

Update on Review of Cancer in Circumpolar Regions

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A Primer on Cancer ...

- Cancer = uncontrolled growth and spread of abnormal [malignant] cells
- Different types – different causes, clinical features, and anatomic sites in body
- Primary sites vs secondary spread
- Indicators of cancer burden:
 - Incidence – new cases per year
 - Mortality – deaths from cancer per year
 - Prevalence – living survivors at any one time
- Indicators of cancer care:
 - Survival [usually 5-year]
 - Stage at diagnosis

Why review cancer among the circumpolar regions, especially indigenous populations?

- Cancer as an indicator of “Arctic Change” - What are recent trends? Increasing? What are the causes – Environmental? Lifestyle ?
- Cancer an increasing community concern
- Evidence-based public health action – primary prevention and screening
- Indigenous organizations need ethnic-specific data for planning and lobbying for resources
- Circumpolar comparative framework – learn best practices from neighbours

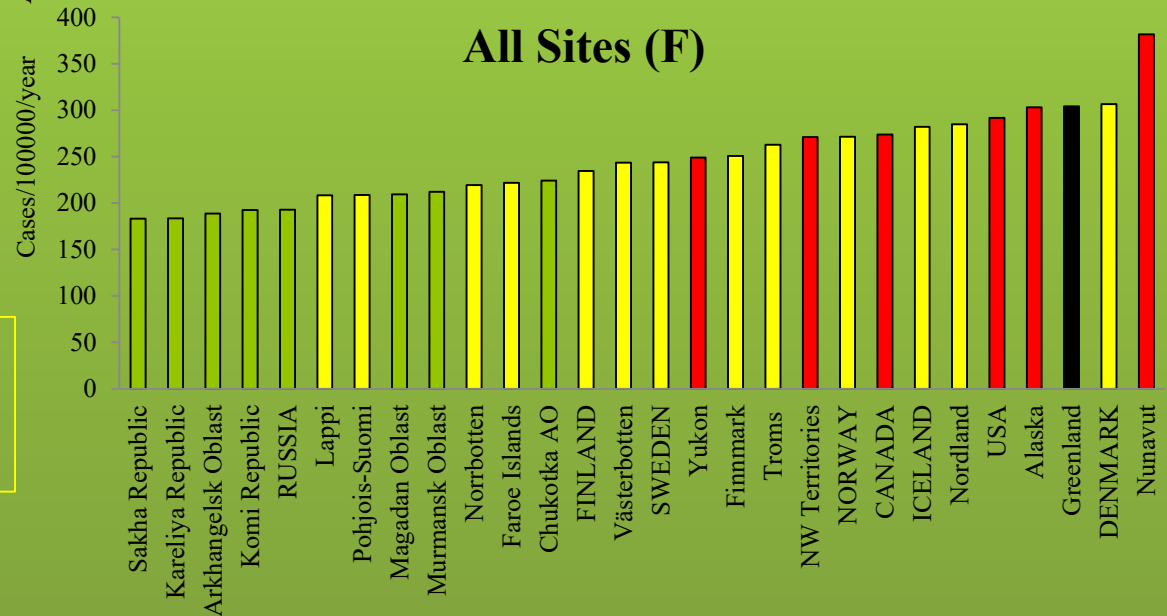
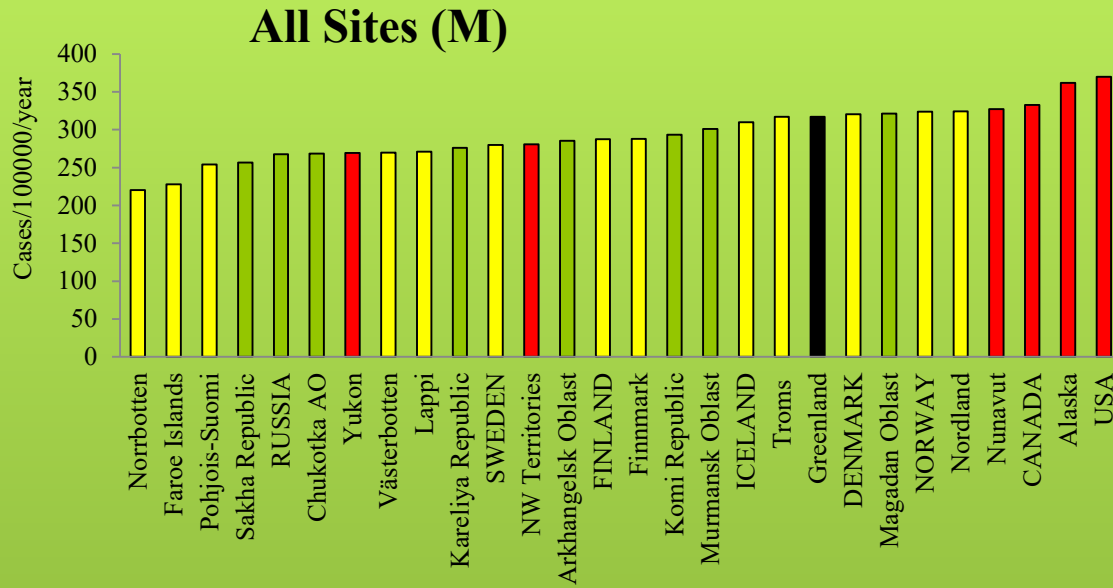
Methods

