Engaging Numbers:
Developing Health Indicators that Matter for First Nations and Inuit People

Bonnie Jeffery, PhD,
Faculty of Social Work, Saskatchewan Population Health and Evaluation Research Unit (SPHERU), University of Regina;
Sylvia Abonyi, PhD,
Department of Community Health and Epidemiology, SPHERU, University of Saskatchewan;
Ronald Labonte, PhD,
Institute of Population Health, University of Ottawa AND
Kerrie Duncan, MA,
Inuit Tapiriit Kanatami

Abstract
This paper addresses citizen participation in the development of community-level health and capacity indicators with a specific focus on processes that can be used to engage community members in indicator development. It is based on work that the authors completed with the Inuit Tapiriit Kanatami (ITK) in 2002 and work they have been conducting in partnership with the Prince Albert Grand Council (PAGC) and Athabasca Health Authority (AHA) in northern Saskatchewan. The latter project developed tools for First Nations health organizations to assess the impacts of their health and social service programs on community wellness and capacity. The project included a critical review of existing community-level population health indicators and indicator frameworks, the identification of gaps in the literature related to culturally appropriate community health indicators, and the utilization of a process by which these indicators might be implemented and tracked by First Nations health organizations at the community level.

In addition to the results of our work to date, we highlight some of the literature that specifically addresses Aboriginal conceptions of community health and community capacity along with an assessment of gaps in the literature in the context of culturally appropriate indicators. We conclude by discussing the processes that we have used with Inuit health groups and community-based First Nations health organizations in identifying culturally appropriate and relevant community health and capacity indicators.

Key Words
Community health, community capacity, population health indicators, First Nations, Inuit

INTRODUCTION

Numerous population health indicator templates or frameworks exist, and work towards achieving a consensus on the most important indicators continues. Such frameworks are helpful tools both for conveying in simple ways the complexity of population health determinants and their inter-relationships, and for organizing the selection of indicators. We are unaware of any template or framework that incorporates Aboriginal community concerns, and know of only one general framework based upon the Medicine Wheel, which we discuss later in this paper. Developing culturally relevant population health frameworks is as important as engaging community members in identifying specific indicators; not doing so risks a disempowering imposition of “expert” over “lay” knowledge and a failure of community stakeholders to use (analyze, interpret, act upon) the information that is gathered.

We begin by providing a brief overview of population health and community capacity indicators, including an argument for the importance of the availability and accessibility of these indicators at the community level. We provide a brief review of literature and results from other studies that discuss the development of Aboriginal frameworks and indicators to measure community health and capacity. We conclude by presenting the processes we used in two projects in order to highlight the importance of citizen involvement in developing indicators that are appropriate and meaningful in the context of specific communities. While the content of the indicators is very important, we argue
that the process by which these indicators are developed is equally important.

**Population health indicators: a brief overview**

Population health indicators are a subset of social indicators. Social indicators arose as an area of conceptual development in the 1970s in response to the failure of conventional economic measures (such as gross national product) to capture the factors that many people believed were important to their quality of life. They re-emerged in public, professional and research discourse in 1990s, as the push for evidence-based policy-making intersected with resurgent social movements and the rise of indigenous self-rule that called into question what type of “evidence” was important to collect, and for whose use.

Population health indicators measure the health of groups of people who share common geographic or political boundaries (i.e., communities, nations) or groups of people who share common characteristics (i.e., ethnicity, gender, age). They also measure health-determining social, economic and environmental conditions, and the equity (fairness) in peoples’ exposure or access to these conditions. Population health as a concept draws attention to health determinants that affect people as groups, rather than as individuals. Teaching someone to eat more nutritiously is an individual health issue. Ensuring that all people have access to nutritious food (its availability, its cost, its cultural appropriateness) is a population health issue. Population health indicators, in turn, are measurement systems used to monitor health and health-determining conditions at different political levels (i.e., international, national, regional, community), with the intent of informing how these conditions should be changed and identifying possible interventions. While many population health indicators are collected at or available for larger geographic settings, it is becoming increasingly important for such indicators to be available at and/or collected from local communities, the level at which people live, work and play, and interact with services and service providers.

Population health indicators have several important uses: as benchmarks to track health in communities, as a communication tool in communities, as information for developing and monitoring programs, and, at a national level, as a means to advocate for funding for specific programs and policies. These uses, and their importance, are not simply academic; the Aboriginal groups with whom we have worked—the ITK and the PAGC—also spoke to the importance of having comparable and culturally relevant population health data for their communities.

