Putting Food on the Public Health Table

Making Food Security Relevant to Regional Health Authorities

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ABSTRACT

Food security is emerging as an increasingly important public health issue. The purpose of this paper is to describe a conceptual model and five classes of food security indicators for regional health authorities (RHAs): direct, indirect, consequence, process, and supra-regional. The model was developed after a review of the food security literature and interviews with British Columbia community nutritionists and public health officials. We offer this conceptual model as a practical tool to help RHAs develop a comprehensive framework and use specific indicators, in conjunction with public health nutritionists and other community stakeholders. We recommend using all five classes of indicator together to ensure a complete assessment of the full breadth of food security. This model will be useful for Canadian health authorities wishing to take a holistic community-based approach to public health nutrition to develop more effective policies and programs to maximize food security. The model and indicators offer a rational process that could be useful for collaborative multi-stakeholder initiatives to improve food security.

MeSH terms: Food (supply and distribution); measurement; nutrition; organizational models; public policy; public health

La traduction du résumé se trouve à la fin de l'article.

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Food and nutrition have long been recognized as essential determinants of physical, mental and social health, yet most public health departments in Canada have little direct responsibility for ensuring food security within their jurisdictions. This is about to change in British Columbia (BC), which is scheduled to roll out a new Public Health Act in 2005/06. The Public Health Act will take a population health approach, incorporating "core programs in public health," such as food security, that are expected to reduce "the burden of disease, disability and injury in BC and improve the overall health and well-being of the people of BC."¹ British Columbia Regional Health Authorities (RHAs), now responsible for food security, will require indicators to monitor performance.

The purpose of this paper is to introduce a model for RHAs to operationalize food security and develop indicators for its measurement. The proposed indicators are based within a conceptual framework that may be relevant to other regions of Canada addressing the social determinants of health.

Conceptualizing food security

There are operational challenges in defining food security within the context of accountability in a public health jurisdiction. Although hunger and food security are clearly health issues, they are also social and economic issues. If the definition of food security is too broad, it is difficult to obtain RHA "buy-in" as action will be required well outside the traditional jurisdictional and policy boundaries of a health authority, reducing the likelihood for their inclusion in existing public health frameworks. On the other hand, by narrowing the definition to easily measurable indicators, there is a risk of diluting the importance of societal structures that contribute to food insecurity. Scope is particularly important in the context of performance agreements between the provincial government and RHAs which become drivers for programming. Finding this balance between public health jurisdiction and comprehensiveness is the challenge in developing food security indicators for use by health authorities.

The United Nations Food and Agriculture Organization defines food security as existing "when all people, at all

Figure 1. Developing useable food security indicators for public health

Notes: This model illustrates a method to choose and classify food security indicators in the context of public health. The heavy vertical arrows illustrate different components that fall within each concept or jurisdiction. Concepts become broader as they move toward the point of the arrows. The light horizontal arrows indicate the crosscutting nature of the indicators, i.e., as one moves toward a broader definition of food security, one moves toward the boundaries of health authority jurisdiction and public health goals, as well as toward less valid and specific types of indicators. However, each indicator must intersect some aspect of each of the three concepts / jurisdictions. Any indicators developed using this model are expected to fit within current public health policy frameworks. While the broader indicators may push the traditional boundaries of jurisdiction, the entire model is based on a relatively limited conceptualization of regional-level food security.

times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.”² A related concept, community food security, emphasizes sustainability and implies a role for the community in actively participating in the food system. It has been defined as “a situation in which all community residents obtain a safe, culturally acceptable, nutritionally adequate diet through a sustainable food system that maximizes community self-reliance and social justice.”³ For the purposes of developing regional food security indicators for RHAs, we focussed on the dimensions of community food security that fit broadly within the jurisdiction of public health authorities and within a population health framework (i.e., social determinants of health). These dimensions relate to food access and availability, acceptability, affordability, nutritional quality, and ability of community infrastructure to promote food security.

We considered three basic questions from which food security indicators could be identified and developed that would be feasible for use by health authorities and would provide valid estimates of the level of food security in a region: 1) How will the indicators be used – as passive monitors of public health performance, to measure changes in programming over time, or for cross-regional comparisons? 2) With whom will the indicators be used – the entire population or specific vulnerable groups? 3) What resources and data are available to develop and monitor performance on the indicators?

