

**Recognizing the Role of Gender and Food Security in Type 2 Diabetes
Nutrition Education in Rural Southwestern Ontario**

by

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I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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Abstract

Food systems and health systems are interdependent. Historically, however, strategies that focused on the development of these systems evolved in isolation from one another. Non-communicable diseases such as type 2 diabetes have an etiology that is strongly linked to food systems. Type 2 diabetes is taking an ever-increasing toll on health, and health systems, globally, and in Canada. In response, health professional organizations propose an advocacy approach to improve food system characteristics linked to the development of diabetes. Opportunities for, and barriers to, such initiatives have not yet been examined in the health geography literature.

The primary objective of this dissertation is to contribute to the development of a framework for action for nutrition educators working in rural areas to use to promote local sustainable food systems. The ultimate objective is to improve the diet, and by extension, the health of those suffering from type 2 diabetes. As part of the research approach, a gendered analysis was employed for the following reasons: First, labour around food production, food procurement and food preparation and health care work is provided predominantly by women. Second, there is a gendered profile of pattern of illness and access to care for people with type 2 diabetes.

The research methodology was comprised of a case study and mixed methods approach. Nineteen communities in southwestern Ontario were selected for inclusion in the case study using criteria based on the Rurality Index of Ontario. Data were collected through extensive literature reviews, 34 semi-structured interviews with health professionals, a survey of 24 people afflicted with type 2 diabetes and ‘in situ’ observations.

Analysis of the findings using grounded theory techniques, such as iterative coding, revealed barriers to, and opportunities for, supporting local sustainable food systems by area health professionals working at local, regional and national scales. This thesis provides important information about gender roles, community capacity, sense of community, and health professional training that should be considered in the development of policies to promote local sustainable food systems.

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As always, in an undertaking such a thesis, there are truly many contributors that make the journey possible.

To the people working and living with diabetes, your forthrightness and eagerness to find new ways of rising above challenges was inspiring. I thank all 58 participants for your interest and enthusiasm.

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Abbreviations

ADA	American Diabetes Association
AMA	American Medical Association
AOHC	Association of Ontario Health Centres
CBRA	Canadian Biosphere Reserve Association
CCAC	Community Care Access Centre
CDA	Canadian Diabetes Association
CDS	Canadian Diabetes Strategy
CHC	Community Health Centre
CIHR	Canadian Institute of Health Research
CFA	Community Food Advisors
DEC	Diabetes Education Centre
DOC	Dietitians of Canada
ECHU	Elgin County Health Unit
FAO	Food and Agricultural Organization of the World Health Organization
FHT	Family Health Team
FLGB	Food Link Grey Bruce
HPFTT	Huron Perth Field to Table
ICES	Institute of Clinical and Evaluative Science
IDF	International Diabetes Foundation
IGT	Impaired glucose tolerance
LSF	Local Sustainable Food

LHIN	Local Health Integration Network
MOHLTC	Ontario Ministry of Health and Long Term Care
NFU	National Farmers Union
NGO	Non-government Organization
OMAFRA	Ontario Ministry of Agriculture and Food
OMCSS	Ontario Ministry of Community and Social Services
OPHA	Ontario Public Health Association
OAFB	Ontario Association of Food Banks
PHAC	Public Health Agency of Canada
RCT	Randomized Control Trial research design
RIO	Rurality Index of Ontario
RPDO	Registered Persons Database of Ontario
SWLHIN	South West Local Health Integration Network
WHO	World Health Organization

CHAPTER ONE: Overview

1.1 Introduction

“We are what we eat” is an age-old truism. Yet, this concept has not been formally recognized or institutionalized in health policy and administrative decision-making arenas. In Canada, food and health policies and strategies evolve in isolation from one another even though decisions taken in the food policy arena have notable implications for public health outcomes. Moreover, health policies and their implementation have implications for what, how, and where food is produced and consumed. Professional health organizations including the Dietitians of Canada and the American Dietetic Association are advocating for the adoption of an integrative ‘ecohealth’ approach in position statements published by these organizations (CDA, 2007; ADA, 2007). Such an approach attempts to address the inter-relationship of food and health system characteristics at different socio-biophysical scales to promote the health and wellbeing of individuals in their communities. This thesis identifies community-level opportunities and challenges presented by this emerging eco-health approach to public health policy. The politics of gender plays a very important role in food and health policy arenas in both urban and in rural communities, such as those found in southwestern Ontario, the location of this project’s field-work. As such, this research project contains an analysis of gender as a significant variable in the dynamic relationship between food provisioning and human health.

With respect to health and food systems, economic globalization has served to centralize decision-making. Dominant actors in these evolving health and food systems include large corporate players such as the pharmaceutical industry and agro-industrial interests. The corporate agendas foster top-down food ‘solutions’ to local food security that do not translate into the long-term, context-specific, solutions needed to address endemic health issues linked to

compromised food security and nutrition (Clapp, 2012; Lang, 2005). Popkin (1998) identified patterns of malnutrition in the context of an ostensibly adequate food supply using economic and food availability data from 1962-1994, and referred to this trend as a “nutrition transition”. Nutrition-related health issues linked to this transition include obesity and type 2 diabetes. Other, similar analyses of diverse cultures, at various stages of economic development, corroborate the emergence of this phenomenon (Barling et al., 2002; Lang and Hessman, 2004; Wahlqvist, 2008; Damman and Kuhnlein, 2008).

Members of the global public health community are proposing that local, community-based, food provisioning plays a role in promoting desirable health outcomes and in countering the “nutrition transition” described by Popkin (Potchuchi, 2004; Feenstra, 1997; Lang, 2010; McMichael, 2005). These desirable outcomes are directly realized through healthier food environments and increased physical activity associated with participation in food production and procurement. They are also indirectly achieved through improved social networks and reduced environmental degradation.

As a result, a debate in the public health literature is now revolving around whether the role of health care workers should expand to include participation in promotion of local food provisioning. In part, the debate centres on whether such participation by the ‘expert’ professional health care could undermine the capacity of community members to make effective choices and engage in creative community development (Hawe et al., 1998; Guthman, 2008; McKnight, 1995). From the perspective of the health care worker and administrators, additional responsibilities added to the mandate of health care workers may not be welcomed by those professionals (Rourke, 2010). That said, Kilpatrick et al (2009), observed that rural health professionals are ideally placed to influence such community-level determinants of health given

that the majority live within, or near, the communities they serve. These workers, described by Kilpatrick as “boundary crossers”, understand the culture and language of community and health service domains and typically have the trust of both.

Attention to gender is also critical when formulating public health policies in the context of diet and food provisioning. Despite its importance, the role that women play in a local community setting with respect to their responsibility for food and health systems work has been relatively unconsidered in health policy (Liepert et al., 2012). This is an interesting omission given that women are the dominant actors in this arena by an overwhelming majority, both in the public domain as health care workers, and in their private domain in the home, as caregivers (Williams and Kulig, 2011; Dolan and Thein, 2008).

At this point, a cautionary note is in order: effective health and food policies developed within an emerging eco-health paradigm could lead to a heavier workload for the primary caregivers. An eco-health approach typically leverages the knowledge and priorities of community members in working towards sustainable approaches to health and wellness (Forget and Lebel, 2001; Parkes et al., 2003). This does not necessarily maximize the efficient use of human resources: women and men (both patients and providers) may acquire new or additional responsibilities as a result of this more holistic approach to health care if it were to be implemented. From the perspective of the patient, these tasks may include the addition of shopping trips to multiple venues that include local farmers’ markets or participating in growing one’s own food. One-stop ‘superstore’ purchasing of processed ‘convenience’ foods may appear to maximize time-savings and efficiency for the customer and, therefore, often is chosen over the alternative, namely, preparing fresh non-processed foods. For their part, health care workers’ responsibilities would expand to encompass advocacy for improved access to a local

sustainable food supply if a new holistic approach to nutrition were to be put in place. This new role could include facilitating opportunities for enhancement of food-related skills, development of new educational materials, and changes in food production policy and regulatory frameworks.

In response, it could be argued that if such a food system were in place, the ready accessibility of local food might improve equity and ease of access for all consumers. The numerous trade-offs to consider in changing health care and food system mandates include the choice of priorities with respect to the allocation of health care dollars as well as the impact on livelihoods, incomes, cultural norms and power dynamics (particularly around gender). Given the range and complexity of these trade-offs, the knowledge and experience of local communities of interests are required to enable decision-makers to navigate their way towards tenable food and health policies and strategies in the context of any given community.

1.2 Research questions and objectives

This project poses the following inter-related questions:

How might the role of local diabetes educators be re-conceptualized in order to promote local sustainable food systems and consequently foster public health and the nutritional well-being of residents in rural southwestern Ontario?

What are the implications of gender with respect to nutrition education and the promotion of local food provisioning?

What are the opportunities for, and challenges to trans-disciplinary action towards community food security in the context of type 2 diabetes education in rural southwestern Ontario?

The research questions for this thesis is based on the assumptions that:

1. Local food systems are a primary determinant of health (nutritional wellbeing)
2. The epidemic increase in type 2 diabetes is concurrent with the “nutrition transition” away from local food systems (which has been particularly notable in rural areas).
3. Gender is an important consideration in this study because women are the predominant gatekeepers in health and food systems related to nutritional wellbeing.

In order to answer the above questions, the primary research objective of this dissertation is to investigate and analyze an emerging approach to type 2 diabetes health care with an explicit objective of (re)establishing localized and integrated health and food systems. To be specific, these health initiatives include the Ontario Diabetes Strategy implemented by the Ontario Ministry of Health and Long Term Care (MOHLTC) and local food initiatives promoted by public health nutritionists in rural southwestern Ontario. The following gendered analysis of these accounts provides an analytical framework for the investigation of the notable division of labour between men and women in local communities with respect to activities such as food production, procurement and preparation. This cleavage is also evident in public health and

nutrition policy and institutional structures with respect to the development and implementation of nutrition education guidelines for type 2 diabetes. This exploration of the gendered relationship between food and health in a rural area sets the foundation for a secondary objective, namely the identification of patterns of illness in people with type 2 diabetes and their access to nutrition education and resources. This profile, based on secondary research and primary fieldwork in southwestern Ontario, serves as the basis for the identification of opportunities and barriers to work supportive of community food security by health professionals. These objectives are detailed in Table 1.1 below.

Table 1.1

General and specific research objectives

General Objectives	Specific Objectives											
<p>1 Identify the interrelationships with health services, gender, local sustainable food (LSF) and type 2 diabetes in rural Ontario.</p>	<p>1.1 Identify diabetes prevalence by age and gender in case study area through literature review</p> <p>1.2 Investigate patient access to diabetes nutrition care by gender in case study area by location and type of service</p> <p>1.3 Examine by age/gender roles in production, distribution and consumption of “local sustainable food” in case study area</p> <p>1.4 Identify perceptions of health implications related to type 2 diabetes in production, distribution and consumption of “local sustainable food” in case study area</p>											
<p>2 Identify attention to: a) gender b) LSF in community diabetes nutrition education in rural Ontario</p>	<p>2.1 Examine priorities and implementation of diabetes education and care guidelines at national, regional community and individual scales</p> <table border="1" data-bbox="464 1010 1255 1785"> <tr> <td data-bbox="464 1010 711 1283"> <p>2.2 Identify barriers to and opportunities for fostering improved attention to: a) gender b) LSF</p> </td> <td data-bbox="711 1010 1255 1146"> <p>2.2.1 Investigate community diabetes education programming in rural Ontario by location and type of service, resources.</p> </td> </tr> <tr> <td data-bbox="464 1283 711 1451"> <p>in community diabetes education</p> </td> <td data-bbox="711 1146 1255 1283"> <p>2.2.2 Identify LSF accessibility for people with diabetes in rural Ontario in the home and community</p> </td> </tr> <tr> <td data-bbox="464 1451 711 1619"></td> <td data-bbox="711 1283 1255 1451"> <p>2.2.3 Examine the experiences of people with diabetes in terms of attention to a) gender and b) LSF in diabetes nutrition education</p> </td> </tr> <tr> <td data-bbox="464 1619 711 1785"></td> <td data-bbox="711 1451 1255 1619"> <p>2.2.4 Identify the perceptions and experiences of diabetes educators’ attention to a) gender and b) LSF in diabetes nutrition education.</p> </td> </tr> <tr> <td data-bbox="464 1785 711 1785"></td> <td data-bbox="711 1619 1255 1785"> <p>2.2.5 Identify the perceptions and experiences of regional, provincial, national coordinators to a) gender and b) LSF in diabetes nutrition education</p> </td> </tr> </table>		<p>2.2 Identify barriers to and opportunities for fostering improved attention to: a) gender b) LSF</p>	<p>2.2.1 Investigate community diabetes education programming in rural Ontario by location and type of service, resources.</p>	<p>in community diabetes education</p>	<p>2.2.2 Identify LSF accessibility for people with diabetes in rural Ontario in the home and community</p>		<p>2.2.3 Examine the experiences of people with diabetes in terms of attention to a) gender and b) LSF in diabetes nutrition education</p>		<p>2.2.4 Identify the perceptions and experiences of diabetes educators’ attention to a) gender and b) LSF in diabetes nutrition education.</p>		<p>2.2.5 Identify the perceptions and experiences of regional, provincial, national coordinators to a) gender and b) LSF in diabetes nutrition education</p>
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	<p>2.2.5 Identify the perceptions and experiences of regional, provincial, national coordinators to a) gender and b) LSF in diabetes nutrition education</p>											

1.3 Justification and key concepts

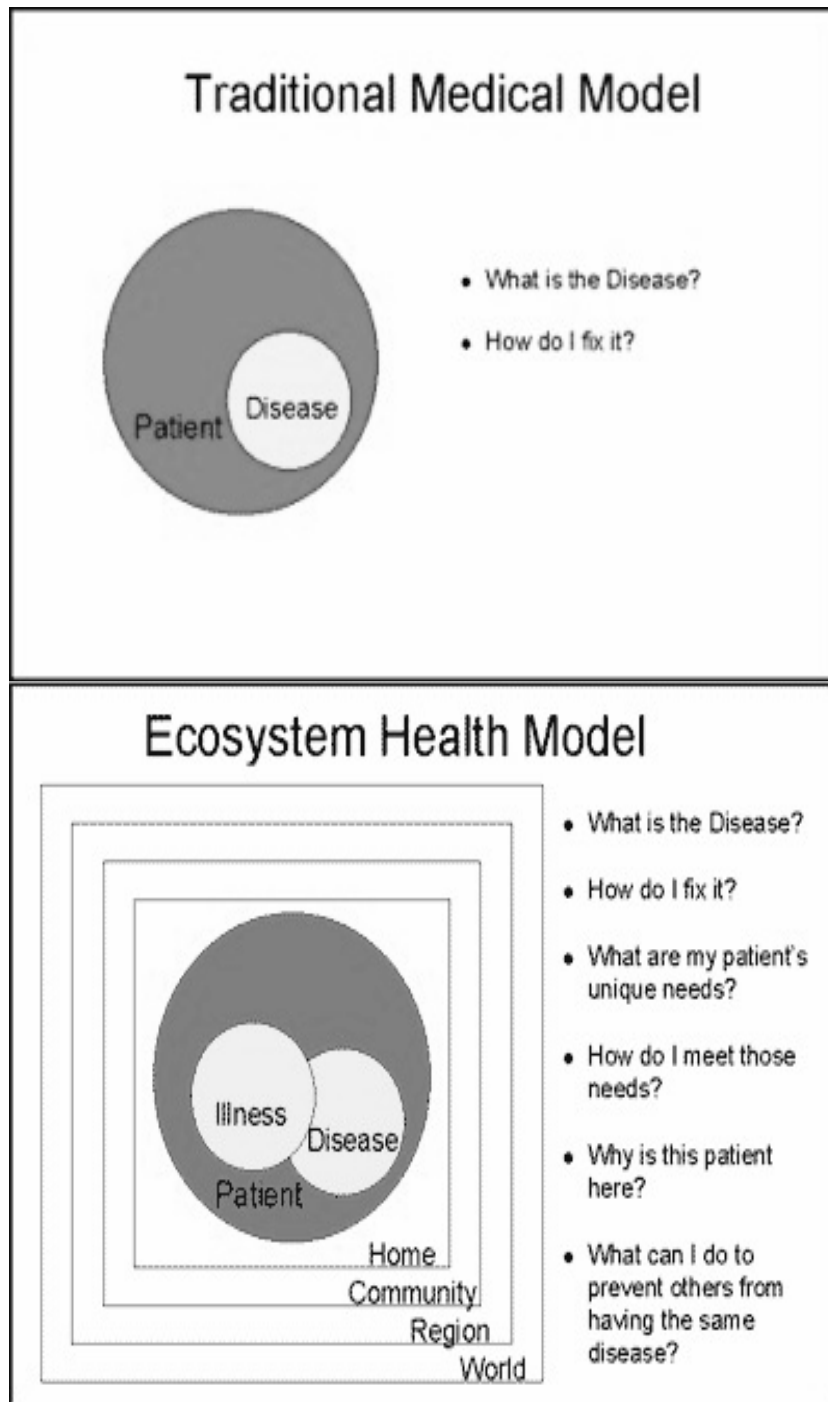
The particular vulnerability and dependence of people with diabetes on the health care system and on access to healthy affordable food is an increasingly salient public health issue. Given questions of scale, demographics and place, this topic fits well within the field of human geography. The recent global increase in the diagnosis of type 2 diabetes (IDF, 2012) indicates the need for alternatives to those offered by conventional and now, global, biomedical approaches to health care. The dominant ideologies with respect to health systems and food systems, with a particular focus on type 2 diabetes, are detailed in the following section in order to provide the basis for the selection of case study characteristics.

1.3.1 Health and food system ideologies

The biomedical approach to health care that emerged in the early 20th century continues to predominate in the Western world to this day. This approach, designed to efficiently address health concerns of individuals, does not take into account the social and environmental structures within which health and illness is experienced. An alternative is the ecosystem health model, or “ecohealth” approach. The ecohealth approach is an holistic one. It is described in the public health literature as an approach that anticipates disease and health outcomes within their complex social and ecological contexts, with respect to the ecological and cultural origins, vectors, propagation, response and natural mitigation.” (Arya et al., 2009, p. 9). Figure 1.1 below is a pictorial representation of the two approaches.

Figure 1.1

Comparison of the traditional medical model and the ecosystem health model



Source: UWO Ecohealth Course, Howard, 2004

The biomedical paradigm defines health as the absence of disease or disability (Labonte, 2005). Reductionist scientific principles attributed to Newtonian thinking are used to approach problem solving and management in this paradigm – in which big problems can be broken down into smaller ones which can be analyzed and solved by rational deduction (Plesk and Greenbalgh, 2001). Examples for nutrition-related diseases include diabetes clinical management guidelines (CDA, 2013), and vitamin and macronutrient deficiencies classified relative to Dietary Reference Intakes (DRI's) (Health Canada, 2006). These guidelines focus on specific biomarkers to measure disease diagnosis and management. Similarly, they identify specific, individual nutrients and food components that relate to disease origin and progression. Decision -making is hierarchical in the biomedical approach, and focuses on interventions to manage symptoms and disease of individual care recipients within defined healthcare institutions (Bryant, 2009). The strength and weaknesses of a hierarchical system in health care systems parallel those found in other governance structures as described by McAllister (2004) “Hierarchical structures [are] designed for purposes of efficiency, accountability and control [...] these silos do not readily lend themselves to structures that recognize the complex interplay of biophysical social and economic factors” (McAllister, 2004, p.172). These characteristics are supportive of mechanisms that deliver defined health outcomes in a manner easily measured and assessed for efficiency and consistency. The relevance and meaning of these outcomes from a social and environmental perspective, however, are not as easy to enumerate.

The ecohealth approach, conversely, is underpinned by three core themes that acknowledge the complex interplay of biophysical social and economic factors:

- The complex ecological and social systems underlying health calls for rigorous and innovative forms of theoretical and applied work.

- Effective advances will rest on multilevel analyses of both biophysical and social dimensions of environment and health across different temporal and spatial scales.
- Collaborative trans-disciplinary work engaging participation from all sectors of the community is integral to transformative outcomes (Forget and Lebel, 2001; Parkes et al., 2003, 2005; Arya et al., 2009).

The application of an ecosystem health model as part of research process is best described by Charron (2011), “As an approach in this context it refers not to a framework or methodology, but rather to a mindset that orients the process of inquiry that is meant to lead to some action or change in the conditions of these same people and their environment” (Charron, 2011, p.6). This transformational stance presents an alternative perspective to the biomedical approach to disease management and research.

Within the biomedical ideology, food is valued primarily as a source of nutrients. This perspective has become part of a dominant ideology with significant implications for food production, provisioning and consumption and human health. The dietitian is the health professional most closely aligned with food work. The history of dietetics as a profession, and nutrition as a distinct scientific discipline, reflects the institution of western medical practice (Liquori, 2001). Dietetics is founded on the philosophy that optimal nutrition is essential for the health and well-being of every person. Based on the science of human nutritional care; the practice of dietetics involves the application of knowledge about nutrition in relation to health outcomes (Cannon, 2005). Between 1900 and 1930, in the early years of the profession of dietetics in North America, this practice took the form of fulfilling clinical prescriptions issued by medical doctors who dominated the biomedical hierarchy (Kennedy, 2008). These prescriptions were directed at specific health conditions related to particular disease states, such

as the relationship between adequate intake Vitamin C and the prevention of scurvy. The 1920s discovery of insulin therapy in the management of diabetes by the Nobel prize-winning work of Frederick Banting and Charles Best underpinned a key role for dietitians (CDA, 2012). Complementing this discovery was the development of the expertise of dietitians who helped patients understand the importance of regulating the intake of the macronutrient carbohydrates as a component of managing their disease.

The next defining era of nutrition practice and research corresponds with the food provisioning constraints brought on by the two world wars and related economic depression in the first half of the 20th century. Public health nutrition emerged at this time as many nations began to link the importance of a well-nourished population with one that was better able to service national interests including the health of “factory workers and foot soldiers to increase national advantage” (Cannon, 2005, p. 702). The focus of agriculture policy at this time was on food production quantity to meet these demands. In the first half of the twentieth century, national nutrition strategies developed in consultation with nutrition professionals focused on ensuring food abundance, which also complemented policies that encouraged the rise of the agro-industrial food system. The publication of national food guidelines constituted one such strategy. Panels of experts with specific training in areas such as chemistry, biology and toxicology developed these Dietary Reference Intakes (DRIs), to facilitate the evaluation of the relative merit of foodstuffs.

These reductionist approaches to valuing food in terms of its elemental nutrient components rather viewing it than as part of a nested interdependent system are now coming under scrutiny. Critical analyses of these biomedical approaches have been emerging from physical and social sciences as well as other communities of interest. Chemists, toxicologists

and biologists are among those calling for the adoption of new approaches and perspectives to inform national and international dietary recommendations (Freeland-Graves and Cahill, 2008; Trichopoulou and Vasilopoupou, 2008; Uauy et al., 2006; Jenkins et al., 2009, Jacobs and Steffen, 2003; Johns and Eyazquirre, 2006). These scientists assert that the health impacts of these individual components of food cannot be understood outside of the context of the food system as a whole, and the wider ecosystem. It is not sufficient to know how, or what, deficiencies or excesses of specific nutrients relate to specific health outcomes; linear pathways linking nutrient imbalances and disease states do not provide a full understanding of these relationships.

Numerous social scientists also have identified the limitations to the biomedical approach with respect to food and nutrition; the over-reliance on nutrient-based information relegates consideration of communal and ecological food values to a secondary role in health policy (Blay-Palmer, 2008; Lang, 2005; Freidman, 2007; Dixon, 2009; Scrinis, 2008; Nestle, 2006). This over-reliance on nutrient-based analysis, dubbed “nutritionism” (Scrinis, 2008), facilitates market co-modification of food systems that privileges corporations and their control over food value chains. Central to such an ideology, the presiding guidelines for a “nutricentric” person’s life are biological markers such as; blood sugar levels, glycemic index (GI), body mass index (BMI), and daily energy requirements (measured in Kilojoules of calories) (Scrinis, 2008). In contrast, “cultural eaters” (Dixon, 2009) prioritize alternative food-ways that place a high value on locality, history, and cultural identity (McMichael, 2005; Pettoello-Mantovani, 2005). The “re-localised” shift in food production and procurement that is integral to these alternative food systems raises wider debates about the risks of exclusionary politics that simple binaries such as “local” and “corporate”, “industrial” and “organic” may play in unintended marginalization of

groups at risk of food insecurity (Born and Purcell, 2006; Feagan, 2007; Marsden and Franklin, 2013). Regardless of a “local” label, transitions that prioritize the security of the livelihoods of producers, pleasure in cuisine of consumers, and the environmental sustainability of modes of production have the potential to play a significant role in the building of sustainable and place-based transitions within the “wider agri-food-energy-water-ecology nexus” (Marsden and Franklin, 2013 p. 640).

One response to these kinds of analyses is a call for an expansion in the role of (professional) health practitioners to adopt an ecohealth approach; that is, their jobs would also include advocacy work with respect to food security concerns in general (Arya et al., 2010) and food system issues specifically (Harvie et al., 2009). At the time of this review, several professional bodies responsible for representing and setting operational standards for North American health care professionals had published position statements available on their websites that embody such an approach. These included the American Medical Association (2007), the American Dietetic Association (2007) and the Dietitians of Canada (2007). As an example, the organization that represents nutrition professionals in Canada, the Dietitians of Canada (DOC) published a position statement in 2007 that advocated a broader approach to nutritional health care and suggested that

Community food security exists when all community residents obtain a safe, personally acceptable, nutritious diet through a *sustainable food system* that maximizes healthy choices, community self-reliance and equal access for everyone. (DOC, 2007, p.1 emphasis added)

The health of the population is based on the health of all of the individuals therein. There may be considerable variability in the health of individuals in a community. Approaches that focus on equal access to healthy food for all seek to reduce wide disparities in health status –

improving overall health for more residents rather than dramatic increases in health for a minority of the population as a means of improving average health status measures.

This definition of community food security will serve as the basis of a comprehensive analytical framework in this research study and will be used to examine current type 2 diabetes health strategies in rural southwestern Ontario.

The DOC position statement urges dietitians to advocate individually and through participation in coalitions for the development and implementation of policies and programs that support community food security. As a component of this advocacy support for local food is recommended. “Promoting local food production and consumption is one strategy to move toward a more sustainable food system” (DOC, 2007, p.5). Specific guidelines for actions promoting community food security accompany the statement. In this document, the only identified potential challenges to successful implementation are the requirements of “time and long term commitment [...] and additional training requirements” (DOC, 2007, p.7). Effective implementation of these guidelines requires a much more rigorous and informed understanding of the challenges that nutrition health professionals face in efforts to foster community food security. Moreover, it is important to identify possible opportunities that could be pursued that would help foster a healthier local food system—and, by extension, a healthier approach to nutrition by sufferers of type 2 diabetes. Institutionalized and established ideologies and “accepted” cultural practices will require a shift in training and the allocation of additional resources. Thus, awareness and acknowledgement of these conventional epistemological perspectives constitute a first step toward the successful adoption of new health promoting practices.

1.3.2 Relating type 2 diabetes to health and food systems

Food security and food-related practices, such as those that affect access to fruits, vegetables, and whole grains are key determinants in the development of type 2 Diabetes (Damman and Kuhnlien, 2008; Dinca-Panaltescu et al., 2011). Good food practices serve as a cornerstone of diabetes care (CDA 2008, 2013). The attention to food practices required in the management of type 2 diabetes renders households supporting people with diabetes particularly vulnerable to food security concerns (Galesloot, 2012; Tarasuk and et al., 2013a). In Canada, gradients in the prevalence of type 2 diabetes can be found across regions, income levels and genders.

Prevalance rates of diabetes are higher in rural areas, and among in lower income groups (PHAC, 2011). In the case of type 2 diabetes, prevention, treatment regimes and health monitoring are priorities of health policy in Canada (MOHLTC, 2007). The Canadian Diabetes Association (CDA), along with the other members of the International Diabetes Federation (IDF), promotes rigorous standards for assessment, monitoring and treatment (CDA, 2013). These standards form the basis Canadian diabetes health policy. The emphasis in these standards is on health care delivery infrastructure and facilitates, and on access to health care providers, including nutrition experts, for people with diabetes. Limited attention has been paid to the primary determinants of type 2 diabetes namely; low socio-economic status affecting lifestyle opportunities, including access to healthy food (Dina-Paneltescu et al., 2011). In other words, Canadian health policy largely ignores the contributing food system factors that are prevalent in the homes and communities of those who suffer from this disease or are at risk of developing it.

People with diabetes are unique as a group in their access to, and involvement with, nutrition professionals. Although it is recommended in the DOC 2007 position statement that

there be an investigation of the level of incorporation of advocacy for community food security into the mandate of diabetes nutrition educators in Canada, few researchers have followed up. Pilkington et al., (2011) are a notable exception, in their examination of experiences of low-income patients with type 2 diabetes living in an urban setting. Their findings support the importance of “patient-centred care and incorporating poverty as a clinical risk factor” (Pilkington et al., p.119). They found that educators were limited in awareness and training experience that would facilitate advocacy for community food security for this population. As yet, there is no examination of the opportunities to and barriers for such initiatives in a rural setting. This dissertation seeks to address that gap, examining interrelationships between food systems and health systems that have a mandate to deliver care for people with diabetes in a rural context.

1.3.3 Gender and type 2 diabetes in Canada

Sufferers of any chronic disease, including those with type 2 diabetes experience frequent interactions with professionals in the health care system. Particular to diabetes, successful management of the disease is contingent upon healthy food practices. Gender has also been identified in the health systems literature as an important variable in patterns associated with the management of type 2 diabetes (Booth et al., 2010). These patterns include rates of diabetes, patterns of illness, and access to diabetes care and roles in health systems and food systems.

Demographically, the absolute rate of diagnosis of the disease is higher among men than among women. In terms of region, diabetes prevalence rates are highest in more rural and remote populations in Canada, but the gender difference in rates is relatively consistent across regions (Williams and Kulig, 2011). The patterns that are associated with gender, among

diagnosed individuals, include age at onset, and type and severity of complications (Booth, 2010). Women have an earlier age of diagnosis and a higher rate of chronic co-morbidities such as depression. However, men have a higher rate of complications associated with poorer disease management and consequent micro-vascular impairment such as stroke, requiring hospitalization.

Patterns of access to diabetes care, and care-related practices also vary with gender. Booth, (2010) determined that women are more likely than men to attend screening and preventive care. In the home, women are more likely to be responsible for the food-related aspects of diabetes care (Wong, 2005). The successful management of diabetes requires adjustment of household-level food practices. Throughout the world, a number of scholars have observed that women are most often responsible for household level food work (Coveney, 2006). Moreover, this work is often structurally invisible, and performed in addition to existing workloads of paid and unpaid employment (Allen, 1999). There are some notable implications of this gendered division of labour when one considers that careful management of food and diet constitute an important element in treating type 2 diabetes. The increased need for careful food practices required in the management of health issues, proportionally places more strain on women as the main providers of food in the household.

There is also a gendered dynamic among the professional providers of health care for people with diabetes, particularly as it relates to nutrition. Women overwhelmingly dominate the arena of food and nutrition practice, both in the public sphere of the health care system and the private realm of the home (Coveney, 2006; Liquori, 2001; Kennedy, 2008; Gingras, 2009). Historically, however, women comprise only a minority of decision-makers when it comes to scientific knowledge creation and the development of clinical guidelines for disease

management (Liquori, 2001). Liquori (2001) and Coveney (2006) conclude that this gendered terrain of nutrition science and practice has contributed a predominant perspective in nutrition practice guidelines that food is best evaluated in terms of the nutrients it can offer, at the expense of viewing it more holistically. In such a view, a more comprehensive perspective includes the context, cultural values and cross-cultural norms associated with all aspects of food production, preparation and consumption and the transmission of knowledge around food (Rapport and Massi 2011; Berkes and Davidson-Hunt, 2008; Kwik, 2008). In this broader perspective, gendered-related factors affect food access for both men and women. For example, women may experience a relatively greater burden of responsibility for care when the complexity of food work increases, as in the case of managing food preparation for a household member with type 2 diabetes. In another scenario, when men experience widowhood, they may find themselves with very limited knowledge of the food-ways required to support healthy eating in a similar context. Despite the implications for effective development of health and wellness strategies, however, gender considerations are rarely, if ever, central in policy discussions and implementation within societies and organizations at the local, national and international levels.

The premise for conducting a gendered analysis in this research project is based on the recognition that real change in community food security requires “the reworking of the structure of decision making and institutional cultures such that gender is recognized as central rather than peripheral” (Chant, 2000, p.8). Critical attention to gender reveals opportunities to maximize the effectiveness of policy and program initiatives; in the role of health providers, in supportive programming and resources, and in policy focus for building healthy communities.

This research will contribute to the literature on the roles that health professionals can play when adopting an advocacy approach to nutrition and health. A secondary focus of this work is an examination of this role in the context of a rural food system. There is scant, if any, academic literature that considers the implications of an advocacy mandate for rural health practitioners, particularly from a gendered perspective. Specifically, this work contributes a unique perspective at the interstices of health systems, food systems, gender and rural development literature. Findings may also be of interest to a broader audience of researchers, public health and health promotion practitioners, agriculture and food industry personnel, health care providers and a variety of other stakeholders, including people with diabetes.

1.4 Thesis outline

This thesis is structured in seven chapters. Chapter Two provides a historical context, key definitions and a rationale for the inclusion of these elements in the research question. Additionally, the chapter discusses the ecohealth and feminist health geography orientation for this inquiry.

Chapter Three explains and justifies the research methodology. The initial sections introduce the research strategy and approaches employed; mixed methods, case study and grounded theory. A description of the selection and development of data collection and analysis techniques follows. These techniques include literature and document reviews, semi-structured interviews, questionnaires, content analyses, coding, and journaling. An explication of the criteria used to select the recruited sample of questionnaire respondents, interview participants and literature and documents reviewed constitute a part of the section on data collection techniques. The last section also elucidates the limitations of the employed methodology and identifies some ethical considerations.

The purpose of Chapter Four is to identify socio-biophysical characteristics of the case study as they relate to the research question outlined in Chapter One (Table 1.1). This description includes attributes of this rural area namely, the built and natural environment, and socio-cultural attributes, demographic profile of the population, and cultural affiliations. The population profile includes gender-stratified details of prevalence for type 2 diabetes, in the case study area, relative to national and international patterns. Data from document reviews, interviewee responses, and researcher ‘in situ’ observations contribute to the detailing of these features. Particular attention is devoted to facets of health systems and food systems related to routes of access to nutrition resources from a gendered perspective. As such, Chapter Four is primarily descriptive in nature, profiling the systems in place, with specific attention to material and subjective opportunities and barriers for people with type 2 diabetes.

Chapter Five elaborates on these themes of access to nutrition resources described in Chapter Four with findings from interviews and questionnaires and ‘in situ’ observations. The purpose of this chapter is to examine participant responses, exploring patterns of consensus and disagreement with respect to local food sustainable food access and promotion in the case study area. Identifying the opportunities and barriers to complementary, trans-disciplinary initiatives was the underpinning objective in the design. As such, there is specific attention to the rural setting and to gender identified in the literature as potentially key features of these interrelationships. The chapter that follows (Chapter Six), provides interpretation and analysis of the findings introduced in this chapter and Chapter Four. Chapter Seven presents a framework for action on promotion of local sustainable food by diabetes educators in rural areas based on the findings. Chapter Eight summarizes the thesis and provides recommendations for future research.

CHAPTER TWO: Finding the coordinates: Relating food systems to health, place and gender in the experience of type 2 diabetes

2.1 Introduction

Type 2 diabetes is a complex health problem. It requires those suffering from the disease to be attentive to their food habits in order to successfully manage the disease. This chapter begins with an overview of type 2 diabetes etiology, distribution and Canadian health related strategies devised to respond to this epidemic. This section is followed by a critical background on the health system ideologies underpinning contemporary food system and health system dynamics introduced in Chapter One. The focus of this examination centres on the relationship between sustainable local food systems and community food security for people managing type 2 diabetes.

Each interaction within food and health systems occurs in a particular place and time. The setting for this research is in rural Southwestern Ontario. Contextual and compositional features are both important to discerning the role of place in health and food systems. Rurality, as place, is no exception. As such, this chapter also includes a framework illustrating key aspects of the role that concepts of ‘place’ play as a determinant of health in rural areas.

As identified in Chapter One, gender is an important consideration when analyzing type 2 diabetes disease prevalence, illness, access to care and care work, including the work related to nutritional management of the disease. An ecohealth approach, complemented by emerging research in feminist health geography is the basis for investigating how the role of diabetes nutrition educators might be re-conceptualized to promote local sustainable food.

2.2 Type 2 diabetes in Canada

2.2.1 Definition, prevalence and distribution of Type 2 diabetes

Three main types of diabetes are described by the Canadian Diabetes Association (CDA, 2013). Type 1 diabetes, usually diagnosed in children and adolescents, occurs when the pancreas is unable to produce insulin. Insulin is a hormone that controls the amount of glucose in the blood. Approximately 10 per cent of people with diabetes have type 1 diabetes and require insulin therapy. The remaining 90 per cent have type 2 diabetes. Type 2 diabetes occurs when the pancreas does not produce enough insulin or when the body does not effectively use the insulin that is produced, also described as “insulin resistance”. The disease usually develops in adulthood, with the sharpest increase after age 45, although increasing numbers of children in high-risk populations are being diagnosed. The prevalence is higher among men -- approximately 55% of those who suffer from the disease. A third type of diabetes, gestational diabetes, is a temporary condition that occurs during pregnancy. It affects approximately 2 to 4 per cent of all pregnancies and involves an increased risk of developing diabetes for both mother and child. Pre-diabetes, also known as Impaired Glucose Tolerance, (IGT) refers to a condition where a person’s blood glucose levels are higher than normal, predictive of developing diabetes, but not yet high enough to be diagnosed as type 2 diabetes. As a caution in interpreting shifts in prevalence of diabetes, the screening protocols and criteria currently used to identify people with diabetes in Canada are more rigorous than in previous guidelines (CDA, 2013). Similarly there are variations between countries in both screening protocols and diagnostic criteria. While this makes it difficult to track the specific changes in incidence of diabetes, the general trends give an indication of the burden on health and social systems that

managing diabetes represents. On average in Canada it is estimated that patients with diabetes incur three to four times the cost to the health care system than the average (PHAC, 2011).

The International Diabetes Foundation has documented an increase in diabetes rates worldwide (IDF, 2011). As of 2011, estimates are that 8.3% of adults have diabetes. If these trends continue, by 2030 one adult in 10 will have the disease. Diabetes prevalence, in Canada, currently exceeds the global average (IDF, 2011). National Diabetes Surveillance of Canada data indicate that diabetes has increased from a recorded 5.2 percent of the population in 1995 to 8.8 percent of the population in 2005 (Booth et al., 2010). The rising rates are attributed to a concurrent escalation in risk factors for the predominant type 2 diabetes. These factors include obesity, sedentary lifestyle, and unhealthy diets; the aging population, and increased survival among persons with diabetes. The first avenue of therapy for people with type 2 is changes in nutrition and activity levels. Thus, both the etiology and treatment of diabetes links to healthy food systems.

2.2.2 Type 2 diabetes and gender

While the prevalence of diabetes is higher among men than among women as reported by the IDF, recent data suggest that young women (aged 20-49) have seen the greatest relative increase in diabetes prevalence over the last decade (Booth et al., 2010). Not only do young women with diabetes have a potentially higher lifetime risk of complications because of an earlier onset of the disease, they may face other health issues such as reproductive problems and complications.

Important gender differences in health status among adults who reported having diabetes include the fact that women with diabetes were in worse health than men including higher rates of concurrent illnesses (63% versus 51%, respectively), as well as depression (11.1% versus 4.3%, respectively). This co-morbidity can have a considerable impact on quality of life and

complicates diabetes management. For practitioners, competing medical and social issues may detract from diabetes care; for patients, disability and coexisting conditions such as depression and osteoarthritis can impede the ability to make changes in diet or activity levels and to self-manage diabetes and add additional financial constraints and burden on care givers.

The food-related component of type 2 diabetes management is related to gender considerations at many levels. At the individual level, there are gender differences in biological food and nutrient requirements that vary throughout the life course. Individual food choices and roles in food procurement and preparation also differ across genders (Wong et al., 2005; Van Esterik, 1999; Whatmore, 2004; McIntyre and Rondeau, 2011; Yousefian et al., 2011; Wanner, 2009). These experiences reinforce and perpetuate food related roles, responsibilities and status within the household and the community.

Health education for managing type 2 diabetes on a daily basis requires knowledge of managing food intake at the level of macronutrients (carbohydrate, protein and fat) intake, as well as coordinating this intake with activity and any pharmaceutical regimes prescribed to the patient. A specific set of skills and experience on the part of a community diabetes educator is required to relate information sensitive to the roles of men and women in their homes and communities (Wong et al., 2005). A gender dynamic inherent at the community level is that most educators are women, the majority of whom are nurses and dietitians (DECBE, 2012). Implementation of diabetes education policies and strategies thus falls mainly to women health care providers.

2.2.3 Health policy and diabetes in Canada

Type 2 Diabetes is a complex health problem, and is not effectively addressed by any single

agency or sector of Canadian society. Diabetes is a national challenge (and an international one, a problem that has been recognized for well over a decade by the World Health Organization (IDF, 2011). This complexity is the rationale behind the federally-supported Canadian Diabetes Strategy (CDS, 2012). The CDS was initiated in 1999 by the government of Canada. The first phase, between 1999 and 2005 saw the development of the Chronic Disease Surveillance system that monitors provincial and national trends in diabetes prevalence In addition to this core mandate building the evidence on what works in chronic disease prevention and treatment, the CDS partners has, as its core statement:

[W]hat is most needed at this time is a concerted, long-term approach to prevention and control, one that engages the efforts of all who have a stake in the issue -- the many Canadians affected by diabetes, their families, health care providers, health care institutions and workplaces, governments, voluntary organizations, the non-health sector and the public at large. Ideally, the many initiatives planned under the CDS will generate enough momentum and capacity to ensure that diabetes keeps a prominent place on the national public health agenda for as long as the need remains. (CDS, 2012)

Three federal government agencies are current partners in the CDS: Public Health Agency of Canada, Health Canada, and the Canadian Institute of Health Research. A fourth partner is the Canadian Diabetes Association (CDA), a non-governmental organization that provides resources to people living with diabetes as well as their care support people. The CDA publishes the Canadian Clinical Diabetes Guidelines (CDA, 2008; CDA, 2013), for use by health care professionals, updated every five years in an effort to achieve consistency in standards of care across the country. Strategies for prevention, nutrition and lifestyle intervention, as yet, make up a small component of these guidelines. This is not an oversight; rather, it is a consequence of the paucity of well-documented cross-scalar strategies targeting diabetes prevention and management in Canada. Inclusion of these types of strategies is problematic because randomized controlled trials (RCT) research designs are heavily favored by decision-makers as

the standard for yielding adequate evidence. Primary determinants of health are not easily evaluated by the implementation of an RCT research design. Although not meeting the RCT criteria, this study, nevertheless, will help to identify challenges practitioners face in implementing cross-scalar interventions at the level of the health professional.

Since 2006, in the Province of Ontario 14 not-for profit corporations known as Local Health Integration Networks (LHINs) were created to allocate health care funding. LHINs have a mandate to work with local health providers and community members to determine the health service priorities of each region. This mandate includes planning, integrating and funding health service providers, including hospitals; long-term care homes, mental health agencies, home care and community support services (MOHLTC, 2007). Responsibility for implementation of the Ontario Diabetes Strategy (ODS) falls under the LHIN mandate. Although they provide services related to diabetes education in Ontario, public health services and physician services, including local family health teams do not fall within the LHIN mandate for coordination of services (McCarter, 2012). They do, however, have a requirement to report to the MOHLTC on service provision, including that for patients with diabetes. The focus of the ODS is on access to the health care system for people with diabetes (MOHLTC, 2009b). Strategies for access to care prioritize the quantity of service delivery. The number of diabetes education personnel has increased by 31% under the strategy (McCarter, 2012). McCarter (2012) reports that this increase in personnel has not as yet resulted in a similar increase in access for patients with diabetes. Despite the linkage between healthy eating and diabetes, food-related policy is not addressed in the ODS implementation strategies and evaluation. This research investigates opportunities to incorporate food-related outcome measurements in the implementation of health services in order to address this gap.

2.3 Sustainable food systems in community food security

The assertion that community food security and nutritional well-being is most effectively founded on a local sustainable food system is well-supported in the nutrition and food system bodies of literature (Wahlqvist and Speckt, 1998; Gussow and Clancy, 1986; FAO 1996; Gussow, 2006). Numerous criteria refine the definition of a local sustainable food system. These criteria include; physical and economic access to food, prioritization of diversity (biological and cultural) in the food system, sustainable food security for all, and favourable conditions for attitudes and choices to help to promote these goals (Friel et al., 2009; McMichael et al., 2007; McMichael, 2005; Belanger and Johns, 2008; Johns and Eyazquirre, 2006; Rapport and Maffi, 2011; Solomons, 2002; Kattides and Bastos-Lima, 2008; Harvie et al, 2009; DOC, 2007). Each of these features of sustainable food systems supportive of health and well-being are contingent upon many complex and interacting features of governance, cultural norms and values, physical and economic features that interact within and across a variety of scales. The following sections describe approaches to examining the interrelationship of these elements.

2.3.1 Food and nutrition from a systems theory perspective; subsystems, stages and interrelationships

Historically, the analyses of food systems and health systems were independent of each other. Policy approaches have also been developed and implemented with little or no attention to the complexities and inherent interconnectedness of these two systems. Systems theory approaches strive to integrate these silos. Sobal et al. (1998) for example, used a systems theory perspective

in the review of work from agriculture, economics, sociology, geography and health bodies of literature, which examine system boundaries, delineating subsystems and their relationships. Subsystems and stages (see Table 2.1) operate with different goals and units of analysis with most information flow occurring within rather than between subsystems. For example, economists translated activities into dollars, ecologists used energy as a common denominator, population geography analysts used specific food and commodities, and health care professionals used nutrients or physiologically relevant food components. Sobal et al. (1998), concluded that enumerative rubrics remain illusory. They maintained, however, that an integrated conceptualization of all of these subsystems could reduce the adoption discipline-bound approaches in the evaluation of food system inputs and outcomes.

Table 2.1

Food and nutrition system: subsystems and stages

SUBSYSTEM	STAGE
Producer	Production (input) Processing (transformation) Distribution (output)
Consumer	Acquisition (input) Preparation (transformation) Consumption (output)
Nutrition	Digestion (input) Transport (transformation) Utilization (output)

Source: adapted from Sobal et al 1998, p. 856

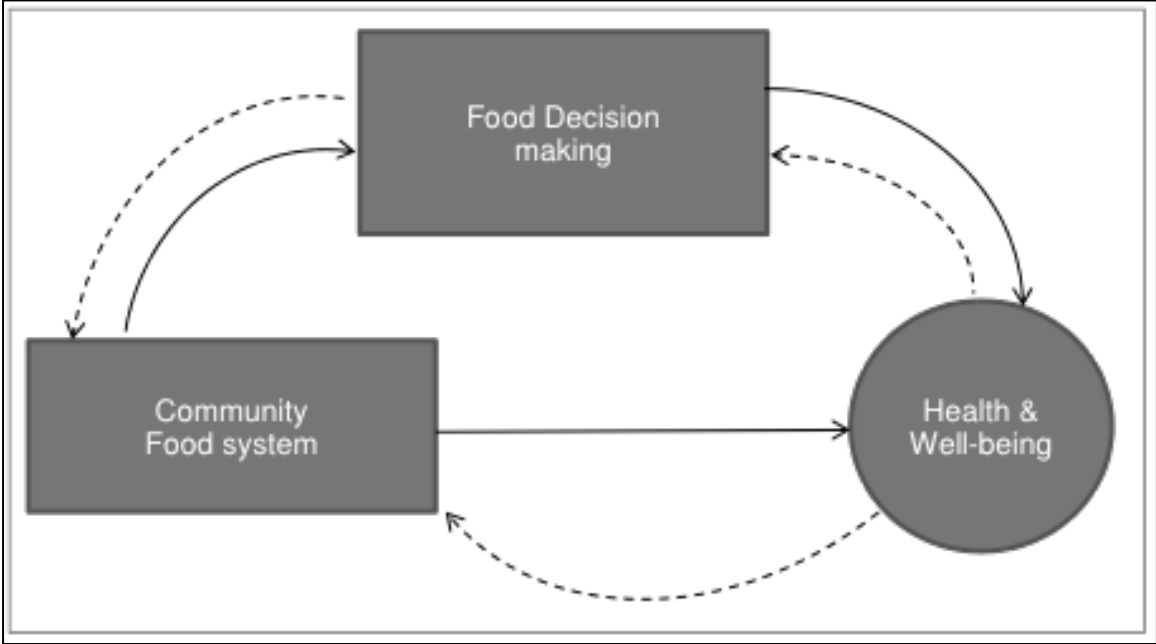
An additional challenge to the conceptual difficulties associated with the analyses of food and nutrition systems are the multiple geopolitical and temporal scales or level of decision making involved (Erikson, 2008). Ericksen (2008) notes that the need for tradeoff considerations among interacting features such as livelihoods, environmental integrity and health outcomes over time calls for context specific solutions.