There is a caveat to the use of such indicators for program evaluation purposes. Causal links between population health outcomes, and health and human services programs, are hard to establish for well-known methodological reasons (i.e., confounding variables, lack of controls, lag time). Service providers, however, can develop evidence-based arguments for how or why they, and community members, think their programs or other interventions are making some positive contribution towards population health outcomes.

When applied at the community level, indicators should be designed, developed and researched by the community itself to coincide with the community’s goals, visions or desired visions of a healthy community. Using only “one-size-fits all” indicators is not realistic at the community level; the contextual dependence of relationships can have characteristics unique to each local community. This does not mean that local population health indicators will vary completely from place to place. Comparability between communities, as well as within the same community over time, affords important learning opportunities and is an element in gaining political attention to what changes in the indicators might mean. A core set of comparable indicators is therefore necessary and useful. Defining the content of this core set, however, needs to involve a wide representation of community stakeholders if it is to generate “ownership” and subsequent use by these groups. More importantly, the core set needs to allow variations (deletions, additions) that attest to community interests. This is particularly important in cross-cultural contexts, such as we encountered in working with diverse Aboriginal organizations, where the values, meanings and even existing selections of population health indicators are based on Western research and cultural assumptions. Another important point is that health indicators provide information, but not knowledge. Only when this information is discussed amongst and interpreted by community members (“What do the changes in these indicators mean about our health or well-being? What do we think is causing them?”) does it become useful knowledge that a community can use to improve its health, and that of future generations.

**Community capacity indicators: concepts and domains**

An increasing focus for health and human services, especially in Aboriginal communities, is tracking change in community capacities, and how
services can further build (develop) these capacities further. Hawe, Noort, King, and Jordens (1997) reviewed the popular health promotion literature to determine how capacity building was defined and conceptualized by health promotion researchers and practitioners. They found that capacity building was used in at least three different ways: health infrastructure and service development, program maintenance and sustainability, and problem-solving capability of communities and organizations.

The term “community capacity building” describes a wide range of health promotion strategies (i.e., community development, community empowerment, international aid and development) aimed at improving a community’s ability to improve and maintain its health. It is generically defined as a community group’s ability to define, assess, analyze, and act on health (or any other) concerns of importance to its members. Community capacity-building strategies involve dynamic social, resource and organizational relationships between individuals/groups, health and human service practitioners and service-providing organizations. In sum, community capacity building is a process of working with community members (usually organized into groups) to determine its needs and strengths, and to develop ways of using those strengths to meet those needs. There are three roles for health and human services in this “working” relationship:

1. first, to facilitate the process by negotiating with the community the name and nature of the issues to be addressed,
2. second, to help the community identify key capacities it wishes to improve in order to address these issues, and
3. third, to examine how health and human services, in their activities and programs, can play a role in supporting new actions on community issues, and enhancing desired community capacities.

With respect to the role of negotiating the issues to be addressed, the challenge for service providers is to accept that “expert” and “lay” knowledge systems often differ and are both important in a dialogue leading to identification of key community health issues based, in part, on information provided by local population health indicators. Moreover, community participation in programs and activities, and program sustainability, both increase to the extent the programs and activities are based on community-identified priorities, informed by but never imposed upon by outside “expert” knowledge systems.

With respect to the role of working with the community to address key capacities, there are several research-based models of community capacity, its measurement and how programs can contribute to its enhancement. These models identify key elements (or “domains”) of community capacity with detailed community capacity assessment questions under each domain. To date, Laverack’s community capacity model represents the most generic community capacity domains: (1) community participation; (2) local leadership; (3) empowering organizational structures; (4) problem assessment skills; (5) problem analysis skills; (6) resource mobilization; (7) links to other groups/communities; (8) equitable relationships, outside agents; and (9) community control over programs. While these domains already have a fair degree of cross-cultural generalizability, and some have been used with First Nations communities, experience in their development and use emphasizes the importance of a community undertaking its own identification of capacity domains. As with the meanings and potential indicators of local population health, the meanings and potential indicators of community capacity need cultural specificity if they are to be useful to, and used by, community members or health and human service providers. But also, as with population health indicators, there should be some core set of capacity domains allowing inter-community comparisons, as well as community comparisons over time. Several developers of community capacity frameworks recommend a “workshop” approach in which generic domains are presented, discussed, deleted, amended, or added to by community stakeholders.

With respect to examining new actions that can be supported by health and human services, once the community capacity domains have been verified and/or amended by community members, they form a “parallel track” to regular health and human service programs. A new question arises: How do the programs contribute to improvements in community capacity domains identified by staff and community members as being important for community health?

