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The adoption of sustainable menu practices in healthcare institutions in Quebec: a study of feasibility

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The adoption of sustainable menu practices in healthcare institutions in Quebec: A study of feasibility

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Résumé

Problématique : La société québécoise affiche un intérêt marqué vers des systèmes alimentaires durables, visant à maintenir la santé humaine et de la planète par l'entremise des aliments nutritifs, tout en favorisant le développement économique et social. Dans cette perspective, les gestionnaires de services alimentaires d'établissements de santé peuvent privilégier des pratiques de menus durables (PMD). Peu de recherches existent sur les PMD dans ce contexte, et il s'avère donc important d'étudier leur faisabilité dans les établissements de santé québécois.

Objectif : Cette étude vise à évaluer la faisabilité de l'adoption de PMD dans les services alimentaires des établissements de santé québécoises.

Méthodologie : Suivant une approche d'application de connaissances intégrée et en partenariat avec le programme Nourrir la Santé (Fondation McConnell), une étude qualitative a été réalisée au moyen d'entretiens individuels semi-dirigés auprès de dix-sept gestionnaires de services alimentaires, recrutés par échantillonnage intentionnel dans dix des trente établissements de santé du Québec. La théorie révisée de la diffusion des innovations, décrivant les neuf déterminants principaux liés aux processus de diffusion d'une innovation (les PMD) dans un système social complexe (les organisations de santé), a structuré la collecte et l'analyse des données.

Résultats : Les gestionnaires rapportent être motivés par les PMD. Toutefois, la mise en oeuvre d'actions concrètes s'avère difficile par manque de priorisation organisationnelle. Les défis, plus nombreux que les éléments facilitateurs, incluent la complexité perçue des PMD, le contexte du système de santé, le manque considérable de ressources et l'absence de politiques claires du Ministère de la Santé. Pour une meilleure adoption des PMD, les gestionnaires de services alimentaires ont besoin d'un soutien organisationnel accru, des directives ministérielles claires et plus de collaboration entre tous les acteurs du système alimentaire.

Discussion : Cette recherche contribue à une compréhension approfondie de l'expérience de gestion en matière d'adoption de PMD dans divers contextes régionaux et institutionnels. Les résultats suggèrent un besoin de création de partenariats, ainsi que du soutien et des stratégies pouvant éliminer les barrières principales à l'adoption de PMD.

Mots-clés : Alimentation durable, Menus, Services alimentaires, Diffusion des innovations, Nutrition

Abstract

Background: In many societies, as in Quebec, there is an increased interest towards sustainable food systems. Food sustainability aims to maintain human and planetary health through nutritious food, all the while promoting economic and social development. In this perspective, foodservice managers in healthcare institutions can prioritize sustainable menu practices (SMPs). As there is little research on SMPs in this context, it is of uttermost importance to understand their feasibility in healthcare institutions.

Objective: This study aimed to analyze the feasibility of adopting SMPs in Quebec healthcare institutions.

Methods: Following an integrated knowledge translation and exchange approach and in partnership with Nourish (McConnell Foundation), a qualitative study was carried out using semi-structured interviews with seventeen foodservice managers, recruited through purposeful sampling in ten of thirty healthcare institutions in Quebec. The revised Diffusion of innovations theory, describing the nine principal determinants of the processes of the diffusion of an innovation (SMPs) in a complex social system (healthcare organization), structured the interview guide for data collection and the codebook for data analysis.

Results: Managers report being motivated by food sustainability, however this does not always translate to concrete actions due to its lack of prioritization in foodservices. Challenges to adopt and implement SMPs are considerably more recurrent than facilitators. Key barriers include perceived SMP complexity, the context of the healthcare system, a substantial lack of resources and shortfalls in clear political directives from Ministry of Health. Amongst enhanced support and ministry guidance, foodservice managers need increased collaboration between all food system actors for better SMP adoption.

Discussion: This research contributes to in-depth understanding of the managerial experience in SMP adoption in various regional and institutional settings. Findings suggest the need for food system partnerships, as well as support and strategies that would remove important barriers in SMP adoption.

Keywords: Food sustainability, Menus, Foodservice, Diffusion of Innovations, Nutrition

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BMI: Body Mass Index

CIUSSS: Integrated University Health and Social Services Centre

CISSS: Integrated Health and Social Services Centre

FAO: Food and Agriculture Organization of the United Nations

GHG: Greenhouse gas

HCWH: Health Care Without Harm

IKTE: Integrated Knowledge Translation and Exchange

SDG: Sustainable Development Goal

SMP: Sustainable Menu Practice

USA: United States of America

UK: United Kingdom

WHO: World Health Organization

To Buzz,

May your memory rest forever within these lines

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Chapter 1 – Introduction

Albeit a seemingly new concept, food sustainability has been slowly gaining interest over the last few decades, from consumers, scientists, researchers, and politicians alike (Gussow & Clancy, 1986; Mason & Lang, 2017). Coined as a challenging ideal to achieve, food sustainability is recognized as essential for human and planetary health (Burlingame & Dernini, 2010). Many scientists agree that the current global food system is unsustainable (Carolan, 2011; Mason & Lang, 2017). In fact, it has many failings, such that environmental resources are depleting, populations are being improperly fed, human and economic costs are increasing, and future generation sustenance is precarious (Gonzalez Fischer & Garnett, 2016; IPES-Food, 2017; Mason & Lang, 2017). Thus, a change in the current food system is said to be highly important by scientists around the world for the protection of human health and the well being of our planet (FAO, 2018; Willett et al., 2019).

This change is deemed a "Great Food Transformation" by the EAT-Lancet Commission, in which its members propose that people need to modify their relationship with their food systems and work together towards this common goal (Willett et al., 2019). The Commission suggests a radical dietary shift in which populations consume more legumes, nuts, whole grains, fruits, and vegetables, while consuming less meat, high-sugar and high-fat foods. Willett et al. (2019) argue that this diet can provide benefits to human health and environmental sustainability. Separate research groups corroborated this proposal with similar findings (Rose, Heller, & Roberto, 2019).

Another Lancet Commission, the Lancet Commission on the Global Syndemic of Obesity, Under-nutrition, and Climate Change is even more incisive, showing evidence that closely couple the three pandemics of obesity, malnutrition and climate change in threatening human health (Swinburn et al., 2019). The Commission attributes substantial responsibility of these pandemics to powerful large food corporations that produce ultra-processed foods ensuing from for-profit businesses, thereby neglecting social, environmental, and health ramifications. The Global Syndemic Commission thus calls for a Framework Convention on Food Systems, in which countries agree to respond to the syndemic through policies promoting food

sustainability and health, with governments and private-sector corporations being held accountable for their action or inaction in pandemic mitigation (Swinburn et al., 2019).

At a national level, many initiatives are currently underway to transform the food system towards a more sustainable one. Canada has recently started developing a stance on the importance of food sustainability. Canada's Food Guide, which underwent an extensive review before being updated in January 2019, includes healthy eating recommendations similar to EAT, with certain environmental orientations (Government of Canada, 2019b). Consuming plant-based protein-rich food regularly, reckoning with personal, cultural and traditional preferences, as well as reducing food waste are among the mentioned practices regarding sustainability in Canada's Food Guide (Health Canada, 2019).

Prior to these national recommendations, political discourse and small-scale organizational initiatives were already taking place across the country. One example is the food sustainability address from the government of Quebec, with their *Politique bioalimentaire du Québec*. This Policy has many aims, one of which anticipates amplifying the availability of healthy, local, and environmentally-friendly food in public institutions (Governement du Québec, 2018b). Although this objective is not yet shadowed by specific recommendations or proposed strategies, it may help the emergence of further discussions and push policy-makers to take concrete actions. Cities have also been launching projects and working groups to make a positive difference on the food system. For instance, the *Conseil du Système alimentaire montréalais* aims to provide recommendations to the City of Montreal for policies in line with the creation of an environment that enables citizens to eat healthily (Conseil SAM, 2018).

Following provincial- and city-wide actions, public organizations such as healthcare institutions are seen as an important area in which sustainable measures can be taken (Équiterre, 2012). Being responsible for promoting community and patient health, healthcare institutions' involvement in improving environmental, societal, and economic impacts should be obvious (Beery & Markeley, 2007; Klein, Thottathil, & Clinton, 2014; M. E. Smith, 2012). However, this is not a posture that they readily take. Nonetheless, some initiatives are beginning to emerge, with calls to mobilization being felt towards sustainable action in the

Canadian healthcare system. One of these initiatives is the McConnell Foundation's Nourish program, which unites innovative healthcare foodservice managers in working together to bring back the connection between food and patients, and to showcase the value of healthy and sustainable food as part of the healing process (Nourish, 2019a). In light of this, Nourish sought to partner with researchers to better understand what prevents foodservices from being more proactive towards sustainable foodservices, as well as understand their motivations and identify their needs. This led to collaboration with the Université de Montréal in fall 2017, and the emergence of our study.

To work on healthcare institutions' food sustainability, it is necessary to reach out to foodservice managers, as they are well placed to contribute to developing more sustainable menus (EAT, 2019a). However, managers already have the complex task of planning a diverse and nutritious menu while respecting an allotted budget, such that asking them to include sustainability criteria in menus may be difficult (Montague, Wilcox, & Harmon, 2014; Story, Hamm, & Wallinga, 2009). In addition to this, their explicit lack of knowledge on food sustainability seldom leads to change (Nourish, 2019b). It is therefore critical to understand foodservice manager perspectives on the feasibility of sustainable food practices in healthcare institutions. By identifying obstacles and spotting levers for change, foodservice managers can be empowered to move towards a more sustainable future for practice (Hannon & Callaghan, 2011). The main objective of this research was thus to investigate the feasibility adopting and implementing sustainable menu practices (SMPs) in Quebec healthcare institutions' foodservices. By "adoption", we refer to the decision to implement an SMP, without action, while "implementation" rather refers to taking action towards SMPs.

Furthermore, as an Integrated Knowledge Translation and Exchange (IKTE) study, a partnership with Nourish was developed in order to nurture their expressed needs for evidence-based research on food sustainability in healthcare foodservices. The tangible benefits of this relationship are shown in the development of a foodservice manager-oriented Guide to Sustainable Menus, providing users with guidance to gradually increase the sustainability of their menus. Moreover, findings from this study may provide useful for

leveraging action to decision-makers in healthcare institutions, public health, and for the development of public policies.

Chapter 2 – Literature Review

The following chapter is divided into four sections. The first provides an overview of food sustainability, diving deep into each of its dimensions. This is followed by a presentation of evidence linking health and environment in sustainable development, as well as a brief scan of sustainable actions currently in practice. The last section focuses on findings from studies of food sustainability interventions in healthcare settings, along with a description of the healthcare system in Quebec.

2.1 Food Sustainability

2.1.1 Food Sustainability Defined

Sustainability is a topic that has been used across many fields over the years, and is described as the fusion of social and economic development with environmental concerns (Tagtow & Harmon, 2009; World Commission on Environment and Development, 1987). Joan D. Gussow and Katherine L. Clancy first introduced the concept of food sustainability to the field of nutrition in 1986. The two academics stated in an article that nutrition professionals often only focus their nutrition education on how food choices impact human health. They propose that nutrition professionals should also recognize how food choices impact the food system, thus include environmental concerns (Gussow & Clancy, 1986). Shortly after, other academics and professionals increasingly began addressing food sustainability, despite the lack of a clear definition. This was until 2010, when members of the FAO and Biodiversity International's Scientific Symposium in Rome developed a now well-cited definition of sustainable diets (Burlingame & Dernini, 2010):

> *"Sustainable diets are those diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations. Sustainable diets are protective and respectful of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable; nutritionally adequate, safe and healthy; while optimizing natural and human resources."*

This comprehensive definition of sustainable diets focuses on nutrition and food security as a pre-requisite, while taking into account the social, economic, and environmental aspects of food. Although widely present in scientific documents, this definition has been criticized for its impracticality, with disagreement on what should be the prime concern among all the aspects defined (Alarcon & Gerritsen, 2014; Garnett, 2014). Scientists from various fields give their own meaning to the universal definition, creating a large diversity in approaches. For instance, in a recent study, members of the Dietitians of Canada presented their vision of food system sustainability: "*The purpose of (human) food systems is to provide nutritious, safe, and high-quality food and water that supports human health and welfare.*" (Carlsson, Callaghan, & Broman, 2019). Instead of examining all aspects of food sustainability highlighted by the FAO and Biodiversity International, Canadian dietitians who participated in the study viewed sustainability with a prominent health and nutrition perspective, unsurprisingly in relation to their background.

Bearing in mind these concerns, Pamela Mason and Tim Lang's conceptualization of food sustainability is an approach that warrants consideration for its practical use. Their approach seems to be more complete than other propositions, as it represents socio-ecological determinants of food consumption at all levels of the food system. In their Sustainable Diets book, the two distinguished scientists propose to use UK's former Sustainable Development Commission's six-dimension approach to food sustainability (Mason & Lang, 2017; Sustainable Development Commission, 2011): 1-Health; 2-Environment; 3-Social Values; 4-Quality; 5-Economy and 6-Governance. Categorizing food sustainability into six dimensions allows a comprehensive operationalization of the FAO and Biodiversity International's more theoretical definition, while also contrasting with the three-criteria approach of sustainability by adding quality, governance, and health dimensions and giving them equal weight (Burlingame & Dernini, 2010; Mason & Lang, 2017). These six food sustainability dimensions are vastly explained below, starting with health and how its relationship with nutrition allows for better human and planetary welfare.

2.1.2 Health Dimension of Food Sustainability

The WHO defines health as more than just lack of disease; rather, optimal health should also include individual wellbeing (World Health Organization, 1948). Health and nutrition are closely linked, as individuals who consume nutritious diets are likely to have improved health (Mason & Lang, 2017). Unfortunately, worldwide nutrition status presently disables populations from being at their healthiest, due to a shift towards unhealthy diets with an acceleration in malnutrition over the last fifty years (Global Panel on Agriculture and Food Systems for Nutrition, 2016). In fact, the single largest risk factor for the global burden of disease is diet-related, where malnutrition is responsible for higher risk of mortality and morbidity than any other risk factor (Development Initiatives Poverty Research Ltd, 2018; Global Panel on Agriculture and Food Systems for Nutrition, 2016). The 2018 Global Nutrition Report states that malnutrition exists in every single country in the world, a concerning fact that needs to be recognized and promptly tackled (Carlsson et al., 2019; Development Initiatives Poverty Research Ltd, 2018). Malnutrition can present itself through three forms: overweight and obesity, micronutrient deficiencies, and under-nutrition, which are described in the following paragraphs (Development Initiatives Poverty Research Ltd, 2018; World Health Organization, 2018a).

Many adults and children around the world have difficulty in conforming to universal dietary advice (C. J. Reynolds, Buckley, Weinstein, & Boland, 2014). In fact, they do not consume enough nutritious foods such as fruits, vegetables, whole grains, nuts and legumes, rather replacing these with high-fat and high-sugar foods, as well as refined grains (Development Initiatives Poverty Research Ltd, 2018; Willett et al., 2019). These poor dietary choices combined with over-consumption of food and of ultra-processed foods increases the risk for non-communicable diet-related diseases such as overweight and obesity (Mason & Lang, 2017; Monteiro et al., 2017). WHO data from 2016 shows that 39% of the world's adult population is overweight, and 13% of the world's adult population is obese, with this number alarmingly accelerating (Global Panel on Agriculture and Food Systems for Nutrition, 2016; World Health Organization, 2018b). Furthermore, the increasing prevalence of overweight and obesity is found in all countries, regardless of income classifications (FAO, IFAD, UNICEF,

WFP, & WHO, 2018). In Canada, data from 2016 and 2017 shows that 34% of adults are overweight and 27% of adults are obese, the latter two times higher than the worldwide prevalence of obesity (Statistics Canada, 2018). On the other hand, the province of Quebec shows lower prevalence of excess weight in adults than in Canada, with 18% of adults in the Quebec population being obese in 2013-2014 (INSPQ, 2015). Moreover, although global childhood obesity has been relatively stable since 2012, still about 6% of children under five years old around the world were overweight or obese in 2017, and 18% of children five to nineteen years old were overweight or obese in 2016 (FAO et al., 2018; World Health Organization, 2017, 2018b). Canadian data shows that 13% of children and youth were obese in 2016, compared to 9% in Quebec (Lamontagne & Hamel, 2016; Rao, Kropac, Roberts, & Jayaraman, 2016). Childhood obesity increases the risk of obesity in adult age, adding to the global worry of increasing adult obesity (FAO et al., 2018). Having a high BMI also increases the risk of non-communicable diseases such as cardiovascular disease, type II diabetes, and some cancers (World Health Organization, 2018b). In addition, this form of malnutrition and its potential consequences contribute to financial and social costs to society (Janssen, Lam, & Katzmarzyk, 2008; Public Health Agency of Canada, 2018). For instance, the *Institut national de santé publique du Québec* (2014) review illustrated how obesity leads to major direct and indirect costs to society. The direct cost of obesity is essentially an increase in healthcare costs, while the indirect costs include high absenteeism, invalidity, premature mortality, and reduced productivity (Blouin, 2014).

On the flipside, undernourishment is also a serious malnutrition issue (Willett et al., 2019). After gradually reaching declining levels of world hunger, the year 2014 marked increasing hunger levels to reach approximately 821 million people in 2017 (FAO et al., 2018). This in turn represents approximately one person in nine that is experiencing hunger (FAO et al., 2018). The global burden of wasting and stunting in children under five years old is also disconcerting, as 7% of these children were affected by wasting and 22% were affected by stunting in 2017 (FAO et al., 2018). Although stunting rate has declined, the amount of malnourished children under five is nonetheless considered intolerable (Development Initiatives Poverty Research Ltd, 2018). Consequently, under-nutrition can increase child mortality worldwide, with an estimated 45% of deaths in children under five years being

nutrition-related (World Health Organization, 2017). Children who are under-nourished may face greater difficulties later in life if they manage to survive their malnutrition, such as experiencing learning hurdles, economic setbacks and general disadvantages from being stunted (Global Panel on Agriculture and Food Systems for Nutrition, 2016). In Canada, undernourishment is often discussed as an issue for the aging population. A study by Health Canada found that approximately one third of Canadians aged 65 and older were at nutritional risk for under-nutrition, based on 2008-2009 data (Ramage-Morin & Garriguet, 2015). Under-nutrition in this population can increase the risk of hospitalization, increasing the economic burden from malnutrition (Ramage-Morin & Garriguet, 2015).

The last form of malnutrition that has an impact on world health status is micronutrient deficiency. Deficiencies can cause many adverse health consequences and may affect life expectancy (Global Panel on Agriculture and Food Systems for Nutrition, 2016). Data from the State of Food Security and Nutrition in the World shows that anaemia is an intensifying issue in women of reproductive age, as 33% of women in the world were affected by anaemia in 2016 (FAO et al., 2018). Anaemia can cause health problems not only for these women, but also for the children that they are carrying and caring for, which can generate economic burdens for society from higher healthcare costs (FAO et al., 2018; Global Panel on Agriculture and Food Systems for Nutrition, 2016). Data from the Canadian Community Health Survey Cycle 2.2 Nutrition shows that Canadian adults generally do not meet requirements for vitamin A, vitamin D, magnesium and calcium (Health Canada, 2012). The report however specifies that although vitamin D needs are not met through food sources, Canadian studies do not indicate widespread vitamin D deficiency.