Spatial and temporal scales pose a particular problem for explaining food security. It is at the household level for individuals and families that the reality of food security is of the greatest immediacy (McIntyre and Rondeau, 2011). However, governance of food system activities and other determinants transpire in arenas far removed from the household level (Clapp, 2012; Nelson et al, 2009). These determinants span from the local to the global scales across various temporal scales (Ericksen, 2008). Regional, national and global trade production, transportation and communication structures continually reshape food systems. These structures are rapidly evolving. When this reshaping is undertaken with a view to maximize corporate returns on a global scale, the impact on livelihoods at the community and regional levels is often not a positive one in terms of their sustainability (Barling et al., 2002). Additionally, the impact of the evolution of these systems is often most acutely felt in workplaces staffed by women - such as in factory, retail and health care settings (Angeles, 2000; Shiva, 2007). Community-level food practitioners, parents feeding children, dietitians offering advice, or farmers growing crops, must deal with these proximate demands on their time (Lang, 2005). The trade-offs at the household level to balance broader scale environmental concerns with household level considerations such as livelihoods and time management are often unclear. Nevertheless, typologies of food system interactions will become clearer with further context-specific research referencing to systems-based frameworks. Such research will allow for improved

decision-making at various levels of management and engagement within the food system that is more equitable, sustainable and supportive of health across scales.

Acknowledging the broader influences outlined by Erikson and Sobal, sociologists Gillespie and Smith (2008) devised a framework for analysis of the dynamic inter-relationships of health and wellbeing and food access and availability for families at the scale of the community food system (see Figure 2.1 below). In this study, the term “community” refers to a group with relational ties configured by geography and or common interests and values. “Well-being” refers to biophysical health using morbidity and mortality as indicators - situated within social and cultural environments that foster health, happiness and freedom from want.

Figure 2.1
Community food decision making framework



Source: adapted from Gillespie and Smith, 2008 p. 335.

The solid lines in Figure 2.1 signify the influence of community food systems on health and well-being. The hatched arrows illustrate pathways in which food activities and health and well-being at the household level influence community food systems. Applying this framework, the norms, values and health-related concerns at the household level translate into developments in community food systems. Managing a chronic illness such as type 2 diabetes, involves the adjustment of food habits as an integral part of disease management, and thus sharpens the focus on this pathway. For example, household members are likely to experience a higher level of direct exposure to biomedical food and wellness expertise that focuses on specific food components such as protein and carbohydrates rather than broader food choice considerations such as livelihoods of local producers. In response to this influence, these household members may adjust their pattern of interaction with the food system. Often, food decisions employed to treat chronic disease in one family member affect the food decisions of the entire family (Gillespie, 2008; Raine, 2005). Actions within the health care system would thus influence the food system in a community.

Food decisions, subject to the broader influences operating in health and food systems, are unique for each individual within the context of their family and community. These food decisions, in turn, influence the community food system. It is these pathways in place at the community scale that are the focus of this research.

2.3.2 Food systems governance

The importance of access to food, not only its availability, is critical to food security as economist Amartya Sen (1981) carefully articulated. As such, access to food not only is a function of economic access, but also of various cultural norms and governance structures

related to food. Inequities in food access and concurrent health indices are contingent on political and social power in addition to distribution of wealth.

The power relations perpetuating these inequalities are embedded in food governance across geo-political scales, stretching well beyond formal government structures. Formal government structures range from multilateral tariff and trade agreements such as the North American Free Trade Agreement (NAFTA) to national and regional public plate policies (Morgan, 2008). Private corporate structures are increasingly influential in forwarding the interests of the agro-industrial food systems (Blay-Palmer, 2008; Cash et al., 2006; Barling, Lang and Caraher, 2002; Clapp, 2012). With respect to nutrition education, these influences materialize as an aggressive lobby from marketing boards and corporate interests in the development process of nutrition education resources, food labeling policy, food advertising and supply marketing regulations. In turn, these policies and strategies help to maintain the pre-eminence of corporate interests in the structure of the food system, as educational materials available direct patients to appropriate food choices available from corporate sponsors of educational materials (CDA, 2013).

Alternative food systems have emerged in response to this paradigm. Essentially, alternative food systems are those that shorten the geographic and relational distance between producers, processors, retailers and consumers, thereby abating the interests of multinational food system participants. This proximate relationship among food system participants provides a basis for using the terminology “local sustainable food systems” to describe these alternate arrangements. Policy successes of such regional and national level sustainable food systems are attributed to involvement from civil society (Yeatman, 2008; FIAN 2009; Blay-Palmer, 2008). For example, the municipal Toronto Food Policy Council is cited in food system research as a

successful initiative facilitated by an engaged and vibrant community (Koc et al., 2008; Feenstra, 1997). The architecture for this genre of policy is connections across communities, interests and experiences.

It should be noted, however, that local food initiatives are accompanied by uncertainties. In fact, some scholars argue that there is no evidence to confirm that local food systems will bring about the suggested promises of attention to social justice and sustainability. Born and Purcell (2006) for example argue that “local food systems are no more likely to be sustainable or just than (other) systems” (Born and Purcell, 2006, p.195). They suggest that we can get in a “local food trap” (p. 195) and it is important to be careful not to limit visionary thinking to ‘the local’ as it does not inherently translate to sustainability and social justice. Rather, it may be in the scale and interrelationships that the concept of locality is most relevant. For example, shortened supply chains with fewer middle-men, or people and agencies between producer and consumer may be a more relevant consideration than absolute geographic distance. A consumer concerned with localism may be more likely to purchase coffee directly from a family-operated coffee producer in a country thousands of miles away, rather than purchase a similar beverage produced, processed, marketed and distributed through channels that engage multiple corporate controlled interests held at more proximate distances.

The challenge of defining local sustainable food is equally pertinent in both rural and urban contexts. Contributing to the uncertainty in rural areas, however, is a lack of study and awareness of rural development as a whole (Renting et al., 2003). With reference to local food initiatives, Renting (2003) notes that the “problems of data availability and consistency represent one of the key barriers currently involved in exploring new rural development practices” (Renting et al., 2003, p. 404). For example, considering data for the province of

Ontario, Ontario's agriculture is increasingly export-oriented, with a sharp increase in the expansion of exports from 1992 onward (NFU, 2011). Thus, data collated at the provincial level provides insights into total production and overall economic contributions, but contributes little to detailing community food system developments.

2.4 Rural health and place

2.4.1 Elements of place considered in health planning and research

In health geography research, location--the longitude and latitude coordinates on a map--is a feature of place. Location, however, is only one component of a robust definition of place as it relates to health (Cresswell, 2004). Place has many dimensions. Lippard (1997) (in Cresswell 2004) describes dimensions of place as follows:

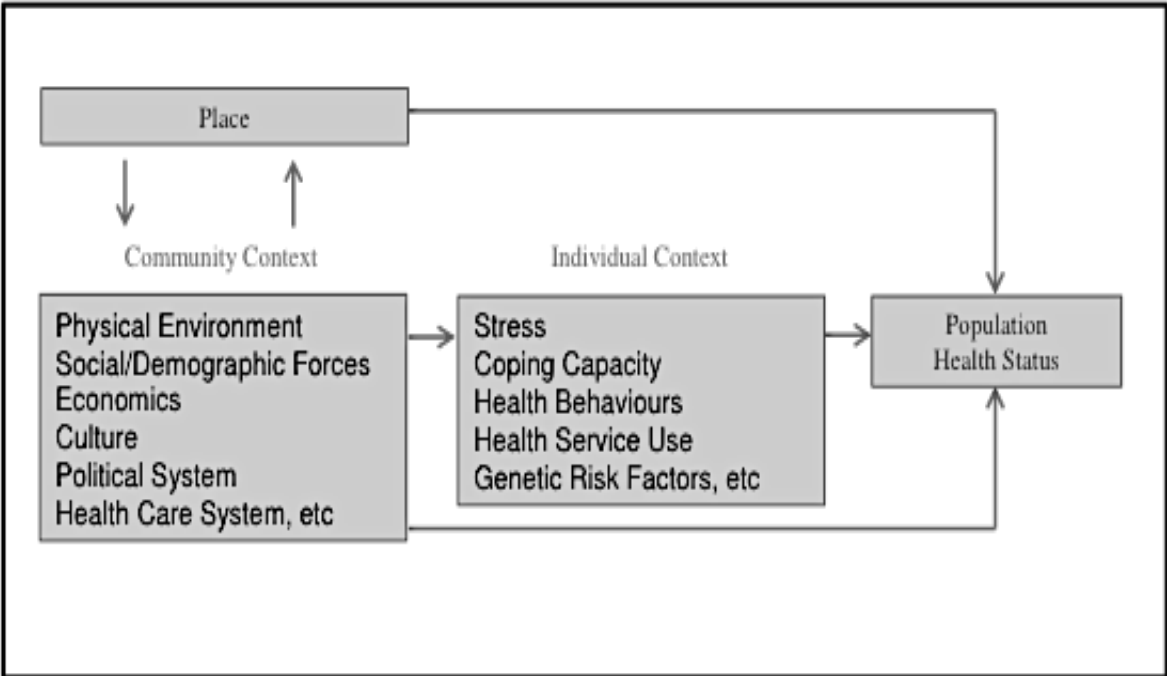
It is temporal and spatial, personal and political. A layered location replete with human histories and memories, place has width as well as depth. It is about connections, what surrounds it, what formed it, what happened there, what will happen there (p. 49).

These connections are not limited to interpersonal, family and community relationships, cultural affiliations and customs; they also include relationships with the landscape itself. Albrecht (2005) makes an important addition to the literature on the role of place and landscape relationships in rural areas. This environmental philosopher coined the term "solastalgia", to refer to the eroded sense of place and place attachment brought on by the rapidly changing state of one's home and territory particularly in fishing, hunting and farming communities where the livelihoods are specifically connected to a location and set of practices. This eroded sense of place or "solastalgia" certainly applies in many rural areas of the world in transition to more globalized markets for farm commodities affect farming practices. Williams and Kulig have explored the importance of understanding of the implications of such changes for policy

development for rural health in Canada (Williams and Kulig, 2011). Attention to the role of ‘place’ and the rapidly changing nature of rural places, is an important consideration in meaningful rural health research. To facilitate examination of this complex concept of place in relation to health in rural Canada, DesMueles and Pong (2006) organized these elements into a framework for use in public health research (see Figure 2.2 below).

Figure 2.2

A population health framework for rural health



Source: adapted from DesMuelles and Pong, 2006 p.3

Concepts of place inform the characteristics and interrelationships of the individual and community contexts. The embedded relationships that tie individuals to organizations, neighbourhoods and families within communities, all affect human health. Compositional and contextual features are both important. Compositional data includes the characteristics of

individuals in a particular area and the landscapes, historical features, traditions, values and interests. Contextual data includes services and infrastructure. If considered at all, the most common aspects of place in rural health policy development with respect to health care are contextual data (Liepert et al., 2012).

For rural research, many studies use some form of container approach; a specified geographical area such as postal code district or census tract (Sadler, 2011) within which to examine the interaction of these elements. Table 2.2 below summarized place definitions commonly used to classify regions as rural in health research and planning reports in Ontario referred to in this research. There are limitations inherent in each of these classifications, but these groupings facilitate comparison of data across regions (Hart, 2005).

Table 2.2
Classification systems for “rurality” used in health research and planning in Ontario

CLASSIFICATION SYSTEM	CRITERIA	AGENCY
Rurality Index of Ontario (RIO)	Based on distance from Health Services	Ontario Ministry of Health and Long Term Care
Rural and Small Town (RST)	Population size/density	StatsCan Census
Rural/Urban Postal Codes	Mail Route Delivery	Postal Service
Metropolitan Area and Census Agglomerations Influenced Zones (MIZ)	Labour market context (ie commuting flows)	StatsCan Census

Adapted from: Gupta and Senzlit, 2007, p.11

Of these, the Rurality Index of Ontario (RIO) is most relevant to health service resource

distribution. It is a methodology used by the MOHLTC for the Ministry Underserviced Area Program (UAP) and by the Ontario Medical Association for other applications related to physician incentives and programs (OMA, 2010, 2011). For the UAP, the RIO is used to identify communities that are underserved with respect to physician services. The RIO methodology establishes an index score for each community, which is used to help define which communities require additional funding support for accessing physician services. The RIO scoring methodology uses a weighted formula that considers three key elements: population size and density, travel time to nearest basic referral centre such as a family health team, community health centre or community hospital, and travel time to nearest advanced referral centre. Using this methodology, areas are assigned a RIO score on a continuum between 0 – 100, and, as of 2011, those with a score of over 40 are considered for additional funding support (MOHLTC, 2011). Postal code districts are mail route delivery regions. Census tract data uses several classifications. Census “rural” typically refers to the population living outside settlements of 1000 or more with a population density of 400 or more per square kilometer. The category of “predominantly rural” refers to fewer than 150 persons per square kilometer and in Canada is likely to be found in more northerly latitudes. “Rural Small Town (RST)” refers to an area with a density fewer than 450 per sq. km. Metropolitan census areas (MIZ) are municipalities outside the commuting zone of large urban centres (with 10,000 or more). RST areas are also described with reference to the influence of urban centres using MIZ. Data aggregated using these criteria is useful to identify trends over time, or dynamics, of parameters such as demographics, migration, economics and population health parameters (i.e., prevalence rates of diabetes). These demographic categorizations provide a rationale for targeting (provincial) funding earmarked for specific health issues to locales based on characteristics identified as

“rural/urban”. As with any data aggregation based primarily on population and services density, intra-place variability or diversity is difficult to assess using any of these strategies. Similarly difficult to assess are the norms, attitudes and values that may be mediators of the relationships between variables. As it is the most attentive to health services resource distribution, RIO scoring classification was used to guide the selection of the case study area for this research.

2.4.2 Health care systems in rural Canada

The rapidly changing character of rural places, with agriculture as the main economic driver, is occurring at an ever-increasing rate (Smithers et al 2004; Fuller and Nichol, 1999). The predominant change is in the nature of farm work and its connection to rural communities and associated services. These changes are occurring along with increased agro-industrialization causing farmers and community members to travel to more geographically/culturally removed locales for supplies, markets, farm supports, employment (NFU, 2011; OMAFRA, 2012). These same rural areas have also experienced significant restructuring of a variety of their public institutions notably through amalgamations of municipalities, school boards, and hospitals, with a concomitant aggregation of decision-making (Smithers et al., 2004).

Some of the challenges with respect to access to health care in rural settings have been documented with reference to difficulties in recruiting and retaining health professionals with specific skill sets to rural areas (Rourke et al., 2010). Foremost among these are the logistical constraints associated with lower population densities. For example, access to services and peer support is limited by travel distances and inadequate Internet access. Local decision-making autonomy is also constrained given that decisions about community health are made in larger

centres geographically removed from the practice experience. Among the opportunities reported in rural settings is a high level of capacity, or engagement of community members (Liepert et al., 2012). Although some of these characteristics of rurality may not be unique to rural settings, they provide a forum to examine how these features relate to the viability of trans-disciplinary innovative approaches to health.

Community capacity-building in public health work offers a framework for addressing the trans-disciplinary requirement for the ecohealth approach at the community level.

“Capacity” is a relatively recently adopted concept in health promotion. Interpretation of the term is contingent on the discipline and the context. For example, in healthcare service delivery, capacity is usually applied with reference to skills, infrastructure and resources and documented in management and organizational literatures (Brauer et al., 2006). In community development literature, however, capacity is more commonly used as a descriptor of the problem-solving capability and connections between individuals, organizations, neighbourhood and communities (Hawe et al 1998; Bodin and Crona, 2009). Hawe et al. (1998) used case study analysis to explore the meaning and experience of capacity building in the work of community health care delivery identifying five levels or aspects to community capacity-building identified namely, 1) the individual-level 2) within health care teams 3) within health organizations 4) between organizations and 5) throughout the wider the community. These analysts noted that outcome measures for community development work at all scales focus on those that related specifically to risk factor change among population groups (e.g., smoking rates, prevalence of obesity). Broader place-based community development outcomes such as trans-disciplinary trust and relationship building within and across these levels are “hidden” or invisible in setting priorities for community development work relating to health. These

outcomes, though difficult to assess, can add considerable value as they provide an indication of the overall capacity in the community to support health and well-being.

2.5 Health place and gender in the experience of type 2 diabetes

2.5.1 Ecohealth approach

The ecohealth approach to health and well-being has a foundation in the public health literature. As described in Chapter One, this approach provides a research orientation for examining the potential trans-disciplinary outcomes, such as community capacity. Table 2.4 below illustrates the broadening of the scope in public policy thinking towards an ecohealth approach in health and food security since 1945.

Table 2.4**The evolution of public health thinking and practice 1945 - 2010**

DOCUMENT/EVENT	MAJOR THEME
FAO formation (WHO, 1947)	Freedom of want of food, suitable and adequate for health, and strength of all peoples, can be achieved.
Constitution of the World Health Organization (WHO, 1947)	Components of individual health are more than absence from disease. They include physical, social and mental wellbeing. Health is a human right fundamental to peace and security.
New Perspectives for the Health of Canadians (Lalonde, 1974)	A global concept of health. Four main elements: human biology, environment, lifestyle and organization of health systems.
Health for All: Master Plan for Health Promotion (Epp, 1978)	Health is a resource. Health is the result of a process of adaptation of individual and environment. There are a multiplicity of determinants of health and interactions.
Ottawa Charter for Health Promotion (WHO, 1986)	Prepare sound health policy supportive of peace, shelter, education food security, income, sustainable resources, a stable ecosystem, social justice and equity.
World Food Summit (FAO/WHO, 1996)	Food security is defined as “when all people at all times have access to sufficient, safe, nutritious food to maintain a health active life”.
Ecosystem and Health Assessment Report (MEA, 2005)	Human health is embedded in ecosystem health. Robust local health systems can help to mitigate climate change impact on human health outcomes.
Commission on Social Determinants of Health (CSDH, 2008)	Improvement in conditions of daily life are contingent on decreasing structural inequity in power, money and resources.
Right to Food (FIAN, 2009)	Food security is most effectively advanced using mechanisms that concurrently foster social justice.

Adapted from: Forget and Lebel, 2001

The original constitution of the World Health Organization (WHO) in 1947 specified that health was a human right. This right includes physical, social and mental well-being, not merely the absence of disease. Positive health outcomes as dependent on the interaction of human biology, environment and lifestyle appeared for several decades later with the publication of the *Lalonde Report*, in 1974. Often cited as the first official endorsement by the international health community of locally developed, community based Primary Health Care, *Alma Alta Declaration* (1978) is the foundation of a comprehensive and responsive health system. Similar principles, published by Health Canada in 1978 (Epp, 1978), the *Ottawa Charter for Health Promotion* (WHO, 1986) endorse and expand upon this philosophy. Similarly, the Millenium Ecosystem Assessment report (MEA, 2005) advocates the strengthening of basic community health services as a buffer against the negative health effects of climate change, the strengthening of basic health care services. Services provided at the community level are responsive to local health needs, fostering self-reliance and local participation. The 2008 report *Closing the Gap in a Generation*, published by the WHO Commission on Social Determinants of Health, went beyond merely identifying social determinants of health as arising from non-health sectors. The focus of this document was on the development of specific remedial actions. Prioritized actions included expansion of the *role for health service providers* to include assessment and advocacy work around social determinants of health accompanied by *training to support this role* (CSDH, 2008), and local national and international strategies for wealth redistribution. With specific attention to food security, the United Nations Right to Food (FIAN, 2009) includes accountability mechanisms to encourage states and agencies to take full account of the impact of the way their mandates impact food security and nutrition.

As a relatively new and broad strategy for thinking about health, the ecohealth approach presents challenges to health practitioners, planners and researchers trained and acculturated in the more deterministic biomedical model, as well as patients who are accustomed to attending to health care concerns within this paradigm (Rapport et al., 2001). Individual-level lifestyle interventions (Alvaro et al., 2011) continue as the focus of health policy and programs in Canada. Operating in an ecohealth paradigm requires new skills and strategies. As indicated in Chapter One, section 1.1, ecohealth priorities are becoming more evident in position statements of professional bodies (ADA, 2007; DOC, 2007; AMA, 2009). Practitioners from a variety of disciplines, however, are daily coping with navigating this paradigm shift in the context of an often-competing variety of institutional, logistical, cultural, economic and environmental parameters at the community level. These everyday ‘lived’ experiences receive limited attention in the literature (Robbins, 2007; ADA, 2010; Wilkins, 2009; Pilkington et al., 2011). Examining health care and food system experiences through the lens of the ecohealth paradigm can reveal opportunities for innovation in these systems. This research project seeks to address this gap.

2.5.2 Feminist health geography

Ecohealth and health geography fields are based on similar ideological premises. Both draw on a variety of ontologies and processes that are proactive, normative informed by an ethic of social justice (Charron, 2011; Dyck, 2003; Kearns and Moon, 2002). Both have developed in response to positivistic approaches.

One key area of attention in health geography has been the “place-sensitive attention to a number of non-geometric constructions of space, such as culture and gender” (Williams and Kulig, 2011, p.10). In health geography, qualitative approaches such as narrative analysis explicitly include the subjective and embodied experiences.

Feminist geography is concerned with illustrating the significance of space in processes of subject formation. Spaces that we inhabit with our everyday practices; the culture and language of the embodied experiences of our workplace and home roles/identities positioned within historical and current communal relationships. Valentine (2007) draws an emphasis on how identities occur in interactions, not on “stable or given understandings of social difference” (Valentine, 2007, p.14). Specifically, in the workplace and community at large, “attention to lived experience, through rigorous empirical work, offers an important potential tool for feminist geography to understand the intimate connections between the production of space and the systematic production of power, thereby increasing its effectiveness to develop and employ its critical insights within and beyond the academy” (p.19). Feminist geographers are appealing for re-politicizing health and care policy, making explicit the ways that power and power relations, including relations of gender and care, reinforce and (re)produce material and symbolic spaces of power (Dolan, 2008; Valentine, 2007).

Gender is as an important element in research framed within an ecohealth approach (Lebel, 2001). Insufficient attention to gender is a critique leveled by Charron (2011) at ecohealth research efforts implemented to date. Health geography, and feminist health geography specifically, directs particular attention to scale, power and gender (Dyck, 2003; Panelli, 2009). Lyall et al. (2011) highlights the importance of stretching across disciplinary boundaries as an important tool in tackling such societal challenges.

The problems of society are increasingly complex and interdependent. Hence, they are not isolated to particular sectors or disciplines and they are not predictable. They are emergent phenomena with non-linear dynamics, uncertainties and high political stakes decision-making (Lyall et al, 2011, p.172).

An analysis drawing on these methodological traditions of feminist health geography is well suited to examining support for sustainable food systems in nutrition education for type 2 diabetes, in a specific context such as rural Ontario. An ecohealth approach provides a template for interrogating the non-linear, nested and interrelated layers of both the biophysical and social dimensions of health and food systems. These two systems are indelibly interrelated in the experience of type 2 diabetes. Feminist theory and social justice are integral to an ecohealth approach (Forget and Lebel, 2001), informing normative theories and actions to abate embedded inequities attributable to gender and social inequality. Thus, collection and analysis of data explicitly examining the role of gender, is a strategy of this research.

2.6 Summary

The public health and food system literature discussed in this chapter link features of gender, food security and geographical setting to type 2 diabetes, including rural Ontario. These are summarized in Figure 2.4 below.

Figure 2.4

Key features of setting, food access and gender for type 2 diabetes

People Setting	Person with Type 2 Diabetes	Health Care Personnel	Regional Health Planners
Household	<p>Food security: Access to healthy food is critical to diabetes control; a family member with diabetes affects family food security</p> <p>Gender: incidence and complications of diabetes varies with gender; Support for daily care and food work is predominantly women’s work in the home</p>	<p>Gender: Women make up the overwhelming majority of the health care labour force – public and non-profit sector</p> <p>Food access: primarily public health mandate</p>	<p>The focus of regional health planning for diabetes is monitoring of biological markers (i.e., HBA1c*) and education for individuals with diabetes that focuses on the nutrient content of food.</p>
Community	<p>Food access: Emergency food use (i.e., food banks) is increasing in rural Canadian communities. Food production in rural Ontario is primarily export-oriented.</p> <p>Gender: participation in community networks/interest groups varies with gender</p>	<p>There is an increase in clinical diabetes education personnel since 2007 under the Ontario Diabetes Strategy.</p>	
Region	<p>Infrastructure provided to assist individuals with Type 2 diabetes food and health care access – i.e., transportation and digital access is more limited in rural areas.</p>		

*HBA1c is a form of hemoglobin that is measured primarily to identify the average plasma glucose concentration over prolonged periods of time (CDA, 2012)

As illustrated in Figure 2.4, despite the linkage between healthy eating and diabetes, food-related policy is not addressed in the ODS implementation strategies and evaluation. Food production and distribution data collated at the provincial level provides insights into total production and overall economic contributions, but contributes little to detailing local, community based, sustainable food system developments and household food access. This research investigates actions by diabetes educators to incorporate community food-related data and outcome objectives in the implementation of health services in order to address this gap.

Practitioners from a variety of health disciplines, including diabetes educators, must navigate a paradigm shift to transition from a traditional medical model focused on disease to an ecohealth model that requires attention to the context in which the disease occurs. This transition is constrained by an often-competing variety of institutional, logistical, cultural, economic and environmental parameters at the community and regional level. Women are primarily responsible for the everyday activities of care work and food work in the home and in the workplace central to this shift. However, place-based, gender-sensitive community development outcomes such as trans-disciplinary trust and relationship and skill building in food and health systems are absent in setting regional priorities relating to type 2 diabetes. Tracking these outcomes can add considerable value as they provide an indication of the overall capacity of individuals and communities to support health and well-being, including food access. Thus, identification of specific barriers and opportunities to actions towards tracking such outcomes and supporting community food security in the context of type 2 diabetes is an important focus of this research.

Ecohealth and feminist health geography ontologies are proactive, normative and informed by an ethic of social justice and attention to gender. As such, they are well suited to orient this research inquiry given that it is an examination of the opportunities and barriers faced by rural diabetes education personnel in promoting local sustainable food systems as an action towards community food security supportive of healthy eating for people with type 2 diabetes.

CHAPTER THREE: The research approach

3.1 Introduction

The question of how the role of the rural diabetes educator might be re-conceptualized to promote local sustainable food was examined through primary research employing a mixed methods case study using semi-structured interviews and a survey in order to garner the views of both diabetes educators as well people living with diabetes who receive dietary education. Participant observation also played a role in this project.

Research position is important in such research strategies. I am a researcher who was a nutritionist working in rural areas in Canada and working within the dictates of a conventional biomedical system. This experience, while offering valuable insights about the subject matter, is also important to the positioning of the research design and findings. The device of using first person in the writing reflects an effort to make this position transparent throughout the discussion of methodology, findings and conclusions.

For this research, principles of the ecohealth approach guide the selection of methods, participants and data collection techniques. Inviting participants from across a range of knowledge and experiences attends to the trans-disciplinarity imperative of the ecohealth approach. It also enhances the outcome validity as called for by grounded theorists. These participants include afflicted individuals, professionals, and administrators who describe their everyday experiences with food and health in their home, workplace and community.

The collection of “diverse types of data best provide an understanding of a (pragmatic) research problem” (Cresswell, 2012, p.76). This methodology requires the implementation of a variety of strategies to ensure an appropriate selection of units of analysis to inform the research question. Similarly, employing a variety of methodological approaches, empirical materials and

perspectives, adds rigor, breadth, richness and depth that facilitate the collection of the richest possible data from each unit of analysis identified (Denzin and Lincoln, 2011). This chapter outlines the various strategies employed.

3.2 Research process

3.2.1 Mixed methods case study

A mixed methods approach in social science research can include both qualitative and quantitative data (Cresswell, 2012). Cresswell (2011) examines the various ways that mixed methods have been employed in research over the past several decades. A mixed methods approach is utilized as a strategy in adding rigor and validity with respect to research outcomes (Cresswell, 2011). This approach is of particular relevance when considering that the intended audience of this particular project is interdisciplinary. A mixed methods approach provides an entry into the research for readers with a wider variety of backgrounds and interests.

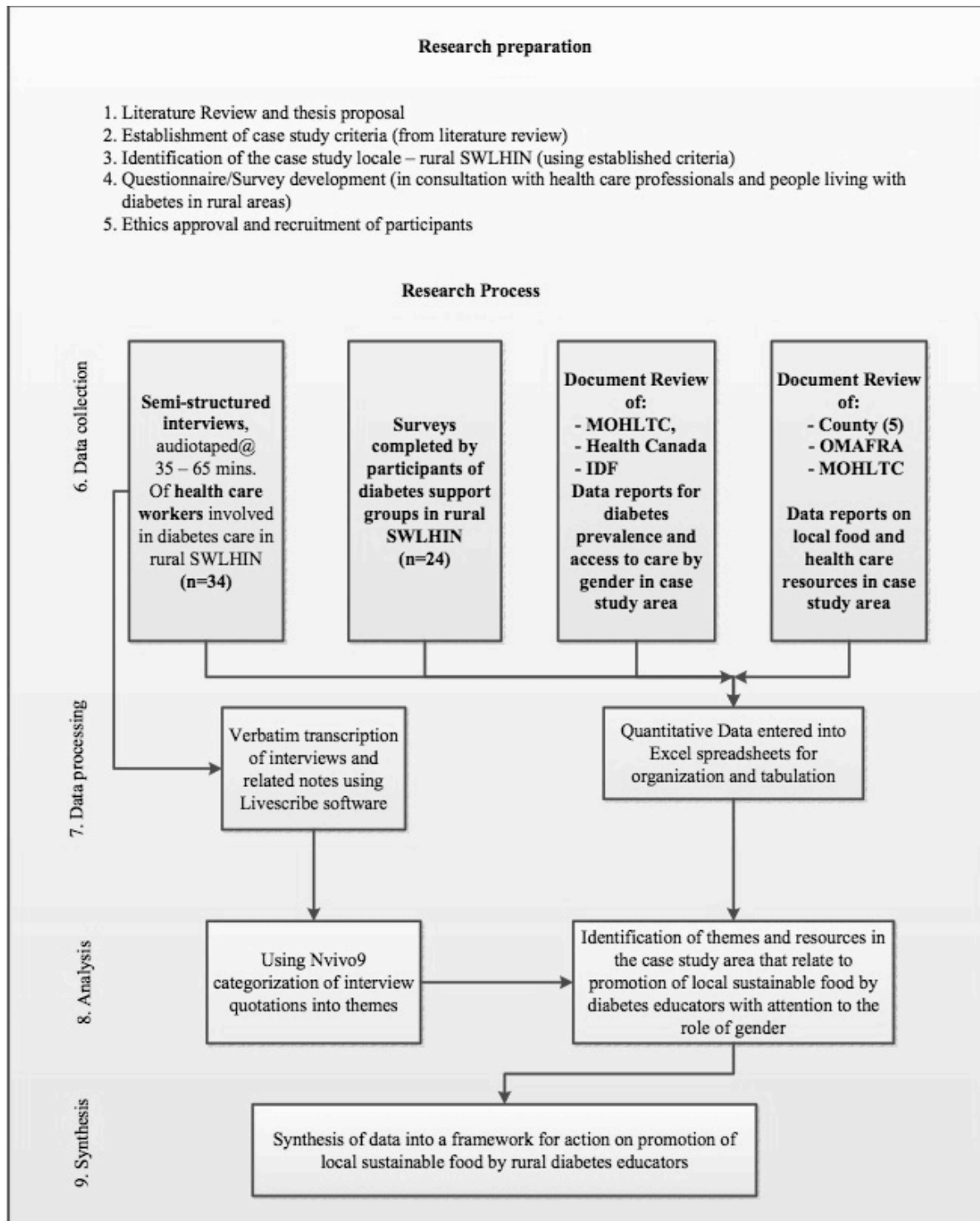
The quantitative component of this research involves a survey of the profile of food access reported by patients living with diabetes, and the profile of prevalence of diabetes and related illness by age and gender from government databases. The rationale for this component was to determine the food-related challenges facing those managing type 2 diabetes in the case study area in order to identify barriers to incorporating local sustainable food in their everyday food practices. Particular attention was given to gender to identify how opportunities to incorporate local sustainable food may vary between men and women. The qualitative component of the research entails the identification of the attributes of local sustainable food, such as food quality and availability, from the perspective of patients with diabetes, diabetes educators and health system managers. The qualitative component also examines how current

education practices by diabetes educators incorporate promotion of local sustainable food. Both the qualitative and quantitative data contribute to identifying a range of factors in the health system and in the food system in the case study area that affect the ability of diabetes educators to promote local sustainable food.

This case study approach is effective when investigating “a contemporary phenomenon within its real-life context” (Yin, 2003, p.13). The leading question of the research project is focused on the gendered implications of type 2 diabetes nutrition education in a specified area, namely rural Canada. Second, this is a study about contemporary events taking place in a real-world context, so the research gains substantially from direct observations and the related examinations inherent to a case study. The research design relies on a number of diverse sources of evidence to allow triangulation of these sources. Sources of evidence include review of academic literature, local records, government databases, documents and reports, key-informant interviews, surveys, and observation of unfolding contemporary events. Figure 3.1 below summarizes the research process for this case study and provides an outline for the sections of Chapter Three that follow it.

Figure 3.1

Dissertation research and process



3.2.2 The role of the literature review in the methodology

The review of academic literature was an iterative, and ongoing, part of the project. It fulfilled three main objectives. The first of these objectives was to find integrative frameworks for analyses of food and health system from a variety of perspectives ranging from producer to consumer. The second objective was to identify features of health and food systems relating specifically to Type 2 diabetes with particular attention to gender. These formed the basis for the selection of relevant and meaningful characteristics for a case study location. Thirdly, the literature review process informed the choice of methodology most appropriate to the research question.

There are many challenges inherent in conducting research that crosses disciplinary boundaries, as is the case in this research. One of these is ensuring an adequate review of the literature given the variety of relevant disciplines and experiences. There is “no such thing as the perfect review” (Hart, 1999, p.25) as, in every case, the perspective of the reviewer shapes the review. As such, it is a summary of expertise and knowledge aligning with the conceptual framework of the research. In this context, knowledge does not necessarily mean truth; rather, knowledge refers to particular beliefs in social science and policy research – information or reasoned argument that changes our degree of confidence in an existing belief (Klien, 2008; Knopf, 2006). It is a review of existing knowledge rather than as a review of literature per se.

Research considered to be pertinent to informing the base of knowledge on topics in social science has evolved rapidly as the Internet has made it easier to disseminate research and reports in formats other than academic publications (Knopf, 2006). The basis of the literature review for this research are peer-reviewed journals and government publications as well as reports from non-government agencies, such as the Canadian Diabetes association, professional

associations and community organizations. I derived the sample of academic literature reviewed herein purposively to inform the themes relating to community food security for people with type 2 diabetes outlined in section 1.1 of Chapter One. Once a case study site was selected, the search was expanded to include specific community and regional names to obtain information specific to the case study location.

3.2.3 Case study criteria and selection

When selecting a case for analysis, the focus is on how the sample or collection of units illustrates key features. Generally, it is appropriate to employ a non-random or non-probability approach to sampling, based on the specific content of the case (Neuman, 2004). For this case study, it was important to investigate the experiences of health care workers in a rural area, as well as the nature of rurality, and health care. Thus, the following three features are the overarching criteria that I employed for the selection of the case study:

1. it is considered a rural locale in terms of health care delivery relative to other parts of Ontario;
2. it is consistent with geo-political boundaries that align with the delivery of health care services (notably for diabetes) and food system affiliations in Ontario;
3. is an area well-known to the researcher.

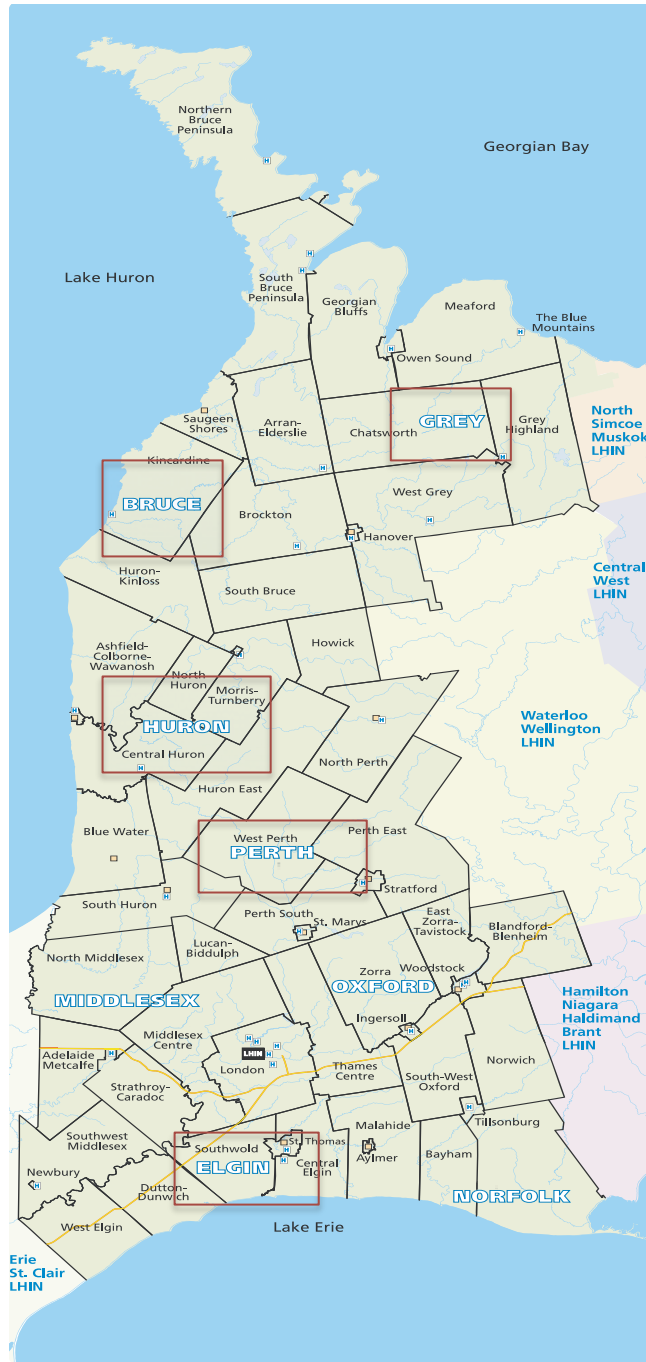
The distribution and access to health services, as well as population density, are part of the Rurality Index of Ontario (RIO) scoring criteria used to define a rural locale from which to recruit the case study participants. As described in Chapter Two, the RIO scoring methodology uses a weighted formula which considers three key elements: population size and density, travel time to nearest basic referral centre, and travel time to nearest advanced referral centre (MOHLTC, 2010, 2011). Using this methodology, areas are assigned a RIO score on a

continuum between 0 – 100, and, at the time of this research, those with a score of over 40 are considered by the MOHLTC for additional resources. Case areas were identified through a review of all communities in the regions of the two Local Health Integration Networks (LHINs) in southwestern Ontario region; Erie St Claire LHIN (LHIN 1) and South West LHIN (LHIN 2) with both a score of over 40, and “in place” diabetes education resources. Implementing the RIO scoring criteria, 19 communities in five of the area counties had both diabetes education resources available locally and a RIO score of over 40. Of note, communities selected using the criteria for ‘in situ’ interviews all fell within the South West LHIN boundaries. These five counties in the South West LHIN met the criteria for case study selection.

In accordance with these criteria, communities in the rural area of five counties within the Southwest LHIN constitute a suitable case study locale (see Figure 3.2 below).

Figure 3.2

Map of Southwest Local Health Integration Network (SWLHIN) highlighting case study counties



adapted from: SWLHIN, 2011 p. 12

The specific counties are Bruce, Elgin, Grey, Huron and Perth.

The profile of type 2 diabetes in this geographic area is similar to those experienced in other rural/remote areas thereby offering some useful comparative lessons (Huron County Health Report 2010; Booth et al., 2010). County lines form a useful delineation for the administration of health services. Public Health services in this area are currently under county jurisdiction. The counties are located entirely within the boundaries Southwest LHIN. Organization of local associations and non-government organizations relating to health and food system (i.e. *Food Link Grey-Bruce, Sustainable Huron, Huron Perth Farm to Table, Huron-Perth Diabetes Association, Grey-Bruce Diabetes Association*) is most often along municipal and county lines (GBFL, 2012; Huron County, 2011; HPFTT, 2012; CDA, 2012). Additionally, as the researcher, and former rural diabetes educator, my work and home base is located within the boundaries of one of these counties and offers some insights not otherwise afforded to researchers whose experience is from outside of the area under investigation.

3.2.4 Research ethics considerations

Research protocol and forms were established and approved by my advisory committee prior to submission for ethics approval from the University of Waterloo Research Ethics Board. Because it involves human participants, through interviews, this research was required to comply with the University's ethics review process. As such, the design follows the Office of Research Guidelines for Research with Human Participants¹. This process is to assure that the risks associated with the research do not outweigh the potential benefits. Participants participated in a fully informed and voluntary prior consent process. A sample of the information letter to potential participants outlining strategies to assure participant

¹ Available at <http://iris.uwaterloo.ca/ethics/human/guidelines/index.htm>

confidentiality and the consent form signed by interviewees is in Appendix B.

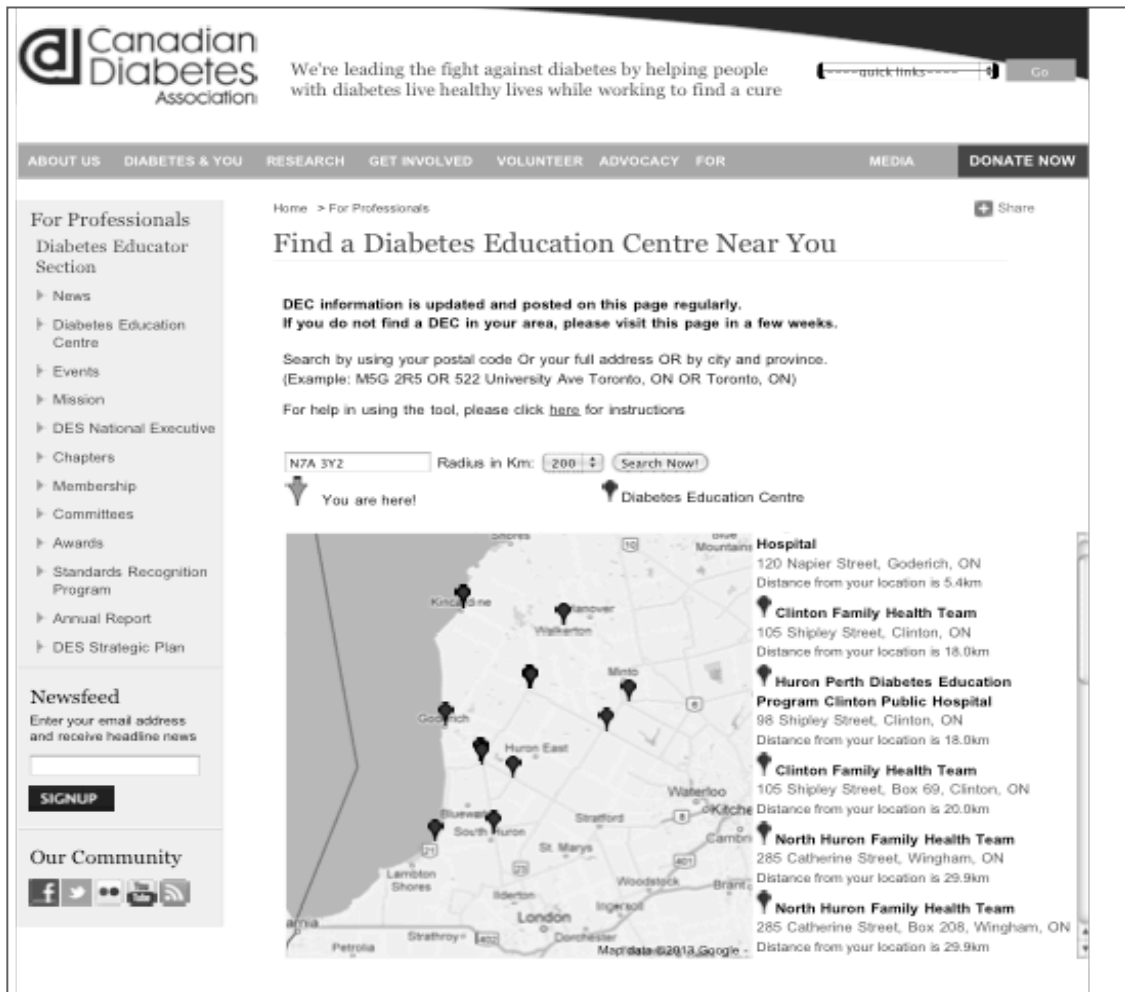
3.2.5 Recruitment of research participants, data collection and processing

The four categories of research participants recruited for this research included diabetes educators working in communities in the case study area, individuals with type 2 diabetes participating in diabetes support groups in the case study area, and health care administrators working in each of regional (in the case study area), provincial and national government agencies, educational institutions and non-government organizations with at least part of their mandate to resource nutrition education for people with diabetes in the area.

To locate community level health care professionals, I obtained health services information about diabetes education centres from the Canadian Diabetes Association website (CDA, 2012). I entered the postal code for the area of interest, to generate a list of available resource centres within a 200 km radius. I repeated the process until the lists generated provided contact information for all of the centres in the specified case study area. Figure 3.3 illustrates the user interface for this process on the website.

Figure 3.3

Locating a Diabetes Education Centre



Source: CDA, 2012

Appendix C provides details on the specific approach entailed in using this interface. A Rurality Index of Ontario (RIO) (MOHLTC, 2008) score of more than 40 was used as the criteria to recruit participants from a community. As described in Chapter Two, I selected this as the criteria because, at the time of the study design, it was the baseline score for a sliding scale of additional government funding available for health care resources in these areas. It therefore gave an indication of some degree of constraints that the community members would face in

terms of health care access (MOHLTC, 2011). No sites had a RIO score of greater than 60. This process identified 19 eligible communities. Three communities had two separately administered sites for diabetes education bringing the total of eligible sites to 22.

Using the telephone information provided on the CDA website, I phoned each eligible diabetes education site identified in the RIO scoring process. I asked to speak with the person most responsible for diabetes nutrition education. Once in contact with the identified personnel, I made a request for an interview to describe their experiences providing diabetes nutrition education in a rural area using the letter of introduction script in email and/or phone contact (Appendix B). Confirmation of receipt with all sites of the project information letter was either by phone or email reply. No one specifically declined, but for the three of the 22 sites the key contact did not respond to phone and email follow-up requests to identify an appropriate interview time for participants. At least one community diabetes educator participated in the research study in each of 19 (87%) of the 22 eligible sites. As there was participation from regional personnel from all areas identified, the reasons for non-participation are likely to be the result of a decision at the level of individual community personnel not to participate. The number of eligible diabetes educators per community ranged from one to four individuals. However, in three instances, one diabetes educator was responsible for diabetes education in as many as three different sites. The resulting total number of diabetes educator research participants was 17. For all these participants, diabetes nutrition education constituted only a part of their professional role. These community-based diabetes educators held one of the following four health professional qualifications: dietitian (n=11), registered nurse (n=3), pharmacist (n=2) and health promoter (n=1). Although they participate in the diabetes education team, this last category of educator, health promoter, is not affiliated with a

professional college eligible to be a certified diabetes educator in Canada. Dietetics, nursing and pharmacy are regulated health professions in the Province of Ontario and, as such, are required to meet professional college standards to maintain certification.

The second category of research informant included people with type 2 diabetes who participate in diabetes support groups. To recruit participants, I asked the recruited diabetes educators to identify diabetes support groups that operated within their area. Based on my experience with diabetes programming prior to LHIN implementation it was common for each county to have at least one diabetes support group, thus I expected at least five support groups that would be known to local health service providers. However, through the process, only two community support groups were identified.