The result is an effort to strike a balance among the rapidly shifting needs and responsibilities of health authorities in Canada, the need for these authorities to engage constructively with community stakeholders in developing food security policies and indicators, and the very practical and scientific task of identifying useable indicators. At the same time, we hope to

encourage public health officials to think critically about the conventional physical and intellectual boundaries within which they work. A holistic conceptualization of food security involves issues over which health authorities may currently have limited or no influence – such as agricultural and ecosystem sustainability, community economic development, and dignified access to food.

Food security indicators for RHAs

We identified five classes of food security indicators chosen to cut across the core components of food security as well as the jurisdiction and goals of public health authorities (Figure 1). They vary in scope from direct measures of the individual elements of food security to broad policy measures that push the boundaries of jurisdiction. Most of the indicators suggested here would not introduce significant data collection costs, as they are based on information that is readily available in BC and

TABLE I
Possible Food Security Indicators for Public Health

Type of Indicator	Focus	Indicator
Direct	Whole population level	<ul style="list-style-type: none"> Incidence of food security as measured by biannual CCHS* regional food security assessment questions Direct monitoring of seniors' nutritional health through CIHI Roadmap†
Indirect	Vulnerable population level	<ul style="list-style-type: none"> Income indicators Healthy Food Basket in conjunction with Income Indicators¹¹
	Accessibility and affordability of nutritious food	<ul style="list-style-type: none"> Proportion of population using food banks (Canadian Association of Food Banks' annual HungerCount survey)
	Extent of use of emergency food sources	<ul style="list-style-type: none"> Cardiovascular disease and/or type 2 diabetes rates (CCHS) Underweight (CCHS)
Consequence	Health consequences	<ul style="list-style-type: none"> Quality of the diet – fruit and vegetable consumption (CCHS) Iron-deficiency anaemia (CCHS)
	Nutritional or dietary consequences	<ul style="list-style-type: none"> Proportion of communities with health authority representation on food policy councils Health authority advocacy and support for food access and policy programs Density of fast food outlets and grocery stores in high and low socio-economic neighbourhoods
Process	Local food environments	<ul style="list-style-type: none"> Availability of pre- and peri-natal nutrition programs Existence of campaigns to promote increased fruit and vegetable consumption Proportion of health authority workplaces and public facilities with nutritious food purchasing policies in place Proportion of schools in health authority with school food programs, “no junk food” policies, or nutrition integrated into the curriculum
	Pre- and peri-natal nutrition programs	<ul style="list-style-type: none"> PharmaCare‡ coverage of food supplements for people at nutritional risk PharmaCare coverage of food supplements for at-risk pregnant women
	Promotion of healthy foods	
Supra-regional	Provincial policy environment	

* CCHS, Canadian Community Health Survey, a national health survey that collects regional-level data on a biannual basis. The standard survey includes a 3-question food security assessment.

† CIHI, Canadian Institute of Health Information Home Care Roadmap Indicators Data Standard, a national monitoring program that will assess, among other things, the nutritional status of seniors receiving home care services.

‡ PharmaCare is the provincial assistance program for prescription drugs and medical supplies in British Columbia.

most other Canadian jurisdictions. The five classes of indicators should be used in conjunction with one another in a comprehensive assessment of regional level food security.

Direct indicators specifically measure the physical and psychosocial elements of access to food at the household or individual level. Direct surveys can indicate actual levels of hunger or deprivation in the population or among specific groups. Although relatively easy to validate, such tools measure a fairly narrow concept of food security (i.e., food deprivation and food stress*), and do not offer insight into the underlying structures or co-factors related to food security. They can also be costly to administer. However, there are direct indicators of household and individual food security available that have been validated for use in Canadian populations (Table I).⁴⁻⁷

Indirect indicators measure the socioeconomic determinants of food security

* Food stress is assessed by asking whether the respondent worried there would not be enough food because of lack of money. This question does not address more complex social-psychological factors related to food insecurity such as guilt, shame, social exclusion, or anxiety, nor does it assess potential contributing factors including but not limited to social environment, education level, employment status, time constraints, food safety and risk, or availability of food.

(Table I). Poverty is the most important determinant of food insecurity in Canada.^{7,8} Thus, food prices (and their fluctuation in relation to disposable income) provide useful indirect measures. Similarly, many people who face food shortages turn to the emergency food system. Use of such services can therefore provide some indication of the prevalence of food insecurity. This type of indicator can be quite valid. Still, other factors come into play to introduce uncertainty. Incomes change: families can choose whether to spend limited funds on food or on shelter or transportation, all of which impact food security. As well, emergency food services are not always available to those in need, and when available, they are not always used; thus, simple counts of the use of available services must be interpreted with caution.

