Is Cancer Increasing among the Circumpolar Inuit?

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Circumpolar Collaboration in Health Research under the theme *Arctic Change*

- Inuit Health in Transition Study – Primary data collection – brief update
- Inuit Cancer Review – analysis of existing data – this presentation
Inuit Health in Transition Study

- Multinational study in Inuit regions in 3 countries, focusing on a broad spectrum of health problems, especially cardiovascular and metabolic diseases and their biological, behavioural and social risk factors
- Interviews, clinical exams, lab tests – comparable protocols
- Baseline surveys completed:
- Follow-up in 7 years; repeat survey to track changes; monitor clinical outcomes from medical records reviews
2004

15 communities on the West Coast and 3 on the East Coast.

Three boat expeditions; six visits by public transport.
Results

• *Nunavik*: thematic reports published; presentations at conferences [including this conference]; joint analyses with *Greenland* underway

• *Northwest Territories, Nunavut and Nunatsiavut*: data entry underway – report back to communities early 2009
Circumpolar Inuit Cancer Review Working Group

- **Alaska**: Janet Kelly, Anne Lanier
  [Alaska Native Tribal Health Consortium]
- **Northwest Territories**: Maria Santos
  [NWT Health and Social Services]
- **Nunavut**: Sylvia Healey
  [Nunavut Health and Social Services]
- **Nunavik**: Rabia Louchini
  [Institut national de santé publique du Québec]
- **Greenland**: Jeppe Friborg [Statens Serum Institut]

Rapporteur: Kue Young [University of Toronto]
Cancer 101 for glaciologists, climatologists, oceanographers …

- 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
Why review cancer among the circumpolar Inuit?

- Cancer as an indicator of “Arctic Change” - What are recent trends? Increasing? What are the causes – Environmental? Lifestyle?
- Inuit population small – worldwide around 165,000 – many cancers very rare
- Cancer an increasing community concern
- Evidence-based public health action – primary prevention and screening
- Inuit organizations (eg. ITK) involved in cancer care planning need Inuit-specific data

Present review extended from 1989-2003 – total of 35 years’ data
Methods

• Three problems:
  • Finding cancer cases
  • Identifying cancer cases as Inuit cases
  • Estimating the Inuit population that generated the Inuit cancer cases

• Comparison among Inuit regions and with non-Inuit:
  • Direct age-standardization to IARC “world population”
  • Inuit compared to global data as reported in Cancer Incidence in Five Continents VIII (2002) covering 1993-97 period
Source of cases:

- Alaska Native Tumor Registry
- Canadian Cancer Registry -> files returned to Territorial cancer registries – Inuit cases identified and separated from non-Inuit
- Fichier des tumeurs du Québec - No ready means of extracting Inuit cases – refer to all residents of Nunavik
- Cancerregisteret [Danish Cancer Registry] -> research database at Statens Serum Institute, Copenhagen – cross-referenced to place of birth in Greenland, resident in Greenland at time of diagnosis
<table>
<thead>
<tr>
<th></th>
<th>Number of cases</th>
<th>Mean population</th>
<th>Years of data</th>
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<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>Alaska</td>
<td>803</td>
<td>888</td>
<td>46,520</td>
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<td>Canada</td>
<td>465</td>
<td>581</td>
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<td>59</td>
<td>65</td>
<td>4,180</td>
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<tr>
<td>Nunavut</td>
<td>289</td>
<td>390</td>
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<tr>
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<td>117</td>
<td>126</td>
<td>9,590</td>
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<tr>
<td>Greenland</td>
<td>738</td>
<td>874</td>
<td>48,300</td>
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<tr>
<td>Circumpolar Inuit</td>
<td>2,006</td>
<td>2,343</td>
<td>129,770</td>
</tr>
</tbody>
</table>
Collaboration and Dissemination

- One planning meeting in Vancouver – June, 2007
- Agreement on data sharing, privacy, confidentiality
- Each region provided aggregated data to U of Toronto [no individual records] where data combined, tabulated and analysed;
- Results presented to Inuit Public Health Task Group February 2008
- Two papers published in December 2008 – special cancer issue in *International Journal of Circumpolar Health*
Results: time trends

All Sites

Circumpolar Inuit
Alaska
Canada
Greenland

Age-standardized incidence rate (per 100,000)
Age-standardized incidence rate (per 100,000)

Circumpolar Inuit
Alaska
Canada
Greenland

Lung Cancer

MALE

FEMALE
Circumpolar Inuit
Alaska
Canada
Greenland

Age-standardized incidence age (per 100,000)

Male
Female

Colorectal Cancer

69-73 74-78 79-83 84-88 89-93 94-98 99-03
69-73 74-78 79-83 84-88 89-93 94-98 99-03
Some Good News!

Cervical Cancer

Age-standardized incidence rate (per 100,000)

- Circumpolar Inuit
- Alaska
- Canada
- Greenland
Global comparisons

Nasopharyngeal Cancer

Circumpolar Inuit

MALE

FEMALE

Age-standardized incidence rate (per 100,000)
Lung Cancer

Age-standardized incidence rate (per 100,000)

Circumpolar Inuit

FEMALE

MALE
Regional variation

MALE

Age-standardized incidence rate (per 100,000)

- Salivary glands
- Esophagus
- Colon
- Lung
- Prostate

Canada
Alaska
Greenland
What are likely causes?

Lung cancer – SMOKING
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
• Some “traditional” cancers [nasopharynx, salivary] have not decreased
• “Modern” cancers – esp lung – now much more – highest in the world; others such as colorectal also catching up, while breast and prostate still low relative to non-Inuit
• Some success story – decline in cervical cancer
• Scope for prevention – URGENT ACTION
• Implications for health services
• Model of international collaboration in health monitoring and data sharing → Health Observatory?
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