The diabetes educators had the option of connecting me with the support group so that I could personally provide information about the study and invite the members of these groups to complete a questionnaire to describe their experiences with diabetes and local food in the case study locale. Alternately, the diabetes educator had the option of providing the information about the study to the group participants and inviting them to complete the survey questionnaire without my attendance. In either case, surveys were distributed at diabetes support group meetings. Survey respondents had the option of returning the survey using a pre-addressed, sealable envelope either into a receptacle available at the meeting venue or by post. All respondents submitted their responses at the venue of the diabetes group support meetings. For one group, the diabetes educator chose to deliver the questionnaires to the group. For the other group, I attended the group session, introduced and distributed the questionnaire. For the session that I attended, the questionnaire completion was more detailed and complete. Twenty-four questionnaires were completed and submitted; 12 at the group I attended and 12 at the

group by the diabetes educator.

A number of regional level organizations are involved in diabetes care in the province of Ontario. The diabetes strategy (ODS) is under the mandate of the Ministry of Health and Longterm Care (MOHLTC) and coordinated at the regional level by Local Health Integration Networks (LHINs), in this case the South West Local Health Integration Network (SWLHIN). Community food programs, such as Meals on Wheels are also coordinated under the LHIN mandate. Education resources for diabetes education and community food programs are developed with the support of county Public Health Units (PHU), also under the direction of the MOHLTC. Program and education resources for diabetes educators are also developed and distributed out of the regional offices of the Canadian Diabetes Association. Each organization was contacted by telephone according to the contact information provided on the website for each organization. On contact with the organization, I explained the objective of the study, using the invitation letter as a script and was directed to program personnel. In all organizations, the contacted individuals confirmed that they were the most appropriate to participate or directed me to a more candidate with more expertise in food and diabetes in their organization. All of the candidates agreed to participate, however, two were unavailable during the interview period. In all, a total of 13 regional personnel participated. The position of the Director of the Ontario Diabetes Strategy was in transition during the interview period, and ministry staff could not identify anyone as a contact. This was corroborated during interviews with regional level staff, when asked to recommend an interview candidate at the provincial level.

To recruit national level respondents, agencies involved with the national diabetes strategy in Canada were contacted. The national diabetes strategy in Canada is operated by a partnership of four organizations— Public Health Agency of Canada, Health Canada, Canadian

Institute for Health Research, and the Canadian Diabetes Association. Personnel with these agencies, identified on the agency website as holding a leadership role in nutrition and health, were contacted by way of email addresses and phone numbers available on agency websites. I emailed each potential participant a copy of the invitation letter. Additionally, I left a message either on their personal voicemail or with administrative staff with a brief project explanation and follow-up contact information. Personnel from two of the four national organizations participated. In one organization, three individuals participated bringing the total of interviewees from national organizations to four. No response was received from the other two organizations.

The regional, provincial and national level research participants held one of the following qualifications: dietitian (10), program volunteer (2), nurse (2), physician (1), and social work (1), administration (1). The number of each category of interview participants, profiles and the coding system used to identify respondents is in Table 3.1 below.

Table 3.1

Interview and questionnaire respondent profiles and codes

Code	Category	Respondent Profile	# of Respondents
DE	Diabetes Educator	Diabetes nutrition educators working at the community level with a mandate from the MOHLTC to provide diabetes education	17
RC	Regional Coordinator	Coordinators of Ontario government funded programs and non-government organizations with a mandate to coordinate care for persons living with diabetes at a regional scale in Southwestern Ontario.	13
NC	National Coordinator	Coordinators of federal government agencies, non-government organizations with a mandate to coordinate care for persons living with diabetes at a national scale.	4
SG	Support Group Participants	People in the study area diagnosed with type 2 diabetes and actively engaged in community based care.	24
Total			58

A researcher with a thorough understanding of the cultural characteristics of the case under study is more likely to garner a level of credibility that will enable them to attain and maintain an effective working relationship in the study environment (Neuman, 2004). In a health care setting, a researcher with experience in that environment will have an advantage in understanding the “culture” and language used. I have worked and volunteered in various health care and community settings in rural SWLHIN over a span of 18 years providing me with

substantive familiarity with the culture of the research settings and participants. Additionally, in previous years, I have shared a household with family members managing type 2 diabetes in rural areas. This experience informed the interview and questionnaire development and encounter. It also had implications for the relationship and communications with all the research participants

To all of the respondents, I disclosed my background and affiliation to the survey participants either in person, or through a letter of introduction. The data collection from non-health care work participants by survey rather than interview was undertaken with the intention of diluting the power dynamic and to reduce the effect of “answering what I wanted to hear”, and in order to facilitate a greater number of participants.

In the semi-structured interview process, it is important that “the interviewer takes control by delineating topics, and at the same time maintains a flexible process so that new emergent ideas can be immediately pursued” (Charmaz, 2006, p.29). The semi-structured interview participants were key informants familiar with, and currently involved in diabetes education. The interview was structured in three parts. The first part was designed to allow participants to begin by relating the specific familiar aspects of the tasks required day-to-day in their workplace and then to progress to more general reflections relating to their roles and experiences with respect to gender and local food systems. Valentine (2005) recommends such an approach in order to facilitate the development of a rapport between the interviewer and interviewee. Participants began the interview by relating the details of their training and the particulars of the encounters with patients. Next in the interview process, respondents were invited to relate experiences and ideas that would be illustrative of the general themes identified from the literature as foundational to these day-to-day interactions: gender and food systems

and the interpersonal dynamics of the encounter (group, individual, etc.). The final section of the interview provided an opportunity for the interviewee or researcher to expand or add to any of the interview topics.

According to Parfitt, “[t]he survey language presents a key challenge in survey design” (Parfitt, 2005, p.87). The language and tone of the questions must not put the respondent out of his or her depth. According to Neuman (2004), a number of verbal and non-verbal cues are integral to every interview encounter. Thus for the health care worker interviews I used terminology supplanted from the DOC position statement used as to guide the research, referring to “local sustainable food” in the questions framing the interviews. Living and working in communities with farming, hunting and fishing as cornerstones of the economy it has been my experience that talking about local food as it relates to the environment and “sustainability” can be a contentious topic. Food production models are quite heterogeneous. It is not possible to describe one enterprise as entirely “agro-industrial”, with complete disregard to the value of ecological inputs and consequences in food production and procurement practices or, conversely wholly considerate of them. Food producers pursuing an agro-industrial model of food production are as likely to consider their modality of food production to be “sustainable” and environmentally sound as those pursuing alternate practices. As the case study area was a rural one, with food production as a key economic driver, there was the potential for “local sustainable food” to be a controversial topic. Since the intention of the research was not to lead participants into a specific response about the environment and local food but rather to discover what was important to them about local food in their own experiences. Therefore, the term “local food” was used in the survey rather than “sustainable local food”. The diverse range of responses generated indicated that I had met these objectives.

There is considerable debate among health care personnel regarding the terminology that should be used to describe individuals who are in contact with health services (Deber et al., 2005). Research on meaningful engagement in the health care encounter identifies language use as one of “the overt and covert ways in which practitioners may impede meaningful engagement in the health care encounter” (Paterson, 2001, p.576). Many of the most commonly used words, for example, ‘patient’, ‘client’, ‘citizen’, ‘consumer’, ‘user’, carry overtones or imply certain characteristics and relationships in the health care interaction that may be unintentional (Herxheimer and Goodare, 1999). Moreover, people living with a chronic illness such as diabetes will have an ongoing relationship with health care services that differs from that of people experiencing acute illness. In health care environments, ‘patient’ remains the word most commonly used with reference to people accessing health care services. Thus, for clarity of meaning in the design of research tools and correspondence, I use the word ‘patient’ to refer to the person entering into the encounter to receive education relating to diabetes care.

I audio recorded the interviews using an *Echo Smartpen* (© Livescribe) as the recording device. This device records into digital mp3 format. The recording system has accompanying software that enables temporal linkage of note taking during the interview process with the audio recording. The length of the interviews ranged from 35 to 75 minutes. Two of the interviewee participants declined the recording of the interview by any audio-recording device. I compiled notes provided by the interviewees, along with notes taken by myself, during these two interviews. These texts were included along with transcribed interviews for data analysis. I also took notes during both the recorded and non-recorded interviews.

The setting for the interviews and distribution of the surveys was important to situating and contextualizing the response for this research.

When geographers undertake interviews, they generally expect the interviewee to provide an account of their experiences...an evaluation of an event or experience...or a more complex self-reflection. The interview itself takes place in a particular social-spatial context (Wiles, 2005 p. 86)

For the context of the interview the 'position' or 'role' in which the person is being interviewed, the reason for their participation, and their perceptions of the interviewer are all relevant features of the account. In my role as interviewer, research participants were only made aware that my affiliation was with the University of Waterloo Department of Geography and Environmental Management². I also clarified that I did not hold any current affiliation with any professional organization, workplace or regional administration to which the interviewee was responsible. I communicated this to interviewees in the initial invitation to participate. It was also important to inform all interviewees of my past relevant experiences, as some of the interviewees already knew me, and others may have been able to associate my name with previous involvement in nutrition education and diabetes programming. I confirmed my training, work and relevant experiences at the beginning of each interview. Thus, each interviewee responded as though speaking to someone familiar with the terminology, organizations and programs referred to. I conducted all interviews in person between June and October of 2012.

The respondents chose the location and timing of the interview. All interviewees chose to have the interview take place in their workplace. Additionally, all interviewees incorporated the interview into their regular work schedule.

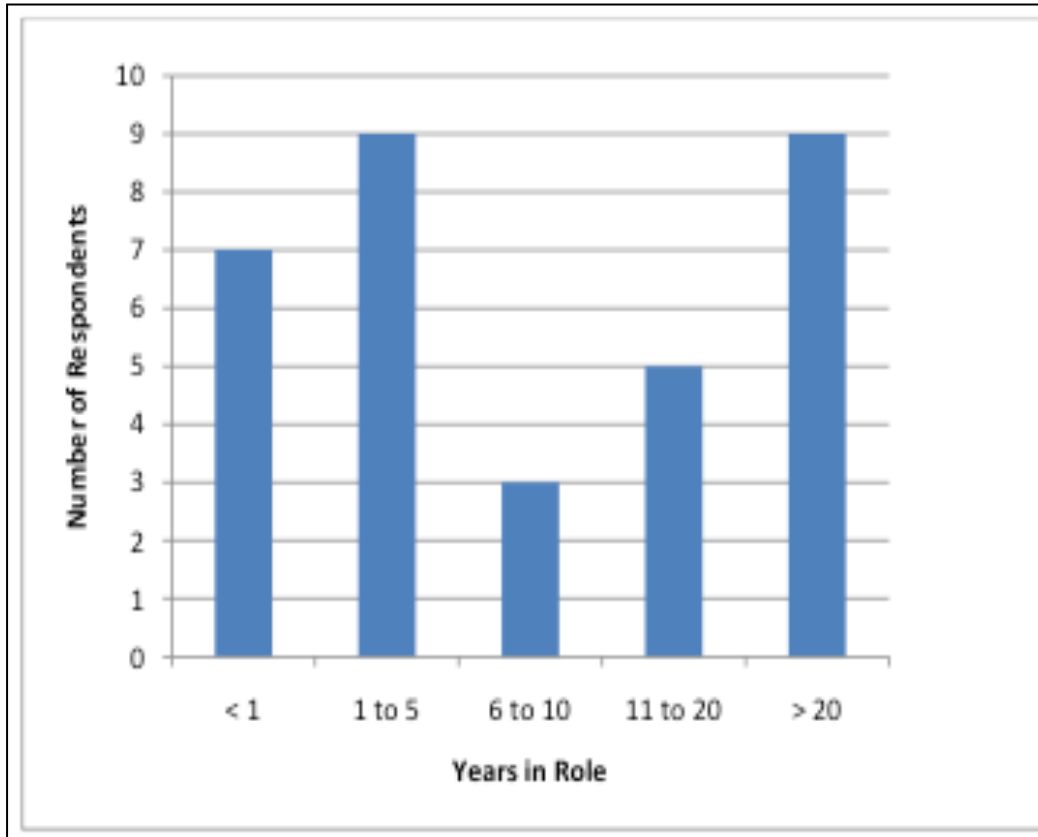
Demographic information collected from health professionals included the number of years practicing in diabetes education role. Health services organizations relating to diabetes care have undergone a lot of change in Ontario in the five years preceding the research

² This is as presented in the letter of invitation to participate in Appendix A

interviews work. As discussed in Chapter Two, development and implementation of significant changes in health services delivery with respect to diabetes care has occurred since 2007 in Ontario. Thus, in addition to the *type* of role respondents retain, the *time* in their role relative to these changes is a meaningful characteristic. Figure 3.4 below illustrates the distribution of years of experience among all interview respondents. To maintain participant confidentiality for this tabulation, presentation of these details is a summary grouping of all categories of respondents. The category of “years in practice” was grouped in to intervals that are meaningful in terms of work experience relative to these changes, in ranges from less than one year to greater than 20 years to provide information about the respondents span of practice relative to these changes in health care organization. As illustrated in Figure 3.4 below, respondents from each of these groupings participated.

Figure 3.4

Interview respondent's years working in a diabetes education role (n=34)



As would be expected, the distribution of respondents across experience categories is relative to the recent changes in health care resourcing and is not an even distribution. The categories of respondent with the most participants were relatively new to the field and/or nearing the end of their career. This is consistent with the timing of the increase in staffing in diabetes education pursuant to recent Ontario Diabetes Strategy initiatives, which intensified in response to the increasing prevalence of diabetes in Ontario (McCarter, 2012).

3.2.6 Document and record selection and processing

According to Yin (2003), “Systematic searches for relevant documents are important in any data collection plan to triangulate other research methods” (p. 87). For this project, I collected information about program resources for both health services and local food program by navigating publicly available directories of key organizations. As this study is located in Canada in the province of Ontario, documents were obtained from Statistics Canada, Health Canada and the Ontario Ministry of Health and Longterm Care. At the regional and county level, reports from the SW-LHIN, county Public Health Units and municipalities were reviewed. Documents relating to food system were publically available through websites hosted by the Ministry of Health and Longterm Care Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), Public Health Units (PHU) and Community Care Access Centres. A summary of these documents is provided in Table 3.2 that follows.

Table 3.2

Documents reviewed for diabetes profile, health services and food systems

ORGANIZATION	Report/Data Set Description
Diabetes profile	
International Diabetes Federation (IDF)	IDF Diabetes Atlas, 5 th ed (IDF, 2011) Diabetes prevalence as of 2010 sourced from country-level peer-reviewed studies and national health statistics reports commissioned studies on diabetes prevalence, and unpublished data obtained through personal communication, utilizing logistic regression to generate estimates of the prevalence of diabetes (Guariguata et al, 2011)
Canadian Diabetes Strategy Partners (PHAC, Health Canada, CHIR, CDA)	The CCHS is an on-going survey of approximately 65,000 respondents from all provinces and territories that collects a wide range of information about the health status of Canadians, factors determining their health status and their use of health care services. (Health Canada, 2007)
Ministry of Health and Long Term Care (MOHLTC)	Data compiled from the Ontario Diabetes Database (ODD) based on physician visits and hospitalizations, linked to the Registered Persons Database of Ontario (RPDB) to stratify prevalence data by LHIN, conducted for MOHLTC by the Institute for Clinical and Evaluative Science (ICES) (Booth et al, 2010).
South West Local Health Integration Network (SW LHIN)	Data compiled from LHIN Health Systems Intelligence project, Ontario Minister of Finance population Projections 2007-2017 and a SW-LHIN survey of 247 people living with diabetes (MOHLTC, 2008; 2009; 2012)
Health services	
Canadian Diabetes Association (CDA)	Listing of Ontario diabetes education centres including: addresses, key contacts, hours of operation and staffing (CDA, 2012)
Food system/rurality	
Huron, Perth, Bruce-Grey and Elgin Public Health Units	2011/12 Vendor directories (Local Food Maps) of local food producers/retailers by public health affiliated county organizations. 2012 Good Food Box site directory by county. 2012 Food Banks site directory by county. (EHU, 2012, HPFTT, 2012, GBFL, 2012, Bowering, 2012, Hammel, 2010)
Ontario Ministry of Agriculture, Food and Rural Affairs	Farm cash receipts by county in case study area from 2011 Census of Agriculture and Strategic Policy Branch of OMAFRA (OMAFRA, 2012).
South West Community Care Access Centre (CCAC)	Listing of meal delivery services (Meals on Wheels), health institutions with food service and congregate dining in the South West LHIN (CCAC, 2012) Nutritious Food Basket Grocery Store costing by County (CCAC, 2012)

The aim of the analysis of the documents identified through this process is not to provide a detailed spatial distribution of food retailers that would potentially influence dietary habits undertaken in other studies in this area (Sadler et al., 2011). Rather, it is to corroborate the range of perceived barriers to food access identified by interviewees and questionnaire respondents. As such a summary is presented of the quantity of area health services and local food sources, data available on food cost, temporal and logistical constraints to health services access and food availability. The recent trends or changes in food access, production and provisioning in the area have been identified in the reports listed in Table 4.1. Regional coordinator interviewees were knowledgeable about food sourcing for public institutions in the area such as hospitals and long-term care facilities, and included details of food service management in their interviews.

3.3 Interview coding and analysis

Information about the everyday lived experiences of people involved in type 2 diabetes were gathered using semi-structured interviews and questionnaires. This information was analyzed through a grounded theory approach first introduced to social science research by Glaser and Strauss in 1967 (Charmaz, 2006). The grounded theory approach is a systemic methodology for the collection, deconstruction, coding, analysis and re-construction of data into categories according to meaning and understanding. “Grounded theorists inquire about how social structures and processes influence how things are accomplished through a given set of social interactions” (Starks and Trinidad, 2007, p.1372).

In this approach, participants describe experiences, and the interviewer probes for detail and clarity. Collecting data from recruited participants with differing experiences of the phenomenon allows for examination of multiple dimensions of the processes under study, contributing to outcome validity.

Coding in grounded theory is open, axial and selective. This approach facilitates examination of concepts across their properties and dimensions, and development of an explanatory framework that integrates the concepts into a core category. In grounded theory introduced by Glaser and Strauss, the saturation point of coding for a category development is when no new information is found (within the data) that would improve understanding of the category (Charmaz, 2006). Charmaz (2011) adds the importance of a critical inquiry standpoint to fully explore the connections inherent in the data.

[G]rounded theorists have often concentrated on overt processes and over statements. A social justice standpoint brings critical inquiry to covert processes and invisible structures. Thus, we can discover contradictions between rhetoric and realities, ends and means, and goals and outcomes. The stance furthers understandings of the tacit, the liminal and the marginal [...] critical edge of social justice inquiry can help subject our data to new tests and create new connections in our theories. (Charmaz, p.362, 2011)

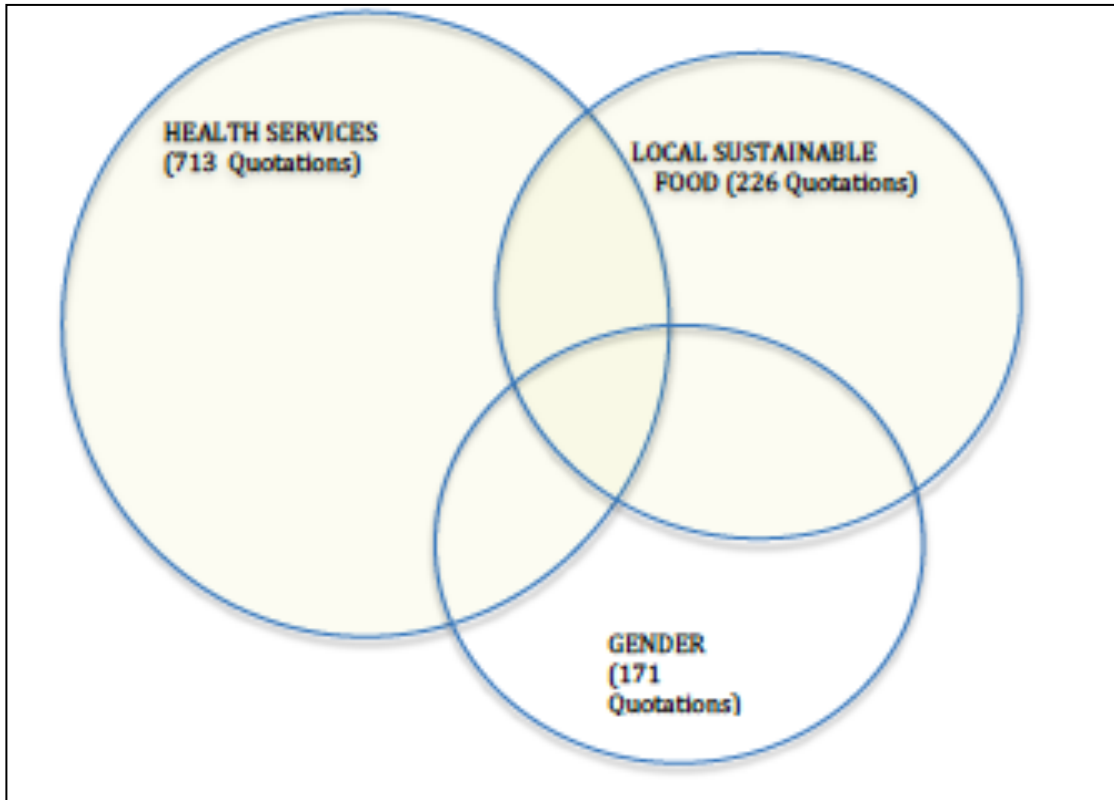
From an ecohealth and feminist health geography perspectives, this research design is well suited for this type of critical analysis.

Furthermore, Green and Thorogood (2009), assert that consideration of the audience for the results is also important to implementation of grounded theory analysis. Transparency in the coding process is particularly important when relating to an audience acculturated to a biomedical frame of reference for research in the health domain. Simple counts and vigilance in exposing deviant cases can increase the readers' faith and guard against anecdotalism (Green and Thorogood, 2009). A summary of the number of quotations coded to each of the major

groupings is in Figure 3.5 below, giving an indication of the relative role of each of these domains in the everyday experiences of the participants. Details for each of the subthemes including the number of responses and their relationship to one or more of the main themes, are presented in Chapter Five.

Figure 3.5

Themes from the analytical framework coded in the analysis of barriers to, and opportunities for, promotion of local sustainable food by rural diabetes nutrition educators



Responses coded to each theme were health services, 713 (average 20.6 per respondent), gender 171 (average 4.8 per respondent), and local sustainable food 226 (average 6.6 per respondent). Responses may be coded to more than one theme.

The origin of code names or labels is another consideration (Cresswell, 2012). Major category groupings (themes) were derived prior to narrative coding from the literature review. Subthemes were derived from in vivo codes: names that are the exact words used by participants.

For the purpose of collation and coding, each interview audio file was transcribed from the *Echo Smartpen* device into a separate document files labeled with the interviewee code. Interview respondents received a copy of the transcripts by email to review for content accuracy. Importation of these reviewed files into *Nvivo 9* qualitative data analysis software (© QSR International Pty Ltd.) provided for organization and analysis of the data. The attributes of each of the respondents were tabulated in an Excel spreadsheet using graphing functions to facilitate presentation of this information. *Microsoft Excel* spreadsheet and graphing functions also facilitated the organization and review of data derived from document and government database review.

I undertook initial qualitative coding of the content of the interviews by assigning segments into virtual containers known as “nodes” in *Nvivo 9* that allows gathering of related material in one place in order to look for emerging patterns or ideas. I started with the broad themes of rurality, local food and gender explicitly referred to in the questionnaires and interviews (see Table 3.4 below). This process facilitated the identification of emergent themes that did not specifically match those dimensions, but were attributed meaning and importance by the interviewees, such as ‘health services’ roles, ‘food security’ and ‘sense of community’. The query function in *Nvivo 9* enabled organization and cross-referencing of these themes and subthemes embedded in the data to identify key informant attention to them in their everyday experience as well as interrelationships across themes and categories of informant.

A detailed analysis of the interview contents is possible as there are a relatively small number of interviewees in the sample frame. Content categories illustrative of latent meaning are analyzed on their own, or as the basis for forming categories for quantitative analysis (Kondracki, 2002; Charmaz, 2006). For this analysis, firstly, deductive analysis used

predetermined categories and themes to sift through the data with specific scrutiny of gender and food systems in the documents (guidelines, intake questionnaires and educational materials) and interviews. Secondly, I derived meanings and subthemes in the narrative inductively, employing grounded theory analysis techniques.

The document review and survey responses are also organized into the major analytical thematic categories; health services, food system and gender to facilitate corroboration of themes from participant responses for the presentation of results in Chapters Four and Five.

3.4 Data limitations

It is a methodological challenge to undertake interdisciplinary research, and to ensure that adequate attention has been paid to a wide range of knowledge, as described in section 3.1. Interconnections and interdependence among categories is a challenge adding to the complexity. Reflexive consideration of the imperatives of several normative approaches to food and health guided the research, rather than a single framework.

Sample selection in human geography research has significant implications for the potential and constraints of the research (Curtis et al., 2000). The sampling plan was developed to accommodate the reality that a relatively small number of educators and regional and national coordinators would be practicing in, or responsible to, the study area. As a researcher, I was willing to meet participants at a time and place of their choice to obtain rich information from a relatively small number of respondents. This yielded a consistent pattern of interviews that were conducted in the workplace of the participants.

The questionnaire format was chosen as a study method in order to facilitate the participation of a larger number of respondents afflicted with diabetes while ensuring them a

maximal opportunity for anonymity (Neuman, 2004). Unanticipated was the paucity of programs in the area that could be identified as diabetes support groups for the purpose of questionnaire distribution. This limited the total number of potential research participants that could be recruited. Nevertheless, of the potential sampling universe, it was possible to recruit all possible candidates.

3.5 Summary

Mixed methods, used for this case study's design and implementation, employed both qualitative and quantitative techniques to ensure depth and rigor. To examine the opportunity for, and barriers to, the promotion of local sustainable food by rural diabetes nutrition education personnel, details of health and food systems were garnered from document review and interviews and surveys with participants from health services organizations involved with diabetes education.

The 19 communities in southwestern Ontario that were selected for inclusion in the case study had a Rurality Index of Ontario score between 40 and 60 out of 100. This index was selected as the criteria because, unlike other measures, it incorporates access to health services along with population density in determining rurality. Surveys and interviews were conducted with participants from the case study area to document their perceptions and experience of the role of gender and local sustainable food in diabetes nutrition education. Twenty-four people with diabetes and 17 diabetes nutrition educators were successfully recruited to participate from 17 of the 19 communities identified. Additionally, the primary research included interviews with 17 regional and national health services personnel with a responsibility for planning and coordinating diabetes nutrition programming in the case study area. The review of provincial

federal and municipal documents and reports relating to food and health systems from the case study area provided a baseline understanding and context for the rural case study research.

These results are presented in Chapters Four and Five.

CHAPTER FOUR: Routes: The place of diabetes nutrition education in the case study area

4.1 Introduction

The case study region that was selected to explore how the role of the rural diabetes educator might be re-conceptualized in order to promote local sustainable food. The region encompasses five counties in rural southwestern Ontario. A description of the rural area is first provided to delineate its physical attributes—namely, the built and natural environment, socio-cultural characteristics, demographic profile, and cultural affiliations. The description is generated from a review of county-level reports and websites maintained by, or with the support of, municipalities and public health departments in the area. The population profile includes gender-stratified details of the patterns of prevalence for type 2 diabetes in the case study area relative to those available from databases maintained internationally (International Diabetes Foundation), nationally (Canada) and provincially (Ontario).

Food system data presented here have been tabulated from provincially available databases maintained by the Ontario Ministry of Agriculture and Rural Affairs (OMAFRA) and county-level Public Health Departments in Ontario in collaboration with national, provincial, and county organizations with a focus on food and agriculture. Details of diabetes education staffing and programming are from the Ontario Ministry of Health and Longterm Care (MOHTLC) and the Canadian Diabetes Association (CDA) databases. As mentioned in Chapters One and Two, a gendered lens is used because it is primarily women who are the nutritional caregivers and diabetes educators. Women's status and role with respect to the functioning of health and food systems fundamentally shape avenues of access to nutritional resources.

Chapter Four is primarily descriptive in nature given that its role is to provide the case study characteristics and profile the systems in place as they relate to the research objectives set out in Table 1.1. This chapter sets the stage for the presentation of primary research findings from the interviews and questionnaires in Chapter Five. Table 4.1 below lists the various data sources examined in the chapter.

Table 4.1

Area of focus and description of documents reviewed for case study profile

Area of Focus	Description	Data Source
<p>Geographic profile: Description of case study area</p>	<p>Map SWLHIN and description of rural area: boundaries, overall size</p> <p>Characteristics of counties in area of SWLHIN with health service facilities that meet case study criteria (n=5) relating to population distribution and rural affiliations</p>	<p>Southwest LHIN Reports (MOHLTC 2008, 2009, 2012a)</p> <p>Reports by County – 2012</p> <p>Statistics Canada Census of Agriculture, 2006</p> <p>Biosphere Canada (CBRA, 2012a,b)</p> <p>Nature Conservancy of Canada (NCC, 2012)</p>
<p>Objective 1.1: Demographic profile and age/gender prevalence of diabetes</p>	<p>Age and Gender profile of the population in the Southwest LHIN</p> <p>Age and Gender distribution of diabetes:</p> <ul style="list-style-type: none"> • in rural areas of the SWLHIN • in SWLHIN • relative to that in Canada and • relative to other nations 	<p>Southwest LHIN report IHS report 2011 (MOHLTC, 2012a)</p> <p>Ontario Diabetes Database/Registered Persons Database of Ontario (in Booth et al, 2010)</p> <p>Canadian Community Health Survey 2010 (Statistics Canada, 2011)</p> <p>International Diabetes Foundation Annual Report (IDF 2011)</p>
<p>Objective 1.2 Patient access to diabetes care (health system)</p> <p>Objective 2.1 Diabetes care guidelines: national regional and community</p>	<p>Health Service locales and staffing in case study area</p> <p>Education Resources available (print/digital) in health services facilities meeting case study criteria (n=19)</p> <p>National, Provincial and Regional Diabetes Care Guidelines and Reports</p>	<p>SWLHIN Reports (MOHLTC, 2008; CCAC 2012a)</p> <p>Ontario Diabetes Strategy Guidelines (ODS, 2012), Ontario Auditors Report (McCarter, 2012)</p> <p>Canadian Diabetes Association (CDA, 2012)</p> <p>Canadian Diabetes Association Guidelines (CDA 2008, 2013)</p> <p>Scan of resources on site visits to case study health service locales (n=19)</p>
<p>Objective 1.3 Area prod'n, distribution and consumption of "local sustainable food" (food system)</p>	<p>Cost of grocery store food and food bank utilization rates.</p> <p>Listing of local food outlets by county (non-grocery store)</p> <p>Food production reports by county</p>	<p>Health Canada Nutritious Food Basket Report (MOHP, 2010, CCAC, 2012b)</p> <p>Hunger in Ontario 2012, (OAFB, 2012)</p> <p>Food Link Grey-Bruce (2012), Huron Perth Field to Table (2012), Elgin County Public Health (2012).</p> <p>Ontario Agriculture Census (OMAFRA, 2012)</p>

4.2 Case study context: Location and characteristics

This study's examination of demography, rurality, and food system parameters is situated at the county and regional scale, rather than at the scale of specific local communities. There are three reasons for settling on this unit of analysis. First, opportunities and constraints with respect to characteristics of setting, such as geography, demographics, profile of diabetes, health care services and food access can be collated at this scale in MOHLTC and OMAFRA reports. Second, providing details at the scale of the specific communities visited for purposes of conducting participant interviews could compromise my responsibility as researcher to maintain the anonymity of the participants. Thirdly, patients using the health care system in Ontario do not necessarily use only services within a specified geographic area given the small size of some of the communities so it makes sense to analyze findings on a larger scale.

The South West LHIN covers a large portion of southwestern Ontario from Long Point on Lake Erie to the Bruce Peninsula on Lake Huron, an area totaling 21,639 square kilometres. This area includes Bruce, Elgin, Huron, Middlesex, Oxford and Perth counties and a portion of Grey and Norfolk counties. Of these, the counties of Bruce, Elgin, Grey, Huron, and Perth are the counties in which communities selected for this research are located. These counties are further divided into 37 towns and municipalities. The population of the South West LHIN is 962,539 (SWLHIN, 2011). Within the South West LHIN approximately 69% of the population is classified as urban and 31% (298,387) is rural according to Statistics Canada classification in terms of population density. Conversely the "rural" area of the SWLHIN is approximately 60% of the land area, with a population density of about 18 persons per square kilometer (SLHWIN, 2011). As noted above, municipal and county boundaries are not specific delimiters for access to health service, nor for rurality. For example, five municipalities in Grey

County representing approximately 5% of the population base of that county are within the Waterloo-Wellington LHIN jurisdiction rather than the South West LHIN. For the purpose of this research, all communities meeting the criteria of “rurality” implemented herein are within the “rural areas” described in SWLHIN reports.

The criteria of “rurality” for the purposes of this research are drawn from the Rurality Index of Ontario (RIO) scoring formula (MOHLTC, 2010, 2011) that uses a weighting that considers three key elements: population size and density, travel time to nearest primary care health centre, and travel time to the nearest tertiary health centre. In order to confirm the identity of the communities and participants that self-identified as rural coincided with the criteria, the scoring was corroborated through interview responses from participants and a scan of promotional materials from each county. At the initial contact with interview candidates, the recruitment script clearly stated the following rationale for contact with interview candidates “because of your role and expertise as a Diabetes Educator in rural Ontario” (see Appendix D). No interviewee declined on the premise that the particular area of service was “not rural”. In fact, at the time of initial contact, three of the interviewees (RC2, DE9, DE10) specifically stated that their impetus to participate was because of the rural emphasis in the research project. They welcomed the opportunity to elaborate on some of the particular characteristics of rural areas they felt currently insufficiently addressed in the current provisioning of health care resources.

Further corroborating the identity of the area as a rural one is the content of the municipal descriptions of these areas. Each county’s government website provides information about local events, municipal services, and demographic and economic characteristics. The information in the tourism and economic development section of websites and reports (See

Table 4.2 below) corroborated the distinctive characteristics of a county identity or brand with respect to its ‘rurality’.

Table 4.2

Case study area descriptions from county-sponsored websites

County	Description on County Website
Bruce	“Rather than doing business in the congestion of the large urban centres with their traffic jams, high land costs, and harried pace of life, set up shop in Bruce County” (County of Bruce, 2012, p.1).
Elgin	“Elgin County is where families stay for generations and where real people make progress with and for nature. We are fostering a dynamic new future for innovative businesses in the energy, agribusiness, manufacturing, tourism, and creative rural economy sectors.” (Elgin County, 2012, p.1).
Grey	“The County of Grey is a family of distinctive communities which values its heritage, natural beauty, clean, healthy environment and rural lifestyle.” (Grey County, 2012, p.1).
Huron	“This vibrant rural community is the most agriculturally productive county in Ontario” (County of Huron, 2012, p.1).
Perth	“A vibrant, rich agricultural community, diverse in its heritage and culture.” (Perth County, 2012, p.1).

In the opening remarks for each of the participating counties, for example, there are references to their identity as “rural”: vistas, communities and agrarian lifestyles, and the absence of urban congestion. In the county descriptors, “agriculture” is specifically noted in three of the five, “nature” in two of the five and “community” in four of the five.

The case study area plays a major role in Ontario’s agricultural production. Agriculture is a significant economic driver in the area. Thirty-three per cent of the provincial agricultural land is located in this area. Farm sales receipts from the five counties with recruited participants totaled 2.3 billion dollars. This accounts for 50.2% of receipts in the province, based on Statistics Canada 2011 data (OMAFRA, 2012).

In addition to the agricultural economic base, the case study area contains significant tracts of reserves of “natural space” as described by Biosphere Canada and the Nature Conservancy of Canada (CBRA, 2012a, 2012b; NCC 2012). At the south end of the SW LHIN, the Long point Biosphere Reserve, located on the shores of Lake Erie in Elgin county, is a rich mosaic of ecosystems – a variety of habitats including long uninterrupted beaches, grassy ridges, wet meadows, woodlands, marshes and ponds (CBRA, 2012a). In the north end of the SW- LHIN (Grey County) is the location of the northern region of the Niagara Escarpment Biosphere reserve. Biosphere Reserves operate with a mandate to address three basic functions. Namely, these are as follows: conservation, development, and logistical (CBRA, 2012b). The conservation function, as the term would imply, is to contribute to the conservation of landscapes, ecosystems, species and genetic variation. The development function is to foster socio-culturally and ecologically sustainable development. The logistical function is to provide support for research, monitoring, education and information exchange related to local, national and global issues of conservation and development. Although not explicitly stated in the mandate of either of these biosphere reserves mission statements, fostering sustainable food systems is complementary to this mandate, but there are no current initiatives that represent an engagement by these organizations as stakeholders in “sustainable local food”. Along Lake Huron, Huron, Grey and Bruce counties also host two national parks, three provincial parks and a number of municipal parklands and Nature Conservancy of Canada land tracts, notably along waterways (NCC, 2012). As with agricultural pursuits, the tourism employment arising from visitors to these tracts and reserves, constitute a significant influence on the seasonal nature of employment opportunities for local rural residents.

In summary, the case study area is characterized by low population density, significant

travel time to tertiary health care services, and a citizenry that identifies as being rural dwellers. As this research examines access to food as well as health services, the significant contribution of agriculture to the area economy is also a relevant feature of the case study area.

4.3 Demographics and profile of diabetes in the case study area

Southwest Local Health Integration Networks (SWLHIN) Reports are prepared in accordance with MOHLTC reporting requirements for LHINs. These reports provide an overview of the demographics, diabetes prevalence and health care resources and personnel for community clusters considered “rural” within the SWLHIN. The demographic data in the most recent reports are derived from 2006 Statistics Canada census-based Ministry of Finance population estimates (2001-2010) and projections (2011-2036) for the LHIN (MOHLTC, 2008; 2010; 2012). The projected growth in the senior population (age 65+) of the SWLHIN is 6%, rising from 15% to 21% of the total population by 2022 (MOHLTC, 2010). Thus, the demands of an aging population that have already had a significant impact on this LHIN, are projected to continue to do so through 2022. In the more rural areas, projections are that this cohort will grow from 11% to 16% of that population. Along with this shift are projected increases in the prevalence of diabetes, as older cohorts have higher rates of type 2 diabetes. This demographic trend results from a combination of a relative increase in the senior population and net outmigration of young adults from rural areas (Fuller, 1999; Smithers, 2004; MOHLTC, 2008). A related trend is a higher ratio of dependent family members in households (dependency ratio). This shift will generate additional responsibilities for supporting household members for tasks such as transportation and in-home health care. In households with members experiencing diabetes, these additional responsibilities include attention to food procurement and preparation.

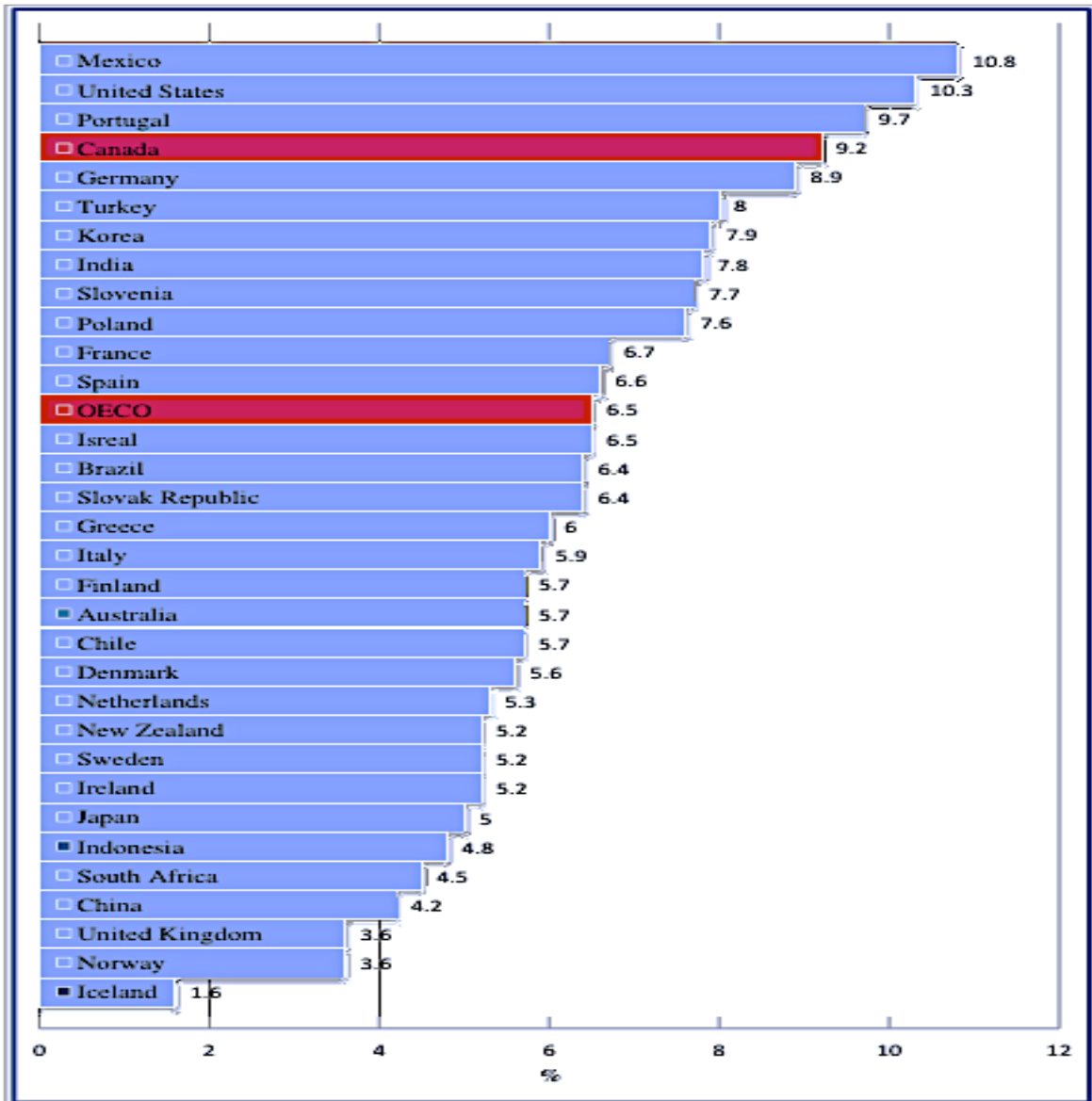
According to the Public Health Agency of Canada (PHAC), the availability and reporting

of high-quality surveillance, information on diabetes in Canada has increased substantially over the last decade (PHAC, 2011). Data collected and reported at various scales (international, national, provincial, regional) uses multiple data sources. Estimates may be for different periods of reference and age groups, definitions may vary depending on the data source and each data source has different strengths and limitations. Data used for this research includes publically available data collected by Statistics Canada, data sets with priority access, i.e. Registered Persons Database of Ontario (RPDO), and data reported by other agencies i.e. International Diabetes Foundation (IDF). In these datasets, diabetes rate information is undifferentiated for type 1 and type 2. Nevertheless, for the purpose of this examination, the data still allows for consideration of diabetes rates in the case study area, relative to the provincial, national and international rates of prevalence. Secondly, the data serves to contextualize the research participants' perceptions and experiences in their own communities.

As noted in Chapter Two, the International Diabetes Foundation has documented an increase in diabetes rates worldwide (IDF, 2011). The IDF collates available data at the national scale to report prevalence rates in the cohort of 20 to 79 year olds illustrated in Figure 4.1 below. Estimates are that 8.3% of adults worldwide in this cohort had a diagnosis of diabetes in 2011 (of those, 48.8% are women). If these incidence rate trends continue, by 2030 one adult in 10 will have diabetes. According to IDF reporting, diabetes prevalence in this cohort in Canada currently exceeds the global average at 10.5% (of those, 45.9% are women, slightly lower than the international average).

Figure 4.1

Prevalence estimates of diabetes in OECD countries, adults aged 20-79



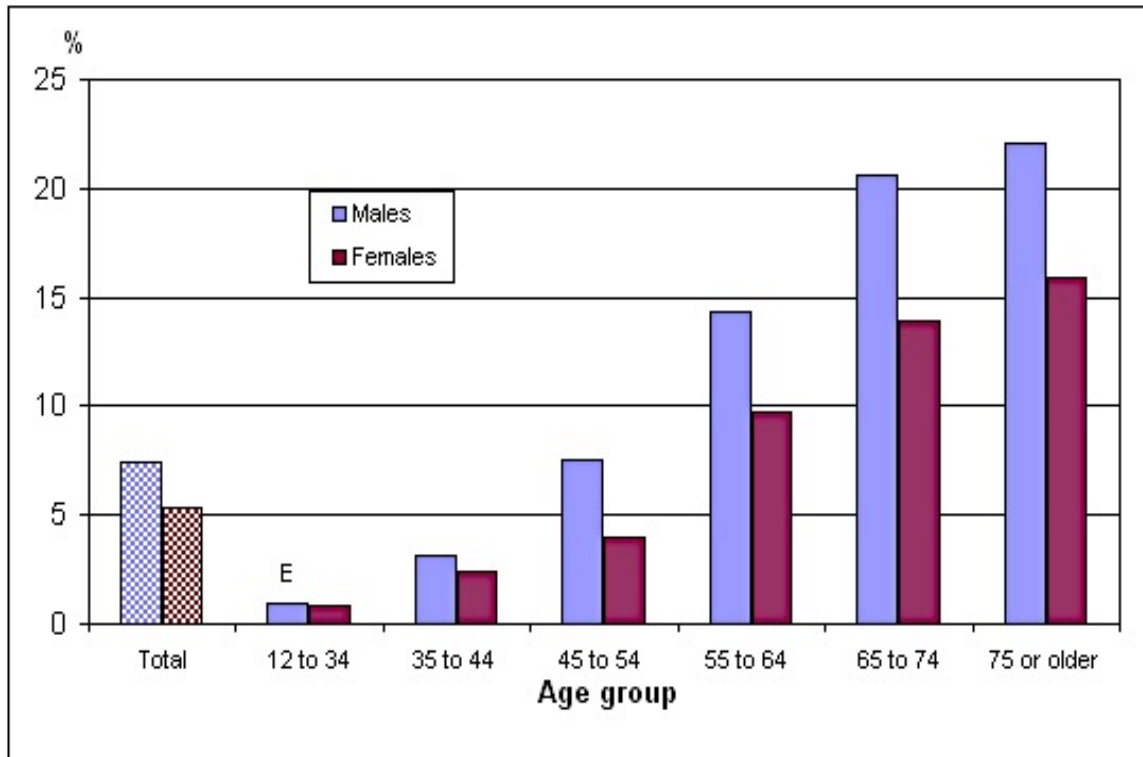
Source: adapted from IDF, 2011

Statistics Canada reports national and provincial prevalence rates based on the Canadian Health Measures Survey for the population aged 12 and over who report a diagnosis of diabetes by a health professional (Statistics Canada, 2010). Because incidence of diabetes increases with age, lower rates of diabetes would be expected in provinces and territories with disproportionately

“younger” populations. Accounting for this assumption, adjustment of diabetes rates are made as if the age groups in each province and territory were the same as at the national age distribution. With this adjustment, diabetes rates were similar between provinces. Figure 4.2 below illustrates the distribution of diabetes by age group and sex in Canada in 2010. The sharpest increase in the prevalence of diabetes occurred after the age of 45 years - the proportion of people with diagnosed diabetes (23.1% of females and 28.5% of males). Although diagnosed diabetes is more common in older age groups, the data indicate that more than 50% of the affected Canadian population (1.2 million) was of working age, between 25 and 64 years.

Figure 4.2

Percentage of the Canadian population diagnosed with diabetes, by age group and sex aged 12 and up, 2010



Source: Canadian Community Health Survey, 2010

As with national and international rates, Type 2 diabetes prevalence rates in the SWLHIN have been increasing, but at a lower rate than Ontario overall, resulting in a widening of the disparity of incidence rates. The prevalence of diabetes in the SWLHIN region increased from a rate of 7.2 per 100 adults over the age of 20 in 2004 to a rate of 8.8 in 2011. Also consistent with overall trends in Ontario, incidence rates in the SWLHIN were higher in men than in women (MOHLTC, 2008).