- Three problems:
 - Finding cancer cases
 - Identifying cancer cases as Indigenous cases
 - Estimating the Indigenous population that generated the Indigenous cancer cases
- Comparison among Indigenous with national populations - Direct age-standardization to IARC “world population”
- Combining similar Indigenous groups across national borders (eg. Inuit in Alaska, Canada, Greenland)
- Comparison of Indigenous groups with world regions (eg. North America, South Asia, Sub-Saharan Africa)

Data Sources

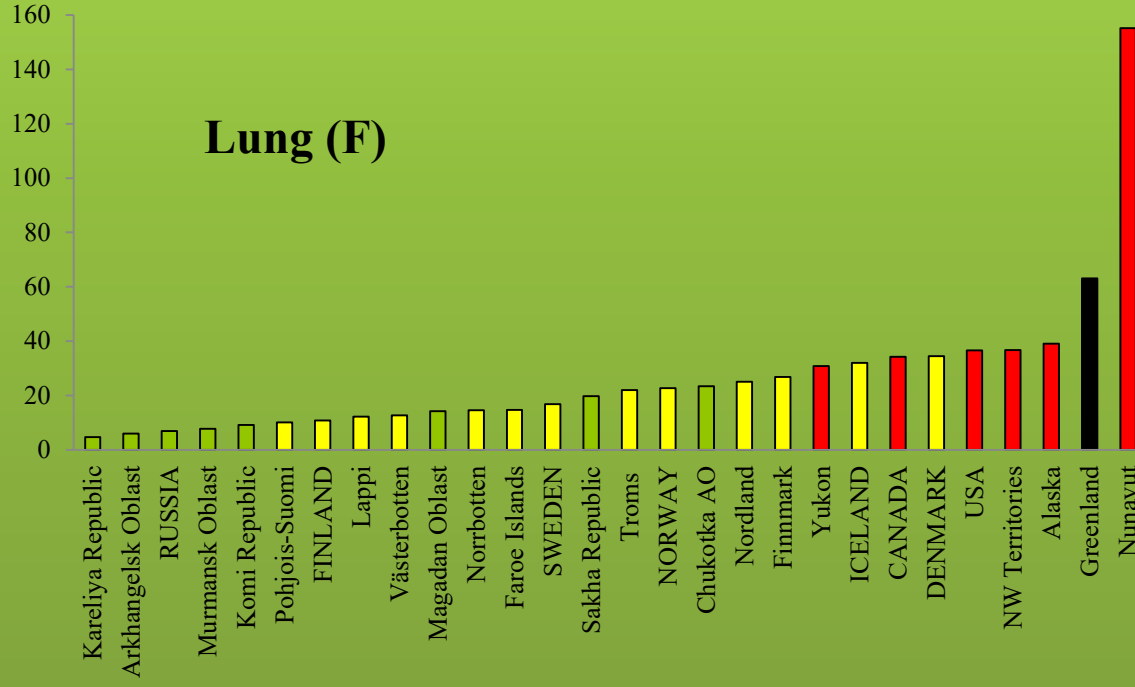
- National statistical agencies, cancer registries; regional health agencies
- International databases – NORDCAN, GLOBOCAN, NOMESCO
- Special thanks to:
 - Dr. Janet Kelly, Alaska Native Tribal Health Consortium
 - Dr. Leena Soininen, University of Helsinki
 - Dr. Jeppe Friberg, Statens Serum Institut, Copenhagen
 - Dr. Alexey Dudarev, Northwest Public Health Research Centre, St. Petersburg

