

National Collaborating Centre for Determinants of Health

## **Food Security Issues in a Public Health Context**

Synthesis Paper

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## **Main Messages**

- There is strong evidence of links between measures of household food insecurity (HFI) and a range of health, developmental and educational outcomes for children and health outcomes for older age groups;
- Low income is the single greatest predictor of food insecurity;
- The Food Security Continuum categorizes interventions to achieve food security into three groups: efficiency, which focuses on charitable activities, transition, which adopts a more community-based focus, and redesign, which involves broader, policy-level changes; and,
- An overall plan to address household food insecurity should focus primarily on redesign strategies to improve income, encourage collaboration among diverse groups within the food system and initiate actions to transform the food system.

# Executive Summary

## Background

There is strong evidence of links between measures of household food insecurity (HFI) and a range of health, developmental and educational outcomes for children and health outcomes for older age groups. The weight of evidence, including data on prevalence, suggests that children are an age group that is particularly vulnerable to poor health outcomes associated with HFI. The evidence also suggests that the impact of HFI on parents and older siblings may be a pathway for its influence on children. Therefore, both children and parents are justifiably an important focus for public health food security interventions.

The evidence suggests that low income is the single greatest predictor of food insecurity. Little research is available to show that ethnoracial status, independent of income, is a strong predictor of HFI. Income represents only one type of household resource that protects against HFI. Non-monetary resources such as a sense of social inclusion are also protective. Therefore, the research suggests that resource deprivation, understood as a lack of financial and/or social resources, is the most important influence on the duration and severity of HFI.

Groups that are especially vulnerable to poverty are consistently found to report high levels of food insecurity as well, including lone mothers and those of Aboriginal status. Ensuring that low income families have enough money for an adequate supply of safe and nutritious food, as well as other essentials including housing, transportation and clothing, is a fundamental requirement to reduce HFI.

## Interventions

One of the most commonly used frameworks for categorizing food security interventions is the Food Security Continuum, which describes a strategic path of interventions towards achieving food security. The continuum categorizes actions into three groups: efficiency, transition (also called participation or substitution) and redesign.

*Efficiency* strategies are essentially stop-gap measures to address immediate need, but are not intended as long-term solutions. These strategies are the fastest to implement and generally take the form of charitable responses to hunger or minor modifications to social assistance delivery. Many of the ad hoc range of independently-run local initiatives that have primarily taken the lead for addressing food insecurity in Canada in recent decades have been efficiency-focused. The most publicized of these approaches has been direct food assistance through food banks and other charitable food programs.

*Transition* strategies focus on the development of a parallel practice or process in opposition to one that has been shown to be inadequate. This stage focuses on capacity building among individuals and the community as a whole, emphasizing the ultimate goal of food security. The evolution in food security thinking from the household to community level has resulted in an expansion in community-based responses that focus on capacity building and skill development. Community food security strategies include community kitchens (groups meet regularly to cook healthy meals), food skills workshops, community gardens, alternative food distribution systems such as food buying co-ops, field gleaning (collecting leftover crops from farmers' fields) and

community-supported agriculture (community members pledge to support a farm with a financial commitment in exchange for sharing in the harvest). Community-based responses to food insecurity have been formulated as an alternative to the charitable model.

*Redesign* strategies are based on a rethinking of the roots of the problem and of the solutions to address it. These strategies can take longer to implement and demand fundamental changes, but they address multiple concerns in an integrated fashion. Redesign (radical restructuring) strategies are based on a rethinking of the roots of the problem of food insecurity and developing the solutions to fundamental causes. Although redesign strategies take longer to implement and demand fundamental changes in the use of human and physical resources, they address multiple concerns in an integrated fashion. Redesign strategies are unlikely to be undertaken until stages one and two strategies have been attempted and found wanting, due to the incremental nature of most policy and program development

Evidence suggests that an overall plan to address the social determinants of socio-economic and ethnoracial status as they relate to household food insecurity should focus primarily on redesign strategies to improve income, encourage collaboration among diverse groups within the food system that typically operate in silos, and actions to transform the food system to provide fair wages and social justice for eaters as well as for those earning a living from it.

However, although increased income is likely to result in better nutrition for children, not all disadvantaged families possess sufficient knowledge or skills to make appropriate nutrition choices. As a complementary approach to broader redesign strategies, it may be useful to integrate transitional programming that supports these key food skills.