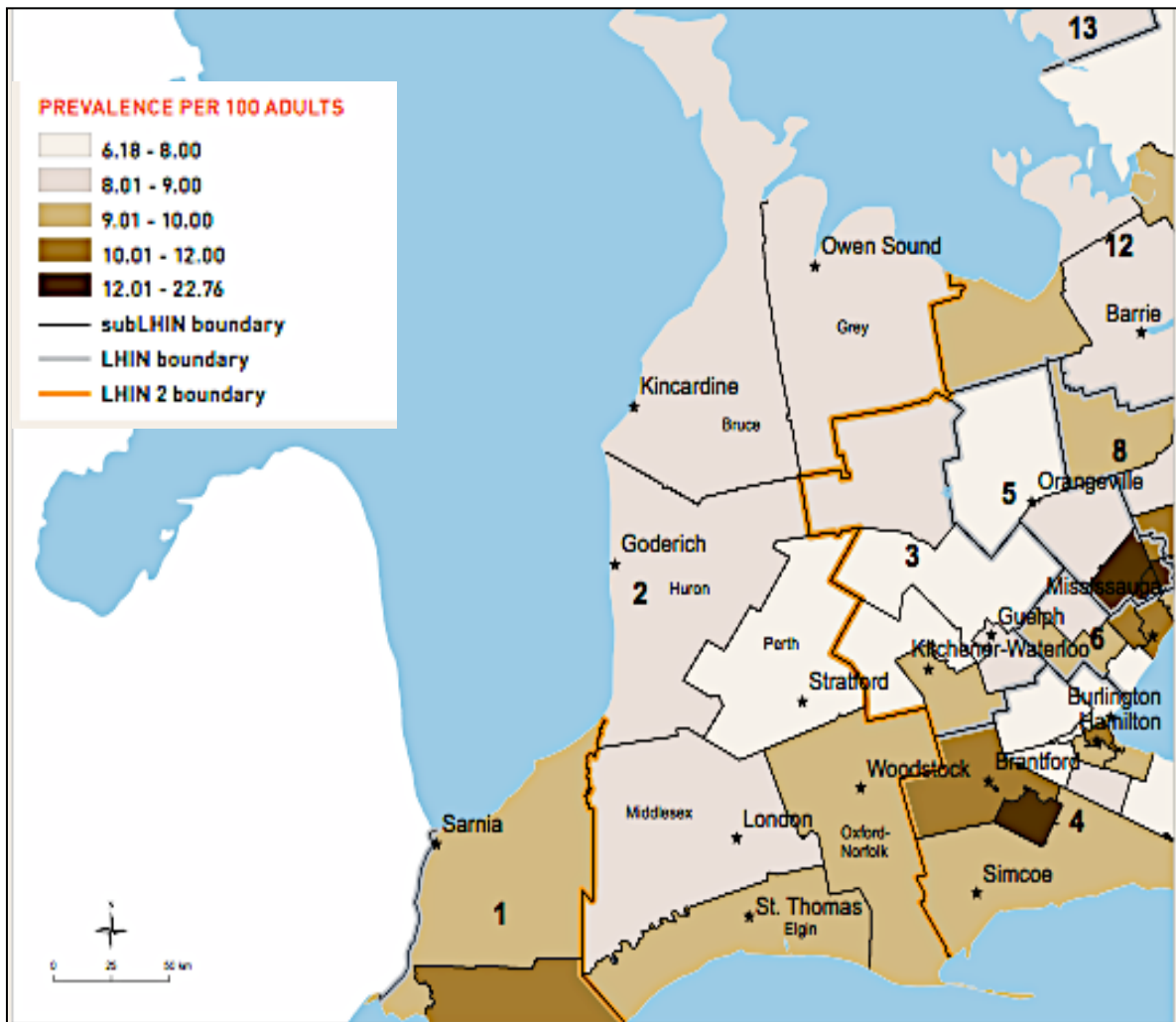
In addition to LHIN-level prevalence data, data is also available at the sub-region within each LHIN. A report prepared for the MOHLTC by the Institute for Clinical Evaluative

Sciences ICES (Booth et al., 2010, 2012), analyzed data from the Ontario Diabetes Database (ODD). This report describes diabetes prevalence for the number of adults, aged 20 and older, living in Ontario who were diagnosed with diabetes on or before March 31, 2011. The ODD employs a validated algorithm to identify people with diabetes using data on hospitalizations and physician visits. Individuals having one or more hospitalization records or two or more physician services claims bearing a diagnosis of diabetes within a two-year period are included in the database. This algorithm is highly sensitive (86%) and specific (97%) for identifying patients with a diagnosis of diabetes recorded in primary care charts.

The prevalence of diabetes is undoubtedly even higher than reported, as the ODD does not capture individuals with diabetes who are undiagnosed. Recently, Creatore et al. (2012) found high rates of screening among Ontarians aged 40 years and older (approximately 90%), indicating that the percentage of all cases that remain unknown in Ontario in this cohort is likely to be small. Populations most likely under-reported are low- income populations (Booth et al., 2010). This population has less frequent interaction with primary care medicine – and therefore less likelihood of diabetes screening. Linking ODD records to the Registered Persons Database of Ontario (RPDB) enables the generation of regional profiles of rates of diabetes. The RPDB contains demographic and residential information on anyone who has ever received an Ontario health card number. Postal codes from the RPDB were used to link individuals to a given region or community. The profile by county, illustrated in Figure 4.3 below, indicates some variation between counties in the case study area. Huron, Bruce and Grey had similar prevalence rates (8.01-9.0 per hundred), Perth had the lowest rate at 6.14-8.0 per hundred and Elgin had the highest at 9.01-10.0 per hundred.

Figure 4.3

Prevalence of diabetes in the South West LHIN (2) by county



Source: Booth et al., 2012, p.61

While the prevalence and incidence of diabetes has been higher among men than among women, the most recent data indicate that the cohort of women aged 20-49 have seen the greatest increase in diabetes over the last decade (Booth et al., 2010, 2012). Young women with diabetes have a potentially higher lifetime risk of complications because of an earlier onset of the disease including risks to a healthy pregnancy (Booth et al., 2010).

The trend in the rate of prevalence of diabetes the case study area is an increasing one, although not at the pace of the increase internationally and provincially. The gender profile of diabetes also parallels the profile reported for the province. The increase among women at an earlier age of onset is of particular concern as diabetes increases the lifetime risk of complications and adds the burden of managing a chronic disease along with family and work responsibilities. These trends in diabetes incidence and profile have implication for health care service delivery, as described in the following section.

4.4 Health system resources for diabetes education in the case study area

Health system resources in the case study area include the personnel, facilities and materials available to patients to help them in the management of their diabetes. Oversight of these resources is under the direction of the Ontario Diabetes Strategy (ODS), coordinated through regional health authorities known as Local Health Integration Networks (LHINs).

4.4.1 Health program delivery

In 2006, the Ontario government passed health care legislation, the Local Health System Integration Act, 2006, changing the management of Ontario's health care system. The resulting creation of 14 Local Health Integration Networks (LHINs), is intended to enhance coordination amongst a collection of services to improve the health care system, enhance understanding of local health needs, while providing integrated, high-quality services that will meet those needs (MOHLTC, 2006). The main focus of the MOHLTC initiative over this time period has been "getting people off the waiting list", prioritizing resources to facilitate access to primary care providers (MOHLTC, 2007). LHINs themselves do not directly provide services; they are

mandated to integrate and fund health care services at the local level, overseeing nearly two-thirds of the health care budget in Ontario. LHINs have, as a mandate, the responsibility to work with local health providers and community members to determine the health service priorities of each region. This mandate includes planning, integrating and funding health service providers, including hospitals, long-term care homes, mental health agencies, and community support services such as seniors' centres and home care supports administered by Community Care Access Centres (MOHLTC, 2006). Currently, public health services and physician services are not included. Governance of LHINs is the responsibility of boards of directors appointed by the province based on skill and merit. The MOHLTC sets policy and program priorities, outlines the principles, goals and requirements for all LHINs to ensure that Ontarians have access to a consistent set of health care services. However, LHINs are to have the flexibility needed to address unique local health needs and priorities, while the Ministry maintains a close relationship with the LHINs through operational, financial, auditing, and reporting tools.

The organization of health service in terms of program priorities, staffing and supplies is constantly changing and adapting in response to shifting patterns of disease, technology, and available resources and mandates. As noted in Chapter Two, the rationale behind the development of the Ontario Diabetes Strategy (ODS) (that falls under the LHIN mandate) was as a response to current and projected changes in patterns of diabetes prevalence and related illness. "The South West LHIN is [...] one of three LHINs to be an early adopter of both the Diabetes Strategy and the Diabetes Registry" (MOHLTC, 2012, p.10). Although keeping people well and preventing the disease is the most cost-effective and sustainable strategy for coping with type 2 diabetes, 97% of ODS funding was directed to treat people who already had diabetes, with only 3% for prevention initiatives (McCarter, 2012). The primary goals set for

the ODS that was implemented in the area align with the MOHLTC objective of providing timely access to primary care. Thus, the thrust of this strategy includes the implementation of care, the provision of team-based support for patients in managing their disease, and an increased the adoption of approved practice guidelines prepared and published by the Canadian Diabetes Association (CDA, 2013).

To meet the objective of increased access to care and team-based support, the ODS implementation was accompanied by an increase in the complement of health professional staff allocated for diabetes care. Prior to the ODS, diabetes education was provided in a hospital setting by dietitian and nurse diabetes educators known as Diabetes Education Centres (DECs). Concurrent with the ODS this the number of organizations has expanded from one type with diabetes education as within their mandate, to three types (See Table 4.3 below for a list and description of these organizations).

Table 4.3

Types of health services in the case study area responsible for materials and/or services for diabetes education

SERVICE	MANDATE, STAFFING, GOVERNANCE	Funding Source	# Sites
Community Health Centre	-Primary health and health promotion programs for individuals, families and communities located in community clinics. -Staffing complement may include family doctors, nurse practitioners, nurses, social workers, health promoters, community health workers and often, nutritionists or dietitians. --Reporting to the local LHIN level. (MOHLTC, 2012b), board of directors includes community and facility health service providers and managers	MOHLTC Via LHINs	3
Family Health Team	-Primary health programs for individuals located in community clinics -Staffing complement may include family doctors, nurse practitioners, registered nurses and other health care providers like dietitians and social workers located in community clinics. --Reporting to the MOHLTC (MOHLTC, 2012b), board of directors includes facility health service providers and/or community members	MOHLTC various funding criteria	12
Diabetes Education Centre	-Health education for individuals with diabetes, located in community hospitals -Staffed by certified diabetes educator nurses and dietitians, in --Services coordinated at the County level, and within hospitals . (board of directors includes community and facility health service providers and managers)(MOHLTC, 2012b)	MOHLTC via LHINs within Hospital Budget	5
Canadian Diabetes Association	-Supports people affected by diabetes by providing information, diabetes research, clinical guideline development education, service, and advocacy. -Staffed by a variety of health professionals and administrative personnel -Governed by a board elected by CDA members (CDA, 2012).	Private and corporate donors, provincial/ federal grants	1
Public Health Units	-Administer community health promotion and disease prevention programs. -Staffed by a variety of health professionals, and health inspectors and personnel with community development expertise -Governed by a board of health the medical officer of health who reports to a local (municipal) board of health. The board is mostly elected representatives from the local municipal councils (MOHLTC, 2012b)	MOHLTC via County Administration	4

- *The number of sites in case study area of sites meeting RIO score criteria

Prior to the implementation of the Ontario Diabetes Strategy (ODS), hospital-based diabetes education centres were the only places that patients with diabetes could access diabetes education funded by the MOHLTC. This resource was available to patients on referral from their physicians. As a strategy to meet the goal of providing team based care, consistent with ODS goals, diabetes education is now available to patients through Family Health Teams and Community Health Centres. The advantage of these models of diabetes education delivery is the access to a broader range of health care professionals than the traditional DEC. In addition to dietitians, nurses, and physicians, the care team for persons with diabetes may include social work, mental health professionals, pharmacists and health promotion specialists. The specific constituency of the team varies between communities. Resources are allocated by the MOHLTC as a reflection of predominant health concerns and health care resources in that community.

To receive support for development of a Community Health Centre or a Family Health Team requires an extensive application process to the MOHLTC with participation from local health service providers and the community (AOHC, 2000; MOHLTC, 2009). In seven communities in the case study area, there was a considerable overlap in diabetes service delivery resources, with a Diabetes Education Centre and a Family Health Team in place in the same community. The relationships between these organizations, however, varied with the community. Considering that the application process for a Family Health Team requires and engagement from local health service providers, it is not unexpected that a community with a local community hospital, and thus a cohort of health service providers, would be well placed to apply for a community health facility.

The Diabetes Education Centres, Family Health Teams, and Community Health Centres all receive program operating funding for staffing and administration from the MOHLTC and all provide individualized diabetes education. The Diabetes Education Centres in community hospitals were in place prior to the implementation of LHINs and the ODS, those in Family Health Teams and Community Health Centres have been implemented since that time. Facilities all maintain a connection with the local community. For example, in all communities, community fundraising contributes to construction and/or equipment for the facility. All facilities have a local board of directors as required by their governance agreements with the MOHLTC, however, in the case of four Family Health Teams in the case study area, the governance structure includes only facility health service providers.

Public health programming in Ontario is unique among Canadian provinces for the involvement of municipalities in the funding, and in some cases, the delivery of public health promotion and disease prevention programs. In other provinces, funding of public health is a provincial responsibility, and operates through regional health authorities (Barker, 2007; PHAC, 2006). While the local presence and input facilitated attention to local needs and collaboration with local partners, it can generate difficulties in meeting public health-mandated program obligations (MOHLTC, 2008) as municipal councils struggle to achieve balanced budgets. This situation is exacerbated by the variation in size among the 36 public health units in Ontario. Smaller health units, such as the one in Huron County, may find it difficult to maintain a core staff with appropriate skill sets (PHAC, 2006). The role of health unit personnel as it relates to diabetes is the development and support of programs and initiatives for the public as a whole relating to healthy eating.

In the case study counties, the mandate of public health programming in the case study counties is to engage in initiatives that collaborate with community-based organizations that will facilitate the development of opportunities for healthy eating (e.g. school food policies) and food skills development (e.g. community kitchens) in accordance with the Ontario Health Standards Act (MOHLTC, 2008). Specific requests for information about diabetes from the public are referred to local health service providers (CHC, FHT, DEC), the Canadian Diabetes Association public website, and a website-based information service provided by the Dietitians of Canada “Eatright Ontario” (DOC, 2012). In the case study public health unit nutrition and community development personnel, consistent with their provincial mandate, public health unit support the development of healthy eating education resources and programs including local food programs.

The Canadian Diabetes Association (CDA) has a broad mandate to develop educational materials, clinical resources and advocate for support to education and diabetes services for people living with diabetes in Canada. A board of directors elected from its membership that includes citizens affected by diabetes and health service providers that work with such citizens oversees this mandate. In order to implement the mandate to develop educational materials and clinical resources, the organization partners with government as in the Canadian Diabetes Strategy partnership described in Table 3.2. Through this partnership and partnerships with academic institutions across the country, the CDA develops Clinical Practice Guidelines as a basis for care delivery and educational resources that are standard of practice in all types of diabetes education programs referred to herein. Examples of CDA advocacy actions are the development of position statements on key issues facing people with diabetes in Canada. Relevant to the topic of this dissertation is the CDA position statement on food security:

“Healthy food choices are essential to good diabetes management and to help prevent type 2 diabetes. All Canadians should have access to affordable, sufficient, safe and nutritious food” (CDA, 2011, p.1).

While CDA membership is drawn from communities across the country, the number of community-based offices has declined between the years 2000 and 2012 (RC12). Regional Offices of the CDA are now located in one community in the case study area. In addition to distributing educational material, staff and volunteers facilitate community events that raise awareness and provide education about diabetes. They also coordinate community fundraising for the organization.

A commonality among the mandates for each of these programs described is promotion of healthy eating for people with diabetes and for the general population. The key difference is that this is a primary mandate for public health nutrition programming. For Family Health Teams, Community Health Centres, Diabetes Education Centres, and the Canadian Diabetes Association, the primary mandate is to facilitate access to education and monitoring by health care professionals for people with diabetes (MOHLTC, 2012; CDA, 2012).

The interests and engagement of community health service providers is an important factor in shaping the character and scope of health services for diabetes available in case study area communities. They play an instrumental role through their involvement in direct service delivery, as members on boards of governance, and as key players in the application process for community health services.

4.4.2 Diabetes service access in the SWLHIN communities

Patient access to diabetes education health service providers varies depending on the program structure. Access to individualized programming at the Family Health Team is contingent upon the individual being a member of the patient roster for one of the primary care providers (nurse practitioner or physician) affiliates. Patients who do not have a primary care provider, or who receive care from a primary care provider not affiliated with the Family Health Team (such as a Family Physician not affiliated with a care team) do not have access to Family Health Team resources. Access to Diabetes Education Centres and Community Health Centres in the case study area³ to individualized programming is available through “self-referral”, that is without a specific referral from a physician or nurse practitioner, as with Diabetes Education Centres in the area. Thus, while all patients with diabetes have access to diabetes nutrition education, the route of access and the health team resources available vary depending on care arrangements. Although primary care is the priority mandate for all of these facilities, all include some element of community outreach programming, such as education events about diabetes or walking groups to promote physical activity hosted by any of these care delivery models are open to all community members regardless of care arrangements.

During the course of this research project, an examination of the characteristics of health facilities and resources revealed several features, in addition to personnel, that affect the ease of access for patients. These factors include hours of service of the facilities, and transportation and digital infrastructure in the community. Delivery of diabetes nutrition education resources in the case study area of the SWLHIN are provided on weekdays between 8:30 am and 5:00 pm

³ This is not the case in all CHCs in the province. For example individualized diabetes education at the Merrickville community Health centre in the SE-LHIN is by referral only. All DEC are available through “self-referral”.

(CDA, 2012) regardless of the type of facility (e.g. Community Health Centre, Family Health Team, etc.). These limited hours may present challenges to those with workday commitments and/or for those who have limited access to transportation to and from the centres.

A report commissioned by the Department of Social Services in Huron and Perth counties determined transportation infrastructure in rural communities constitutes a major social and health issue (Bowering, 2012). For individuals accessing social assistance programs in the SW-LHIN, transportation is provided in a variety of ways for some services and medical appointments. However, many agencies are encountering difficulties getting volunteer drivers, particularly due to the steep rise in gasoline prices over the past year. While pharmacies in urban areas usually deliver prescriptions, pharmacies in small towns are unable to do this due to their smaller volume, and the patient must pay for delivery. Intercommunity bus services continue to struggle to be viable. Taxis hours of service vary considerably and their services are usually limited to a specific geographic area. For those without access to personal transportation, this presents a considerable disadvantage to accessing health services.

An additional challenge to access to health service is digital access. Access to the Internet is relevant for people with diabetes, especially those living in rural areas. All of the health services organizations involved in diabetes care (see Table 4.3 for a listing of organizations) in the case study area host websites with resources, information, and communication options for clients with the capacity to access them. For many living in rural southwestern Ontario, Internet access is less available and/or more expensive than in urban areas. Residents either cannot access it, or do not have high-speed Internet access since many only have dial-up (MOHLTC, 2009). The term “e-inclusion,” refers to the challenge of responding to the challenges of unequal access to digital information and communication

technology in communications literature (Aluwil, 2011). Improving e-inclusion in rural areas is on the radar of provincial and federal policy initiatives. The *Building Broadband in Rural and Northern Ontario* program promotes strategic investments in broadband infrastructure and encourages Internet Service Providers to address broadband service gaps (Industry Canada, 2012). There are, however, gaps in these initiatives. In 1995, the Government of Canada provided *Community Access Program* (CAP) funding to public libraries to help provide Canadians with access to the Internet. This funding allowed community to provide public computers and other equipment as well as computer literacy training and resources in all county branches. At the end of March 2012, Industry Canada ceased its funding support for public libraries as Community Access Program (CAP) sites. Financial support of CAP has been critical to the provision of internet access within community libraries, despite creative networking among rural libraries, they are facing the possibility of reduced equipment and service at a time when many households in these areas, for economic reasons, still lack home computers or home Internet access (Huron County Libraries, 2012). Increasingly, access to a variety of health system and food system resources is contingent on e-skills and access to Internet resources.

The constraint imposed on access to care by limited community transportation and digital infrastructure is an important consideration in the design and implementation of diabetes programming and resources.

Access to the various services available for patients with diabetes varies by gender. Patterns of access to primary care stratified by LHIN and gender based on data from the ODD, the Registered Persons Data Base, and the Ontario Health Insurance Plan physician claims data is reported by Booth et al 2010. According to this analysis, women had more family practitioner visits than men across all age groups in all LHINs in Ontario, although

the gap decreased with increasing age. The mean number of family practitioner visits per year recorded in the ODD for men and women with diabetes increased with age for both women and men, ranging from 6.8 visits for women and 4.9 visits for men aged 20-44 to 9.8 visits for women and 8.8 visits for men aged 75 and older (Booth et al., 2010). The pattern of access in the SW-LHIN was consistent with that for the rest of Ontario. The assessment by Booth et al. (2010) and similar assessments in European Union affiliated countries (EC, 2011) have led authors to speculate that infrequent use of and late presentation to health services leads to higher levels of potentially preventable health problems among men and increases rates of hospitalization. No assessment of the relationship of the configuration of care arrangements (access to a family doctor or nurse practitioner, type of affiliations of service provider (CHC, solo practitioner, FHT)) is made in the analysis by Booth et al. (2010). This sort of analysis could help to inform gender specific strategies in fostering improved health outcomes for citizens.

4.4.3 Accountability in Diabetes Health Services Delivery

To meet the ODS objective of aligning care with Canadian Diabetes Clinical guidelines, the Ontario Ministry of Health and Longterm Care (MOHLTC) undertook the development of a provincial electronic diabetes registry to facilitate the use of technology in tracking and coordinating patient care. This involves the tracking of frequency of health care encounters and the monitoring of specific clinical targets based on these national guidelines as outlined in Table 4.4 below.

Table 4.4

Ontario Diabetes Strategy clinical targets monitored by diabetes programs

Clinical Targets	Description	Monitoring Frequency
HbA1C	A blood test that measures blood sugar control	6 months
LDL-C	A blood test that monitors levels of “bad” cholesterol	Annual
Retinal Exam	A non-invasive way to examine your cardiovascular health, this test needs to be done at least every year.	Annual

Source: MOHLTC, 2012

Beyond ensuring that the measurement frequency meets clinical targets in the LHIN, the ODS has the goal that all people with diabetes have access to a primary health care provider on a regular basis. However, at this operational level, there is no collation of patient data with respect to income, ability to access healthy diet, and medical supplies to manage diabetes and meet these clinical targets.

As described in section 4.3.1 above, LHINs are responsible for encouraging public participation by community in decision-making processes used to determine the health service priorities of the region. In 2008, a Priority Action Team (PAT) of the SW-LHIN, conducted a survey of 247 people (131 men and 116 women) living with diabetes to identify barriers to accessing diabetes care resources from a patient perspective (MOHLTC, 2009). Results were not gender stratified. The primary barriers affecting care listed by respondents were the costs associated with a healthy diet, diabetes supplies, and medications. The leading recommendations by respondents in this 2008 survey included cost assistance for diabetes supplies and medications and for healthy food, improved access/wait times for health care

services and lifestyle programs, access to a family doctor, and group education and support programs. The survey did not collect respondent perspectives on specific details on the logistics of access to a healthy diet, diabetes supplies, and programs and services, such as timing and location of programs and services.

The 2012 annual report of the SWLHIN (MOHLTC, 2012) enumerates population profile features (age, gender, chronic disease prevalence, aboriginal/non-aboriginal) and lifestyle behaviours (smoking, physical activity level, body mass index, and self-rated health scores). LHIN facility performance scores, as required by the MOHLTC, were based on hospital admissions rates and durations. Notably, the report did not include a profile of the population and area with respect to in terms of the leading recommendations in the 2009 report: income and costs associated with a healthy diet, and other medical supplies (MOHLTC, 2009). The gap between MOHLTC reporting requirements and features of social determinants of health such as income and food security identified by community members limits the ability of the LHIN to set evidence-based priority actions to improve health in the area.

The prevalence and incidence of diabetes in the case study area makes diabetes an important health concern. Availability of these health services in area communities are contingent on informed and engaged health service providers. Access to diabetes health services in the case study area communities is also affected by transportation and digital infrastructure in the community. MOHLTC priorities of service delivery include access to health care personnel and clinical screening for diabetes related complications in terms of funding allocation and outcome measures tracked. Social determinants of health, such as food security are not tracked among the patient population. Diabetes care priorities expressed most frequently by both men and women with diabetes in a survey of patients conducted by the SWLHIN within the case

study area were money for food and medication. While access to service is an important feature of diabetes care, the constraints faced by patients posed by access to transportation, digital resources, and the costs of food and medication are important in the day to day management of their diabetes.

4.5 Food system characteristics in the case study area

4.5.1 Food production in the case study area

Agriculture is a key economic driver in the case study area. Employment in agriculture, the type of agriculture and the configuration of farm proprietorship play a significant role in the socio-economic profile and livelihood characteristics in the case study area. The role that local agricultural production plays in local food availability is an evolving one. Currently, agricultural production in the area corresponds more closely with fluctuations in supply and demand of commodities at provincial, national, and global scales than those of the local community (OMAFRA, 2012; GBFL, 2009). In the case study area, this trend in farming, parallels trends at the national level (NFU, 2011; Statistics Canada, 2006). From a community perspective, export of agricultural goods brings revenue from external sources into the community. However, it increases the dependence of their local economy on policy decisions made in arenas where the input of local citizens is balanced with a number of other regions and interests.

Corresponding to this trend in agricultural production is a decreasing proprietorship in farming as farm sizes increase. The most striking trend is a concurrent increase in the average age of farmers. As illustrated in Table 4.5 below, the median age of farmers rose from 50 years of age to 52 years of age between 2001 and 2006, with the largest relative increase in the cohort over the age of 55.

Table 4.5

Ontario farm operators by sex and age (2001 and 2006 Census of Agriculture)

	2001		2006		2001 to 2006
	number	% of total	Number	% of total	% change
All province^{1,2}	85,015	100.0	82,410	100.0	-3.1
Under 35	8,980	10.6	7,070	8.6	-21.3
35 to 54	44,150	51.9	40,275	48.9	-8.8
55 and older	31,885	37.5	35,060	42.5	10.0
Median age	50	...	52	...	4.0
Males	62,215	73.2	58,875	71.4	-5.4
Under 35	6,590	7.8	5,140	6.2	-22.0
35 to 54	31,215	36.7	27,780	33.7	-11.0
55 and older	24,410	28.7	25,960	31.5	6.3
Median age	50	...	52	...	4.0
Females	22,805	26.8	23,535	28.6	3.2
Under 35	2,390	2.8	1,935	2.3	-19.0
35 to 54	12,935	15.2	12,500	15.2	-3.4
55 and older	7,475	8.8	9,100	11.0	21.7
Median age	48	...	51	...	6.3

1. Figures may not add to totals due to rounding. Minor differences can be expected in figures appearing in other tables.

2. Farm operators are defined as those persons responsible for the management decisions made in the operation of a census farm or agricultural operation. Up to three farm operators could be reported per farm.

Source: Statistics Canada, 2006

Smithers, et al (2004) interviewed farm families in one sector of the case study area in 2002 to investigate the relationship of these trends in farm proprietorship and demographics on the dynamics of farming and community relations in the area. An emerging pattern of community interactions was an overall *decreased involvement in community-based organization*, contingent on the need for off-farm employment to supplement farm incomes. The gender pattern of community engagement was often that of male family members participating at higher rates in agricultural organizations, particularly commodity groups. Farm women were more frequently involved with non-agricultural organizations such as sports recreation and health, such as the community food programs. Other patterns of community relations include increasing reliance on off-farm employment opportunities to supplement farm income, in particular by women in the household. In these interviews, farmers reported an overall decrease in the traditional forms of interaction between farm and community, such as local marketing of agricultural products or local purchasing of farm supplies and food products for the household.

The aging demographic is salient in several ways. As noted in Section 4.2, diabetes prevalence increases with age, thus, the burden of type 2 diabetes is likely to increase in the area. This is happening concurrently with an increasing demand for off-farm work to support household incomes, and increasing travel time incurred to reach markets and supplies. These shifts negatively affected opportunity for participation in community based organizations and local markets.

4.5.2 Household food access in the case study area

In 2011, 11.9% of Ontario households were food insecure according Canadian Community Health Survey, (Tarasuk et al., 2013b). Tarasuk et al. (2013b) report that, as a whole, rural areas

were less food insecure (10.2%) than urban areas (12.7%). This data, however, did not provide a regional picture of food security at the county level. Determining access to healthy food at the regional level is not discernable by a simple formula. Noting the number of households in an area that are accessing emergency food resources, such as food banks, and area food costs, can be a useful approach to assessing food security constraints in the area (Rideout et al., 2006).

The Nutritious Food Basket (NFB) is a costing tool conducted annually by public health units in Ontario to monitor year-to-year shifts in food costs at grocery stores (MOHP, 2010). The Ontario Public Health Standards Act requires boards of health to monitor food affordability in accordance with the Nutritious Food Basket (NFB) Protocol. In 2009, the NFB protocol underwent an update to correspond to an example of an eating pattern that meets the updated 2007 Canada's Food Guide (Health Canada, 2011) and that reflect the eating behaviours of the Canadian Community Health Survey 2.2 results. Thus there are limitations in interpreting this data as current NFB results cannot be compared to results of NFB conducted prior to 2009. Additionally, the information is not reflective of individual food preferences or food purchasing locations; it is not reflective of the healthiest food-purchasing pattern possible, nor is appropriate for an individual on a special diet. NFB does provide a relative indicator of changes in food costs from year to year and between regions. NFB results for the case study area listed relative to provincial average costs in Table 4.6 below. The average of NFB costs in the case study were consistent with the provincial average for 2010, but increased by 0.6 per cent relative to the increase for the province as a whole in 2011.

Table 4.6

Weekly Cost (\$) of the Nutritious Food Basket for a family of four in case study counties relative to the provincial average for 2010 and 2011

County	2010	2011	% change
All Province	169.17	177.83	4.9
Elgin	170.05	179.00	5.0
Grey/Bruce	166.64	174.73	4.6
Huron	172.12	181.50	5.2
Perth	169.55	182.39	7.1
Case Study Area Average	169.59	179.41	5.5

Source: CCAC, 2012b

The cost of the Nutritious Food Basket does not account for the costs or barriers, such as spatial distribution of grocery outlets, and transportation for food access in a rural community where no public transportation is available. As with access to health services, research on food accessibility in rural areas finds automobile ownership to be a determinant of food security, since the average distance to a grocery store is such that walking is not feasible (Sadler, 2011; Yousefan et al., 2011). In rural areas without grocery stores, low-mobility residents may be limited to smaller variety stores. These stores stock fewer nutritious food options.

Food banks in Ontario provide food items on an emergency basis to individuals and families facing food access constraints. Banks usually provide a one to three day supply of food, once a month to once every three months, per individual or family. Identification for each family member and proof of income and/or residency may be required. In the case study area, a LHIN sponsored database lists emergency food options (CCAC, 2012a). According to the

database, there are currently 29 formal food banks operating in the case study area communities. In rural communities food bank use is on the rise (OAFS, 2012). In 2012, there was a particularly sharp increase in the number of people accessing food banks. In rural areas, this increase was attributed, at least in part, to a late frost coupled with a harsh dry summer that ruined farm crops resulting in negative consequences for household incomes in the area (OAFS, 2012). Unique to Perth County, a community food centre is under development. Although not in the area of the county defined as rural for this study, it provides a coordinating function in the distribution of local food to rural community food banks.

Initiatives to link food availability, including emergency food supports, closer to the community food supply have been undertaken in all counties in the case study area. Details of these community food initiatives are in section 4.5.3 that follows.

4.5.3 Local food resources

Participants from all counties in the study area are working at developing and/or promoting local food charters that developed within the last two years with a focus on local policies that support and encourage local agriculture. A food charter is a declaration defining a common approach or a strategic direction for a food system (Joughin, 2008). It identifies rights of all residents of a region to adequate amounts of affordable, safe, nutritious, culturally-acceptable food and fosters environmental stewardship and sustainability and is therefore a tool for social justice. In Elgin County, Public Health personnel played a lead role (Smith, 2011). In the Huron, Perth Grey and Bruce counties, the role of public health in the development of the charter was through collaboration with community-based organizations, *Huron Perth Farm to Table* (HPFTT, 2012) and *Foodlink Grey Bruce* (FLGB, 2012). In addition to the Public

Health Unit the membership of these organizations include County departments of tourism and economic development and local commodity groups and the Ontario Federation of Agriculture.

In Ontario, locally coordinated food programs information inventory update and maintenance is the responsibility of Public Health Units at the county level. Public health units also maintain a database of “buy local buy fresh” outlets and provide a website-based opportunity to disseminate information about local food initiatives such as community kitchens and community gardens on publically available county sponsored websites (EHU, 2012; HPFTT, 2012; GBFL, 2012). These registries provide a description of distribution and accessibility at the level of each county but do not provide data on utilization. Public Health Units are also collaborators in local food initiatives. At the LHIN level, an up to date data base of local Food Banks Meals on Wheels and Congregate dining programs and are publically available on the service listing website maintained by the LHIN organization (CCAC, 2012).

A listing of meal delivery services and congregate dining opportunities in the case study area is listed on the Community Care Access (CCAC) website. A summary of locally coordinated food programs is in Table 4.7 below.

Table 4.7

Locally coordinated food programs available in the case study area (by county) identified through document review

Program	#Sites	Description
Food Banks	29	Provide food items on an emergency basis to individuals and families in need staffed by <i>volunteers</i> . Usually provide a one to three day supply of food, once a month to once every three months, per individual or family. Identification for each family member and proof of income and/or residency may be required (CCAC, 2012).
Meals on Wheels	21	<i>Volunteer</i> drivers deliver low cost hot or frozen meals to homes prepared in local health care facilities. Available to seniors and disabled persons (CCAC, 2012).
Community Congregate Dining	24	Low cost meals served by <i>volunteers</i> at community seniors centres prepared by local health care facilities and on-site at the facility (CCAC, 2012).
Good Food Box	29	A <i>volunteer</i> driven program that provides a monthly box of vegetables and fruit at a set cost. Community host sites act as order and pick-up locations, while food is packed and distributed from a central location. Also referred to as Garden Food Box. (HPFTT, 2012, GBFL, 2012)
Community Food Advisors	Available to all area communities	<i>Volunteers</i> who work with health unit staff and community partners to promote awareness and skills related to healthy eating and food safety to consumers (CFA, 2010)
Collective Kitchens	n/a	Community-based cooking programs in which small groups of people cook large quantities of food. Typically, offers the opportunity to build food skills, prepare low-cost meals, preserve foods, and/or increase social-connectedness. Also referred to in Public Health Programs as Community Kitchens. (HPFTT, 2012)
Community Gardens	n/a	Parcels of land divided into small plots for local residents/program participants to grow their own vegetables, fruit, herbs and flowers. Property may be owned by the municipality, local businesses or privately. Gardeners often share common space, tools, fertilizer and water source. (HPFTT, 2012)
Local Food Maps	104	Map identifying sources locally grown and produced food where consumers can purchase direct from producers. Includes farmers markets, buy direct from the farm, or the listed retail outlets. (OMAFRA, 2012). Maps are widely distributed to public.

* Does not include sites in the “urban” centres in these counties – Stratford, Owen Sound and St Thomas

At this time, there is no specific connection for any of these programs with diabetes for programming and resources. There is no representation from diabetes-related organizations on

the committees or initiatives. Local food initiatives supported by Public Health include *Local Food Maps*, *Community Food Advisors (CFA's)*, and *Good Food Box Programs*.

Local Food Maps identifying local food retailers have been in production in the area since 2007. The number of participating vendors has doubled since the inception of the maps. They identify member farm and retail outlets that sell locally produced foods. Grey/Bruce produces an online only resource (GBFL, 2012), Elgin County produces a print resource (ECHU, 2012), and Huron/Perth supports both print and online formats (HPFTT, 2012). Fruits and vegetables make up the largest proportion of vendor types (87%) listed on the local food maps. A poll conducted by the Grey Bruce Health Unit of customers, vendors, and market managers in a 2009 survey of 11 Farmer's markets listed in the Grey Bruce resource identified community members connections with the markets (Hammel, 2010). Seventy per cent of customers identified the quality of the food as a primary reason why they frequent food markets, with 30% adding that it is a social event in their community. Ninety percent stated that shopping at the market was important to them, with most identifying support for local farmers and community as the number one reason, with food quality as the second priority.

Another area initiative focused on access to local foods is the Good Food Box program. The Good Food Box (GFB) program launched in 1994 in Ontario, as an initiative of *FoodShare* in Toronto, and has since grown to more than 30 programs throughout the province. The program is a not-for-profit fresh fruit and vegetable distribution system whose goals are to improve low income people's access to affordable food, promote healthy eating, support local farmers, encourage sustainable agriculture, and promote community development (Scharf and Morgan, 1997). The program operates like a large buying club with centralized purchasing of fruits and vegetables and coordination of packing and delivery. Fruits and vegetables purchase

is direct from farmers or from the Ontario Food Terminal. Volunteers pack the produce and deliver it to local sites for customer pick-up. Customers order and pay for their box in advance. In the case study area, the program operates in communities in Huron, Grey and Bruce counties with the support of Public Health unit staff and resources. In Grey Bruce, the program began in 1996 with two sites and, by 2012 had since grown to 17 sites throughout the two counties, delivering approximately 1100 (550 per county) boxes monthly. The program in Huron County has been in operation since 2000. The program, in 2012 delivered 225 to 400 boxes per month on average out of 11 distribution sites. Each month 25 to 30 volunteers per county are involved with packing and distributing the boxes. Local food is a priority for the Huron program and the box is entirely from county producers in the summer and autumn months. Typical items include potatoes, onions, and apples selected because they are familiar grocery items for area residents.

Community Food Advisors (CFAs) are a group of volunteers who work with public health unit staff and community partners to promote awareness of food safety and enhancement of skills related to healthy eating, including preparation of locally available foods such as those distributed in Good Food Boxes. The program was launched in Ontario in 1992, and Huron County was one of the first public health units to participate in the program (OPHA, 2010). The activities of the volunteers may include demonstrations for service clubs (e.g. Women's Institute), and facilitation of Community Kitchens events. In two of the communities, the CFAs conduct cooking demonstrations coinciding with the delivery and ingredients available in Good Food Boxes. The Community Food Advisor Program was developed by the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) and co-funded by the Ontario Ministry of Health. In 2001, the Community Food Advisor program was transferred to the Nutrition Resource Centre at the Ontario Public Health Association. CFA programs are currently in place

in all counties in the case study area, maintaining approximately 20 to 25 volunteers active in the program per county. CFA training and recruitment at the county level is coordinated by Public Health Unit staff. The training programs consistently draw more applicants than there are available traineeships. The typical CFA has some knowledge and skills in food handling when applying to the program. Once selected, they complete a 40-hour peer-training program. Attendance at monthly meetings, educational updates and completion of placements forms the basis for annual recertification. CFA training includes safe food handling and storage and nutritious food selection and preparation. Since its inception, the program received administrative support provincially from the Nutrition Resource Centre, a provincial office staffed by one personnel with training in nutrition and health. In March of 2012, the province discontinued funding for Nutrition Resource Centre, leaving the CFA program currently without a centrally coordinated resource base and uncertainty as to the future support the community based programming delivered by these volunteers.

Meals on Wheels and Congregate Dining Opportunities for Seniors are volunteer-supported community food programs providing hot meals to seniors and low-mobility individuals in the community at a cost subsidized by fundraising efforts (CCAC, 2012). The programs are designed to facilitate an opportunity for social interaction as well as a nutritious meal. For the majority of programs in the case study area, food for these programs is prepared in the kitchen of long-term care facilities in the case study area. One Congregate dining program in the case study area had staff hired to oversee food procurement and preparation. The focus of this program is on local food procurement, menus responsive to foods in season and the opportunity to accept food donations from local gardens.

For public sector health institutions in the case study area, hospitals and long term care

facilities food procurement was not interlinked with local food initiatives. Public sector or institutional food and beverage purchasing in Ontario in 2008, was tallied to be \$1.8 billion on food and beverages leading to the conclusion that the broader public sector has the potential to substantially invest in and help sustain agriculture in Ontario (Carter-Whitney, 2009). In the case study area, a 2010 commissioned by Food Link Grey-Bruce indicate that Grey and Bruce counties indicate 11 hospitals and 14 long term care facilities in those counties spend approximately \$3 million total (an average of \$120,000 per facility) on food annually (Hamelin, 2012). Key challenges identified in the report in sourcing local products for food service for local health care institutions include finding local suppliers that can meet the institution's requirements in terms of volume, consistency, ease of ordering and delivery, and product types. The lack of processing for locally produced foods is a particular challenge. This local processing capacity continues to decline in the area, attributed largely to provincial policies around food inspection (Carter-Whitney, 2009). The management structure of food services is also a barrier to local food procurement. Currently, the operation and management of food services across all 18 hospitals in the case study area is outsourced to private food service companies as a response to budget constraints. Food served to patients “from scratch” or “on-site” food preparation has been replaced by “thermo”, flash-frozen food prepared off-site and often transported from urban centres. This food requires only on-site re-heating before serving. This transition has taken place since 2003 (DE5, RC15). The rationale for the change includes the cost per unit, food safety, and specificity of nutrients required for the vulnerable population served. The result for the community at large is little accountability or responsiveness to local stakeholders, including local food suppliers. In addition to a lack of responsiveness to local stakeholders, the consequences have been reduced (unionized) employment opportunities in

small communities. On the other hand, the institutions now lack the infrastructure and human resources to work with less processed and potentially more variable and seasonal local products. “Overall, there is a disconnect between the institutions, the broader community and the local food and agricultural sector” (Hamelin, 2012, p.4). Many of the long-term care facilities in 37 communities in the area maintain more extensive food preparation staff and facilities. Given the number of sites, collectively, institutional food purchasing in the case study area represents a substantial food budget. The other observations with respect to food procurement for health facilities is that these small and medium sized facilities are distributed throughout a number of communities in the case study area.

All of the program delivery that supports non-institutional food availability in the case study are dependent upon volunteers for their operation; these include Meals on Wheels, Congregate Dining, Good Food Box, Food Banks and Community Food Advisors. This volunteer work occurs within the context of shifting farm-community relations in the case study area, including an aging demographic and increased economic pressure for women to participate in the workforce off-farm. Women constitute the majority of volunteers involved in these programs (RC13). Until the 2012 CFA training in the area, all program volunteer participants were women (RC2, RC4). Just one of the 22 program applicants in 2012 was male. The reasons for volunteering are undoubtedly rooted in the satisfaction of contributing to community. The predominance of women in these roles is a reflection of the deeply ingrained affiliations of women and food work in the community. Regardless of whether food programs functionally change the root causes of limited food access in communities, sharing food and food skills has an appreciable capacity to mobilize volunteers.

4.6 Summary

There is an increase in the rate of prevalence of diabetes in the case study area. The prevalence of diabetes in the SW LHIN region increased from a rate of 7.2 per 100 adults over the age of 20 in 2004 to a rate of 8.8 in 2011. Although it is not at the pace of the increase seen internationally and provincially, it is still quite high and the situation is exacerbated by challenges associated with rurality. The (growing) burden of care for diabetes concomitant with this increase has significant implications for the health care system and for the non-paid care work resourced within households. The burden of disease is higher in men than in women. The work associated with health care responsibilities, however, are more often higher for women than men. The particular features of the case study environment that exacerbate this growing burden of care include lack of robust transportation and e-infrastructure, an aging demographic with concomitant increased household dependency ratio, and barriers to accessing to affordable healthy foods. These burdens fall most heavily on women, which suggests that effective strategies will need to be gender-specific.

Governments have taken some steps to address these health trends. Diabetes care programming in Ontario is evolving under the mandate of the Ontario Diabetes Strategy. Key goals are access to routine monitoring of clinical indicators and education, “getting people off the waiting list”, and enrolled in a care environment. This implementation in Ontario has been accompanied by increased diabetes-linked funding to a number of sites to increase access to education about disease management for people with diabetes. The health care system in the case study area as it relates to diabetes is experiencing rapid change (dynamics) and multiple modalities providing overlapping services.

The enhancement of diabetes-related services should take into account the food system dynamics in which diabetes occur. For example, access to healthy food is important in both the prevention and management of type 2 diabetes. Ontario Ministry of Agriculture and Food and Rural Affairs data indicate that food production in the case study area counties at the time of the research was primarily directed outside the area for non-local distribution. In response to budget constraints, health care facilities in the area have shifted away from local food sourcing and preparation. These patterns of local food production and procurement are not supportive of availability of locally grown foods for local markets.

Citizen-led initiatives in all counties in the study area were in the process of developing and/or promoting local food charters with a focus on local policies that support and encourage local agriculture with a goal of improving citizen access to healthy food. Specific initiatives undertaken include Local Food Maps, Good Food Boxes, and Community Food Advisors. The ongoing success of these initiatives was contingent on the work of community volunteers. The sector of the health system with the clearest mandate to support the development and implementation of these community level initiatives was Public Health. Funding for health system enhancements in Ontario concurrent with the implementation of LHINs however were directed primarily at individualized patient care largely ignoring the importance of food systems in the prevention and management of type 2 diabetes.

CHAPTER FIVE: Roots: An examination of promotion of local sustainable food by rural diabetes educators in the case study area.

5.1 Introduction

The purpose of this chapter is to examine patterns of concurrence and divergence in the participant responses and observations, as they relate to the thesis questions: the potential for re-conceptualizing the role of diabetes nutrition educators to include the promotion of local sustainable food systems; and the implications of gender and rurality therein. As such, this chapter presents primary information about patient access to the nutritional resources in the case study area including health services and local sustainable food. These are from findings from the participant interviews and questionnaires and my ‘in situ’ observations.

The interviews and surveys guided an examination of complementarities of local sustainable food system initiatives with diabetes health care services in the case study area. The details of the data collected provided in this chapter include interviewees work-related experience and training, information about the health care encounters framed by the Ontario Diabetes Strategy relating to food and nutrition and health services organization, and relationships with community food systems in the area. Identifying the opportunities for and barriers to complementary, trans-disciplinary initiatives connecting food and health systems in the case study area was the underpinning objective in the design. As such, in this presentation of findings, there is specific attention to the rural setting and to gender, identified in the Chapter 2 as potentially key features. The chapter that follows (Chapter 6), provides an analysis of the findings described in this chapter together with those presented in Chapter 4.

5.2 Priorities and implementation of diabetes education and care guidelines at national, regional, community and individual scales

To obtain information about the priorities relating to food and nutrition, each interview with diabetes educators began with asking respondents to describe the specifics of the delivery of diabetes education in their rural setting. In the interviews with regional and national coordinator respondents, participants were asked to first provide an overview of diabetes health services delivery from their perspective. All respondents in both groups fully related the details of the resources used and the services implemented. Along with these details, respondents in all categories also provided valuable insight on the roles and nature of the relationships that exist within and among and within health care organizations engaged in the implementation of the Ontario Diabetes Strategy. All of the interview respondents (n=34), from all categories (NC, RC, DE) included observations about these changes in the introductory section of the semi-structured interview (Appendix A). The types of observations ranged from individual patient-provider interactions, inter-professional interactions to relationships among community health services organizations and regional and national organizations. This category, *Health services (HS)* made up the most substantive portion of the interview. This is not surprising; given all respondents were health care workers. A total of 471 quotations coded to 10 different subthemes. A summary of the subthemes related to this category is provided in Table 5.1 below. Some quotations may refer to more than one subtheme, thus the total may not be equal to the sum of the quotations. Descriptions and quotations relating to each of the themes follows.

Table 5.1

Health services (sub) themes relating to diabetes education and care guidelines at national, regional, community scales

Scale/SubTheme	Number of Respondents	Number of Quotations
Health Services Organization: <i>Overlapping mandates (inter-organization)</i>	NC-4 RC-13 DE-17	8 44 77 (159 total)
<i>Collaborative care teams (intra-organization)</i>	NC-3 RC-6 DE-17	6 12 26 (44 total)
<i>Outcome measurements (content and format)</i>	NC-1 RC-11 DE-15	11 62 59 (132 total)
<i>Patient Access (to health services)</i>	NC-2 RC-12 DE-12	3 27 17 (47 total)
<i>Social Networks of Support (for patients)</i>	NC-2 RC-5 DE-17	4 10 33 (47 total)
Health Services Roles: <i>Diabetes educator training</i>	RC-1 DE-5	5 6 (11 total)
<i>Role Diversity (format/location)</i>	DE-17	22
<i>Sense of Community</i>	DE-12	30
<i>Education materials</i>	NC-1 RC-1 DE-2	1 1 4 (6 total)

Overlapping Mandates

As outlined in Table 4.2, multiple organizations and services have received funding allocated for diabetes prevention and management. Not surprisingly a sub-theme of *overlapping mandates (inter-organization)* emerged from the comments of all interviewees (n=34) from all categories (159 quotations). These included overlapping jurisdiction and mandates, and tensions, between public health and diabetes education programs, between Community Health Centres, Family Health Teams and Diabetes Education Centres, and between diabetes care teams and volunteer initiatives. These overlapping mandates create confusion for everyone from the patient to the administrative level and thus reduce the effective use of finite resources for diabetes care, including nutrition education.

