



Community-driven health research in
NWT and Yukon:
Engaging students and non-academic partners in
interdisciplinary public health research

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Dr. Janis Geary, Research Associate

March 15, 2018

Northern Research Day

Our talk today

- Provide an overview of the research program
- Developing community-driven research with a biomedical focus in Northern Canada: Educating and mentoring students
- Implementing community-driven research methods into scientifically rigorous research





CANHelp
WORKING GROUP

Overview

Canadian North *Helicobacter pylori* (CANHelp) Working Group

Research Program

Helicobacter pylori

- What is *Helicobacter pylori*?
 - A type of bacteria that can live in the stomach
 - Many people around the world have *H. pylori*
- How is *H. pylori* spread?
 - Most often during childhood
 - Most likely from an *H. pylori*-infected person who is sick with vomiting or diarrhea



Helicobacter pylori

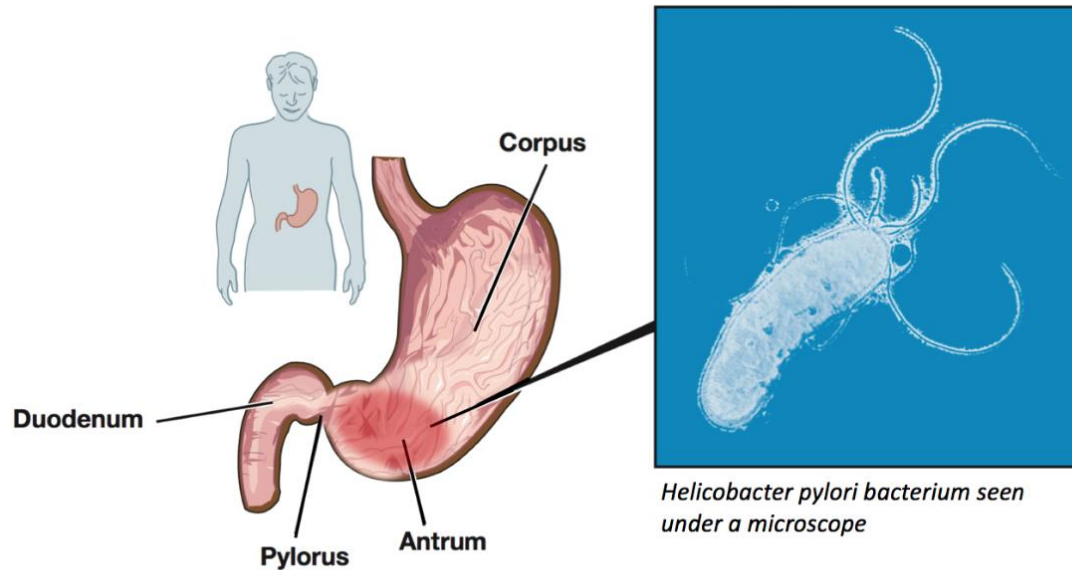
- How common is *H. pylori* infection?
 - Believed to be common everywhere in the pre-modern world, prevalence of *H. pylori* infection was estimated in 2000* to be around:
 - 40% in developed countries
 - 70% in developing countries
 - Prevalence in developed countries continues declining, though social disparities persist within these countries



*Brown L.M. Epidemiol. Rev. 2000;22(2):283-297

Helicobacter pylori

- Causes chronic stomach inflammation
- Increases risk of stomach ulcers and stomach cancer



Helicobacter pylori

- The best treatments require 3-4 drugs for 10-14 days
 - Under the best circumstances initial treatment cures ~80-90%
 - In populations where *H. pylori* is common, treatment failure is also common



Canadian North *Helicobacter pylori* Working Group

- Formed during 2006-2008 in response to:
 - Community concerns about health risks from *H. pylori* infection
 - Health care providers seeking information to improve clinical management of *H. pylori* infection
 - Public health officials wanting evidence to inform public health policy related to *H. pylori* infection





Figure 1: Locations of current CANHelp Working Group community *H. pylori* projects

Participation in community projects

Participants Recruited	1397
Info on <i>H. pylori</i> status	1333
Health Surveys Completed	1222
Participant Surveys Completed	920
Endoscopies Completed	405
Assigned Treatment in Trial	294