Malnutrition in its three forms is estimated to cost the world 3.5 trillion US dollars per year (Swinburn et al., 2019). This is a significant amount in which there are serious impacts when evidence shows that malnutrition is not improving. Although the three forms of malnutrition were discussed separately, these can be present concomitantly in a population, a household or in an individual (Development Initiatives Poverty Research Ltd, 2018). The WHO explains that the double burden of malnutrition exists when two forms of malnutrition are present in a population, a household, an individual, or throughout a lifetime (World Health Organization,

2017). For instance, an example of "hidden hunger" is when an obese individual is also iron deficient (FAO et al., 2018), while at a household level, the double-burden of malnutrition can present itself through an obese parent caring for their stunted child (Delisle & Batal, 2016). This burden can have great impacts on individual health and economy. For instance, individuals may have lower immune systems, have a higher risk for disease and perform poorly at school. These can have economic impacts such as lower productivity and higher healthcare costs (World Health Organization, 2017).

One of the reasons behind the existence and the worsening of malnutrition is lack of access to food (FAO et al., 2018). Not having access to safe and nutritious food, clean water, quality healthcare and adequate income can hinder individuals' health (Development Initiatives Poverty Research Ltd, 2018). For instance, when households do not have access to proper food quality in adequate amounts for health and wellbeing, they are more likely to be food insecure (FAO, 1996; Public Health Agency of Canada, 2018). The following four pillars of food security need to be fulfilled in order for individuals, households and communities to be food secure: physical availability of food, economic and physical access to food, food utilization, and the stability of the three other pillars over time (FAO, 2008). The FAO estimated that in 2017, about 10% of the world's population experienced severe food insecurity, i.e. reported having no food for one day or more (FAO et al., 2018). This represents approximately 770 million people in the world affected by severe food insecurity (FAO et al., 2018). Canadian data from 2012 shows that one in eight households live in food insecurity, which represents approximately 4 million Canadians that are food insecure (Tarasuk, Mitchell, & Dachner, 2014). In the same year, 8% of households (approximately 250 000 households) were affected by food insecurity in the province of Quebec (Maisonneuve, Blanchet, & Hamel, 2014).

Many adverse health outcomes are related to food security status. Individuals living with food insecurity are more likely to be overweight and obese, as well as have multiple chronic diseases (FAO et al., 2018; Tarasuk, Mitchell, McLaren, & McIntyre, 2013). They are more likely to have nutrient adequacies and less nutritious diets, and be undernourished (Kirkpatrick & Tarasuk, 2008). Food insecure individuals are also more at risk for poor mental health

(Jessiman-Perreault & McIntyre, 2017). Food insecurity is a contributor to increased costs to the healthcare system (Tarasuk et al., 2015). A study in the province of Ontario found that healthcare costs (including prescription drugs) were 23% higher in marginally food insecure individuals, and 121% higher in severely food insecure individuals (Tarasuk et al., 2015).

Poor availability of clean drinking water, food safe for consumption, and widespread sanitary practices can also disable individuals from living to their fullest potential. Neglecting food safety standards can have important consequences. For instance, an estimated 4 million episodes of domestic foodborne illnesses occur in Canada every year (Thomas et al., 2013). Increasing levels of antimicrobial resistance are also deemed a serious public health issue, that require better food safety surveillance, as recommended by Canada's National Collaborating Centre for Infectious Diseases (Patrick, Grant, & Saxinger, 2014). These food safety issues may place individuals at higher risk of malnutrition (Development Initiatives Poverty Research Ltd, 2018).

From this evidence, it is recognized that poor nutrition status of individuals, households and populations can have serious impacts on public health, with other important consequences, through an acceleration of malnutrition.

2.1.3 Other Dimensions

This next section provides an overview of the five other dimensions of food sustainability, earlier described as UK's former Sustainable Development Commission's approach to understanding sustainable diets. Each dimension is explained below, as is their contribution to food sustainability: environment, social values, quality, economy and governance.

Environment

The global environment is under great pressure, and this is largely attributable to the food system. The environmental impacts of food, diets, and agriculture are extensive, and this section is meant to give a brief overview of these current issues.

The environment is affected by food and agriculture, and similarly, food and agriculture influence the environment (Agriculture and Agri-Food Canada, 2015). On the one hand, major agricultural practices are being compromised by climate change, which can ultimately impact population health and nutrition status (International Food Policy Research Institute, 2019). The 2018 State of Food Security and Nutrition in the World report explain that climate change is an important contributor to malnutrition. Increasing climate-related disasters, variable climates and extreme temperatures disturb the four pillars of food security worldwide (Development Initiatives Poverty Research Ltd, 2018; FAO et al., 2018). In fact, the number of extreme climate disasters is on the rise, which poses a higher risk for vulnerable populations having to face severe food crisis. Climate variability and extreme temperatures can further jeopardize global nutrition efforts to reduce hunger, food insecurity and malnutrition (FAO et al., 2018). In Canada, temperatures are warming, with more hot extremes, warmer cold extremes, and increased rainfall, which can all lead to increased droughts, wildfires and flooding (Bush & Lemmen, 2019). Although climate change may provide opportunities for longer growing seasons (shorter and warmer winters) in this country, there are concerns for crops devastated by more drought periods and violent storms, as well as concerns for livestock not surviving intense heat waves (Agriculture and Agri-Food Canada, 2015).

On the other hand, current agricultural practices and other human activities are compromising the environment. The Intergovernmental Panel on Climate Change confirmed that the average global temperature is likely to increase of at least 2°C by year 2100 if current human activities in the world remain in *status quo* (IPCC, 2013, 2018). Crop and livestock production are responsible for many environmental impacts, as food production for current diets generates high greenhouse gas (GHG) emissions, consumes massive amounts of energy and water, contributes to land and soil degradation, and promotes biodiversity loss (Alsaffar, 2016; Gerber et al., 2013; Klein et al., 2014; Rose et al., 2019). High GHG emissions are linked to human activities, and food production accounts for one fifth up to one third of total GHG emissions in the world (Vermeulen, Campbell, & Ingram, 2012). In Canada, 10% of GHG emissions come from crop and livestock production (Agriculture and Agri-Food Canada, 2015). GHG emissions from transportation were originally presumed to contribute to the highest GHG emissions from agriculture; however, a 2008 USA study illustrated that

transportation accounts for only 11% of GHG emissions from agriculture worldwide (Weber & Matthews, 2008). The focus should then rather be on meat and meat products, which are responsible for significant GHG emissions from agricultural practices, with livestock representing over 14% of total human activity-related GHG emissions (Gerber et al., 2013). Hence, the type of food consumed could confer more benefits to the environment than the distance it travels (Carolan, 2011). Dietary shifts to reduce meat consumption would have significant environmental impacts, all the while contributing to decreased morbidity and mortality risks through healthier diets (Tilman & Clark, 2014). The link between food production and GHG emissions is a two-way arrow: food production emits high GHG emissions, and high GHG emissions impact food production and quality. Canadian data shows that better food production efficiency could potential reduce avoidable GHG emissions (Agriculture and Agri-Food Canada, 2015). A study from Harvard University demonstrated that the accelerating increase in atmospheric CO_2 will contribute to the decrease in the nutritional quality of many crops, especially wheat and rice, by the year 2050 (M. R. Smith & Myers, 2018). This lower nutritional quality is quantified as a 3 to 17% decrease in zinc, iron, and protein content of these crops. M.R. Smith & Myers (2018) remark that their findings show a significant global nutrition issue, in which people who are already nutrient deficient will have their condition exacerbated, and people who were vulnerable may become micro- and macro-nutrient deficient.

Agricultural practices also consume massive amounts of resources, which could lead to their degradation and depletion (Scheer & Yadav, 1996). Land and marine ecosystems are extremely exploited, jeopardizing the many benefits they provide in services, goods, culture, welfare and well-being (Barbier, 2017). Furthermore, present trends indicate growing biodiversity loss (Vermeulen et al., 2012). This threatens the protection of land and soil from monoculture stress and the increase in crop stability, as well as dietary diversity (Berti & Jones, 2013).

Food waste is a huge challenge for food sustainability (Xue et al., 2017). An extensive amount of food waste is generated by the food system, estimated at approximately one third of all food produced for human consumption (Gustavsson, Cederberg, Sonesson, van Otterdijk, &

Meybeck, 2011). In Canada, about 40% of food is wasted from agricultural production (Gooch, Felfel, & Marenick, 2010). Food loss (before reaching the consumer) and food waste (adequate for human consumption) heavily increases the carbon footprint of food from not only the waste of food, but also the waste of resources used to produce this food (FAO, 2019). Food waste and food loss is estimated to cost Canada over 30 billion dollars annually (Gooch et al., 2010). An extension of such waste is food packaging. Although it provides benefits in protection, storage, distribution and waste reduction of the food itself, excessive packaging enhances the escalating problem of water, air, and land pollution, as well as resource, energy, and material waste (Pongrácz, 2007).

All these impacts on the environment caused by the food system are reason enough to move towards more sustainable practices that can help reduce GHG emissions, protect biodiversity, secure necessary resources, and limit the rapid acceleration of climate change.

Social Values

This dimension is fundamental to food sustainability, as numerous social and cultural factors can ultimately determine food choice. Individuals can be provided healthy food that respects the environment, however, diets will not change if the question of why people eat what they do is completely disregarded (Drewnowski, 2017).

Cultural factors such as religion, traditions, social norms, and meaning given to food can influence dietary choices. In fact, Mason & Lang (2017) explain this as "cultural appropriateness", a dynamic concept that determines what we eat, but also who we eat with, and how we eat our food. Social principles and collective identities guide what is appropriate to do or not to do in relation to food. Religions imposing the exclusion certain foods or food groups, countries expressing their tradition through crop availability, and households serving children and men first as the norm are all examples of cultural features and social rules surrounding food (Johnston, Fanzo, & Cogill, 2014). These social factors can ultimately impact population health, such as micronutrient deficiencies from lack of dietary diversity, as well as impact the nutrition status of groups of individuals, such as women being more at risk of malnutrition from their social principles they adhere to (Johnston et al., 2014). Social norms

can influence what we eat and how we eat. For instance, obesity has been linked to social norms and tendencies to over-consume food (Higgs & Thomas, 2016), while putting high importance on animal welfare can shape diets in which individuals consume less of certain foods (Mason & Lang, 2017). These social norms can also vary in between certain populations. For instance, supper in Canada is usually eaten around 5:00-6:00 pm, while it is eaten around 10:00 pm in Spain (Chiva, 1997).

Food choice can also be related to the socioeconomic status of individuals. There are known links between dietary quality and socioeconomic status, for instance, individuals of lower socio-economic status tend to consume lower quality diets (Darmon & Drewnowski, 2008). Social determinants, such as income, circumstances of birth, rural or urban living can affect access to food, and thus determine dietary patterns (Friel, Hattersley, Ford, & O'Rouke, 2015). Income variability can also affect how individuals perceive food. For example, some nutritious food can be seen as lower-class food, thus avoided by higher-income groups (Johnston et al., 2014).

Finally, consumers being able to make informed choices on the foods they eat is paramount to the social value dimension. There is debate on whether consumers are provided with enough information to make informed decisions. Johnston et al. (2014) argue that although the demand for food by consumers prompts the food supplied by the industry, their preferences are modeled by marketing strategies. In fact, food industry marketing is a significant factor that can shape dietary patterns (Monteiro & Cannon, 2012).

The diverse contexts of individuals and their living environment can thus ultimately shape their dietary choices. In this regard, food sustainability aims to empower populations by taking into account social values of the communities that can mould dietary choice (Gazan et al., 2018).

Quality

Food quality, and to a greater extent its acceptability, is difficult to define as it depends on individual perspectives. Quality recognizes the values and the food attributes that attract

consumers. In their *Sustainable Diets* book, Mason & Lang (2017) describe six dynamic attributes of food quality, which may help pinpoint features rarely explored in common sustainable diet discussions: taste, freshness, appearance, seasonality, provenance, and authenticity. Taste refers to individual or societal likes and dislikes, which can evolve with time. These preferences and avoidances can be influenced by many factors, such as cultural, social and spatial aspects (*see also the Social value dimension above*). For instance, insect consumption is normal in some countries, while is regarded as repulsive in other countries, although is slowly gaining more interest (Bourgault, 2018). Freshness refers to how consumers positively perceive food, typically fruits and vegetables, when displayed as natural and unprocessed. Along with taste, freshness appears to be synonymous with quality of a food for consumers (Audet & Brisebois, 2018). Appearance refers to what the food looks like from a consumer's point of view, which can lead them to accept or reject the food. The authors explain that consumers (and retailers) avoid foods that do not meet specific cosmetic criteria, generating a lot of waste. Seasonality refers to what season or in what seasonal conditions a food is produced. Eating seasonal local foods does confer environmental benefits to some extent and is perceived to be fresher and tastier, thus of higher quality. However, it is also perceived to be less practical and more expensive. Provenance refers to where the food originates from, and its quality can be judged by where consumers know (or believe) their food comes from. Finally, authentic food suggests food that is given a special, genuine or pure ranking. Authenticity can be a way to bring consumers back to their roots, such as when going to an "authentic Italian restaurant" or when connecting with food producers through local markets.

Quality attributes can change consumer food perceptions, which may affect consumption (Higgs & Thomas, 2016), thus needs to be taken into account when moving towards sustainable changes.

Economy

The economy dimension of sustainable food considers the full price of food as part of the food system. This means looking at the price consumers directly pay for food they purchase, as well as other costs related to food production and consumption.

Among other factors, consumers often choose foods based on what they can afford with their income (Furst, Connors, Bisogni, Sobal, & Falk, 1996). A study by Wiggins et al. (2015) demonstrated that in the past 30 years, the price of healthy food has risen to a greater extent than less healthy products, with the highest increase in price for fruits and vegetables. These results are true for both high-income countries as well as some emerging economy countries. The authors argue that since eating more nutritious diets is typically more expensive, individuals may not choose healthier options if their income does not allow them to do so. A systematic review by Darmon & Drewnowski (2015) concurred with these findings. Healthier diets are typically more expensive, such that lower socio-economic status individuals tend to choose less nutritious foods in order to stay within their food budget.

Consumers can also pay for the indirect costs of food, a cost that is not reflected in the price of purchased food. When faced with the dilemma of a growing population and increased hunger, Carolan (2011) explains that "cheap" food was created to efficiently feed the world at low food prices, but with high externalities. An externality is a term used in economy to designate costs that are left out of the food price paid by the consumer (Institute of Medicine and National Research Council, 2012). Considering externalities makes it is possible to allocate a monetary value to external costs in the food system (Institute of Medicine and National Research Council, 2012). Externalities can be negative, creating additional costs to society, or can be positive, enabling social benefits (Gaspard, 2018). Environmental impacts from production, transport and storage (such as high GHG emissions) and health impacts from over-consumption (such as high healthcare costs) are examples of negative externalities (Institute of Medicine and National Research Council, 2012). Examples of positive externalities are ones that could lead to social benefits, such as an increase in number of jobs, or health benefits such as safer food (Gaspard, 2018). These two types of externalities do not manifest themselves in the market price. If negative external costs are not bestowed upon the food system itself, the problem is shifted to another area (Swinburn et al., 2019). For instance, healthcare costs from negative food system externalities are relocated to public health. Public health budgets must now incur these additional costs, preventing allocation to programs that would allow social benefits. Swinburn et al. (2019) describe this as a risk for future generations that is carelessly ignored. As Michael Carolan (2011) explains in his book *The real cost of cheap food*, there is

a popular notion that cheap food is inexpensive, however, the cost of cheap food is actually exorbitant. The market price of this food is extremely inexpensive, but its external costs are forced onto the environment, onto society, and onto present and future generations.

Food labour is also an issue to discuss in the economics of food. Labour necessary to the food system is reflected in the price, although often unfairly so. The agricultural sector is an immense employer, however many people work on the lands unwaged, and without proper labour conditions such as adequate work schedules, acceptable facilities and treatment with dignity and respect (Mason & Lang, 2017). In Canada, poor working conditions and unfair pay are among issues discussed in fast-food labour (Royle & Towers, 2002). Mason & Lang (2017) propose that in order to obtain an ethical food economy, and thus a more sustainable food system, workers must be paid enough and must be treated adequately.

These various economic issues thus show that without changes in the way of looking at the economic system, it will be difficult to attain a sustainable food system. Although authors argue that economy should not be the deciding factor in food sustainability, it is important to understand economy, and go beyond market price to reveal the true cost of the food in the food system (Gaspard, 2018; Swinburn et al., 2019).

Governance

Governance refers to the decision-making process of important actors in a system (Barnett & Duvall, 2005). Its link to food sustainability is a substantial one, as the transition towards a more sustainable food system will require greater input from these stakeholders and actors, which is presently insufficient (Swinburn et al., 2019). Indeed, global economic hardship and rising healthcare costs places public health action as low-priority in governmental agendas (Lang & Rayner, 2012). It is thus of uttermost importance to assess the current issues in governance that make sustainable development difficult. One important issue is the difficulty of governmental progress in sustainable development due to the multi-level power in food and the reality of different food system actors holding disparate interests (Swinburn et al., 2019).

Governance in food is linked to power: power can control people, communities, countries, lands and seas (Barnett & Duvall, 2005). It matters who holds this power, as this can make or break decisions regarding the food system (Mason & Lang, 2017). The presence of various stakeholders in the food system complicates the potential for a more sustainable transition. In the past, market regulations have disabled sustainability measures to be taken by governments, while lack of proper regulation led to neglect. Moreover, adequate scientific input was not taken into account in political decisions, leaders judged short-term preoccupations as more important than climate change action, and governmental decisions tended to exacerbate inequalities (Carlsson et al., 2019; Letarte, 2019).

Power can also be recognized differently: industry influence is often perceived as more powerful than is government authority (Carlsson et al., 2019). Governments need to take back their control and act at policy levels, by taking into consideration their local contexts and involving consumers in large-scale changes (Gonzalez Fischer & Garnett, 2016; Mason & Lang, 2017). The way to accomplish this is argued to be with a whole-system approach (Willett et al., 2019). Dietary change will thus need greater action from all those who believe in sustainability changes and clear goals for every nation to make headway for global food sustainability (Gonzalez Fischer & Garnett, 2016; Swinburn et al., 2019).

These six dimensions give an overview of what is a sustainable diet and why it is important to consider every dimension when moving towards food sustainability. Due to its complex nature, it has been argued that it is difficult to achieve all-round sustainable diets, and some trade-offs may be needed (Drewnowski, 2017). For instance, balancing healthier diets with low income or with environmentally friendly practices may be challenging (Furst et al., 1996; Tilman & Clark, 2014). However, engaging with all dimensions of food sustainability and reflecting on these matters may bring the food system one step closer to a more sustainable one (Mason & Lang, 2017).

