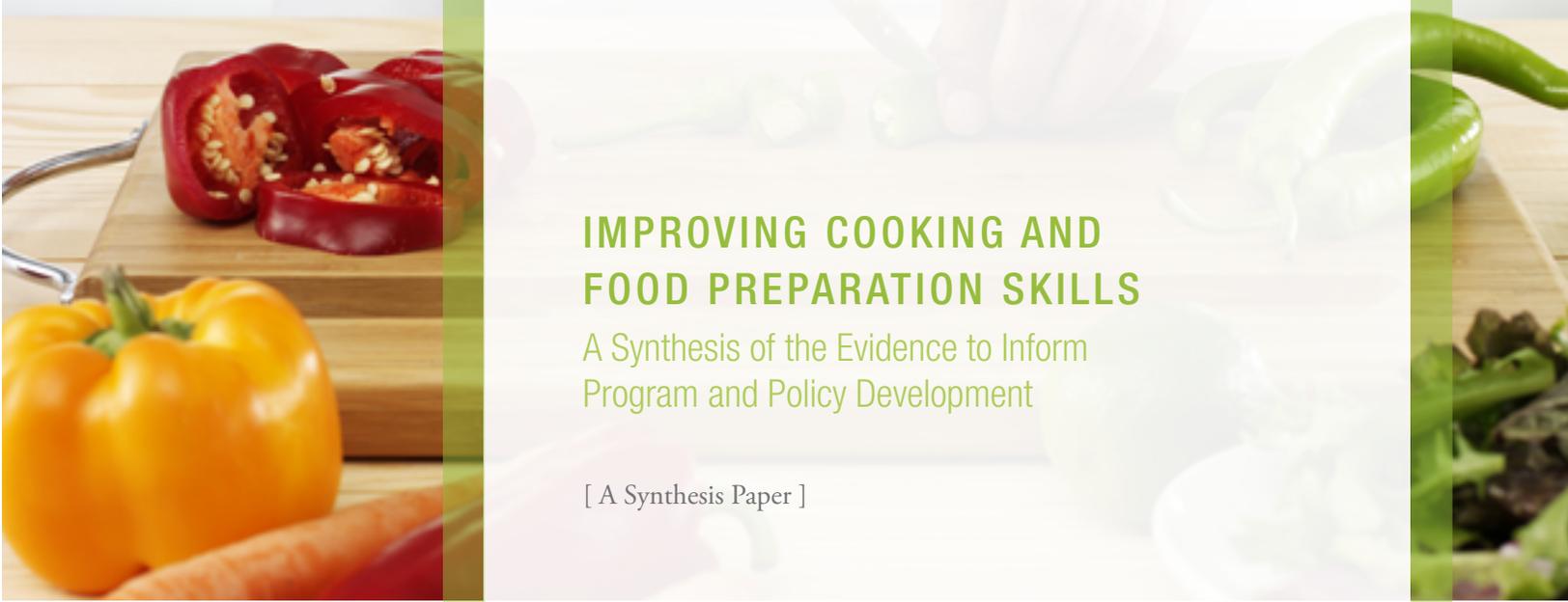




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## IMPROVING COOKING AND FOOD PREPARATION SKILLS

A Synthesis of the Evidence to Inform  
Program and Policy Development

[ A Synthesis Paper ]

This report was prepared by Cathy Chenhall, M.H.Sc., P.Dt for the Healthy Living Issue Group (HLIG) of the Pan-Canadian Public Health Network. The HLIG's Strategic Collaboration Working Group facilitates multi-sectoral, multi-lateral collaborations annually to advance the goals of the Integrated Pan-Canadian Healthy Living Strategy. In their 2009/10 workplan, the HLIG agreed to support a collaborative project on healthy eating, specifically examining cooking and food preparation skills among children and families. This project was the result of a collaboration between the Public Health Agency of Canada, Health Canada, the Federal/Provincial/Territorial Group on Nutrition and the Healthy Living Issue Group.

The reports, *Improving Cooking and Food Preparation Skills: A Synthesis of the Evidence to Inform Program and Policy Development* and *Improving Cooking and Food Preparation Skills: A Profile of Promising Practices in Canada and Abroad* are available on the internet at the following address:

<http://www.healthcanada.gc.ca>

Les deux rapports sont également disponibles sur l'internet en Français à l'adresse suivante :

<http://www.santecanada.gc.ca>

The Integrated Pan-Canadian Healthy Living Strategy is available on the internet at the following address:

<http://www.phac-aspc.gc.ca/hl-vs-strat/index-eng.php>

Également disponible en Français sous le titre « *La Stratégie pancanadienne intégrée en matière de modes de vie sains* » à l'adresse suivante :

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## 1.0 EXECUTIVE SUMMARY



Food choices, eating behaviours and resulting nutritional health are influenced by a number of complex and inter-related individual, collective and policy-related determinants. A growing body of research is supporting the relationship between food preparation and cooking skills and food choices of children and adolescents within the family context.

Over the past several decades, a transition or change in cooking and food preparation skills has been hypothesized and observed, which could have an important impact on healthy eating and the health of Canadians, presently and in the future. This transition in cooking and food preparation skills involves the increased use of pre-prepared, packaged and convenience foods, which require fewer and/or different skills than what is often referred to as traditional or ‘from scratch’ cooking. Several technological, food system-related and broader shifts within the social, economic, physical and cultural environments have been identified as factors influencing the culture of cooking and food preparation within the home or domestic environment, including the following:

- increased availability of food commodities (basic/raw and processed);
- improved and advanced technology for food storage, preparation and cooking; resulting in changes in the level of knowledge and skill required to cook;
- time and financial demands/ realities related to labour market participation;
- shifting family priorities and values; and
- decreased opportunities for cooking and food preparation skill acquisition both within the home and public education environments.

The purpose of this paper is to synthesize the state of knowledge and research gaps related to cooking and food preparation skills among children and families. The paper describes the state of cooking and food preparation skills, nationally and internationally; implications of a transition in cooking and food preparation skills and challenges and opportunities related to the improvement of cooking and food preparation skills within the context of the family environment.

The literature search strategy resulted in the identification of approximately 40 publications having direct relevance to the paper. Of the over 40 publications, approximately two-thirds could be described as being descriptive or contextual and one-third described the results of cooking and food preparation skill interventions across population subgroups.

In terms of the suggested 'transition', limited national and international quantifiable and generalizable data exists to confirm the state of, and changes to, cooking and food preparation skills within populations, children and families. Despite the inherent limitations associated with comparing data collected from different populations using different methodologies at different times, the following common themes emerged from the review and synthesis of available and relevant research:

- women, including adolescents, young adults and mothers, are primarily responsible for food preparation functions within the home environment and generally report greater self-confidence/efficacy with cooking and food preparation skills compared to men;

- mothers are the primary role models and teachers of cooking and food preparation skills across age and socioeconomic groups (SES), followed by school-based education;
- those primarily responsible for food-related activities in the home place value on these activities, despite complexities associated with the need to balance different nutrition needs, preferences of family members and schedules;
- frequency of family meals and involvement in food preparation activities among adolescents and young adults is associated with dietary quality;
- self-efficacy with basic food preparation skills generally increases with age across gender groups; data related to self-efficacy across SES groups is somewhat conflicting;
- taste, nutritional value, cost and time are the primary and often conflicting factors influencing food choice and preparation decisions across SES groups;
- pre-prepared and convenience foods have become normalized within patterns of eating for children of all ages and families;
- adolescents report involvement in food purchasing and preparation activities, however, most do not help out more than once or twice per week with female adolescents and those from lower SES groups reporting greater involvement than those from mid and high SES groups;
- young adults report minimal involvement in food purchasing and preparation activities, despite indicating that their skills and resources are adequate; and
- respondents from low SES groups report greater meal preparation from 'scratch' and lower use of convenience foods compared to those from other SES groups.

In terms of the implications of a change or transition, information is limited to substantiate a direct relationship between cooking and food preparation skills and health.

Research and food purchasing and consumption data, nationally and internationally, do confirm that food choice and consumption patterns have transitioned with increased processed, pre-prepared and convenience foods being purchased, 'assembled' and consumed across population subgroups on a daily basis. The results of several research studies support the normalization of processed, pre-prepared and convenience foods within the eating patterns of individuals and families, again across population subgroups. Related to this normalization is the potential lack of transference of basic, traditional or 'from scratch' cooking and food preparation skills from parents (primarily mothers) to children and adolescents, which has traditionally been the primary mode of learning. Without the opportunity to observe and practice basic or 'from scratch' cooking and food preparation skills within the home environment, many argue that children and adolescents will not be equipped with the necessary skills to make informed choices within an increasingly complex food environment. In support of this argument, low self-efficacy and self-perceived inadequate cooking and food preparation skills have been identified as barriers to food choice within several recent research initiatives, potentially resulting in a greater reliance on pre-prepared or convenience foods, reduced variety in food choice and consumption and the atrophy of cooking and food preparation skills.

