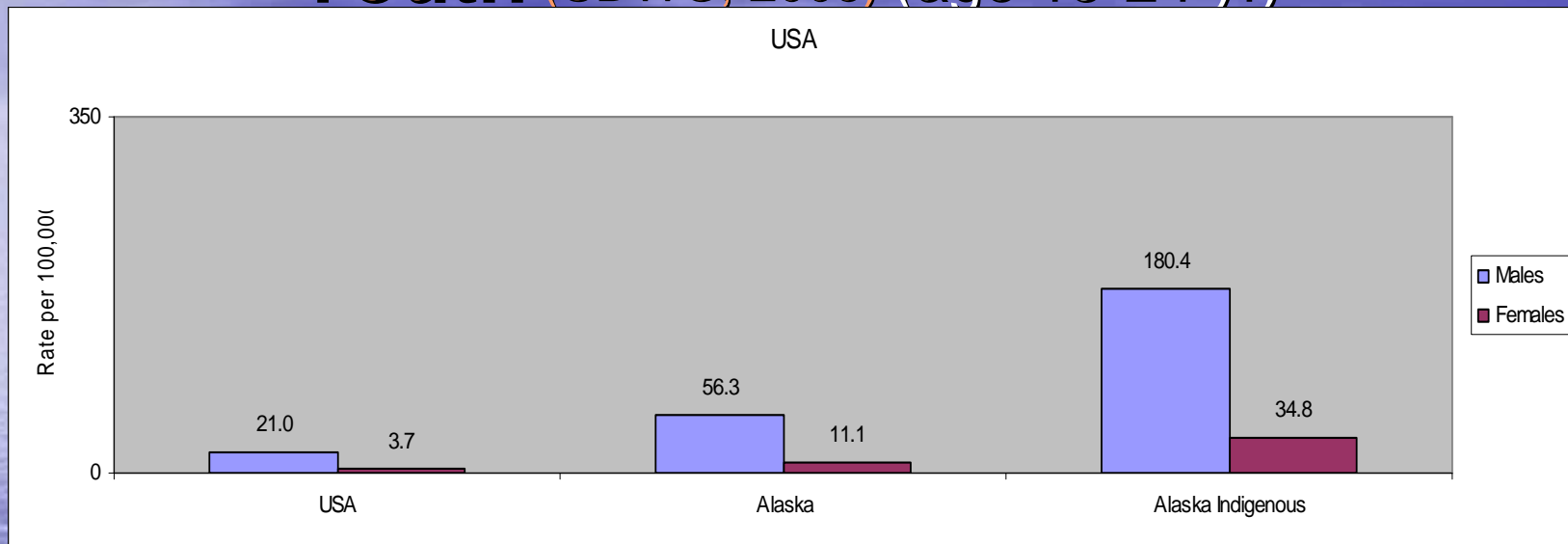


Incidence of Tuberculosis on the rise in Greenland, Arctic Canada and Alaska natives

(SDWG, 2005) (all ages, standardized)



Suicide Death Rates very High in Alaska and Arctic Canada Indigenous Youth (SDWG, 2005) (age 15-24 yr)



We have the medications...we know what health care practices matter...lets use them!

Why is health care disproportionate, even in developed countries?

- distribution and density issues, transportation, availability of practitioners?

Why are medications that save lives and improve health so difficult to distribute equitably?

- patents?
- civil unrest, war?

How can we engage communities, one by one, on health promotion and disease prevention issues?

- success in Mexico with malaria reduction
- success with some suicide prevention programs

Case 5. Persistent environmental pollutants - global and local action

0.6 m annual global deaths due to exposures to pesticides/industrial chemicals/lead (WHO/UNEP, 2005)

Late 1960s: Persistent compounds like PCBs and DDT and metals like mercury and lead first identified in wildlife and human tissues