2.2 Global Food Sustainability Evidence and Action

Multi-level advocacy for sustainable food systems such as portrayed by EAT (Willett et al., 2019) can be found around the world, whether from individual consumers, collective

movements, national policies or international objectives. This section aims to examine evidence regarding two dimensions of food sustainability, health and environment, with a subsequent brief overview of various initiatives, strategies and practices towards food sustainability.

2.2.1 Food Sustainability and Health: Summary of Evidence

Measuring what consists of a healthy diet is not easy, even with the existence of known indicators, such as the Healthy Eating Index and the Mediterranean Diet Score Tool (Hornby & Paterson, 2013; National Cancer Institute, 2018). Similarly, measuring environmental durability is complex, as there is no single indicator describing this concept as a whole. Rather, indicators relate to specific activities such as an increase in GHG emissions, the intensification of soil exploitation, as well the as overuse and pollution of water sources (Tilman & Clark, 2014). Bearing this in mind, combining food sustainability dimensions such as health and environment to measure their impact proves to be increasingly complex, as they may be conflicting with each other, with possibly dealing with certain trade-offs (Drewnowski, 2007; Gazan et al., 2018).

Nonetheless, studies have examined the connection between healthy diets and environmental durability as an essential component of food sustainability. For instance, Tilman & Clark (2014) compared the health and environmental impacts of three healthy alternative diets from cohort studies: vegetarian, pescatarian, and Mediterranean diets, as compared to a global-average diet. They found that all alternative diets had a tendency to include more fruit, vegetable, nut and pulse consumption, along with less meat and empty-calorie food consumption. The health benefits from these diets were higher than the global-average diet, such as reducing risk for type II diabetes, cancer and coronary heart disease, as well as lowering mortality rates. In terms of environmental impact analysis, all three alternative diets had lower GHG emissions when compared to the global-average diet. Despite these environmental benefits, the authors are cautious about their results. They state that not every item included in the alternative diets were win-win, as some foods may be environmentally friendly (win) for example, but not contribute to optimal health (lose). Tilman & Clark (2014) propose that individuals should make choices that join both health and environment. However,

the emphasis should first be put on healthy diets, which can contribute to lower environmental impacts, rather than to initially focus on low environmental impact diets. It has been argued that there is no diet that is completely nutritionally adequate and fully protective of the environment (Gazan et al., 2018).

Another study published the same year in the United Kingdom compared WHO dietary guidelines with possible environmental benefits, and found that reducing animal foods and increasing fruit and vegetable consumption specifically showed improvements for both health and environmental outcomes (C. J. Reynolds et al., 2014). Some specific food groups may thus require less trade-offs between health and the environment. The affordability of healthy and environmentally friendly diets is also worth mentioning. A recent study conducted in the United Kingdom evaluated how sustainable dietary patterns fit within different income quintiles (C. J. Reynolds, Horgan, Whybrow, & Macdiarmid, 2019). Study findings suggest that diets meeting national dietary requirements for health and generating lower GHG emissions can be affordable across all income quintiles. However, the authors acknowledge that dietary habit changes will have to be different for every quintile.

In light of these findings, along with evidence of accelerating global malnourishment, increasing environmental degradation and the absence of global scientific targets to alleviate these issues, a cluster of independent researchers from health, agricultural, political and environmental sciences recently collaborated to focus on these matters. The *EAT-Lancet Commission on healthy diets from sustainable food systems* aims to provide global dietary targets based on available science to improve population health and environmental sustainability (Willett et al., 2019). The Commission proposes a "Great Food Transformation", in which food consumption and production is emphasized while recommending sustainably produced food as part of a healthy dietary pattern. The EAT-Lancet Commission suggests that their framework allows for a stable food system that can tolerate an increase in the world's population up to 10 billion people by the year 2050. The goal of the framework is to provide evidence for policy makers to enable them to create regional and local targets that include diets, health and the environment. From gathering the best evidence at hand, the EAT-Lancet Commission brought forward a healthy reference diet as an alternative to the average global

diet. This dietary pattern is separated into three levels of intake (1) High intake of fruits, vegetables, whole grains, legumes (including soy), nuts and unsaturated oils; (2) Low-to-moderate intake of fish and poultry; and (3) None-to-low intake of red meat, processed meat products, added sugars, refined grains and starchy vegetables. The Commission then put forward the healthy dietary pattern in the form of a plate, in their summary report (page 9), as shown below (EAT-Lancet Commission, 2019):

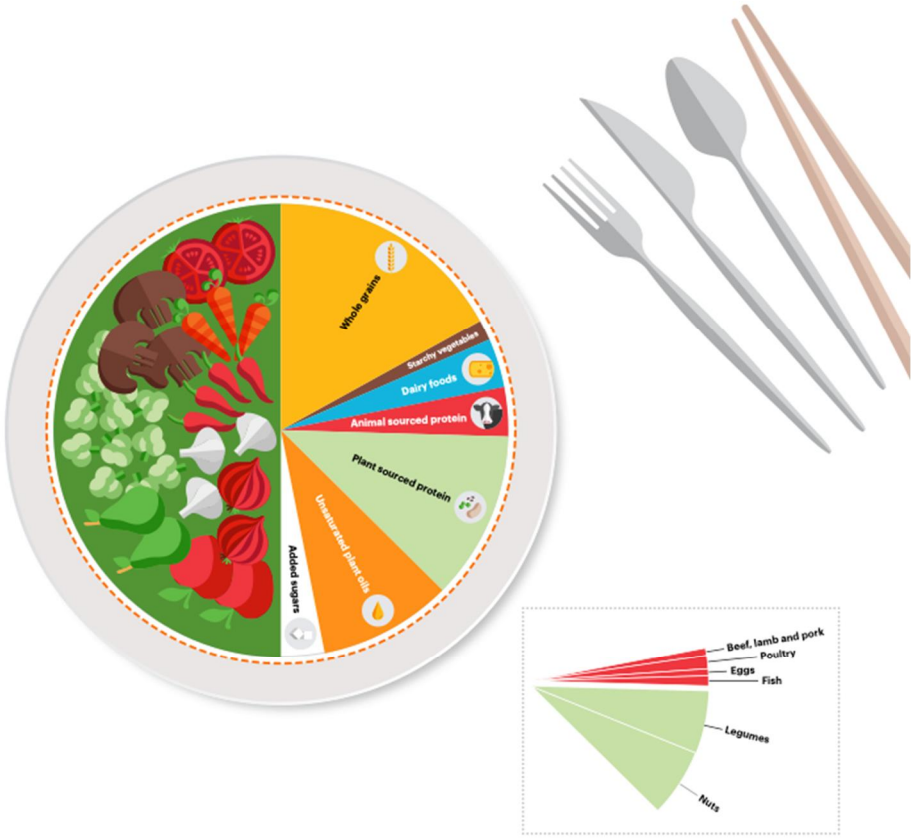

Figure 3
A planetary health plate should consist by volume of approximately half a plate of vegetables and fruits; the other half, displayed by contribution to calories, should consist of primarily whole grains, plant protein sources, unsaturated plant oils, and (optionally) modest amounts of animal sources of protein. For further details, please refer to section 1 of the Commission.

The EAT-Lancet Commission also established upper and lower boundaries for intake, as a "safe operating space", allowing for optimal human and planetary health (Willett et al., 2019). As current global diets are generally lower in the recommended "high intake of" and higher in the "none-to-low intake of", major health consequences are beginning to show at a global level. The authors explain that if individuals would transition from current diets to their

healthy reference diet, their risk for adverse health consequences and total mortality risk would be reduced.

The EAT-Lancet Commission argued that a global diet change is feasible, as shown by previous diets that rapidly changed based on community availability, needs and crises. In terms of evaluating the outcomes of their reference dietary pattern, the Commission verified identity-related feasibility. The healthy diet enables globally appropriate diets for various cultures, food preferences, regimes (vegan, pescatarian, vegetarian) and agricultural practices. In terms of nutrient intake, the reference diet provided all nutrients in adequate amounts, except for riboflavin and vitamin B12, which may be lacking in some circumstances. Outcomes related to mortality were evaluated with three different approaches; all showing reduced total premature mortality, with millions of avoided deaths around the world annually. In addition to increasing human health, the reference diet could also improve environmental sustainability. The Commission highlights areas where the planet's deterioration is caused by food production: climate change, loss of biodiversity, excessive freshwater use, damaging land-system change, and interference with both nitrogen and phosphorus cycles. Progresses in these areas are also intended with global transition to the reference diet.

It is important to note that the EAT-Lancet Commission's framework does not include all features of sustainable diets as expressed by the FAO and Biodiversity International, focusing primarily on health and environmental dimensions. Their healthy reference dietary pattern for environmental sustainability's particular focal points are food consumption and food production. This leaves out many other aspects of the food system, such as food transformation, food waste management, as well as the four other dimensions of food sustainability. Food system aspects such as food transformation and industrialization are a primary focus of the Lancet Commission on the Global Syndemic of Obesity, Undernutrition and Climate Change (Swinburn et al., 2019). The EAT-Lancet Commission's omission of these food system aspects could thus be problematic.

The EAT-Lancet also fails to mention the importance of social values and food quality in their report. One could consume a diet that offers optimal health and preserves the environment,

nonetheless it is deemed unsustainable if it does not consider cultural values, religious beliefs, and personal preferences (Drewnowski, 2017). The Commission does partially acknowledge this limitation, recognizing the importance to take into consideration the social, cultural, ethical, and financial aspects of food systems, however being beyond the scope of the report. Regardless, when publishing global recommendations for healthy eating, these aspects need to be emphasized in order for people to feel like the guidance can be adapted to their realities. Dietitians can have an important role to play in this sense, by personalizing the Commission's approach to individuals (Arens, 2019). However, this responsibility should not be placed solely on their shoulders, and the EAT-Lancet Commission would need to take this into consideration.

Many online debates were launched after the EAT-Lancet Commission's proposal of their healthy reference diet (FCRN, 2019). The livestock industry had an abundance of negative feedback, suggesting that many populations depend on meat production and consumption, thereby criticizing the report's emphasis on reducing meat intake and endangering the nutritional quality of certain populations (FCRN, 2019; Haigh & Gunn, 2019). This is similar to the dairy industry, which has long been defending the necessary presence of milk and milk products in normal diets for their contribution to health, from the many essential macro- and micronutrients found in milk (Dairy Farmers of Canada, 2016). Other organizations and scientists voiced concern on the applicability of sustainable guidelines for future agricultural practices as well as the suitability of the reference diets for all types of populations and individuals (FCRN, 2019). There was also some criticism on the "ambitiousness" of the goals set by the EAT-Lancet Commission (Haigh & Gunn, 2019). These goals were said to be too zealous, without the understanding of the process it takes to achieve them. Despite this criticism, others continue to welcome the report as a necessary eye-opener for tackling current global environmental and health issues (FCRN, 2019).

2.2.2 International Level Action

Evidence demonstrating the benefits of sustainable diets has reached an international level, with increasing efforts towards sustainable development. Two of these international efforts are UN's Sustainable Development Goals (SDGs) and the Paris Agreement on Climate Change.

The 2030 Agenda for Sustainable Development calls for a global partnership between all countries for sustainable development, through the UN's SDGs, adopted in 2015 (United Nations, 2015). The SDGs outline multiple areas that require work and widespread efforts for a healthy, prosperous, peaceful, and collaborative world. These areas include eradicating poverty, hunger, and malnutrition, reducing inequalities, ensuring proper education and justice, enabling healthy populations, stimulating economic growth, protecting the planet and managing climate change. The seventeen SDGs aim to tackle these important areas with 169 targets for countries for the next fifteen years. Ranking countries according to these targets can thus provide a significant amount of information to monitor world progress. Although all SDGs can be linked to food sustainability, two SDGs are directly related to nutritional improvements (FAO et al., 2018). These SDGs are *SDG 2: End hunger, achieve food security, improve nutrition and promote sustainable agriculture*; and *SDG 3: Ensure healthy lives and promote well-being for all at all ages*. Following the 2030 Agenda for Sustainable Development, the UN's Decade of Action on Nutrition aimed to work on achieving the nutrition-related SDGs from 2016 to 2025 (UNSCN, 2016). The group's purpose is to mobilize multi-sectorial action for the implementation of various policies, projects and programs, in order to achieve food security, global health and nutritional adequacy as well as sustainable food systems worldwide.

Another international-level initiative is the Paris Agreement on Climate Change. The Paris Agreement was adopted on Earth Day in 2015, entering into force by 2016 (UNFCCC, 2016). The goal set by 197 committed Parties was to slow down climate change (UNFCCC, 2019). The areas to work on included narrowing GHG emissions and mitigation, enhancing capacity to adapt to climate change, improving political transparency, and enhancing support between developed and developing countries. One important long-term objective of the Paris Agreement is to limit the global temperature warming to under 2°C, while striving to limit the temperature increase to 1.5°C (UNFCCC, 2016).

The EAT-Lancet Commission report also gives global targets for countries, to help them achieve the goals outlined in the SDGs and the Paris Agreement (Willett et al., 2019). For the health aspect of their reference diet, the Commission proposes specific targets for various food

groups, in terms of a range of grams of intake per day. Sources of whole grains, tubers, vegetables, fruits, dairy foods, protein sources, added fats and added sugars are all identified and set with scientific targets for intake. The EAT-Lancet Commission also provides targets for environmentally sustainable food production, giving boundary ranges for various production processes: climate change, land-system change, freshwater use, nitrogen and phosphorus cycling, and biodiversity loss. These health and environment targets are meant to help policy makers at local and regional levels make sound decisions for a more sustainable future. Furthermore, the Commission provides guidance for various groups of people such as individuals, farmers, foodservice professionals and cities, highlighting the ways that these groups may contribute to healthy and sustainable diets through short briefs (EAT, 2019b). For instance, the "EAT-Lancet Commission brief for Food Service Professionals", gives advice to foodservice professionals on how to provide healthy and sustainable food, such as menu planning and portioning aiming to shrink back on food waste, reducing meat consumption and striving to include plant proteins in meals, empowering food innovation in the foodservice, and collaborating with all actors involved in the food system (EAT, 2019a).

2.2.3 National Level Action

At a national level, many nations, countries, states, provinces, and cities have developed policies, guidelines and reports relating to food sustainability. Sweden was the first country to prone sustainability at a policy level in 2009, by giving scientific-based advice to its citizens, such as favouring the consumption of local and seasonal food (Mason & Lang, 2017). However, this was not well received by the European Commission, as this advice apparently went against the European Union law on single-market discrimination. Having withdrawn this governmental advice shortly after its dissemination, Sweden continued to work on favouring sustainable development. In 2015, the country released a food guide promoting a healthy and active lifestyle, including actions to preserve the environment (Livsmedelsverket, 2015). These first steps towards food sustainability make Sweden a model country to include such recommendations at a population level (Roos, 2015). Other food guides around the world made headlines for their emphasis on specific areas of food sustainability. A well-known example is the Brazil food-based dietary guidelines, published in 2014, providing guidance for consuming foods based on their level of processing, from the NOVA classification:

consuming more of natural or minimally processed foods, processed foods in moderation, and avoiding ultra-processed foods (Ministry of Health of Brazil, 2014). The guidelines contains tips for consumers, including eating with company, enhancing cooking skills, planning and preparing meals in advance, and being careful of marketing impacts on food choices (FAO, 2014).

In Canada, the Food Guide's previous emphasis on portions was replaced by a plate approach in 2019 (Government of Canada, 2019b). The snapshot of the guide currently depicts a plate in which nutritious foods are separated into three categories: half of the plate represents fruits and vegetables, a quarter of the plate represents protein foods, and the other quarter whole grain foods, with a glass of water to accompany the meal. Other recommendations are stated, such as "cook more often", "enjoy your food" and "eat with others." Canada's Food Guide addresses sustainability by enhancing the prominence of plant proteins while reducing animal proteins. Moreover, Canada's Food Guide describes healthy eating behaviours and focuses on food quality, cultural appropriateness, and enjoying the act of eating (Government of Canada, 2019b).

One criticism from these dietary guidelines around the world is that although they always emphasize health and often consider culture and traditions in their recommendations, their environmental impact is minimized (Mason & Lang, 2017). However, Canada's Food Guide does consider the environmental impact of food choices in their 60-page wider-reaching document, Canada's Dietary Guidelines, aimed at health professionals and policy makers (Government of Canada, 2019a). Although many dietitians and other health professionals in the country applauded Canada's Food Guide, a few issues were raised, especially for the protein portion of the guide. For instance, a well-known dietitian in the Quebec media, Bernard Lavallée, criticized the "nutritionism" approach of the guide, in which food containing protein is reduced to solely it's protein content, thereby neglecting all other nutrients found in those foods (Lavallée, 2019b). A group of dietitians in Quebec found fault in the guide's recommendations, stating that low-fat milk and vegetal protein options suggested are not adapted to the elderly, a population often under-nourished (Chevalier & Presse, 2019). Dairy and beef producers, who were not part of the Guide's developments

unlike previous versions, unsurprisingly critiqued Canada's Food Guide, remarking their newly reduced importance in the recommendations (Schué, 2019). For instance, the dairy farmers of Quebec explained that Canada's Food Guide failed to take into consideration the importance of dairy in their plate, since they were no longer in a separate "group" than the rest of protein-rich foods (Les Producteurs de lait du Québec, 2019). They also mention research suggesting that Canadians do not consume enough dairy products, and that dairy's many nutrients warrants them a more prominent place in the Canada's Food Guide.

Aside from national-level population guidelines, countries and cities may develop certain policies that aim to increase the presence of food sustainability. Denmark is a great example of how a country's policies can translate to effective implementation of sustainable actions. As Denmark largely supported organic farming through organic food production regulations since the late 1980s, the country quickly became home to an unsurpassed amount of organic food consumers (Danish Agriculture & Food Council, Organic Denmark, & Food Nation, n.d.; Kaad-Hansen, 2019). Its capital, Copenhagen, established a House of Food that aims to increase the offering of quality and organic food in public institutions. Their goal was to support Copenhagen public kitchens in reaching the ministry goal of serving 90% organic food by 2015, which was ultimately evaluated at 88% in 2015 (The Copenhagen House of Food, 2018). That same year, the government adopted the Organic Action Plan for Denmark, its goal being to double the present land used by organic food production by 2020 (at 165,773 hectares in 2014) (IFOAM EU Group, 2016; Ministry of Food Agriculture and Fisheries of Denmark, 2015). Data from 2017 shows that Denmark is the country with the highest proportion of sales from organic products compared to overall market sales, making them a leader in organic food market development (Kaad-Hansen, 2019). Denmark policies paved the way to success through collaboration, promotion, education, inspection, support and subsidies (Ministry of Food Agriculture and Fisheries of Denmark, 2015). Following these success stories in Denmark, numerous nations around the globe propelled into this newly founded window of opportunity for sustainable food systems. For example, the European Public Health Association advocated through their 2015-2020 Action Plan for strategies to promote healthy, nutritious and sustainable diets at all governance levels, and recommended the involvement of all food system stakeholders (Birt et al., 2017).