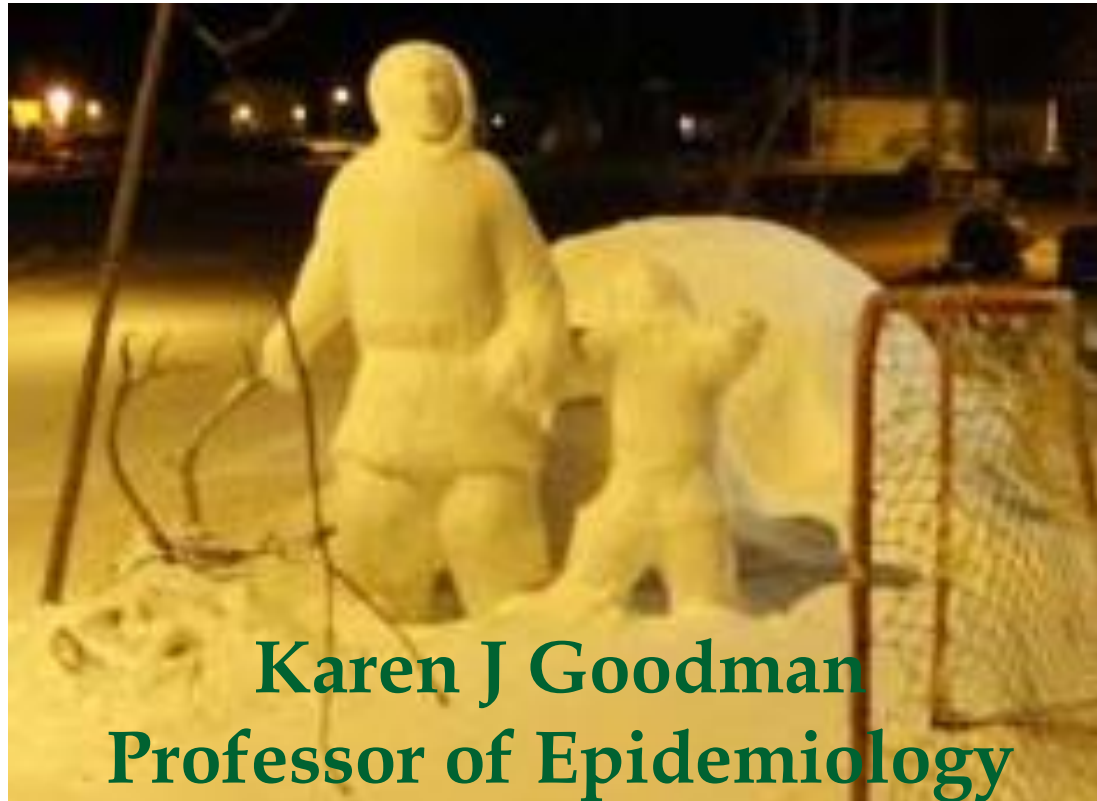
Key findings from CANHelp projects

- High prevalence of *H. pylori* infection
- High prevalence of severe disease associated with the infection
- Improved treatment regimens have increased treatment success from 60% to >90%
- Reinfection following successful treatment is infrequent
- Unique features of bacterial strains isolated from stomach biopsies

Developing community-driven research
with a biomedical focus
in Northern Canada

by

Educating and Mentoring Students



Karen J Goodman
Professor of Epidemiology

Teaching & Learning Philosophy

- ❖ Effective teachers stimulate active learning and encourage students to be critical, creative thinkers by
 - Creating opportunities for learning-by-doing
 - Fostering critical thinking
 - Putting students in charge of their own intellectual growth as scholars and practitioners
- ❖ Graduate education aims to develop scholarly and professional abilities



Teaching & Learning Philosophy

❖ ***Scholarly abilities include***

- Synthesizing, integrating and applying knowledge
- Systematic observation and analysis
- Critical reflection
- Evaluation
- Depth of understanding



Teaching & Learning Philosophy

❖ *Professional abilities include*

- Independent learning and problem solving
- Critical review of developments in the field
- Effective communication and collaboration with colleagues
- Teaching and guiding others



Mentoring Philosophy

- ❖ Effective mentors cultivate professional abilities by
 - Facilitating connections
 - Modeling professional behavior
 - Facilitating opportunities for learning by doing



Developing a Research Program with Research Practice Opportunities

Principles from Practice

- I've grown my research organically by recruiting researchers-in-training and helping them develop professionally while pursuing their interests according to their abilities



Developing a Research Program with Research Practice Opportunities *Clinical Research Practice*