Aboriginal population health and community capacity frameworks and indicators

We have discussed population health and community capacity indicators with only minimal reference to how such indicators can be made culturally relevant to Aboriginal groups. Our work with the PAGC
and the ITK, to date, strongly argues for population health frameworks that embody cultural symbols or schemata with which First Nations and Inuit people can readily identify, and with indicators that reflect health concerns that may have specific cultural meanings. In this section we review current Aboriginal population health frameworks and a sample of health indicator lists, and comment on issues associated with future development.

**Population health frameworks**

The Medicine Wheel represents Aboriginal health as a holistic life-view consisting of four dimensions—mental, emotional, physical, and spiritual. Leech, Lickers and Haas (2002) have developed a contextually and culturally sensitive framework for the assessment of Aboriginal health indicators based on the Medicine Wheel. Their “community life indicators wheel” is divided both vertically and horizontally. The right vertical half of the wheel represents the spiritual side of the model, whereas the left side represents the corporal/physical world. Divided horizontally, the upper half of the model represents the intellectual aspect of community while the lower half represents the visceral or bodily aspects of the community. Indicators have been suggested for each of the eight dimensions, or domains, of community life. Each indicator may be a partial measure of the “health” of the community, but it is the more subjective evaluation of the balance between the different dimensions, partly revealed by changes in the indicators, that is more important.

We were unable to locate any Inuit health frameworks. Our workshop with members of the ITK Inuit Health Technical Working Group, instead, presented two possible frameworks, both of them derived mostly from Western-based research but also “field-tested” in other cultural settings. The first model organized elements contributing to health into three overlapping circles, creating six different categories or domains (see Figure 1). This first model was used in 1999 to identify a short-list of community-level population health indicators. Members of the Inuit Health Technical Working Group and others, during their later interviews, reviewed a list of these indicators. The second model (see Figure 2) was a series of interconnected boxes that linked different types of risk conditions and risk factors to health outcomes.

Interview participants commented on the type of framework they preferred, specific aspects of each, frameworks in general, and indicators associated with the frameworks. The strength of the linear/box model was in its simplicity and the way it identified how different problems related to each other. This simplicity was also the weakness of the model; it was too linear and negative, and would not fit in well with Inuit culture, which valued positive, or critical, social conversation. Most people preferred the circles model as being more representative of the holistic view of health that exists in the North. One suggestion was to re-configure the model into an Inuit visual symbol; much of the terminology in the original model would also have to be changed to reflect Inuit cultural meanings.

**Population health indicators**

Health indicator projects have primarily stemmed from the need of individuals, communities, health administrators, health organizations, health advocacy groups, and government to develop meaningful measures to report on health and health services. Many indicator projects have been initiated in Canada and elsewhere; few, however, have focused on community participation within Aboriginal communities in the development of indicators or indicator frameworks that are culturally relevant and community (context) sensitive.

In 2000, the Health Transition Fund, an initiative of Health Canada, commissioned an evaluation of health indicator data for the Inuit regions of Northern Canada. Using the recently developed health indicator guidelines from the Canadian Institute for Health Information...
(CIHI), Archibald and Grey (2000)\textsuperscript{22} found there were large data gaps and questionable reliability of what was available (i.e., extrapolation of numbers, lack of precision, conflicting values for each region under study, etc.). Archibald and Grey concluded that more reliable Inuit health data was required to make comparisons across regions; however, they neglected to adopt a collaborative approach to indicator development with Inuit peoples. The indicators developed in this project focus primarily on measures of morbidity and mortality that are centred on the measure of pain and illness.\textsuperscript{23} They do not measure the health of a community in terms of its positive aspects or strengths (capacities) that exist, or that may need enhancement.

Our preliminary work with the ITK highlighted the importance of cultural contexts in selecting and interpreting indicators. While the persons we interviewed supported an amended version of the circles framework, they also commented freely on the need for indicators under different categories that reflected Inuit life. Examples included traditional food as part of a definition of economic health in the North, wildlife availability as a measure for the physical environment and traditional knowledge as an important marker of education and community well-being.\textsuperscript{24}

The Institute of the Environment at the University of Ottawa, produced a report\textsuperscript{25} that summarizes a number of initiatives focused on culturally sensitive Aboriginal health indicators. All initiatives used the Medicine Wheel as their framework and used a collaborative approach in determining culturally sensitive health and social indicators. Specific project

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\textbf{Figure 2. The box framework for population health indicators (from Labonte, 1998).}

- **Mortality/Morbidity**
- **Well-being**

**Risk Conditions**
- Poverty.
- Low social status.
- Dangerous, stressful work (high demand/low control).
- Dangerous polluted environment.
- Natural resource depletion.
- Greenhouse effect.
- Ozone depletion.
- Discriminations (Sexism, racism, agism).
- Steep power hierarchy (income, wealth, status).
- Individualism, competitiveness and meritocracy.