In Quebec, the *Politique bioalimentaire du Québec* was released in March 2018 (Governement du Québec, 2018b). This policy aimed at promoting healthy lifestyles, increasing quality of life and educating consumers on the importance of healthy, local, and organic food. Among the many objectives, one is similar to Denmark, such that the province aims to double land-use for organic food production. However, their goal is at a smaller scale, with the starting point at 49,000 hectares from 2015 data. Another objective is to increase procurement of fresh, local, and nutritious food for the community. An area of interest is governmental institutions, where the policy states the need to support Quebec institutions to offer healthy, local and organic food. Regardless of this increasing governmental interest, no specific regulations or guidelines were yet enacted to increase local food procurement in public institutions.

Moreover, organizations working at the national level are currently carrying initiatives to introduce food sustainability in various areas. Health Care Without Harm (HCWH) is an organization working in numerous healthcare foodservices worldwide. Along with their multiple partnerships, HCWH seeks to increase environmental sustainability in healthcare by mobilizing the health sector for optimal individual, community, and environmental health (Health Care Without Harm, 2018). One of their programs, Healthy Food in Health Care, encourages sustainable actions and innovation in foodservices, promotes offering nutritious food of sound quality, and advocates for equality and justice in food (Health Care Without Harm, 2017). This program has been well received in the USA, where a third of hospitals in the country are part of HCWH, adopting practices such as offering better quality meat (and reducing meat served) in the menu, increasing the purchase of local food, and providing adequate nutrition education (Health Care Without Harm, 2017). In addition to this, 580 healthcare facilities in the USA have signed the Healthy Food in Health Care Pledge, committing to healthy and ecologically sustainable foodservices, with promises to undertake actions such as encouraging local farmers, improving the healthiness of their menu, decreasing food waste, and promoting their program and their sustainable menu.

In Montreal (Quebec), a food policy council was recently created in 2018, the *Conseil du Système alimentaire montréalais* (Conseil-SAM), with the mission to ensure a regional

leadership in the matter of food, by mobilizing actors, by advising decision-makers and by supporting various initiatives (Système Alimentaire Montréalais, 2019). For instance, one of their roles is to make recommendations to the city for policy development to ensure the establishment of an environment that is conductive to healthy eating (Governement du Québec, 2018a). Their first action plan included five commitments for a more sustainable food system, with the mission of providing healthy, accessible, diverse and sustainable food to its Montreal citizens (Chahine, 2017; Conseil SAM, 2018). In terms of sustainable development in all fields, Montreal has announced in May 2019 that the *Palais des congrès de Montréal* will bring together a Sustainability Innovation Committee, with members being ten university experts in sustainability, to create research-action partnerships in the city and ensure the diffusion of research knowledge into practice (Palais des congrès de Montréal, 2019).

Advocacy organizations are also important pillars for food sustainability action. Food Secure Canada is an umbrella organization that works to make headway in Canadian food policy. Their three main goals are to establish sustainable food systems, ensure provision of healthy and safe food, and build efforts to reach zero hunger in Canada (Food Secure Canada, 2018). They allow organizations and individuals to connect in order to reach these goals through various networks and partnerships. One of their areas of work is the push for policy regarding a sustainable food system Canada, with public institutions as a major sector of interest. Other organizations include the Sustainable Food Lab, who aims to amplify innovation within the food system towards sustainability, as well as the Canadian Coalition for Green Health Care, who aims to create a network of sharing successful sustainable practices across Canadian healthcare institutions, organizations, businesses and individuals (Canadian Coalition for Green Health Care, 2019; Sustainable Food Lab, 2017). Nourish is a national initiative on the future of food in healthcare, funded by the McConnell Foundation (Nourish, 2019a). Working with a community of innovators around Canada, the program focuses on five projects in healthcare institutions to increase knowledge and practice on the value that food brings to patients and to the community. One of these projects, Sustainable Menus, is thoroughly described in Chapter 4 – Methodology, as it is the context in which this present study fits. Another provincial group is Équiterre, praised as the leading environmental organization in Quebec (Équiterre, 2018). Their mission is to make Quebec a community in which healthy,

ecological and fair practices are the norm, through mobilization, education, awareness building and research. Among many areas, Équiterre works in public institutions, favouring the procurement of responsible, local, organic, and fair trade food (Vrins, Zwicky, & Lemay, 2013). They accompany institutions in acquiring these sustainable menu choices in institutional kitchens. Another initiative in Quebec is Aliments du Québec. This organization has a few programs, in which they alert consumers with the logo "Aliments du Québec", as evidence of the food being a local product (Aliments du Québec, 2019). They also have a program to accompany institutions in creating menu choices that are certified with their logo, thereby often working alongside Équiterre. As such, consumers can make choices for local food and ingredients whether at home or in public institutions.

2.2.4 Collective & Consumer Level Action

Consumer and collective level strategies are emerging around the world, whether for individual benefit or to lobby for a change in governmental policies. Collective action such as appropriate nutrition education is deemed an important action towards food sustainability (Burlingame & Dernini, 2010). Many countries have dietary guidelines that help translate nutrition principles into types of food to choose from, enabling individuals to make healthy eating choices based on their recommendations (Mason & Lang, 2017). Dietary guidelines may also help organizations initiate practices and aid governments in establishing health and nutrition policies (Gonzalez Fischer & Garnett, 2016; Willett et al., 2019). At an individual level, nutrition education should not only include human health, but also ecological health (Gussow & Clancy, 1986). The Dietitians of Canada (2017) explain that young children should be taught in schools how to plan for and prepare food as part of the necessary education for healthy life. Settings in which children can learn about food are also important to consider, such that ensuring the building of healthy living environments, modeling food habits through food offerings, and shaping proper nutrition policies can all play a part in education (Dietitians of Canada, 2017). These initiatives to increase practical culinary skills can assist children in making healthier choices. However, in line with Gussow & Clancy (1986), it would be equally as important to increase food literacy on all dimensions of food sustainability, and not solely focus on the health dimension.

Collective and consumer-level practical initiatives such as the zero-waste movement are also gaining much interest in many cities, including Montreal (Quebec). The goal of being zero-waste is to be increasingly careful about the amount of waste individuals generate, and finding solutions to shrink waste to a zero or near-zero point (Association québécoise Zéro Déchet, 2018). Consumer demand for reducing packaging has already influenced businesses, as illustrated with the appearance of zero-waste groceries, the acceptance of re-usable containers for the deli, meat, and fish counters in chain supermarkets, the ban of single-use plastic bags with every purchase in stores, and the promotion of simplicity and waste-free living by influential local personalities (City of Montreal, 2018; Fournier, 2019; LOCO, 2019; Trois fois par jour, 2019). Another important collective-level concept is the rise of flexitarianism, vegetarianism and veganism: approximately 6.4 million Canadians follow a diet linked to lower meat consumption (Charlebois, Somogyi, & Music, 2018). Initiatives such as Meatless Mondays and Vegan Food Festivals encourage consumers to collectively reduce their meat consumption. Again, companies are starting to respond to consumer demand by offering alternatives to meat, such as fast food chains offering vegetarian burgers, or the newly released product "Beyond Meat", a vegetarian burger made to look, feel and taste like meat. Although people appreciate these industry responses to collective demand, some products have been criticized in the media. For instance, a well-known dietitian in Quebec explained that "fake" meat burgers and other similar options are ultra-processed and may not be more sustainable than eating a beef burger (Lavallée, 2019a).

2.3 Food Sustainability in Healthcare

2.3.1 Introduction

As food sustainability is a concept that has only recently gained researcher interest, scientific literature on this theme is relatively scarce. A broad literature review illustrates a few practices in healthcare institutions, from each of the six food sustainability dimensions. One third of the studies from the literature review analyzed all SMPs as part of food sustainability, while two-thirds of the studies considered particular dimensions of food sustainability (health and environment dimensions), or specific SMPs (mostly local food procurement) (see Table 1).

The most frequent practices found in literature were: healthy food (health), fresh & local food (quality), and cost of changed practices relative to a given budget (economy). Other practices, such as offering foods from different cultures (social values), reducing red meat (environment), and recognizing the roles of all actors involved (governance) are discussed, but rarely so. Local procurement of food was the practice found to be the most studied in the literature, where "sustainability" was often mistakenly taken to mean "local". Practices relating to the health dimension were prevalent, such as ensuring access to foods that maintain certain hygiene standards, as well as recognizing the importance of access to nutritious foods. These practices may have been more studied, since Canadian and American norms were imposed in recent years to orient healthcare institutions in serving appropriate and healthy meals for both patients and staff (General Services Administration, 2012; Governement du Québec, 2009). The economic dimension, related to the cost of sustainable food, institutional budget, and affordable food choices were also occasionally addressed in these studies. The following table depicts study characteristics for the seventeen studies described in this literature review.

Table 1. Study Characteristics Included in the Literature Review

Study Characteristics	Number of studies (n=17)	Authors
Year		
2008-2013	6	Huang et al. 2011; Vogt et al. 2008; Ducak & Keller 2011; Wilson et al. 2011a, 2011b
2014-2018	11	Conner et al. 2014; Heiss et al. 2015; Jilcott Pitts et al. 2016; Jilcott Pitts et al. 2018; Montague et al. 2014; Moran et al. 2016; Perline et al. 2015; Raison et al. 2015; Ranke et al. 2014; Gray et al. 2017; Linton et al. 2018;
Country		
USA	12	Conner et al., 2014; Heiss et al., 2015; Huang et al., 2011; Jilcott Pitts et al., 2016; Jilcott Pitts et al., 2018; Montague et al., 2014; Moran et al., 2016; Perline et al., 2015; Raison & Scheer, 2015; Ranke et al., 2014; Vogt & Kaiser, 2008
UK	1	Gray et al., 2017
Canada	4	Ducak & Keller, 2011; Linton et al., 2018; Wilson & Garcia, 2011a, 2011b
Design		

Qualitative	9	Conner et al. 2014; Dauner et al. 2011; Ducak et al. 2011; Gray et al. 2017; Heiss et al. 2015; Jilcott Pitts et al. 2018; Linton et al. 2018; Montague et al. 2014; Perline et al. 2015
Quantitative	4	Huang et al. 2011; Moran et al. 2016; Raison & Scheer 2015; Wilson & Garcia 2011b
Mixed Methods	2	Jilcott Pitts et al. 2016; Ranke et al. 2014
Literature Review	2	Vogt et al. 2008; Wilson et al. 2011b
Participants		
Foodservice managers/directors	9	Conner et al. 2014; Ducak et al. 2011; Heiss et al. 2015; Huang et al. 2011; Jilcott Pitts et al. 2016; Jilcott Pitts et al. 2018; Montague et al. 2014; Raison et al. 2015; Ranke et al. 2014
Key individuals in food procurement, production and service	7	Dauner et al. 2011; Gray et al. 2017; Moran et al. 2016; Perline et al. 2015; Vogt et al. 2008; Wilson et al. 2011a, 2011b; Lin2ton et al. 2018
Study context		
Hospitals	6	Conner et al. 2014; Montague et al. 2014; Perline et al. 2015; Raison et al. 2015; Ranke et al. 2014; Wilson et al. 2011a
Hospital cafeterias	4	Dauner et al. 2011; Jilcott Pitts et al. 2016; Jilcott Pitts et al. 2018; Moran et al. 2016
Hospitals and/or long-term care centers	2	Huang et al. 2011; Ducak et al. 2011
Healthcare institutions	3	Gray et al. 2017; Linton et al. 2018; Wilson et al. 2011b
Public institutions (including healthcare)	2	Heiss et al. 2015; Vogt et al. 2008
Approach to food sustainability		
SMP-specific	11	Conner et al. 2014; Ducak et al. 2011; Heiss, et al. 2015; Jilcott Pitts et al., 2018; Linton et al., 2018; Moran et al. 2016; Perline et al. 2015; Raison et al. 2015; Ranke et al. 2014; Vogt et al. 2008; Wilson et al. 2011a
Whole-system	6	Dauner et al., 2011; Gray et al. 2017; Huang et al. 2011; Jilcott Pitts et al., 2016; Montague et al., 2014; Wilson et al. 2011a
Aim		
Evaluate an intervention relating to SMPs	4	Gray et al. 2017; Jilcott Pitts et al. 2018; Moran et al. 2016; Ranke et al. 2014
Examine experience with SMPs	7	Conner et al. 2014; Dauner et al. 2011; Heiss et al. 2015; Jilcott Pitts et al. 2016; Linton et al. 2018; Montague et al. 2014; Vogt et al. 2008
Investigate the perceptions of potentially implementing SMPs	6	Ducak et al. 2011; Huang et al. 2011; Perline et al. 2015; Raison et al. 2015; Wilson et al. 2011a, 2011b

Table 1 shows that all studies were recently published, with the majority of them taking place in the USA. Study designs were mixed, with a higher number of qualitative studies interviewing foodservice managers or directors. Many healthcare contexts were studied, although hospitals were the predominant settings investigated. Studies either examined food sustainability in general, or looked at one or a few SMPs in particular, the latter being more common. There were various aims to the studies: most studies examined managerial experience with SMPs and SMP potential in foodservices, while a minority of studies evaluated SMP-related interventions.

The objectives of the studies were focused on three main research questions: what are the motivations and the values held by foodservice managers and healthcare organization towards SMPs? What are the barriers and facilitators to adopting and implementing SMPs? What do managers need in order to effectively implement SMPs in their foodservices?

2.3.2 Adoption of SMPs in healthcare foodservices

Motivations and values

Foodservices in healthcare organizations can be more or less likely to adopt sustainable practices, which can depend on managerial and organizational motivations. Limited literature exists on this topic, making it difficult to provide an extensive description of their motivations and willingness towards SMP adoption. Studies considering motivations to adopt sustainable practices in healthcare institutions had various aims, such as summarizing experiences with the implementation of a sustainable practice-specific program (Ranke, Mitchell, St.George, & D'Adamo, 2014; Vogt & Kaiser, 2008), determining factors conductive to the adoption of an SMP (Heiss, Sevoian, Conner, & Berlin, 2015; Raison & Scheer, 2015), comparing motivations and values of various food system actors (Conner, Sevoian, Heiss, & Berlin, 2014), and identifying possible influences on managerial motivations (Gray, Orme, Pitt, & Jones, 2017; Moran, Krepp, Johnson Curtis, & Lederer, 2016). Two studies compared foodservice managers' perceptions, attitudes, and behaviours towards SMP adoption (Huang, Gregoire, Tangney, & Stone, 2011; Wilson & Garcia, 2011a).

In terms of interest and motivation towards SMPs, two studies had different study objectives, but similar findings. Ranke et al. (2014) aimed at evaluating the feasibility of a program, the *Balanced Meal Challenge*, in which hospitals were encouraged to reduce the presence of meat by 20% in their menu, while replacing all meat by sustainably produced meat. On the other hand, Raison & Scheer (2015) aimed at investigating the feasibility of local food procurement in hospitals. Both studies found that healthcare foodservice managers were motivated and interested in setting these practices in motion, however, important challenges such as lack of organizational support prevented them from doing so. Another study reviewed specific motivations towards local food supply in institutions, from different stakeholder's points of view (Vogt & Kaiser, 2008). For institutional foodservice managers, motivations were health- and community-focused, such as supporting the local economy, increasing community pride, and serving food that is more fresh and nutritious (Vogt & Kaiser, 2008). For farmers, health improvements, environmental impact reduction and local farm support were among the most common motivations. The authors concluded that since motivations were similar to foodservice managers and to farmers, this could facilitate proper communication of needs to both sides.

A study conducted in the region of Vermont had similar findings. In order to understand supply chain actors' motivations for farm-to-institution programs, Conner et al. (2014) qualitatively interviewed nine food buyers (two hospital managers, seven managers in other types of institutions) and twelve food producers (five farmers, three distributors, two food hubs) using a semi-structured approach. They compared perceived values between the food buyers and food producers, and found that despite having a few different opinions, buyer perspectives often met with producer perspectives, particularly on the topics of protecting individual health, creating relationships with the community, and ensuring proper food literacy. Thus, these shared values could facilitate the adoption of sustainable changes in foodservices (Heiss et al., 2015). A study in the USA conducted a survey with foodservice directors, to examine their perceptions on sustainable practice implementation in their foodservice (Huang et al., 2011). They found that two aspects influenced directors: if they felt like sustainable practices were the right thing to do, and if they felt pressure from all levels inside the organization (superiors, patients, staff). Furthermore, a Canadian study found that

although foodservice managers were convinced of SMP benefits, it was not necessarily enough of a motivator to take actions (Wilson & Garcia, 2011a).

Studies also provided two points of discussion on the topic of managerial motivations towards SMP adoption. While assessing the implementation effects of a healthy food initiative in New York hospitals, Moran et al. (2016) found that the high participation rate in their initiative was likely due to the presence of many state policies concerning health and nutrition. Thus, a motivation for adopting various nutrition-related activities could be their overwhelming presence, as the environment could engage and motivate them to participate in healthy food initiatives. Another point of discussion is the role of foodservices that are part of healthcare organizations. Gray et al. (2017) argued that hospitals must be in line with their inherent health promotion mission, and should propose ways to exemplify healthy living. Offering healthy and nutritious food should be the prime motivation for healthcare organizations.

Barriers and Facilitators

Many studies assessed the barriers and the facilitators to the implementation of SMPs in healthcare institutions' foodservices. Two major barriers emerge from these studies: lack of resources in healthcare institutions and unreliability of local food supply. Other challenges are mentioned in the studies, relating to clientele preferences and decision-maker priorities. Facilitators are rather sparse in the literature when compared to challenges, and focus primarily on the benefits of adopting SMPs, the interest of foodservice managers, and the availability of a support system.

On the one hand, many foodservice managers identified the lack of resources in healthcare foodservices as a considerable challenge, especially in terms of poor financial resources. A study in Ontario (Canada) examined challenges in menu planning for long-term care centers, and found that adapting a menu to patient's preferences based on taste, culture, and religious beliefs was difficult to do in light of insufficient budget allocation (Ducak & Keller, 2011). Other studies have also found that financial insufficiency hinders the adoption of many SMPs, as these are perceived to be of high cost (Dauner et al., 2011; Harris, Lott, Lakins, Bowden, & Kimmons, 2012; Perline, Heuscher, Sondag, & Brown, 2015; Wilson & Garcia, 2011a). SMPs

generally did not fit in the foodservice budget (Linton, Keller, & Duizer, 2018; Montague et al., 2014; Ranke et al., 2014; Wilson & Garcia, 2011b).