The most common potential challenges identified related to the development of successful strategies or interventions to enhance cooking and food preparation skills among children within the context of families include time, individual/familial food choice and the diminished value placed on 'cooking from scratch' or traditional cooking skills. An even greater challenge is associated with the lack of clear evidence describing the characteristics of successful intervention strategies for specific age and population subgroups. While the results of published interventions are generally quite moderate, several researchers believe that some studies do indicate that food skills interventions may be a useful starting point for initiating dietary change, while acknowledging that addressing any one barrier to change is unlikely to radically alter established eating behaviours among adults, in particular. In the absence of definitive direction, available evidence and experience indicates that programs/interventions specifically designed for children, and having some involvement of adults/parents have the following characteristics:

- a stated theoretical basis or at a minimum, a set of defensible community-relevant assumptions upon which the program or activity is based;
- opportunities for experiential/hands-on learning to promote and build self-confidence and self-efficacy through skill development and encourage children and youth to become involved in food preparation activities within the home environment;
- include self-assessment of eating patterns and behaviour change for middle and high school students as well as parents/adults;

- involve parents, either actively or as intermediaries depending on the age of the child, in program implementation and evaluation;
- be community-based and tailored for specific population groups, giving consideration to the social context of food choice and cooking practice;
- content to assist learners in intervening in broader physical and social environments to address barriers to improved food choice and cooking practices;
- a supportive learning environment, including a social support component and regular positive reinforcement;
- be based on measurable, specific goals set by participants;
- capitalize on interest in learning and demonstrate that healthy, cost-effective foods and meals can be planned, prepared and served in limited time; and
- be longer versus shorter in duration.

The information presented within the synthesis indicates that despite noted limitations in surveillance and intervention-related data, concerns related to a transition in cooking and food preparation skills and the potential impact on food choice, health and health inequalities are not unfounded. Furthermore, the information synthesized supports the need for further research and surveillance to strengthen understanding and potential to influence the determinants, prevalence and characteristics of cooking and food preparation skills among children and families in Canada. In addition, the influence of cooking and food preparation skills on food choice, dietary quality and nutritional health across and within population subgroups of interest requires further exploration.

## 2.0 INTRODUCTION & PURPOSE



Food choices, eating behaviours and resulting nutritional health are influenced by a number of complex and inter-related individual, collective and policy-related determinants<sup>1</sup>. There is a growing body of research supporting the relationship between food preparation and cooking skills and food choices of children and adolescents within the family context.

Paralleling the nutrition transition which has been occurring over the past several decades in the developed world, and more recently in the developing world, a transition or change in cooking and food preparation skills has been hypothesized and observed, which could have an important impact on healthy eating and the health of Canadians, presently and in the future. This “nutrition transition” is characterized by consumption patterns that have higher energy (versus nutrient) density, total fat, saturated fat, added sodium and sugar, and simple carbohydrates and a decreased or changing proportion of fruit and vegetables, whole grains, and pulses<sup>2-5</sup>. The corresponding transition in cooking and food preparation skills involves the increased use of pre-prepared, packaged and convenience foods, which require fewer and/or different skills than what is often referred to as traditional or ‘from scratch’ cooking<sup>6</sup>.

Not unlike the worldwide nutrition transition, changes in cooking and food preparation skills have been influenced by factors within complex, shifting social, economic and physical environments nationally and globally, notably changes within global food systems, labour market participation of women and decreased opportunities for

cooking and food preparation skill development within the home and school environments<sup>6</sup>. These trends and issues have resulted in a growing interest in the state of cooking and food preparation skills across the population and within specific subgroups and the implications of, in most cases, presumed changes on food choice and potentially nutritional and overall health.

The purpose of this paper is to synthesize the state of knowledge and research gaps related to cooking and food preparation skills among children and families. This paper describes the state of cooking and food preparation skills, nationally and internationally, based on largely contextual and

limited quantifiable data; implications of a transition in cooking and food preparation skills; and challenges and opportunities related to the improvement of cooking and food preparation skills within the context of the family environment.

This literature review is one component of the project titled, “Improving Cooking and Food Preparation Skills: A Synthesis of the evidence and lessons learned to inform program and policy development.” The second component of the project profiles selected national and international programs and activities aimed at improving cooking and food preparation skills to gather lessons learned.

### 3.0 METHODOLOGY/ SEARCH STRATEGY



The literature search focused on identifying publications that describe the state of knowledge and research gaps as they relate to cooking and food preparation skills, particularly among children and families.

Searches were conducted on the electronic computer indexed databases MEDLINE/Pubmed/NLM Gateway, EMBASE, CINAHL, Cochrane Library, and ERIC. The following key words and phrases were used: determinants of cooking skills, determinants of food preparation skills, cooking skills and transition, food preparation skills and transition, cooking skills and children, food preparation skills and children, cooking skills and families, food preparation skills and families, food deskilling and children, food deskilling and families, cooking skills and food security, food preparation skills and food security, cooking skills and health, food preparation skills and health. A generalized internet search using Google, Google-Scholar and Bing was also conducted using a subset of the search terms.

Grey literature was accessed through a variety of mechanisms including project authority staff, members of the Strategic Collaboration Working Group (SCWG) of the Healthy Living Issue Group, and via the generalized internet search. Reference lists and “related article” links within electronic indexed databases were used to identify additional sources of literature.

The search was limited to English language literature and included articles published from 2002 to the present, with exceptions made for seemingly sentinel articles. In addition, to focus the search and synthesis, the following criteria were determined and applied, in consultation with the SCWG:

- documents/publications having specific relevance for generally healthy, free-living children and families free of specific medical conditions or illnesses (e.g. autism, eating disorders, learning disabilities, brain injuries) having relevance for the Canadian/North American context were given priority;
- publications exploring the relationship between cooking and food preparation skills and childhood obesity issues were included within the search, while not a specific focus of the synthesis; and
- recognizing that children live within the context of families, the term children was not defined using a specific age-range to be as inclusive as possible; terms used and the overall search strategy was inclusive of ethnic minorities and groups having varying socio-economic status.

## 4.0 FINDINGS



The search of the indexed databases using all search terms and the inclusion criteria identified many citations. Titles and abstracts were reviewed for relevance and over 55 publications were retrieved.

Of these publications, approximately 40 were of direct relevance to the paper. Of the over 40 publications, approximately two-thirds could be described as being descriptive or contextual and one-third described the results of cooking and food preparation skill interventions across population subgroups.

As described within the search strategy, identifying literature related to cooking and food preparation skills and childhood overweight and obesity while not a focus, was of interest in light of the significance of this public health issue and linkages with the Integrated Pan-Canadian Healthy Living Strategy. Several publications were identified, however, upon review it was determined that they were not of direct relevance to the stated purpose of the synthesis. That being said, all publications reviewed related to the prevention of childhood overweight and obesity reinforced the importance and significance of parental influence in the development and maintenance of healthy eating (and physical activity) behaviours of children from birth to young adulthood, which will be addressed in section 4.1.3 Highlights of Existing Research Describing Food Preparation and Cooking Skills, specifically under the adult heading.

Efforts to identify research related to food security status and food preparation and cooking skills were included within the search strategy as a result of growing interest in the potential inter-relationship between cooking skills and health disparities. While often viewed as matters of individual behaviour, as will be discussed further within the synthesis, the acquisition of cooking skills relies on structural factors, for example, cultural norms and education policy<sup>7</sup>. Several relevant publications were identified, the highlights of which are included within the subsection of section 4.1.3, entitled, Highlights of Existing Research Describing Food Preparation and Cooking Skills, specifically under the preschool/ young children and adults headings. Generally speaking, the majority of articles identified via inclusion of food security as a search term reported the results of research initiatives involving individuals and families from low socioeconomic groups, without always specifically quantifying their food security status.

#### **4.1 THE STATE OF COOKING AND FOOD PREPARATION SKILLS AMONG POPULATIONS, CHILDREN AND FAMILIES**

##### **4.1.1 A Culinary Transition or Consumer Deskillling?**

Overall, there is limited national and international quantifiable and generalizable data to describe the state of, and changes to, cooking and food preparation skills within populations, children and families. This information gap, however, has not limited the growing discourse and concern within public/popular and academic sectors over the past decade and has, in fact, stimulated research in a

number of jurisdictions. Of note is the United Kingdom, where food skill-related changes to the National Curriculum for public schools in the late 1990s stimulated considerable research and dialogue<sup>6-8</sup>, relevant components of which are included within this synthesis.

