

Community-driven research to investigate traditional approaches to treating *H. pylori* infection and related disease in remote Arctic communities: A literature review.



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Introduction

Community members in Aklavik, NWT have expressed interest in studying traditional medicines for effectiveness in treating *Helicobacter pylori* infection and related stomach disease. Previous research in this region has demonstrated that *H. pylori* infection is common, individuals with the infection experience higher than expected rates of more severe gastric outcomes, and many struggle to complete available pharmaceutical treatment regimens for the infection.

Our goal is to integrate traditional approaches with biomedical to facilitate adherence to pharmaceutical regimens and in this way improve completion and success rates of conventional medical approaches to anti-*H. pylori* therapy.

Community input workshops

In June 2015, the Aklavik *H. pylori* Planning Committee (comprising CANHelp Working Group staff and community representatives) met to develop research objectives and plans. The committee identified three main areas of research:



Acknowledgements

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- ArcticNet Network of Centres of Excellence of Canada
- Aboriginal Affairs and Northern Development Canada
- Canadian Circumpolar Institute



Literature Review

We carried out a comprehensive search of published literature using terms related to *traditional ecological knowledge*, *Indigenous*, *plant preparations*, *ethnobotany*, and *circumpolar* in seven electronic databases. We included articles if they focused on a circumpolar Indigenous community and traditional medicines to treat disease.

Our search identified 372 articles, and after removing irrelevant and duplicate articles, we were left with 54 articles.

We excluded 59% (32) that did not describe any involvement of a local community in the research.

22 articles included at least some details that indicated the research followed a community-driven or participatory approach. As expected, no studies focused on *H. pylori* infection or other stomach diseases.

	Consulted community members or organizations	Incorporated traditional knowledge into project	Employed local research assistants	Simply acknowledged a community or group
Number of articles	14	10	3	5

Research Plans

Assess knowledge and attitudes

- Evaluate the knowledge and attitudes about traditional and biomedical approaches to managing *H. pylori* infection and related illness in the general community
- Interviewer-led surveys
 - Community workshops to disseminate results from literature review of local medicines
 - Presentations and two-way knowledge exchange in collaboration with local partners

Evaluate biological activity

- Determine if plants that are used in the community for stomach illness have biological activity
- Local knowledge holders facilitate preparation of plants, and transportation of plant materials to University of Alberta laboratory
 - Knowledge exchange workshops to integrate:
 - plant genetics and phylogeny
 - laboratory assays
 - existing traditional and biomedical knowledge

Document traditional approaches

- Identify and disseminate any previously undocumented traditional approaches to managing stomach illness from local knowledge holders
- In-depth interviews with knowledge holders based on descriptions of *H. pylori*-related symptoms
 - Surveys to determine the timelines for collecting relevant plants
 - Develop a protocol for plant collection
 - Specific outreach to engage youth in process
 - Enable archiving of plant information (digital and/or physical herbarium)
 - Participatory workshops to disseminate knowledge

Future directions

If local medicines are identified that can be safely incorporated as complimentary therapies with biomedical approaches, develop trials to determine if incorporating local medicines can help improve healthcare seeking behaviours and adherence to treatment regimens.

H. pylori infection and outcomes in Aklavik, NWT

High prevalence of infection and more severe clinical outcomes

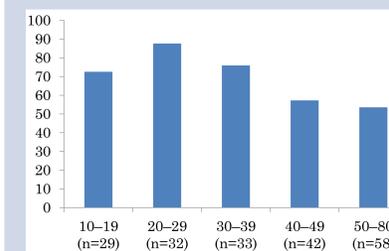


Figure 1: Prevalence of *H. pylori* infection in Aklavik, NWT by age group

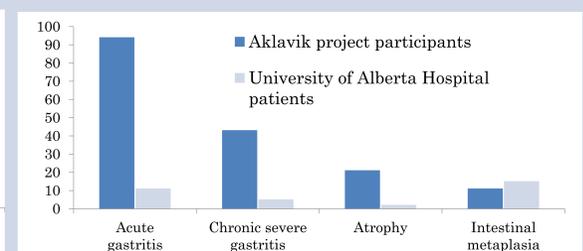


Figure 2: Prevalence of *Helicobacter pylori*-associated histopathology in individuals with evaluated gastric biopsies, comparing 129 Aklavik *H. pylori* Project participants (Northwest Territories, Canada) and 401 University of Alberta Hospital patients (Edmonton, Alberta, Canada)

Data from: Disease manifestations of *Helicobacter pylori* infection in Arctic Canada: using epidemiology to address community concerns. *BMJ Open*. 2014; 4:e003689

Low rates of *H. pylori* infection treatment success and adherence

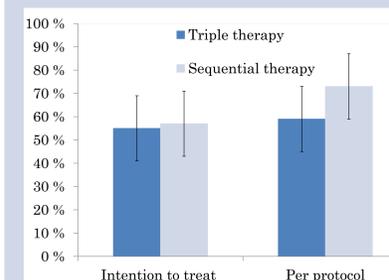


Figure 3: Success rates of different antibiotic regimens in Aklavik, NWT (total treated with follow-up=89)

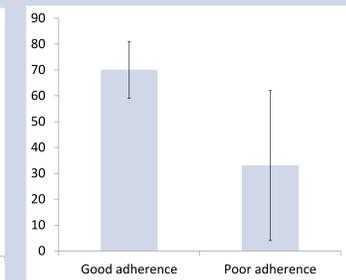


Figure 4: Treatment success rates with by adherence level in Aklavik, NWT (n=79). Good adherence is ≥80%.

Reason	N
Changed mind about taking treatment	4
Consumed alcoholic beverages	3
Nausea	3
Stomach pain	2
Forgetfulness	2
Difficulty in swallowing pills	1
Bad taste of pills	1
No reason	1

Table 1: Reported barriers for not achieving 80% adherence among 17 Aklavik *H. pylori* Project treatment trial participants with poor adherence

Data from: A randomized controlled trial comparing sequential with triple therapy for *Helicobacter pylori* in an Aboriginal community in the Canadian North. *Can J Gastroenterol*. 2013; 27(12):701-706

Data from: Adherence and barriers to *H. pylori* treatment in Arctic Canada. *Int J Circumpolar Health*. 2013; 72:22791

Current approaches are not sufficiently managing stomach illness

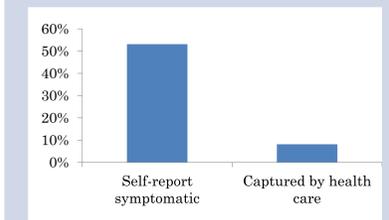


Figure 5: Prevalence of dyspeptic symptoms in the last 6 months

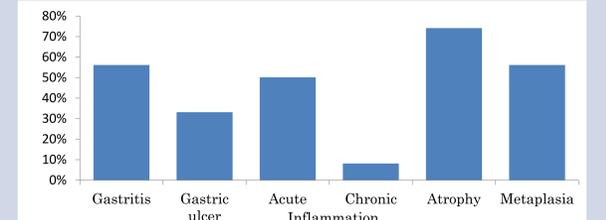


Figure 6: Percent of individuals who have never sought care for stomach illness, by diagnostic category

Data from: *H. pylori*-associated disease burden in a northern Canadian community. Comparing medical records and community-based screening. *UA Circumpolar Student's Association: Northern Research Day*. Mar 29, 2012

Data from: Symptomatic manifestations of *H. pylori*-associated disease in a northern Canadian community. *XXIVth International Workshop on Helicobacter and Related Bacteria in Chronic Digestive Inflammation and Gastric Cancer*, Dublin, Ireland. Sep 11-13, 2011.