Circumpolar perspectives

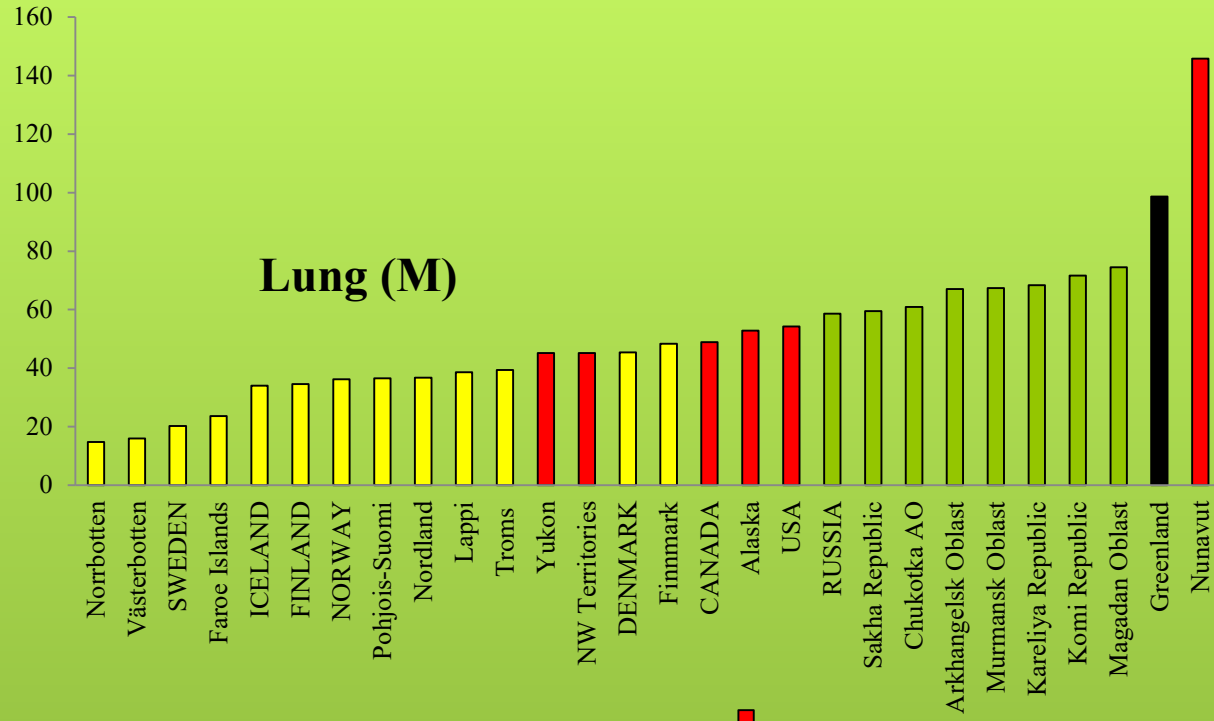


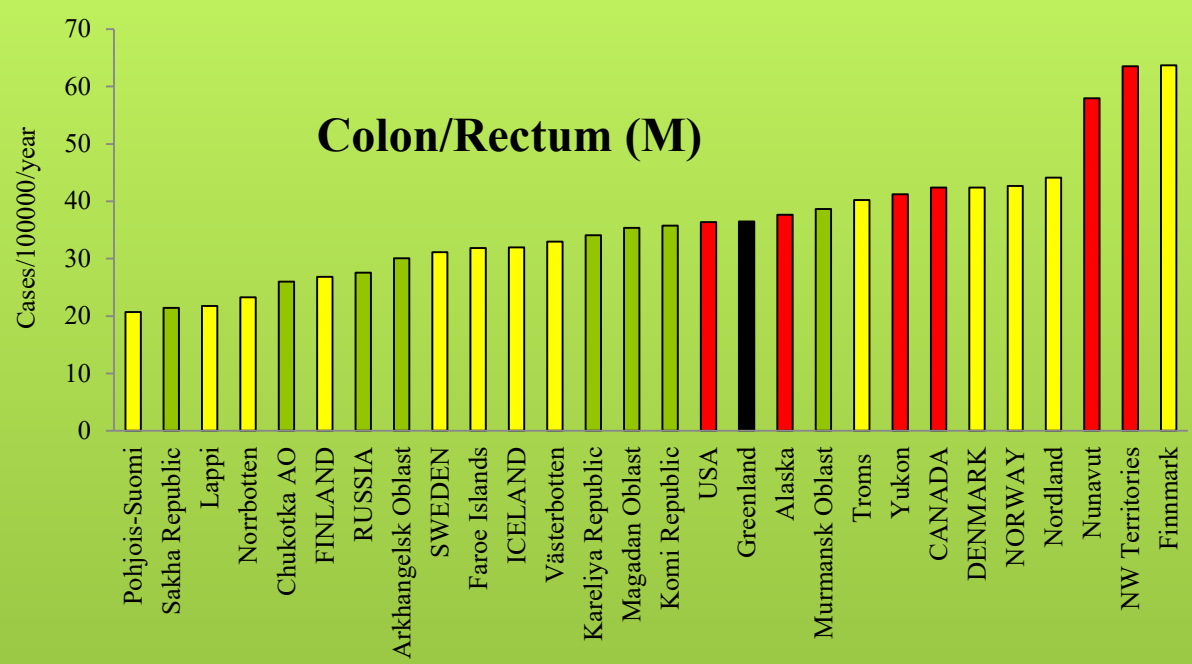