As noted earlier, several technological, food system-related and broader shifts within the social, economic, physical and cultural environments have been identified as factors influencing the culture of cooking and food preparation within the home or domestic environment. These include:

- increased availability of food commodities (basic/raw and processed);
- advances in technology for food storage, preparation and cooking, resulting in changes in the level of knowledge and skill required to cook;
- shifting time and financial demands/ realities related to labour market participation;
- shifting family priorities and values; and
- decreased opportunities for cooking and food preparation skill acquisition both within the home and public education environments<sup>6, 9-11</sup>.

In addition to the factors noted above, the “nutrition transition” that has been taking place globally over the past several decades has had a notable influence on cooking and food preparation skills, primarily as a result of the increased availability of processed, pre-prepared and convenience foods within the retail and foodservice environments. Consequently, this transition has involved fundamental dietary shifts within entire cultures (developing and developed countries), resulting in negative implications for nutritional and overall health, specifically, significant increases

in diet-related chronic diseases and conditions, including overweight and obesity<sup>2-5</sup>. Further to the influences on cooking and food preparation skills noted above, Lang and Caraher<sup>6</sup> propose that a ‘culinary’ transition, “... the process in which whole cultures experience fundamental shifts in the pattern and kind of skills required to ...” choose, prepare and consume food, has occurred. Concerns related to this culinary transition and its presumed impact on consumer control of food choice, healthy eating behaviours and resulting nutritional health and food sovereignty led to recommendations for enhanced professional and state support to ensure widespread basic cooking proficiency within at least one jurisdiction<sup>6</sup>. Short<sup>12-14</sup> and Lyon<sup>9</sup>, from somewhat differing perspectives, acknowledge a continual shift and change in the culture of cooking and food preparation skills which they argue is inevitable with ongoing social, environmental and technological changes and should not necessarily be a barrier to efforts to empower healthy food choices, dietary habits and enjoyment in food preparation.

In contrast, several other researchers<sup>10, 11</sup> view changes in cooking and food preparation skills as a largely negative process of deskilling. They argue that significant and planned restructuring within the agri-food industry and food systems has resulted in both worker deskilling in food manufacturing and food-related consumer deskilling which, they contend, has and will have significant consequences on consumer choice, diet and health. Further to this point, Jaffe and Gertler<sup>10</sup> and Kornelson<sup>11</sup> argue this trend will continue resulting in increased distance between consumers and the sites and processes of food production, including basic commodities, which they believe is profitable for industry.

As a result of this food deskilling and the parallel availability of increasingly complex packaged, processed and “industrially transformed” foodstuffs, many consumers have lost the knowledge necessary to make informed food decisions from the perspectives of quality, health, environmental sustainability and local economic development<sup>10, 11</sup>.

Having some similarity with aspects of both perspectives described above, the 2005 report prepared for Agriculture and Agri-Food Canada, *Consumer Food Trends to 2020: A Long Range Consumer Outlook*, identifies the following as being among the top trends to 2020:

- increased disconnection between consumers and food preparation, including sporadic shopping and eating habits, decreased meal preparation time and cycles, and increased snacking and further increases in portable foods, with the latter having implications for food and packaging waste;
- shifting food expenditure patterns to include a greater proportion of prepared meals and take-outs; and
- increased product differentiation to meet consumer expectations related to quality and freshness, taste, nutritional value to address health concerns, ethnic diversity and value in the most convenient form possible<sup>15</sup>.

In addition to food system related trends and influences on cooking and food preparation skills, the social change resulting from the rise in the number of women in the waged labour force over the past several decades has been linked to changes in food choice, eating habits and food preparation activities. While women are still primarily responsible for food and meal planning, selection

and preparation with the home and family environment, across socioeconomic groups<sup>6, 7, 9, 10, 16, 17</sup>, the time constraint introduced through workforce participation facilitated the development of a market for pre-prepared and convenience foods<sup>6</sup> which food manufacturers and retailers have been quick to respond to, and some argue, exploit<sup>6</sup>. As a result, social and food system trends suggest a move from cooking in the home with basic ingredients and commodities to a society that relies on the labour of others with ready-prepared foods<sup>10, 11</sup>. Some have further argued that the ready availability of prepared food has made traditional cooking skills (i.e. transforming raw ingredients into complete, culturally appropriate dishes and meals) unnecessary and redundant<sup>6, 9</sup>. While typically presented as food system innovations unfairly imposed on those primarily responsible for food preparation, several researchers note that use of increasingly prepared foods has provided comparative or competitive choices for consumers/families who did not enjoy, feel confident or skilled or place value/priority on traditional food and meal preparation<sup>6, 9, 12, 14</sup>. Related to time constraints, which are often reported as barriers to cooking and healthy eating, several sources have reported that time 'saved' through the use of pre-prepared and convenience foods has been essentially replaced by time spent making food-related decisions and purchases from largely suburban supermarkets and grocery stores and re-heating and assembling food<sup>6, 9, 18</sup>.

The role of players within the food system, notably processors, retailers and restaurants, on food choice and food consumption patterns is undeniable. According to Cash, Goddard and Lerohl<sup>19</sup> the food industry is essentially the gatekeeper of food choice, determining the products consumers can choose and modifying behaviours through available offerings and marketing practices. Innovation based on market research and science is integral to the food industry. In recent years, industry has worked with and responded to recommendations and policy directives from non-government organizations, national and international governments and associated research institutes to develop healthier alternatives for consumers, aiming for consistency with national and international dietary guidelines, standards and policy. To be successful, however, new, healthier products must continue to be reasonably priced, tasty and convenient; traditional factors that remain important to consumers<sup>19</sup>. In addition, and as noted above, the food industry has actively responded through product development, innovation and industry-led information and education to societal trends which have impacted how children and families learn about and choose food<sup>20</sup>. In recognition of the importance of public policies that enable positive outcomes for both industry (i.e. profit) and public health (i.e. improved health outcomes), over the past decade in many jurisdictions, national and international food industry trade associations have been invited to, and have actively participated in, food and nutrition-related health policy initiatives<sup>19</sup>.

Related to, but somewhat in contrast with, the gendered and time constrained context within which daily or regular food and meal preparation occurs, a growing interest in creative/recreational/leisure cooking is emerging, with some bias among men and young adults<sup>9</sup>. As noted earlier, Lyon et al<sup>9</sup> argue that emphasizing the creative aspects of domestic food preparation skills may be essential within the current context where “... we do not have to acquire cooking skills in order to survive, and where we can easily convince ourselves that our health will not be affected by the menu we have in front of us ....”.

Opportunities for children and youth to acquire ‘traditional’, basic or ‘from scratch’ food preparation and cooking skills from parents (primarily mothers) and extended family members, the primary route of transmission from a historical perspective, has been cited as a casualty of changes within the home food environment<sup>6,9</sup>. Research does support that populations, with some subgroups being more effected than others, are unsure of specific cooking techniques and lack the confidence to apply techniques and cook certain foods. This is a result of limited time, opportunity and exposure within the family environment, thereby limiting food choice<sup>6,7,16,17</sup>. Building on these culinary transitions versus deskilling perspectives, one perspective within the literature argues that processes need to be developed to ensure that current and future generations learn and pass down “traditional” food preparation and cooking skills to protect consumer choice and nutritional health<sup>6</sup>, while the other argues that convenience foods can play a role in the intergenerational transference of skills<sup>12-14</sup>.

Changes within public school curricula in several national jurisdictions, including Canada, has stimulated further concern related to the development of cooking and food preparation skills among children and youth, as learning within the education system has traditionally been identified as the second most common route for the acquisition of skills and knowledge<sup>6,7</sup>. Stitt<sup>8</sup> details that when nutrition and food-related course content have been maintained within curricula, they are ‘options’ (versus requirements) for students, and have been adapted to place greater emphasis on technology, food production and marketing from an industry or commercial perspective as opposed to the development of an essential, domestic life-skill. Consistent with concerns noted above, the anticipated consequence of these changes is even greater reliance on generally pre-prepared and convenience foods which are nutritionally inferior and more expensive than food traditionally prepared within the home environment, a concern which has potentially greater implications for low income families<sup>8</sup>. Stitt<sup>8</sup> concludes that deskilling within the education curriculum will have widespread implications for the entire food and eating culture as a missed opportunity to maintain one of the most effective health promotion strategies which protects the ability of individuals and families to make informed food choices.