A Canadian study (Ontario) found this lack of resources as an important barrier to SMPs. Linton et al. (2018) conducted semi-structured phone interviews with 15 key informants from the food system (foodservice managers, dietitians, food distributor associates, project manager and producer), in order to determine the influences on implementing local food in their menus. Lack of resources was one of the four main influences to local food procurement. In fact, they found that budget (to purchase), staff (to transform) and time (to research food sources) were important resources that were presently insufficient in foodservices, inhibiting local food procurement. Lack of managerial time was also a barrier to adopting sustainable practices in other studies (Perline et al., 2015; Wilson & Garcia, 2011a). Foodservice managers in these studies explained that they have a crowded daily schedule, and they cannot devote temporal resources to implement menu changes or research how to do so.

Another prominent challenge from lack of resources was the absence of proper staff training and education (Harris et al., 2012). Montague et al. (2014) interviewed foodservice directors in Montana about the challenges and opportunities relating to general sustainable practices in healthcare, who argued that the staff did not have the necessary skill sets for certain practices, such as transforming unprocessed foods. Increasing local food procurement often meant that food will be less processed, which will eventually need transformation by foodservice employees, which requires additional time and competencies (Jilcott Pitts et al., 2018; Linton et al., 2018). Other resource shortages found in the literature included inadequate equipment for certain practices, infrastructural constraints such as kitchen size, insufficient number of employees, and varying knowledge on food sustainability (Dauner et al., 2011; Ducak & Keller, 2011; Linton et al., 2018; Montague et al., 2014; Raison & Scheer, 2015).

The second set of challenges was the unreliability of local food supply. Concerns about not having proper quantities of local food for the needs of the hospital were expressed by managers in two studies, one from Montana and one from Ontario (Perline et al., 2015; Wilson & Garcia, 2011a). Uncertain food supply meant that managers had to receive food from many

different sources, which was an additional task for managers and their staff (Dauner et al., 2011; Harris et al., 2012). Seasonal constraints could also be a barrier for local food procurement in healthcare foodservices. Most provinces and states in North America must comply with short growing seasons, with long winters, which may affect product availability for a few months every year (Harris et al., 2012; Linton et al., 2018; Perline et al., 2015). Finally, foodservice managers worried that food safety standards were not up to par when procuring local foods from small nearby farms (Harris et al., 2012; Linton et al., 2018; Montague et al., 2014; Raison & Scheer, 2015). In relation to food procurement practices, a study in Ontario found that legislation could be a barrier to adopting SMPs. For instance, foodservice managers have a mandatory non-discriminatory clause that prevents them from favouring certain distributors based on their supply of local food (Linton et al., 2018). Notably, intricate contracts and by-laws could complicate SMP adoption possibilities (Gray et al., 2017).

Among other challenges highlighted in these studies were adapting to clientele preferences and lack of control over foodservice decisions. Foodservice managers had experienced or feared receiving negative responses from their clientele when they tested out a sustainable practice, and resistance to change was common (Dauner et al., 2011; Jilcott Pitts et al., 2018; Perline et al., 2015; Ranke et al., 2014). A study in the UK investigated challenges in adopting a healthy and sustainable initiative using a whole-system approach in three hospitals by interviewing key hospital stakeholders. Gray et al. (2017) found two discordant views from hospital workers: one opposing sustainable food that would restrict the provision of less healthy "comfort food", with the other favouring sustainable food that would give healthier and better quality food to patients. In addition to this, foodservice managers believed that they did not have proper influence in decisions relating to sustainable changes, and decision-makers did not make sustainability their priority (Dauner et al., 2011; Montague et al., 2014; Wilson & Garcia, 2011a).

On the other hand, studies reviewing both challenges and opportunities had a less extensive focus on SMP opportunities. The foodservice managers interviewed by Montague et al. (2014) said that they were generally interested in SMPs, especially if barriers were removed or

reduced. When foodservice managers felt more engaged in making changes, they were more likely to commit to implementing new practices (Ranke et al., 2014). Other studies also showed that managers perceived health- and environmental-related advantages to implementing SMPs, such as nutritious foods, natural resource conservation and food system efficiency (Harris et al., 2012; Montague et al., 2014; Vogt & Kaiser, 2008). Among the principal elements that facilitated SMP implementation was the availability of a support system. Having support from the organization, from the administration, from sustainability committees, from the staff, from champion leaders, and from the community were all deemed necessary for SMP implementation (Dauner et al., 2011; Harris et al., 2012; Jilcott Pitts et al., 2016; Linton et al., 2018; Montague et al., 2014; Perline et al., 2015). Although it was not always easy to obtain support from the administration, Linton et al. (2018) describe that recognizing the administration's goals and values can allow for a better mutual understanding, thus facilitating administrative approval to implement SMPs.

A case study in Minnesota (USA) described the barriers and facilitators to implementing sustainable practices in a hospital foodservice. One of the greatest facilitators was the "just try it" approach of managers (Dauner et al., 2011). This attitude allowed for opportunities to test out practices and see if they worked. Staff and administration were thus more open, since the idea of a permanent change was removed. If a certain practice did not work after some time, then managers were flexible in going back or finding a different approach. Involving the staff in menu changes could also be a great opportunity to gain other perspectives and facilitate acceptance of SMPs (Dauner et al., 2011; Linton et al., 2018; Montague et al., 2014).

Another important facilitator mentioned by studies was to create opportunities to communicate with other foodservice managers, and to build on each other's experiences (Dauner et al., 2011; Montague et al., 2014). Some managers perceived that their devotion to SMPs may motivate other managers when sharing knowledge and experience (Perline et al., 2015). In addition to this, working together as foodservice managers could increase buying power (Wilson & Garcia, 2011b). In fact, if managers demanded more of distributors, the supply would increase. Finally, another facilitator was the opportunity to increase patient and employee well being through various activities. For example, Gray et al.'s (2017) study

showed that foodservice managers were interested in creating a garden on the hospital site, even though food supply from this activity could be limited. Benefits of increased patient quality of life through their participation in garden-related activities outweighed the uncertainty of food supply.

Managerial Needs

Another objective identified in the literature in relation to SMP feasibility is to establish what foodservice managers would need in order to effectively adopt and implement SMPs. Only a few studies called attention to actions needed to help them implement SMPs. Managerial needs in foodservices regarding SMPs can be found in three categories: support, tools and education, and collaboration.

First, managers believed that having support is crucial to successful SMP implementation. The study of Montague et al. (2014) is relevant to this matter. Montague et al. (2014) conducted semi-structured interviews with ten hospital foodservice managers in rural Montana to identify challenges and opportunities of implemented sustainable practices in their foodservices. They observed that administrative and managerial flexibility are required to effectively adopt SMPs. For example, as local food is often unprocessed, managers need to be flexible on the tasks allocated to staff, and include additional processing work for them when needed. In terms of the administration, managers stated that a more flexible budget would be helpful to implement sustainable changes as they see fit (Montague et al., 2014). Foodservice managers in this study realized that barriers would need to be reduced or fully eliminated in order to increase the likelihood that they adopt SMPs (Montague et al., 2014). A "culture change" in all levels of the organization also increased the likelihood of acquiring support towards sustainable practices (Dauner et al., 2011).

Second, managers would need tools and education to help instil sustainable practices in their foodservices. For example, sustainability guidelines were absent from studied foodservices, and was thought to be a useful tool advising managers on SMP implementation (Raison & Scheer, 2015). Employee training and education on the values of food sustainability could also help managers convince staff to get on board with them (Dauner et al., 2011; Perline et al.,

2015; Wilson & Garcia, 2011b). Findings from a study exploring foodservice director's views on hospital procurement of local food in Ohio (n=105) revealed that a little over half of the interviewed directors had sufficient knowledge to seek and purchase local food (Raison & Scheer, 2015). Another area where managers could benefit from further training was evaluating the impact of changes within their organization, to be able to weigh out the benefits and the costs of implementing SMPs (Dauner et al., 2011; Gray et al., 2017; Heiss et al., 2015). For instance, Linton et al.'s (2018) study showed that although some practices may be more costly, other SMPs could generate savings for the foodservice, thus not affect the overall budget.

Third, studies showed that collaboration is greatly needed in order to effectively adopt and implement SMPs. Collaboration with other organizations outside to the healthcare organization could reduce some barriers to SMP implementation. For instance, compost-collection by municipalities and leftover pick-up by local food banks when necessary could help foodservice managers (Dauner et al., 2011). Managers could also benefit from the involvement of other actors in the food system. For example, building relationships with local producers could help managers obtain local food from farmers (Heiss et al., 2015; Perline et al., 2015; Vogt & Kaiser, 2008). Finally, managers in Gray et al.'s (2017) study stated that in line with culture change and support, other departments in healthcare institutions such as nursing and the medical staff, should be collaborating with foodservices to make a long-lasting impact. For instance, the healthcare organization should recognize that patients require healthy and quality food, and adequate nutrition should not be overlooked in caring for a patient.

2.3.3 The Healthcare System in Quebec

The healthcare system in Quebec is particular in its public nature, such that an income tax to workers allows most healthcare services to be covered for all Quebec citizens to benefit from equitable healthcare and social service assistance (Governement du Québec, 2017a). In recent years, healthcare institutions underwent many changes, reforms, and implementation of new frameworks. In 2015, the public healthcare organization was reframed with the adoption of the *Act to modify the organization and governance of the health and social services network, in particular by abolishing the regional agencies (Loi modifiant l'organisation et la gouvernance*

du réseau de la santé et des services sociaux notamment par l'abolition des agences régionales) (O-7.2, 2015). This act modified the healthcare and social services governance and organization through the creation of larger entities by the fusion of smaller ones. These entities were named CIUSSS (Integrated University Health and Social Services Centres), and CISSS (Integrated Health and Social Services Centres), and were then designated as institutions with a sole governance body, although a few exceptions were permitted. Every healthcare institution has numerous facilities, where healthcare and social services physically operate (Governement du Québec, 2016). These facilities can be long-term care centers (CHSLD), local community centers (CLSC), centers for youth protection (CPEJ), rehabilitation centers (CR), and hospitals (CH). The goal of the amendment to the public healthcare and social services organization was to simplify administration by reducing the number of directors and systematizing general and speciality healthcare services, as well as to increase population-wide access to healthcare and social services. Although this reform allowed some positive changes, it also created general frustration and exhaustion from employees working in healthcare, as their workload increased with reduced workforce (Lemieux, 2018).

Foodservice managers must also follow certain governmental regulations. For instance, the *Act respecting contracting by public bodies (Loi sur les contrats des organismes publics)*, states that managers must do a public call for tenders if the amount spent for a contract is above or below the designated purchasing threshold (C-65.1, 2006). For healthcare foodservices, this threshold is set at $100,000. If contracts represent more than this amount, managers must carry out a call for tenders. A common critique to this regulation is that managers cannot favour a supplier solely based on the fact that they supply local food, thus cannot specifically encourage local food procurement (Governement du Québec, 2017b). However, managers can identify other criteria such as protein content or food quality to choose certain suppliers.

In addition to this global re-organization, foodservices in Quebec experienced many other changes over time. In 2006, a provincial government action plan for promoting healthy lifestyle and preventing weight-related issues was adopted, in which the importance of healthy eating was emphasized among other issues (Ministère de la Santé et des Services sociaux,

2006). Directly following the action plan, a working group was formed to create a framework for healthcare institutions to help them implement their own local healthy food policy (Governement du Québec, 2009). Healthcare institutions were expected to develop a food policy based on orientations found in this framework, adapted to their own institutional contexts and clientele. The six orientations were:

1 Offer meals and snacks with high nutritional value
2 Integrate principles of sustainable development in all foodservice activities
3 Promote physical and economic access to a variety of foods with high nutritional value
4 Promote healthy eating among the foodservice clientele
5 Ensure the development of staff competencies
6 Ensure the quality food and beverages

As excellent as they are, the orientations were not all treated equally by healthcare institutions. In fact, although there is a mention of sustainability principles, no further guidance was created to increase their implementation in healthcare foodservices. Food sustainability is not yet part of widespread recommendations for healthcare institutions.

More recently, in March 2017, the *Ministère de Santé et des Services sociaux* mandated all public health institutions to review their menus offered in long-term care centres (Lapalme, 2018). Institutions were expected to harmonize their menus in all the long-term care centers within one year, the deadline being March 2018, ending just a few months before this study's data collection. The goals of this revision were to improve the quality of food offered in long-term care centers and create a communal menu base for all facilities concerned. Six general criteria were expected to be followed, however no specific directives were given for food sustainability (Lapalme, 2018). First, the menu had to be approved by a dietitian that followed nutritional guidelines. Second, recipes, preparation procedures, and liquid thickening processes had to be standardized across facilities. Third, managers had to collaborate with every person involved in menu development, such as dietitians, diet technicians, cooks and residents. Fourth, the menu cycle had to last between three to four weeks without any repetition (unless a resident demanded a repetition). Fifth, every meal had to offer at least two choices for residents. Finally, two snacks had to be served, one in the afternoon and one in the evening.

Although there are no required commitments from the Ministry of Health in terms of food sustainability, some institutions have nonetheless shown some initiative. For instance, a children's hospital in Montreal (CHU Sainte-Justine) is one that has greatly improved food waste. In 2016, the hospital decided to combat both high food waste and low patient satisfaction by offering room service to all patients (Ruby, 2018). This meant that patients could order any food on the menu at the time they wish to eat. Their initiative was successful in both increasing patient satisfaction from 50% in 2011 to 99% in 2019 and decreasing full-plate waste from 25% in 2012 to 6% in 2016 (Lavoie & Marquez, 2019). The CHU Sainte-Justine now currently works to increase the procurement of both local and organic food in their foodservices. This example shows how initiatives in food sustainability can still happen without necessarily having ministerial orientations to guide foodservice managers.

Finally, in order to fully understand the healthcare system in Quebec, it is important to review the structure of the foodservice personnel. Foodservice coordinators are in charge of the general management and administration of many facilities in one healthcare institution, while foodservice managers are in charge of one or a few facilities in the same institution. Foodservice coordinators and managers are typically dietitians, but can also be experienced diet technicians or cooks with an administration background. The roles of foodservice managers include developing (and evaluating) the menu served in the cafeteria and to the patients, managing foodservice staff, controlling expenses to be in line with the budget, and taking part in interdisciplinary meetings.

Diet technicians are also an essential part of the foodservice staff, as they work closely with foodservice managers (as well as with clinical dietitians). Their roles in the foodservice are to visit patients to ask their food preferences, and to match these with the specific therapeutic diet they require. Diet technicians can then offer meal choices to patients based on the daily menu, on their preferences and on their therapeutic diet. Changes in the menu thus often require the input of foodservice coordinators, managers, and diet technicians in order for the change to be effectively implemented.

This overview of the healthcare system in Quebec provides a description of the ever-changing context of governmental mandates that foodservice managers must adhere to on a daily basis, along with their other everyday tasks and duties, while working with other essential foodservice staff.

2.3.4 Summary and Critical Considerations

This literature review focused on main aspects of the adoption and implementation of SMPs in terms of manager motivations, barriers, facilitators, and needs. An overview of the healthcare system in Quebec was also given. We found that first, foodservice managers claim to be motivated by food sustainability principles, however they lack support in order to transform this motivation into action. They also share similar values as producers and farmers, which can help build relationships and increase local food procurement. Second, foodservice managers in the literature state that the principal barriers to SMP adoption were a lack of resources, the unreliability of local food procurement, as well as believing they are going against clientele preferences and administrative priorities. Facilitators rather relate to managerial interests in the benefits of food sustainability and the presence of a support system to help them implement SMPs. Third, in order to adopt SMPs, foodservice managers need much more support, tools, training and information, as well as greater collaboration between all actors in the food system. It is also important to note that in the literature review, only four studies evaluated a specific SMP intervention in foodservices. Thus, there is little data on how studies have implemented SMPs and if they worked. This concurs with Balogun & Hope Hailey (2004), in which they estimate that the majority of innovations (such as SMPs) do not get implemented. Fourth, the healthcare system in Quebec is constantly undergoing major changes, without necessarily having an intended focus on food sustainability. Foodservice managers must work within a large foodservice team, who must all be part of sustainability discussions.

The above-mentioned studies have several limitations. Many of these studies are conducted in rural contexts, which can influence study results, especially when undertaking a study on local food procurement. The majority of the studies are also performed in a few different states of USA. Little Canadian data was found, and these were solely collected in the province of Ontario. The varying types of healthcare institutions studied were also quite limited, and most

studies defined their area of interest as hospitals. Among a wide range of recommended sustainable practices, few aspects of SMPs were studied (Mason & Lang, 2017). The majority of studies focused on only one or a few determinants of adoption, such as barriers and facilitators, or important values to food system actors. Managerial needs were only occasionally discussed, and often as secondary findings to the study. Conceptual frameworks were rarely used in the identified studies.

Chapter 3 – Research Rationale, Objectives & Framework

3.1 Research Rationale

According to several authors, including Burlingame & Dernini (2010), the current food system in Canada is unsustainable, which poses many risks for human and planetary health. Initiatives that propose solutions to improve the viability of our food system must thus be emphasized. The healthcare organization is an area in which a change in food practices could have a significant positive impact. In Canada, it is believed that the healthcare system spends approximately four billion dollars annually on food (Nourish, 2019b), although specifics regarding this amount are unclear. Nonetheless, the healthcare system has great purchasing power, which could potentially make them leaders in driving sustainable food systems (Harris et al., 2012; Raison & Scheer, 2015). A prospective course of action that healthcare institutions could take is privileging SMPs in their foodservices. Little research exists on the feasibility of SMPs in healthcare institutions' foodservices, with the context of Quebec not yet having been studied, to the best of our knowledge. Thus, it is important to understand if healthcare institutions would be willing to undertake these practices, and to identify their needs to move forwards in order to understand if the adoption of SMPs would potentially be viable in their foodservices.

As a response to the critical considerations from the literature review, our study also attempted to address some of the limitations identified in the literature. First, despite the fact that it would have been unrealistic to study all possible SMPs within the scope of this study, we included examples of practices in each of the six dimensions of sustainability. Second, we aimed to study the perspectives of foodservice managers representing a wide range of care settings and institutional size, such as hospitals, long-term care centers, rehabilitation centers, and youth centers. Third, our study strived for data on both rural and urban settings. It also builds upon the Canadian literature, by adding the province of Quebec in the scientific literature. Fourth, in order to consider a broader range of determinants of diffusion of innovations in the healthcare organization, our study was structured upon the main components of the Diffusion of Innovations theory (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004). This allowed us to explore managerial perceptions, throughout the process of adopting and implementing

sustainable menu practices. Lastly, as an Integrated Knowledge Translation and Exchange (IKTE) study, which involves having potential knowledge users participate in various research processes, we worked in direct contact with the Nourish program in the development of a Guide to Sustainable Menus (Canadian Institutes of Health Research, 2012). Tools and training were raised as important facilitators helping foodservice managers adopt and implement SMPs in the literature. Hence, this study also directly responded to managerial needs to achieve SMPs, and increasing manager motivations through added support.

3.2 Objectives

3.2.1 Primary objective

The primary research objective was to analyze the feasibility of adopting sustainable menu practices in foodservices in Quebec healthcare institutions.

