Historically, Helicobacter pylori (H. pylori) has been linked to peptic ulcers and gastric cancer, with major urban centers across Canada experiencing a decline. However, there has been a disproportionate increase in prevalence among northern Aboriginal populations. This has encouraged the establishment of a Clinical North Helicobacter pylori (CANHelp) Working Group in 2006, focusing on reducing health risks through effective management strategies.

### Methods

Each community project is designed in collaboration with a community planning committee and includes:

1. **Screening for H. pylori**: By 13C-Urea Breath Test (UBT), prioritizing brief, culturally acceptable strategies.
2. **Assessment of medical history and socio-environmental exposures**: Including questionnaire-based interviews.
3. **Upper endoscopy and biopsy collection**: To characterize histopathology and infection status.
4. **Treatment trial**: Evaluating the effectiveness of anti-1H. pylori therapies.
5. **Knowledge exchange activities**: Facilitating exchange activities and strategies.

### Community Projects

- **Aklavik Project**: Focusing on reducing health risks at a household level, through questionnaire-based interviews.
- **Old Crow Project**: Emphasizing environmental exposures at individual and community levels.
- **Tuktoyaktuk Project**: Conducting a policy analysis to identify cost-effective management strategies.

### Aklavik Project

- **Study Describe**: Community-approach validated.
- **Background**: No local research has been conducted.
- **Methods**: Pilot study initiated.
- **Data Collection**: During the scope.
- **Analysis**: Community feedback focused.
- **Results**: Infarction, inflammation, and metaplasia observed in the 194 individuals with H. pylori infection.
- **Prevalence**: 62% (193/313) by 13C-UBT.

### Old Crow Project

- **Study Describe**: Community-approach validated.
- **Background**: Different research has been conducted.
- **Methods**: Pilot study initiated.
- **Data Collection**: During the scope.
- **Analysis**: Community feedback focused.
- **Results**: Moderate prevalence of H. pylori infection.
- **Prevalence**: 72% (128/179) by 13C-UBT.

### Tuktoyaktuk Project

- **Study Describe**: Community-approach validated.
- **Background**: No local research has been conducted.
- **Methods**: Pilot study initiated.
- **Data Collection**: During the scope.
- **Analysis**: Community feedback focused.
- **Results**: Low prevalence of H. pylori infection.
- **Prevalence**: 60% (48/80) by 13C-UBT.

### Discussion

A high prevalence of H. pylori infection has been observed in all three communities. Further research in Aklavik shows high frequencies of H. pylori-related stomach conditions, with a high prevalence of severe gastric inflammation and gastric atrophy. The Aklavik study also revealed a high prevalence of severe gastric inflammation, precancerous conditions including atrophy, and intestinal metaplasia.

### Table 1: Participation

<table>
<thead>
<tr>
<th>Approach</th>
<th>Gastric Inflammation</th>
<th>Duodenal Inflammation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>13.9%</td>
<td>6.7%</td>
</tr>
<tr>
<td>Moderate</td>
<td>6.2%</td>
<td>6.5%</td>
</tr>
<tr>
<td>Severe</td>
<td>2.1%</td>
<td>0%</td>
</tr>
<tr>
<td>Cancer</td>
<td>11.7%</td>
<td>0%</td>
</tr>
</tbody>
</table>

### Table 2: Prevalence of H. pylori infection

<table>
<thead>
<tr>
<th>Project</th>
<th>Prevalence by 13C-UBT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aklavik</td>
<td>62% (193/313)</td>
</tr>
<tr>
<td>Old Crow</td>
<td>72% (128/179)</td>
</tr>
<tr>
<td>Tuktoyaktuk</td>
<td>60% (48/80)</td>
</tr>
</tbody>
</table>

### Table 3: Frequency of digestive conditions seen through the scope in Aklavik

- **Gastric Inflammation**: 13.9%
- **Duodenal Inflammation**: 6.7%
- **Erosions**:
  - Gastric: 6.2%
  - Duodenal: 6.5%
- **Ulcer**:
  - Gastric: 2.1%
  - Duodenal: 0%
- **Cancer**: 11.7%

### Table 4: Frequency of inflammation, atrophy and metaplasia observed in the 194 individuals with biopsies in Aklavik

- **Inflammation**:
  - Mild: 62%
  - Moderate: 27%
  - Severe: 11%
- **Atrophy**: 21%
- **Intestinal Metaplasia**: 11%

### Preliminary Conclusions and Next Steps

- High prevalence of H. pylori infection has been observed in Aklavik, Old Crow, and Tuktoyaktuk.
- High frequencies of H. pylori-related stomach disorders in Aklavik indicate that community concerns are warranted.
- The CANHelp Working Group aims to help identify strategies for reducing the H. pylori-associated disease burden.

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Community-driven Research on *Helicobacter pylori* infection in Northern Canada

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**Background**

- *Helicobacter pylori* (H. pylori) is a gram-negative bacterium that infects the lining of the stomach and/or duodenum, and has been linked to the development of peptic ulcers and gastric cancer. While a decline in prevalence has been observed in major urban centers across Canada, evidence has highlighted the disproportionately high prevalence in northern Aboriginal populations. This has instigated growing concern as the observed frequencies of H. pylori-related disease and treatment failure are also higher than those observed across southern Canada. In response to concerns brought forth by community leaders and health care providers, the Canadian North Helicobacter pylori (CANHelp) Working Group was established in 2006, with three main objectives:

1. To obtain representative data from diverse settings in northern Canada for informing regional public health strategies for reducing risks from H. pylori.
2. To conduct a policy analysis to identify cost-effective H. pylori management strategies that are ethically, economically and culturally appropriate for northern communities.
3. To develop knowledge exchange strategies that help community members understand H. pylori health risks as well as available solutions and unsolved challenges for reducing these risks.

**Methods**

Each community project is designed in collaboration with a community planning committee and typically includes:

1. **Screening for H. pylori by 13C-Urea Breath Test (UBT)**
2. **Assessment of medical history and socio-environmental exposures** at both the individual and household level, through questionnaire-based interviews.
3. **Upper endoscopy and biopsy collection**, to characterize histopathology in relation to H. pylori infection and estimate prevalence of strains with antibiotic resistance and virulence factors.
4. **Treatment trial** to assess the effectiveness of anti-H. pylori therapies.
5. **Knowledge exchange activities** for effective strategies.