#### 4.1.2 Describing the State of Food Preparation and Cooking Skills: Challenges & Implications

Regardless of the perspective from which the issue is viewed, a decline in cooking and food preparation skills has been noted within the popular and published literature for some time, with only limited quantifiable data to support this trend. Several initiatives report cross-sectional data, however, longitudinal or surveillance data is lacking which would enable trends in cooking and food preparation skills within and across population subgroups to be monitored and reported.

In cases where data does exist, the lack of use of a definition of cooking skills and the use of inconsistent definitions across research initiatives, differing methodologies and differing indicators limits comparisons<sup>6, 7, 9, 12, 13</sup>. Several authors<sup>9, 12, 13</sup> argue that the often assumed definitions need to evolve from a perceived “Golden Age” of cooking (specifically post World War II when basic commodities and technology were limited thus requiring enhanced knowledge and skill) to reflect the current food and social/societal contexts. Short<sup>12, 13</sup> contends that modern cooking incorporates greater skills in timing, planning, judgement and organization in addition to traditional cooking abilities and use of techniques, often described as being largely mechanical and practical.

The Region of Waterloo Public Health (Ontario) recently articulated the following working definition for food skills, as part of their evidence and practice-informed planning, in response to the 2008 Ontario Public Health Standards, which require the provision of “opportunities for skill development in the areas of food skills and healthy eating practices for priority populations”<sup>21</sup>. Their definition, which follows, largely inspired by Short’s<sup>12</sup> research and perspective, addresses the full scope of how they interpret “food skills” for planning programs and services, noting that the food skills are described in a household context and that these skills are necessary to accomplish the goal—food for the household. Food skills are defined as follows:

“At an individual and household level, *food skills* are a complex, inter-related, person-centred, set of skills that are necessary to provide and prepare safe, nutritious, and culturally acceptable meals for all members of one’s household.”<sup>21</sup>.

Food skills include:

- Knowledge (i.e. about food, nutrition, label reading, food safety, ingredient substitution)
- Planning (i.e. organizing meals, food preparation on a budget, teaching food skills to children)
- Conceptualizing food (i.e. creative use of leftovers, adjusting recipes)
- Mechanical techniques (i.e. preparing meals, chopping/mixing, cooking, following recipes)
- Food Perception (i.e. using your senses—texture, taste, when foods are cooked)<sup>21</sup>.

#### 4.1.3 Highlights of Existing Research Describing Food Preparation and Cooking Skills

To achieve the stated purpose of the literature synthesis, the search strategy identified several relevant references, many of which report research data specific to age subgroups within a broader definition of children. In addition, as a result of potential research and intervention implications for children and families, broadly defined, the findings of research initiatives involving young adults as well as parents of children experiencing food insecurity were included within the synthesis. As well, a recent, unpublished source of survey data describing self-perceived cooking and food preparation skills within the Canadian context was included.

Further to the description above, the following research highlights are organized by age group (preschool, school-aged, adolescent, young adult and adult) for the ease of the reader. The highlights are presented for the most part as annotations in light of previously described variations in methodology and indicators and the resulting comparison challenges.

##### **Preschool/Young Children**

For perhaps obvious reasons, publications which specifically reported research findings documenting food preparation and cooking skills among very young children were not identified. This section therefore highlights the findings of several references reporting relevant food choice-related research of mothers (as primary influencers and gatekeepers) of very young children.

Byrd-Bredbenner and Abbot<sup>17</sup> recruited a sample of mothers of children aged one to twelve years (n=201) from around the state of New Jersey to complete an on-line survey assessing demographic characteristics, food decision influencer constructs and dietary intake. Respondents had a moderate income, were food secure, in stable domestic relationships and lived in a single geographic region. Additional relevant demographic characteristics assessed included time spent weekly on food shopping and meal preparation activities, self-reported knowledge of nutrition and food preparation, food preparation and skill and the health and nutrition status of herself and each family member. Food decision influencer constructs assessed included the following: outlook on life (i.e. goal orientation, stress management, life satisfaction), health characteristics (i.e. health-related values, locus of control, healthy eating self-efficacy, health protective behaviours), food-related activities (i.e. meal planning and associated enjoyment, use of food product information, food price consciousness, health-related food preparation values and beliefs, family involvement), interest in learning about meals, food characteristics (i.e. food quality and purity-related values, beliefs about healthy and convenience foods, and use of convenience foods), eating/food relationships and family meals (i.e. participant's responsibility for healthy family meals, value placed on family meals, importance of positive feedback, managing food preferences, and beliefs about the healthfulness of one's family diet)<sup>17</sup>.

Findings specifically relevant to cooking and food preparation skills included the following:

- family members ate together most often and meals were prepared at home significantly more often than eaten out, mothers reported high nutrition knowledge, health and family diet-quality. However more than half of the parents in the study were overweight or obese and one-third of children over two years of age had a BMI at or above the 85th percentile;
- respondents somewhat agreed that they planned meals and enjoyed meal preparation activities and that these were worth the time and effort; families were not frequently involved in meal-related activities;
- participants were interested in learning how to make more nutritious meals, but were less interested in learning how to make meals more quickly;
- respondents agreed that nutritious foods were appealing, were a good value and can be prepared quickly and disagreed that convenience foods had the same attributes. Convenience foods were not used frequently;
- factors typically guiding food choices were taste, value, time available and concerns about health/weight control; and
- participants believed that they were responsible for serving healthy meals, valued eating together as a family and felt that it was important to receive positive feedback about meals served<sup>17</sup>.

To increase the application of these findings, Byrd-Bredbenner and Abbot<sup>17</sup> translated them into goals for nutrition education interventions for mothers of young children. Highlights of these interventions have been incorporated into section

#### 4.3 Improving Cooking and Food Preparation Skills within the Context of the Family Environment: Challenges and Opportunities.

Broughton, Janssen, Hertzman, Innis and Frankish<sup>22</sup> assessed the association between various environmental predictors and household food security among a convenience sample of families (n=142) with children two-five years of age in Vancouver. Contextual factors of relevance to the relationship between food preparation and cooking skills and food security assessed included number of cooking appliances, self-rated cooking skill and access to quality food. Related to food, one of the most common concerns among food insecure parents was reliance on a few kinds of low cost foods for their children. As well, households with less-equipped kitchen facilities had three times the odds of reporting food insecurity compared to households with the greatest resources after adjusting for household income. Parents with less personal capacity in terms of self-rated cooking skill had eight times the odds of reporting food insecurity, also as compared to households with the greatest resources after adjusting for household income. Furthermore, households with the least access to food of reasonable quality had ten times the odds of reporting food insecurity relative to those reporting greatest access to quality food. These researchers conclude that the results suggest that cooking skills and appliances play a role in providing choice and control over food, as food insecure parents manage the conflicting priorities of taste, nutritional value, cost and convenience in food selections. Government produced publications that promote consumption of unprocessed foods were criticised as lacking necessary programs and

supports to increase parents' food-related skills and capacities. Concerns related to the marketing of cost-effective, palatable, but unhealthy food choices to children, and lack of access to full-service grocery stores in low-income neighbourhoods were also cited as issues, particularly for food insecure families<sup>22</sup>.

### Children

The international Institute for Grocery Distribution (IGD) conducted small discussion groups with convenience groups of seven to nine year old children (n= 400 children) in the UK to “uncover what children think about food, cooking and meal times”<sup>20</sup>. The discussion groups were followed by a web-based quantitative survey, also completed by 400 children aged seven to nine years old in the UK to test themes which emerged from the discussion groups. Highlights of the research included the following:

- children chose their favourite foods on the basis of taste and texture and also liked foods that entertained and amused them;
- children indicated that their parents have the greatest influence on learning about food, followed by their teacher;
- in contrast, including a free toy or game would have the greatest effect among respondents to encourage them to try a new healthy food;
- while the children had a general understanding of the terms healthy and healthy eating, most had an inadequate understanding of the specifics of population-based dietary guidance (i.e. number of recommended servings per food group per day);
- 74% of children said their family mostly or always ate at the same time and 71% said their family mostly or always ate the same food with some variation between specific geographic locations; and

- 82% of children enjoyed cooking at home and 41% indicated an interest in cooking more, noting that they particularly enjoyed cooking with a food that was unusual or a novelty versus the everyday task of preparing food for a family<sup>20</sup>.

Related to the last finding above, the author concludes that stimulating curiosity about food is essential in securing the interest of children in cooking and healthy eating. Furthermore, children's views seem to be consistent with a recent trend noted among adults where cooking as an everyday task or chore is distinguished from cooking for entertainment<sup>20</sup>.