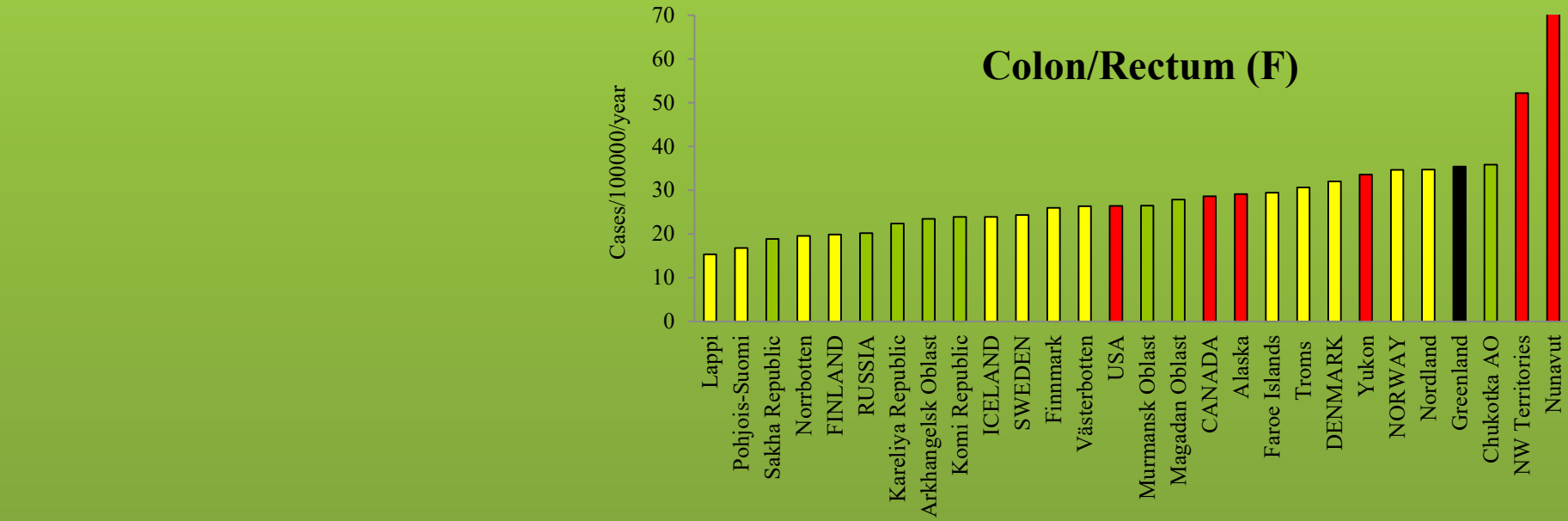
Rates refer to total regional populations

