Perceptions about environmental causes of *Helicobacter pylori* infection in a Canadian Arctic community


Residents of Aklavik, a hamlet in the Northwest Territories, identified *H. pylori* infection as a health research priority. The Aklavik *H. pylori* Project arose from collaboration between community leaders, health authorities and scientists. Overall, the project aims to describe socio-demographic patterns of *H. pylori* infection and the associated burden of disease to generate evidence for local health care policy development and address community concerns regarding health risks.

**Background:**
- Prevalence of *H. pylori* infection has been shown to be high in northern populations in Canada, Greenland, and Russia; prevalence among study participants in Aklavik was 58%.
- Gastric cancer is the 4th most frequently diagnosed cancer in NWT males, compared to 10th in males across Canada.
- Extensive research on transmission suggests that *H. pylori* usually spreads directly from person to person, perhaps most readily during bouts of acute gastroenteritis with vomiting and/or diarrhea.
- Existing evidence has confirmed rules on an environmental reservoir; research so far has been inconclusive due to difficulties in culturing *H. pylori* from environmental sources.

**Methods**

Since the project launched in November 2007, 344 (58%) of Aklavik’s 590 residents participated in a survey that ascertained whether they had heard of *H. pylori* and if they thought it was a community concern. Those indicating that they had heard of it were asked if they had an idea about how people get it, and if so, to specify their ideas about this (as an open-ended query). Those indicating it was a community concern were asked why (as an open-ended query). Responses were entered into a database and coded for similarity. Frequencies were analyzed using SPSS 17 and Stata 10. Response frequencies and 95% confidence intervals (CI) are reported as percentages of those responding to the specific question. Only respondents aged 12 years and up were included because younger participants did not all respond by themselves.

**Results**

Of the 298 respondents aged 12+ years, 162 people, 54% (95% CI 49-60), indicated they had heard of *H. pylori* infection. 80 people of 160, or 50% (95% CI 42-58), indicated they had an idea of how people get it, and their responses are outlined in Table 1 and Figure 2. 228 of the 298 respondents, representing 77% (95% CI 71-81), agreed that *H. pylori* is a community concern and 188 stated one or more reasons for concern, outlined in Table 2 and Figure 3.

**Discussion**

Among participants who expressed an idea about how people get *H. pylori* infection, most mentioned the local water as a potential source. A substantial proportion of people stated that *H. pylori* is a community concern because “it’s in the water”, reflecting the importance Aklavik residents place on water quality as an environmental health issue. Perceptions about environmental sources of *H. pylori* infection may have important implications for developing effective prevention strategies. Effective knowledge exchange strategies are needed to address the perception that *H. pylori* infection is a result of contaminated water, with emphasis on what current scientific evidence suggests.

**Conclusion**

This work represents a first step in describing ideas and concerns related to the role of the environment in emerging awareness of an infectious cause of cancer in an Arctic hamlet, and will aid researchers in designing knowledge exchange strategies aimed at the community understanding the risks to their health related to *H. pylori* infection.

**Acknowledgements:**

We would like to thank the community of Aklavik for their continued participation, collaboration, and enthusiasm for this research project.