3.2.2 Specific objectives

The study had three more specific objectives, inspired by the Diffusion of Innovations theory, from the perspectives of foodservice managers:

1 Examine managerial and organizational motivations to adopt SMPs.
2 Analyze barriers and facilitators towards SMP adoption.
3 Identify managerial needs to enable SMP adoption in their foodservices.

3.3 Theoretical Framework

3.3.1 Diffusion of Innovations

The conceptual framework used to guide data collection, coding and analysis in this study was the Diffusion of Innovations. This theory was initially developed by Rogers in 1962, and was revised more recently in 2003 to explain the elements of the diffusion process of a new idea in a social system (Rogers, 1962, 2003). The adoption of an innovation is a multi-step process, starting with a knowledge-gaining phase and ending with a confirmation of adoption stage, where the adopter can be influenced to adopt or reject this innovation at any of these steps. This theory was considerably used and adapted to understand the diffusion of innovations within complex organizations, such as innovations in service organizations (Greenhalgh et al., 2004).

Greenhalgh et al.'s (2004) systematic review simplified the theory for organization-level thinking by identifying the nine most prominent determinants in the adoption of an innovation in a complex service organization. These determinants are:

1 Attributes of the innovation
2 Organizational antecedents for innovation
3 Organizational readiness for innovation
4 Adoption process
5 Processes of assimilation
6 Implementation process
7 Communication and influence, diffusion and dissemination
8 Outer context
9 Linkage between developers and users

Within each of these determinants are components of innovation-diffusion, from which the potential user of the innovation can be more or less likely to adopt the innovation. Thus, by using this framework, elements that influence innovation adoption and its diffusion through a social system can be identified. Using Greenhalgh et al.'s (2004) model of the Diffusions of Innovations theory as a conceptual framework, this research aimed to present the processes in which sustainable menu practices (the innovation) spread through the community of the healthcare system's foodservice managers in Quebec (the social system). As the healthcare system is a complex service organization, many influences could impact SMP adoption throughout the decision-making process, contributing to adoption variability (Greenhalgh et al., 2004; Olstad, Raine, & McCargar, 2012). Using this framework could help understand why managers do or do not move from SMP ideation to adoption and finally to implementation in healthcare foodservices.

The conceptual framework was first used in this study to generate the research objectives. Each objective was then matched with a number of Greenhalgh et al.'s (2004) most prominent determinants in the adoption of an innovation. Areas of interest for each of the objectives were thus identified. The following conceptual map illustrates the original combination of objectives and determinants of innovation-diffusion.

Figure 1. Determinants of the innovation-diffusion process originally combined with research objectives

Greenhalgh et al.'s (2004) revised model of the Diffusion of Innovations theory was also used for developing the interview guide and steering data analysis. The research codebook was elaborated from this theory, and was enriched with Sabatier's Advocacy Coalition Framework, to identify possible influences on SMP adoption emerging from the outer context (Sabatier, 1988).

3.3.2 Sustainable Menu Practices

The phrase "sustainable menu practices" was created for this research, and was used to describe the multiple actions that foodservices can do in order to develop a sustainable menu, based on the six-dimension approach of food sustainability (Mason & Lang, 2017). Each adopted SMP can gradually increase a foodservice's menu sustainability. Practices can be categorized according to the six dimensions of sustainability; however, these are not mutually exclusive, as previously mentioned in the literature review. For example, reducing animal protein consumption can be beneficial for both the dimensions of health and environment. Nevertheless, SMPs are a relevant and efficient way to understand sustainability at a menu development level. The following table illustrates a few examples of SMPs for each sustainability dimension.

Table 2. Examples of SMPs Pertaining to the Six Food Sustainability Dimensions*

Food Sustainability Dimension	Examples of Sustainable Menu Practices
Health	• Define and adapt to the needs of the clientele • Limit serving ultra-processed foods • Offer plant protein more often
Environment	• Increase the variety of foods offered • Reduce waste by re-using leftovers, adjusting portions, and composting • Offer water as the primary beverage
Quality	• Offer fresh & appetizing food • Offer appreciated recipes from taste panels • Offer seasonal and local fruits & vegetables
Social Values	• Create recipes representing the cultural background of the clientele • Offer homemade recipes
Economy	• Manage an efficient foodservice • Contribute to local economy
Governance	• Recognize the roles of each actor involved • Take evidence-based decisions

*(Mason & Lang, 2017; Sustainable Development Commission, 2011)

A more extensive table was developed to explain SMPs to all participants during their interview, in order to allow a similar basis of knowledge and understanding (appendix IV).

Chapter 4 – Methodology

4.1 IKTE Approach

This study adopted an approach of an Integrated Knowledge Translation and Exchange study, which consisted of involving knowledge users on the field to the dynamic process of research (Canadian Institutes of Health Research, 2012). In this case, a study committee was formed in partnership with three members of Nourish, which were the potential knowledge users. These knowledge users were able to give their input in the beginning of the research process, in order for the research to be suitable for practice (Canadian Institutes of Health Research, 2012). For example, the formulation of the research question was established through a working meeting set up to exchange ideas. The partners explained the knowledge gaps in the Nourish program, and we pinpointed what areas were appropriate for research. After careful consideration, the research question was developed in this meeting. The partners also presented educated insight in other steps of the research: the development of the specific research objectives and the data collection tool (the interview guide). The Nourish partners also facilitated the recruitment strategy, by providing a list of the names of all foodservice coordinators in Quebec, and allowing us to take part in one of their tri-monthly meetings. The partners did not take part in other research processes, such as data collection, interpretation and analysis, preventing their influence on the results. In order to properly define this partnership, the goals, values, roles and obligations of both sides were established from an existing framework, the *Chaire de recherche du Canada : Approches communautaires et inégalités de santé (Chaire CACIS)*, which was discussed with all partners for a mutual understanding of each actor's roles (Chaire CACIS, n.d.).

The study thus originated from a relationship between Université de Montréal and Nourish. Beth Hunter, Nourish's Program Director at the McConnell Foundation, initiated the collaboration by soliciting Geneviève Mercille, Dt.P., Ph.D., assistant professor in the Department of Nutrition at Université de Montréal, in order to carry out a research related to Nourish's Sustainable Menus project. Among others, Mrs. Hunter worked in collaboration with two Quebec foodservice managers: Annie Marquez, head of menu management and dietary information systems at CIUSSS Centre-Sud-de-l'Île-de-Montréal and Josée Lavoie, head of dietary services at Sainte-Justine Hospital. All three took an active part in our study committee.

Nourish is responsible for five projects around Canada that aim to enhance policies and practices recognizing the importance of patient healing through nutritious and quality food, benefiting patients, staff and the community. Their Sustainable Menus project was founded in the province of Quebec, with the purpose of creating a Guide to Sustainable Menus, expected to be released in October 2019 (Nourish, 2019b). This guide includes tips on ways to incorporate SMPs in healthcare institutions' foodservices, one step at a time. The Guide to Sustainable Menus could help facilitate the selection of options that are more sustainable for managers, to make menus that are nutritious, of sound quality and affordable, all the while respecting the society, the community, and the environment. Understanding the perspectives of foodservice managers on SMPs, as well as their perceived feasibility in healthcare foodservices could contribute to orienting the production of the Guide to Sustainable Menus.

The objectives of our research thus responded well to the needs of the partners for developing the guide. In addition to this, I was able to play an active role in the creation and development of the Guide to Sustainable Menus, from a grant received by the program *Mitacs Accelerate* (Mitacs, 2018). With this program, I completed an internship that was funded by both the McConnell Foundation and Mitacs. Some activities that I performed during this internship included participating in monthly webinars reviewing the Guide's advancements, giving comments on each chapter created and taking part in various meetings with Nourish innovators around Canada. An example of a Guide to Sustainable Menus chapter on "Choosing your sustainable protein" can be found in appendix VII. An end-of-program meeting for Nourish's five projects was set up in January 2019, where I discussed preliminary results of the study as part of the Guide to Sustainable Menus project.

4.2 Research Design

This study used a qualitative design to understand perspectives on SMPs, in which researchers explore the meaning participants give to their motivations for their behaviour (Green & Thorogood, 2004). The goal of a qualitative design is to build rich and meaningful interpretations based on words and phrases voiced by the participants (Patton, 1999). The research strategy was mixed, such that both deductive and inductive strategies were employed. Using induction and

deduction allowed the research to be founded on past knowledge, all the while warranting the emergence of new information (Elo & Kyngäs, 2008).

4.3 Data Collection and Sampling

4.3.1 Data collection tool

Data was collected by conducting interviews with participants, in which asking questions and probing stimulated a conversation for pertinent themes to be further explored (Creswell, 2002; Pope & Mays, 2007). Interviews were audio-recorded, individual, in French, and lasted on average one hour. The duration of data collection was approximately four and a half months, from July to November 2018. Participants had the choice between three options for the interviews, depending on their availabilities: in-person interviews, by videoconference, or by phone. The ideal method was face-to-face interviews in participant's offices, in order to be as close as possible to their daily contexts (Creswell, 2002). However, as some participants were located in a distant region of Quebec, this was not always possible. In this study, participants agreed to either in-person or by phone interviews.

Interviews were led by an interview guide, using a semi-structured approach in order to ensure that all participants were submitted to the same field of exploration (Patton, 2002) (see appendix III). The interview guide questions were developed from exploring theory (from the researchers) and from observing practice (from the Nourish partners). Greenhalgh et al.'s (2004) revised model of the Diffusion of Innovations theory was used as a framework to structure the questions in the guide, from the nine main determinants of innovation diffusion. Interview questionnaires using this theory in the literature as well as publications regarding SMP implementation in healthcare institutions were additionally used to build the interview questions. After structuring questions from theory, the interview guide was also developed to reflect practice. In fact, a working meeting was held with the study committee to review the interview questions and make necessary adjustments to create the final version of the interview guide to be tested.

The interview guide was pre-tested on the two first participants recruited. Along with answering the interview questions, participants were asked to comment on their difficulty in responding to

the questions throughout the interview. These two pre-tests thus served to verify the formulation and the order of the questions. They also served to verify if the questions produced answers appropriate to their intent (Silverman, 2010). Comments allowed minor adjustments to be made in the questionnaire for more efficient future interviews.

4.3.2 Data collection procedure & consent

Prior to each interview, the consent form, sustainability documentation and the interview guide were sent to the participants by e-mail. This allowed participants to prepare for the interview and to confirm their capacity to contribute to the research project.

Written informed consent was obtained from all participants by reading and signing a consent form adapted to their specific healthcare institution (appendix II). All participants were informed of the nature of their participation and how to withdraw their data if they wished to do so. The partnership with Nourish was also explained to the participants. Participants were notified that their participation is voluntary, and that their participation to the initial interview did not require them to participate in the member-checking interview (Government of Canada, 2014). After this, participants were asked to fill out an "Institution Information and Foodservice Characteristics" Form (appendix V). This form served to create a table describing sample variety, and is further explained in section "4.4.4 Sampling". Following the completion of these two forms, the interview led by the interview guide began. Participant knowledge on sustainability as well as a description of the decision-making context of their organization was established. Next, a document defining sustainable menu practices was presented to the participants, such that every participant had the same minimum knowledge base on food sustainability (appendix IV). The more extensive part of the interview followed, where participant perspectives on SMPs were explored.

The consent form also invited participants to participate in a member-checking interview to discuss preliminary results. After preliminary analysis of the data collected, all participants that agreed to take part in a member-checking interview were contacted. Although all participants were initially interested in participating, eight participants took part in commenting on the summary of analysis, representing a little under half of participants. Vacations, maternity leaves,

and retirements were among the reasons for not participating, along with no-answers. Nonetheless, the individual discussions held with participants who agreed on a member-checking interview allowed them to play a more active part in the research (Creswell, 2002).

4.3.3 Recruiting

Before recruiting participants, the idea behind the research project was presented to foodservice coordinators attending their provincial-wide coordinator meeting, in order to spark their interest. Following ethics approval, recruitment was a laborious three-step process. First, 30 public healthcare institutions in Quebec were contacted to acquire "institutional convenience", a process in which institutions examine if the study follows their specific scientific and ethical regulations, as well as the study's pertinence to their context. This step is necessary and obligatory for any study desiring to recruit in more than one Quebec healthcare institution (Ministère de la Santé et des Services sociaux, 2016). The institutions contacted were solely those who had an individual formally mandated by the institution to authorize research on their territory, as per healthcare and social service system requirements. After submitting the necessary documentation to the 30 public healthcare institutions, 21 institutions gave their approval to conduct the study in their foodservices. Reasons for not receiving approval were: refusal due to departmental disinterest (3), refusal due to no researcher being affiliated with the institution (3), approved only after recruitment was concluded (2), and no answer (1). Given the short nature of this master's research project, delays over four months could not be considered and including researchers from multiple institutions to the study was impractical. The second step in recruitment was to contact all foodservice coordinators in the approved Quebec institutions, from a list provided by Josée Lavoie, member of the study committee. Apart from proving the list of coordinators, the Nourish partners were not involved in future recruitment steps. These coordinators were asked to send research documentation to their foodservice heads. Contact could thus be established with the interested parties, as coordinators provided us with who they thought would be best placed to answer the questions to meet the research objectives. The third step was then to come into contact with the foodservice heads, by phone or e-mail. For ethical purposes, coordinators were contacted instead of the potential participants themselves, as solely coordinators' contact information is publicly disclosed.

4.3.4 Sampling

Inclusion criteria were: (1) employee of Quebec's healthcare and social service system, (2) responsible for menu creation or development in one or more foodservices in healthcare facilities. Three executive positions in foodservice were retained for recruitment: service head, sector head (production and distribution), and coordinator. Any person desiring to participate and fulfilling this criteria were included in the study. In order to obtain more sample variety, participants were selected whether or not they had previous experience with sustainability, and whether or not they had successfully implemented SMPs. For simplicity, the term "foodservice manager" was used to describe all participants in the study, as managerial duties are included in each work position.

As if often the case for qualitative research, the study was conducted with a small sample size, (Creswell, 2002). The sample size was of 17 participants, which was larger than the initially expected size of between 10 and 15 participants. This sample size seemed sufficient for an in-depth description of participant perspectives on SMP adoption, and could potentially ensure data saturation on selected themes (Laperrière, 1997; Patton, 2015). As the interviews were conducted using an iterative process between data collection and data analysis, it was possible to notice data saturation. For instance, the last participants interviewed generally did not bring new information for analysis, which was how data saturation was measured.

The 17 participants were from 10 socio-sanitary regions of Quebec, in 12 healthcare institutions, with over 60 facilities represented. Table 3 illustrates the number of participants in each socio-sanitary region included in the sample, the highest number of managers being from the Montréal region, followed by the Lanaudière region.

Table 3. Number of Participants Recruited for Every Participating Socio-Sanitary Region of Quebec

Socio-sanitary region	Number of participants
Saguenay-Lac-Saint-Jean	2
Mauricie et Centre-du-Québec	1
Estrie	2
Montréal	4
Abitibi-Témiscamingue	1
Chaudière-Appalaches	1
Laval	1
Lanaudière	3
Laurentides	1
Montérégie	1

Purposeful sampling was used in order to achieve maximum variety in participant profiles and to better understand different perspectives (Patton, 1999). The recruitment strategy was to have participants with varying experience in foodservices, in different contexts and regions. In addition, this study aimed to explore "information-rich" cases to highlight specific contextual insights (Patton, 1999). For instance, innovative facilities were purposefully recruited, as well as those that have less experience with food sustainability.

As previously noted, a small questionnaire was filled out prior to each interview, in order to create an "Institution Information and Foodservice Characteristics" table. A variety in seven characteristics was obtained in the sample: number of years of experience, acquired education, official position, type of foodservice facilities worked, type of region worked, production & distribution mode, and presence of outsourcing. In the literature, these characteristics described the likeliness of managers to implement sustainable practices in their foodservices, with the exception of the official position question, which was used to verify ability to adequately answer questions relating to their duties (Huang et al., 2011; Raison & Scheer, 2015).

4.4 Strategy of Analysis

After each interview, a summary sheet of the meeting was completed, allowing context to be detailed for each interview (Silverman, 2010). Interviews were then transcribed in verbatim. Coding structure was achieved via a codebook, elaborated by the means of the conceptual framework that identified pertinent study themes (appendix VI). The nine determinants of

innovation-diffusion were used as parent nodes, with child nodes bearing Greenhalgh et al.'s (2004) identified influences found in the literature. During data analysis, the codebook was tested and completed by adding emerging codes (Hsieh & Shannon, 2005). While data became apparent, it was deemed necessary to add an additional theory in the codebook. This theory is the Advocacy Coalition Framework, which allowed us to consider the exterior influences to healthcare institutions, such as the political environment and the social environment (Sabatier, 1988). The research supervisor validated a sample of three verbatim using the revised codebook. Following her validation, child nodes in the codebook were edited to facilitate coherence and unambiguity, for instance by combining two similar child nodes and adding a child node for emerging ideas. After the relevant changes were made, the final codebook was used for data analysis. All transcripts were coded (or recoded) using the final codebook. To facilitate data coding thereafter, the qualitative analysis software *NVivo 12 for Mac* was used, enabling data interpretation according to emerging theme groupings (Creswell, 2002).

Evaluating the quality and credibility of qualitative research is a topic that is much debated. Some scientists criticize evaluating qualitative data credibility with typically quantitative criteria, due to their highly dissimilar nature (Cutcliffe & McKenna, 1999). However, the lack of existing universally accepted criteria for measuring quality in qualitative research that do not emanate from quantitative criteria otherwise constrains researchers. Thus, for our study, a few strategies were used to increase the validity and the reliability of the data and its interpretation. Methodological choices increased research quality, such as using our research-action methods (IKTE study) to retrieve data sensible to context (Leung, 2015). Purposeful sampling recognizes information-rich cases for a meticulous understanding of various experiences, such as the success or not of adopting SMPs, which can affect study findings (Patton, 1999). This approach contrasts with quantitative data that reviews generalizability of the results. Our research rather gives multiple versions of a story to make sure that future readers can recognize themselves in the results, which amplifies data credibility (Cutcliffe & McKenna, 1999). Other means to increase quality of data is the consistent use of summary sheets after each interview, as well as threefold codebook validation by Prof. Mercille. The latter allows the professor to challenge certain categories in the codebook, and my ensuing justifications to be more robust and comprehensive (Cutcliffe & McKenna, 1999). The use of a conceptual framework, the Diffusion

of Innovations, also added to the quality of the research (Greenhalgh et al., 2004). Finally, research quality was increased with the member-checking interviews. This practice consisted of returning to the participants with preliminary analysis, confirming if the research interpretations were accurate or not in relation to participants' lived realities. Describing the preliminary analysis to participants also allowed them to indicate if they feel well represented by the interpretations (Creswell, 2002).

In terms of ethical appreciation, data was analyzed in such a way to prevent the identification of participants in the diffusion of results. When presenting research results, passages were not referenced to the name of the participant, their job title, their institution, or their region of work. As participants held positions that are limited in number, the risk for identification is high, making such measures necessary.