Caraher, Baker and Burns<sup>18</sup> conducted a series of consultations with eight and nine year old children in three schools in England and Wales to determine how children “view the world of cooking and food”. The draw and write technique was used to identify children's experience and perceptions of cooking and food preparation, allowing them to express themselves in either words or pictures. To achieve this research aim, participating children were first asked to draw a picture of or write about a food/meal that they wanted to share with a friend/creature from outer space who was visiting Earth to learn how to cook. Secondly, the children were instructed to draw a picture of someone cooking at home and then tell the story of what was happening in their picture. A purposive sampling technique was employed to represent a range of urban and rural communities and those coming from families with varying levels of affluence. Qualitative analysis of the children's creations based on a description of the content of the drawings and all words included in the drawings resulted in the identification of the

following themes or categories: ethnicity; traditional foods and the proper meal; fried foods; pizzas, burgers and “McFoods”; tea and coffee; mums and dads in the kitchen; and celebrity chefs<sup>18</sup>.

Specifically, the children:

- identified ethnicity as having a direct bearing on food choice and cooking (theme resulting from findings from one school sample located in a highly ethnically diverse urban neighborhood);
- expressed a preference for a meal structure which the researchers describe as “traditional” British and consisting of a “proper meal” represented as having a main part (e.g. meat) supported by two accompanying components, most often two vegetables;
- attempted to construct a proper meal by combining foods such as pizza or spaghetti with other foods so a “proper meal” could be formed;
- tended to draw pictures and tell stories of preparing a meal with fried food as the central element, even when other foods were illustrated on the plate;
- favoured serving pizza and burgers themselves and also as a food/meal to serve to their guest from outer space; with branded fast-food products identified as being consumed both within and outside the home; children in all three schools identified visits to McDonald’s as being part of their everyday food culture;
- identified tea and coffee as something they prepared (and felt proud about preparing) at home for their parents with a minimum of supervision from their parents;

- identified their mother for their envisioned meal, next to themselves, as being the family member most often preparing food and meals, followed by older sisters who helped children in the kitchen. A minority of fathers or step-fathers were included within illustrations; and
- mentioned and drew celebrity chefs with reference to where they would take their guest from outer space to eat<sup>18</sup>.

These researchers conclude that the children who participated in their research are exposed to, engaged with and interested in, cooking within the home environment<sup>18</sup>. The findings support that food preparation and food choice are influenced by social, regional, cultural and family circumstances. Concern is expressed about the influence and normalization of fried, fast and prepared foods on eating within and outside of the home environment, while acknowledging children’s attempts to create or complete a traditional or “proper meal” with the addition of vegetables and other healthier food choices. As well, the results raise concern about the early development of taste preferences for processed foods and foods high in fat as well as the influence of media and branding on the same. Mothers and older sisters were identified as the primary persons responsible for the transmission of cooking skills. However, stories provided evidence that men/fathers are becoming more involved in the kitchen, as is the role of celebrity chefs in perceptions of food preparation. These findings highlight the role of food as a means of expressing love and caring within families and the related importance of children exploring and learning cooking food preparation skills<sup>18</sup>.

## Adolescents

Findings from a 1993 poll of seven-sixteen year olds for the UK Department of Health *Get Cooking!* project suggests that young peoples' food skills rise with greater technological inputs in the preparation of food (i.e. using a microwave versus preparing a food from basic or raw ingredients)<sup>6</sup>. Findings from a subsequent survey in 1998 for the UK-based Good Food Foundation found that young people identified the following as cookery skills in order of popularity: making a sandwich, making toast, opening cereal boxes, cooking chips, preparing cake mixes from a packet, cooking eggs and cooking a pizza<sup>6</sup>. The authors of this study point out that what they term 'hands-on' cooking or cooking from scratch are only minimally included within the findings and that the most frequently reported skills require assembly of ingredients and/or the opening of packages<sup>6</sup>.

An analysis of adolescent involvement (middle and high school students in one US city) in food shopping and preparation was conducted to determine if a relationship exists between involvement and dietary quality<sup>23</sup>. The frequency of involvement in food shopping and preparation over the past week was self-reported using the Project EAT (Eating Among Teens) survey and dietary intake was assessed using the Youth/Adolescent Food Frequency Questionnaire, both of which demonstrated validity and reliability. Frequency of family meals was also assessed. The findings were based on Project EAT surveys completed by 4,746 adolescents (81.5% of eligible students) and Youth/Adolescent Food Frequency Questionnaires completed by 4,206 adolescents (89% of the sample). Participants were equally divided by sex

and the mean age of respondents was 14.9 years. Relevant results included the following:

- 68.6% and 49.8% of students reported helping prepare dinner and shop for groceries, respectively, over the past week; although the majority of students did not report helping out more than one to two times per week;
- family meal frequency was associated with diet quality; adolescents who participated in regular family meals reported greater involvement in food preparation and storage;
- female adolescents helped more frequently with both shopping for and preparing food than male adolescents;
- middle school students helped more often with food-related tasks than high school students;
- Asian American students had greater involvement in both food shopping and preparation;
- low-income students helped out more with food-related tasks compared to students from families having middle and high socioeconomic status;
- mothers' employment status was not related to food task involvement;
- preparation was generally related to healthier food choices; in contrast, participation in food shopping was mostly unrelated to dietary intake and in some cases, it was related to less healthy food choices; and
- involvement in food preparation was associated with lower intakes of fat and higher intakes of key nutrients<sup>23</sup>.

The authors conclude that the results of this research parallel other research findings relating household responsibilities and positive psychosocial outcomes, notably self-efficacy, among adolescents. Self-efficacy is enhanced when opportunities to

practice behaviours exist and furthermore, greater self-efficacy in food preparation skills can enhance dietary quality. Support for community and school-based programs to enhance practical and health-oriented food preparation and purchasing skills among children and youth is stated as is promoting the involvement of adolescents in food-related tasks within the home/family environment<sup>23</sup>.

### Young Adults

Building on research reported in the previous section, Larson, Perry, Story, and Neumark-Sztainer<sup>24</sup> conducted an analysis of food-preparation behaviours, cooking skills, resources for preparing food and associations with diet quality among a sample of males (n=764) and females (n=946) aged 18-23 years (mean=20.4 years) in one US city. Participants were mailed the Project EAT (Eating Among Teens) survey, which includes self-assessment of frequency of involvement in food shopping and preparation over the past week, and the Youth/Adolescent Food Frequency Questionnaire to assess dietary intake. Via the two survey tools, young adults were specifically asked to report how often they performed five food preparation and purchasing behaviours over the past 12 months, their perceived skill and resources to perform household food tasks, and dietary intake and fast food consumption. Demographic information and weight status were also self-reported<sup>24</sup>.

Relevant findings included:

- most food preparation behaviours assessed (i.e. buying fresh vegetables, writing a grocery list, preparing a green salad, a dinner for self or for two or more people) were not performed by the majority of young adults even weekly;

- as an exception, 55.8% of young women reported preparing a dinner with chicken, fish or vegetables at least once per week;
- the majority of young adults perceived their skills and resources for food preparation were adequate or very adequate (62.8% – 92.1% for discrete skills as assessed separately for males and females);
- greater involvement in the purchasing and preparation of food was related to sex (females almost twice as likely as males), race/ethnicity (Asian, Hispanic or white), living situation (rent/own followed by living with parents) and fast food restaurant use (less than three times per week);
- preparation and purchasing frequency were not significantly related to socioeconomic, weight or student status;
- respondents who reported more frequent food preparation skills used fast food less often and were more likely to meet the national dietary objectives, however, no differences in dietary quality were observed according to perceived adequacy of skill or resources for food preparation; and
- perceived inadequacy of appliances for food preparation and food selection in local stores were barriers to preparation for a minority of young adults, however, cooking skills, money to buy food and time available for food preparation were reported as being inadequate for up to one-third of respondents<sup>24</sup>.

The authors conclude that while young adult males and females may have basic skills in food purchasing and preparation (as indicated by perceived self-adequacy), they were not using them on a regular basis<sup>24</sup>. As a result of the demonstrated

link between food preparation skills and dietary quality, the authors recommend that young adults be encouraged to improve and practice their food preparation skills at home. Further to the finding that time constraints and cost were identified as barriers to preparation, the authors suggest that programs focusing on developing skills for preparing quick and economical meals may be warranted, however further intervention research is required to confirm program specifics<sup>24</sup>.