**Physiological Risk Factors**
- Hypertension.
- Hypercholesterolemia.
- Release of stress hormones.
- Elevated levels of fibrogen.

**Behavioural Risk Factors**
- Smoking.
- Poor nutrition.
- Physical inactivity.
- Substance abuse.

**Psychosocial Risk Factors**
- Isolation.
- Lack of social support.
- Poor social networks.
- Low self-esteem.
- High self-blame.
- Low perceived power.
- Low self-efficacy.
- Loss of meaning or purpose.
examples incorporated individual, family and community wellness indicators while others combined community disease and community life indicators. These examples are useful; however, the authors reiterate that the development of community health indicators “will take time and careful consideration to get the appropriate set of indicators for each community. But they will emerge from the process in response to the specific community needs and priorities.”

Community capacity

Although there are relatively few literature sources that have incorporated Aboriginal peoples’ perceptions of community capacity, the Government of the Northwest Territories’ Community Wellness Strategy (1995) is an exception. As a result of consultations with 50 community members to determine what made Aboriginal communities healthy, the Strategy identifies some views of Aboriginal people regarding the definition and process of capacity building. The focus of community wellness was based on four areas of change: prevention, healing and treatment; education and training; interagency collaboration; and community empowerment. Identified strategies related to these four areas emphasize the importance of traditional healing practices, the need to support education provided by and for Aboriginal people, and actions that support communities in identifying and meeting their own needs and priorities.

METHODS

Emergent health issues have often unfolded in a crisis atmosphere requiring a reactive and rapid deployment of resources, further facilitating direct (external) intervention and control in the delivery of services. At the same time, there is no question that self-determination and cultural revitalization are among the key forces driving health and healing in Canada’s First Nations and Inuit communities. Recognizing, measuring and building on these and other capacities acknowledges that contemporary health issues in Aboriginal communities are located in long-term development issues with roots in a colonial past. The development of indicators and frameworks that pay attention to the important processes of self-determination and cultural revitalization, and the capacities associated with them, can help community members to determine their needs and strengths, and to develop ways of using those strengths to meet those needs.

Our capacity-building project with the PAGC and the AHA focused on working with the local band and community leadership to determine community-specific health and capacity domains as population health indicators that can be used to track the well-being of their member communities. This project relied on a diverse group of people (chiefs and council, health directors, PAGC and northern provincial communities, community-based health practitioners) to problem-solve and develop culturally sensitive and sustainable indicators that can monitor the health and capacity effects of programs delivered by communities to improve health conditions and quality of life. Our work with ITK summarizes what key informants and existing literature suggest to be culturally relevant local population health indicators. It also summarizes where and how Laverack’s model of nine community capacity domains “line up” with these indicators, both with findings from Inuit-specific health research and with what published literature and key informants identify (in a very preliminary way) as important Inuit-specific cultural capacities.

ITK project

The research that we completed in 2002 with the ITK had four objectives: 1) to critically review community-level population health indicators and indicator frameworks; 2) to identify a potential short-list of culturally appropriate indicators for Inuit communities; 3) to outline a process by which these indicators might be tracked and utilized by Inuit health and human services at the community and territorial levels; and 4) to critically review community-level mental health indicators and indicator frameworks.

For the purposes of this article, we will discuss the process that was used to accomplish these objectives. An introduction to indicators and indicator frameworks was presented in a workshop format with members of the Inuit Health Technical Working Group. Workshop participants emphasized that much of the literature speaks to international or Canadian First Nations contexts that do not reflect the context of Inuit people. This underscored the importance of further exploring frameworks and indicators that include Inuit-specific understandings and measures of capacity.

The circle framework that was previously discussed was used as a discussion guide in the workshop and was selected by workshop participants as the most useful one upon which to structure some of the questions for the interview process. Points raised during the workshop discussion were used to apprise the key
informant interview schedule. Key informant interviews were conducted following the frameworks and indicators workshop. Not all interview participants were able to attend the workshop, so brief one-on-one sessions orienting individuals to the workshop materials were conducted prior to commencing the interview. The majority of key informant interviews were conducted in person in the two days following the workshop, and one telephone interview was conducted at a later date. The analysis focused on participant perspectives of the indicators presented in the workshop, and on the identification of potentially useful new indicators specific to Inuit contexts. Other aspects of the analysis included background information on participants, participant perceptions of current health and capacity issues, and various domains of health-determining conditions, appropriate frameworks, indicator use, and aspects of data quality that include current availability, limitations and appropriate collection strategies.