4.5 Ethical approval

The research protocol was approved by the Comité d'éthique de la recherche en Dépendance, Inégalités sociales et Santé Publique (CÉR-DIS) of the CIUSSS du Centre-Sud-de-l'Île-de-Montréal (*MP-DIS-1819-59*). Conforming to university regulations, the research protocol was also submitted and approved by the Comité d'éthique de la recherche en santé (CERES) of Université de Montréal (*18-112-CERES-D*). Both certificates of ethics approval can be found in appendix I.

Chapter 5 – Results

This chapter is divided into two sections. The first section provides the outline of a manuscript in preparation for submission to the scientific journal of the British Dietetic Association, the Journal of Human Nutrition and Dietetics. The second section addresses further results from the study not included in the manuscript.

5.1 Article

Manuscript in preparation for submission to the Journal of Human Nutrition and Dietetics.

TITLE Adopting Sustainable Menu Practices in Healthcare Institutions: Perceived Barriers, Facilitators and Needs

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KEYWORDS

food sustainability, nutrition, Diffusion of innovations, foodservice.

ABSTRACT

Background. Food sustainability initiatives are emerging around the world. Given their inherent mission to heal and their weighty impact on the food system, the healthcare sector is an appropriate area for sustainability initiatives. Managers may use sustainable menu practices (SMPs) in healthcare institutions' foodservices to increase the sustainability of their menus. The present study aimed to explore barriers, facilitators and needs to facilitate SMP adoption in healthcare institutions in Quebec, Canada.

Methods. This qualitative study used an Integrated Knowledge Translation and Exchange approach. Seventeen foodservice managers were recruited through purposeful sampling to participate in an audio-recorded individual semi-structured interview. Main components of the Diffusion of Innovations theory were used to assess the determinants of the diffusion of an innovation (SMPs) through a complex social system (healthcare organization).

Results. Participants reported more challenges than facilitators for the implementation of SMPs. Among challenges, lack of support at many levels was a major barrier to SMP adoption, as were shortfalls in political directives. Increased collaboration between all food system actors, as well as better communication in the healthcare organization as a whole was needed for enhanced SMP adoption.

Conclusions. This research contributes to in-depth understanding of managerial experiences in SMP adoption in various regional and healthcare settings. Findings suggest the need for support and strategies that would remove important barriers to increase the adoption of SMPs.

INTRODUCTION

Over the last few decades, there has been growing worldwide interest in food sustainability[1,2]. Food sustainability aims to enhance health, improve social context, and reduce the environmental impact of human activities[3]. According to many scientists, our food system is currently unsustainable, such that environmental resources are depleting, populations are being improperly fed, human and economic costs are increasing, and future generation preservation is precarious[4-6]. Changes to the food system are required to improve future health and environmental outcomes, and diets have an important role in these changes[4,7,8]. Accordingly, a consensus in the scientific community exists on healthy and sustainable diets, which includes reducing animal-based food, excess calorie consumption and food waste, while increasing plant-based food, such as high-protein plants, whole grains, fruits and vegetables[7,8].

A pivotal area of work to model this healthy and sustainable change in diet is in healthcare institutions. As the mission of healthcare is to heal and contribute to healthy life, healthcare institutions and its professionals have an important responsibility to provide the best care for patients[9-12]. However, research suggests that the value of nutrition in healing is often omitted in healthcare[13]. Beyond their role in healing community and modeling healthy lifestyles, healthcare institutions provide food to a multitude of people on a daily basis, and use an immense amount of resources to do so[9,12,14]. When coupled with their great purchasing power, they are in a suitable position to affect the food system, both up the food supply chain to food producers and down it to food offered to users[14,15].

Given this opportunity, many sustainable initiatives are developing in healthcare institutions. For instance, programs such as Health Care Without Harm in the USA, as well as Nourish in Canada aim to improve public health through sustainable actions, pledges and project developments[16,17]. Other initiatives have a wider reach, such as the city of Copenhagen serving primarily organic food in their public institutions[18]. In Quebec, the Canadian province in which this study takes place, the Ministry of Agriculture, Fisheries and Food adopted a food policy in March 2018[19]. Among other goals, this policy aims to increase the availability of healthy, local, and eco-friendly food in public institutions, as part of an economic development framework aiming to consolidate health and environmental efforts. However, specific recommendations have yet to be

presented to institutions. This study took place prior to the release of the revised Canada's Food Guide in January 2019, which includes healthy eating guidelines and flags the importance of environmental sustainability, the latter not having been considered in the previous version of the Guide[20]. Canada's Food Guide is an important source of information for consumers, as well as for institutions to orient menu creation.

Models to operationalize the definition of food sustainability have been developed in order to permit its practical application, such as in healthcare institutions. This study used the UK's Sustainable Development Commission's recommended six dimensions of sustainability[2,21]: health (adequacy of diets and nutrient sufficiency), environment (agricultural impacts), social values (effects of culture and society), quality (perceived food quality), economy (costs to the food system) and governance (authority of food system stakeholders). We defined the phrase sustainable menu practices, or SMPs, as any practice that healthcare foodservices may take to increase the sustainability of their menu, which can be found in one or more of its six dimensions. A broad literature review of studies conducted in healthcare foodservices in various countries[22-30] illustrated a few implemented SMPs, such as offering nutritious food (health), serving fresh and appetizing food (quality), as well as stimulating local economy (economy), however, among a large range of recommended sustainable practices, a very small number were actually studied.

Thus, research considering food sustainability in healthcare institutions is emergent, and in varying stages of intervention. In terms of SMP feasibility, challenges expressed by foodservice managers included a lack of resources[22-29], the unreliability of local food procurement[23-26], as well as feeling that SMPs go against clientele preferences[24] and administrative priorities[23,25,27]. Opportunities were also presented in the literature, albeit less so than challenges; they related to managerial interests in the benefits of food sustainability[27,28] and the presence of a support system to share experience in SMPs[23,24,27]. Moreover, foodservice managers stated that they needed more tools, training and education[24,29], as well as greater collaboration with all actors in the food system[9,24,29]. Many of these studies were conducted in rural contexts, mostly in hospitals. Little Canadian data was found, with none for the province of Quebec.

The present study attempted to address many of the limitations identified in the literature, notably by including SMP examples in each of the six dimensions of food sustainability in the interview guide and by finding representation of a wide range of care settings in both urban and rural areas in the province of Quebec. The purpose of this qualitative research was to analyze the feasibility of adopting SMPs in healthcare institutions' foodservices, with the objectives of exploring perceived barriers, facilitators, and needs to adopt and implement SMPs. By "adoption", we referred to the decision to implement an SMP, without action, while "implementation" rather referred to taking actions towards SMPs.

METHODS

Study context

This research was conducted in the Canadian province of Quebec. Canada benefits from a public healthcare system, such that equal access to most healthcare services for all citizens is funded by an income tax, with its administration under provincial jurisdiction responsibility[30]. Since 2015, the healthcare and social services system in Quebec has been undergoing a major organizational reform, where large healthcare institutions were re-organized to consolidate multiple facilities on their territory under one administrative body[31]. These larger institutions were given the name of "Integrated University Health and Social Services Centres" and "Integrated Health and Social Services Centres". Recent demands from the Ministry of Health included a revision of food provision in long-term care centers and recommendations for foodservices to promote healthy lifestyles, but do not yet propose clear food sustainability measures[32].

Study design and data collection

The present study was elaborated through partnership with the Sustainable Menus initiative, a Nourish project to develop a Guide to Sustainable Menus advising managers in implementing SMPs in their foodservices. This was a qualitative Integrated Knowledge Translation and Exchange (IKTE) study, in which potential knowledge users participated in various research processes[33]. As such, we collaborated with Nourish, an initiative that seeks to improve patient and community health and wellbeing, as well as food system sustainability through programs aimed at healthcare foodservices and communities across Canada[17].

Greenhalgh et al.'s (2004) systems approach to the Diffusion of Innovations theory was used as a theoretical framework[34] for structuring data collection and analysis. The theory identified nine major determinants of the diffusion of an innovation (such as SMPs) through a complex social system (such as the healthcare organization), thus allowing an understanding of the elements that make foodservice managers more or less likely to adopt and implement SMPs. Table 5 describes the nine components of innovation-diffusion within complex organizations, along with the referred interview questions to each component.

Inclusion criteria were to be an employee of Quebec's healthcare and social service system, and to be responsible for menu development in one or more foodservices. Using purposeful sampling[35], 17 foodservice managers were recruited to participate in the study, whether or not they had previous experience with SMPs.

The data collection tool consisted of a semi-structured interview guide of 27 questions. The interview guide was pre-tested[35] on two participants in July 2018, with interviews continuing November 2018. Participants were submitted the interview questions and SMP-defining documentation prior to the interview (see appendix 1). Interviews were led individually and in French by the first author (BD), lasted approximately 60 minutes, were audio-recorded, and were conducted either in person (n=7) or by phone (n=10). The Research Ethics Committee on Addiction, Social Inequalities and Public Health (*MP-DIS-1819-59*) as well as the Health Research Ethics Committee of Université de Montréal (*18-112-CERES-D*) approved the research protocol.

Data analysis

Interviews were transcribed verbatim. The theoretical framework guided codebook development, which was tested and completed by the addition of emerging codes, using the qualitative analysis software *NVivo 12 for Mac*[36,37]. Validation of analysis was two-fold. First, two members of the research team (BD and GM) validated the codebook using a sample of three verbatim prior to completed analysis[38]. Second, eight participants consented to and participated in a member-checking interview with BD to discuss a summary of findings as a way to validate study interpretations and increase research quality[37].

RESULTS

Seventeen foodservice managers participated in the study. A detailed description of the sample can be found in table 6, which shows the range of manager and institution characteristics. The majority of participants had over 5 years of experience in foodservices, with a bachelor's degree in Dietetics. Although position titles differed, their roles in the foodservices were quite similar. Most participants managed more than one type of facility, often in urban areas. Production and distribution mode varied widely, however outsourcing (i.e. foodservices managed partially or completely by an external contracted company) was not a common practice.

Participants' roles and responsibilities in the healthcare organization included menu planning, management of personnel, overseeing foodservice budget, contract negotiations and purchasing, as well as participating in various committees. Many participants were familiar with a multitude of SMPs, whether they tried implementing them or not. For those who attempted implementation, SMPs were often carried out solely in one facility of an establishment to assess the outcomes. All participants had experience in adjusting their menu to their clientele's specific needs. The majority of participants had a focus on the quality dimension of food sustainability: serving fresh, appetizing food that is appreciated in taste panels. Participants also had some experience with local food procurement, in small quantities and in limited products such as seasonal berries, local jam and regional milk. Composting and recycling had been attempted in approximately half of foodservices, with composting not always becoming routinized after the trial. Offering homemade recipes for meals, snacks, and enriched products were also occasionally tested by participants. Numerous attempts were made to cut food and material waste using several techniques, for instance adjusting portion sizes and sending leftovers to community organizations, as well as replacing single-use dishes with compostable or reusable ones. A few participants mentioned other SMPs, such as offering recipes from cultural backgrounds and engaging with various actors in the food system. Many participants had experimented with replacing animal protein with plant protein in meals, and few successfully implemented this in their regular menus. Offering animal products raised without the use of antibiotics, serving fair-trade or organic products and providing food with the least amounts of additives were rarely mentioned.

Eight participants took part in a member-checking interview after preliminary data analysis. Findings from these interviews showed that participants generally corroborated with study interpretations (see appendix VIII). Perceived facilitators and barriers to SMP adoption and implementation are described below, according to the themes outlined by the theoretical framework. Quotes were freely translated from French.

Facilitators

A handful of facilitators in SMP adoption and implementation were discussed, which could be linked to five determinants of Greenhalgh et al.'s (2004) framework[34]: attributes of the innovation, organizational antecedents and readiness for innovation, as well as the implementation process and outer context.

Attributes of the innovation. Managers saw the benefits of SMPs, acknowledging how they can contribute to reducing ecological footprint, improving community health and creating a desire to change. A few managers also perceived that some SMPs could offset the higher cost of other SMPs, making them relatively advantageous to implement: *"Definitely certain practices can create savings in the budget, while others can create an additional expense."* (PD).

In addition to this, managers recognized that sustainable food supply would increase in terms of demand, which would be reflected in a lower procurement cost. *"The [composting] bags, in the beginning they were almost one dollar per bag. […] The price was really high because we were consuming little. With time, if we all slowly started to compost, the price would decrease."* (PM).

Managers also perceived the advantages of SMPs depending on their approach to problems. For instance, two managers described their issues with composting as follows: PB tried composting, but it ultimately did not pass the trial, as composting emitted too many unpleasant odours; PF believed composting was worth it, even if he had to deal with foul odours and paying an external company for waste pickup.

Furthermore, managers stated that their ability to test out certain practices could facilitate change. A few participants described opportunities to try out new practices in a local or

temporary manner. For instance, composting in one long-term care center (PJ), and berry procurement during one season (PI) were both tested, without the obligation of implementing in many facilities or continuing into future summers. Moreover, most participants thought SMP implementation would be more applicable to their foodservices if they were implemented gradually. *"Every small gesture, little by little, can make a difference long-term. We cannot change everything overnight."* (PZ).

Organizational antecedents for innovation. Foodservice production and distribution type were perceived as possible influences to SMP adoption. For instance, outsourcing could decrease managerial control over quality, while centralizing kitchens could provide benefits: "*Having a centralized kitchen can help us: they will produce in larger quantities, maybe less packaged, less processed*." (PI). Many participants described room service as being desirable, allowing patients to regain power in food choice while reducing total food waste.

Organizational readiness for innovation. The majority of participants perceived that SMPs fitted with the values and the mission of healthcare institutions. Furthermore, some managers explained their social responsibility in promoting healthy lifestyles to the community. A few institutions had dedicated sustainability committees or employees responsible for sustainable development, which was perceived as a facilitator for managers. Furthermore, working directly with programs and community organizations was stated as helpful for some managers in implementing SMPs (PA, PM).

Additionally, SMP implementation was seen as fitting with organizational ways of working, with only small changes in working methods anticipated for effective implementation. "*There would be changes to bring to ways of working. But I don't think it would be that huge in the daily lives of workers.*" (PF).

Implementation process. Managers described how support from the administration was helpful for implementing SMPs in foodservices and became difficult when they were not open to such changes. "*Having openness at the level of the directors, it really helps us to advance in these projects*." (PI).

However, once administrative support was given, managers stated their own importance in continuing with the changes: *"The difficulty is the lasting quality, once [a sustainable change] has been pushed into the organizations. The first year, we were held accountable to our directors. After that, we didn't hear about it anymore. So, if it doesn't matter to you as a manager, you could almost drop it.*" (PG).

Moreover, the majority of participants perceived that employee involvement was facilitating for adherence to change and foodservice efficiency. They declared that if employees were included in discussions, and they were able to express their thoughts and concerns about how certain practices will affect their work, employees would help the process of change. "*It's important to make the employees participate. […] By involving them, and maybe creating a sustainable development committee in the kitchen. That could help us make them get on board with the changes*." (PI). PD also noticed the positive influence of champion leaders. Having an employee that strongly believes in food sustainability was perceived to have a snowball effect in helping other employees become more receptive.

Outer context. There were differences between managers on their perceptions of societal readiness for change. Participants were divided into either believing that people are more conscious of their environmental impact, and believing that people are not ready for concrete action. Managers believed that the fact that food sustainability recently became a popular topic of discussion could be facilitating in adopting SMPs. "*It's in the era of time, you know. It's part of the priorities of millennials*." (PZ).

Barriers

Although participants shed light on many facilitating factors, they put much more emphasis on the barriers that they must face in SMP adoption and implementation. These challenges pertained to the following components[34]: attributes of the innovation, organizational antecedents and readiness for innovation, processes of assimilation, implementation process and the outer context.

Attributes of the innovation. Foodservice managers assessed that SMP complexity could hinder their decision to adopt them, although certain SMPs were perceived as more complex than others. For instance, one participant described how composting was easier to accomplish than adding more vegetarian meals to the menu, as it required less changes in ways of working (PO). Nonetheless, multiple participants believed that SMPs are complicated, obstacle-ridden, and require a great deal of energy to implement. *"For now, it seems like a mountain, there is a lot of work to do."* (PA).

Although some participants were sensitive to different costs of SMPs, the majority of participants perceived SMPs as being more expensive, with local and organic food as most frequently highly priced. Local food procured was often unprocessed, thus required extra costly labour, and organic food was inherently more expensive than its non-organic counterparts. *"Organic products, for now we don't have any but we would like to. Except now, for sure the cost is always pretty high."* (PM). As a consequence, perceived high cost was a limit for SMP adoption.

There was also a lack of agreement among participants on whether or not SMPs could be adapted to specific foodservice contexts and realities. For example, PB mentioned that the small purchasing power of one facility prevented her from procuring local products (not adaptable), while PI described how she could send pitchers of water and re-usable glasses to the patient floors, instead of on each tray (adaptable). One participant clearly described this debate: *"It's feasible up to a certain point. I'm not convinced that we can use sustainable menu practices everywhere. There are still many contexts where they don't apply."* (PH).

Organizational antecedents for innovation. Participants reported that institutions were still adapting to the re-shaping of the healthcare system since 2015, which presented barriers from both inside and outside their organizations. For instance, PN described how administrative offices moving out of her facility significantly reduced cafeteria sales, as these workers were the bulk of clients. Other discussed impacts related to the dilution of single-facility practices and the increase in sheer size of institutional territory: "*In our region […], from [name of city] to [name*

of city] there are two hours of road, so distribution is very expensive. Some companies don't come here anymore because our territory is too large." (PL).

Foodservice managers assessed that the type of facility and its clientele could present barriers to SMP adoption, as different types of facilities often meant different clientele preferences and needs. On the one hand, PA explained that she had noticed an increased trend toward clientele degradation in long-term care centers, with an older population requiring specialized, textured meals. On the other hand, PJ described that in centres caring for youth, the general idea was to be more flexible and create better living environments for young patients. Both of these clienteles were perceived as not particularly aligning with SMPs.

Organizational readiness for innovation. Approximately half of the participants described lack of organizational prioritization as a barrier to SMP adoption. "*There isn't a clear order from the director, like in six months this is what I want. You understand? So, until then, there are things that are more critical for us*." (PB). Foodservice managers also perceived their lack of time as a notable barrier: "*Honestly, I don't have time to do this […] because (employee knocks at the door) for sure as you can see, everyday life is very intense*." (PB).

In terms of organization-wide readiness, there was disagreement between managers on their perceived proportion of support versus opposition to SMP adoption. Participants listed main supporters as clinical dietitians and foodservice employees, and major opponents as the finance department of the institution. Although there were inconsistencies in support, the lack of resources was perceived as the more obvious manifestation of insufficient support. The absence of financial resources for new projects and the slashing of budgets were the most frequently mentioned barriers to adopting SMPs. "*We have an extremely tight budgetary context, worse than before I would say. Unfortunately, because food is always part of the technical support services, they think that they can cut it easily. Instead of seeing that food can be part of a treatment plan, like medication.*" (PY). Other perceived resource deficits included human resources (in quality and quantity), and necessary infrastructure for sustainability projects.