- 2007-2009, Justin Cheung, MD, Gastroenterology Resident
 - AHFMR-CAG Clinical Research Fellowships:
Designed/directed first *CANHelp* mobile endoscopy clinic (for Aklavik *H. pylori* Project)



Developing a Research Program with Research Practice Opportunities

Northern Research Training Awards

- 2008-2009, Janis Geary, MSc Global Health Student
 - NSTP-C/BAR Project: “Knowledge Transfer of Health Research Findings to Community Members of Aklavik, NWT”
- 2008, Michael Arget, MPH Student
 - NSTP-C/BAR Project: “Investigating Community Health Problems Related to *H pylori* Infection in the NWT”



Developing a Research Program with Research Practice Opportunities

Clinical Research Practice

- 2008, Amy Morse, MD, Gastroenterology Resident
 - Clinical Research Practice: Designed/directed first randomized treatment trial (for Aklavik *H. pylori* Project)



Developing a Research Program with Research Practice Opportunities

Northern Research Training Awards

- 2011, Ashley Wynne, MSc-Global Health Student
 - NSTP-C/BAR Project: “Developing efficient tools for collecting medical chart data on the burden from digestive diseases in northern community health centres”



Developing a Research Program with Research Practice Opportunities

Northern Research Training Awards

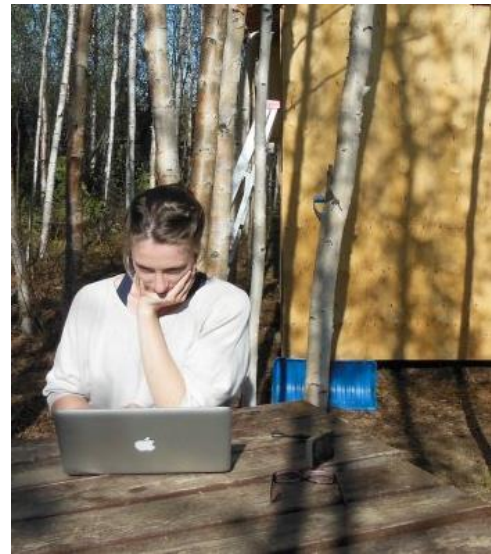
- 2011, Megan Lefebvre, PhD-Epidemiology Student
 - NSTP-C/BAR Project: “Community-driven research on barriers to successful treatment for *H pylori* infection in northern Canada”
- 2011, Amy Colquhoun, PhD-Epidemiology Student
 - NSTP Project: “Assessing common understanding among community members, researchers, and health professionals as part of knowledge translation for community-driven research on *H pylori* in northern Aboriginal communities”



Developing a Research Program with Research Practice Opportunities

Northern Research Training Awards

- 2012, Emily Hastings – MSc-Epidemiology Student
 - NSTP-C/BAR Project: “*H. pylori* infection as an environmental health concern in the Inuvialuit Settlement Region”
- 2013, Emily Hastings – PhD-Epidemiology Student
 - NSTP-UANRA Project: “Community-driven research on potential environmental sources of *H. pylori* infection in northern Canada”



Developing a Research Program with Research Practice Opportunities

Northern Research Training Awards

- 2014, Kathleen Williams, MSc-Epidemiology Student
 - NSTP-UANRA Project: “Investigating exposure to antibiotics in Arctic community *H. pylori* projects”



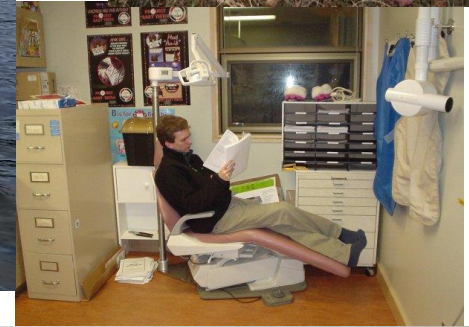
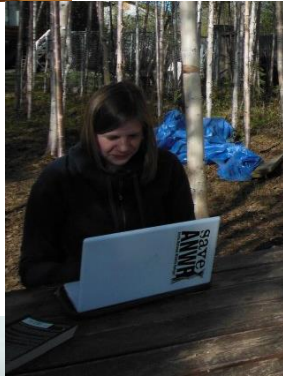
Developing a Research Program with Research Practice Opportunities