## Introduction

This literature review provides an overview of findings on best practices and policies in public health that address the social determinants of socioeconomic (SES) and ethnoracial status (ERS) as they relate to food insecurity. This document will describe a range of policies, practices and interventions relevant to public health administration that address the vulnerabilities of children and families in general, as well as those targeting families of Aboriginal status. It will also make conclusions about gaps in solutions to address the issue in Canada and identify structural barriers.

This literature review is one of several being conducted by the Wellesley Institute, commissioned by the National Collaborating Centre for Determinants of Health (NCCDH). The overall goal of this project is to increase understanding of the ways in which social determinants of health influence key areas of public health. For this project, the social determinants of health focus areas included socio-economic and ethnoracial status.

## Method

A search was conducted of online databases including PubMed, ScholarsPortal, Sociological Abstracts and Google Scholar. Materials published in the last 15 years in peer-reviewed journals and grey literature were reviewed. Key contacts also suggested published and unpublished resources that did not appear in peer reviewed journals.

## Background

Much of the understanding of the concept of household food insecurity (HFI) originated with research among low-income women in upstate New York by Radimer and colleagues in the early 1990s. Radimer et al.<sup>i</sup> identified that the experience of household food insecurity can have four dimensions:

- Quantitative (not enough food);
- Qualitative (reliance on inexpensive non-nutritious food);
- Psychological (anxiety about food supply or stress associated with trying to meet daily food needs); and,
- Social (having to acquire food through socially unacceptable means such as charitable assistance, buying food on credit, and in some cases, stealing).

As household resources diminish, research shows a typical pattern of experiences<sup>ii</sup>. Anxiety about the household's food supply typically occurs first. This is followed by compromises in the quality and then quantity of parents' food intakes, possibly accompanied by a more general deterioration in the quality of the whole household's diet. Radimer et al.<sup>iii</sup> noted that children's eating patterns were rarely affected unless household resources became severely affected. Quantity of food was maintained at the expense of quality, and most adults ate less so that the children would not go hungry. Food insecurity among seniors appears to begin with compromised diet quality, followed by food anxiety, socially unacceptable meals, use of emergency food strategies, and, finally, actual hunger<sup>iv</sup>.

The most recent evolution in food security thinking has been a shift towards community food security (CFS). The concept shares the same goals as the household focus, but also acknowledges the importance of economic, environmental and social aspects of the food system. Proponents of CFS call for sustainable and local food systems that promote strong communities. Community food security work can include advocating for adequate incomes for consumers and producers, local and diverse food production, environmental sustainability, widespread access to healthy food and food-based community economic development and social cohesion. Some public health authorities in Canada have been leaders in advocating for a paradigm shift in food security thinking from the household to the community level<sup>v</sup>.

## **Prevalence of Household Food Insecurity in Canada**

The way that food insecurity is measured at the household level can vary widely from one survey to another. The variation in survey tools can cause confusion when household food insecurity rates are publicized because the measure used is not always reported. The most commonly used tool comes from the U.S. Department of Agriculture which annually asks questions of the U.S. population via the Food Security Survey Module.

The rate of food insecurity (including experiences of hunger and less severe experiences of dietary compromise) among households across Canada has been reported at 9-14 per cent in various surveys. The 2004 Canadian Community Health Survey found that 9.2 per cent of all households reported food insecurity. Hunger, the most severe manifestation of food insecurity, is uncommon, relative to other experiences. The rate of hunger among households in the general population was 2.9 per cent in 2004. Households with young children (under six years) report higher HFI (13.0 per cent). Female lone parent households consistently report the highest rate (24.9 per cent). Food insecurity was very low (4.9 per cent) among households reporting pension or seniors' benefits in 2004<sup>vi</sup>. This is similar to the prevalence reported among households with individuals aged 55+ in 1998/99 (5.4 per cent)<sup>vii</sup>.

## **Food Insecurity and Low Socio-economic Status Households**

Income has consistently been found to be the best predictor of household food insecurity. Other components of socio-economic status (SES), such as education, have not been shown to be highly correlated. Low-income households have a much higher rate of food insecurity compared to those in higher income brackets. Among the lowest income group in 2004, 48.3 per cent qualified as food insecure<sup>viii</sup>. Measures of household food insecurity are essentially measures of the manifestations of acute financial insecurity on diet. Food insecurity may indicate a more extreme level of material deprivation than that identified by conventional measures of low income.