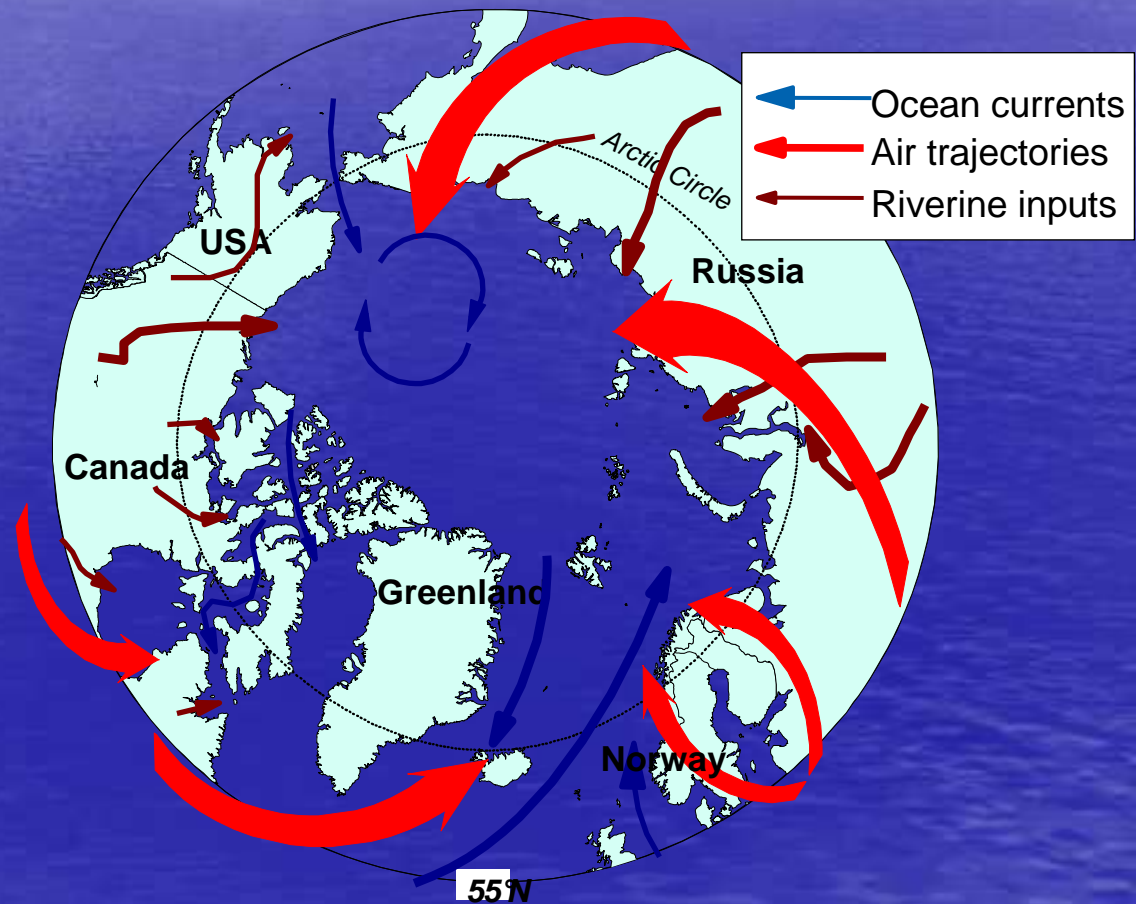
Mid 1980s: Realization (about 15 years after Rachael Carson's *Silent Spring*) that they could move long distances

Cooperative interdisciplinary research needed to combat scientific and political disbelief, i.e., define how, where and what

POPs move and accumulate in the food chain

- POPs and metals can move thousands of kilometers in the upper atmosphere and through ocean currents and river systems

- Biomagnification factors $10^6 - 10^7$



National, regional and global controls work....they need support

1970s: National legislation

- all developed countries

1980s: Regional agreements

- Bi-national toxics agreement (Canada/USA), UNECE POPs and metals protocols to the LRTAP Convention

Global agreement 2002:

- Stockholm Convention on POPs (negotiated and ratified in 4 years) controls 12 substances
- 8 chemicals already proposed as additions to the Convention

Levels will decline....slowly

- persistence, lag time, need all countries
- everyone needs to pressure politicians to sustain actions

Sustainable Futures: Final thoughts

We are not powerless....we can act!!

- Protect children and youth (prevention and promotion)
- Provide and promote information for the public and engage the community(ies)
- Fight for targeted, interdisciplinary, top caliber health care/promotion programs and research
- Work collaboratively (research, policy, politicians, industry, etc) with other groups to solve problems....what is the 'common interest' we have
- Fight complacency, cynicism, discouragement
- Hire, mentor, encourage young professionals