

Environmental Health Risks in the Canadian North: Acute and Chronic Gastrointestinal Illness in Rigolet, Nunatsiavut

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Background

- Climate change is threatening environmental and health systems all over the world¹.
- Indigenous peoples' health in Northern Canada is highly impacted by environmental changes due to their reliance on local ecosystems for food and traditional practices^{2,3}.
- Acute gastrointestinal illness (AGI) can be acquired via environmental factors such as food or water⁴.
- In the Inuit community of Rigolet, Nunatsiavut, Canada, the rate of self-reported diarrheal disease is extremely high; however, the rates of diagnosed and undiagnosed chronic gastrointestinal illness (GI) are unknown.

Goal and Objectives

Explore whether the rate of AGI in Rigolet is truly higher than the Canadian average, or if this rate is high due to the undiagnosed chronic conditions in the community.

- Estimate the prevalence of chronic GI in the Rigolet community.
- Compare Rigolet's rate of chronic GI to estimates found from studies in other Canadian communities and in developed countries.
- Identify differences in healthcare utilization for chronic GI compared to AGI in Rigolet.



Figure 1: Location of Rigolet, Nunatsiavut in Labrador, Canada⁵.

Methods

- Six AGI surveys were conducted in Rigolet: Sept. 2011, Feb. 2012, May 2012, July 2012, Sept. 2012, and May 2013.
- Results from each survey were combined for analysis.
- Descriptive statistics were completed with statistical software.
- Univariable and multivariable analysis were conducted, controlling for repeated measures with a random effect.

Preliminary Results

- 15.7% of the population reported AGI symptoms in the two weeks before the survey.
- Incidence of AGI in Rigolet was 4.48 episodes/person-year averaged over the six surveys.
- Incidence of AGI in Rigolet when excluding chronic cases may be as low as 3.84 episodes/person-year.

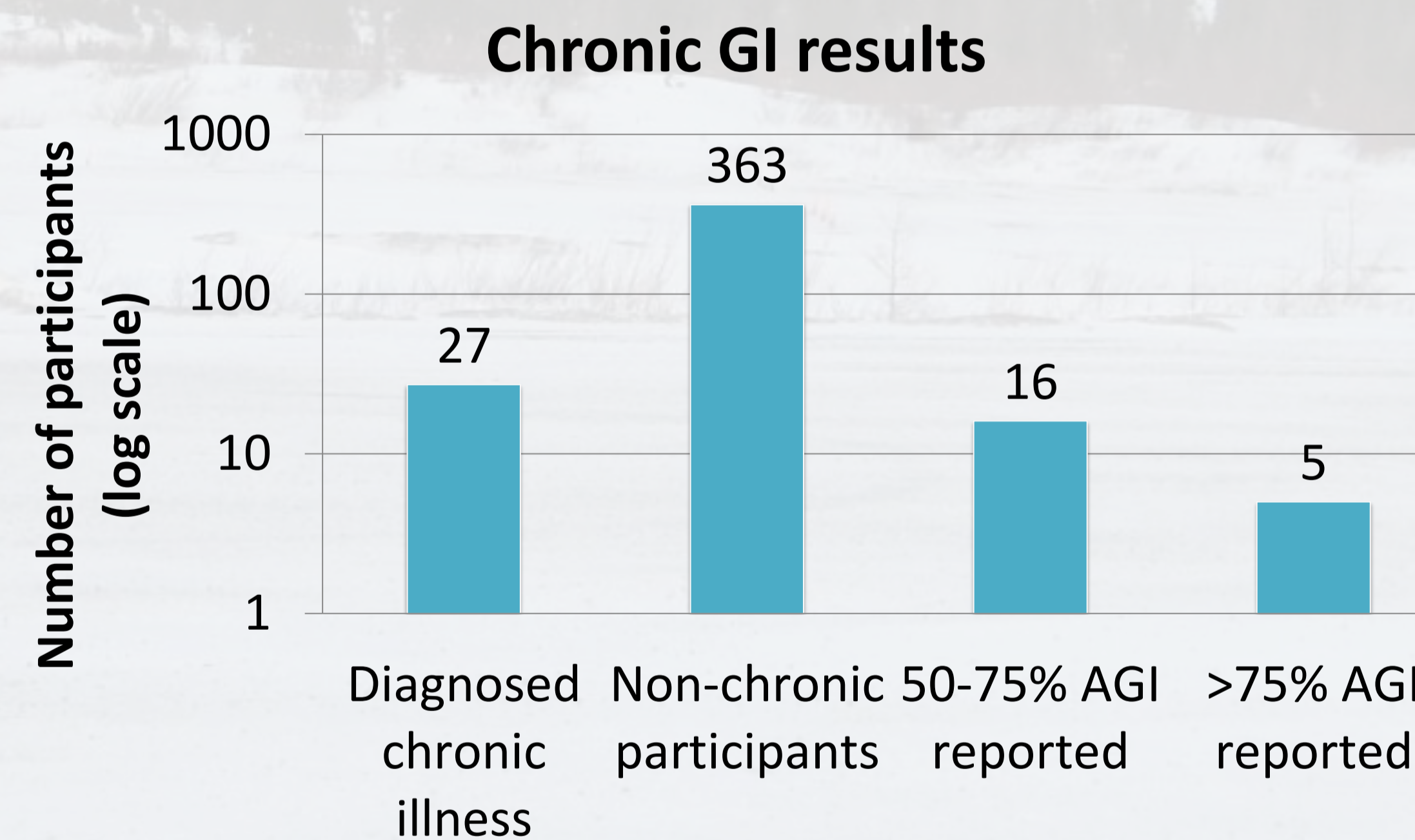


Figure 2: Proportion of Rigolet population with diagnosed chronic GI, non-chronic symptoms, and undiagnosed chronic GI. Percentage AGI reported refers to the proportion of surveys indicating self-identified AGI symptoms.

Table 1: Proportion of Rigolet population with undiagnosed conditions, chronic conditions from medication, diagnosed conditions, and both diagnosed and medication-related chronic conditions.

Population Subset	Proportion of Population	95% Confidence Interval
Undiagnosed condition	7.4%	6.1 - 8.9%
Chronic from medication	3.7%	2.8 - 4.8%
Diagnosed condition	3.1%	2.3 - 4.2%
Diagnosed and medication chronic condition	6.8%	5.1 - 9.0%

- Based on these results, 11.2-17.9% of the population in Rigolet was estimated to have chronic GI.

Discussion

- The chronic GI rate in Rigolet may be similar to the national average in Canada (16.0%).
- Lack of access to healthcare may be related to the undiagnosed chronic conditions and increased rates of AGI.



Next Steps

- Continue univariable and multivariable data analysis and modelling of causal variables.
- Prepare a peer-reviewed paper.
- Develop a plan to disseminate study results to community members in Rigolet.

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