Cases/10000/year

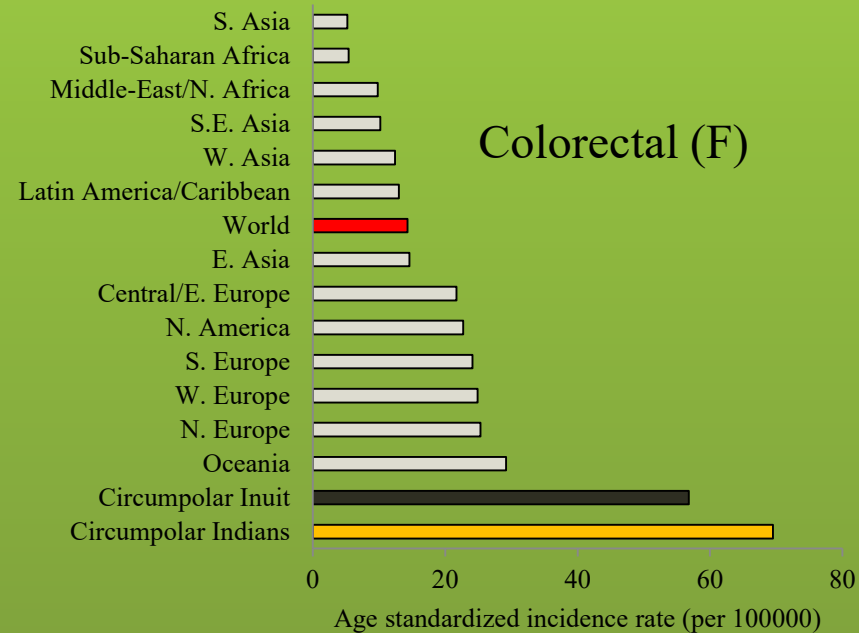
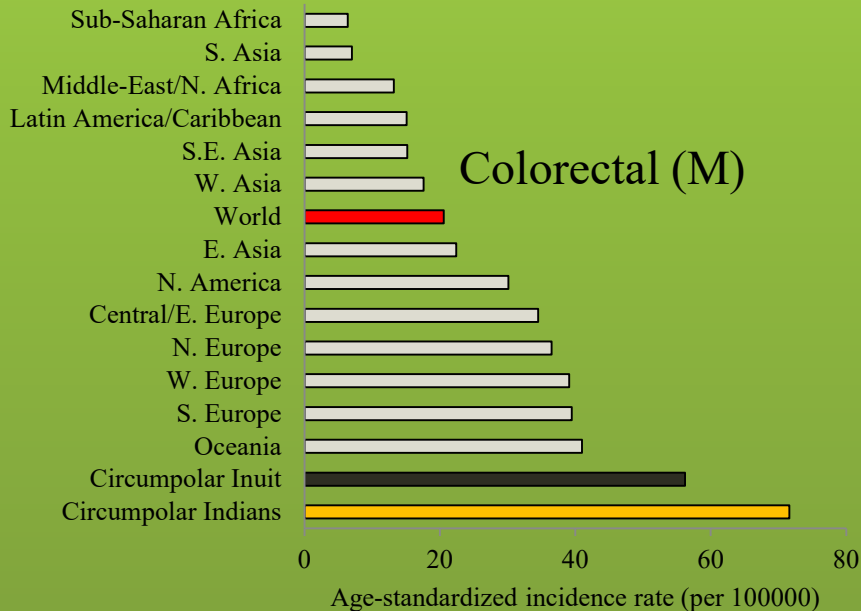
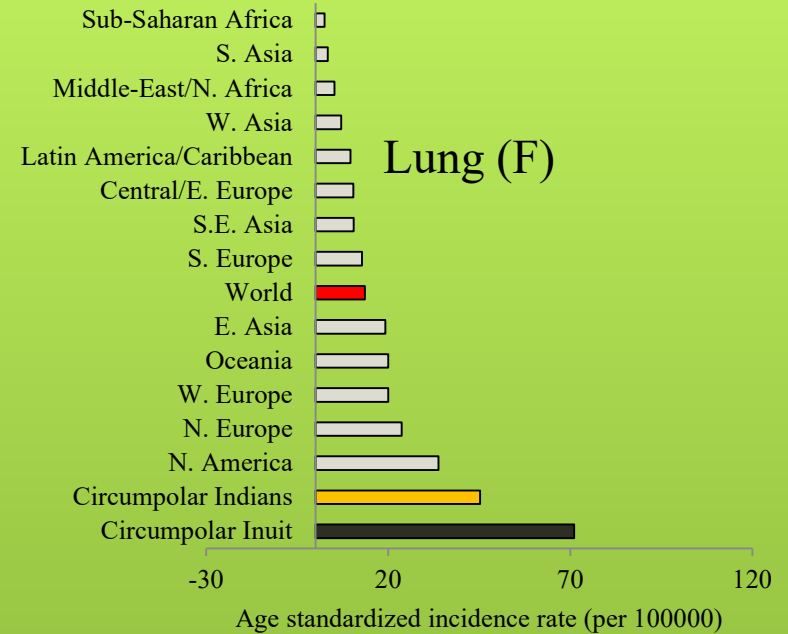
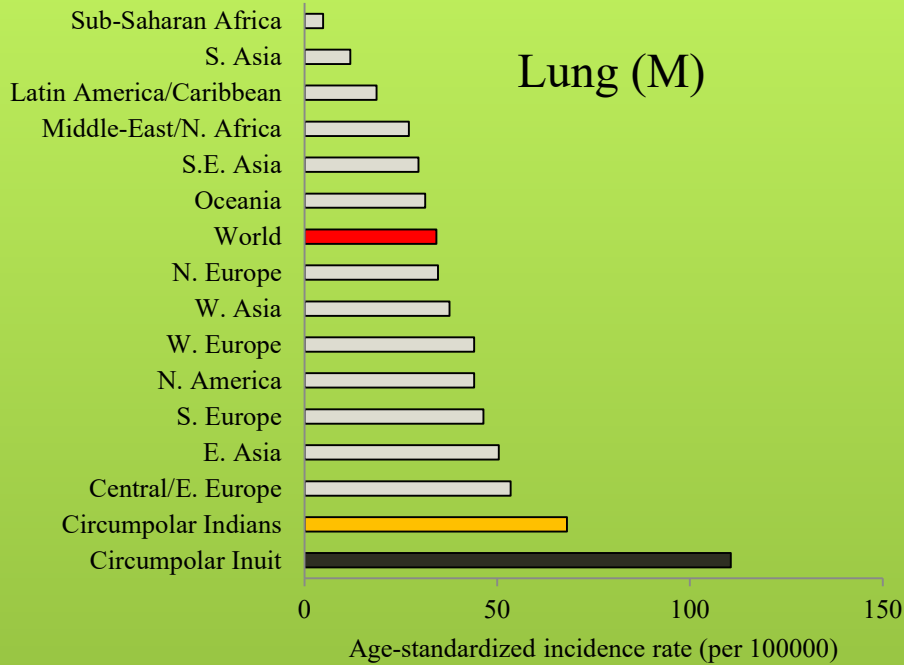


