

# Are we measuring the right things in the right ways? Local perspectives on the influence of the environment on community health in northern Saskatchewan, Canada

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## Introduction

This study is grounded in a recognized need for health frameworks and indicators specific to Aboriginal communities and contexts. The literature points to the importance of frameworks that include determinants of health in addition to health outcomes. Moreover, community level health measures are identified as especially important for small, rural, and remote communities, capturing the immediate biophysical and social environments in which individual level determinants and outcomes are located. Finally, defining and tracking changes in community health status is viewed as an area that should be controlled by First Nations health organizations as a component of self-government. Aboriginal and local development of community level health frameworks and indicators represent an important element of local control of health information.

## Background

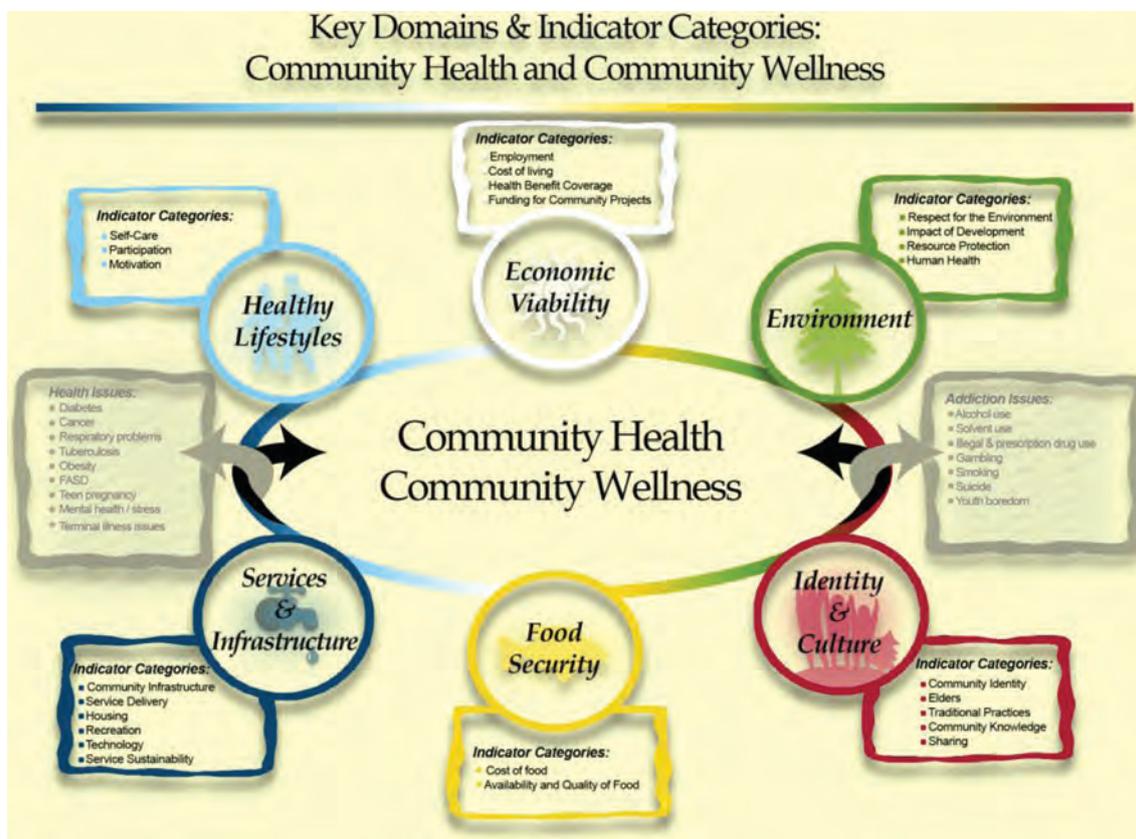
This project followed from an evaluation of transferred health services that identified a desire to collect evaluative information about community well-being more broadly than just health services, as well as more specific to the culture and environment of the peoples in the area. We adapted Pampalon (1) to articulate our research questions as: (a) What is a healthy community; (b) How would we measure that; (c) How healthy is our community; and (d) Why would we measure that? Nine communities, a Grand Council, and a health authority partnered with university researchers to conduct the first phase of research, which addressed the first 2 questions, and produced a framework (Figure 1) and associated measures packaged as a Tool Kit (2). Questions 3 and 4 were

addressed in the second phase of research with 2 reserves, 1 provincial community, and 1 health authority. The communities chose to focus on 4 domain areas: food security, culture & identity, housing, and environment. This paper reports on the findings from question 4, “why would we measure that?” in 1 domain (environment) in 1 community, Fond du Lac Denesuline First Nation (FDL). There are conceptual and analytical distinctions in the Tool Kit with the use of domains, however it is clear that the lived reality is more complex. Question 4 revisits the Tool Kit to identify gaps, and to better understand the lived experience of constellations of measures.