To a lesser extent middle income households also report indicators of food insecurity. Episodes of food insecurity at higher income levels can result from sudden changes in a household such as loss of employment, illnesses, unexpected expenses or family break-up. However, measures of annual income are static and not very sensitive to these types of changes. This means that the correlation between official poverty statistics and household food insecurity is not as straightforward as one might first think. For example, a U.S. analysis shows that only

about half of the variance in state food insecurity rates is associated with differences in poverty rates<sup>ix</sup>.

The complexity stems from the fact that dietary compromises do not automatically occur amid material deprivation. There are a number of intervening factors that can restrict the resources available to a household that are not captured by income statistics. Changes in the cost of other essentials or in subsidies for these necessities, such as housing, utilities, transportation or childcare, will not be reflected in household income, but hunger rates are likely to rise if these essentials become more expensive. Poverty rates also tell nothing about the effect of non-monetary assistance such as eating meals at a relative's home nor the availability and access to direct food assistance (food banks, school feeding programs, field gleaning programs) on the prevalence of food insecurity.

## **Food Insecurity and Ethnoracial Status**

No Canadian data are available showing that ERS is significantly associated with household food insecurity independent of income. However, food insecurity rates are higher among many of these groups because of higher levels of poverty. Statistics Canada food security surveys do not collect information on ERS. However, other Canadian sources have shown that individuals of Aboriginal status have a 60 per cent increased risk of hunger compared to non-Aboriginals.<sup>x</sup> This statistic applies only to off-reserve Aboriginals because telephone surveys do not include on-reserve families. Aboriginal peoples comprise 3.3 per cent of the Canadian population and 73 per cent live off-reserve in large and medium-sized cities<sup>xi</sup>.

U.S. national surveys show a large gap in food insecurity by ERS. Nationally, 8.2 per cent of white (non-Hispanic) households reported food insecurity compared to 17.9 per cent for Hispanic and 22.4 per cent among black (non-Hispanic) households in 2005<sup>xii</sup>. The prevalence of very low food security among black low income households was higher than low income in general<sup>xiii</sup>.

Several surveys have shown that recent immigrant status is associated with slightly higher prevalence of food insecurity. In 2004, 14.8 per cent of recent immigrant households qualified compared to 9.1 per cent of all non-immigrant households<sup>xiv</sup>. However, there is no further information available to determine the overlap of immigrant status with ERS.

## **Significant Impacts on Health**

Individuals from food insecure households are at increased risk for poor nutritional status and negative health outcomes. Food insecurity and food insufficiency (a closely related condition) have been shown to be associated with poorer diets in adults<sup>xv</sup>, lower intakes of several nutrients for adults<sup>xvi</sup>, health status of adults with diabetes<sup>xvii</sup>, poor self-rated general health status and lower scores on physical and mental health scales for adults<sup>xviii</sup>, poorer cognitive, academic, and psychosocial development of children<sup>xix</sup>, depression among women<sup>xx</sup>, and obesity and weight gain, primarily among women<sup>xxi</sup>.

The majority of studies examining the nutritional and health consequences of household food insecurity have focused on younger adult women and children.

## **Younger Children**

Research into the health implications of household or individual food insecurity for early years' populations in developed countries, especially Canada, is limited. A 2003 Toronto survey found associations between households with food insecure children (5.8 per cent of respondents) and poor child health status, as reported by the parent, parental depression and exclusive breastfeeding for less than six months. The analysis did not control for household income.

Research, conducted primarily in the U.S., has found associations between households classified as food insecure and the health of young children in those homes. Specific associations include poor child health status (as reported by parent/caregiver), iron deficiency, iron deficiency anemia, more frequent hospitalizations, stomach aches and headaches and lower physical function (including problems with walking, running, doing chores and low energy levels)<sup>xxii</sup>. Recent analyses of a study of nearly 21,000 U.S. kindergarten-aged children found a negative association between food insecurity and child social interaction skills and emotional state, as rated by parents and teachers, even after controlling for many variables, including income<sup>xxiii</sup>.