So it's kind of been madly off in all directions. [...]. So diabetes DECS have had nothing to do with the ODS for example. And that has been an ongoing nightmare I think, the bureaucracies; they just don't have a handle on what's happening out there. Each program is funded under a different mandate [...] within the ministry there has been continual turnover at the leadership level of program directors (N4).

You have community health centres and family health teams all getting paid differently. Some have reporting, some don't, some work for different Ministries (RC 10).

There doesn't seem to be a good communication between diabetes education and public health... There is no specific system of communication in place is what I am saying (RC4).

The average individual living with diabetes, there is no way they could understand all of the opportunities out there, all the different resources and programs unless they have someone with that kind of ability to help them navigate through. I do see an opportunity there (RC8).

An additional challenge identified by 27 (80%) of interviewees in the setting program priorities and delivery relates to difficulties associating with health intervention *outcome measurement* (NC4, RC1, RC5, RC6, RC7, RC8, RC9, RC10, RC11, RC12, RC13, DE1, DE2, DE4, DE5, DE6, DE7, DE9, DE10, DE11, DE12, DE13, DE14, DE15, DE16, DE7; 122 quotations): The primary outcome measurement, as identified as the Ministry of Long Term

Care focus in section 4.2 is how many and how often clients access the system. This narrow focus of the reporting requirements does not contribute to informing meaningful improvements in program delivery and clarification of provider mandates.

I think the health team they have a paid job, they have to meet certain goal. The more people they get into the office, the better their numbers are. Eventually, the money will run out. Hopefully the volunteers will still be there [when it does] (RC12).

How are outcomes measured? What is the surveillance of the delivery of diabetes and who is don't it? That would help me a lot. Its not easy to information at all, it is really frustrating (R9).

So right now diabetes education is measured by the number of warm bodies going through the door. There's no quality of care measures included, whether its quality of education, or quality of messaging, or quality of outcomes. And that is a huge gap [] you've got some really good leadership and really good educators who have a lot of experience and insight, but if they're not given the opportunity or power to be able to use that because of the rigidity of the structure and funding in measurement requirements, it's a wasted resource. It's a wasted opportunity (N4).

Specific enhancements recommended by seven (41%) of the 17 regional and national level interviewees were the implementation reporting formats that capture some of the breadth of experience in local program initiatives undertaken by (rural) service providers (N4, RC10, RC7, R8, RC13, R4, R3; 19 quotations). Collation of data from both volunteer and health professional experiences of care would contribute to a more nuanced profile on which to base future program developments. For example, in addition to “people seen”, other data already collected in communities, such as food access data, could be complementary to the ODS data collated from clinical encounters.

The fact that we've [Public Health] have been collecting the nutritious food basket data since 1998 and nothing has changed in terms of the money for people living on social assistance or low income to afford a healthy diet. Like its not improved (R7).

In all the ministries – ministry of health, ministry of social service our reporting has doubled [since LHIN implementation] –volunteer hours, members, number of people - and I don't know what they do with them [the numbers] (R13).

For the outcome measurements reported to the region and province to be meaningful in program delivery and effectiveness, they need to be accessible by communities and relevant to the care team.

Collaborative Care Teams

Within care settings, there are changes in the nature of diabetes education concurrent with the implementation of the Ontario Diabetes Strategy. Patient-centred collaborative care models, Community Health Centres and Family Health Teams have been the focus of the restructuring. Interviewees report that these dynamics have implications for: Patient-provider relationships, and inter-professional relationships within teams. In turn, these relationships have implications for patient access to diabetes education. The coordination of services, *collaboration* among providers, was a topic raised by all diabetes educator interviewees (n=17) and nine of the 13 regional and national coordinators (N1, N2, N3, N4, R13, R10, R9, R8, R5, R6, R2)

Twenty-six interviewees (78%) concurred that the interdisciplinary team environment, as highlighted in the following quotation, facilitates stronger patient-provider relationships and improved *patient access* to care:

Here I have learned that I have to save the relationship, because they are coming back to see their nurse practitioner or family doctor. If we get off on the wrong foot and I come across as this is the way you have to do it when you have diabetes, you have to do this, you have to do that, they aren't going to feel comfortable to come back, and how are we going to provide the surveillance that they need if they are afraid to come in and talk to me (DE6).

All of the 17 diabetes educators also were of the opinion that access to team members from a variety of disciplines facilitated a holistic approach to health services delivery as articulated in the following quotation:

I'm glad we've got a great team. Some of those I've had to debrief with a colleague just for

my sake [...] Some adults with their chronic disease – multiple holistic care – social work – that’s what I love about the team (DE11).

Although all agreed that the new models of care improved relations of care, two of the 17 diabetes educators noted challenges with those models (DE1, DE6; 5 quotations). The number of different people on their care team has the potential of leaving the patient feeling overwhelmed, as indicated in the following quotation:

A story that a client said at one point to me when she was fairly newly diagnosed with diabetes and she said you know if I have to learn everything about diabetes and I have to see the nurse and I have to see the dietitian, now I have to see my family doctor, and now I have to see the endocrinologist and now I have to see the podiatrist, you know how many people does it take to manage diabetes, because I am only one person (DE6).

In view of all the complex health management and task that the patient is confronted with in the clinical setting, one educator speculated that, adding additional program objectives, such as promotion of local food, may be a challenge.

I think when it comes to diabetes education there’s so many things that you can kind of delve into in an appointment that rarely do you get everything across that maybe needs to get across (DE1).

Managing the communication of patient information among team members in a meaningful way was also a concern with respect to *collaboration (intra-organization)* and for reporting in response to regional and provincial requirements (*inter-organization*) reported by 27 of the 34 interviewees (N4, DE1, DE2, DE4, DE5, DE6, DE7, DE9, DE10, DE11, DE12, DE13, DE14, DE15, DE16, DE17, RC1, RC5, RC6, RC7, RC8, RC9, RC10, RC11, RC12, RC13; 122 quotations). For example, electronic medical records (EMR), to track patient information for people with diabetes is in place and/or in process for all sites in the case study area. Each organization contacted is using different software information systems for collating data and has different reporting requirements:

I do an online assessment ... it is specific to this hospital – the other ones all use another system. Everybody uses a different one (DE6).

For electronic medical records (EMR) implementation to date, there is transference of the culture of paper charting to electronic charting. Food access constraints faced by the patient, such as financial constraints or physical barriers to food access are recorded by diabetes educators, but there is no standardized format for relating this information to others in the care team and it is not required data for ministry of health requirements. Patient information related to their food intake is reported in sentence format in categories such as “social history” and “physical activity”. Conversely, there are specific categorizations and coding for patients’ metabolic data such as blood sugar levels, body weight and HBA1C and prescribed medication. Challenges presented by the lack of searchable, reportable format for food access constraints noted by two (12%) of the diabetes educators (DE1, DE6, 4quotations) as exemplified in the following quotation:

But the form itself when it prints it is 4 pages and I feel like when I was an intern you see people hardly read your notes, the longer they are, the less likely anyone is even going to pay attention to them. And feel like we do have a lot to bring to the table so then part of what I’m trying to do right now is improve that charting process and make it a lot more efficient not only for time entering it onto the computer but also just in terms of making it so someone’s going to read it (DE1).

For the three regional coordinators interviewed (23%), for whom program development was a key responsibility of their position, the concern at the was communicating content that would be meaningful, of utility and valued among health care professionals (RC5, RC8, RC10; 7 quotations). As an example, in the development and implementation process for data collection tools, other health team members did not prioritize food information.

We’ve gone to electronic documentation in the last couple of months. What would a physician want to know? Would a physician even care to know anything about the food

for someone who has diabetes. To this point nothing. When they look at our reports and ask for feedback, it's not even content as much as format that has them worried at this point –(RC5).

The format for EMR can be improved for efficiency of data entry, and for sharing of relevant information among health care team members and for collation of data for program planning initiatives. As outlined above, the inconsistencies in reporting formats across organizations, the lack of strategies for capturing patient information in a utilitarian format within systems, and the limited value placed on food-related data by other members of the health care team presents a challenge to realizing those opportunities.

Patient access

In addition to communication barriers, the fieldwork uncovered challenges associated with ensuring patient access to necessary information and care. The delivery of health services within a collaborative care teams, as indicated above, can foster access to holistic, quality care. *Patient access* to health services is also affected by physical, temporal and digital access to health services resources. Twenty-six (76%) of interview participants noted examples of these aspects of *patient access* (NC2, NC4, RC2, RC3, RC4, RC5, RC6, RC7, RC8, RC9, RC10, RC11, RC12, RC13, DE1, DE4, DE5, DE6, DE7, DE9, DE10, DE11, DE12, DE15, DE 16, DE17; 47 quotations). These referred to a range of education formats including; home visits, group and individual encounters, and community outreach activities. Engaging patients in a variety of settings was described as important to facilitating patient self-management:

Sometimes it's more helpful, especially for a senior, to go to their place. I say to my clients "this is your space right now" it's me getting to know you and how I can help you best – (DE11).

We've been doing that for close to a year now. We have two group sessions a month. We were concerned that people would be worried about the privacy. But that hasn't been a

concern at all. In every group session that we've had there are at least 2 people that know each other and/or are related... We always give people the option if they want to come or not. If they have been to a group medical appointment they have a choice about whether they want an individual or group appointment the next time (DE4).

Patients always ask you things, you know what do you do, what do you like to eat?... and Ill say well, Ill meet you at the market at 8 o'clock. If you want to we can do a little tour. And then the other thing that I do a lot of, are grocery store tours. Most stores are very open to allow that to happen (DE17).

From these perspectives expressed by the educators, the diversity of setting and method of delivery make the diabetes education more accessible to the patient in the case study locale. In the experience of the educators, despite the small size of communities in the rural case study area, this does not compromise the privacy of patients. Four interviewees (12%) noted that there is an increase in interest in digital access for patient

support and education (N3, N1, R10, DE11) as exemplified in the following quotation:

People are interested in developing somewhat of an online community where people would register let's say at the CDA website, create a profile, and have tools tailored towards them and maybe to make it somewhat of a virtual support group (N3).

Access to computer is more limited in rural area, we understand that. The downloading [in rural areas] is so much slower so it gets frustrating (N1).

No interview respondent had a clear picture of the overall access to electronic resources in their practice. The perception described was that the majority of clientele are not using digital resources (DE4, DE5, DE12, DE17).

Maybe 25% would use electronic resources. Not a high proportion. It always seems like the people you wouldn't expect to be using electronic resources are the ones that do. You can't make assumptions (DE4).

Most patients in this rural service area continue to rely on accessing print resources and education received in person-to-person encounters in the health care setting. An element of the workplace identified in the rural case study area that does not enhance *patient access* is the scheduled hours of service for diabetes education sites (temporal access to education).

For all sites, diabetes education service was offered within traditional Monday to Friday 8am to 5pm hours with some occasional service outside of these hours for some aspects of community outreach. One diabetes educator (DE1) expressed concern for the potential constraints on patient access posed by the lack of diversity of hours of service in these rural locales, but does not relate it as a tenable strategy. Two interviewees involved with diabetes nutrition education at the regional level (RC4, RC5), as opposed to those working at community sites, proposed hours of service as a potential strategy to improve patient accessibility.

[A] lot of people are driving like 45 minutes to an hour to their workplace so then how do they get to these appointments without taking a vacation day or something like that and so we were looking at something like night hours so that maybe some people who cant be captured otherwise can then get in. It's a mixed feeling. Because on the one hand I know its needed and I know its probably a great thing for the patients, but then you have to look at it from the flip side of personal and staff turnover and satisfaction, all that sort of thing too, because you don't want to be working every night of the week, right? That's not kind of why I got into this. I wanted kind of reasonable hours so that you can still have family time and that sort of thing (DE1).

So that's where I think we've got to look at instead of setting up services for our health care providers, we've got to set up services for our clients. So that definitely means different hours of being open, and that means Saturday [...] Because you know someone who is on a fixed wage they're not going to take their time off(RC4).

Setting, timing and format of education material all affect patient access. In the case study area, print materials continue to make up the primary education resources, although more and more resources in development are in digital format. Health service encounters outside of the office setting and standard office hours improves patient access to care.

Social Networks of Support

In addition to the encounters in the health care setting described above, I wished to investigate community interrelationships in the food-related experiences of people with diabetes. I used

“participation in a diabetes (peer) support group” as a criterion to identify patients in the case study area actively engaged in their diabetes management. A key finding in the process of implementing the survey, as noted in Section 3.5, was the paucity of diabetes support groups ongoing in the case study area rural communities. The responses to the question posed to diabetes educators for the purpose of recruiting survey participants, **“Is there a diabetes support group for people with diabetes in this area that you have helped to initiate or currently help to sustain?”**, yielded a total of only two support groups in the case study area. Although not specifically stated in the interview question, clarification questions from the participants revealed that they understood that my interest was in “peer” support groups sustained primarily through the efforts of the group membership, with support from health care professionals being only indirect. The role of support groups was noted by all 17 diabetes educators and by seven (41%) of the regional and national coordinators (NC1, NC3, RC13, RC12, RC11, RC10, RC8; 47 quotations). The primary role for these support group interactions is social and capacity building, the role in education and skill building is secondary. The capacity includes coping with disease management in general as well as food issues.

I think the group gets as much benefit from the social interactions as they do from what the speaker has to say. Knowing that there is someone in the same situation (DE4).

It really became social – people that didn’t know each other, they were having a great time. They walked and talked. We didn’t plan it to be a social group but it did (DE5).

People reach out for help with regards to their health care program to those that they trust and that may be a neighbour that happens to be in healthcare or a neighbour that happens to live with diabetes, so we cant forget that piece as well (RC8).

Food issues don’t really come from us primarily, but from each other as neighbours out in the community and they talk about things like that (DE7).

There was consensus among all 24 of these interviewees that this social and capacity building role that occurred as in the informal interactions among the support group participants was a

valuable one. However, one educator noted the challenge of *measurable outcomes*, linking this capacity to individual behaviour changes was a concern:

We did the evaluations, oh this was great, the venue was good and the speaker was good but what was the take home message here. Like, what are you going to do differently now that you have heard this presentation... How will you be healthier for that? I wrestle with that. – (DE7).

The perception is that not having tangible, clinical and/or health behaviour outcome indices from these less formal encounters made them more difficult to justify as linked to the role of diabetes nutrition education. From the perspective of the interviewees, the factors contributing to the decline of support groups fell into one of three categories; population base (rurality), decline in centralized support, and competing demands for time. Consideration of population base is in terms of total population and constituency, illustrated by the following quotations:

When you have a larger group to draw from, its a little bit easier to keep it going, but when the population is small and you only need 2 or 3 people to say “Oh gee, I really can’t do it” for it to fall apart (N1).

When I first came to town, I realized that the Lioness Group had monthly diabetes support things... it was always all women and that went for a while. That was bringing speakers in, trying to bring the community out for just general education, just general information sessions, but that has kind of died down too (DE6).

In a rural area, the total number of people as potential group participants is less than in a more densely populated urban area. The gender composition of support groups historically has been predominately women. The following quotations refer to the many responsibilities and competing demands on time people, and women in particular, currently face:

And I just feel like what I said people are commuting so far and then I think the time they get home and then they do kind of family things like your nights gone kind of (DE1).

In some ways its time, its basically time. People are too busy, they’re just too busy. And

diabetes isn't the top of the list (DE3).

So if you think about why folks are not accessing service, if you're dealing with a population of double income households, the pressure is on the female, whether looking after parent and children and a career. Who has time to manage their own health? (R8).

Competing demands on time pose as well as access to centralized resources and support pose a challenge for group leadership:

What they are completely wanting is a professional-led support group and I am like, no I am sorry, unfortunately we are not able to. With our current resources we cannot do this at this point in time (DE 16).

Diabetes support groups were around ... but my understanding is that they were lead by what was called very dedicated volunteers, that volunteer who just felt like this was their home and their permanent job and was passionate about it and unfortunately, that breed of volunteer is slowly diminishing, they're far and few between and because we're so busy, the ones that we do have it becomes harder and harder to keep them engaged (RC10).

The other thing that has changed is the actual onus at the administration of the support groups have changed, where it used to be lead by CDA and then it was onus on the diabetes educations teams, it was part of the reporting process, it was influenced and driven by the Ministry, and then it was taken out, get your volunteer and take it out into the community and have them deliver. So perhaps there's, I don't know who's responsibility it is you know. And again, on the flip side it all comes down to numbers and reporting and funding, and its not part of that criteria, then there isn't a drive to do it (RC 10).

According to these quotations, the mandate for health services organizations to provide leadership and centralized support to community-based networks of support as intrinsic to the role of health services delivery in the case study area is unclear. Holding group sessions for patient education and community outreach for diabetes awareness are part of the job description of all 17 of the diabetes educators interviewed. The focus for the activities developed and provided by the diabetes educators is on *education* and *awareness* about diabetes and healthy lifestyles activities, with particular attention to food as described in Section 5.4 later in this chapter. These events took place at health care centres and at community recreation centres, schools and workplaces. The activities described included,

information sessions (health fairs), walking groups, healthy cooking demonstrations, school presentations. The volunteer driven group format for sharing information and social support is not as common in the case study area as it was prior to the ODS implementation. Bringing people together in groups in the clinic environment is now, however, a more common educational format.

Role Diversity

All educators interviewed were responsible for a diverse set of health service in their role, and, in some cases, health service sites. For 15 of the 17 educators (88%), diabetes nutrition education constitutes only a part of their professional role in the community, with the balance of their responsibilities devoted to other health care tasks unrelated to diabetes. With respect to diabetes, in addition to the various education formats described above in relation to *patient access*, individual education, group education and community outreach, all educators (n=17) had reporting responsibilities. All participants had an office space in a clinical setting in the community as their main base of service delivery. Five of the diabetes educator interviewees (30%) were responsible to more than one community as part of their regular service delivery mandate and, in one case, more than one employer.

All respondents included personal reflections about this diversity in their current role as a health professional working in a rural community in the interview encounter. These accounts were primarily described in the introductory comments and in the final section of the semi-structured interview: **Regardless of whether you could make these changes, what changes could support more effective diabetes nutrition education for men and women in this area?**

All accounts by educators portrayed *role diversity* as a positive attribute of their job. The two main aspects of this *diversity* were that of *patient access*, as noted above. A third aspect, a *sense of community*, was described by eleven (65%) of the diabetes educators (DE1, DE7, DE8, DE11, DE12, DE4, DE5, DE2, DE3, DE17 DE9; 12 quotations) attributed to working and living in a rural community.

You see people around and in the community a lot more than just when they are here to see you for a medical appointment. I don't have a problem with it. I know several times I have been at the grocery store and people have come up to me and said what kind of yogurt is better? Or they hold up two products and ask which one is better for me? I use it as a teaching tool – to try and teach them how to read a food label. I enjoy that. I find it rewarding and a sense of community (DE4).

All of the community interactions described meeting people in the community as they pursued their own personal food acquisition and recreations activities, such as the grocery store, the farmer's market and the community centre. The informal conversations about food arose because of the educators' health care role, but occurred in a place in the community that was about "food" rather than "health care".

In these informal encounters, the experiential food expertise of the health service provider, such as the ability to choose the best option in the grocery store as in the above quotation, was challenged by the patient. This type of encounter dilutes the power dynamic between "provider" and "patient" as they met in a space where they shared the same role as "shoppers".

The diversity within the role of health service provider and the diversity of interactions between patient and provider all shape the interactions between patient and provider in the case study area.

Education resources

Education resources also reflected the diversity of the health services encounter. All interviews took place at participant worksites. This provided an opportunity for participants to present me with information pamphlets and brochures maintained in their office. These were presented to me in response to the following question: **What resources/strategies do you use to assist people in the food-related goals of their diabetes care plans?** Visiting the worksite and community also provided me with an opportunity to review the materials available to patients in waiting room areas. Such education resources are available to patients with diabetes in all of the settings that I encountered.

Primary education material available at each place was consistent among settings and interviewees. For use in their individual and group encounters, all respondents had foundational education material from the Canadian Diabetes Association and Canada's Food Guide produced by Health Canada (Health Canada, 2007). Several adaptations of these key resources had been made to provide more accessibility for those patients with different levels of literacy. These adaptations did not represent variation in the messaging or graphics.

All waiting areas in the health services facilities had a selection of popular press magazines and pamphlets sponsored by various commodity marketing boards (e.g. Ontario Milk marketing board), non-government health organizations (e.g. Heart and Stroke Foundation), and pharmaceutical companies (e.g. Eli Lilly). Eleven (58 %) of the nineteen sites had locally developed information resources that included material about the Good Food Box as well as local food maps. There were no specific policies limiting the use of educational materials based on source of the materials. Each individual healthcare provider selected the resources to be

used for their practice. The credibility, reliability, and utility of the information for the patient population were left to the discretion of the health care providers.

The “public” space in the health services sites, outside of the clinic room, was less structured. Patients chose from the information rather than being specifically directed to it as they were available in the clinic office space. Thus, policies about the sources and content of information in this informal space should not be neglected given that it is the space that the patient moves through prior to, and after, the formal encounter. Messages such as those that may be found in popular press magazines might not be consistent with those offered in the formal diabetes educator – patient meetings. As a result, they could very well detract from the messages of the health services encounter.

Diabetes Educator Training

In addition to the diversity of tasks and settings of their role, the background and training of the diabetes educators in the case study area also varied. For the purposes of the interview, each of the educator respondents provided: their professional credentials and their training specific to diabetes education. The educators held one of the following four health professional qualifications: dietitian (n=11), registered nurse (n=3), pharmacist (n=2) and health educator (n=1). Of these, the first three are regulated health professions in the Province of Ontario. Additionally, nine (53%) held Diabetes Educator Certification according to standards and requirements set out by the Canadian Diabetes Association (CDECB, 2012). To attain this standard an applicant must be a member in good standing of a regulated health profession in Ontario, have a minimum of two years of experience in diabetes education (800 hours), and successfully complete a set of exams and payment of licensing fees. To maintain this

certification, a set of annual licensing fees and continuing education criteria must be met that are in addition to professional College requirements. Knowledge of community food security is not a part of the education criteria (CDCEB, 2012). This certification was not a condition of employment for any of the interviewees, although one of the diabetes program coordinators of the interviewees received financial and logistical support to maintain their certifications from their employers. Of the eight (47%) interviewees without certification, three cited cost of maintaining certification when it was not a condition of employment as the main prohibitive feature of certification, while an additional three did not yet meet the experience criteria. No other reasons for not completing or maintaining these credentials were provided.

There was no difference between men and women in the description of the specific features of the health care role; role diversity, education material, and sense of community. In terms of diabetes educator training, both of the two male diabetes educators participating were certified as diabetes educators, while 7 of the 15 women (46 %) were certified. Given the number of total participants this does not indicate a pattern or trend. However, since cost and time required for certification were mentioned in the interviews, it does draw attention to consideration of the need to consider access to training and credentialing opportunities for men and women in rural areas. In the section that follows on gender the implication of gender profile of the *health care role on patient access* to health services as described by interviewees.

5.3 Gender implications in rural diabetes nutrition

The observations relating to gender from both surveys and interviews relate to *household food work, health services encounters, health care roles* and *social networks of support* for

management of the nutrition-related considerations for type 2 diabetes as outlined in Table 5.2 below.

Table 5.2

Barriers to, and opportunities for, fostering improved attention to gender in diabetes nutrition education in rural Southwestern Ontario

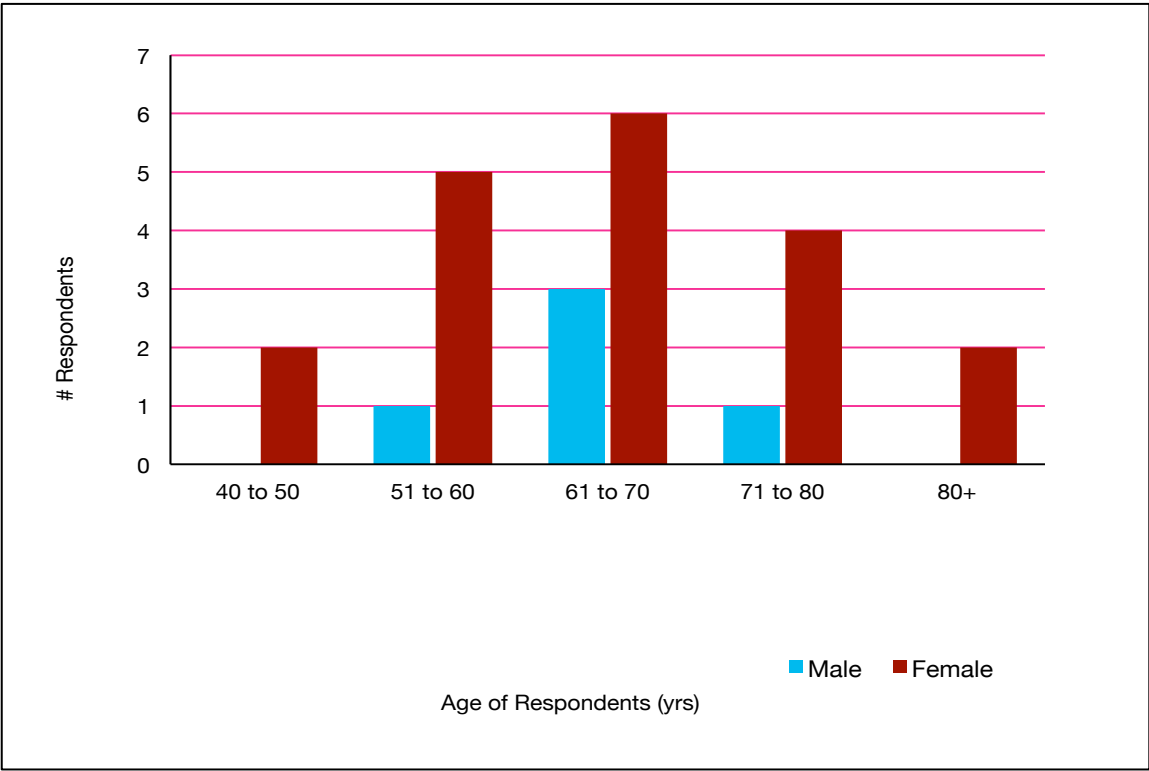
Area of Focus	Sub-Themes	Respondents (n)	Quotations (n)
Objective 2.2.2 a) Experiences of people with diabetes related to gender in diabetes education	Household food work	NC- 1 RC- 5 DE- 7	1 9 15 (25 total)
Objective 2.2.3 a) Perceptions and experiences of community diabetes educators with respect gender in diabetes education	Social Networks of Support	NC-0 RC-3 DE-1	0 5 2 (7 total)
	Health Services Encounters	NC- 4 RC - 6 DE - 16	10 23 58 (91 total)
Objective 2.3.4 a) Perceptions and experiences of regional, national coordinators with respect to gender in diabetes education	Health Care Role	NC -4 RC -6 DE -7	7 19 15 (37 total)

5.3.1 Experience of people with diabetes with respect to gender

All participants, namely people suffering from diabetes, (n=24) in both support groups that had been identified as possible research participants by the educators completed a questionnaire inviting them to describe local food access in the case study area. This yielded a total of 24

questionnaires; 12 at the group that I attended and 12 at the group administered by the key contact. The demographic section was complete on each questionnaire, thus the age and sex profile of the respondents provides an accurate picture of the diabetes support group participants (see Figure 5.1 below).

Figure 5.1
Survey respondents age and sex (n=24)



Ages ranged from 40 to 81 years of age. As illustrated in Figure 5.2, women make up a larger percentage of participants in organized *social networks of support* than do men across all age groupings; 19/ 24 (79%) SG respondents were women. Nineteen of the 24 respondents (79%) were women. As only two support group formats meeting my criteria were identified in the case study area, and all participants in the support group participated – a “usual” turnout number as

identified by the key contact, there is confidence that the results represent the profile of experiences and of “diabetes support group participants” currently. The pattern of age distribution is also consistent with what would be expected based on the distribution of prevalence of type 2 diabetes within different age groups in the Canadian population illustrated in Figure 4.2.

The next section of the survey, where support group participants were asked to record their own personal responsibilities for food work, was also fully completed. Both men and women indicated that the women in the household are the “usual purchaser of food” in 23 of 24 (96%) of responses. One of the 24 indicated “both” the man and the woman in the household usually undertook the food purchasing tasks. Women are indicated as the “usual preparer of food” in 21 of the 24 (88%) responses. The three other respondents indicated that the man and the woman in the household share the food preparation tasks. Thus, in all of the households represented, women participate in the food purchasing and preparation.

The predominance of women as support group respondents combined with the low total number of participants in this cohort obscures any trends by gender there may be among type of food outlet access, such as any differences in farmers market access. Of note, the two participants indicating that they had accessed food from non-retail venues – home garden and food bank, were both women.

In summary, the survey results indicate that women are primarily responsible for household food work. Women with type 2 diabetes also participate in support group activities at a higher rate than men in the case study area.

5.3.2 Perceptions and experiences of diabetes educators, regional and national coordinators relating to gender

In response to the diabetes educator interview segment on gender: “**What differences, if any, do you notice in diabetes nutrition education between men and women in your practice?**”, and the educator, national and regional coordinator segment: **What effect, if any, do you think that gender has in any of the following areas of diabetes nutrition education: Patient relations and expectations, Workplace relations and expectations, Community relations and expectations**”, the responses relating to patient relations and expectations, there were responses corresponding to the themes of *household food work* and participation in *social networks of support* consistent with those in the survey responses.

Seven diabetes educators (41%) and six program coordinators (35%) revealed that, among their patient population, women are primarily responsible for *household food work* (DE4, DE6, DE7, DE10, DE12, DE 15, DE 16; 15 quotations). Exemplar comments reflecting on household food work from each of these respondent categories are as follows:

So if the male has diabetes they seem to think it's the role of their spouse to look after it. That has certainly been my experience (R4).

I do often see single men or men who have lost their wives, they are very lost, they really are (DE6).

I think that you that you'll find a theme in terms of women being the driving force for the health of their family, meaning they are what we would call the gatekeeper (RC 8).

This distribution of household food work along gender lines has implications for health of all family members.

The pressure is on a female in that household whether looking after parents and children and a career. Who has time to manage their own health? I mean they present differently, or their needs are much different, than a male in the same household (R11).

Women with diabetes, or with someone with diabetes in the household, are also reported to be more likely than men to participate in *social networks of support* relating to the nutritional self-management of diabetes by four interviewees (12%) (RC10, RC2, RC8, DE6; 7 quotations).

So I thought well I am new, there is a diabetes support group, I better go, right and find out what this is all about [...] – it is always all women – and that went for a while. That was brining speakers in, trying to bring the community out for just general education, just general information sessions, but that has kind of died down too (DE6).

Women are also reported to be more likely to participate as volunteers in local food programs that are available as a resource to people with diabetes such as Congregate Dining Programs (RC13, RC2).

It's mostly women. Usually the men tend to do what's still gender related. They will do the heavier work like dishwashing or the volunteer driving. But we split it up so we have (both involved) (RC13).

In addition to these community involvements related to diabetes care, women are disproportionately represented in the *health care roles* related to the delivery and organization of diabetes nutrition education. The second is the implications that this gender profile might have in relation to the *health services encounter*.

Thirty-one of the 34 interview respondents (91%), involved in diabetes nutrition education *health care roles* in some way, were women. Seventeen of the interview respondents from all categories (50%) (NC1, NC2, NC3, NC4, RC1, RC2, RC5, RC6, RC7, RC9, DE1, DE10, DE12, DE13, DE17, DE6, DE9; 37 quotations) noted, with reference to gender, the predominance of women in diabetes care roles in general and particularly in the nutrition related elements of diabetes care.

Health care is such a female dominated filed that it is almost expected that you are going to be dealing with a woman (D16).

This is the case both in the professionals employed in the public sector and in the not-for-profit sector. The only profession that has historically not had a majority of women providers, medicine, has experienced a marked shift towards more women in diabetes care roles both in primary care and in medical specialties related to diabetes such as endocrinology.

With respect to the effect of the gendered profile of *health care roles*, three of the 13 regional coordinator respondents related that food-related patient information often did not receive sufficient attention within the health services team (RC2, RC9, RC7; 7 quotations):

Do I believe that dietitians who are talking about food [...] women are the cooks, the caregivers, so does it make it less important? Probably in some respects (RC9).

All comments related this challenge of promoting the importance of food and health within their organization in the development of health services resources and strategies. For example, in the development of patient electronic medical records formats, communicating among health professionals about food-related considerations for patients were not prioritized to the same extent as medication regimes that a patient might be following.

The gendered profile of *health care roles* within diabetes nutrition education also has a bearing on the *health services encounter*. Eleven respondents (32%) conjectured that the predominance of women at the encounter had a bearing on the rapport (NC3, RC9, RC2, RC7, DE1, DE10, DE11, DE13, DE16, DE3, DE5, 19 quotations). The following quotation illustrates these conjectures:

Sometimes the males will just do it jokingly, they are like “all the women are ganging up on me”. That is not what we do and they say it jokingly but you have to also wonder if that is not what they are perceiving. (DE 16).

Six respondents (18%) (RC2, RC7, DE2, DE3, DE9, DE12 – 7 quotations) extended this observation in that an age gap between professional and patient may amplify the effect of the

gender dynamic, with the female health care worker being much younger than a male patient, or may be a contributing factor in the patient-provider dynamic of the health care encounter independently of gender.

A second observation with respect to the *health services encounter* is attendance. Eleven respondents (32%) (NC2, NC3, RC3, RC10, DE1, DE11, DE12, DE13, DE14, DE16, DE17, 14 quotations) noted that the ratio of women to men patients accessing diabetes nutrition education is not consistent with the ratio of women to men who experience diabetes. Relatively more women than men access these services. Moreover, more women than men attend education sessions in a supportive role to the person with diabetes as noted in the following quotations:

A lot of evidence is showing that men tend to visit health care professionals a lot less than women or are a little less overt I guess about their symptoms because of embarrassment and things like that. So I think this is certainly a demographic that needs more targeted resources I suppose (NC3).

I think that you'll find a theme in terms of women being the driving force for the health of their family, meaning they are what we would call the gatekeeper. So if you have the husband with diabetes, it tends to be the women that come, and if the man comes, it's because the women dragged him there (RC10).

If the man comes to the session then he usually brings the woman or the "cook" and they make the changes. The man just wants to know the facts and that is, she wants to know the particulars of the changes to the diet or meals she cooks for him (DE7).

Women have the role of food expert in the household and in the health care encounter.

This gender profile of the *health services encounter* also served as a rationale for the focus of education materials and strategies (NC1, NC3, RC6, DE6, DE9; 12 quotations).

We tend to target women, mostly because women still tend to be the person in charge of food in a family. The women will be more likely to buy the groceries and make the meals (R6).

In all of the observations, there is concurrence that for both rates of attendance at the health education encounter, and experiences therein, gender plays a role. Men and women have

different values, preferences and expectations with respect to the content and format of diabetes nutrition education.

5.4 Attention to local sustainable food to in diabetes nutrition education

The third section of the semi-structured interviews, following the section on gender, elicited responses about “local food”. The second section of support group survey also elicited responses about local food. The wording used to evoke these responses in the survey was not specifically consistent with the wording for the health professional interviews, as the wording attended to language and tone as appropriate to the respondent group (Parfitt, 2005). There was considerable overlap in the themes and attributes identified relating to “local food” (survey) or “local sustainable food” (interview). All interview respondents (n=34), and 20 of the 24 survey respondents recorded responses in this section. The key sub themes arising are summarized in Table 5.3. Details on the category of respondent and number of quotations relating to each theme are summarized in Table 5.4, 5.5 and 5.6 later in this section.

Table 5.3

Attention to local sustainable food in diabetes nutrition education in rural southwestern Ontario

Area of Focus	Sub-Themes arising from survey and interview responses
Objective 2.2 b) Experiences of people with diabetes with local (sustainable) food	Relevance of local (sustainable) food Attributes of local (sustainable) food: <i>Accessibility</i> <i>Quality</i> <i>Community Self Reliance</i>
Objective 2.3 b) Perceptions and experiences of community diabetes educators with respect to local sustainable food	Opportunities/Barriers to enhance local (sustainable) food: <i>Education (awareness and skill building)</i> <i>Infrastructure</i> <i>Advocacy</i>
Objective 2.4 b) Perceptions and experiences of regional, national coordinators with respect to local sustainable food	<i>Personal Food Choices</i> <i>Sense of Community (Shared “place” of food)</i>

5.4.1 Experiences of people with diabetes with local sustainable food

The surveys, as noted in section 5.3, were completed by participants at diabetes support group activities. In the survey format for eliciting responses on local food, respondents provided a written response. Four of the respondents at the support group that I attended approached me wishing to provide me with a verbal account of their response to this theme to supplement their written response. As the ethics protocol for the survey response format was designed maintain

respondent anonymity, these comments were noted in my own notes of the details of the venue and observations made therein, rather than attached to specific survey forms. Thus, these comments are reflected in the total “quotations” on Table 5.4 below, but could not be used in the tabulation of the total number of participants detailing specific themes.

Relevance of local food

In response to the survey question: **Is “local food” a part of healthy eating for diabetes. If yes/no, why or why not?** Nineteen of the 20 participants responding to this section indicated a “yes”. The dissenting respondent did not qualify her response with explanatory remarks. As with the interview responses from health services personnel, the written responses from support group participants portrayed attributes of “local food” as aligned with the community food security themes identified in the DOC statement; *food access, food quality* and *community self reliance*. These responses are summarized in Table 5.4 below.

Table 5.4

Attributes associated with “local food” identified by diabetes support group respondents (n=20)

Attribute	Descriptors	Respondents (n)	%	Quotations (n)
<i>Food Quality</i>	Nutritious, chemical free, freshness, taste	10	42%	16
<i>Community Self-Reliance</i>	Nearby, known producers, supports local economy	6	25%	8
<i>Food Access</i>	Constraints: availability/access (seasonal, distance, food skills)	2	8%	3
	Opportunities: availability (local farmers)	3	8%	3
				40

The attribute of local food referred to most often by support group respondents was that of *food quality* in terms of nutrition, freshness, taste and avoidance of chemicals. This was followed by *community self-reliance* and *food access*. The local food access opportunities identified were availability from local producers. Constraints identified included reference to *local food infrastructure*: the seasonal nature of local food markets, the distance to these markets and the *food skills* required to prepare locally produced foods. However, unlike the interviewee respondents, food costs were not identified as one of the constraints to obtaining local food. Thus, while similar attributes of local food were noted by both the health professionals and support group participants, the relevance of these attributes differed between the two groups of respondents.

A total of 14 of the 24 (58%) survey respondents identified actions to improve food access in the section labeled: **Regardless of whether you could make these changes, what changes would improve access to healthy food and nutrition resources in this area?** And, **What do you think would make these changes possible?** A summary of these responses is provided in Table 5.5 below.

The recommended actions identified by the respondents fell into one of three categories: Education and awareness, enhancement of local food infrastructure and lobbying for regulatory changes that would be supportive of the first two strategies. Education (n=6) and community food system enhancement (n=6) were the strategies imparted most often in the survey responses.

Table 5.5

Actions recommended by survey respondents related to opportunities for, and barriers to, local food in the case study area (n=14)

Theme	Descriptor	Respondents (n)	Quotes (n)
Education/Awareness	Increase knowledge of healthy food choices and skills through public schools programs, media, and product labeling	6 (43%)	11
Local Food Infrastructure	Enhance local food distribution systems (such as Good Food Box, local retailers) and local food skills training could be enhanced. The seasonal nature of local food availability is a challenge.	5 (30%)	11
Advocacy	Lobbying by professionals and citizens for regulatory changes to enhance availability of healthy foods locally (i.e. taxes on “junk foods”)	3 (21%)	4

Two of the survey respondents identified, in their written responses, the value of being able to talk to their retailer and producer and advocate directly for themselves in their community food outlets with respect to their particular food requirements.

When we ask our (local) grocery store manager for specific foods for diabetes he will order those foods. Special kinds are locally more expensive than in the Zehrs stores. I think this isn't easy because our grocery stores in the rural areas are usually not so big (SG5).

Also noted by this survey respondent (SG5) was the availability of locally grown fruits and vegetables at the supermarket. The grocery store manager was described as engaging in relationships with both local producers and consumers as a part of his business model.

The support group surveys also collected quantitative data about the set of places where participants routinely bought food by total number, type and frequency of visits by season. This was to identify the type of food outlets accessed and whether they were in the local community area, or required a lengthy travel time to access them. The number of participants (24) was insufficient to carry out statistical analysis, but I carried out an exploratory analysis with multiple variables in *Excel* spreadsheets to ascertain any trends in the data warranting recommendation for further research. All survey respondents completed this section of the survey. Table 5.6 below summarized the results of the food access section of the survey.

Under “distance travelled”, most respondents used kilometers as the unit of measurement. However, some respondents (n=3) used “blocks” as the units to indicate distance travelled. The distance for “blocks” was converted to kilometers for this summary using “approximate distance close to a street map” (Charriere et al., 2010, p.1781), consistent with research measuring the food environment using geographical information systems (Charriere et al., 2010). A distance of 200 metres in a block (0.2 km) was the maximum block length based

on a Google map satellite view of the downtown shopping area of the communities in which respondents completed the survey.

Table 5.6

Type of food outlets or food program accessed and reported by survey respondents (n=24)

Type of Food Outlet or Food Program accessed	Number of respondents accessing	Distance travelled in km(average and range)	Frequency visited (average and range per month)	
			Winter (Nov-Apr)	Summer (May-Oct)
<i>Retail:</i>				
Grocery store	24 (100%)	6.4 (0.2-45)	4.9 (2-10)	4.8(2-10)
Farmer’s market	12 (50%)	5.4 (0.5-20)	n/a	3.0(1-5)
Restaurant	9 (38%)	5.1 (1-15)	4.5 (1-12)	4.8 (1-12)
<i>Non-retail:</i>				
Meals on Wheels	1(4%)	Delivered to home	12	12
Home garden	2 (8%)	On site	0	4
Friends & neighbors	4 (16%)	Undefined	3 (2-4)	3 (2-4)
Food bank	2 (8%)	2	1	1

Grocery stores were the most frequently cited food source on the survey responses, both in terms of number of respondents and frequency of access. All support group respondents (n=24) obtained food supplies from grocery stores at least two times per month. The distance travelled ranged from 0.5 km to 45 km. All but one participant accessed local community grocery stores as 23 (96%) of the 24 respondents reported distances of less than 20 km distance from home,

less than the distance between most communities in the case study area⁴. The other retail food outlets accessed by respondents were farmer's markets (50%) and restaurants (38%). As with grocery stores, these food outlets are primarily local community outlets, as they were also all within a 20 km distance from home. In addition to the types of food outlets and programs listed in Table 5.6, food cooperatives, community gardens and, the Good Food Box program, were all also specifically listed as options, as well as an "other" category (see Appendix B for the survey form). None of the survey participant identified accessing these other types of food outlets or programs.

In my observations related to the collection of the survey feedback, I noted the location and format of the meetings. The location for the support group meetings was a community facility; in one case a church hall and, in the other, a recreation facility. There was an anchoring activity for each meeting. In one case, a keynote speaker made a presentation, and in the other, group members were offered an opportunity to participate in a walking group. In both scenarios, a common element was that at the end of the formal activity, participants and group leaders mingled, shared a beverage and snack (evidently a routine part of the event) and engaged in conversation on a wide range of topics. The most frequent conversation topics were self-care strategies and updates on the well-being of routine participants who were not in attendance. This shared space of food at both of these events provided an opportunity for informal networks of support to share information and strategies about self-care and the care needs of peers.

⁴ According to the Official Road Map of Ontario distributed by the Ontario Ministry of Transportation available at: <http://www.mto.gov.on.ca/english/traveller/map/>

5.4.2 Experiences and perceptions of community diabetes educators, regional and national personnel with local sustainable food

The responses relating “local sustainable food” by health professionals in the interview narratives also aligned with the features of community food security identified in the DOC statement. The pattern of responses differed from the support group responses in that *food access* is a more prominent theme in the health professionals’ narratives followed by *food quality* and *community self-reliance* respectively. A summary of the attributes associated with “local sustainable food” in the health professional responses in the interview section: **Is promoting “local sustainable food” part of diabetes education in a rural setting?** is provided in Table 5.7 that follows.

Table 5.7

Attributes associated with “local sustainable food” as identified by health professionals (n=34)

Attribute	Descriptors	Respondents (n)	Quotations (n)
<i>Food Access</i>	<i>Food Security</i> as concern for people with diabetes: economic access, community food access programs	NC – 4 RC – 4 DE – 9 (17 total)	17 15 13 (45 total)
	<i>Constraints:</i> Seasonality, institutional food practices, local food infrastructure, transportation, lack of related food skills, lack of food supportive food policy	RC – 8 DE – 5 (13 total)	25 16 (41 total)
	<i>Opportunities:</i> Local food programs, gardens, retailers.	NC – 2 RC – 4 DE - 9 (15 total)	2 8 25 (35 total)
<i>Food Quality</i>	Fresh, whole foods, healthy, tasty, culturally familiar	NC – 1 RC – 7 DE – 7 (14 total)	2 13 16 (31 total)
<i>Community Self-Reliance</i>	Supportive of local economy and fosters local relationships	NC – 1 RC – 5 DE – 6 (12 total)	1 7 10 (18 total)

Food Security

Eighteen of the 34 interviewees (53%) identified food security, as a function of economic access to food, as significant consideration with respect to nutrition for people with diabetes (N1, N2, N3, N4, R4, R5, R7, R8, DE2, DE3, DE5, DE6, DE8, DE9, DE10, DE12, DE13, DE14; 45 quotations). Respondents evidenced their remarks by referencing data such as

national data on diabetes prevalence among low-income populations, community-based data available for their service area such as the Nutritious Food Basket survey and personal experiences in diabetes care.

One of the things we know about diabetes is that there's a disproportionate number of people who are really struggling economically who have diabetes and sometimes it's a decision: are you going to get your medication or your strips? Or are you going to eat or have a roof over your head? (NC1).

I do have profound concern over accessibility of healthy food- as evidenced by looking at the cost of the nutritious food basket going up every year. So if you are someone with diabetes, it is a profound problem (RC1).

Poverty is definitely an issue here. I don't think our food bank system is set up very well and small town pride is also a huge issue too (DE9).

These comments about food security were not directly in support or in opposition to promotion of local food within diabetes nutrition education. For all 18 respondents relating food security as a concern for people with diabetes, this was their most significant concern, using adjectives such as “profound” and “huge” as in the quotations above. Additionally, underlining its importance to respondents, these food security comments were made in the first part of their narrative in response to the interview question about local sustainable food, prefacing and qualifying any other remarks in the section.

One respondent noted that one positive development in food security for people with diabetes was a recent announcement that persons identified as meeting the criteria for “prediabetes” would be eligible for the special diet allowance supplement allowance accessible through the Ontario Ministry of Community and Social Services Disability Support Program (OMCSS, 2012) available for people with diabetes.

Support for people with diabetes is happening. “hot off the press” is that the supplement for healthy eating is now in place for pre-diabetes as well as for those with a diagnosis of diabetes (DE8).

Despite the prominence of the concerns about food security in terms of economic access, this respondent was the only one commenting on the food supplement allowance in the “local sustainable food” section. There were no remarks from practitioners about the scope of food supplement allowance access in the case study area. A patient’s access to the supplement requires awareness of its availability by the health care provider, completion of an application and confirmation of eligibility by a health care provider. On prompting, two other respondents (RC7, DE9) who raised concerns about marginalized populations in the concluding section of the interview commented on access to the special diet allowance as exemplified in the following quotation:

So many people like I said that come through our doors are on disability or Ontario Works or things like that [...] the interesting part is that I haven’t seen one of those forms. Like normally their worker would give them the forms and then they would give them to me but I haven’t seen any (DE1).

Although its availability presents an opportunity to improve food access for eligible citizens, food supplement money was not readily accessed in the case study area.

Food access constraints

In connecting the concerns about food security with local sustainable food, there were diverging perspectives amongst participants about the relationship. Eleven (N4, RC1 RC4, RC5, RC6, RC7, DE1, DE3 DE10, DE14, DE5; 11 quotations) of the interview respondents (32%), expressed skepticism that “local sustainable food” improved food access, particularly for patients with more limited incomes. They noted that local food is not necessarily the most affordable source of fruits and vegetables.

The balance has to be cost for people. We haven’t quite got that worked out – how to produce something locally for less cost than flying it from China (R5).