Northern Research Training Awards

- 2016, Taylor Cromarty, MSc-Epidemiology Student
 - NSTP-UANRA Project: “Studying the effect of deprivation indicators such as food insecurity on the relative frequency of *H. pylori* infection and its consequences in female-led households compared to other households”
- 2016, Amrit Passi, MSc-Epidemiology Student
 - NSTP-UANRA Project: “The impact of free living amoeba on *Helicobacter pylori* infection in Indigenous Canadian Arctic communities”



Developing a Research Program with Research Practice Opportunities *Research Interns*



Incorporating community-driven research methods in scientifically rigorous research

Dr. Janis Geary

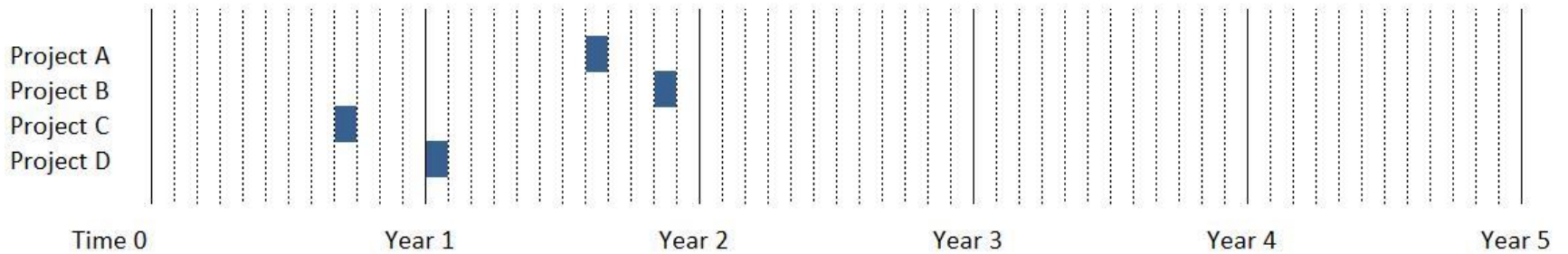


Planning committees

- Composition varies between communities
- Process to set up a committee
 - Present at a community event
 - Get a sense of community interest in research
 - Work with partners to identify types of committee members
 - Community health directors
 - Band council representation
 - Municipal government
 - Community leaders



Time to starting planning workshops after initial invitation



Planning committees

- Initial planning workshop:
 - Community shares knowledge of stomach health in community and concerns about *H. pylori* infection
 - Researchers share knowledge of *H. pylori* infection
 - Community and researchers work together to determine what community questions can be answered using available research methods



Planning committees

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Example: Water



Investigating *H. pylori* and water

- Community request:
 - I'm worried the water is making me sick, so can you test the water?
- Problem:
 - Can't just test the water for *H. pylori*
 - Could find it, but that doesn't mean it's infectious
 - Could miss it, but that doesn't mean that it's not there and infectious



Investigating *H. pylori* and water

- Solution:
 - Identify what research question the community partner is really interested in



Investigating *H. pylori* and water

- Solution:
 - Identify what research question the community partner is really interested in
- It's not “are there *H. pylori* in the water?”, it's “is water a source of *H. pylori* bacteria or a mode of transmission?”
- Can use epidemiology, not microbiology, to answer



Investigating *H. pylori* and water

- Epidemiologic investigation
 - Data from Aklavik and Tukoyaktuk
 - Estimate the association between consumption of untreated water and *H. pylori* prevalence

Variable	N	HP+ (%)	OR (adjusted)	95% CI
Ever consumed untreated water				
No	86	54 (63)	1.0	
Yes	282	173 (61)	0.36	(0.14, 0.94)

Policies and procedures

canhelpworkinggroup.ca



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Collaborative Partnerships

Guiding Principles and Research Project Guidelines

Statement on Stewardship and Dissemination of Knowledge Generated Collaboratively in CANHelp Working Group Community Projects ([link to document](#)).

Research Agreements

As the first step in planning a community project, the planning committee and the research team develop a Research Agreement ([see sample agreement here](#)).

Acknowledgements

- Other members of the *CANHelp* Working Group
- Alberta Innovates – Health Solutions (AIHS)
- Canadian Institutes for Health Research (CIHR)
 - Institute of Aboriginal People’s Health
 - Network Environment for Aboriginal Health Research (NEAHR)
 - Anisabe Kekendazone, Ottawa
 - Nasivvik
- ArcticNet Network of Centres of Excellence of Canada
- Indigenous and Northern Affairs Canada
- Ualberta North



Inuvialuit Regional Corporation