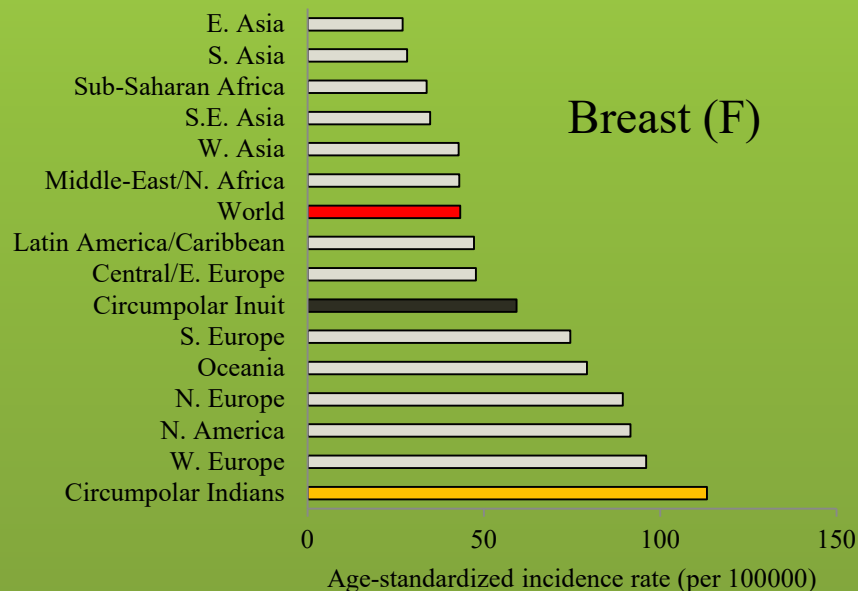
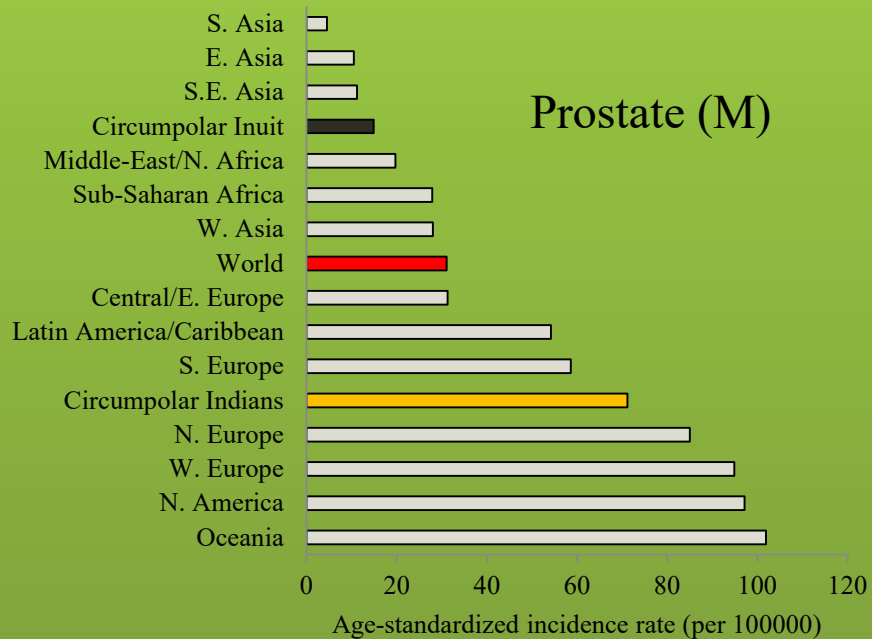
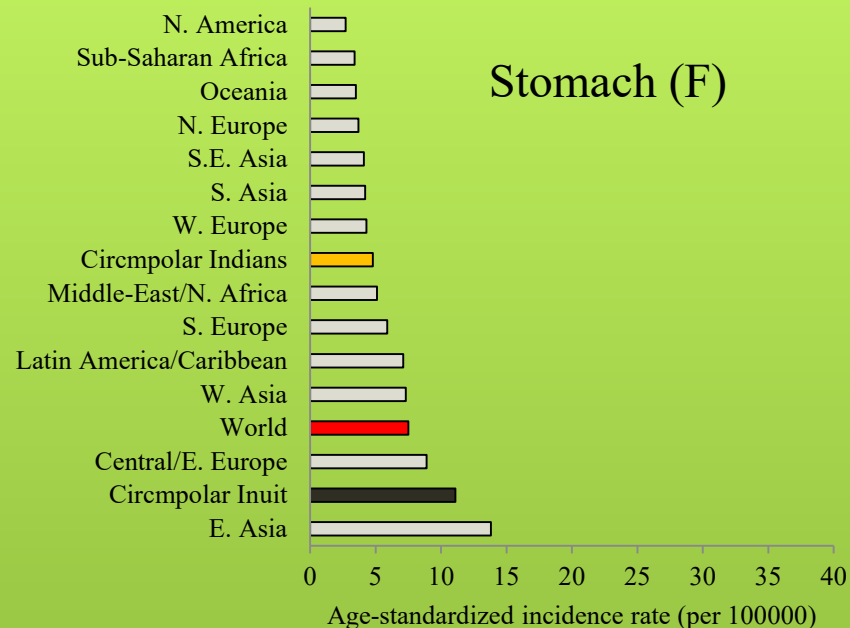
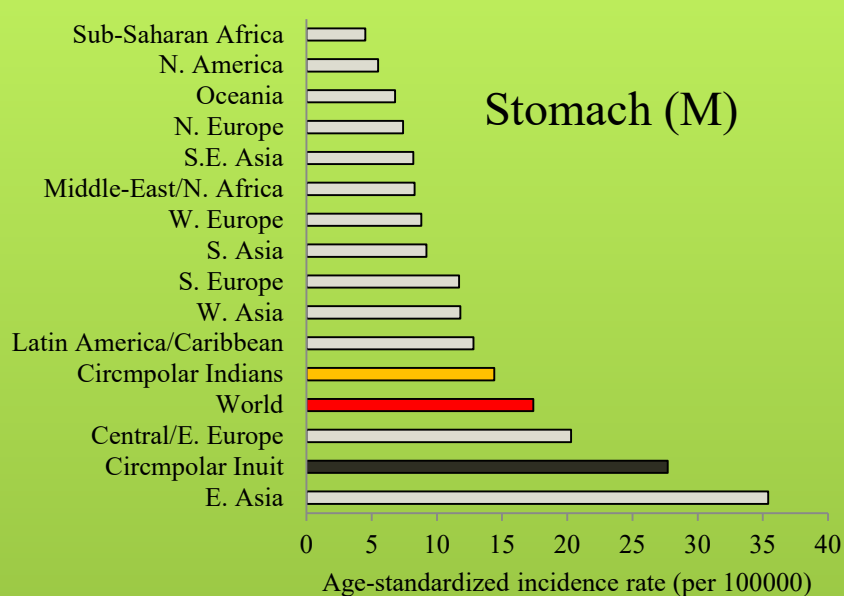
Cases /100000/year