Hunger or food insufficiency among older children (6-12 year olds) has also been shown to predict anxiety, aggression, psychosocial dysfunction and difficulty getting along with other children. These outcomes persisted after controlling for confounding factors, including low income<sup>xxiv</sup>. The link between HFI and measures of increased bodyweight among children is not clear. Some research has found a correlation<sup>xxv</sup> and other studies have not<sup>xxvi</sup>. Still other research shows gender differences whereby girls are more vulnerable to excess weight amid HFI and the opposite is true for boys<sup>xxvii</sup>.

The most commonly cited Canadian data on children's food insecurity come from the National Longitudinal Survey of Children and Youth (NLSCY). McIntyre et al.<sup>xxviii</sup> found an association between child hunger and reported poor child health, poor maternal health and mother's activity limitation. The NLSCY only identified cases of the most severe form of food insecurity among children and youth and the analysis did not adjust for income.

Regional Canadian data also confirm the link between poorer child health status and indicators of household food insecurity. An association was found between Toronto households with food insecure children (aged 0-6 years) and reported poor health status of the child<sup>xxix</sup>. Young children in northern Ontario with excellent or very good health, as reported by a parent or caregiver, were more likely to be in a food secure household<sup>xxx</sup>.

Research to date does provide some evidence for a link between child hunger or residence in a food insecure household and a number of specific health outcomes. However, the research is not sufficient to establish causation. It is unclear how and when household food insecurity acts as a cause, effect or both to influence health. Outcomes could be caused by food insecurity itself, experienced as dietary compromises, but other conditions, such as psychological stress, physical and emotional impairment, experienced by household members on whom children rely may also contribute by creating an environment that does not promote optimal child growth and development.

## **Adults and Adolescents**

Research has found associations between HFI and self-reported poor health status among adults and youth. The 1994 NLSCY found that parents in families that reported child hunger were more likely to rate their own health poorly and to report having at least one chronic health condition when compared to parents in families who did not report child hunger<sup>xxxii</sup>. Toronto women using food banks who reported food insecurity with hunger in the previous 12 months were about twice as likely to report their health as fair, poor or very poor, as well as longstanding health conditions or activity limitations<sup>xxxiii</sup>.

While a connection to poor health is well-established in the literature, there is comparatively less research on the psychological and social implications of HFI. The psychological stress associated with food insecurity on an ongoing basis may increase the risk of depression, particularly for lone parent mothers who are more likely to report poorer mental health than married or partnered mothers. Lone parent, unemployed mothers are twice as likely to report a high level of distress compared with other groups. Lone parent mothers in general, regardless of employment status, are more likely to report high personal and chronic stress<sup>xxxiii</sup>. Canadian and U.S.-based research shows that parents in food insecure homes can be at increased vulnerability to feelings of anxiety, loss of control, family dysfunction, and psychological impairment. All of this is accompanied by a preoccupation with acquiring food or resources for food by engaging in socially stigmatized activities such as using food banks, borrowing money, selling possessions or stealing<sup>xxxiv</sup>.

The stigma associated with food bank use has been recognized for a long time as a deterrent to their use by some hungry people. Food insecure parents of young children surveyed by the Regina Qu'Appelle Health Region reported that the strategies they often used to feed their children, such as using food banks or borrowing money or food, "made them feel bad, embarrassed, guilty or depressed". Many of the parents interviewed reported that for this reason it was often difficult to approach family or friends or to use services such as a food bank<sup>xxxv</sup>.

Feelings of shame or embarrassment about not being able to afford food can promote a feeling of isolation from one's neighbours and the community at large. Feeling this kind of isolation can further exacerbate the struggle to meet basic food needs by causing people to limit non-monetary means of acquiring food, such as asking friends or neighbours for help. Martin et al.<sup>xxxvi</sup> found evidence that the absence of a social network, including the trust, information, and cooperation associated with these informal resources, is associated with household food insecurity.

The effect of limiting social interaction or socially isolating individuals poses a risk, not only to individuals and households, but to society at large. Compromises in diet quantity or quality can contribute to reduced learning in children and adults as well as a loss of productivity such as absenteeism at work. Hamelin et al.<sup>xxxvii</sup> reported intensified feelings of exclusion and powerlessness among food insecure families in Quebec. Research suggests that the inability of households to meet basic food needs limits the optimal functioning of communities and society at large.