### Adults

While their status as parents of children was not necessarily declared within the findings of all of the following research annotations, a decision was made to include this information given its relevance to the general population in Canada and also vulnerable population subgroups. As well, several annotations or summaries do not detail the extent of cooking and food preparation skills among adults/parents. However, the findings do illuminate the influence of parents' food and nutrition related knowledge, perspectives and resulting behaviours on those of their children.

Using data from the 1993 Health and Lifestyles Survey of England, Caraher, Dixon, Lang and Carr-Hill<sup>7</sup> report findings on “how, why and when people use cooking skills; (and) where and from whom people learn these skills”. The survey sample consisted of 5,553 interviews with randomly selected (by address) 16-74 year olds in England, stratified by National Health Service Region. Data was weighted to make the results more representative, as a result of several noted biases. The authors note that the survey was conducted before cooking was excluded from the new English National Curriculum for public schools<sup>7</sup>.

Relevant findings included:

#### 1. Cooking as a lifeskill:

- most respondents learned to cook from their mothers (76% of women and 58% of men), despite class and education differences;
- nearly half of 16-19 year old men mentioned learning from cooking classes at school; and
- cookery books were more important for those having higher SES (noting association with education, cost and culture), while cookery classes at school were more important for lower social classes.

#### 2. Frequency of cooking:

- less than half of respondents reported cooking a meal every day. However, this result could be influenced by the fact that only one respondent per household was surveyed (not necessarily the individual primarily responsible for food preparation) and the variability in perspective in what is meant by “cooking”;
- 68% of women reported cooking daily, compared to 18% of men, responses which were relatively consistent across SES groups; and
- the majority of respondents reported eating at least seven main meals at home per week with just over 75% of these meals described as not being ready-prepared or take-aways; those from higher SES groups were more likely to have purchased a ready-prepared meal within the past week as compared to those from lower SES groups.

#### 3. Application of cooking skills:

- respondents generally reported confidence in their ability to cook, with 94% of women and 80% of men indicating they were very or fairly confident in their skills; and

- 7% of women compared to almost 25% of males did not cook or did not feel confident to cook using basic ingredients.

#### 4. Confidence in applying techniques:

- female respondents reported being significantly more confident than men using almost all cooking techniques investigated, especially stewing, braising and casseroles; and
- greater confidence in applying most techniques was associated with increased age across and within gender groups and with increased income and social class.

#### 5. Confidence with groups of foods:

- general, social class and income variations existed related to confidence *applying* general cooking and food preparation skills to particular foods or dishes; and
- confidence in cooking most foods, particularly among women, increases with age; across gender groups, confidence in cooking all types of foods increases with income.

#### 6. Cooking as a barrier to food choice:

- most respondents indicated that their food choices were not generally restricted; and
- 12.7% of men and 5.4% of women cited not knowing how to cook a food as a factor limiting choice.

#### 7. Facilities:

- 98.6% of respondents who cooked reported that they had fairly or easy access to cooking facilities; and
- respondents from higher income groups compared to those from lower income groups

were significantly more likely to have all but one of the following: microwaves, non-stick pans or woks, steamers, food processors and blenders. Whereas, chip pans or deep fat fryers were owned more often by lower income groups.

#### 8. Views on cooking skills:

- almost all respondents believe that it was important to teach children to cook; 98.5% of women and 95.3% of men thought it fairly or very important to teach boys to cook and 99.2% of women and 97.6% of men were similarly in favour of teaching girls to cook; and
- older respondents attached greater importance to teaching children to cook, especially for girls<sup>7</sup>.

The authors conclude that the data suggest that there are considerable variations in knowledge about cooking, its application, role and relevance to health, with specific aspects of cooking being related to gender, income and social class. While not supporting a direct relationship between cooking skills and health status from an inequities perspective, the data demonstrate class-related differences between cooking, skills and confidence<sup>7</sup>.

Four focus groups were conducted with Plains Indians in four reservations to explore access and barriers to food items and food preparation, one component of a larger culturally appropriate research initiative to address diabetes and nutrition among the population<sup>25</sup>. Relevant findings included:

- most participants reported eating fast foods, fried foods, prepared foods, hamburger, and pop (diet and non) on a daily basis, including young children, while some spoke of eating more traditional foods;

- participants described unhealthy ways of preparing foods, even if those were the ways they prepared most of their food;
- all foods were described as being healthy if consumed in moderation and not cooked in fat; participants easily described traditional foods that they considered to be healthy, including preparation methods which are considered to be healthy, mentally/spiritually and physically;
- while agreeing that diet was an important factor in the development of diabetes, participants spoke of the difficulties associated with eating a healthy diet, notably lack of availability and accessibility and price as many lived on very limited incomes; and
- participants reported that education was required to motivate change in food choice and eating habits, specifically related to gardening/ growing vegetables and hands-on healthy cooking courses<sup>25</sup>.

The researchers concluded that providing practical education in a culturally appropriate fashion is essential to increase access and reduce barriers to healthy eating, thereby impacting the epidemic of diabetes among Plains Indians<sup>25</sup>.

Using a participatory, community-based, qualitative research design, Engler-Stringer<sup>16</sup> explored the cooking practices of a group of young (18-33 years), urban, french-speaking, low-income women with the purpose of contributing to the current understanding of how social and physical food environments shape daily food and cooking practices. Maximum variation sampling was used to

seek out participants who could share a variety of perceptions of the experiences related to food preparation on a low-income. Focus group questions were based on the following five broad themes: food and cooking preferences; food skills learning during the formative years; current cooking and grocery shopping practices; participants' understanding of what are pre-prepared foods and basic ingredients; and the effects of low-income on cooking practices. Focus groups were conducted until no new major themes emerged, resulting in a final sample of five groups. Most of the sample women in the focus group were in their twenties and more than half had children. Three-quarters were single and more than one-third of participants were students with just under one-third being employed. The majority of participants had annual household incomes of less than \$20,000 Canadian<sup>16</sup>.

Focus group data analysis led to the identification of six data categories and themes. Relevant findings included:

#### 1. Gender Roles:

- the women reported seeing themselves as having gender assumed food-related roles/places within their household such as having food in the refrigerator and cupboards, providing meals that household members and guests enjoy and ensuring that everyone has their nutritional needs met; and
- the majority felt that it is their primary responsibility to prepare food for their family (and perform all related tasks), despite it sometimes being described as stressful or challenging.

## 2. Planning and Organizing Food Preparation:

- participants detailed the significant thought and effort that goes into planning, organizing and implementing all of the complex tasks associated with their daily cooking practices;
- different types of meals requiring different types of planning and organizing were described by participants including day-to-day meals, meals for company, meals with roommates, elaborate weekend meals, meals made of something they really want to eat and meals based on grocery store specials; and
- planning meals was reported as being essential and valuable, although complex, when balancing the nutrition needs, food preferences and schedules of family members, as well as time constraints and available food budgets.

## 3. Foods, Food Choice and Skill:

- participants described cooking traditional foods from basic ingredients while also expressing a desire to try new foods and meals, despite being limited by the preferences and needs of other family/household members and low self-confidence and efficacy in using specific basic food preparation skills;
- concerns related to food going to waste were also a factor if the new food wasn't prepared properly or enjoyed by family members; and
- a few participants expressed not seeing the purpose in cooking from scratch when they don't need to and preferring preparing foods having instructions on the box.

## 4. Learning:

- most participants spoke of learning how to cook from their mother (or sometimes grandmother) through regular observation;
- a number of participants described their own cooking as a contrast to what their mothers had prepared, including preparing more fruit and vegetables and trying foods from other cultures; and
- participants also described their use of the internet to learn about food and find recipes; while television was identified as a source of information, many participants found cooking shows to be too complicated.

## 5. Cooking and Health:

- participants brought up nutrition and health issues throughout the focus group discussions;
- specific topics or issues felt to be important when making food choices and cooking decisions included fat and sodium content of foods and eating sufficient vegetables and whole grains and limiting sugar;
- participants also discussed feelings of guilt when they do not eat healthy foods and the importance of developing an awareness of nutrition during pregnancy and ensuring that their children eat foods from all four food groups, although some specifically expressed that they weren't concerned about this themselves; and
- participants also discussed challenges associated with healthy eating including price, and the perceptions/judgement of others that they don't eat healthy.