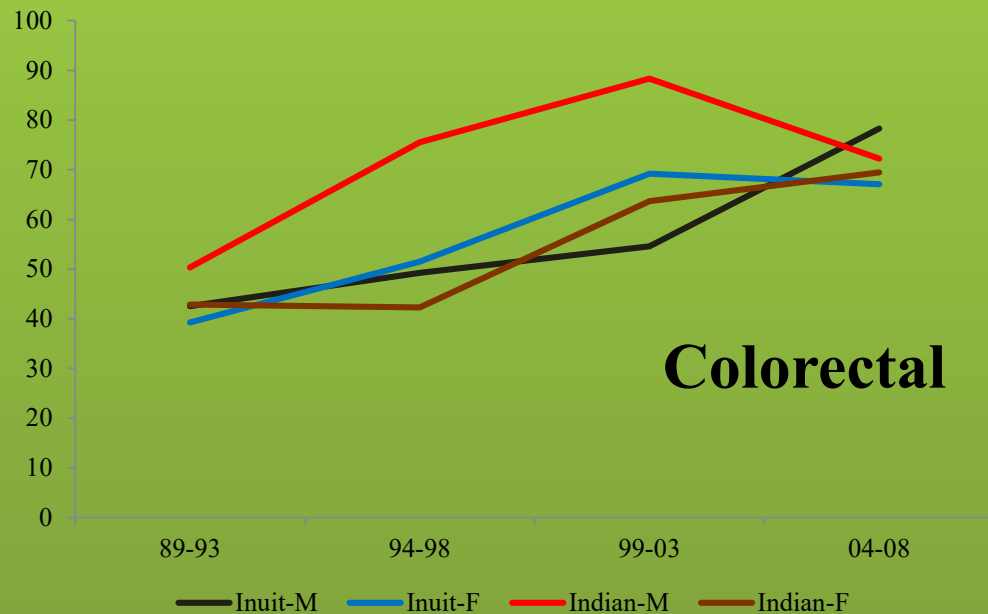
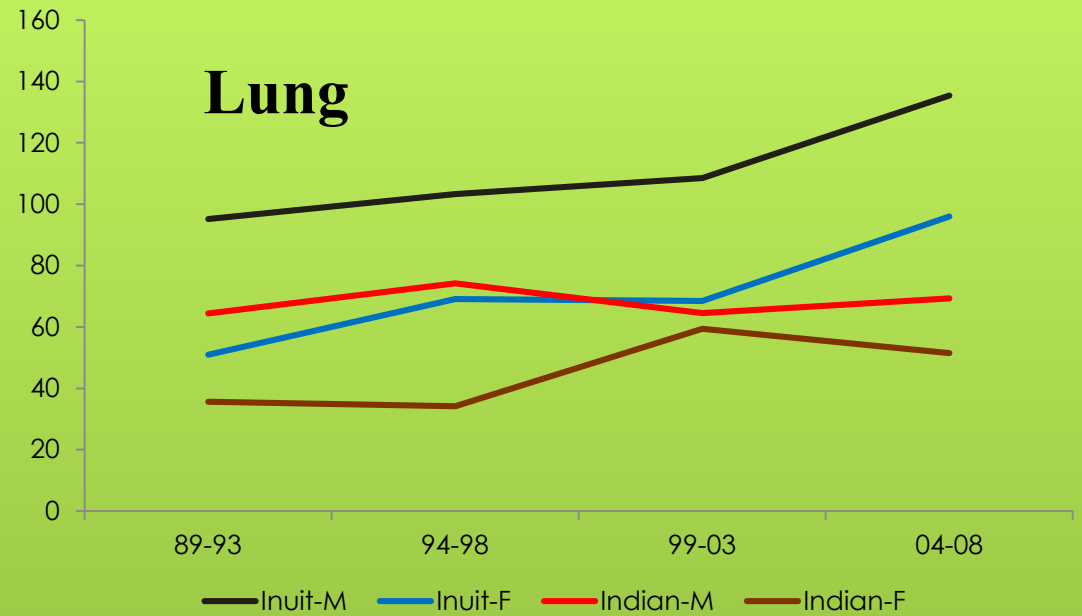


Global comparisons





Time trends



Sami

- No ethnic identifier in national statistical databases in Nordic countries
- Sami health data only available from published studies on specific populations in specific localities in specific time periods
- Researchers needed to create Sami cohorts according to predetermined criteria – variety of methods used
- Substantial interest in 1990s due to Chernobyl disaster