## **Seniors**

Many factors are associated with nutritional and health status in seniors compared to younger age groups. Not only the aging process, but also health, psychological, social and economic factors, are closely related to nutritional and health status in elderly persons<sup>xxxviii</sup>. Chronic diseases common among seniors such as hypertension, diabetes and coronary heart disease can be prevented or treated by a healthful diet. Food insecurity can, therefore, exacerbate existing conditions among seniors. Little Canadian research was found on the impact of HFI on this population. In the U.S., Rose and Oliveira<sup>xxxix</sup> found that food-insufficient elderly individuals had lower intakes of eight nutrients including total calories and calcium. Roe<sup>xl</sup> and Vailas et al.<sup>xli</sup> found that food insecure seniors were more likely to have lower body weight and overall quality of life.

While food insecurity is closely connected to inadequate income for younger populations, food insecurity among seniors can also be caused by functional limitations that prevent them from shopping or being able to prepare healthy meals. In addition, many medications that older adults take for chronic conditions are not supposed to be taken on an empty stomach, impacting food insecure seniors. Specific dietary restrictions for those with chronic conditions are also more difficult to follow<sup>xlii</sup>.

Low-income elderly households can experience substantial seasonal differences in the incidence of severe food insecurity in many regions that have high winter heating costs and high summer cooling costs. In the U.S., in high heating states, the odds of severe food insecurity were 43 per cent lower in the summer<sup>xliii</sup>.

## **Public Health Interventions to Address Household Food Security**

Food security interventions are classified in a number of ways. Perhaps the most commonly used framework is the Food Security Continuum, which describes a strategic path of interventions towards achieving food security<sup>xliv</sup>. The continuum categorizes actions into three groups: efficiency, transition (also called participation or substitution) and redesign.

*Efficiency* strategies are essentially stop-gap measures to address immediate need, but are not intended as long-term solutions. These strategies are the fastest to implement and generally take the form of charitable responses to hunger (such as food banks) or minor modifications to social assistance delivery. *Transition* strategies focus on the development of a parallel practice or process in opposition to one that has been shown to be inadequate. This stage focuses on capacity building among individuals and the community as a whole, emphasizing the ultimate goal of food security. *Redesign* strategies are based on a rethinking of the roots of the problem and of the solutions to address it. These strategies can take longer to implement and demand fundamental changes, but they address multiple concerns in an integrated fashion. Several public health authorities have found the continuum a useful tool in developing food security work<sup>xlv</sup>.

## ***Efficiency Strategies***

An ad hoc range of independently-run local initiatives have primarily taken the lead for addressing food insecurity in Canada in recent decades. Many of these strategies have been efficiency-focused. The most publicized of these approaches has been direct food assistance through food banks and other charitable food programs. Food banks have a precarious existence, being dependent on food donations from the public and the food industry, and the work of volunteers to stay in business.

Food banks were initially established as only a temporary measure during the 1980s. Since then emergency charitable food assistance programs have become legitimized in Canada as the primary response to hunger. Research has shown that even the small amount of supplies given out by food banks (often three days worth, with a limit of one visit per month) are insufficient to fully meet the needs of those seeking assistance<sup>xlvi</sup>. The promotion of food banks as a solution to HFI also creates a false assumption that the price of food is too high in Canada. In fact, the price of food, relative to average income, is lower in Canada than in almost every developed country<sup>xlvii</sup>.

Many public health-funded or supported programs in Canada offer direct food assistance in the form of food coupons. Public Health Nurses working in the *Healthy Babies, Healthy Children* program give out emergency grocery certificates to clients, but the amount is usually quite small (\$5-10). Some Canada Prenatal Nutrition Programs (CPNP) also offer food certificates, small meals and a take home bag of groceries (staples such as milk, bread and eggs) each week at the program.

The U.S. Federal Government devotes a large amount of money to efficiency-based food programs for low income children. The largest child-focused program is the National School Lunch Program (NSLP). It aims to provide nutritious lunches and the opportunity to practice skills learned in classroom nutrition education. It also offers after school snacks in sites that meet eligibility requirements. All children in eligible schools may participate. Critics of the program have argued that a lack of regulation has resulted in the program subsidizing the sale of fast food to America's school children<sup>xlviii</sup>. In spite of quality concerns, studies have found that students who participated in the program were twice as likely to consume milk or other dairy products, almost twice as likely to consume vegetables, and one and a half times as likely to consume fruits or fruit juices at lunch compared with students who brought lunch from home. Students who did not participate in the NSLP were almost three times as likely to consume foods high in sugar and/or sodium compared to students who did participate<sup>xlix</sup>.