Consequence indicators assess the health or nutritional outcomes of food insecurity, such as undernutrition or poor diet quality (Table I). The diets of vulnerable groups such as pregnant women, single mothers, Aboriginal people, or the elderly are often constrained by poverty and food insecurity, as it is extremely difficult to follow nutrition recommendations for low-fat, high-fibre diets rich in fresh fruits and veg-

etables on a low income. This can contribute to chronic conditions such as underweight, iron-deficiency anaemia, diabetes, or cardiovascular disease.⁷ The prevalence of such outcomes is relatively easy to assess and fit within the jurisdiction of RHAs; however, they are less specific indicators of food security because they are multi-causal. Thus, consequence indicators must be used in conjunction with more direct measures. Their advantage is the ready availability of data within the health system.

Process indicators measure aspects of the physical, social, or political environment to assess community mobilization and performance regarding food security. They identify policies and programs that enable or inhibit food security (Table I). Local food policy councils and healthy food policies may all have a positive impact on food security, but their impact is difficult to assess. Fresh fruit and vegetable promotion and pre- and peri-natal nutrition programs have been shown to improve diet quality and consumption of fruits and vegetables, even among low-income participants.^{9,10} Such indicators move toward broader conceptualizations of food security, becoming less specific and moving toward the fringes of health authority jurisdiction (Figure 1).

Supra-regional indicators assess the broad food security context within which RHAs must work, which can ultimately encourage or limit the policy initiatives of health authorities (Table I). The federal and provincial policy environment determines funding and autonomy of RHAs, and can even directly impact regional level food security. For example, coverage of food supplements for at-risk groups by provincial health insurance systems could greatly reduce the risk of food insecurity among nutritionally vulnerable people.

CONCLUSION

Food insecurity is a complex and difficult-to-define issue that is affected by a wide variety of government policies, individual capacity, social issues, and community characteristics. Although the causes of food insecurity may be diverse, the most important outcomes are health-related, giving health authorities a unique role to play in improving food security in Canadian communities. The indicators in this report are limited to those aspects of food security that could fall under the mandate of British Columbia's RHAs and do not introduce costly data requirements. They also focus on issues that, while not always within the direct responsibility of health authorities, can be monitored from a health perspective.

The 18 specific indicators identified in this report are designed to be used in combination. In general, the direct, indirect, and consequence indicators will be useful to health authorities for monitoring food security, fairly narrowly defined, within regions and over time. The process and supra-regional indicators measure the existence and use of programs and policies that we feel are key to launching a region

towards food security. To aid in choosing the best mix of indicators for a jurisdiction undertaking a monitoring role for food security, a baseline survey of existing policies and programs is recommended. Further, health authorities need to work with other community-based stakeholders to work toward a broad notion of food security in their region.

The emerging situation of food security monitoring within a public health context in BC presents a unique opportunity for RHAs to set a progressive example on the issue of food security within public health nutrition. By pushing traditional jurisdictional boundaries, the BC Ministry of Health can set an example of how to move public health nutrition forward in a more holistic, and ultimately more effective, manner. The relatively conservative approach to measurement presented here would ideally be adopted and then expanded so that public health could begin to take responsibility for a more comprehensive vision of food security.

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RÉSUMÉ

De plus en plus, la sécurité alimentaire apparaît comme une grande préoccupation dans l'arène de la santé publique. Cet article essaie de décrire un modèle et cinq classes des indicateurs de sécurité alimentaire pour les autorités de santé régionale : direct, indirect, conséquence, processus, et supra-régional. Ce modèle a été développé après avoir étudié la littérature sur la sécurité alimentaire, complété des entrevues avec les nutritionnistes communautaires et consulté avec des officiels de la santé publique en la Colombie-Britannique. Nous offrons ce modèle conceptuel comme un truc pratique pour aider les autorités de santé régionale à développer une base compréhensive des indicateurs spécifiques, conjointement avec des nutritionnistes de la santé publique et d'autres membres de la communauté avec des intérêts pareils. Nous recommandons l'utilisation de tous les cinq indicateurs ensemble afin d'assurer une évaluation complète de la sécurité alimentaire. Ce modèle sera utile pour les autorités de santé canadienne qui souhaitent prendre une approche holistique et même une approche basée sur la communauté à l'égard de la nutrition dans le domaine de santé publique pour développer des politiques plus efficaces et des programmes qui peuvent maximiser la sécurité alimentaire. Le modèle et les indicateurs offrent un processus rationnel qui peut être utile dans des initiatives de collaboration des personnes qui ont des intérêts communs dans la sécurité alimentaire.