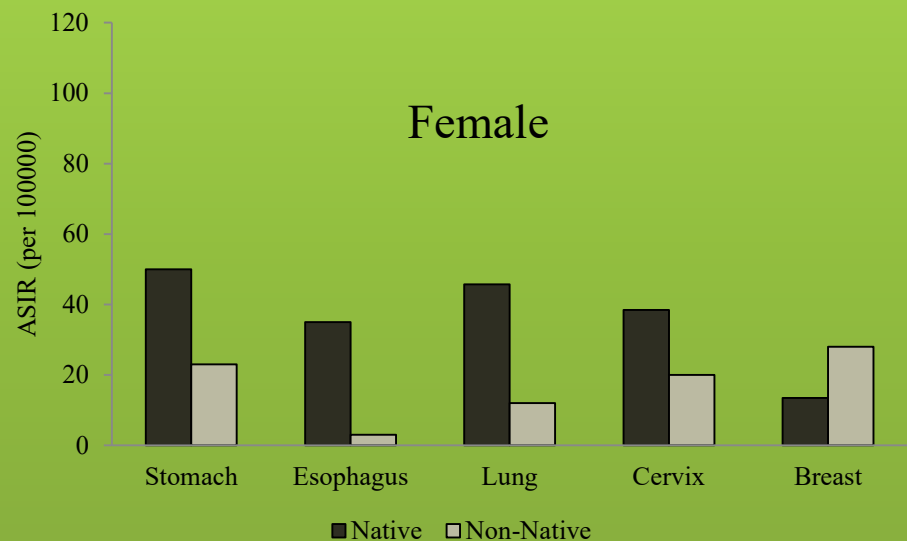
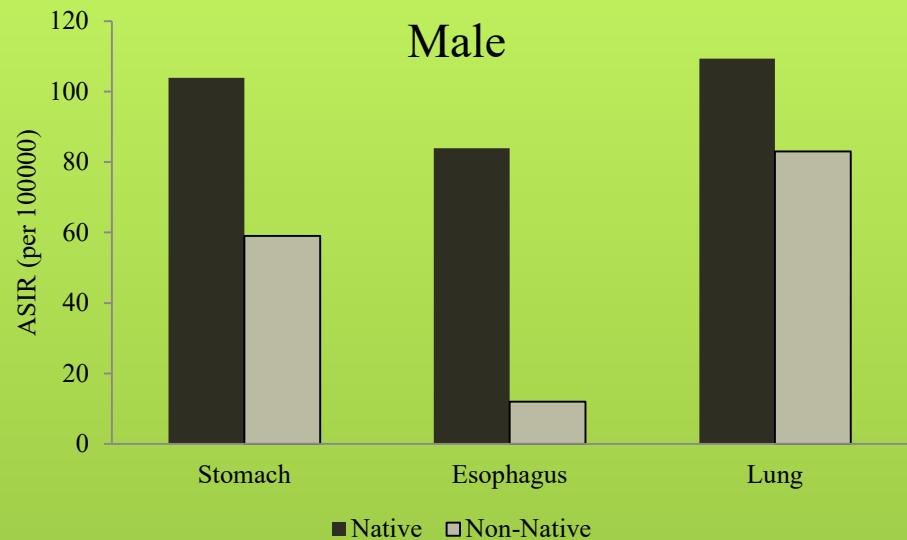
Northern Sweden (Hassler et al 2008): 1961-2003 – slight significant increase in stomach cancer M and F (1.23 and 1.53 times non-Sami in same region; cancer overall lower in Sami

Northern Norway (Haldorsen et al 2005): 1970-1997 – cancer overall lower among Sami, no high risk site compared to non-Sami

Northern Finland (Soininen et al 2002, updated 2014) – Inari and Utsjoki municipalities; cancer overall lower among Sami than non-Sami, no increase over time (1979-1998 vs 1999-2010); no high risk site compared to non-Sami

Russia

- One study published in English in 1993, covering 1977-88 period
- *Regions*: Khabarovsk, Primorsk, Sakhalin, Magadan, Chukotka, Koryak, Kamchatka
- *Nationalities*: Chukchi, Nanais, Koryaks, Evens, Nivkhi, Evenks, Ulchi, Udegeys, Eskimo, Itelmen, Orochi, Negidal, Aleuts
- Post-USSR only regional data available



What are likely causes?

Lung cancer – SMOKING

Nasopharyngeal/salivary glands – association with Epstein-Barr virus – infection->immune response-diet? Genetics?

Stomach – H. pylori bacteria – diet?

Liver – Hepatitis B virus

Colorectal – diet?

Contaminants – no obvious role

CAUTION: few certainties – still lots of unknown

Take home messages

- Cancer in general increasing among Inuit and Athapaskans but not Sami
- “Modern” cancers – esp lung – now much more – among highest in the world; others such as colorectal also catching up
- Some success story – decline in cervical cancer
- Scope for prevention – URGENT ACTION
- Implications for health services – early detection, timely treatment, palliative care
- Model of international collaboration in health monitoring and data sharing