Additionally, in the experience of four (12%) of the respondents (RC1, RC7, DE3, DE1), “local sustainable food” is accessible to a more “elite” clientele of higher income earners as expressed in the following quotation;

I think with the Good Food Box, I think that a lot of people that are using it are probably more of the professional, like the high socioeconomic status (DE3).

The two RC respondents noted that their skepticism about the role of local food was influenced by the local production shortages and relatively high prices for local agricultural commodities during the interview period (June – October, 2012). These shortages were a consequence of an unusually dry growing season, with the case study area experiencing record-setting low levels of precipitation during this time (Saunders, 2012).

Twelve of the respondents (35%) (R1, R2, R3, R5, R6, R7, R9, DE1, DE10, DE14, DE15, DE16; 36 quotations) identified specific constraints to food access involving community infrastructure: including transportation, lack of public procurement of local food, uneven access to local food programs (Good Food Box, food banks) and limited food skills and knowledge.

Four respondents found the lack of *transportation* infrastructure in the area as a constraint (DE1, DE10, RC3, RC7; 7 quotations).

I find that patient transportation is the biggest issue of who can buy what where. If you live in [---] and don't have a vehicle, you have to shop at the [...] grocery store, which doesn't have a lot of variety, is a little more money and there is no farmers' market or anything there in town, so you don't have that option. [...] If you have a car and have money to go scouting around the countryside for things then you're OK (DE1).

It is clear that, in this rural area, access to a vehicle directly affects food access.

Food procurement for health facilities, hospitals, long-term care facilities with food service and community food services such as Meals on Wheels and community congregate dining for seniors programs is also noted. Six of the respondents (18%) noted that the focus on “special diets” such as low sodium and low carbohydrate, stringent food safety standards

for a vulnerable clientele, and budget constraints for the administration of institutional food service for hospital staff and patients is inconsistent with access to local food (DE5, DE2, DE3, DE17, RC8, RC15).

About a year ago we did displays about eat local [at the hospital]. That totally backfired because in a hospital with food contracted out, a client picked that up (RC8).

Other constraints included inconsistencies in access to local food programs across the area. It was noted that the Good Food Box is not available in all places in the case study area, and area food banks have limited capacity for handling local meats and produce (RC6). Nine respondents (26%) (DE2, DE3, DE16, DE5, DE15, RC6, RC4, RC5, RC11) noted that, in some cases, food preparation skills and experience of patients accessing diabetes programs limited their capacity to access local food resources.

Two respondents (6%) (R2, R8) noted the lack of a national and provincial food policy to provide an overarching interdepartmental view of agriculture, health and food systems as a constraint on promoting local sustainable food.

You know this branch of this Ministry says you do this and this branch of this Ministry says you do that and really we could be working together, but we're not [...] Both locally and provincially; that's a huge concern (R8).

In summary, interviewees linked constraints on food security and local food access at a variety of scales. These included citizen food skills and knowledge, food costs, community infrastructure supportive of local food access and distribution, and a national policy environment supportive of local food systems.

Food Access Opportunities

For fourteen of the respondents (41%), “local sustainable food” programs and opportunities in place were described as playing a role in supporting food access for their patients across income

levels. Comments from respondents with respect to *food access opportunities* in the case study area predominantly (N1, N4, RC 10, RC11, RC12, DE1, DE10, DE13, DE16, DE17, DE11; 32 quotations) depict the “rural area” as a setting that imbues a connection to local sustainable “healthy” food as illustrated by the following quotations:

I think in a rural setting it might be easier because you are more aware of what's around you and what's growing and what's fresh and what's available (NC1).

Local food I think for rural people [...] most people have their own gardens. So, it's just a common thing (RC12).

Being in a rural area most people are aware of the Farmer's Market, the Good Food Box, the Mennonites, the little farms. They have access to those types of healthy foods compared to the city (DE7).

There was one diverging response that questioned the assumption in rural communities that there is an integral relationship between living in a rural area and healthier food choices as follows:

It is interesting, because we will talk about like beans, pulses what not, and they are hardly ever eaten in the community. Like this is still meat and potato primarily. And that was one thing I always thought too like maybe it was ignorance but coming into work in a rural setting, well you know what this is rural, we have our gardens, we are farmers, we're going to be eating a lot more veggies, maybe not so much fruit but a lot more veggies out here. It's just not the case (DE2).

Opportunities enhancing food access specifically mentioned in the respondent narratives included the availability of locally coordinated food access initiatives: Good Food Box, Local Food Maps, Community Food Advisors, farmers markets, farm gate outlets, local retailers, and household gardens. Additionally, programs offered to enhance *food skills development* as a component of health unit, community health centre, diabetes education centres, and family health team outreach programming were also mentioned.

Food Quality

Fourteen respondents (41%) (R4, R5, R7, R10, R2, R6, N4, N1, DE12, DE4, DE6, DE2, DE3; 29 quotations) viewed *food quality* as an attribute of local sustainable food in the area. Quotations from their interviews described “local food” quality as linked to healthy food choices and tasty and culturally familiar foods. Three respondents (9%) diverged from the rest with respect to the belief that high food quality might be viewed as a positive attribute of local food. One quotation in this category indicated local food was not necessarily a healthy choice because agriculture in her community is predominantly about beef production (DE13). Additionally, two respondents asserted that the nutritional attributes of foodstuffs relating to diabetes management did not warrant promoting local food (NC4, RC4; 3 quotations). This divergence is exemplified in the following quotation;

It doesn't matter if the apple comes from China or if it comes from [---] county, the blood sugar will be affected in a similar way (RC4).

In these quotations, the participants viewed food in terms of nutrient content and clinical outcomes, and, by extension did not see local foods as offering an advantage over food sourced elsewhere. In contrast, the interviewees who viewed local food as an attribute because it contributed to healthy outcomes, tended to consider local food in a more holistic way and also considered the non-nutritive attributes of food such as cultural familiarity and taste.

Community self-reliance

There was no divergence in the quotations relating to the attribute of *community self-reliance*. The comments of all 12 interviewees (33%) (DE2, DE3, DE4, DE6, DE10, DE11, R1, R2, R3, R10, N1, N4) described local food as playing a role in fostering local relationships and

supporting the local economy with positive implications for all local residents, including those with diabetes.

The local food program that was common to Huron County for many years [Good Food Box]. It was quite successful but controversial, but a wonderful example [...] not necessarily targeting diabetes, but healthy, local nutrition that is also supporting local food production (N4).

In addition to describing the attributes of local food, diabetes educator and regional coordinator interviewees described the actions they were taking in promotion of local sustainable food. A summary of these is provided in Table 5.8 that follows:

Table 5.8

Actions by interviewees (health care professionals) in promotion of local sustainable food in the case study area (n=34)

Strategy	Descriptor	Respondents (n)	Quotations (n)
Education/awareness	Distribution and display of local food resources such as: *local food procurement GFB, farmers market, *food preparation skills, education and skill building for food procurement and preparation	17 DE 3 RC	23 4 (total 27)
Local Food System Infrastructure	Enhancement of local food distribution systems (such as Good Food Box and local food maps) and local food skills training opportunities, institutional food procurement	6 DE 6 RC 2 NC	9 9 2 (total 20)
Monitoring of Food Access Challenges	All patient records included a section on food access constraints experienced by the patient	17 DE	17
Advocacy (food policy)	Lobbying for regulatory changes to reduce barriers to healthy foods, and supportive Food Policy	2 DE 5 RC 2 NC	2 5 2 (total 9)
Personal Food Choices	Personal food choices that reflect CFS principles, e.g. Purchasing food directly from producers.	6 DE	8

Although promotion of local sustainable food was not specifically referred to in the training, job description or reporting requirements of diabetes educators, all participated in some type of education or awareness raising activities in support of local food. All diabetes educators recorded food access challenges as part of their health services encounter with the patient. The majority of other actions are primarily awareness raising and skill-building activities such as display and distribution of pamphlets about local food resources. Six of the diabetes educators (35%) (DE17, DE2, DE3, DE4, DE9, DE5; 6 quotations) specifically connected support for local food to their connection and relationship to the rural community in which they lived and worked. One respondent illustrated this connection in terms of the “roots” and “routes” of rural living.

In my [patient] assessment we talk about hobbies and gardening [...] and you know I will ask because my roots are rural. And I grew up with a garden so I don't know any better. My roots (DE17).

You know here we are in our town, and just look at, these are maybe some back road routes [...] and if they maybe have an interest in a meat market, or a fruit and vegetable place [on the Local Food Map], I've pretty much been to all of them because I do this, numerous times per year, then I say "Oh you know, I've been there and this is kind of fun to do the backroads type of thing (DE17).

The familiarity and connection to the area in which she worked formed the basis for her actions and enthusiasm for local sustainable food opportunities.

5.5 Summary

The 58 survey and interview respondents including 17 diabetes educators, 17 regional and national program coordinators and 24 persons with diabetes participating in diabetes support groups offered a number of diverse insights on the primary research objective of examining attention to gender and local sustainable food in community diabetes nutrition education in rural

Ontario. They had diverging opinions on the secondary research objective of identifying opportunities for and challenges to interrelationships with the local food system and health services in this rural area that could best support nutrition needs of persons with type 2 diabetes. These included how diabetes education should take place in terms of outcome reporting, staffing and format.

Perceptions of, and experiences with, local sustainable food were described by all of the 34 health professional interviewees and 20 of the 24 survey responses by diabetes support group participants. The attributes of local food identified in the responses included food access, food quality, and community self-reliance. For the health professionals, food access was the primary consideration. Eighteen of the 34 interviewees (53%) referred to food security, as a function of economic access to food, as the most significant consideration with respect to nutrition for people with diabetes, regardless of gender. There was a lack of consensus as to whether enhanced access to local food served as a proximate and tenable strategy in addressing these noted food security challenges. Of the research participants, 45% (15 respondents) reported that current local sustainable food opportunities particular to this rural area such as local gardens, markets, and the Good Food Box program played a role in supporting food access. Conversely 24% (eight respondents) expressed skepticism that such access was improved particularly in the face of rural constraints such as limited transportation infrastructure, e-access to local food databases, and a decline in food skills in the population. Unlike the diabetes educators, diabetes support program participants, perceived food quality to be the most significant attribute of local food and was noted in 42% of the responses. All respondents that identified community self-reliance as an important aspect of local food (35% of interviewees and 25% of surveys) concurred that local food was advantageous for people with type 2 diabetes. They contended

that it fostered a food system responsive to their requirements for healthy fruits and vegetables in specific and supportive of livelihoods and economy in their community of residence in general.

Strategies to enhance these valued local food systems by health services personnel as proposed and implemented by the survey and interview respondents fell into one of five categories: education and awareness about healthy eating and related skills (48%), increasing the capacity of local community food programs, institutional food service, and retail systems (42%), advocacy for policy changes that would be supportive of local sustainable food access such as the Ontario Local Food Act (19%), monitoring of food access constraints in the patient population (14%), and personal food choices by health services personnel that reflect local sustainable food choices (9%). In terms of practices at the time of this research, patients surveyed acquired most of their food from within a 20 km radius, less than the average distance between rural communities in the area. However, they did not rely extensively on locally produced food.

Gender implications in diabetes nutrition education as described by research participants focused on the topics of household food work, health service encounters, social networks of support and health care roles. The majority of participants in diabetes support groups surveyed described food work as the responsibility of women in the household. Women in the household were described the “usual purchaser of food” in 23 of 24 (96%) of responses and as the “usual preparer of food” in 21 of the 24 (88%) responses. This was in keeping with the responses of health services personnel that consistently described women as the “gatekeeper” and “expert” for food related aspects of diabetes care including household food work, but also encompassing the health education encounter and diabetes support group participation. The

specific implications described were that of an increasing burden on women with a member of the household diagnosed with type 2 diabetes. Additionally, men living alone were particularly disadvantaged in terms of the food-related skills to manage their illness. With respect to health services delivery in the area, 80% of the respondents from all categories of health services providers (27 of 34) noted that outcome measurements employed in health service settings the case study area, namely numbers of patients accessing care and the monitoring of their blood sugar control, are not adequate to provide meaningful data to improve the delivery of diabetes nutrition education and linkages to local sustainable food options in the community. Specific enhancements were recommended by seven (41%) of the 17 regional and national level coordinators interviewed. These included the collation and communication of food security data for patients and integrated reporting of community capacity indicators, such as volunteer contributions to local food programs and local food costs, with this food security data. Three regional coordinators noted that, despite the importance in diabetes education, a potential barrier for diabetes educators to promote food security was that it was not necessarily considered a priority by other health care personnel.

A second theme with respect to attention to the health service delivery system was that of “team-based” diabetes care. Seventy-eight % of 34 interviewees, including all 17 diabetes educators, perceived that new models of “team-based” care contributed to more holistic care for people with diabetes, including the capacity to address food issues. These models provide access to a variety of health professionals including social workers, pharmacists and psychologists on the primary care team. This is a shift from the more traditional model of diabetes education in which care was provided primarily by the family physician with support available from diabetes education nurses and dietitians. However, as noted above there are no

outcome measures instituted by the Ontario Ministry of Health and Longterm Care at the provincial regional or community level to capture the specific attributes and skill sets of team-based care that could contribute to improved outcomes. Although all agreed that these new models of care improved relations of care, two of the 17 diabetes educators noted that the number of different people on their care team has the potential of leaving the patient feeling overwhelmed. In view of all the complex health management tasks that the patient is confronted with in the clinical setting, adding additional program objectives, such as promotion of local food, may be a challenge.

Thirdly, with respect to health service delivery, the importance of “sense of community” mentioned by six of the 17 (35%) of the diabetes educator interviewees was specifically connected to support for local sustainable food systems. These diabetes educators highlighted the importance of interrelationships with the community members and landscapes of their community mentioning local food markets as an identifiable part of the rural local food landscape. This sense of community was not nostalgic or reactionary; rather it was progressive, with diabetes educators being aware of the importance of supporting interrelationships around local food that would foster community food security.

In sum then, it appears that the major findings from the primary research reveal that food security for patients with diabetes in this rural area was the key concern among diabetes educators independent of gender. Forty-five percent of respondents interviewed agreed that the main impetus for diabetes nutrition educators to promote local sustainable food systems was as a potential tool to enhance affordable healthy food options in the community. Yet, the question of whether or not local food systems could truly present a viable affordable option for patients was also raised. Notwithstanding accessibility questions, six of the 24 patients with diabetes that

were surveyed, indicated that they valued the community relationships that developed around food whether it be the production, purchasing, or consumption of food, and the implications of local food production and consumption for local livelihoods. An additional finding is that six of the 17 diabetes educators' emphasized the importance of their own personal connections to community as underpinning their promotion activities even though they were drawing on those connections without specific workplace and health policies that supported local sustainable food.

As discussed in the next chapter (Chapter Six), these findings are notable because they provide important groundwork for a framework for action on local sustainable food by diabetes educators presented in Chapter Seven.

CHAPTER SIX: Analysis of barriers and opportunities to local food system advocacy by diabetes nutrition educators

6.1 Overview

In the case study area, and throughout the province of Ontario, overlapping mandates and uncertainties with respect to the role and responsibilities of diabetes educators have continued to accompany the implementation of the Ontario Diabetes Strategy first instituted in 2008.

Nevertheless, this dynamic situation offers both opportunities for, and constraints to, advancing the introduction of a healthier, local food-based approach to diabetes education.

The following analysis of food and health system characteristics of this case study emerged from the primary findings in Chapter Five. These are based on interviews with health care professionals involved with diabetes nutrition education in the case study area as well as surveys of sufferers of diabetes who participated in local diabetes support groups. In this chapter, these findings are analyzed in conjunction with the secondary review of municipal, provincial and federal government data sets and reports that detail attributes of local food and health systems in the area in Chapter Four.

Firstly, this chapter discusses actions undertaken by diabetes educators in support of such an approach at the time of this research. Secondly, this chapter identifies the opportunities for, and barriers to, carrying out and expanding on these actions at individual, community, regional and national scales.

6.2 Actions by rural diabetes educators supportive of local sustainable food system

As discussed in Chapter Two, the health benefits of “local sustainable food” continue to be contested in both the literature and popular press relative to the current dominant global food system. The premise of this dissertation, however, is that a strong local sustainable food system reduces the physical and/or relational distance between producer and consumer. It is, therefore, an effective means of enhancing individual and community health, social justice and environmental sustainability in the food system. This assumption is consistent with position statements issued by health professional organizations in North America, the Dietitians of Canada, the American Dietetic Association and the American Medical Association (DOC, 2007; ADA, 2007; AMA, 2009).

The secondary research and the position statements above were confirmed by the primary fieldwork undertaken in this study. Diabetes educators described local sustainable food as playing a role in community self-reliance, specifically in the fostering of local relationships and in supporting the local economy. These factors, in turn, have positive implications for all local residents, including those with diabetes. With one exception, local sustainable food was associated with improved food quality in terms of nutrient content, taste, and cultural familiarity of foods and methods of production that minimized environmental impacts. Food access--economic access to food, skills and knowledge and associated supporting infrastructure -- was the most significant consideration with respect to nutrition for people with diabetes.

Diabetes educators interviewed in this study’s primary fieldwork, did not define or

debate the definition of “local sustainable food”; rather, they described its relevance to how they undertake diabetes education from their perspective. The attributes of local sustainable food identified by the educators mapped closely to the elements of the Dietitians of Canada framework for community food security as follows:

Community food security exists when all community residents obtain a safe, personally acceptable, nutritious diet through a sustainable food system that maximizes healthy choices, community self-reliance and equal access for everyone. (DOC, 2007, p.1)

As illustrated in Figure 6.1 below, with respect to local food security, diabetes educators believed that food access was most important, followed by considerations of food quality and, to a lesser extent community self-reliance. Specifically, of the 80 quotations coded on attributes of local food from the 17 diabetes educators, 68% referred to food access, 20% to food quality and 12% to community self-reliance. This finding, that the primary motivating factor for health-care practitioners to promote local food initiatives was almost invariably linked to access to healthy foods, is consistent with that reported by Mount et al. (2013) in their examination of support for community food projects in the province of Ontario. For their part, the responses of diabetes support group participants focused more on community and commensality, consistent with the findings of the examination of engagement with local food at farmer’s markets in Ontario by Smithers et al. (2008). Support group participants rated the importance of community self-reliance most highly (53%). Food quality (27%) was also considered a key attribute of local sustainable food, with food access (20%) mentioned least often in the 30 written survey responses relating to local food on 20 support group participant surveys as illustrated in Figure 6.2 that follows.

Figure 6.1

Attributes of local sustainable food coded in diabetes nutrition educators interviews (17 interviews, 80 quotations)

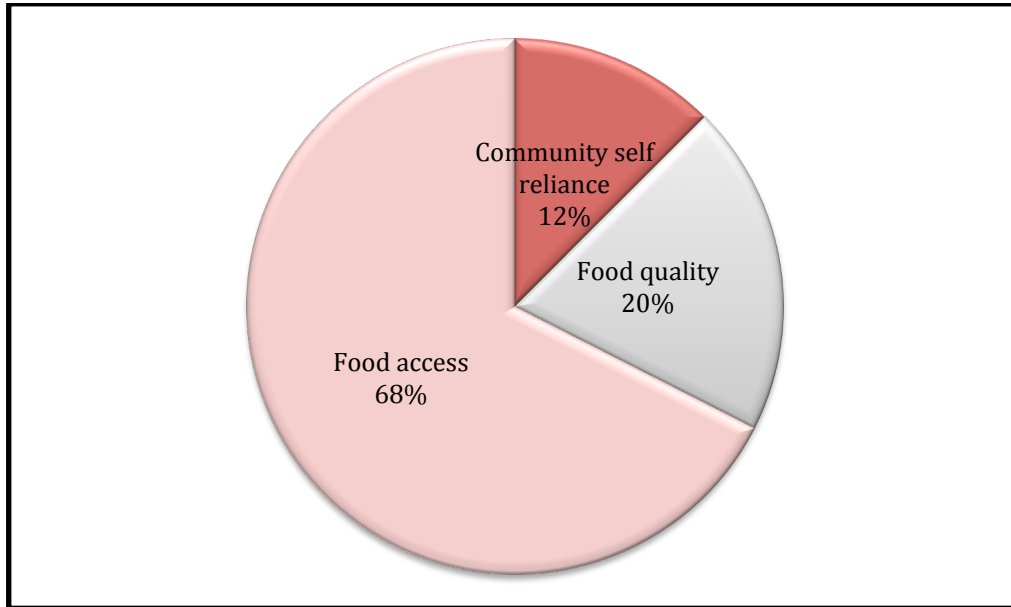
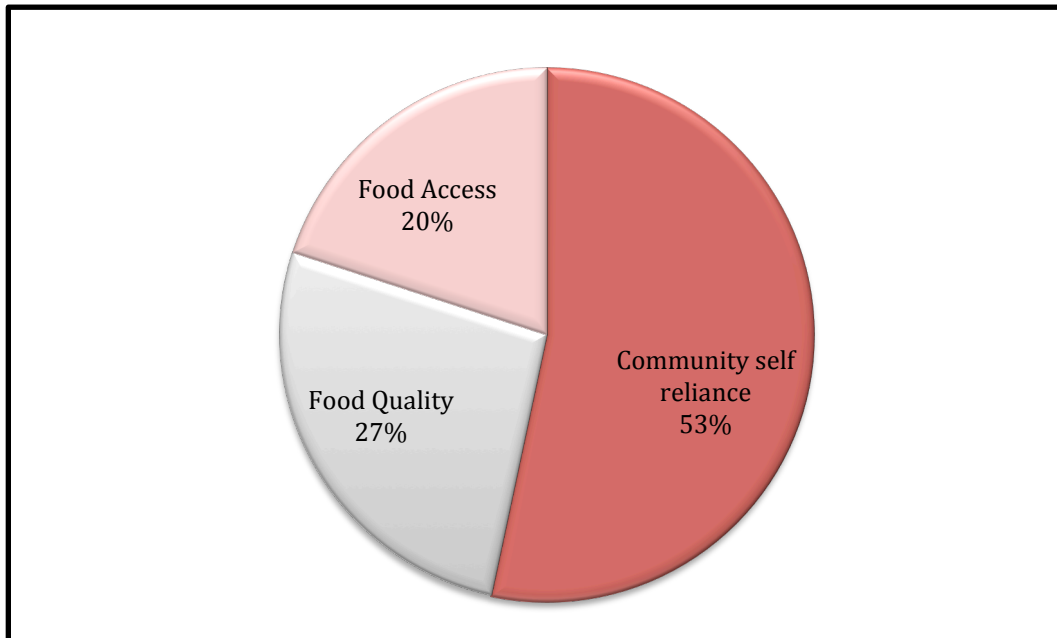


Figure 6.2

Attributes of local food coded in diabetes support group participant surveys (20 surveys, 30 quotations)



Although all of the diabetes educators associate local sustainable food as a way of fostering improved access to nutritious food in general, four (30%) expressed skepticism about whether or not it enhanced food access for patients with more limited incomes. Of these themes, food access, was the theme most often raised by the diabetes educators.

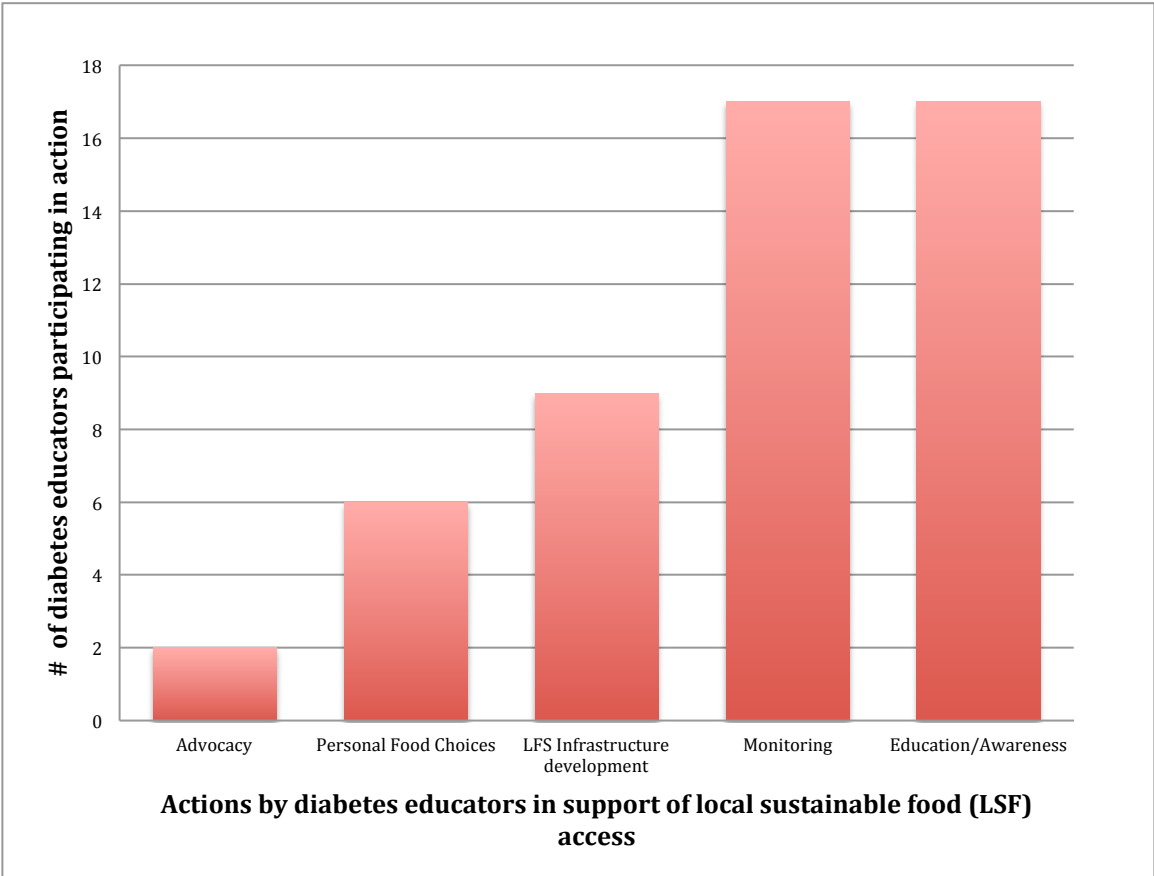
According to the diabetes educators, the importance of enhancing patients' knowledge and skills to make food choices that translate into "healthy blood sugars" was identified as a key role in nutrition education. These blood sugar levels are assessed in comprehensive reviews undertaken by the Canadian Diabetes Association Clinical Guidelines (CDA, 2013) to be consistent with optimal health outcomes for persons with diabetes. The diabetes educator, trained and acculturated to prioritize nutrient content, and attentive to food security concerns, directs patients to food choices that prioritize food costs and nutrient content (Liquori, 2001). The pattern of prioritized attributes of food suggested by the survey responses are one in which patient food choices were more likely to be embedded in a broader definition of healthy eating that includes community relations, than focused on nutrient content as the primary determinant.

The majority of patient and health care team interactions fell within the parameters of care delivery as set out in training and job descriptions. Educators spend time with patients collecting a detailed history of food habits, preferences and skills. They also detail patterns of activity and medication regimes and concurrent health concerns. Together, the educator, patient and the family members responsible for food preparation design food plans that take all of these factors into consideration. Although not specifically mandated to do so, all health providers that were interviewed described

undertaking at least one of the actions supportive of local sustainable food summarized in Figure 6.3 below.

Figure 6.3

Participation in actions supportive of local sustainable food access by diabetes educators (n=17)



All diabetes educators interviewed reported that they monitored food access constraints, such as patients' limited financial means, as a part of their comprehensive food history interview with the patient. Based on this detailed history, all educators provided education and information about local food programs and activities considered by them to be relevant to the patient, such as the availability of fruits and vegetables from local farmers markets. Nine educators (53%) also reported their own participation in actions that would serve to improve local food system

accessibility such as participating in the implementation of Good Food Box programs. Six diabetes educators (35%) described personal food choices that reflected support of local sustainable food systems, which facilitated encounters with patients at community food outlets and enhanced their ability to engage with patients on the topic of local foods. Two educators (12%) participated as members of committees advocating for improved food access for persons with diabetes.

Although not the main focus of their role and priorities for nutrition education, diabetes nutrition educators working in the case study area contributed to support for local sustainable food systems in their communities in important ways. Their activities were consistent with the importance placed on the value of community food security by the Dietitians of Canada (DOC, 2007). Diabetes educators' efforts included: personal patronage of local food opportunities, increasing awareness of local food resources through distribution of information to patients, planning and implementation of educational opportunities for knowledge, and skill building around local food preparation, documenting food access constraints in the patient's clinical records, and advocacy for policy and infrastructure that would facilitate local food access.

6.3 Opportunities for, and barriers to, the promotion of local sustainable food by rural diabetes educators

Rural diabetes educators experienced a variety of opportunities and challenges when carrying out and expanding on actions promoting local sustainable food operating at different scales as highlighted in Table 6.1 below. The mediating factors in the table refer to those factors that influence the ability of educators to promote local food options.

Table 6.1

Mediating factors for promotion of local sustainable food systems by rural diabetes educators

Scale	Factor
Individual Practitioners	Diabetes Educator Training Sense of community Role Diversity Health Services Encounters
Work place	Overlapping Mandates (inter-agency) Outcome Measurement (reporting) Collaborative Care Teams
Community	Social Networks of Support, Volunteer Capacity Rural transportation and digital infrastructure Local sustainable food infrastructure Food Costs
Regional/National	Food Security and Food Policy and Position Statements
Cross-Scalar	Gender Rural Ideologies

The research findings relating to these factors are discussed in the sections that follow.

6.3.1 Individual health service providers

In carrying out their role as diabetes educators, interviewees had different training, role descriptions and experiences in their workplaces and communities.

Diabetes Educator Training

Diabetes educator training had a bearing on the promotion of local sustainable food in two ways; training curricula and educator qualifications. A review of training and standards for

attainment of certification as a diabetes educator revealed that there was no requirement for community food security knowledge nor the skills to promote it. Additionally, there were no consistent requirements, and uneven support for the qualifications required to deliver diabetes education in the case study area. Professionals from four different backgrounds--dietitians, nurses, pharmacists and health educators-- all participate in diabetes nutrition education in the case study area. Of those interviewed, nine (53%) of the research participants held Diabetes Educator Certification according to standards and requirements set out by the Canadian Diabetes Association (CDECB, 2012). Of the eight interviewees without certification, three cited cost of maintaining certification when it was not a condition of employment, nor reimbursed by their employer, as the main prohibitive feature of certification, four did not yet meet the experience and training criteria. No other reasons for not completing or maintaining these credentials were provided. This inconsistency in training standards and requirements is not supportive of educator confidence and competence with respect to the promotion of local sustainable food systems by educators.

Health professionals in Ontario must demonstrate participation in continuing education to maintain certification. Habjan et al. (2012), recommend continuing education for rural health care professionals as an effective strategy to build capacity in the area of rural health. However, rural health-care providers must overcome the barriers of distance from education centres and limited opportunities for professional networking in pursuing continuing education. Guidelines for incorporating practical and theoretical sustainable food systems and community food security into dietetics training are now available (ADA, 2010; Harmon et al., 2011). The guidelines presented by Harmon et al. (2011) recommends learning experiences that include systems-oriented problem solving, community engagement and collaborative work with other

stakeholders to “bridge the gaps between food system policy and practice” (p.8). Incorporating these guidelines into professional training and certification programs will help to prepare future educators to incorporate sustainable food system considerations in their practice. Although there are exemplars of programs that have community engagement as a training priority for health professionals, such as the Northern Ontario School of Medicine, they are not standard. Adopting these strategies as more standard in training environments will require updates to training requirements and certification standards. Given the logistical constraints faced in rural areas, tailoring these strategies to provide training opportunity for rural practitioners already in place poses a challenge. For the current diabetes education workforce, participation in continuing education that develops these skills is contingent upon financial and logistical support from employers.

Role Diversity and Health Services Encounters

Compounding the logistical challenges, the primary fieldwork revealed that rural healthcare practitioners are adversely affected by their distance from learning environments and peer support networks, as well as a more diverse and varied professional practice than those professionals working in urban areas. This was also corroborated in the literature (Rourke, 2010). One healthcare worker may be the only locally-available resource person in several areas of expertise, requiring that individual to maintain a depth of expertise in these several areas of practice. For example, for 88% of the diabetes educators interviewed, diabetes education constituted only a part of their professional role, with the balance of their responsibilities devoted to other health care tasks unrelated to diabetes. The fieldwork revealed that this *role diversity* was evident both within the responsibilities of diabetes educators, and in

the rural areas where they work. Five of the participants (30%) reported being responsible to more than one community as part of their regular service delivery mandate and, in one case, more than one employer. All respondents delivered education in a variety of formats; individual, group and community events.

In all accounts, the current aspects of *role diversity* offered an opportunity for both the health professional and the patient to improve access to diabetes nutrition care. This accessibility to care was manifested in terms of relationship building, and physical access to health services. In the delivery of a variety of types of education for their patients – home visits, group classes, individual encounters, and community wellness events, there is opportunity for more frequent and diverse health service encounters and building of trust in these relationships as illustrated in the following diabetes educator quotation:

Sometimes it's more helpful, especially for a senior, to go to their place. I say to my clients "this is your space right now" it's me getting to know you and how I can help you best (DE11).

As a result of higher levels of patient-provider trust it was possible to foster more meaningful and effective *health services encounters*. For example, with higher levels of trust, patients are more likely to divulge their constraints to food access to their health providers who in turn would be positioned to connect individuals with appropriate resources in the community.

Travel requirements for patients were reduced when health education was delivered in community-based locales in Community Health Centres, Family Health Team Clinics and Community Hospitals (Diabetes Education Centres) rather than in a larger, more distant centre. A community location also enhanced provider awareness of resources available to patient.

Sense of Community

The diversity of formal interactions between patients and caregivers in educational settings was reported by eleven diabetes educators (65%) as also being accompanied by informal interactions in non-clinical community settings. In terms of patient relations, there was consensus among these respondents that opportunities for encounters between patients in non-clinical settings, such as the grocery store and the farmer's market, fostered trust in the client provider relationship as illustrated in the following quotation:

I think too the people that we see on a medium or frequent basis which is kind of funny because they are probably the ones that need more attention and more medical care, when they see us more often and become more familiar with us then I think they start to lose a lot of those anxieties [about coming into the medical clinic](DE2).

The power dynamic between 'patient' and provider' is mediated as they move through spaces together such as the community grocery store or farmer's market where they share the space, herein each with the same role as "shoppers". This fosters a relationship in which patients can (re) configure their position not only in the food system setting, but also in the health care setting.

In addition to enhancing the patient's experience, this *sense of community*, created through diverse interactions and interconnections, also enhanced the providers' experience in pursuing their role in health professional work in the community. This finding aligns with other analyses of capacity in rural health services, that a key factor associated with health professional retention is personal and professional satisfaction and recognition in the community (Habjan et al., 2012). This connection, or, as interviewees refer to it "sense of community" is consistent with the concept of "sense of place" as described by Doris Massey (in Cresswell, 2004) as a "product of interconnecting flows - of routes rather than roots" (p.13). This sense of community or sense of place is an important finding in this study because it supports relations

of care in the community. With a strong sense of community, health service providers are more likely to maintain a variety of connections in the community both personally and professionally. In turn, maintaining these connections underpins the contribution of their skills and resources towards a healthy and vibrant community.

Four of the diabetes educator interviewees (24%) also referred to their “roots” in a rural community, their familiarity and affinity for rural lifestyles and connections as the rationale for maintaining their role in a rural setting and to engage with local food systems promotion.

I was born and raised in a small town so I know how that is. I think that’s why I ended up wanting to come back to a smaller community, because I like that. Not that I want to know everybody’s business. It is just that comfort of a smaller community; people know each other and help each other out (DE10).

Their view of future possibilities for local sustainable food systems and health systems is “rooted” in their familiarity with the culture and past experiences of rural life.

The effectiveness of the role of the diabetes educator is influenced by several interacting factors that include training, work place role and sense of community. To facilitate the diabetes educators’ ability to promote local sustainable food, diabetes educator training standards that include knowledge of community food security and skills to take action on community food security are required. Employer support for pursuing this training as a part of continuing education for professionals already in practice is also important. The format and location of encounters within the health care environment and in the community at large also play a role in fostering promotion of local sustainable food. Encounters in diverse settings, ranging from the clinicians office to the farmer’s market foster a sense of community that builds a foundation of trust between “patient” and “provider”; facilitating both relations of care and opportunities for actions on local sustainable food.

6.3.2 Workplace infrastructure

While particular details of the roles of individual health service providers described above influence the opportunity to participate in community-based initiatives local sustainable food initiatives, other workplace organizational structures also affects these opportunities.

Overlapping Mandates (inter-agency) and Outcome Measurements

The Ontario Diabetes Strategy (ODS) program implementation has increased the quantity of provincially funded diabetes education personnel across the province. Ninety-seven percent of this funding has been directed to service delivery for people with diabetes, with the remaining three per cent directed to prevention (McCarter, 2012). The outcome of this funding in the case study area was an increase in the total number of diabetes education of staff. There was also an increase in the number and configurations of health services organizations involved. Originally, Diabetes Education Centres, based in hospitals, was the only organization delivering education, with supportive resources available from the Public Health Departments and the Canadian Diabetes Association. Pursuant to the ODS, diabetes education was also made available within Community Health Centres and Family Health Teams, concurrent with an increase in staff. Although welcomed by health care professionals the increase has generated overlapping mandates.

The challenge of overlapping mandates is exacerbated by the *outcome measurement* priorities of the Ministry of Health and Long Term Care. The Local Health Integration Network (LHIN) “care delivery” focuses on reducing wait times for clinical services and does not include attention to primary determinants of health. Evaluation of the LHIN community engagement and collaboration process conducted has found them to be narrow in scope (Jabbar and Abelson, 2011; Baker, 2007). In a number of communities, the confusion over mandates and the need to

justify ongoing services based on the number of clients served, in some cases, has, generated “competition” rather than “collaboration” among organizations or with volunteer community based organizations with overlapping program offerings. Collaborative efforts, including those promoting local sustainable food, are minimal between healthcare providers working under different employers, as each must prioritize fulfilling the mandate set out for them under the auspices of their current employment arrangement. It is unclear who has the authority to resolve these overlapping mandates in the case study area. The level of inter-agency collaboration is community specific. Efforts to collaborate reported by the 17 diabetes educator research participants reflect initiatives on the part of community-level workers rather than organizational support from provincial management structures.

In addition to a care delivery mandate, the LHIN reporting priorities also highlight the monitoring of biomedical parameters (MOHLTC, 2012). There are specific categories and ways of coding for biomedical indicators that are reliable indicators of disease management over time; blood sugar levels (HBA1C), blood fat levels (LDL-C) and micro-vascular integrity (retinopathy). This information is recorded in the chart to be easily tracked, communicated to health team members, and collated for reporting to the Ministry of Health and Long Term Care (MOHLTC). This process enables health providers to have a picture of patient disease management, and the MOHLTC to have a profile of the population with diabetes in terms of disease management. These measurement parameters do not, however, give any indication to the health care team, or to the ministry, of the constraints that the individual patient (and the patient population as a whole) face in managing their disease.

As illustrated in Table 6.1, diabetes educators monitor food access barriers, such as poverty, but there is no standardized coding format for relating this information among care

team members. Additionally, it is not required data for MOHLTC reporting. This absence is not a reflection of a lack of efficient strategies to collect such data. For example, in examining the relationships between women’s mental health and food insufficiency, Heflin et al. (2005) reports the use of a single item measure of household food insufficiency “Which of the following describes the amount of food your household has to eat—enough to eat, sometimes not enough to eat, or often not enough to eat?”. A response of “sometimes” or “often” is a reliable measure of household food insufficiency. Such information would be valuable to facilitate connecting patients with resources that would enable them to address food insecurity, an issue that is increasingly recognized as important determinant of diabetes management (Galesloot et al, 2012; Dinca-Panaltescu et al, 2011). For example, eligible patients could be readily connected with the “special diet allowance” available through the Ministry of Community and Social Services (OMCSS, 2012) or community food programs such as Meals on Wheels (CCAC, 2012). Similarly, Raza et al. (2013) and Bloch (2012) note the potential opportunities for health professionals to facilitate interventions for poverty in a health care setting. In addition to prompting patients to explore specific income security benefits – health care professionals, and physicians in particular, play a role in helping patients navigate social services and income support programs. Patients may require physician endorsements for disability applications, letters of support to facilitate access to affordable housing or subsidized access to public transit. It is important to identify community partners to whom patients can be referred (ie congregate dining programs). This highlights the need for including income and food sufficiency measures in the clinical record in a way that can be tracked and readily communicated among health care personnel involved in a patient’s care. Linking patients with

appropriate community resources can be an important contribution on the part of the health service provider.

The LHIN also has reporting requirements for community support service agencies coordinated through Community Care Access Centres. The data collected relate to funding allocations and client access. Data on volunteer participation is documented by agencies that support volunteer participation, such as the Meals on Wheels programs and Community Seniors Centres. Unlike the financial and client access data, the data on volunteer participation in community support service agencies is not included in annual report summaries posted on LHIN public websites. All of these programs that support community level food programs and initiatives reviewed for this research, including those under the LHIN mandate, receive a considerable contribution from the efforts of volunteers. Wider availability of information on demographics of participating volunteers would allow for more informed strategies for volunteer recruitment and retention.

In summary, the experience of interview respondents from all participating organizations was that the rigidity of the structure of measurement requirements prioritized by the MOHLTC does not effectively leverage the skills and experience of the community level resources and insights into program development and design. Additionally, leadership from the provincial level to navigate changes in program accountability is lacking, leading to frustration and confusion.

Collaborative Care Teams (Intra-agency)

Collaborative inter-professional team-based care, including patient education monitoring and care configuration is recommended in the CDA 2013 Clinical Practice Guidelines as having the best outcomes for improved physiological outcomes among patient with diabetes (CDA, 2008,

2013). In response to these recommendations, patient-centred collaborative care models, Community Health Centres and Family Health Teams, have been the focus of the subsequent restructuring. These dynamics have positive implications for patient-provider relationships and inter-professional relationships within teams. Positive relationships allow for higher levels of trust among all team members, including the patient. In particular, care team members such as social workers that are familiar with appropriate community resources can link diabetes patients to those services. An example of one such resource is a community food program such as Meals on Wheels for low mobility patients. That noted, however, interactions with multiple care-givers are not without their challenges. One educator (DE6) observed that the number of different people involved in the care team has the potential of leaving the patient feeling overwhelmed. In such a scenario, adding additional program objectives, such as the promotion of local food may pose difficulties.

Research in other rural care settings in Canada found that physiological and patient access to care outcome measurements was not sensitive to assessment of quality of care and quality of life outcomes (Maddigan et al., 2004). Patient care teams in the case study area for this research were not uniform in structure in terms of possessing the same type of professional resources available to the patient (e.g. social work, health promotion, dietitian, pharmacist). Moreover, they did not possess consistent communication strategies within their care teams. Thus, while team-based care was perceived to improve patient access to comprehensive care, more robust outcome measurements are required to better understand the implications of team-based care for a broad range of patient outcomes. For example, are these models better able to provide accessible care to both men and women in the community? Are these models of care more successful in linking patients with appropriate community resources than practitioners that

are working in diabetes education in a setting without team members from a diverse range of skill sets available on site?

6.3.3 Community capacity

A number of features of the rural case study communities, in addition to health care infrastructure detailed above affect patient access to diabetes nutrition resources. Rurality, as a material determinant of health, physically distances people from care, and from food access. Reports commissioned by county-level public health and social services agencies and the SWLHIN, as well as comments made by interviewees (NC1, NC3, DE4, DE5, DE12, DE17, DE1 DE11, DE10, RC3, RC4, RC5, RC7, RC10) all underlined the challenges associated posed by distance and rurality with respect to volunteer capacity and social networks of support, digital access, travel time (increasing time away from workplace/home), access to public transportation for patients, and food costs.

Social Networks of Support/Volunteer Capacity

Overlapping mandates amongst health care providers had implications for social support networks with respect to diabetes support groups in the case study area. Health service providers (24 of the 34 interviewed) describe these support group interactions as important for social and capacity building, the role in education and skill building is secondary. However, there is a decline in the number of community-based support groups in the case study area since the ODS implementation. This downtrend is consistent with those reported in other rural areas for rural service clubs and organizations with a mandate to support health in rural communities (Liepert et al., 2012). Liepert et al. (2012) contend that reduction in rural women's organizations have resulted from broader neoliberal ideas about reducing taxation and

government interventions. Liepert et al. (2012) document the toll that withdrawal of government funding has taken on the ability of these organizations to fulfill their mandate.

Responses from interview respondents in the case study area implicate factors ancillary to funding and reduced government support in the downtrend. These include limited access to professional expertise and leadership, overlapping mandates, competing demands on time for group leaders and participants and a shifting demographic in rural areas.

The mandate for diabetes educators to measure outcomes in terms of patient access to care has resulted in a focus on engaging people to participate in a clinical care setting, rather than participating in a supportive role to groups in the community. Access to support for volunteer groups in the form of professional expertise from public health is also more limited than in the past. Five of the regional coordinator interviewees (RC5, RC10, RC11, RC12, RC13) note that administrative and professional support contributes to the viability of volunteer organizations. These remarks are consistent with findings from an examination of food policy councils by Schiff (2008). The most successful councils had paid staff to provide administrative support for volunteer efforts. Since the early 1990's, the role of community-level employees in public health and agriculture and food in direct support and interaction with community groups is no longer central to their mandate. The focus over the last several decades in public health and agriculture has been to reorient staff to policy development and interagency collaboration. For example, since 1992, public health units in the case study area have been training volunteers such as the Community Food Advisors (CFA, 2012), described in Chapter Four, to distribute expertise throughout the community, and fulfill the community outreach role for nutrition and food safety. Although evaluation of this program is limited to frequency and attendance at outreach activities the ongoing interest volunteer in this program is a positive indicator.

However, for public health employees, less interaction in the community presents challenges for networking and community engagement. Re-examining the role in community engagement is also within the constraints of reduced levels of nutrition staffing in public health. Under the current mandate, the experience is that community groups are less able, and less likely to turn to them for program development and support. Of note, after twenty years of operation, withdrawal of administrative support for the CFA at the provincial level occurred in 2012, raising questions about the future mandate and viability of the program at the community level. This exemplifies the challenge of volunteer based initiatives that rely on government-led initiatives for administrative and training support. These initiatives are subject to changes in budget priorities and policy platforms. As Liepert et al. (2012) observes, reduced government support for community service organizations will certainly translate into changes in the operational capacity of these organizations.

In a rural area, the total number of people as potential group leaders and participants is less than in a more densely populated urban area. Educators report that the constituency of diabetes support groups historically has been predominately women. Similarly, women predominate in volunteer contributions to community food programs such as the Community Food Advisor program. The shifting demographic in the case study area is to an older population with higher levels of household dependency (Smithers et al., 2004; MOHLTC, 2009). This shift has resulted in an increase in the burden of care and work attributable to women in the home (Armstrong, 2002; Fiske et al., 2012) and a concomitant decrease in volunteer participation in the community (Smithers et al., 2004). These structural barriers to participation in social networks of support and volunteerism are a concern with respect to the viability of local sustainable food initiatives, considering the reliance on volunteers for the

operation of community food programs.

Digital access and e-systems

In terms of diabetes nutrition education and local sustainable food system initiatives, many of the new resources in development are contingent upon Internet (or digital) access. This is evident from a review of resources linking patients to food access information, opportunities for volunteering, diabetes education written materials, and tools for disease management, such as social networking. However, comprehensive implementation strategies with respect to digital access for these resources are lacking at the community, regional and national scales.

Digital access is a function of both digital infrastructure and computer literacy. In the case study area, infrastructure is improving, as broadband implementation proceeds in rural areas (OMGS, 2012) but continues to be more limited than in urban areas. Public access to digital information also been compromised by recent cancellation of funding for digital access in public libraries (HCL, 2012). This leaves a gap in public access to digital access points and resource personnel. Health care personnel interviewed relate that, in their perception, among the population with diabetes in the case study area, digital access, in terms of skills and access, is quite inconsistent across the patient population. Digital access proficiency in the population is not a part of the patient information database, so corroborating this perception for the purpose of program development is not possible.

Examining patterns of technology use, “e-inclusion”, in an adult population, Bunz (2009) found that the more computer experience a person had, independent of their age and gender, the lower his or her computer anxiety, and the more likely they are to avail themselves of e-services (2009). Bunz (2009) ascertained that access to, and experience with, computers are

key factors demonstrated to shape patterns of technology use in the adult population. As noted in section 4.1, the demographic with the highest prevalence of diabetes, particularly in the case study area, is older adults. As a function of access and experience with computer technology, age (older demographic) and geography (rural remote) are the most significant features in reducing e-inclusion (Almuwil et al., 2011). This situation describes the majority of patients experiencing type 2 diabetes in the case study area. Thus, although there has been no collation of digital access in this population, it would be anticipated that there is limited e-inclusion amongst older adults suffering from diabetes.