The outcome of these interviews has been a report summarizing potential Inuit-specific indicators (and areas where new indicators might need to be created) that was then reviewed by the Inuit Health Technical Working Group. Table 1 provides a description of selected domains discussed in the key informant interviews along with examples of some identified areas on Inuit appropriate indicators that require further development.

This phase represents only a beginning to the process that is desired by members of the Inuit Health Technical Working Group. While they feel they have views and perspectives to offer on indicator development, they also emphasize that next steps in this process must involve feedback and participation from community members, particularly youth and elders.

The project on First Nations tools for program planning and evaluation

The project with the PAGC and the AHA in northern Saskatchewan was completed in several incremental and iterative phases to develop a relevant evaluative and planning framework, and culturally appropriate indicators of community health in each of nine research sites in northern Saskatchewan. Research methods included a qualitative analysis of secondary data sources (i.e., relevant program documentation and reports, and a review of the professional literature), interviews with PAGC managers responsible for second-level services, interviews with community-based health directors, and focus groups with key informants involved in the planning, management and delivery of health and social services at the community level.

We completed the first stages of the research to synthesize literature in this area and to develop logic models that map the health and social services in each site.

Table 1. Selected domains and examples of identified issues requiring Inuit appropriate indicators

<table>
<thead>
<tr>
<th>Domain</th>
<th>Description</th>
<th>Identified Issue (Example)</th>
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<tbody>
<tr>
<td>Sustainability</td>
<td>Our use of the land is such that the land will still be useful to future generations</td>
<td>Time spent on the land</td>
</tr>
<tr>
<td>Viability</td>
<td>The land, its plants and its animals are in good health and are not threatened with extinction or habitat loss</td>
<td>Disposal of toxic products</td>
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<tr>
<td>Community Caring</td>
<td>Our communities provide supports to people in need. People take care of each other</td>
<td>Family life indicators</td>
</tr>
<tr>
<td>Prosperity</td>
<td>Our communities generate enough wealth to take care of our needs</td>
<td>Non-income measures of wealth</td>
</tr>
<tr>
<td>Equity</td>
<td>Resources in our community are generated by our economic activities and are distributed in ways that more people think are fair</td>
<td>Community sharing</td>
</tr>
</tbody>
</table>

From Labonte, Abonyi, and Jeffery, 2002
community to account for cultural and geographic diversity. Common themes emerging from these logic models were then used to develop a generic framework that was reviewed by the health directors and managers responsible for community-based programs and services, and subsequently adapted to accommodate community-specific elements.

Following this, an initial framework identifying domains and areas requiring indicators for both community health and community capacity was developed through extensive interviews with health directors. The framework went through two further revisions by this group. The outcome of this project is a community “toolkit” that outlines the identified domains for community health, the definitions for each domain and issues identified within each, and a set of indicators for each domain. We are now working with some of the communities to identify the specific indicators of interest, the availability of appropriate data and approaches for collecting additional community-level information to address the key indicators.

CONCLUSION

We have had two experiences with developing culturally appropriate indicators of community health and wellness: one with an Inuit health organization and the other with First Nations health organizations. The value of community knowledge and wisdom and the processes by which this knowledge is incorporated into more meaningful measures of community health is an essential step in indicator development. As O’Neil and Blanchard suggest, “The approach of developing indicators at the community level calls for a strong respect for the community and its members. It requires seeing the world through the eyes of the people who live in the community and reporting it in their words.” This experience and the processes we used (and are using) raise a number of questions and issues about our involvement with developing culturally appropriate indicators. Important questions relate to the ability of university researchers to implement community-based research so that communities can have genuine control over the development of indicators that are most appropriate for their communities. Assuming that we can have a useful role in developing these indicators, the question arises as to where our involvement should end. In the case of our work with ITK, it ended at an early stage, owing primarily to our own constraints respecting the local knowledge and time required to work more fully and respectfully with Inuit communities. Our work with the PAGC and AHA is more open-ended and will likely be determined by the extent to which local health and human service organizations feel more fully capable of continuing with the indicator work on which we are presently collaborating. In summary, we continue to struggle and commit ourselves to working in a way that is most respectful of community and cultural contexts, and that produce indicators that are most meaningful to community members in their goals of enhancing community wellness and capacity.

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