## 6. Grocery Shopping:

- most participants spent considerable time and energy purchasing food at the best price and most also had a clear plan in terms where they shop, from the best to worst stores, an assessment based on price of desired items, quality, and lastly, availability. As a result, very few participants did all of their shopping in one store;
- price was described as being a significant determinant of food choices and participants willingly travelled significantly further to get what is perceived as the best deal, despite describing transportation as being a challenge to grocery shopping;
- grocery store flyers play an important role for those who plan purchases and meals, noting that planning plays a significant role in managing household finances; and
- not purchasing expensive foods, detailed budgeting, only buying expensive foods for their children and using the services of food banks were also described as strategies to make their limited incomes last throughout the month<sup>16</sup>.

The author concludes that the findings support the observed culinary transition, described by Lang and Caraher<sup>6</sup>, and that the young women in the study have adapted the tasks involved in food acquisition and preparation to their life circumstances, an observation also supported by other research<sup>12-14, 16</sup>. The challenges associated with making decisions between highly available, inexpensive and flavourful, prepared foods and often comparably priced, basic foods requiring food preparation skills were discussed. Engler-Stringer<sup>16</sup> emphasizes the

importance of understanding the context (i.e. food culture) of food choice and cooking practices when designing interventions and strategies to improve the nutritional health of specific population subgroups.

The Region of Waterloo Public Health assessed self-reported cooking and food preparation skills of 703 adult residents (60% response rate) of the Waterloo Regional Area, conducted by the University of Waterloo Survey Research Centre<sup>26</sup>. While the sample was a random cross-section of Waterloo Region's adult population (Census, 2006) proportionally representative by gender, younger adults and adults living in rental housing (lower income) were under-represented among the survey respondents. The food skills component of the survey was intended to provide baseline surveillance of prevalence of food skills in the community to provide information having potential implications for policies, programs and services. Respondents were asked to rate their skill in 13 food skills/activities using a four point Likert scale. Respondents were also asked to report the time required to prepare the main meal eaten in their home, to identify if they were the main person responsible for meal preparation, how often meals were prepared from 'scratch' using basic ingredients in the previous week and whether any home- or community garden- grown food was consumed by anyone in their household over the past 12 months<sup>26</sup>.

Highlights of the survey included:

- most adults reported having good food skills. However, this was limited to more mechanical techniques;

- women reported more skill in food preparation and food-related activities than men. Male respondents reported at least 80% prevalence of good food skills for peeling/chopping/slicing vegetables or fruit, cooking meats properly and cooking soup/stew/casserole from a mix;
- fewer men versus women reported being solely responsible for preparing the main meal for their household, “always, almost always or most of the time” (27.4% vs 77.4%);
- most households (82.6%) still take more than 30 minutes to cook their main meal, but not many meals are cooked from scratch; 30% of respondents reported spending 30-39 minutes preparing the main meal, followed by 26.5% spending 50 or more minutes;
- most adults were not skilled in freezing and canning foods, but those who grow food in their gardens are more likely to have good skills in food preservation than their non-gardening counterparts;
- young adults aged 20-34 years reported having lower “good” cooking skills from scratch and canning versus other older adults, but greatest prevalence of good skill in baking using a pre-packaged mix;
- fewer adults 65+ years reported good skills in cooking raw meats properly or cooking soup/stew/casserole from a mix, compared to all other age groups surveyed, while the prevalence of “good” skill in cooking soup/stew/casseroles from scratch appeared to increase with age until 65+ years, then decreased;
- respondents in the lowest income group reported cooking regularly (“always, almost always or most of the time”) more than twice as frequently as respondents in the highest income group, 71.2% compared to 31.5%;

- respondents from the lowest income group also reported significantly greater self-reported skills in several areas as compared to those in the highest income group (e.g. baking using a mix, baking from scratch and canning); and
- 43.6% of respondents reported preparing at least part of a meal prepared from scratch five or more times over the past seven days with a greater proportion of those reporting lower incomes (<\$30,000) compared to those having the highest incomes (≥ \$70,000) (53.6% versus 30.2%)<sup>26</sup>.

The authors of this report proposed that continued surveillance of food-related skills will facilitate monitoring changes in food skills and behaviours, providing relevant information for the planning of community-based learning opportunities for food skill development<sup>26</sup>.

While not reporting specific quantifiable data to illustrate the state of, or trends in cooking and food preparation skills, several publications emphasized the role and influence of parents in developing and maintaining healthy eating behaviours of preschoolers, school-aged children and adolescents<sup>23, 27-35</sup>. With specific role-related behaviours somewhat differing across socioeconomic groups and with a child’s development stage, Hart et al<sup>27</sup>, Hildebrand et al<sup>28</sup>, Lindsay et al<sup>33</sup> and Rhee<sup>34</sup> identify parents as powerful nutrition and food skills educators and educational intermediaries as a result of their impact on children’s developing food behaviours.

Specifically, research supports parents discrete and interacting roles in ensuring availability and accessibility of healthy food choices, in demonstrating, modelling and reinforcing positive attitudes and beliefs toward nutritious foods and cooking and food preparation, and in ensuring health promoting meal structures and home eating patterns (i.e. home eating environment), on healthy eating patterns and behaviours<sup>27, 28, 33, 34</sup>. Further to the identification of parental roles, research supports the involvement of parents in comprehensive nutrition and cooking skills education initiatives for children. As well, parent-focused interventions need to recognize and act on existing levels of influence, motivation, knowledge/ understanding, skill and perceived self-efficacy, when behaviour change is the primary goal<sup>27, 28, 33, 34</sup>.

Despite the inherent limitations associated with comparing data collected from different populations using different methodologies at different times, the following common themes, similar to those described in *A Culinary Transition or Consumer Deskillin?*, emerged from the research findings presented in this section:

- women, including adolescents, young adults and mothers, are primarily responsible for food preparation functions within the home environment and generally report greater self-confidence/efficacy with cooking and food preparation skills compared to men;
- mothers are the primary role models and teachers of cooking and food preparation skills across age and socioeconomic groups (SES), followed by school-based education;

- those primarily responsible for food-related activities in the home place value on these activities, despite complexities associated with the need to balance different nutrition needs, preferences of family members and schedules;
- frequency of family meals and involvement in food preparation activities among adolescents and young adults is associated with dietary quality;
- self-efficacy with basic food preparation skills generally increases with age across gender groups; data related to self-efficacy across SES groups is somewhat conflicting;
- taste, nutritional value, cost and time are the primary and often conflicting factors influencing food choice and preparation decisions across SES groups;
- pre-prepared and convenience foods (eaten within and external to the home environment) have become normalized within patterns of eating for children of all ages and families;
- adolescents report involvement in food purchasing and preparation activities, however, most do not help out more than once or twice per week with female adolescents and those from lower SES groups reporting greater involvement than those from mid and high SES groups;
- young adults report minimal involvement in food purchasing and preparation activities, despite indicating that their skills and resources are adequate; and
- respondents from low SES groups report greater meal preparation from 'scratch' and lower use of convenience foods compared to those from other SES groups.

## 4.2 IMPLICATIONS OF A TRANSITION IN COOKING AND FOOD PREPARATION SKILLS

The specific implications of a transition in cooking and food preparation skills are difficult to assess given the lack of concrete data detailing that a transition, specifically deskilling, has taken place. However, the research presented generally reports respondents' self-perceived general satisfaction with their cooking and food preparation skills. This finding is presented alongside evidence demonstrating that decisions are being made not to use these skills, presuming a definition of basic, traditional or 'from scratch' cooking, for a variety of reasons.

What is clear and supported by both research and food purchasing and consumption data, nationally and internationally, is that food choice and consumption patterns have transitioned with increased processed, pre-prepared and convenience foods being purchased, 'assembled' and consumed across population subgroups on a daily basis. The results of several research initiatives reported in the previous section support the normalization of processed, pre-prepared and convenience foods within the eating patterns of individuals and families, again across population subgroups<sup>7, 16, 18, 23-25</sup>. Related to this normalization is the potential lack of transference of basic, traditional or 'from scratch' cooking and food preparation skills from parents (primarily mothers) to children and adolescents, which has traditionally been the primary mode of learning. Without the opportunity to observe and practice basic or 'from scratch' cooking and food preparation skills within the home environment, many argue that children and adolescents will not be equipped with the necessary

skills to make informed choices within an increasingly complex food environment<sup>6,7</sup>. In support of this argument, low self-efficacy and self-perceived inadequate cooking and food preparation skills have been identified as barriers to food choice within several recent research initiatives<sup>16, 22</sup>, potentially resulting in a greater reliance on pre-prepared or convenience foods, reduced variety in food choice and consumption and the atrophy of cooking and food preparation skills<sup>9-11</sup>. Several authors suggest that this will have greater dietary and overall health implications for those living on a lower income. While the gap is narrowing between the price of pre-prepared foods and whole/raw foods, healthier pre-prepared or convenience foods tend to cost more. Although not completely substantiated by research, several authors suggest that the implications of the culinary transition on food choice and potentially, dietary quality, are not likely consistent across socio-economic groups or gradients. Those from more affluent groups can afford to essentially 'buy their way out of' the health and social implications through the purchase of healthier pre-prepared foods and meals<sup>6,7</sup>.