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) provides at-risk pregnant, postpartum, and breastfeeding women and infants and children under the age of five years from families with low incomes with vouchers for the purchase of nutritious supplemental food, referrals to health care professionals, and nutrition education. A Toronto Public Health (TPH) review found an association between WIC participation and accelerated growth in weight and length/height, as well as lower rates of iron deficiency anemia when WIC participants were compared to a control group. However, the TPH review identified methodological difficulties in a number of the studies and concluded that the impact of WIC on growth and anemia rates was inconclusive<sup>1</sup>.

While efficiency strategies serve a purpose to meet an immediate need, critics point to their inability to address the root causes of food insecurity. Some also argue that the very existence of these strategies, especially the entrenchment of food banks in Canada, acts as a public stopgap measure, making it easier for governments to avoid implementing effective food security measures<sup>li</sup>.

### ***Transitional Strategies***

The evolution in food security thinking from the household to community level has resulted in an expansion in community-based responses that focus on capacity building and skill development. Community food security strategies include community kitchens (groups meet regularly to cook healthy meals), food skills workshops, community gardens, alternative food distribution systems such as food buying co-ops, field gleaning (collecting leftover crops from farmers' fields) and community-supported agriculture (community members pledge to support a farm with a financial commitment in exchange for sharing in the harvest). Community-based responses to food insecurity have been formulated as an alternative to the charitable model, providing healthier, better-quality food and preserving participants' dignity by requiring their participation, time, and often some investment of financial resources<sup>lii</sup>.

At the provincial level, British Columbia has been the most active in food security work in recent years. The government's *Community Food Action Initiative* aims to increase food security at the population level with a focus on vulnerable populations, including children and low income parents. Programs typically teach food skills, link households with other community initiatives and provide some direct food assistance<sup>liii</sup>.

The Public Health Association of British Columbia encourages all health units to develop regional strategies for food security that are incorporated into regional health plans<sup>liv</sup>. The Association recommends the following steps in developing such a strategy:

- Establish a food security team that works closely with decision-makers;
- Assess food security needs in your jurisdiction;
- Develop a food security action plan with deliverables;
- Develop a food security policy for the jurisdiction; and,
- Support local food security groups.

Some of the best examples of transitional programming focused on Aboriginal populations are also taking place in the B.C. Community Food Action Initiative. Vancouver Coastal Health has established the *Aboriginal Health Initiative Program*. The program includes community kitchens that focus on communal cooking and sharing meals with a focus on nutritious foods, traditional foods procurement and harvesting, and community gardens that provide education and training on traditional and modern food growing. Aboriginal food security committees have been developed to provide capacity building in areas of traditional food gathering techniques and procuring of foods.

The federally-funded *Canada Prenatal Nutrition Program* offers a First Nations and Inuit component. The program targets pregnant women and women with infants up to 12 months of age living on-reserve and in Inuit communities. Community health and social service providers

deliver the program with support from dietitians, nutritionists, lactation consultants, and others. The overall goal is to improve maternal and infant nutritional health. There are supports related to nutrition education, maternal nourishment (provision of healthy snacks, food coupons, food vouchers) and breastfeeding promotion.

There is relatively little peer-reviewed research available on the effectiveness of transitional strategies in addressing HFI. Community kitchens have been shown to enhance coping skills and provide valuable social support<sup>lv</sup>. Research has shown that participation in community gardens provides numerous health benefits, including improved access to food, improved nutrition, increased physical activity and improved mental health. Community gardens are also seen by participants as promoting social health and community cohesion<sup>lvi</sup>. In Kamloops, British Columbia, where a wide range of community-based food security activities are employed, the local food-bank director credits these programs with a 32 per cent drop in demand at the community's food bank from 1999-2003<sup>lvii</sup>.

### ***Redesign Strategies***

Redesign (radical restructuring) strategies are based on a rethinking of the roots of the problem of food insecurity and developing the solutions to fundamental causes. Although redesign strategies take longer to implement and demand fundamental changes in the use of human and physical resources, they address multiple concerns in an integrated fashion. Redesign strategies are unlikely to be undertaken until stages one and two strategies have been attempted and found wanting, due to the incremental nature of most policy and program development<sup>lviii</sup>.

The most prominent food security interventions that fit the redesign category are those aimed at addressing poverty by increasing household income and tackling the high cost of other expenses. Virtually all organizations focused on the problem of household food insecurity in Canada identify some form of poverty reduction as a key priority.