FDL, located on the northeastern shores of Lake Athabasca in Saskatchewan, Canada, is a fly-in community with a seasonal winter road. Supplies and services are largely delivered by air and barge. The 2011 census reports 874 people living in 197 private dwellings. The population is mainly Dene and Métis, and the primary language spoken is Dene. Mineral and resource extraction is a significant economic driver and many people pursue land-based subsistence activities.

## Methodology

“Why would we measure that?” is a reflexive question, for which we wanted to produce data in a methodologically different, independent, and community based manner. The results allow us to reflect in particular on our answer to “how would we measure that” from the first phase of research, to improve and add to the measures we had previously suggested. The methodological approach to question 4 was planned as a yearlong, 4-season, community photovoice project, supplemented with ethnographic



*Fig. 1.* The community health framework diagram developed for the community health indicators toolkit identifying the 6 domains under which the suggested measures are organized (2).

data collection by research team members and students. This would allow community members to both show and tell us about what they see as important to the health of their community, accessing moments across time and space less easily captured or anticipated in interview or focus group discussions. Our initial plan followed a series of steps adapted from Wang & Burris (3). Participants were given digital cameras and asked to take photographs representing each of the 4 domain areas (maximum 15 in each) during a 2-week period in each of the 4 seasons, to show what they feel is important to the health of their community. The participant would meet with a researcher to return the camera, and select their 4 most significant photos in each domain area. A follow-up interview would be scheduled to discuss the 16 selected photographs. The same participant would return the next season and complete the cycle again. Orientation to the project, to photovoice, and to research ethics requirements would be provided at the first data collection cycle, and revisited in subsequent seasons. The project was approved on ethical grounds by the University of Saskatchewan Behavioural Research Ethics Board and received approval from Chief and Council in FDL.

## Participants

Twelve individuals (11 women and 1 man), aged 20–50 years, ultimately completed at least 1 season of photography plus an interview, and 5 completed all 4 seasons. A total of 639 photographs were taken.

## Results

Results are reported in 2 parts: implementation of methodology, and substantive findings in the environment domain.

The data collection strategy ultimately deviated from plans in 3 ways. The first is that 2 years were required to collect the full 4 seasons of photographs, working with 4 community research assistants. While the target of 10 participants was exceeded, only 5 completed all 4 seasons, and a gender-balance was not achieved. Second, individual interviews were conducted in addition to the group approach described by Wang and Burris (3). Third, a research staff member accompanied some participants, at their request, as they took their first set of photographs. These changes to the methodology were discussed and documented as they were unfolding and increased the success of the methodology.

The environmental issues that participants have identified so far as most important to community health include: solid and sewage waste management, waterways and land routes for safe transportation, weather and climate conditions, commercial resource extraction, and access to land foods. In addition, aesthetics emerged as a major theme. Many photographs captured landscape beauty in each season, which in interviews was described as important to well-being. Overall, participants drew strong linkages between issues in the environment domain and the other domain areas.

### Conclusions

A calendar of participant photographs and quotes was distributed to FDL households. In addition, posters highlighting photos and quotes from each season, and a video, are being produced for community gatherings. Discussion will be invited from all who attend about what they see as vital to the health of FDL and its peoples. This is an opportunity to explore the photos with more community members. The next Tool Kit revision will more explicitly link measures across domains, emphasizing the importance of their combined influence on community health. New measures need to be developed, such as one that captures aesthetics. The goal is to create a sustainable resource that places and controls the information generated locally, providing an effective tool for self-determined community health initiatives.

### Acknowledgements

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This research is funded by the Canadian Institutes of Health Research through the Institute of Aboriginal Peoples Health. Funding from the Erasmus Mundus MESPOM Program supported the participation of Anthony and Stylianidou in this research. We would like to thank our community research assistants in FDL: Sylvia Martin, Rita Lidguerre, Bernice Fern and Clarissa McDonald. Thanks also to project coordinators Colleen Hamilton and Diana Fedosoff.

### References

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1. Pampalon R. A health index for communities in developing a healthy communities index: a collection of papers. Ottawa: Canadian Institute of Health Information; 2005.
2. Jeffery B, Abonyi S, Hamilton C, Bird S, Denechezhe M, Lidguerre T, et al. Community health indicators toolkit. University of Regina and University of Saskatchewan: Saskatchewan Population Health and Evaluation Research Unit; 2006 [cited 2013 Jun 27]. Available from: [http://www.spheru.ca/research\\_projects/projects/Project.pdf/Tools1\\_Community-Health-Indicators-Toolkit.pdf](http://www.spheru.ca/research_projects/projects/Project.pdf/Tools1_Community-Health-Indicators-Toolkit.pdf)
3. Wang C, Burris MA. Photovoice: concept, methodology, and use for participatory needs assessment. *Health Educ Behav.* 1997;24:369–87.

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