Some evidence does exist demonstrating a relationship between decreased use of traditional or basic food preparation skills, increased consumption of pre-prepared, packaged and convenience foods and dietary quality. That being said, several authors point out that the information is limited to substantiate a direct relationship between cooking and food preparation skills and health<sup>6, 7, 23, 24, 35</sup>. While the results of interventions may be quite moderate, Wrieden<sup>39</sup> and others<sup>7, 23, 24</sup> believe that some studies do indicate that food skills interventions may be a useful starting point for initiating dietary change, while recognizing that

addressing any one barrier to change (i.e. in isolation of others or a broader context) is unlikely to radically alter established eating behaviours, particularly among adults.

#### **4.3 IMPROVING COOKING AND FOOD PREPARATION SKILLS WITHIN THE CONTEXT OF THE FAMILY ENVIRONMENT: CHALLENGES AND OPPORTUNITIES**

The most common potential challenges identified related to the development of successful strategies or interventions to enhance cooking and food preparation skills among children within the context of families include time, individual/familial food choice (and challenges associated with managing and planning for different food preferences among family members). As well, there is diminished value (real or perceived) placed on ‘cooking from scratch’ or traditional cooking skills. An even greater challenge is associated with the lack of clear evidence describing the characteristics of successful intervention strategies for specific age and population subgroups.

Several authors report that programs are generally received favourably by both children and parents. However, there are limited changes in knowledge and/or behaviour maintained over short periods of time (e.g. willingness to try new foods, increase in one serving of fruit and vegetables, greater knowledge of food safety behaviours, improved self-efficacy). There is a need to better understand how children understand messages communicated, the role of practical skills and parental influence over the same in healthy eating, and the

relationship between ‘dosage’ of nutrition education interventions related to cooking and food preparation skills and movement to higher stages of sustained behaviour change<sup>23, 24, 27-30</sup>. The most efficient and effective strategy for achieving the desired/necessary long-term and whole diet behaviour modification among the school-aged population, specifically, has yet to be established. However, the articles reviewed, which reported the limited or moderate results of cooking and food skills interventions, provided recommendations for future research. In addition, adult participants in numerous descriptive research studies indicated an interest in learning new, and/or further developing existing cooking and food preparation skills. As well, within our current society, where we do not have to acquire or use cooking skills ‘to survive’, some researchers suggest capitalizing on people’s interest in the creative (versus ‘mundane’) aspect of cooking and food preparation when developing and promoting interventions<sup>9</sup>.

The literature reviewed to inform this section of the synthesis focused on interventions designed to improve cooking and food preparation skills among children<sup>17, 29-31</sup>, improve consumption of specific foods and food groups among children<sup>28</sup> and explore parental perceptions and perspectives related to both food-related skills development and food consumption<sup>27-29, 32</sup>. With the exception of one intervention program reviewed which used a computer-based multi-media approach<sup>31</sup>, the remainder were ‘traditional’ multi-week nutrition education and skills development programs having hands-on food preparation opportunities for children and a parental communication/education involvement or evaluation component. Several programs incorporated activities to increase

nutrition-related knowledge, decision-making and problem solving. An almost equal number of programs were delivered within the school (largely extra-curricular) and community environments. All programs were provided free of charge to participants with some providing basic kitchen utensils to participants, most providing recipes of foods prepared during the program and some allowing for food to be brought home for other family members to try. Only one program included within the review was intended for 'full family participation'.

While clear evidence detailing successful intervention strategies for specific age and population subgroups does not currently exist, available evidence and experience indicates that programs/interventions specifically designed for children, and having some involvement of adults/parents, often have common characteristics. These include:

- a stated theoretical basis, or, at a minimum, a set of defensible community-relevant assumptions upon which the program or activity is based;
- opportunities for experiential/hands-on learning (i.e. ranging from taste testing to demonstrations to cooking and food preparation skills), to promote and build self-confidence and self-efficacy through skill development and encourage children and youth to become involved in food preparation activities within the home environment;
- self-assessment of eating patterns and behaviour change for middle and high school students as well as parents/adults;
- the involvement of parents, either actively or as intermediaries depending on the age of the child (i.e. emphasize the influence of parents in food

choices and food preparation skills of children and youth), in program implementation and evaluation;

- community-based programs that are tailored for specific population groups (learner-centred), giving consideration to the social context of food choice and cooking practice;
- content to assist learners in intervening in broader physical and social environments to address barriers to improved food choice and cooking practices;
- a supportive learning environment, including a social support component and regular positive reinforcement;
- measurable, specific goals set by participants (largely relevant for adult/parent participants as individuals and, ideally, for their families);
- programs that capitalize on interest in learning and demonstrate that healthy, cost-effective foods and meals can be planned, prepared and served in limited time (by teaching time-saving food preparation methods and equipment); and
- programs that are longer in duration.

The literature specifically supports the importance of setting goals by participants, which address the following: barriers/negative aspects of performing a desired/favourable behaviour change, increasing availability and accessibility of specific healthy foods, and increasing preferences for specific healthy foods and increasing skills<sup>27, 28</sup>. Related to the last characteristic above, Parris<sup>30</sup> cites research conducted by Contento et al<sup>36</sup>, which indicates that nutrition education programs with ample time and intensity of teaching are more effective than shorter programs<sup>36</sup>. Based on a review of nutrition education programs, Contento et al<sup>36</sup> discovered that 15 contact hours could be expected to bring

about changes in knowledge and 50 hours were required for changes in attitudes and behaviours. The work of Contento et al<sup>36</sup> and Lytle and Achterberg<sup>37</sup>, were cited in several of the specific intervention references reviewed.

As noted earlier within the synthesis, nutrition and food-related changes within the UK's National Curriculum for public schools in the late 1990s stimulated great dialogue, research and action involving government, academics and non-government organizations. One result of this dialogue, research and action having relevance for the development of programs and initiatives that aim to develop and/or strengthen cooking and food preparation skills among children and youth are the "food competencies for young children"<sup>38</sup>.

According to the website, the food competencies for children aged five-sixteen years are organized as a framework of core skills and knowledge for young people to assist young people in choosing, cooking and eating safe and healthy food. While primarily intended for use by schools and community-based organizations in supporting young people in developing a consistent set of food skills and knowledge, supporting wider government health-related initiatives, the competencies can be met at home or through other activities. The theme areas of the detailed competencies are: diet and health, consumer awareness, cooking (food preparation and handling) and food safety. Current users of the competencies are detailed within the information available on the web<sup>38</sup>.

## 5.0 CONCLUSION AND KNOWLEDGE GAPS



The information presented within this synthesis indicates that despite noted limitations in surveillance and intervention-related data, concerns related to a transition in cooking and food preparation skills and the potential impact on food choice, health and health inequalities are not unfounded.

Furthermore, the information synthesized supports the need for further research and surveillance to strengthen understanding and potential to influence the determinants, prevalence and characteristics of cooking and food preparation skills among children and families in Canada. In addition, the influence of cooking and food preparation skills on food choice, dietary quality and nutritional health, across and within population subgroups of interest, requires further exploration. The report outlines suggested characteristics of successful knowledge and skills-based food and nutrition education, success being defined as sustained and notable dietary behaviour change among children and families.

To address identified knowledge gaps, the following research questions are suggested for further exploration:

- How do Canadian families with children define or describe cooking and food preparation skills?
- Do Canadian families with children value basic or 'from scratch' cooking and food preparation skills?
- How do Canadian families with children consider or assess the nutritional value of convenience and pre-prepared foods as compared to foods and meals 'from scratch'?

- How have cooking and food preparation skills, and their use, changed in Canada primarily among families with children?
  - What are the evidence-based characteristics of successful interventions that aim to develop and/or enhance the cooking and food preparation skills of children within the context of families?
  - How do self-reported cooking, food purchasing and food preparation knowledge, skills and related self-efficacy of Canadians vary across socioeconomic groups? How does this compare with that of Aboriginal populations?
- Is there a relationship between childhood overweight and obesity and food preparation and cooking skills among children and families?
  - Is there a difference in macro and micronutrient intake of Canadians who primarily eat food prepared from scratch versus those who regularly incorporate pre-prepared, pre-packaged and convenience foods into their family eating patterns?

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