H. pylori-associated disease burden in a northern Canadian community: comparing medical records and community-based screening

Hsiu-Ju Chang¹, Ashley Wynne¹, Rachel Munday², Karen J Goodman¹ & the CANHelp Working Group

¹Department of Medicine, University of Alberta, Edmonton, AB
²Susie Husky Health Centre, Aklavik, NWT
What is *Helicobacter pylori* (H. pylori)?

- Bacteria that infect the lining of stomach
- Found all over the world
- Causes:
  - Gastritis (in ~100% of infected people)
  - Peptic ulcer disease (in ~10% of infected people)
  - Stomach cancer (in <1% of infected people)
Concerns about *H. pylori* in northern Canadian communities

- Awareness that many people in the community have *H. pylori* infection
- Perception of frequent occurrence of gastric cancer
- Awareness of link between *H. pylori* and gastric cancer
- Frequent failure of *H. pylori* treatment in the region
• Links researchers from the University of Alberta, northern community leaders, and northern health care providers and decision makers

• Goals:
  - To address community concerns about health risks from *H. pylori* infection
  - To develop cost-effective *H. pylori* management strategies appropriate for northern communities
  - To reduce health risks from *H. pylori* infection in northern Canada
Participating communities
The Aklavik *H. pylori* Project

- Aklavik, NWT:
  - Population: ~590 (2006 Census)
  - 90% Aboriginal (Gwich’in / Inuvialuit)
The Aklavik *H. pylori* Project

- Urea breath test (UBT) screening for *H. pylori* infection
- Interviewer-administered questionnaires
- Medical chart review
- Endoscopy
- Treatment
Does the community-wide screening program better capture the *H. pylori*-associated disease burden than routine health care records?
Data collection

- Breath tests, clinical questionnaires and medical chart reviews were obtained from 290 participants from 2008 to 2011
  - Age range: 0-79 years
  - Female: 54%
  - Aboriginal: 88%
Analysis aims

• To compare the prevalence of *H. pylori* infection between
  – community-wide UBT screening
  – self-report having been tested previously
  – *H. pylori* diagnostic tests with regular health care during the 5 years prior to the date of completing the survey
Analysis aims

• To compare the prevalence of dyspeptic symptoms between
  – self-report having any in past 6 months
  – medical records in past 6 months

• Dyspeptic symptoms
  • Upper abdominal, overall
  • Epigastric pain/discomfort/burning
  • Feeling full for a long time/feeling full soon after starting eating
  • Heartburn/acid reflux
  • Upper abdominal bloating/belching
  • Nausea
## Prevalence of *H. pylori* infection

<table>
<thead>
<tr>
<th></th>
<th>Community-wide UBT screening</th>
<th>Diagnostic tests with health care</th>
<th>Self-report having been tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive cases</td>
<td>169</td>
<td>34</td>
<td>32</td>
</tr>
<tr>
<td>Sample size</td>
<td>290</td>
<td>56</td>
<td>47</td>
</tr>
<tr>
<td><strong>Prevalence</strong></td>
<td><strong>58%</strong></td>
<td><strong>61%</strong></td>
<td><strong>66%</strong></td>
</tr>
<tr>
<td>Proportion difference (95% CI)</td>
<td>-</td>
<td>3% (-12, 16%)</td>
<td>8% (-7, 22%)</td>
</tr>
</tbody>
</table>
## Prevalence of dyspeptic symptoms

<table>
<thead>
<tr>
<th></th>
<th>Self-report symptomatic in last 6 months</th>
<th>Captured by health care in last 6 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptomatic cases</td>
<td>154</td>
<td>23</td>
</tr>
<tr>
<td>Sample size</td>
<td>28</td>
<td>287</td>
</tr>
<tr>
<td><strong>Prevalence</strong></td>
<td><strong>53%</strong></td>
<td><strong>8%</strong></td>
</tr>
<tr>
<td>Proportion difference (95% CI)</td>
<td>-</td>
<td><strong>45% (39, 52%)</strong></td>
</tr>
</tbody>
</table>
# Health care utilization for symptoms

<table>
<thead>
<tr>
<th>Dyspeptic symptoms captured by health care</th>
<th>Self-reported dyspeptic symptoms</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td>128 (96%)</td>
<td>136 (88%)</td>
</tr>
<tr>
<td>Yes</td>
<td>5 (4%)</td>
<td>18 (12%)</td>
</tr>
<tr>
<td></td>
<td>133</td>
<td>154</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dyspeptic symptoms captured by health care</th>
<th>Self-reported dyspeptic symptoms</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No or mild</td>
<td>Moderate or severe</td>
</tr>
<tr>
<td>No</td>
<td>223 (94%)</td>
<td>41 (80%)</td>
</tr>
<tr>
<td>Yes</td>
<td>13 (6%)</td>
<td>10 (20%)</td>
</tr>
<tr>
<td></td>
<td>236</td>
<td>51</td>
</tr>
</tbody>
</table>
**H. pylori and dyspeptic symptoms**

<table>
<thead>
<tr>
<th><strong>Self-reported dyspeptic symptoms</strong></th>
<th><strong>H. pylori status from the UBT screening</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Negative/borderline</td>
</tr>
<tr>
<td>No</td>
<td>62 (52%)</td>
</tr>
<tr>
<td>Yes</td>
<td>58 (48%)</td>
</tr>
<tr>
<td></td>
<td>120</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Dyspeptic symptoms captured by health care</strong></th>
<th><strong>H. pylori status from medical charts</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Negative/borderline</td>
</tr>
<tr>
<td>No</td>
<td>5 (23%)</td>
</tr>
<tr>
<td>Yes</td>
<td>17 (77%)</td>
</tr>
<tr>
<td></td>
<td>22</td>
</tr>
</tbody>
</table>
Conclusions

• *H. pylori* prevalence was similar by population screening, chart review and self-report.

• Many *H. pylori*-infected people in Aklavik were asymptomatic, and many symptomatic people with *H. pylori* infection did not seek health care.

• Primary health care records did not capture most of the dydpeptic symptoms people reported having.
Acknowledgements

• Dr. Karen Goodman
  • Ashley Wynne
  • Janis Geary
  • Laura Aplin
  • Amy Colquhoun
  • Megan Lefebvre
  • Emily Hastings
  • Katharine Fagan-Garcia
  • Sally Carraher
  • Past research assistants
• CANHelp Working Group

• Alberta Innovates Health Solutions
• Canadian Institutes for Health Research
  • Institute of Aboriginal People’s Health
  • Network Environments for Aboriginal Health Research (NEAHR)
    • Anisabe Kekendazone, Ottawa
    • Nasivvik, Universite Laval
  • Partnered with Canadian Association for Gastroenterology & Industry Partners
• ArcticNet Networks of Centres of Excellence of Canada
• Aboriginal Affairs and Northern Development Canada
• Canadian Circumpolar Institute
THANK YOU! Questions?

Our website:
http://www.canhelpworkinggroup.ca