When accessible, the most common use of computers and the Internet for older adults appears to be for communication, social support and information seeking, particularly in the area of health information (Wagner et al., 2010). In view of these findings, there is a potential for digital access to be a constructive source of information sharing with respect to diabetes education in rural areas. Realizing this potential is contingent on health strategies with more attention paid to, and the provision of information about, the specific digital access constraints of the target population. This would involve tracking computer access among the patient population in order to develop programs to facilitate access to digital resources. It would also involve designing digital resources in line with the skill set and digital technology available to potential users.

Transportation infrastructure

Many interview participants noted that transportation infrastructure is another constraint to both health system and food system access in the case study area. This is corroborated by a report detailing the transportation infrastructure in the area (Bowering, 2012). It is also consistent with

the experiences in many rural locales in North America. As with access to health services, research on food accessibility in rural areas finds automobile ownership as a determinant of food security, since the average distance to a grocery store is much farther and walking is not feasible (Sadler, 2011; Yousefan et al., 2011). In rural areas without grocery stores, low-mobility residents may be limited to smaller variety stores. These stores stock significantly fewer nutritious food options. The Bowering (2012) report highlights the limited access to public transportation, and dependence on private transportation. With the exception of the introduction of several community-sponsored initiatives for seniors transit, the trend described is one of decreasing availability of public transit including bus, train and taxi services.

Recent changes in the mechanisms of diabetes education delivery are with a view, in part, to offset this challenge. Two examples of such mechanisms are a diversity of locales for delivery of diabetes education and distributed networks of local food availability, such as the Good Food Box.

Despite attention to geographically distributed access, in the experience of the health care providers, for many of their patients in the case study area transportation remains a significant challenge. One proposal to offset this challenge is more flexibility in the timing of access to diabetes education and alternative food systems, that would improve access for households dependent upon shared transportation. For alternative food systems, the changes would be increasing the frequency for access to local foods. An example of such a change would be increasing the promotion and frequency of Good Food Box distribution from monthly to bi-weekly with a concurrent increase in the number of delivery sites (Hamel, 2009). For diabetes education, this timing would be adjustments such that education would be accessible on evenings and weekends.

Local Food System Infrastructure

The dynamics of the rural economy in the case study area continue to shift toward an agro-industrial model, with local produce travelling out of communities for processing and distribution (Fuller, 1999; Smithers et al., 2004; Hamel, 2009; NFU, 2011). The predominant economic development model that a more export market-oriented agri-food industry (Roppel, 2006). There is, however, a resurgence of food system initiatives that reduce the geographic and relational distance between producer and consumer in the case study area; farmers markets, Good Food Box programming and organizations of local food retailers in rural communities. These initiatives are with a view to (re) build a food system that captures “community self-reliance” more effectively than the agro-industrial model that prevails (Lang, 2010; Clapp, 2012). As yet, these initiatives make a limited contribution to food procurement options in the area. As many as 50% of the support group participants noted acquiring food at local farmers markets and average of three times per month, however, this food acquisition source was only seasonally available.

This limited local food infrastructure presents a challenge to local food procurement initiatives. Local food procurement by health facilities is further hampered by legal requirements of supplier non-discrimination (Carter-Whitney, 2009; Hammel, 2009). Where resources and awareness raising opportunities were available in the current structure of their job, diabetes educators have made profiling the availability of local food initiatives such as Good Food Box and Local Food Maps a part of the education package.

Food costs

Food costs for persons with diabetes were another challenge to food access described by half (50%) of the interviewees.

A lot of it is the cost of all those healthy vegetables and fruit that you want me to eat. Its too expensive. We'll go to the stuff that's on sale. And that's what I hear (DE3).

All support group interviewees cited local grocery stores (within 20 km) as their most frequented food acquisition site. Nutritious Food Basket costing results (summarized in Table 4.6) indicate that there is an escalating cost associated with access to retail food for rural dwellers relative to urban counterparts. Diabetes educators' accounts corroborate this finding, noting an increasing dependence on emergency food aid from food banks by patients with diabetes. Although the cost of obtaining food from local sources such as the Good Food Box could present an opportunity to control food costs, reduced patient knowledge and skills to obtain and process food from local production modalities was a limitation.

And another thing is just the knowledge base.[...] There's a lot of families that have never had a garden, so you're having a generation of kids, young adults, growing up that wouldn't know the first thing about how to grow their own bean, or their own peas, or even a tomato plant (DE3).

This was noted to be especially evident among younger patients.

At the community level in the case study area, digital and transportation infrastructure, food costs, local food infrastructure and the knowledge and skills to process food from existing local production modalities were cited as constraints on food access. Local community food initiatives rely heavily on the efforts of volunteers. In this rural area, the aging demographic

and concurrent increase in household dependency ratios presents a concern with respect to the ongoing viability of these local sustainable food initiatives.

6.3.4 Cross scalar opportunities and boundaries

Across all categories of participant in this research, the descriptions of health service and food systems initiatives were through a lens of rural ideologies, gender dynamics, and community relations.

Rural ideologies

The physical experience of distance and infrastructure constraints may limit or restrict health care options and food access in rural areas. The experience of a social proximity particular to rural areas, however, are sometimes, if not often, assumed to engender close and caring relations that help to abate the impact of this physical distance (Dolan and Thein, 2008). These relationships include both the interpersonal and attachment to the rural landscape (Dolan and Thein, 2009; Albrecht, 2005). However, as noted by Williams and Kulig (2012) in their review of health in rural Canada, rural places, and the health systems therein, are dynamic and diverse. As with all “places”, they exist within the potentially homogenizing presence of globalized information systems (technology) and standards of health care practice, disease management and the forces of the agro-industrial food system.

The case study area, as described by research participants, is a setting that already possesses a connection to local sustainable “healthy food” such as home gardens and farm produce. Diabetes support group participants, diabetes educators working in the community, as well as those working in some capacity at the regional and national level all communicated such a depiction of the area. Similarly, patients in the case study spoke about their belief that local

food from their community was a healthy choice and contributed to productive interpersonal community interactions and community self-reliance to the extent that it was their primary reason for choosing local food when able. Municipalities chose to include references to rural vistas and agrarian lifestyles as positive descriptors of the area on promotional and information websites.

The food access challenges cited above, challenges in local food infrastructure and food costs, contradict this ideology about the nature of community relations and local food access in rural areas pervades local level decision making around food system developments.

This divergence between experience and popular perceptions about ready access to nutritional local food abundance in rural areas has material implications for patient access to local food system developments and for networks of support in the area. In the case study area, this rural ethos presented both a barrier and an opportunity to advancing local sustainable food. In view of the perception that food is inherently accessible in rural areas to those who chose to take advantage of it, food access may not be a successful lever to forward the promotion of a local food agenda. Research in other areas of Ontario has concluded that a comprehensive approach to local food issues is fostered by the development of networks, connections and collaborative capacity across a diversity of actors (Blay-Palmer et al., 2013; Vinodrai et al., 2012). All of the local food initiatives supported by diabetes educators in this case study area, such as Local Food Maps, are also the product of a diverse network of community participants from domains such as public health, local economic development, community service organizations and commodity groups.

Gender

Understanding the relationships, norms and values between groups and individuals in a community enhances the opportunity for health, both for the individuals in a community and for the whole. Gender plays no small part in these relationships:

Gender is productively understood as a relationship constituted by myriad, ongoing “processes whereby sex differences are made real or objectified as differences between men and women, and where these differences are valorized in differential ways” and in particular places. These processes of differentiation and valorization lead to the creation of feminized subjectivities, wherein, for example, women’s domestic or caring work, whether paid or unpaid, is perceived as an extension of women’s “natural” ability. (Dolan and Thien, 2008, p.97)

The particular places described by interviewees as reproducing this gendered relationship in the context of diabetes nutrition education were the health care encounter (26 of 34 respondents), household food work (13 of 34 respondents), and volunteer food work (4 of 34 respondents). The training and frame of reference for diabetes nutrition educators is to assess the needs of each individual patient, regardless of gender, and tailor the education and resources to that individual (DEC, 2012). That said, all 34 health care professional participants described some implications of gender relevant to managing the food-related aspects of diabetes care for patients. Gender is also a feature of patterns of access to care and resources to support diabetes management: attendance at health care encounters and expectations and priorities of health care encounters.

In the case study area, relatively more women with diabetes than men with diabetes attend diabetes health care encounters. Additionally, more women than men attend sessions in a supportive role to the person with diabetes. Men and women have different patterns of interaction within the healthcare encounter around food, with women presumed to have the role

of expert in the encounter. Women are described as willing and interested participants in the health service encounter, while men are described as being “dragged” (DE3, DE17) to the encounter by women.

In the home, women are primarily responsible for the food work (and care work) in the nutritional management of diabetes. This work includes food purchasing, preparation and attendance at education opportunities. Generally, women are most vulnerable to changing demands with respect to food work and caring (Wanner, 2011; McIntyre and Roundeau, 2011). This pattern is consistent with reports from other examinations of diabetes related food work in Canada (Wong et al., 2005; McIntyre and Rondeau, 2011; Galesloot et al., 2012).

An understanding of the key role gender plays in nutrition, can serve to inform initiatives and teaching materials and strategies developed both at the national level and at the local level. By understanding the roles that women play in nutrition, it is possible to more effectively and efficiently tailor these programs to meet the needs of women. The challenge herein is that such strategies reinforce the role of women as responsible for food work in a public health care system that relies on women’s skills, knowledge and role identification as responsible for caring work and food work in the private space of the home. Such a systemic dependence on women as providing the majority of nutrition care work in the home poses several significant challenges. With the addition of increased food work in the case of a family member with type 2 diabetes, women face increasing and competing demands on their time and attention. This increasing demand raises concerns for women’s ability to maintain their own personal health and well being (Armstrong, 2002; Fiske, et al., 2012). Additionally, this focus on women leaves a gap in access for those lacking the traditional skills and knowledge associated with women caregivers. For example, an elderly widower living alone lacking food

skills and knowledge faces particular challenges in meeting their personal nutrition and care needs.

Networks of support for diabetes in the case study area, historically attended primarily by women in the case study area, are in decline. Community food programs in the area including Good Food Box, Meals on Wheels, Community Congregate Dining and Foodbanks have increased food provisioning in the case study area since the implementation of LHINs. While these food programs are not with the explicit objective of improving local sustainable food, there are examples of efforts to include local food in each of these programs. The underlying mandate for each of these programs is different. For example, foodbanks are operated with a view to providing emergency food supplies to households in need, while the Good Food Box has the core objective of improving access to affordable fruits and vegetables for area residents. A review of community food programs in the area indicates all are contingent upon the efforts of volunteers. As with diabetes support groups, women make up the larger cohort of volunteers, taking on the assignment of caring roles around food in the community as in the home. Innovations in promotion of local food for community food programs require attention to this gendered terrain of food work in the home and in the community.

Programs such as Meals and Wheels and Congregate Dining programs that improve access to food for older adults and foster community relations is currently predominantly resourced through institutional food services such as hospitals and long-term care facilities. Thus opportunities for local food procurement are subject to the same constraints as those faced by the public institutions that resource them. Several exceptions to this mechanism of food procurement for these community food programs call attention to the potential for innovation. One community food program in the case study area hired its own staff to oversee food

procurement and preparations. The focus of this program is on local food procurement, providing a variety of tasks for volunteers to choose from such as greeting clients and food preparation, menus responsive to foods in season, and the opportunity to accept food donations from local gardens. All of the volunteers are also program participants.

Other community food programs operating outside the case study area also point to opportunity for innovation (Winterton et al., 2013). Winterton et al. (2013) reviewed approaches to program delivery and volunteer recruitment of various Meals on Wheels programs across Canada, the USA and Canada. Successful approaches to recruiting and retaining volunteers from a broad range of backgrounds and interests included active creation of social capital and skill sets among volunteers, flexible and diverse volunteer roles, including involvement in governance and administration. For example, a man may feel more comfortable participating in food volunteerism with a role that aligns more closely with one that he may have as a familiar skill set, such as providing transportation. In the case study area program described above, volunteer recruitment was facilitated by allowing volunteers to select tasks that best suited their learning needs or role identification and by accepting donations of food from the gardens of participants. Similarly, Montreal-based Santropol Roulant's program recruits families as well as individuals to facilitate an intergenerational volunteer environment and uses organic and locally grown foods when possible (Santropol Roulant, 2012).

Food volunteerism has a broad appeal to evoke participation (Poppendiek, 2013). Food volunteerism that uses “hunger” as a central theme in recruiting volunteers and donations has been critiqued as masking the poverty that is the root cause of food insecurity (Tarasuk, 2005; McIntyre, 2007; Loopstra and Tarasuk, 2013; Poppendiek, 2013). This strategy, it is argued, “provides a sort of moral relief from the discomfort that ensues when we are confronted with

images of hunger in our midst, or when we are reminded of the excesses of consumption that characterize our culture.” (Poppendieck, 2013, p. 569). However, a food volunteerism example from the case study area, the Community Food Advisor Program, that has skill development and community engagement as a central theme also had an appreciable appeal to volunteers – with applicants to the program outnumbering available positions. This highlights the potential for food volunteerism to play a strong role in the expansion of skills and knowledge in communities related to local sustainable food.

Maintaining a focus on the opportunity for experiential learning and social engagement in food volunteerism, builds a foundation for enhancing volunteer recruitment, retention, and knowledge sharing, and development of community food systems. Similarly, attention to gender affiliations customary in food roles and responsibilities fosters engagement of participants from diverse backgrounds and interests in local sustainable food system initiatives.

6.3.5 Regional/National food policy

At the municipal level, all counties in the case study area have in place, or have developed local food charters that identifies rights of all residents of a region to adequate amounts of affordable, safe, nutritious, culturally-acceptable food and fosters environmental stewardship and sustainability and is therefore a tool for social justice. Professional organizations, the Dietitians of Canada (DOC, 2007) and the Canadian Diabetes Association (CDA, 2011) have adopted position statements supportive of food security. The Canadian Medical Association has recently published recommendations that a national food security program be established to ensure equitable access to safe and nutritious food for all Canadians regardless of neighbourhood or income (CMA, 2013). In October of 2012 the “Promoting Local Food Act” with the goal of to foster successful and resilient local food economies and systems throughout Ontario received

first reading in the Ontario provincial legislature (Wynne, 2013). These policy platforms represent promising progress in terms of dialogue among diverse actors working on food issues in relation to health welcomed by community health practitioners. These initiatives are all relatively recent, and potential outcomes at the community scale are as yet, uncertain. The alignment of the attributes identified for local sustainable food initiatives by research participants to the Dietitians of Canada Position statement on Community Food Security suggests that this initiative has provided a foundation for action.

During the time that this research was undertaken, a considerable amount of attention was being paid to food and health policy in Canada at the national level. The United Nations Special Rapporteur on Right to Food noted in 2012 that Canada is in need of a national right to food strategy to abate food security concerns in vulnerable populations in Canada (DeSchutter, 2012). National strategies can play a number of key roles in the promotion and protection of the right to food. The lack of such a strategy inhibits horizontal and vertical coordination between relevant ministries at the federal level, as well as between the federal government, the provinces and municipalities.

6.4 Summary

The most proactive agencies that support diabetes educators in the promotion of local sustainable food are the local public health departments. These institutions form the part the health system providing the most substantive support for promoting sustainable food systems. Largely, however, they have also been overlooked in the allocation of funds targeting diabetes prevention and care in Ontario. In the case study area for this research, the confusion generated by overlapping mandates among health services organizations and the shifting base of support

for citizen community service organizations is troubling. The rapid changes leave staff and community member anxious about what might come next and thus tentative about engaging in new initiatives. Will the unexpected increases in resources currently experienced be followed by a shift in provincial priorities that will leave fledging community initiatives in the lurch without the financial or institutional support to carry on? Conversely, the rural health professional's sense of community arising from interactions both in their place of work and in the community at large provides fertile ground for multi-sectoral community-based action linking health and food system.

For the most part, health and food work, by default, primarily remains women's work in the home and in the community. This finding has significant implications when one considers the importance of the requirement that careful and additional attention be devoted to diet and food when managing type 2 diabetes. The research findings highlight the significant demands generated for women when they are either diagnosed with the disease or serve as the caregiver for someone with that disease. This situation also draws attention to the lack of standardized reporting and communication in the medical system when it comes to documenting patient food experiences, such as household food security, and access to community food programs. Without such reporting it is difficult to establish the case for making food concerns a priority when it comes to the treatment of diabetes or when instituting health policies that directly target local food systems as an important tool for the promotion of public health. Rather, these connections are not made apparent nor garner much attention when provincial and federal decision-makers are developing food production and procurement policies or healthy food education strategies for to the treatment of type 2 diabetes. They operate in silos rather than recognizing the importance of the role local food can play in reducing the incidence of the disease.

The research findings did reveal opportunities for innovation in local sustainable food initiatives. These possibilities were evident at the community level in the case study area, even though their realization is constrained by limited local food system infrastructure, transportation and digital infrastructure in this rural area, and a lack of provincial and federal policies and strategies supportive of local sustainable food systems. These opportunities include provincial and municipal local food charters in development such as the Ontario Local Food Act, and a (re) emerging citizen interest in local food markets and volunteers engaged in local food programs such as the Good Food Box and Community Food Advisors.

My field work combined with my observations as a former diabetes educator and resident of rural Huron country indicated there is a perception by community health workers involved with diabetes education of a strong correlation between local food systems and positive individual health outcomes. The Walmarts and the ‘supermarkets’ with their offerings of ‘convenient’ processed foods lure rural residents in much the same way as they do urban counterparts, with similar health outcomes for individuals and communities. Here and there, we are seeing a re-emergence of a re-localization movement when it comes to local food. It can be seen in the small towns of the area such as Goderich on the shores of Lake Huron with the growing popularity of its local Saturday farmers’ markets. Every fall, area agricultural societies continue to celebrate local produce with such events as the “Zurich Bean Festival” that have been ongoing for well over a century in many communities. There are armies of volunteers and good turnouts supporting these events emphasizing their importance in these communities. Diabetes educators for their part are (re)emphasizing the importance of ready access to good nutritious food provided by such venues by promoting them to patients and co-workers. Local policy-makers are taking some tentative steps. For example, some local school boards are now

using new local food charters as a rationale for incorporating support for local sustainable food at school events and cafeterias in the case study area. These initiatives, however, are as yet vastly overwhelmed by the firmly entrenched agro-food industry and the bio-medical approach to health. This is strikingly evident in health care settings where “hospital food” has historically been synonymous with generic and tasteless offerings. This situation has been exacerbated by financial constraints faced by institutional food services and food procurement policies that have led many institutions to bring in “flash-freeze” meals produced in facilities far removed from the one in which they are served. Not only does it continue the conventional processed fare delivered to patients, the downsized kitchen facilities and staffing result in fewer options for volunteers, visitors and for staff who must remain on site for their meals. In view of the importance of small hospitals in contributing to the social and health fabric of rural communities, it is unfortunate that “local sustainable food” is not a priority therein. In conclusion, the primary research reaffirmed the findings of the secondary literature about the value of local food to positive health outcomes. It is also clearly evident that access to local food was constrained by the factor of rurality. From a public policy and education perspective, the findings also confirmed that gender is an important variable that needs to be considered if local food promotion is to become an important message in diabetes education. Barriers to successful outcomes include the dominance of the global industrial food systems and conventional bio-medical approaches that serve to undermine research and investment into strategies that would effectively deal with the primary determinants of health such as local food security.

Chapter Seven offers a summary of current actions undertaken by diabetes educators in the promotion of local sustainable food. It also delineates potential policies and strategies that

could be undertaken that would serve to be supportive of these actions by diabetes educators, as well as other health sector actors.

CHAPTER SEVEN: Framework for action on support for local sustainable food by diabetes educators

In rural areas with agriculture as the cornerstone of the economy, it is easy to presume that there is ready access to healthy, affordable food in contrast to the more urban areas of the country. Counter-intuitively, however, food security is a concern in many rural areas in Canada. Food bank use is increasing and the cost to rural dwellers of groceries available through local supermarket and convenience stores is higher than for their urban counterparts. The attention to food practices required in the management of type 2 diabetes renders households supporting people with diabetes particularly vulnerable to food security concerns.

In response to the increasing prevalence of type 2 diabetes in the province of Ontario, the government launched the Ontario Diabetes Strategy in 2008. This initiative was accompanied by a welcome increase in health care staff with the key objective of increasing access to care for people with diabetes. The role and training of the diabetes educators responsible for nutrition education is directed primarily at supporting patients with type 2 diabetes by helping them to acquire the knowledge and skills to manage the food-related aspects of their diabetes with a focus on food choices that translate into “healthy blood sugars”. Arising from the insights afforded from working with people living with diabetes in rural areas, diabetes nutrition educators in the case study area have also engaged in actions, responding to the importance of community food security as defined by Dietitians of Canada as follows:

Community food security exists when all community residents obtain a safe, personally acceptable, nutritious diet through a *sustainable food system* that maximizes healthy choices, community self-reliance and equal access for everyone. (DOC, 2007, p.1, emphasis added)

The following is a set of recommendations for actions to further enhance the capacity of diabetes nutrition educators to support community food security as outlined in this definition. These recommendations, summarized in Table 7.1 below, were developed based on the experiences described by health services personnel and people with diabetes that participated in this research. The primary research uncovered in this study in conjunction with reports from other locations in Ontario and North America, suggests that the findings and recommendations presented here are applicable to diabetes programs in other areas of Ontario, both urban and rural. These areas for action require attention from the actors in the food and health system ranging from individual patients and caregivers to decision makers at the local, regional, provincial and national scales.

Table 7.1

Recommendations for actions to enhance the capacity of community diabetes educators to support local sustainable food (LSF)

Findings	Recommendations	Key Actors
<p>1. Economic access to healthy food is a concern for people with diabetes</p> <p>2. Women continue to bear the primary responsibility for the food work (and care work) in the nutritional management of diabetes.</p> <p>3. There are policy and programs in development and in place in Ontario that are supportive of local sustainable food.</p> <p>4. Community food programs play an important role in food access for people with diabetes</p> <p>5. Transportation and e-infrastructure affects food and health system access</p>	<p>Enhance financial access to local sustainable food for people with diabetes.</p> <p>Incorporate attention to gender roles and responsibilities into food and health policy and program development.</p> <p>Expand food policy and programs supportive of local sustainable food.</p> <p>Strengthen community food program linkages with health services and enhance capacity to incorporate local sustainable food.</p> <p>Include attention to infrastructure constraints in food and health policy development.</p>	<p>National, regional and community level –Health, Agriculture, Environment and Economic Development (government and non-government)</p>
<p>6. Knowledge and skills related to CFS is not a current requirement of diabetes educator training nor a standard component of diabetes education</p> <p>7. Current health system reporting does not facilitate linking patients with community resources</p>	<p>Include the knowledge and skills for supporting community food security in diabetes educator training and job outlines.</p> <p>Institute standardized outcome measurements and reporting related to food security in the clinical care setting.</p>	<p>National, regional and community level organizations responsible for diabetes program design and development (government and non-government)</p>

Recommendation # 1: Enhance financial access to local sustainable food for diabetes patients.

Financial access to local sustainable food was a concern among health care professionals with respect to their patients with diabetes. One tool available to the health care providers for eligible patients to facilitate access to the Ontario disability support program special diet allowance from the Ontario Ministry of Community and Social Services. This resource, however, was described as cumbersome to access and, in some cases, was construed as stigmatizing. Improved health team collaboration on identifying and communicating food access constraints, as described in Recommendation #7, may help to improve access to this and other income supplement options. Secondly, advocacy for enhancing community food system capacity also complements the objective of improving access to local sustainable food across income levels. A third opportunity available to health care personnel is lobbying for enhancements in minimum wage and income guarantees for citizens.

Recommendation #2: Incorporate attention to gender roles and responsibilities into food and health policy and program development.

Over 90% of the health services staff involved in diabetes nutrition education are women. For many of these, diabetes nutrition education constitutes only part of their role. Thus, training opportunities need to be developed with consideration for particular constraints that these women face. Women continue to bear the primary responsibility for the food work (and care work) in the nutritional management of diabetes. This includes food purchasing and preparation and attendance at nutrition education, and delivery of nutrition education. The programming and policy implications are for both providers and patients. If diabetes education is only a part of health services staff members' role, or only a part time role, it would be reasonable to expect

that they would not be able to apportion a significant absence from other responsibilities towards pursuing training opportunities specific to local food. A focus by Canadian Diabetes Association and professional bodies for curriculum developed to be suitable for delivery in flexible training environments, such as those accessible in online and support from regional and community employers would be important.

With the addition of increased food work as in the case of a family member with type 2 diabetes, women face increasing and competing demands on their time and attention. In view of this it would be expected that programs that have as a priority easy access to local foods, such as household food delivery, would be more readily adopted. Similarly, programs that acknowledge the specific interests and needs of men in the area are also important. For example, an elderly widower living alone lacking food skills and knowledge faces particular challenges in meeting their personal nutrition and care needs and may benefit from a referral to a community program such as a seniors dining program or meals on wheels program. As in volunteer recruitment, attention to customary age and gender affiliations in household food-related roles and responsibilities in the development of supportive community programming, helps to link patients to appropriate community resources that support and engage participants from diverse backgrounds, interests and skill sets.

Recommendation # 3: Expand food policy and programs supportive of local sustainable food.

More resources and attention need to be invested in existing and new policy and educational initiatives with respect to health promotion food initiatives. These include the adoption of the Dietitians of Canada position statements on community food security by other national health

professional organizations and the inclusion of support for local sustainable food in regional, provincial and federal food policy initiatives.

Policy initiatives in development, or already implemented and in place at local and provincial levels represent some promising progress in terms of opening up new avenues of dialogue on food issues in relation to health. These initiatives include the Dietitians of Canada position statement on Community Food Security, the Canadian Diabetes Association position statement on Food Security, local food policies in place in many municipalities in southwestern Ontario and the proposed Ontario “Local Food Act”. Central to these initiatives is an approach to promoting local food production and procurement that is not exclusive or exclusionary. That is, the goal is not to cater to one subgroup in a community or to displace food sourced from other regions or food production systems. Rather, it is a rebalancing of food production and procurement such that locally produced food has a presence in food sourcing in community households and institutions. The primary fieldwork revealed that these emerging trends are welcomed by many community health practitioners and community members. As noted, these initiatives are all relatively recent, and potential outcomes at the community scale are, as yet, uncertain in rural communities. An example of a proposed regional level action is health facility food procurement policies that include benchmarks for incorporating locally produced food. It is important to recognize in food policy development, implementation and evaluation, that the nutrient profile and cost of these “local” foods is not necessarily the foremost consideration in supporting these systems. Community members have, as a priority, a food system that underpins the “non-nutritive” contributions that local food can make in a region, such as healthy community relations and the related “sense of community”. The initiation of these regional, provincial and national policies are the product of interested and engaged citizens from a cross-

section of categories of local actors – producers, patients, and health service personnel. The successful implementation of these policies will require their continued support and participation.

Recommendation #4: Strengthen community food program linkages with health services and enhance capacity to incorporate local sustainable food.

Community food programs and peer support programs are resources available in all communities in the case study area. These programs were revealed to be dependent on the contributions of volunteers. Supporting the opportunity for experiential learning and social engagement in food volunteerism, such as that provided by Public Health departments for the Community Food Advisor program, builds a critical foundation for enhancing volunteer recruitment, retention, knowledge sharing, and program development. Similarly, attention to customary gender affiliations in food-related roles and responsibilities provides opportunities to engage participants from diverse backgrounds and interests in local sustainable food system initiatives by providing a range of tasks and skill-building options for volunteers and program participants. Given the significant role of volunteers in community health, it is essential that rigorous evaluations of these valuable community volunteer contributions that encompass the views of support staff, volunteers and recipients be conducted. Program models can be investigated to see what approaches facilitate effectively linking patients with appropriate programs. Incorporation of local sustainable food sourcing of healthy nutritious food, concurrently with social and skill building objectives for all participants are means of assessing program effectiveness. Current reporting by these programs to the Local Health Integration Network on volunteer participation in community food programs can be collated and reported

back to the community level in a format that allows for program directors to adopt and/or maintain best practices.

Recommendation # 5: Include attention to infrastructure constraints in food policy and program development.

For some rural households, access to transportation, travel times and digital access were noted in the primary research as constraints to accessing healthcare and local food resources. As such, flexibility in the timing and format of diabetes nutrition education and local food access is important. An example would be the inclusion of non-traditional hours for diabetes education including evenings and weekends when vehicle access and volunteer transportation may be more available. It may also be helpful to have group education formats that are not dependent upon e-access and that support dynamic peer learning and fostering of skills related to food work and diabetes management that is primarily horizontal – among patients, rather than didactic and vertically oriented between professional and patient. A shift to more flexible timing and formats for diabetes education would require support from the regional Local Health Integration Networks, Community Care Access Centres and from the community with staff of the Family Health Teams, Community Health Centres and Diabetes Education Centres.

Recommendation # 6: Include the knowledge and skills for supporting community food security in diabetes educator training and job outlines.

The development of knowledge and skills relating specifically to community food security, is not, as yet, a standard requirement in training for health professionals eligible to work in diabetes education. Familiarity with community food security as defined in the Dietitians of

Canada and Canadian Diabetes Association position statements would be an important addition to training curriculums in order for diabetes educators to be able to provide more support to local sustainable food initiatives. Community-based experiences with local food programs such as the Good Food Box and Community Dining programs could be an important part of diabetes educator practical training requirements and would enhance their ability to link patients with these programs thereby improving health outcomes. Realization of this goal requires support from the Canadian Diabetes Association and the Canadian Diabetes Educator Certification Board, professional organizations such as the Canadian Medical Association, Dietitians of Canada, Canadian Nurses Association and the Canadian Pharmacists Association in the area of curriculum development and professional credentialing. It will also require the support at the regional and local level of Local Health Integration Networks, Community Care Access Centres, Diabetes Education Centres Family Health Teams and Community Health Centres to facilitate community based training opportunities for prospective and current diabetes education practitioners. Such training would better enable diabetes educators to incorporate local sustainable food knowledge and skills into diabetes education.

Recommendation 7: Institute standardized outcome measurements and reporting related to food security in the clinical care setting.

In the health care setting, the fieldwork revealed that a team-based approach was perceived by health service providers to improve the patient experience of care. Beyond that, however, a more robust set of outcome measurements are needed to achieve a more comprehensive understanding of the implications of team-based care for a range of patient and community outcomes relating to the capacity to prevent and manage type 2 diabetes. Some of this data,

such as patient food skills and knowledge, is already recorded by way of patient charting and program participation data collected by community service agencies. An important next step is investigating how data can most effectively be collated and used to help connect patients to community resources, such as community food programs. A component of this strategy specific to the clinical setting would be easily coded measures of household food sufficiency that could be efficiently communicated among health service team members and facilitate connecting patients with supportive community resources. Development and implementation of such standardized measures could benefit from the support and collation of data at the regional Local Health Integration Level supported by the Ontario Ministry of Health and Longterm Care. However, initiatives by professional organizations and community level health teams can also be undertaken.

In summary, rural diabetes educators, with a familiarity and connection to their community are well positioned to play a role in emerging local sustainable food system initiatives. In particular, screening measures for food access constraints among the patient population, spearheading communication strategies about these constraints within the health care team to facilitate linking patients with appropriate community resources, as well as strengthening linkages between health facilities and community food programs can all be an important part of their role. It is essential to implement policy and program development that supports engagement in training and skill-building in order to leverage the unique and valuable role and insights of diabetes educators and community food program volunteers in rural areas. To make progress in linking food system change to health it is necessary to make it more explicit in health and food policy. Food work is not “just” women’s work and identity. It is also something that cannot be relegated to the efforts of volunteers if the type 2 diabetes epidemic is

to be effectively managed. It is something that requires concerted attention at all policy levels ranging from national to regional to individual health care workers and community members.

CHAPTER EIGHT: Concluding remarks and future research directions

Type 2 diabetes is a chronic health problem that is on the increase worldwide. This trend is attributed, at least in part, to food systems in transition. The management of the disease and its related health complications is projected to place a significant, if not overwhelming, strain on health systems. As a response, health organizations are developing strategies to confront these looming challenges. Largely absent from these strategies are progressive food policies that would facilitate both the prevention and the management of the disease. This research project examined the potential for health and food system linkages in type 2 diabetes care in response to that gap. Specifically examined was the potential role of diabetes nutrition educators in promoting local sustainable food systems and the implications of gender therein. Opportunities for and challenges to such promotion activities were investigated in the context of rural southwestern Ontario.

Given that this research project examined a phenomenon in a specific context, a case study was determined to be well suited to this investigation. The 19 communities in southwestern Ontario that were selected for inclusion in the case study had a Rurality Index of Ontario score between 40 and 60 out of 100. This index was selected as the criteria because, unlike other measures, it incorporates access to health services along with population density in determining rurality. Forty-one research participants, including people with diabetes and local diabetes nutrition educators were successfully recruited to participate in surveys and interviews. Additionally, the primary research included interviews with 17 regional and national level health service personnel with a responsibility for diabetes nutrition programming in the case study area. This fieldwork was based on a methodology that used grounded theory techniques

such as iterative coding. A review of provincial, federal, and municipal documents and reports relating to food and health systems from the case study area were reviewed providing a baseline understanding and context for the rural case study research. Analysis of the findings using grounded theory techniques such as iterative coding revealed opportunities for, and barriers to, support for local sustainable food systems by area health professionals working in positions responsible for diabetes nutrition education at local, regional and national scales.

Diabetes health service personnel in the case study area were found to be taking actions supportive of local sustainable food systems. These actions included personal patronage of local sustainable food system sources, recording of patients' constraints in accessing food, providing education and awareness of local community food resources to patients and advocacy for food system change at the local and provincial level. A number of features of the provision of health services, and health service providers' connection to the community were noted to mediate these actions and the potential for future actions, most notably patient care priorities established at the provincial and national level. These priorities include a focus on biomedical endpoints. Mandates for patient care priorities not related to these endpoints were unclear often leading to confusion and frustration. A theme repeated throughout the interviews was the need for more meaningful outcome measurements and clearer mandates for health services personnel. The initial regional assessment process that provided the groundwork for current diabetes programming was robust. It included investigating barriers to care described by patients such as the cost of food and medications to help them to manage their disease. Current measures tracked, patient access to diabetes health services and biomedical indicators of patient blood sugar control are useful. They enable health providers to have a picture of disease management for patients accessing the health care system, and program administrators to have a profile of the

population with diabetes in terms of disease management. These measurement parameters do not, however, give any indication to the health care team or to administrators, about the nature of the constraints that the individual patient (and the patient population as a whole) face in managing their disease. While access to a health service provider undoubtedly provides patients with more opportunity to manage their disease, there was untapped potential for health service providers to more effectively link patients to community resources. The growing adoption of electronic medical records (EMR) and data collection presents an opportunity for regional health organizations to implement and collate patient and community level information to enhance health services. Additionally, measuring and reporting patient food related experiences, such as household food security, and access to community food programs, helps to establish them as important and relevant to health. To enhance the contribution of EMR to individual and community health services planning, it is important that all stakeholders have input in development, and adequate training for consistency in the use of data collection tools.

In the experience of the health service providers, the basis for their actions in support of local sustainable food in the case study area included a “sense of community” and a familiarity with the profile of their patient population in terms of the patients’ food preferences, habits, and constraints on their ability to access healthy foods. This knowledge was learned from detailed food histories – in the absence of a coordinated, effective policy environment that was supportive of local sustainable food. “Sense of community” was described as generated both from contemporary experiences of everyday interactions with the people and places of their rural community and place of work and from “rootedness” or a personal history of life and work experiences in similar landscapes. That said, research participants noted that the development of supportive food policy would facilitate further action to position local food as an integral part of

the broader socio-economic base of the rural community. From the perspective of this research, food policies, such as the proposed Ontario Local Food Act would provide a policy environment supportive of local sustainable food that would be progressive rather than exclusionary.

Gender implications in diabetes nutrition education as described by research participants focused on the role of women as “expert” in household food work, health care roles, and health service encounters. The predominance of women in health care roles and food roles is consistent with that in other reports. This research adds to the evidence of the vulnerability of women to the increased demands that type 2 diabetes can have for household food work and caring work. It also brings attention to risks associated with the relatively low participation in nutrition education encounters and food skills and knowledge documented for men. For example, an elderly widower living alone may face particular challenges meeting their personal nutrition and care needs. Entrenching the role of women as gatekeepers in food work and food knowledge and skills limits the resilience of households and communities to respond to food security challenges. Waiting for gender roles to change will not help to support healthy local food choices for men and women in rural Ontario. A more proactive approach is needed.

Several directions for future research include 1) examination of the specific aspects of “sense of place” that relate to health service providers’ capacity to engage in community-based action 2) investigation of community food programs that enhance community capacity by engaging participation with attention to age and gender roles and foster peer to peer learning that, in turn, have the potential to help to improve local sustainable food knowledge and skills 3) investigation of modalities of continuing education to enhance capacity and skills of diabetes health service personnel that recognize the constraints of women working in diabetes care in

rural areas and 4) an exploration about the possibility of shifting priorities in the clinical patient setting to include standardized measures of household food security and strategies for connecting patients with community local food resources.

The description of the attributes of the case study area not specific to health and food systems are relevant to fully describe what makes this area “rural” and how readily it can be differentiated or compared to other areas defined as rural or urban. What is uncertain is whether the “sense of community” that health services providers describe is uniquely linked to the food production tradition that is the cornerstone of the rural economy. The key economic driver in the area is agriculture and food production followed closely by tourism. The attraction of the area to tourists are the tracts of “natural” spaces; coastlines, parklands and agro-tourism. Would an area characterized by a similar population density and the accompanying transportation and digital infrastructure constraints, but with a different economic base – such as industry or mineral resources be comparable in terms of the linkages between health and food systems? Investigating actions being taken by health services personnel working in other areas of Ontario could help to answer that question. If rural agricultural areas are uniquely positioned to illustrate these linkages, incorporating training in a rural area would be a valuable component of training programs for all health services providers.

Notable in the descriptions of the rural communities in which health service providers and people with diabetes lived and worked, was reference to the “rural ideology” that shaped their perceptions. While these ideologies may make an important contribution to the “sense of place” described above, they may also serve to obscure some of the challenges of class and culture faced by some area residents. These communities include, but are not limited to, those

individuals that face mental health challenges, as well as residents of the area living on fixed and/or low incomes.

This research project was situated in a rural Ontario context. The indications for future research, however, are not limited to this specific place. The key recommendations for future research; incorporating assessment of “sense of community” into place-based health and food system research, development and testing of health outcome measurement and reporting that facilitates connecting individuals with resources in their community and enhances policy-maker awareness of food access, and investigating effective models of developing and maintaining community local sustainable food capacity are important objectives in any context. Evaluating the role of local sustainable food using units such as calories and affordability alone is insufficient to measure its value in the health of individuals and communities. This examination of food and health systems in the experience of people living and working with type 2 diabetes illustrates the place of food as one that is an integral component of caring work in the home and community.

References

- ADA (2007) Position of the American Dietetic Association: Food and Nutrition Professionals Can Implement Practices to Conserve Natural Resources and Support Ecological Sustainability. *Journal of the American Dietetic Association*, 107, 1033-1043.
- ADA (2010). Healthy Land, Healthy Food and Healthy Eaters: Dietitians cultivating sustainable food systems. American Dietetic Association.: http://old.eatright.org/cps/rde/xchg/ada/hs.xsl/education_22069_#NU_HTML.htm.
- AMA (2009) Resolution 405, A-08 Sustainable Food. American Medical Association. Action of the AMA House of Delegates Annual Meeting 2009.
- Albrecht, G. (2005) Solastalgia: A new concept in human health and identity. *Philosophy, activism and nature*, 41-55.
- Alvaro, C., L. Jackson, S. Kirk, J. McHugh, A. Chircop & R. Lyons (2010) Moving Canadian governmental policies beyond focus on individual lifestyle: some insights from complexity and critical theories. *Health Promotion International*. 26(1), 91-99.
- AOHC. 2000. Handbook for Developing a Community Health Centre. Toronto: Association of Ontario Health Centres.
- AOHC. 2011. Community Health Centres: Addressing the great health divide. Toronto: Association of Ontario Health Centres.: <http://www.aohc.org/>
- Almuwil, A., V. Weerakkody & R. El-Haddadeh. 2011. A conceptual study of the factors influencing e-inclusion. In *European, Mediterranean and Middle Eastern Conference on Informations Systems*. Athens.
- Armstrong, P. (2002) Thinking it Through: Women, Work and Caring in the New Millenium. *Canadian Woman Studies*, 21/22, 44-50.
- Angeles, L. (2000) Reflections on Feminist Gender, Agriculture. *Canadian Woman Studies*, 21, 34-39.
- Arya, N. 2007. Applications of Science-based Decision-making: Medicine, Environment and International Affairs. In *Psychology of Decision Making*, ed. G. Burthold, R., 1- 7. Nova Science Publishers, Inc.
- Arya, N., J. Howard, S. Isaacs, M. L. McAllister, S. Murphy, D. Rapport & D. Waltner-Toews (2009) Time for an ecosystem approach to public health? Lessons from two infectious disease outbreaks in Canada. *Global Public Health*. 4(1): 31-49.

- Barker, P. 2007. Local Health Integration Networks: The Arrival of Regional Health Authorities in Ontario. In *Annual Meeting of the Canadian Political Science Association*. University of Saskatchewan, Saskatoon, Saskatchewan.
- Barling, D., T. Lang & M. Caraher (2002) Joined-up Food Policy? The Trials of Governance, Public Policy and the Food System. *Social Policy and Administration*, 36, 556-574.
- Belanger, J. & T. Johns (2008) Biological Diversity, Dietary Diversity and Eye Health in Developing Country Populations: Establishing the Evidence-base. *Ecohealth*, 5, 244-256.
- Berkes, F. & I. Davidson-Hunt. 2008. The Cultural Basis for an Ecosystem Approach I In: *The Ecosystem Approach*, eds. D. Waltner-Toews, J. J. Kay & N.-M. Lister, 109-124. New York: Columbia University Press.
- Blay-Palmer, A. 2008. Creating Mutual Food Systems. In *Food Fears - From Industrial to Sustainable Food Systems*, 196. London: Ashgate.
- Blay-Palmer, A., K. Landman, I. Knezevic & R. Hayhurst (2013) Constructing resilient, transformative communities through local "food hubs". *Local Environment*, 18, 521-528.
- Bloch, G. (2012) Poverty Interventions for Family Physicians. Ontario College of Family Physicians. Toronto: www.ocfp.on.ca/cme/povertytool.
- Bodin, O. & B. Crona (2009) The role of social networks in natural resource governance: What relational patterns make a difference? *Global Environmental Change*, 19, 366-374.
- Booth, G., L. Lipscombe, O. Bhattacharyya, D. Feig, B. Shah, N. Degani, A. Johns, B. Ko & B. AS. 2010. Diabetes. In *Project for an Ontario Women's Health Evidence-Based Report*, ed. Bierman. Toronto.
- Booth, G., J. Polsky, G. Gozdyra, K. Cauch-Dudek, T. Kiran, B. Shah, L. Lipscombe & R. Glazier. 2012. Regional Measures of Diabetes Burden in Ontario. Toronto: St Michael's Hospital and the Institute for Clinical Evaluative Sciences.
- Born, B. & M. Purcell (2006) Avoiding the local trap: Scale and food systems in planning research. *Journal of Planning Education and Research*, 26, 195-207.
- Bowen, S. & A. Zwi (2005) Pathways to "Evidence-Informed" Policy and Practice: A Framework for Action. *Policy Forum*.
- Bowering, L. (2012). The Road Ahead: A study of transportation needs across Huron and Perth Counties. Stratford, The Social Research and Planning Council.
- Brauer, P., L. Dietrich & B. Davidson (2006) Nutrition in Primary Health Care: Using a Delphi Process to Design New interdisciplinary Services. *Canadian Journal of Dietetic Research*, S14-S29.

Bryant, C. A., A. Courtney, B. Markesbery & K. M. DeWalt. 2003. *The Cultural Feast: An Introduction to Food and Society*. St. Paul: West Publishing Company.

Bryant, T. 2009. *An Introduction to Health Policy*. Toronto: Canadian Scholars Press Inc.

Bunz, U. (2009) A Generational Comparison of Gender, Computer Anxiety, and Computer-Email-Web Fluency. *SIMILE: Studies in Media and Information Literacy Education*, 9, 54-69.

Cannon, G. (2005) "The rise and fall of dietetics and of nutrition science, 4000 BCE 2000 CE," *Public Health Nutrition*, vol. 8(6A), pp. 701-705.

Carter-Whitney, M. 2009. *Bringing Local Food Home: Legal, Regulatory and Institutional Barriers to Local Food*. Toronto: Canadian Institute for Environmental Law and Policy.

Cash, S., E. Goddard & M. Lerohl (2006) Canadian Health and Food: The Links between Policy, Consumers, and Industry. *Canadian Journal of Agricultural Economics*, 54, 605-629.

CBRA, 2012a. *Niagara Escarpment Ontario*. Canadian Biosphere Reserve Association.: <http://biospherecanada.ca/en/biosphere-reserves/niagara-escarpment/>

CBRA, 2012b. *Long Point Ontario*. Canadian Biosphere Reserve Association.: <http://biospherecanada.ca/en/biosphere-reserves/long-point-biosphere-reserve/>.

CCAC, 2012a. *Home and Community Care – South West*. Community Care Access Centres of Ontario. Owen Sound: <http://www.southwesthealthline.ca/list>.

CCAC, 2012b. *Health News for Southwest*. Community Care Access Centres of Ontario. Owen Sound.: <http://www.southwesthealthline.ca/displayarticle.aspx?id=2732®ion=SouthWestOntario#>.

CDA, 2008. *Clinical Practice Guidelines*. Toronto, Canadian Diabetes Association:

---, 2011. *Taking a stand: Advocacy position statements on the issues facing people with diabetes in Canada*. Toronto. Canadian Diabetes Association.

---, 2012. *Finding a Diabetes Education Centre Near You*. Toronto, Canadian Diabetes Association.: <http://www.diabetes.ca/for-professionals/des/diabetes-education-centre/>.

---, 2013. *Clinical Practice Guidelines*. Toronto, Canadian Diabetes Association: <http://guidelines.diabetes.ca/>.

- CDECB. 2012. *Canadian Diabetes Educator Eligibility Criteria*. Toronto: Canadian Diabetes Educator Certification Board.: <http://www.cdec.ca/>.
- CFA. 2012. *Community Food Advisor Program in Ontario*. Ontario Public Health Association. Available at: <http://www.communityfoodadvisor.ca/>
- Charron, D. 2011. *Ecohealth Research in Practice: Innovative Applications of an Ecosystem Health Approach*. Ottawa: IDRC.
- Charmaz, K. 2006. *Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis*. London: Sage Publications.
- . 2011. Grounded Theory Methods in Social Justice Research. In *Sage Handbook of Qualitative Research*, eds. N. Denzin and Y. Lincoln, 320-372. New York: Sage.
- Charreire, H., R. Casey, P. Salze, C. Simon, B. Chaix, A. Banos, D. Badariotti, C. Weber and J. Oppert (2010) Measuring the food environment using geographical information systems: a methodological review. *Public Health Nutrition*, 13, 1773-1785.
- Clapp, J. 2012. *Food*. Cambridge: Polity Press.
- CMA. 2013. *Health Care in Canada: What Makes us Sick?* Toronto: Canadian Medical Association.
- County of Bruce. 2012. *About Bruce County*.: <http://www.brucecounty.on.ca/our-community/about-bruce-county.php>
- County of Huron, 2012. *County of Huron*. <http://www.huroncounty.ca/>
- Coveney, J. 2006. *Food, morals, and meaning: the pleasure and anxiety of eating*. New York: Routledge.
- Creatore, M., G. Booth, D. Manuel, R. Moineddin & R. Glazier (2012) Diabetes screening among immigrants: a population-based urban cohort study. *Diabetes Care*, 35, 754-61.
- Cresswell, J. 2011. Controversies in Mixed Methods Research. In *Sage Handbook of Qualitative Methods*, eds. N. Denzin & Y. Lincoln, 270-281. New York: Sage.
- . 2012. *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. Los Angeles: Sage.
- Cresswell, T. 2004. *Place: A Short Introduction*. Oxford: Wiley-Blackwell.
- CSDH. 2008. Closing the gap in a generation: health equity through action on the social determinants of health. In *Commission on Social Determinants of Health: Final Report*. Geneva: WHO.