Food bank organizers call for a comprehensive poverty reduction plans with measurements, timetables, and a system of outcome-based targets, including a focus on five areas: children, the working poor, people with disabilities, immigrants and housing<sup>lix</sup>. The Dietitians of Canada (DC) conclude that poverty levels must be reduced to improve the food security of individuals and households and overall population health in Canada.<sup>lx</sup>

Although poverty reduction is a key tool in addressing household food insecurity, it should be noted that poverty rates and indicators of food insecurity are not synonymous. The correlation between poverty rates and measures of household food insecurity may not be as strong as one might expect. In the U.S., only about half of the variance in state food insecurity rates is associated with differences in poverty rates<sup>lxi</sup>. The complexity stems from the fact that dietary compromises do not automatically occur amid material deprivation. There are a number of intervening factors that can restrict the resources available to a household that are not captured by income statistics.

Evidence from other countries and population groups, however, does show a strong correlation between efforts to reduce poverty and lower prevalence of food insecurity. For example, in Sweden, Finland and Denmark, child poverty levels are below five per cent and food insecurity,

as indicated by household surveys is very low<sup>lxii</sup>. Food banks and direct food assistance programs are virtually non-existent in those countries.

The addition of income supports for Canadian seniors has had a similar effect on food insecurity. The prevalence of food insecurity was very low (4.9 per cent) among households reporting pension or seniors benefits in 2004 compared to the general population (9.2 per cent)<sup>lxiii</sup>.

Some evidence also shows that relatively small changes in income can have a big impact on food security status. An analysis comparing child hunger data from the 1994 and 1996 cycles of the National Longitudinal Survey of Children and Youth (NLSCY) showed that the prevalence of households across Canada reporting child hunger was almost the same as in the previous survey (1.4 per cent in 1994 and 1.6 per cent in 1996). Although the same households were surveyed in 1996, almost entirely different households reported hunger in 1996 compared to 1994. Only 22.4 per cent of hungry households from 1994 retained that status in 1996. Among households that fell into the hunger state in 1996, mean annual household income was reduced by \$2,690<sup>lxiv</sup>. In other words, a decrease in income of approximately \$224/month was enough to push previously non-hungry households into the hunger state.

Leading public health authorities in the area of food security have also consistently emphasized the need to facilitate networks and linkages among community groups, provincial organizations and government ministries. An approach that has gained interest across Canada and the U.S. is the formation of local or regional food policy councils (FPCs). FPCs are vehicles that champion redesign strategies by bringing together stakeholders from diverse food-related sectors to examine the food system and develop strategies to improve it. There are no governments in North America that have a ministry of food, so food-related matters are addressed by a wide range of departments and agencies. Food policy councils attempt to break down those silos. The diversity of perspectives they bring together can be successful at educating officials and the public, shaping public policy, improving coordination between existing programs, and starting new initiatives. In North America there are now no less than 60 food policy councils.

The discussion of food insecurity often is understood as a question of urban hunger. Most families dealing with food issues are, in fact, in large urban centers in Canada. The high cost of housing, low income and the inaccessibility of quality food retail outlets can interact to create experiences of food insecurity. However, in developing an action plan to address food insecurity in Canada, decision-makers should keep in mind that, although adequate income would allow urban families to purchase a sufficient quantity of food, it would not guarantee the quality of food available to them, nor would it address the livelihoods of those employed in the food production and processing industries.

## **Conclusion**

There is strong evidence of links between measures of household food insecurity and a range of health, developmental and educational outcomes for children and health outcomes for older age groups.

Research has clearly established that inadequate income is the primary driver of food insecurity for any household. Low income is consistently shown to be the leading predictor of household food insecurity in population level surveys.

Although increased income is likely to result in better nutrition for children, not all disadvantaged families possess sufficient knowledge or skills to make appropriate nutrition choices. As a complementary approach to broader redesign strategies, it may be useful to integrate transitional programming that supports these key food skills.

Evidence suggests that an overall plan to address the social determinants of socio-economic and ERS as they relate to household food insecurity should focus primarily on redesign strategies to improve income, encourage collaboration among diverse groups within the food system that typically operate in silos, and actions to transform the food system to provide fair wages and social justice for eaters as well as for those earning a living from it.

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## Endnotes

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