Cummings, R., J. Johnstone, M. Khan, D. Lane, T. Ludlow, K. MacGillivray & A. Vanerloo. 2010. Elgin County Local Food Study. Guelph: University of Guelph.

Curtis, S., W. Gesler, G. Smith & S. Washburn (2000) Approaches to sampling and case selection in qualitative research: examples in the geography of health. *Social Science and Medicine*, 50, 1001-1014.

Deber, R., N. Kraetschmer, S. Urositz & N. Sharpe (2005) Patient, consumer, client, or customer: what do people want to be called. *Health Expectations*, 8, 345-351.

Denzin, N. & Y. Lincoln. 2011. *The SAGE Handbook of Qualitative Research*. London: Sage.

DeSchutter, O. 2012. *Olivier De Schutter, Special Rapporteur on the right to food: Visit to Canada from 6 to 16 May 2012*. Ottawa: United Nations Office of the United Nations High Commissioner for Human Rights:
http://www.srfood.org/images/stories/pdf/officialreports/201205_canadaprelim_en.pdf

DesMeules, M. & R. Pong. 2006. How Healthy Are Rural Canadians? An Assessment of Their Health Status and Health Determinants. Ottawa: PHAC.

Dinca-Panaltescu, S., M. Dinca-Panaltescu, T. Bryant, I. Daiski, B. Pilkington & D. Raphael (2011) Diabetes prevalence and income: Results of the Canadian Community Health Survey. *Health Policy*, 99, 116-123.

Dixon, J. "From the imperial to the empty calorie: how nutrition relations underpin food regime transitions," *Agriculture and Human Values*, vol. 26, pp. 321-333, 2009.

DOC (2007) Community Food Security: Position of Dietitians of Canada. Dietitians of Canada. Toronto: Dietitians of Canada.

---. 2012. Eatright Ontario. Dietitians of Canada.:
<http://www.eatrightontario.ca/en/default.aspx>

Dolan, H. & D. Thein (2008) Relations of Care: A Framework for Placing Women and Health in Rural Communities. *Canadian Journal of Public Health*, 99.

Dyck, I. (2003) Feminism and Health Geography: twin tracks or divergent agendas? *Gender, Place and Culture: A Journal of Feminist Geography*, 10, 361-368.

EBRC. 2012. *Buy Local Buy Fresh Map*. St. Thomas. Elgin County Business Resource Centre.: <http://www.elginbusinessresourcecentre.com/BuyLocalBuyFresh.pdf>

EC. 2011. The State of Men's Health in Europe. 102. Directorate General for Health and Consumers. European Commission.

ECHU. 2012. *Nutritious Food Basket Report: The Cost of Eating in St. Thomas and Elgin*. 4. St Thomas: Elgin County Health Unit.

Elgin County. 2012. *Welcome to Elgin County*.: <http://www.progressivebynature.com/>

Ericksen, P. J. (2008) Conceptualizing food systems for global environmental change research. *Global Environmental Change*, 18, 234-245.

Epp, J. 1978. *Health for All by the Year 2000*. Ottawa: Health and Welfare Canada.

FAO/WHO. 1996. Preparation and Use of Food-Based Dietary Guidelines. In *Report of a joint FAO/WHO Expert Consultation*. Nicosia, Cyprus: World Health Organization.

Feagan, R. (2007) The place of food: mapping out the “local” in local food systems. *Progress in Human Geography*, 31 (1) 23-42.

Feenstra, G. (1997) Local food systems and sustainable communities. *American Journal of Alternative Agriculture*, 28-35.

FIAN. 2009. *Right to Food and Nutrition and Nutrition Watch 2009: Who controls the governance of the world food system*. eds. F. Valente, M. Immink & S. Bijlmakers. Heidelberg: FIAN International.

Fiske, J., D. Hemingay, A. Vaillancourt, H. Peters, C. McLennan, B. Keith & A. Burrill. 2012. Health Policy and the Politics of Citizenship: Northern Women's Caregiving in Rural British Columbia. In *Rural Women's Health*, eds. B. Leipert, B. Leach & W. Thurston, 403-422. Toronto: University of Toronto Press.

FLGB. 2012. *Food Link Grey Bruce*. Owen Sound: Food Link Grey Bruce.: <http://www.foodlinkgreybruce.com/>

---. 2009. *Gap Analysis*. Owen Sound: Food Link Grey Bruce.: <http://www.foodlinkgreybruce.com/>

Forget, G. & J. Lebel (2001) An Ecosystem Approach to Human Health. *International Journal of Occupational and Environmental Health*, 7, S3-S36.

Freeland-Graves, J. & J. Cahill (2008) International dietary standards for trace elements. *Cell Biology and Toxicology*, 24, 362-367.

Freidmann, H. (2007) Scaling up: Bringing public institutions and food service corporations into the project for a local, sustainable food system in Ontario. *Agriculture and Human Values*, 24, 389-398.

Friel, S., A. D. Dangour, T. Barnett, K. Lock, Z. Chalabi, I. Roberts, A. Butler, C. Butler,

- J. Waage, A. McMichael & A. Haines (2009) Public health benefits of strategies to reduce greenhouse-gas emissions: food and agriculture. *Lancet*, 2-10.
- Fuller, T. & P. Nichol. 1999. *Dynamics of the New Rural Economy: An Exploration of Community-Sponsored Research from Huron County*. Guelph: Gunbyfield Publishing.
- Galesloot, S., L. McIntyre, T. Fenton & S. Tyminski (2012) Food Insecurity in Canadian Adults Receiving Diabetes Care. *Canadian Journal of Dietetic Practice and Research*, 73, 261-266.
- Gillespie, A. & L. Smith (2008) Food Decision-Making Framework: Connecting Sustainable Food Systems to Health and Well-Being. *Journal of Hunger and Environmental Nutrition*, 3, 328-346.
- Gingras, J. (2009) The educational (im)possibility for dietetics: a post-structural discourse analysis. *Learning Inquiry*, 3, 177-191.
- Green, J. & N. Thorogood. 2009. *Qualitative methods for health research*. London: Sage.
- Grey County. 2012. *About Grey*.: <http://www.grey.ca/explore-grey/about-grey/>
- Guariguata, L., Whiting, D. Weil, C. Unwin, N. (2011) The International Diabetes Federation diabetes atlas methodology for estimating global and National prevalence of diabetes in adults. *Diabetes Research and Clinical Practice*. 94:3, 322-332.
- Gucciardi E, Vogt JA, DeMelo M, Stewart DE. Exploration of the relationship between household food insecurity and diabetes in Canada. *Diabetes Care* 2009; 32(12):2218-24
- Gussow, J. D. & K. Clancy (1986) Dietary Guidelines for Sustainability. *Journal of Nutrition Education*, 18, 1-5.
- Gussow, J. D. (2006) Reflections on Nutritional Health and the Environment: The Journey to Sustainability. *Journal of Hunger and Environmental Nutrition*, 1, 13-25.
- Guthman, J. (2008) Bringing good food to others: investigating the subjects of alternative food practice. *Cultural Geographies*, 15, 431-447.
- Gupta, S. & L. Senzilet (2007) Defining, Measuring and Analyzing Health and Place. *Health Canada Health Policy Research Bulletin*, 10-12.
- Habjan, S., K. Kortess-Miller, M. L. Kelley, H. Sullivan & L. Pisco. 2011. Building Capacity in Rural Health Services: The Effect of Continuing Education. In *Health in Rural Canada*, eds. J. Kulig & A. Williams, 118-136. Vancouver: UBC Press.

Hamelin, A.M., C. Mercier & A. Bedard (2010) Discrepancies in households and other stakeholders' viewpoints on the food security experience: a gap to address. *Health Education Research*, 25, 401-412.

Hammel, K. 2009. Local Food and the Grey Bruce Good Food Box. 33. Owen Sound: Grey Bruce Public Health Unit.

Harmon, A., J. Lapp, D. Blair & Hauk-Lawson (2011) Teaching Food System Sustainability in Dietetic Programs: Need, Conceptualization, and Practical Approaches. *Journal of Hunger and Environmental Nutrition*, 6, 114-124.

Hart, C. 1999. *Doing a Literature Review: Releasing the Social Science Research Imagination*. New York: Sage.

Hart, G., E. Larson & D. Lishner (2005) Rural Definitions for Health Policy and Research. *American Journal of Public Health*, 95, 1149-1155.

Harvie, J., L. Mikkelsen & L. Shak (2009) A new health care prevention agenda: Sustainable food procurement and agricultural policy. *Journal of Hunger and Environmental Nutrition*, 4, 409-429.

Hawe, P., L. King, M. Noort, S. Gifford & B. Lloyd (1998) Working invisibly: health workers talk about capacity-building in health promotion. *Health Promotion International*, 13.

Health Canada. 2007. Canadian Community Health Survey, Cycle 2.2, Nutrition (2004) Income-Related Household Food Security in Canada. ed. Office of Nutrition Policy and Promotion. Ottawa.

---. 2011. *Canadas Food Guide*. Health Canada, Ottawa. <http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/index-eng.php>

Heflin, C., K. Siefert & D. Williams (2005) Food insufficiency and women's mental health: Findings from a 3-year panel of welfare recipients. *Social Science and Medicine*, 61, 1971-1982.

Herxheimer, A. & H. Goodare (1999) Who are you, and who are we? Looking through some key words. *Health Expectations*, 2, 3-6.

Huron County. 2012. *Buy Local Buy Fresh Map*. Clinton, Huron County Health Unit.: <http://huronperthfarmtotable.ca/consumers/wp-content/uploads/2012/08/4thBLBF-Map-FINAL.pdf>.

HCL. 2012. *Huron CAP Community Access Program*. Huron County Library, Clinton.: <http://www.huroncounty.ca/library/cap/>.

HPFTT. 2012. Huron Perth Farm to Table.: <http://huronperthfarmtotable.ca>

- IDF. 2011. *IDF Diabetes Atlas*. 5th Edition. International Diabetes Foundation. Brussels, Belgium: International Diabetes Federation, 2011.: <http://www.idf.org/diabetesatlas>.
- Industry Canada. 2011. *Broadband Canada: Connecting Rural Canadians*. Industry Canada, Ottawa.: http://www.ic.gc.ca/eic/site/719.nsf/eng/h_00032.html.
- Jabbar, A. & J. Abelson (2010) Development of a framework for effective community engagement in Ontario, Canada. *Health Policy*, 101, 56-69.
- Jacobs, D. & L. Steffen (2003) Nutrients, Foods, and Dietary Patterns as Exposures in Research: A Framework for Food Synergy. *American Journal of Clinical Nutrition*, 508s-513s.
- Jenkins, D., J. A., J. L. Sievenpiper, D. Pauly, U. R. Sumaila, S. Kendall, W.C. & F. Mowat, M. (2009) Are dietary recommendations for the use of fish oils sustainable? *Canadian Medical Association Journal*, 180(6), 633-666.
- Johns, T. & P. Eyazquirre (2006) Linking biodiversity diet and health to policy and practice. *Proc Nutr Soc*, 65, 182-9.
- Joughin, Barbara. 2008. *Community Food Charters: What They Are and When to Use Them*. Vancouver Food Policy Council, Vancouver.: http://www.vch.ca/media/Population%20Health_Community%20Food%20Charter%20Vancouver.pdf.
- Kattides, M. L. & M. G. Bastos Lima (2008) Changing Food Systems and Implications for Sustainable Communities: Cyprus, Canada, and Brazil. *Environments*, 36, 45-60
- Kearns, R. & G. Moon (2002) From medical to health geography: novelty, place and theory after a decade of change. *Progress in Human Geography*, 26, 605-625.
- Kennedy, E. (2008) Nutrition policy in the U.S.: 50 years in review. *Asia Pacific Journal of Clinical Nutrition*, 17, 340-342.
- Kilpatrick, S., B. Cheers, M. Gilles & J. Taylor (2009) Boundary crossers, communities, and health: Exploring the role of rural health professionals. *Health and Place*.
- Klein, J. (2008) Evaluation of Interdisciplinary and Trans-disciplinary Research: A Literature Review. *American Journal of Preventative Medicine*, 35, S116-S123.
- Knopf, J. (2006) Doing a Literature Review. *Political Science and Politics*, 39, 127-132.
- Koc, M., R. MacRae, E. Desjardins & W. Roberts (2008) Getting Civil About Food: The Interactions Between Civil Society and the State to Advance Sustainable Food Systems in Canada. *Journal of Hunger and Environmental Nutrition*, 3, 122-144.

Kondracki, N., N. Wellman & D. Amundson (2002) Content Analysis: Review of Methods and Their Applications in Nutrition Education *Journal of Nutrition Education and Behaviour*, 34.

Kwik, J. 2008. Traditional Food Knowledge:Renewing Culture and Restoring Health. In *Environment and Resource Studies*. Waterloo: University of Waterloo.

Lalonde, M. 1974. New Perspectives for the Health of Canadians. Ottawa.

Labonte, R. (2005) Towards a critical population health research. *Critical Public Health*, 15, 1-3.

Lang, T. and M. Heasman. 2004. *Food Wars: The Global Battle for Mouths, Minds and Markets*. Earthscan, London.

Lang, T. (2005) Food control or food democracy? Re-engaging nutrition with society and the environment. *Public Health Nutrition*, 8(6A), 730-737.

---. 2010. Sustainable Diets and Biodiversity: The challenge for policy, evidence and behaviour change. In *International Scientific Symposium: Biodiversity and Sustainable Diets: United Against Hunger*. Rome: FAO.

Leipert, B., T. Landry & B. Leach. 2012. Closing the Gap: Rural Women's Organizaitons and Rural Women's Health in Canada. In *Rural Women's Health*, eds. B. Leipert, B. Leach & W. Thurston, 62-79. Toronto: University of Toronto Press.

Lippard, L. 1997. *The Lure of the Local: Senses of Place in a Multicultural Society*. The New York Press, New York.

Liquori, T. (2001) Food Matters: Changing Dimensions of Science and Practice in the Nutrition Profession. *Journal of Nutrition Education and Behaviour*, 33, 234-246.

Loopstra, R. & V. Tarasuk (2013) Perspectives on Community Gardens, Community Kitchens and the Good Food Box Program in a Community-based Sample of Low-income Families. *Canadian Journal of Public Health*, 104, e55-e59.

Lyll, C., A. Bruce, J. Tait & L. Meagher. 2011. *Interdisciplinary Research Journeys: Practical Strategies for Capturing Creativity*. London: Bloomsbury Academic.

Maddigan, S., S. Majumdar, L. Guirguis, R. Lewanczuk, T. Lee, E. Toth & J. Johnson (2004) Improvements in Patient-Reported Outcomes Associated With an Intervention to Enhance Quality of Care for Rural Patients With Type 2 Diabetes. *Diabetes Care*, 27, 1306-1312.

Marsden, T. & A. Franklin (2013) *Replacing neoliberalism: theoretical implications of the rise of local food movements*. *Local Environment*, 18 (5) 636-641.

- McAllister, M. L. 2004. *Governing Ourselves?: the politics of Canadian communities*. Vancouver: UBC Press.
- McCarter, J. 2012. 2012 Annual Report of the Office of the Auditor General of Ontario. 457. Toronto: Office of the Auditor General of Ontario.
- McIntyre, L., V. Tarasuk & T. L. Jinguang (2007) Improving the nutritional status of food insecure women: first, let them eat what they like. *Public Health Nutrition*, 1289-1298.
- McIntyre, L. & K. Rondeau (2011) Individual consumer food localism: A review anchored in Canadian farmwomen's reflections. *Journal of Rural Studies*, 116-124.
- McKnight, J. 1995. *Careless society: community and its counterfeits*. New York: Basic Books.
- McMichael, A., J. Powles, C. Butler & R. Uauy (2007) Food, livestock production, energy, climate change and health. *Lancet*, 370, 1253-1263.
- McMichael, A. (2005) Integrating nutrition with ecology: balancing the health of humans and biosphere. *Public Health Nutrition*, 8(6A), 706-715.
- MEA. 2005. Millenium Ecosystem Assessment Project: Ecosystem and Human Wellbeing Synthesis Report: <http://www.maweb.org/en/Synthesis.aspx>
- MOHLTC. 2006. Local Health System Integration Act, 2006. ed. Toronto: Ontario Ministry of Health and Longterm Care.
- . 2008. *Building the Case for Change: Building the Case for Change: Preventing and Managing Chronic Illness*, Toronto: Ontario Ministry of Health and Long Term Care 42 pp.
- . 2009a. *A Healthier Tomorrow: Integrated Health Service Plan 2010-2013*, Toronto: Ontario Ministry of Health and Long Term Care 48pp.
- . 2009b. Roadmap to implementing a family health team. Toronto: Queens Printer. Ontario Ministry of Health and Long Term Care. 13 pp.
- . 2010. *Rural and Northern Health Care Framework/Plan Stage 1 Report*. Toronto. Ontario Ministry of Health and Long Term Care. 63 pp.
- . 2011. Rurality Gradient Premium Eligibility Changes. Public Health Care Branch. Ontario Ministry of Health and Long Term Care Toronto: INFOBulletin. Internet: <http://www.health.gov.on.ca/en/pro/programs/ohip/bulletins/11000/bul11011.pdf>
- . 2012a. *South West Local Health Integration Network Annual Report 2010-11*. Toronto: Ontario Ministry of Health and Long Term Care. 42 pp.

---, 2012b. *Your Health Care Options*. Ontario Ministry of Health and Long Term Care.: <http://www.health.gov.on.ca/en/public/programs/hco/options/phu.aspx#>

MOHP. 2010. Nutritious Food Basket Guidance Document. Ontario Ministry of Health Promotion. Toronto.: <http://www.mhp.gov.on.ca/en/healthy-communities/public-health/guidance-docs/NutritiousFoodBasket.PDF>

Morgan, K. (2008) Greening the Realm: Sustainable Food Chains and the Public Plate. *Regional Studies*, 42, 1237-1250.

Mount, P., S. Hazen, S. Holmes, E. Fraser, A. Winson, I. Knezevic, E. Nelson, L. Ohberg, P. Andree and K. Landman. (2013) Barriers to the local food movement: Ontario's community food projects and the capacity for convergence. *Local Environment*, 18:5, 592-605.

NFU. 2011. Farms, Farmers and Agriculture in Ontario: an overview of the situation in 2011. National Farmers Union. 16.

Nestle, M. 2006. *What to Eat*. New York: North Point Press.

Nelson, E., S. Scott, J. Cukier & A. Galan (2009). Institutionalizing agroecology: successes and challenges in Cuba. *Agriculture and Human Values* 26:233-243.

Neuman, L. W. 2004. *Basics of Social Research: Qualitative and Quantitative Approaches*. Boston: Pearson.

NOSM. 2012. Innovative Education and Research for a Healthier North. Northern Ontario School of Medicine, Sudbury.: http://www.nosm.ca/future_learners/default.aspx?id=15146

OAFB. 2012. *Ontario Association of Food Banks Hunger Report 2012*. Toronto. Ontario Association of Food Banks.: <http://www.oafb.ca/2012-hunger-report>

OMAFRA. 2012. *Southern Ontario Region at a Glance 2011*. Guelph: Ontario Ministry of Agriculture and Rural Affairs, Census of Agriculture and Strategic Policy Branch.

OMCSS. 2012. "Ontario disability support program special diet allowance" Ontario Ministry of Community and Social Services, Toronto.: http://www.mcss.gov.on.ca/en/mcss/programs/social/directives/directives/ODSPDirectives/income_support/6_4_ODSP_ISDirectives.aspx

OPHA. 2010. Community Food Advisor Program in Ontario. Ontario Public Health Association.: www.communityfoodadvisor.ca

Pettoello-Mantovani, M. (2005) The social and environmental dimensions of nutrition science. *Public Health Nutrition*, 8(6A), 749-752.

- Parfitt, J. 2005. Questionnaire design and sampling. In *Methods in Human Geography*, eds. R. Flowerdew & D. Martin, 78-106. London: Pearson Prentice Hall.
- Panelli, R. & G. Tipton (2009) Beyond foodscapes: Considering geographies of Indigenous well-being. *Health and Place*, 15, 455-465.
- Parkes, M., R. Panelli & P. Weinstein (2003) Converging Paradigms for Environmental Health Theory and Practice. *Environmental Health Perspectives*, 111, 669-675.
- Parkes, M., L. Bienen, J. Breilh, L.-N. Hsu, M. McDonald, J. Patz, J. Rosenthal, M. Sahani, A. Sleight, D. Waltner-Toews & A. Yassi (2005) All Hands on Deck: Trans-disciplinary Approaches to Emerging Infectious Disease. *Ecohealth*, 258-271.
- Paterson, B. (2001) Myth of empowerment in chronic illness. *Journal of Advanced Nursing*, 34, 574-581.
- Perth County, 2012. *Welcome to Perth County*: <http://www.perthcounty.ca/>.
- PHAC. 2006. Revitalizing Ontario's Public Health Capacity: The Final Report of the Capacity Review Committee. 70. Toronto.
- . 2011. Diabetes in Canada: Facts and Figures from a Public Health Perspective. Ottawa: Public Health Agency of Canada.
- . 2012. The Canadian Diabetes Strategy: History, Evolution Moving Forward. Ottawa: Public Health Agency of Canada. Available at: http://www.phac-aspc.gc.ca/cd-mc/diabetes-diabete/strategy_funding-strategie_finance-eng.php.
- Pilkington, F. B., I. Daiski, E. Lines, T. Bryant, D. Raphael, M. Dinca-Panaltescu & S. Dinca-Panaltescu (2011) Type 2 Diabetes in Vulnerable Populations: Community Healthcare Providers' Perspectives on Health Service Needs and Policy Implications. *Canadian Journal of Diabetes*, 35, 503-511.
- Popkin, B. (1998) Urbanization, lifestyle changes and the nutrition transition. *World Development*, 27, 1905-16.
- Poppendick, J. 2013. Want amid plenty: From hunger to inequality. In *Food and Culture: A Reader*, ed. P. Van Esterik, 563-571. New York: Routledge.
- Pothukuchi, K. (2004) Community Food Assessment: A First Step in Planning for Community Food Security. *Journal of Planning Education and Research*, 23, 356-377.
- Raine, K. (2005) Determinants of Healthy Eating in Canada: An Overview. *Canadian Journal of Public Health*, 96, S8-S14.

- Raza, D., G. Bloch, S. ter Kulie (2013) Office interventions for poverty. *Ontario Medical Review*. 80:9, 21-24.
- Rapport, D., J. Howard, M., R. Lannigan, C. Anjema, M. & W. McCauley (2001) Strange Bed Fellows: Ecosystem Health in the Medical Curriculum. *Ecosystem Health*, 7, 155-163
- Rapport, D. & L. Maffi (2011) Eco-cultural Health, Global Health and Sustainability. *Ecological Research*. 26:1039-1049.
- Renting, H., T. Marsden & J. Banks (2003) Understanding alternative food networks: exploring the role of short food supply chains in rural development. *Environment and Planning A* 35, 393-411.
- Rideout, K., B. Seed & A. Ostry (2006) Putting Food on the Public Health Table: Making Food Security Relevant to Regional Health Authorities. *Canadian Journal of Public Health*, 97, 336-340.
- Riley, T. & P. Hawe (2005) Researching Practice: the Methodological Case for Narrative Inquiry. *Health Education Research*, 20, 226-236.
- Robins, L. (2007) Capacity-Building for Natural Resource Management: Lessons from the Health Sector. *EcoHealth*, 4, 247-263.
- Roppel, C., A. Desmarais & D. Martz. 2006. Farm Women and Canadian Agricultural Policy. 157. Ottawa: Research Directorate on the Status of Women Canada.
- Rourke, J. (2010) WHO recommendations to improve retention of rural and remote health workers - important for all countries. *Rural and Remote Health*, 10.
- Sadler, R. (2011) An application of the edge effect in measuring accessibility to multiple food retailer types in rural Southwestern Ontario, Canada. *International Journal of Health Geographics*, 10.
- Santropol Roulant. 2012. Santropol Roulant Annual Report 2012. Montreal. 20:
<http://santropolroulant.org/wp-content/uploads/2012/03/Santropol-Roulant-Rapport-Annuel-2012-Annual-Report.pdf>
- Saunders, J. 2012. "Ontario Weather Review 2012" Environment Canada. Ottawa.:
<http://www.ec.gc.ca/default.asp?lang=En&n=714D9AAE-1&news=AA2963D2>
- Scharf K. and Morgan M.L. (1997): The Good Food Box Guide. FoodShare Metro Toronto, Toronto.
- Schiff, R. (2008) The Role of Food Policy Councils in Developing Sustainable Food Systems. *Journal of Hunger and Environmental Nutrition*, 3. 206-228.

- Scrinis, G. (2008) On the Ideology of Nutritionism. *Gastronomica: The Journal of Food and Culture*, 8, 39-48.
- Sen, A. 1981. *Poverty and Famines: An Essay on Entitlement and Deprivation*. Oxford: Clarendon Press.
- Shiva, V. 2007. *Manifestos on the Future of Food and Seed*. Cambridge, Mass: South End Press.
- Smith, A., K. Burns & K. Thompson (2011) Local Food for Local People. *Progressive by Nature e-Newsletter*, p. 7.
- Smithers, J., P. Johnson & A. Joseph (2004) The Dynamics of Family Farming in North Huron County, Ontario. Part I. Development trajectories. *The Canadian Geographer*, 48, 191-208.
- Smithers, J., J. Lamarche, & A. Joseph (2008) Terms of Engagement with Local Food at the Farmer's Market: Insights from Ontario. *Journal of Rural Studies*, 24, 337-350.
- Sobal, J., L. Kettel Khan & C. Bisogni (1998) A Conceptual Model of the Food and Nutrition System. *Social Science and Medicine*, 47, 853-863.
- Solomons, N. (2002) Ethical consequences for professionals from the globalization of food, nutrition and health. *Asia Pacific Journal of Clinical Nutrition*, 11, S653-S655.
- Starks and Trinidad (2007) "Choose Your Method: A Comparison of Phenomenology, Discourse Analysis and Grounded Theory," *Qualitative Health Research*, vol. 7:1372-1380.
- Statistics Canada. 2011. *Diabetes 2010*. Statistics Canada, Ottawa.: <http://www.statcan.gc.ca/pub/82-625-x/2013001/article/11835-eng.htm>
- Tarasuk, V. & J. Eaken (2005) Food assistance through "surplus" food: Insights from an ethnographic study of food bank work. *Agriculture and Human Values*, 22, 177-186.
- Tarasuk, V., A. Mitchell, L. McLaren & L. McIntyre (2013a) Chronic Physical and Mental Health Conditions among Adults May Increase Vulnerability to Household Food Insecurity. *Journal of Nutrition*.
- Tarasuk, V., A. Mitchell & N. Dachner. 2013b. Household Food Insecurity in Canada 2011. Toronto: PROOF.
- Trichopoulou, A. & E. Vasilopoulou (2008) Mediterranean diet, traditional foods and health: critical components and mediating mechanisms. *Cell Biology and Toxicology*, 24, 341-345.
- Uauy, R., E. Hertrampf & A. D. Dangour. 2006. Food-Based Dietary Guidelines for Healthier Populations: International Considerations. In *Modern Nutrition in Health and Disease*, eds. M.

E. Shils, C. A. Ross, M. Shike, B. Caballero, R. L. Weinsier & J. C. Cousins, 1702-1715. Baltimore: Williams & Wilkins.

Valentine, G. 2005. Tell me about ...: Using Interviews as a Research Methodology. . In *Methods in Human Geography*, eds. R. Flowerdew & D. Martin, 110-127. London: Pearson Prentice Hall.

Valentine, G. (2007) Theorizing and Researching Intersectionality: A Challenge for Feminist Geography. *The Professional Geographer*, 59, 10-21.

Van Esterik, P. 1999. Gender and Sustainable Food Systems: A Feminist Critique In *For Hunger-proof Cities: Sustainable Urban Food Systems*, eds. M. Koc, R. MacRae, L. Mougeot & J. Welsh. Ottawa: IDRC.

Vinodrai, T., R. Nathu, S. Ross, E. Robson, S. Scott & P. Parker. 2012. Taking regional action? Understanding networks in the local food, green energy and creative sectors in Waterloo region. 124. Waterloo: Economic Developers Council of Ontario (EDCO).

Wagner, N., K. Hassanein & M. Head (2010) Computer use by older adults: A multi-disciplinary review. *Computers in Human Behaviour*, 26, 870-882.

Wahlqvist, T. & Speckt (1998) Food Variety and Biodiversity: Econutrition. *Asia Pacific Journal of Clinical Nutrition*, 7, 314-319.

Wahlqvist, M. L. (2008) New Nutrition Science in Practice. *Asia Pacific Journal of Clinical Nutrition*, 17, 5-11.

Wanner, T. (2009) Men-streaming Food Security: Gender, Biodiversity and Ecological Sustainability. *The International Journal of Environmental, Cultural, Economic and Social Sustainability*, 5, 97-109.

Webber, C. & A. Sarjahani (2011) Fitting Sustainable Food Systems into Dietetic Internships - A Growing Trend. *Journal of Hunger and Environmental Nutrition*, 6, 477-489.

Whatmore, S. 2002. *Hybrid Geographies: Natures, Cultures, Spaces*. London: Sage.

WHO. 1947. Chronicle of the World Health Organization. Geneva.

---. 1978. *Alma-Ata Declaration*, International Conference on Primary Health Care, Alma-Ata, Russia.

---. 1986. Ottawa Charter for Health Promotion. Ottawa.

Wilkins, J. (2009) Civic dietetics: opportunities for integrating civic agriculture concepts into dietetic practice. *Agriculture and Human Values*, 26, 57-66.

Wiles, J., L., M. W. Rosenberg & R. A. Kearns (2005) Narrative analysis as a strategy for understanding interview talk in geographic research. *Area*, 37, 89-99.

Williams, A. & J. Kulig. 2011. Health and Place in Rural Canada. In *Health in Rural Canada*, eds. J. Kulig & A. Williams. Vancouver: UBC Press.

Winterton, R., J. Warburton & M. Oppenheimer (2013) The future of Meals on Wheels: Reviewing innovative approaches to meal provision for ageing populations. *International Journal of Social Welfare*, 22, 141-151.

Wong, M., E. Gucciardi, L. Li & S. B. Grace (2005) Gender and Nutrition Management in Type 2 Diabetes. *Canadian Journal of Dietetic Practice and Research*, 66, 215-220.

Wynne, K. 2013. Bill 36: An Act to enact the Local Food Act, 2013. Legislative Assembly of Ontario. Toronto.

Yeatman, H. (2008) Window of opportunity - positioning food and nutrition policy within a sustainability agenda. *Australia and New Zealand Journal of Public Health*, 32, 107-109.

Yin, R. K. 2003. *Case Study Research: Design and Methods*. Thousand Oaks: Sage Publications.

Yousefian, A., A. Leighton, K. Fox & D. Hartley (2011) Understanding the rural food environment - perspectives of low-income parents. *Rural and Remote Health*, 11.

APPENDIX A: Questionnaires and surveys

Semi-Structured Interview

Diabetes Educator Interview Interview

Purpose	Questions
Confirms that the role and experience base of interviewee is consistent with study criteria (Certified Diabetes Educator with work experience in study area).	<ul style="list-style-type: none"> ◆ Profession: ◆ Current Role: ◆ # years practicing in current role: ◆ Practice Location: ◆ Hours of Service:
DE CONTENT/GOALS	
<p>Contributes to answering research question 2.1</p> <p>2.1 At what level are decisions about the content, goals, format of DE in rural SW Ontario made (individual, community, regional level.)</p>	<p>1a) What information do you collect to formulate a diabetes food plan (obtain copy of “intake questionnaire” if available)</p> <p><i>Copy of Intake form/questionnaire</i></p> <p>b) Is there any additional information that you think would be helpful? If yes, please explain.</p> <p>2. What/resources strategies do you use to assist people in the food-related goals of their diabetes care plan? (obtain copy of handouts if available)</p> <p><i>Prompts: Handouts available /used, Referrals to other professionals and/or community-based resources, Reference to regional/national –based resources and guidelines?</i></p>
RURALITY/GENDER	
<p>Contributes to answering research question , 1.3 and 2.2.4 a)</p> <p>1.3 Describe client engagement in diabetes education by gender</p> <p>2.2.4 Understand the perceptions of diabetes educators attention to a) gender</p>	<p>3. What differences, if any, do you notice in diabetes nutrition education between men and women in your practice with respect to:</p> <ul style="list-style-type: none"> -Food provisioning (ie shopping, gardening) -Food preparation <p><i>Prompts: Accessing nutrition education resources, accessing healthy food, family, community involvement/support</i></p>
Contributes to answering	4. As a woman diabetes educator practicing in

<p>research question 1.2</p> <p>1.2 Identify implications of gender of DE working in rural Canada/Rural SW Ontario</p>	<p>this rural area, what effect, if any, do you think that your gender has in any of the following areas:</p> <ul style="list-style-type: none"> -Patient relations/expectations -Workplace relations/expectations -Community relations/expectations
<p>LOCAL FOOD/RURALITY</p>	
<p>Contributes to answering research question 2.2.4 b)</p> <p>2.2.4 b) understand the perceptions of diabetes educators attention to local in diabetes education</p>	<p>5. Is promoting “local (Huron, Perth, Grey, Bruce etc) sustainable food” part of diabetes education in this rural setting?</p> <p>If “Yes” – why?</p> <p>If “No” – why not?</p> <p><i>Prompts: professional ethics, employer expectations, time constraints, client group receptivity (culture, age, gender), appropriateness for diabetes meal planning, availability of LSF (economic, logistic), availability of resources promoting LSF.</i></p>
<p>BARRIERS/OPPORTUNITIES</p>	
<p>2.1 At what level are decisions about the goals, content and format of diabetes nutrition education in rural SWLHIN made?</p>	<p>6. Regardless of whether you could make these changes, what changes could support more effective diabetes nutrition education for men and women in this area?</p> <p><i>Prompts: family support, community food systems, hours of service, education resources and guidelines, access to male DE, referral service access (timeframe or type), electronic education resources (apps etc), community advocacy work,</i></p> <p>7. What do you think would make these changes possible?</p> <p>8. Is there a diabetes support group for people with diabetes in this area that you have helped</p>

to initiate or currently help to sustain? Y/N

If Yes -Could I be included on an agenda for an upcoming meeting to invite group participants to complete a brief anonymous questionnaire on their experiences living with type 2 diabetes in a rural area? Y/N If yes, what would be the process for me to follow (ie. Contacts etc.)?

Thank you for your time, If you have any other comments or questions, please do not hesitate to contact me.

Regional/National Coordinator Questionnaire

Purpose	Questions
<p>Confirms that the role and experience base of interviewee is consistent with study criteria</p>	<p>Profession: _____ Current Role _____ How long you have you worked with diabetes educators? ____ How long have you worked in your current role?</p>
DE CONTENT/GOALS	
<p>Contributes to answering research question 2.1</p> <p>2.1 At what level are decisions about the content, goals, format of DE in rural SW Ontario made (individual, community, regional level.</p>	<p>At what level are decisions about the content, goals, format of DE in rural SW Ontario made?</p> <p>Prompts: individual, community, regional</p>
RURILITY/GENDER	
<p>Contributes to answering research question , 1.3 and 2.2.4 a)</p> <p>1.3 Describe client engagement in diabetes education by gender</p> <p>2.2.5 Understand the perceptions of regional coordinators to a) gender</p>	<p>What effect, if any, do you think that gender has in any of the following areas of diabetes nutrition education:</p> <p>-Patient relations/expectations</p> <p>-Workplace relations/expectations</p> <p>-Community relations/expectations</p>
LOCAL FOOD/RURILITY	
<p>Contributes to answering research question 2.2.4 b)</p> <p>2.2.4 b) understand the perceptions of diabetes educators attention to local in diabetes education</p>	<p>5. Is promoting “local sustainable food” part of diabetes education in a rural setting?</p> <p>If “Yes” – why?</p> <p>If “No” – why not?</p> <p><i>Prompts: professional ethics, employer expectations, time constraints, client group receptivity (culture, age, gender), appropriateness for diabetes meal planning, availability of LSF (economic, logistic), availability of resources promoting LSF.</i></p>

BARRIERS/OPPORTUNITIES		
<p>2.1 At what level are decisions about the goals, content and format of diabetes nutrition education in rural SWLHIN made?</p>	<p>6. Regardless of whether you could make these changes, what changes in your work could support more effective diabetes nutrition education for men and women in rural areas?</p> <p><i>Prompts: family support, community food systems, hours of service, education resources and guidelines, access to male DE, referral service access (timeframe or type), electronic education resources (apps etc), community advocacy work,</i></p> <p>7. What do you think would make these changes possible?</p> <p>Thank you for your time, If you have any other comments or questions, please do not hesitate to contact me.</p>	

Diabetes Support Group Participants Questionnaire (self-administered with researcher available to clarification of questions)

Questions																																																																		
<p>◆ How long have you participated in this group? ◆ How old are you?</p>																																																																		
<p>Who usually purchases your food – please circle your response: Self Spouse Other _____ (please specify)</p> <p>Who usually prepares your food – please circle your response: Self Spouse Other _____ (please specify)</p> <p>Please indicate your food sources in winter (Nov-Mar) and summer (May-Oct) months on the table below.</p>																																																																		
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="width: 25%;">Food Outlet</th> <th rowspan="2" style="width: 15%;">Approximate Distance from home (km)</th> <th colspan="2" style="width: 15%;"># times visited per month</th> <th rowspan="2" style="width: 45%;">Are there diabetes education resources available to help you make healthy food choices from this outlet? Please circle the appropriate response.</th> </tr> <tr> <th style="width: 5%;">Nov-Apr</th> <th style="width: 5%;">May-Oct</th> </tr> </thead> <tbody> <tr><td>Grocery Store</td><td></td><td></td><td></td><td>Yes No Unsure</td></tr> <tr><td>Farmers Market</td><td></td><td></td><td></td><td>Yes No Unsure</td></tr> <tr><td>Food Coop</td><td></td><td></td><td></td><td>Yes No Unsure</td></tr> <tr><td>Home Garden</td><td></td><td></td><td></td><td>Yes No Unsure</td></tr> <tr><td>Food Bank</td><td></td><td></td><td></td><td>Yes No Unsure</td></tr> <tr><td>Restaurant</td><td></td><td></td><td></td><td>Yes No Unsure</td></tr> <tr><td>Meals on Wheels</td><td></td><td></td><td></td><td>Yes No Unsure</td></tr> <tr><td>Friends/neighbours</td><td></td><td></td><td></td><td>Yes No Unsure</td></tr> <tr><td>Community Garden</td><td></td><td></td><td></td><td>Yes No Unsure</td></tr> <tr><td>Good Food Box</td><td></td><td></td><td></td><td>Yes No Unsure</td></tr> <tr><td>Other _____ (please specify)</td><td></td><td></td><td></td><td>Yes No Unsure</td></tr> </tbody> </table>					Food Outlet	Approximate Distance from home (km)	# times visited per month		Are there diabetes education resources available to help you make healthy food choices from this outlet? Please circle the appropriate response.	Nov-Apr	May-Oct	Grocery Store				Yes No Unsure	Farmers Market				Yes No Unsure	Food Coop				Yes No Unsure	Home Garden				Yes No Unsure	Food Bank				Yes No Unsure	Restaurant				Yes No Unsure	Meals on Wheels				Yes No Unsure	Friends/neighbours				Yes No Unsure	Community Garden				Yes No Unsure	Good Food Box				Yes No Unsure	Other _____ (please specify)				Yes No Unsure
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Other _____ (please specify)				Yes No Unsure																																																														
<p>2. Is “local food” a part of healthy eating for diabetes? Y or N</p>																																																																		

If “Yes” – why?

If “No” – why not?

3. Regardless of whether you could make these changes, what changes would improve diabetes nutrition education in this area?

4. What do you think would make these changes possible?

Thank you for your time, If you have any other comments or questions, please do not hesitate to contact me.

APPENDIX B: Invitation letters and consent forms

Invitation Letter – Diabetes Educators

Dear [potential interviewee - diabetes educator]

My name is Donna Appavoo. I am a PhD candidate at the University of Waterloo's Department of Geography. I am interested in the unique challenges in your role supporting a rural food diabetes education. I am contacting you because of your role and expertise as a Diabetes Educator in rural Ontario. The purpose of the interview will be to obtain your insights into *the particular challenges you may face in rural Ontario*. The interview would take approximately 30 minutes of your time.

I will be contacting you in the near future to set up an appointment at your convenience. Alternately, you may contact me by email at dappavoo@uwaterloo.ca

This information will be used in my PhD thesis. My thesis proposing that features of a rural environment present unique challenges and opportunities for food programs in particular those for persons with diabetes.

Should you choose to participate, our name will not be used in any documentation or publication resulting from this interview unless requested by you. Your participation is entirely voluntary, and you may skip questions or withdraw at any time.

Should you have any comments or concerns resulting from your participation in this study, please contact myself, Donna Appavoo (contact information below), my thesis supervisor, Dr Mary Louise McAllister at 519-524-4567 ext 35614 or Dr. Susan Sykes in the University of Waterloo Office of Research Ethics at 519-888-4567 ext.36005.

Many thanks in advance. I look forward to the opportunity to obtain your valuable input.

Sincerely,
Donna Appavoo
PhD Candidate
Department of Geography
University of Waterloo
200 University Avenue West
Waterloo, Ontario
N2L 3G1

Email: dappavoo@uwaterloo.ca

Invitation Letter/script – Regional/Provincial/National Experts – Diabetes and/or Food System

Dear [Interviewee]

My name is Donna Appavoo. I am a PhD candidate at the University of Waterloo's Department of Geography. I am contacting you because of your role in [name of program]. I am writing to request an interview by telephone or in person on the day/time of your preference. The interview will take approximately 30 minutes of your time.

Rural health practitioners often face unique challenges. The purpose of the interview will be to obtain your insights into *the particular challenges you may face in supporting rural food programs/diabetes nutrition education.*

I will be contacting you to set up an appointment at your convenience. Alternately, you may contact me by email at dappavoo@waterloo.ca.

This information will be used in my PhD thesis, which will be proposing that features of a rural environment present unique challenges and opportunities for diabetes nutrition education. Although several experts from regional, provincial, and national diabetes and health organizations are being recruited as interviewees for this study, your positions are relatively unique and potentially identifiable. Thus, I cannot assure the confidentiality of your responses. If you are willing to participate, prior to any excerpts or thematic contributions arising from the interview to be included in the thesis and/or any publications you will have the opportunity to read the excerpt in context before giving consent to its use.

Should you have any comments or concerns resulting from your participation in this study, please contact myself, Donna Appavoo (contact information below), my supervisor, Dr Mary Louise McAllister at 519-524-4567 ext. 35614 or Dr. Susan Sykes in the Office of Research Ethics at 519-888-4567 ext.36005.

Many thanks in advance. I look forward to your valuable input.

Sincerely,

Donna Appavoo
PhD Candidate
Department of Geography
University of Waterloo
200 University Avenue West
Waterloo, Ontario
N2L 3G1

Email: dappavoo@uwaterloo.ca

Invitation Letter/script – Diabetes Group Participants

WATERLOO | ENVIRONMENT
GEOGRAPHY AND ENVIRONMENTAL MANAGEMENT

This is an invitation to complete a survey by Donna Appavoo, a graduate student at the University of Waterloo's Department of Geography. The purpose of the survey will be to obtain your insights into *particular challenges you may face in your experience with type 2 diabetes nutrition education in rural Ontario*. The survey will take approximately 15 minutes of your time.

Your participation is entirely voluntary, and you may skip questions or withdraw at any time.

Should you have any comments or concerns resulting from your participation in this study, please contact, Donna Appavoo (contact information below), the research supervisor, Dr. Mary Louise McAllister at 519-524-4567 ext.35614 or Dr. Susan Sykes in the University of Waterloo Office of Research Ethics at 519-888-4567 ext.36005.

Many thanks in advance. I look forward to the opportunity to obtain your valuable input.

Sincerely,
Donna Appavoo
PhD Candidate
Department of Geography
University of Waterloo
200 University Avenue West
Waterloo, Ontario
N2L 3G1

Email: dappavoo@uwaterloo.ca

Sample Feedback Letter

Dear [Interviewee],

I would like to express my sincere appreciation for taking the time to share your experiences of type 2 diabetes with me. Your input has contributed to a greater understanding of the challenges and opportunities for diabetes nutrition education in rural Ontario.

A summary of the results is available by contacting me at the address and/or email indicated below. Research findings will be used for the completion of my PhD thesis entitled “Recognizing the role of Gender and Food Security in Type 2 Diabetes Nutrition Education in Rural South Western Ontario”. Additionally, relevant findings will be submitted for publication in journals and conferences that focus on rural health, rural food systems and type 2 diabetes.

As indicated when you were invited to participate, your name will not be used in any documentation or publication resulting from this interview unless requested by you. This project has been reviewed by, and received ethics clearance through the Office of Research Ethics. Should you have any comments or concerns resulting from your participation in this study, please contact myself, Donna Appavoo (contact information below), my thesis supervisor, Dr. Mary Louise McAllister at 519-524-4567 ext.35614 or Dr. Susan Sykes in the University of Waterloo Office of Research Ethics at 519-888-4567 ext.36005.

Regards,

Donna Appavoo
PhD Candidate
Department of Geography
University of Waterloo
200 University Avenue West
Waterloo, Ontario
N2L 3G1

Email: dappavoo@uwaterloo.ca

WATERLOO | ENVIRONMENT
GEOGRAPHY AND ENVIRONMENTAL MANAGEMENT

I have read the information presented in the information letter about a study being conducted by **Donna Appavoo** of the Department of Geography at the University of Waterloo under the supervision of Professor Mary Louise McAllister. I have had the opportunity to ask any questions related to this study, to receive satisfactory answers to my question and any additional details I wanted.

I am aware that I have the option of allowing my interview to be audio recorded to ensure an accurate recording of my responses.

I am also aware that excerpts from the interview may be included in the thesis and/or publications to come from this research, with the understanding that the quotations will be anonymous.

I was informed that I may withdraw my consent at any time without penalty by advising the researcher.

This project has been reviewed by, and received ethics clearance through, the Office of Research Ethics at the University of Waterloo. I was informed that if I have any comments or concerns resulting from my participation in this study, I may contact Susan Sykes, the Director, Office of Research Ethics at (519) 888-4567 ext. 36005.

With full knowledge of all foregoing, I agree, of my own free will, to participate in this study.

YES NO

I agree to have my interview audio recorded.

YES NO

I agree to the use of anonymous quotations in any thesis or publication that comes of this research.

YES NO

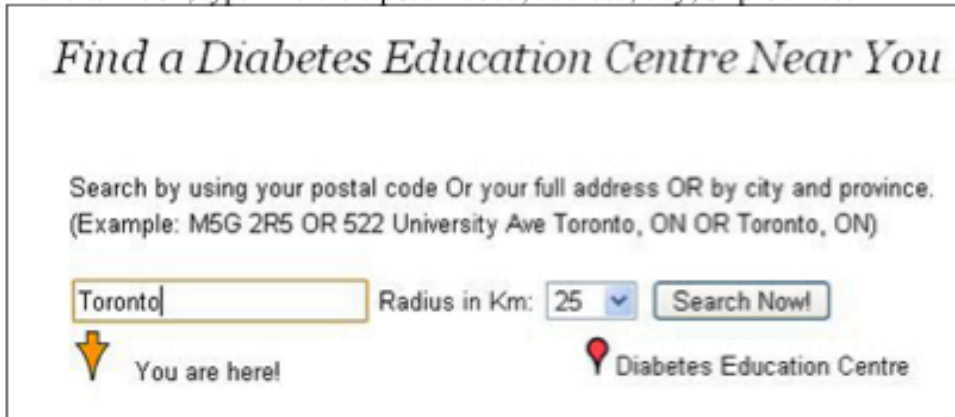
Participant Name: _____ (Please print)

Participant Signature: _____

APPENDIX C: Diabetes education locator tool

How to use the Diabetes Education Locator tool



1. In the text box, type in either: postal code, address, city, or province.



Find a Diabetes Education Centre Near You

Search by using your postal code Or your full address OR by city and province.
(Example: M5G 2R5 OR 522 University Ave Toronto, ON OR Toronto, ON)

Toronto Radius in Km: 25 Search Now!

 You are here!  Diabetes Education Centre

2. From the dropdown menu, select the radius in kilometers for the search coverage. In the example below, the search coverage is 100km from Toronto.



Find a Diabetes Education Centre Near You

Search by using your postal code Or your full address OR by city and province.
(Example: M5G 2R5 OR 522 University Ave Toronto, ON OR Toronto, ON)

Toronto Radius in Km: 25 Search Now!

 You are here!  abetes Education Centre

Map 100 150 200

Map 100 150 200

Map 100 150 200