Processes of assimilation. Managers recounted past experiences, and revealed numerous failures due to unanticipated obstacles. For instance, giving new names to meal choices had created plate dislikes (PD), serving unfamiliar items on the menu to patients had prompted excess food waste (PZ), and frequent employee turnover meant recurrent training (PF). "*The meal with pork chops, instead of calling them Spanish-style chops, I call them brown sugar and ketchup chops, and they for sure be appreciated. But if I put a word from another ethnic group, it passes with difficulty, and it's happened to me more than once to be told, well can you give us recipes from Quebec instead of recipes from other countries?*" (PD).

For PF, these obstacles not only prevented the adoption of SMPs, but also forced managers to revert to their previous unsustainable ways. Furthermore, new practices aside, managers explained that they had to constantly find solutions for everyday foodservice problems, reducing their time to spend on developing sustainability projects.

Implementation process. Although managers saw employee involvement as a facilitator in SMP adoption, there were discrepancies in perceived employee openness to change. In some foodservices, employees were described as being collaborative and proactive, while others experienced frequent resistance. A few foodservices noted the presence of both open-minded and close-minded employees. Resistance could also vary with the type of change anticipated; if workload increased, managers perceived that reluctance also increased: "*Cooking with an organic can of tomatoes, […] if the product is acceptable in the end, I don't think it changes anything for the cooks. So, I see less of a resistance to change. But if we ask them to compost, well now at this point, not everyone will climb aboard."* (PH). However, participants recognized that resistance to change was normal in any foodservice, and time could eventually help cooperation.

Outer context. Healthcare institution foodservices in Quebec recently underwent institution-wide menu harmonization, in which the government required managers to follow strict nutritional guidelines in their menus for long-term care centers. Participants described this requirement as problematic, notably in relation to not meeting the needs and preferences of patients (PB). There were also negative perceptions in regards to the government's agenda. PB explained that

ministry departments often work in silos, while PA critiqued new policies such as the bio-food policy for not being tied to specific guidelines or programs to support managers.

Foodservice managers also perceived some norms imposed by the Ministry of Health and Social Services as a barrier to adopting SMPs. For instance, purchasing regulations compelled managers to sign contracts that meet certain purchasing cost thresholds and respect them for the duration of the contract. They were also required to make purchasing decisions based on the lowest cost per patient meal per day. "*The goal is that it always costs less, and not that it is a local food. For example, before we would use regional jam. But as the goal was that it costs less, we changed brand, and now we don't use local jam anymore*." (PY).

Managers also described other purchasing regulations as a barrier to SMP adoption. For instance, they explained that they did not have a lot of flexibility regarding purchasing decisions, especially when it came to local food. "*Procurement rules that can also be a barrier, as it is not legal to put a preference on origin. You cannot discriminate to only have a product from Quebec*." (PO).

Another perceived challenge for managers was the social barrier. Some participants believed that society is ready for change, while others believed the opposite. "*Are people ready for us to put more money into this, as a society? I don't know*." (PO). There was also the perception that in healthcare institutions, being conscious about the unsustainability of the current food system was not enough to render a change in habits. "*We receive bananas in huge quantities here. But are we ready to make sacrifices and say, we won't eat anymore bananas? […] We are stuck in our North American lifestyle that has access to everything*." (PZ).

Participants also noted a perceived generational difference in reception to change. Younger patients were perceived to be more willing to try different foods, as they usually were more exposed to sustainable practices. Older populations in hospitals and in long-term care centers were perceived as more resistant to new practices that could alter their food choices. "*It can be a question of culture, of age. People are not used to consuming legumes in their youth […] so they*

don't recognize themselves in these meals." (PC). Foodservice managers stated that they also had to respond to patient mores and preferences, which could be a barrier to SMP adoption.

Only a few managers discussed the socioeconomic conditions in which they had to navigate on a daily basis as a barrier to SMP adoption. Shortage of staff with the necessary skills for the job was a common area of complaint, which was exacerbated when there was a need for greater skills with certain SMPs. In addition to this, one manager described having to rationalize how much they spend on sustainability, while managing constant budget cuts: "*How would we justify this in the media, that we must cut 9 million, or I believe it's 22 this year, like how would we explain buying organic food?*" (PL).

Participants also mentioned barriers relating to the agri-food system. For instance, small-scale local suppliers were often unable to enter the tenders for healthcare institutions' foodservices, as they could not match the prices offered by larger enterprises and could not supply enough food on their own to fill large or diverse contract requirements. Moreover, PB expressed concern over perceived supplier intent in terms of food offering: "*We don't necessarily have the same goals you know? So, I don't know, will the suppliers really get on board with this?*" (PB).

A few participants also mentioned the lack of available information on foods within their purchasing contracts with suppliers, as well as perceived supplier inability to include this information when the participants asked for it as barriers to adopting SMPs. For instance, there were many mentions of traceability difficulties: when suppliers did not divulge the origin of their meats (PB, PO), and whether or not their vegetables were from local sources (PA).

Managerial Needs

Table 4 presents key quotes from participants that describe their perceived needs to adopt and implement SMPs in their foodservices. Foodservice managers highlighted four areas of engagement found in most of Greenhalgh et al.'s (2004) determinants of the adoption of innovations[34]. First, emerging from anticipating that SMPs require money, time and energy, managers expressed the need for additional input of resources. Second, proper organizational

dissemination of proposed changes was needed. Third, managers needed all stakeholders to acknowledge the role they play in the food system. Finally, enhanced support from various actors, especially governmental support, was required for effective SMP adoption.

[Insert Table 4 here]

DISCUSSION

The objective of this study was to analyze the feasibility of adopting and implementing SMPs in healthcare institutions' foodservices by exploring perceived barriers, facilitators, and foodservice manager needs regarding SMPs. Two key points can be taken away from this study. First, among the many challenges of SMP implementation, inadequate support was perceived as the most prominent barrier for foodservice managers. Second, continued collaboration between all food system actors was perceived as an important need to allow better SMP adoption in foodservices.

Lack of support is a major barrier

Findings suggest that when foodservice managers did not have adequate support from their administration, they were less likely to innovate. Having a flexible administration had been previously shown as helpful to implementing SMPs[23,26,27]. A possible reason for limited support was the perceived higher cost of these practices. Directors were held accountable to their budgets[26], and if they were convinced that SMPs would incur additional spending, they could have been less open. Many participants believed that SMPs would require an input of financial resources. If funding is not available for new projects, implementation of innovations is less likely to occur, as explained by Greenhalgh et al.[34]. Although debated, adopting SMPs could actually help organizations save money[12], or at least not incur additional costs, as the range of SMPs (those that are more costly versus those that are less costly) would offset each other[23,26,27]. Along with lack of financial resources, managers believed that they did not have enough time, energy, and infrastructure to commit to sustainability changes, which are factors in Greenhalgh et al.'s "organizational readiness for innovation" determinant that make managers less likely to adopt SMPs[34].

Findings also suggest that SMPs were perceived as complex, and that managers believed they lacked proper knowledge on SMPs. In line with Greenhalgh et al.'s framework[34], practices that

are perceived to be complex by the adopter are less likely to be adopted. Many participants suggested that gradual SMP implementation in foodservices could help test and assess feasibility. Implementing them gradually into existing processes could also help adhesion[13,23]. Findings from this study show that support from sustainability committees and programs could increase managers' likelihood of adopting SMPs, which was similarly discussed in the literature[23,27,28,34,42]. Providing educational support on SMPs could help managers overcome SMPs' perceived complexity, and may debunk misperceptions, eliminating some barriers for managers[12].

Foodservice managers reported having attempted to implement SMPs, primarily with small-scale, modest and short-term efforts, often without having a significant and durable impact. Despite the presence of some facilitators, the above-mentioned barriers could partly explain why foodservices were still at this experimental stage. It is thus necessary to scale out[43] through a promising sequence of actions to adopt more SMPs: first, tackle those that allow for cost savings, such as waste reduction, then those that improve existing actions. Only then should new practices be introduced. Note that this is the precise strategy behind Nourish's Guide to Sustainable Menus, aiming to disseminate knowledge to increase SMP implementation through a step-by-step approach, to achieve a gradual but sustained impact.

Lack of social support was also seen as a barrier to SMP adoption. Although research suggests that social acceptance could help the change process,[23,27] findings showed a discrepancy in perceptions of support from society. Foodservice managers had to adapt to a large variety of clientele preferences, which could inhibit their acceptance to changes that may impact their food choices, similarly to other studies[24]. Research suggests that increasing food literacy on sustainability and explaining why foodservices are taking actions is important for social acceptance[13,39].

Managers in this study also found that governmental support was insufficient, and their sustainability agenda did not have enough concrete actions for healthcare foodservices. For instance, purchasing contracts regulations based on international trade agreements prevented managers from choosing a supplier based on food locality, unless it was of equal or lesser cost

than another supplier[40] (although including other criteria such as protein content could result in local suppliers winning bids). This regulatory barrier to local food procurement was similarly found in a study from Ontario (Canada)[26]. Other perceived governmental barriers to local and sustainable food included demanding lowest cost per patient meal per day, foodservice budget cuts, and constant reorganizations. Another study from Ontario found comparable results, in which healthcare requirements, foodservice regulations, and organizational structure were all challenges for managers to implement nutrition-related changes[13]. Moreover, the Quebec government promotes policies to encourage the offering of healthy, local, organic food to consumers, such as the bio-food policy from the Ministry of Agriculture, Fisheries and Food, without giving any specific guidelines for foodservices[19]. Policies merging food procurement rules and the bio-food policy could help push towards accelerating the adoption of SMPs[41] to help develop a more sustainable food system. It is thus paramount to "scale up" by impacting policy and legislation,[43] in addition to "scaling out" more SMPs across facilities, with advocacy for the adaptation of institutional regulations to ensure embedded, sustained change[41].

Continued collaboration is necessary

Although SMPs are aimed at foodservices, managers explained that all departments of healthcare institutions could be affected by these changes. Managers described how lack of organization-wide approval could negatively affect adhesion to SMPs, such that thorough communication and involvement in decision-making processes was vital. Greenhalgh et al. describe this as a "receptive context" for change in the organizational antecedents for innovation determinant[34]. Other studies have also found that developing sound relationships within the healthcare organization was necessary for sustained change[13,23]. Foodservice managers in both this study and in the literature believed that healthcare institutions should be leaders to drive sustainable changes, given their role in community healing[9,14]. Furthermore, managers perceived collaboration between all healthcare institutions in Quebec as key to overcoming multiple barriers, with experience sharing as instrumental to learn from each other[23,27]. However, findings from our study showed that there were no proper systems in place to help ensure that practices were shared, resulting in the loss of what could have been an important support system[27,42]. SMP adoption could potentially be more viable with a proper social network structure, in line with Greenhalgh et al.'s outer context determinant[34].

Collaboration from the foodservice staff also seemed important to facilitate SMP adoption[27], although findings illustrated varied perceptions on employee openness to change. A challenge depicted by a few foodservice managers was the fact that the healthcare system is constantly undergoing major changes, which contributed to employee exhaustion. Educating staff and providing training could help their motivation and adhesion to SMPs, as discussed in many other studies[13,23-25]. Participants also noted that employee involvement in sustainability decisions was important for their cooperation: they were more likely to support SMPs if they felt their contribution was valued[13].

Finally, working with food suppliers was perceived as necessary for managers to have more sustainable choices offered to them. Although they have some flexibility, foodservice managers were mostly bound to the contracts they sign with suppliers[40]. Managers also described issues relating to traceability of suppliers' food. Other studies had similar findings, in which local food procurement was challenging due to unclear databases and tracking information[28,41]. As the food served to users relies on the supplier, the ability to change food in healthcare depends on many actors beyond those in foodservices, with suppliers having an important role in implementation of SMPs[10]. If foodservices leverage their purchasing power, this may help encourage supplier commitment to sustainable practices, as discussed by participants and in other studies[11,41].

These findings show the need to develop and deepen partnerships to achieve greater food system impact. It has been estimated that approximately 70% of innovations (such as SMPs) do not pass the stage of implementation (Balogun & Hope Hailey, 2004). It is thus important for foodservices to receive proper help, as support for innovations in complex healthcare organizations has been recognized as a condition of success for implementation (Landry et al., 2007). The implementation of SMPs needs a process of change in which all stakeholders play a key role in accompanying foodservices for effective implementation (Balogun & Hope Hailey, 2004). Although participants mentioned that collaboration on sustainability was not a widespread practice, they believed that certain groups of people were increasingly supporting sustainability changes. For instance, findings from the member-checking interviews revealed greater organizational interest in sustainable development a promising avenue to work with. "Scaling deep" requires a desire to work differently, by recognizing the social value of SMPs, and the

need for people to change as individuals in order for social changes to happen[43]. It is thus necessary to invest in opportunities for learning, experimentation and exchange in order to create opportunities for taking inspiration from one another and change relationships, cultural values and beliefs.

Study limitations

Although this qualitative study can provide valuable information from specific contexts, it is not representative of all healthcare institutions' foodservices in Quebec[35]. In addition, selection bias may occur from opting for information-rich cases in purposeful sampling[44]. Furthermore, a social desirability bias may manifest itself if participants were attracted by the topic of food sustainability, or if they were interested in the Nourish project, which could potentially influence results[45]. Moreover, although eight participants concurred with study interpretations, not all participants took part in the member-checking interview, which makes it impossible to know if they all would have agreed on study interpretations. Finally, the use of Greenhalgh et al.'s framework[34] was useful to structure data collection and analyses, however we found some areas in which the theory was not suitable for the data (political and social contexts). Other themes from a conceptual framework[46] were thus included to complete data analyses.

CONCLUSION

To summarize, study findings showed that the adoption of SMPs in healthcare institutions is complex and riddled with challenges, hindering sustainability changes in foodservices. There is no simple way to facilitate the implementation of SMPs. However, in light of these results, it is essential to provide managers with more support, collaboration and assistance to help them implement more SMPs. Scaling out to impact multiple foodservice facilities, scaling up to impact policy and scaling deep to impact social values and beliefs are all required in order to accelerate the process of SMP adoption. This research thus contributes to our understanding of managerial perceptions on the applicability of SMPs in healthcare institutions' foodservices, with the added contextual factors of the Quebec healthcare system. Further research should probe perceptions on the feasibility of SMPs from numerous points of view such as from food suppliers, foodservice users, staff, patients, and the government.

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Table 4. Key quotes in describing managerial needs in SMP adoption and implementation

Managerial Needs	Key Quotes
Input of Resources	
Financial resources	"*I'm convinced that we need a greater budget [for SMPs]*" (PH)
Human resources	*"If we had resources, for sure it would be helpful. […] It could even be a case manager in foodservices, that coordinates this sustainability project*." (PJ)
Increased communication	
Properly disseminating changes	"*If we communicate in advance, people have the time to prepare. From there, we alleviate the change. When it's a last-minute change, or brought about in an unstructured way, adhesion is less present*." (PJ)
Promoting reality	"*In our foodservices, we deal with backorders on a regular basis. […] We have to ensure that if we promote something, the information given is correct at all times*." (PD)
Strengthened collaboration	
Working as a team	"*For sustainable measures, we would need everyone. There are no small people, or big ones; everyone has work to do, a little bit like a beehive or an anthill. Everyone is important*." (PL) "*In the healthcare system, if we were able to harmonize together and unify, we would have weight*." (PJ)
Sharing experience between foodservice managers	"*Using the good practices from elsewhere, you know it's really facilitating when someone has a good practice. They should share it*." (PN)
Involving all departments of the healthcare institution	"*We must think about all the people that will be touched by these projects. We have to involve them from the start. […] What would it take for these projects to be viable is by getting all the actors involved.*" (PZ).
Engaging with suppliers	"*We really need suppliers to engage with us. Because if not, even if I have the resources, I'm not necessarily more advantaged if the people with whom I purchase my food aren't engaged*." (PH)
Tackling industry listings	"*When we ask for larger containers [of supplements] in Tetra Pak, greener, not in plastic, well we're not really listened to. So, there has to be a political pressure put on these producers*." (PG)
Partnering with municipal services	"*There's also a partnership with the city [to be made]. Because if the city doesn't come to pick up what we recycle and what we compost, then in the end, it's useless*." (PK)
Enhanced support	
Political will and action	"*We need […] mandatory policies, unfortunately. If there is no adversity, humans have no innovation.*

	We need adversity, we need regulation." (PZ)
Prioritization of education	"*When good teaching is done and people understand why we are doing it, the reasons, the impact*." (PC)
Providing tools for managers	"*As a nutritionist, I need to do trainings, but as a manager, well there aren't that many trainings that affect me. But if you can create trainings, you know if that's what motivates us, and we come out wanting to change things*." (PI)
Influencer contributions	"*To bring people to change […], it doesn't take intelligent people, it takes people with imagination*." (PL) "*Known images sometimes help. To have a spokesperson that is convinced and convincing*." (PI)
Involvement of project developers	"*There is the group Nourish that will come out with recommendations soon. I think that they will become a pillar also in food sustainability*." (PY)
Necessity of research	"*We need evidence. For sure a study like this one can be evidence. […] For me, participating in this, it can totally be a lever after that for projects*." (PZ)

Table 5. Conceptual framework components and referred interview questions

Framework components[1]	Description[1,2]	Referred interview questions
Attributes of the innovation	Perceived attributes to the innovation that help to explain variability in adoption.	What are your perceptions of adopting SMPs in foodservices?
Organizational antecedents for innovation	General features of the organization that make it more or less likely to be innovative.	In a few sentences, can you describe your foodservice? What knowledge do you have of food sustainability in healthcare? Referring to the context of your organization, can you describe the receptiveness to change? If you were to adopt SMPs in your foodservice, what systems are in place and which resources would be available for new projects?
Organizational readiness for innovation	Readiness and/or willingness of the organization to adopt an innovation.	What is the goal of adopting SMPs, in your opinion? How is the adoption of SMPs compatible or not with the values, objectives, and strategies of your foodservice? How is the adoption of SMPs compatible or not with the ways of working in your foodservice? What actions would you be ready to take to incorporate more SMPs, according to the available opportunities in your context? Referring to the past, what support or opposition do you anticipate in the adoption of SMPs?
Adoption process	Influential aspects of adopters and the adoption process.	What are your roles and responsibilities in your organization? In terms of feeding your clientele, what is the decision-making process in your organization? How important is the adoption of SMPs in your foodservice to you? What motivations would entice you to implement SMPs in your foodservice? In your opinion, what consists of successful SMP adoption?
Processes of assimilation	The unit of adoption as the organization, moving back and forth between initiation, development, and implementation, punctuated by shocks, setbacks, and surprises.	What prior experience do you have with SMPs? In order for foodservice employees to adhere to SMPs, what factors do you think are necessary? If you have already implement SMPs in your foodservice, how was it organized?
Implementation process	Specific steps taken to put a decision into practice,	In your opinion, what are the barriers to implementing SMPs? In your opinion, what are the facilitators to implementing SMPs?

	and the early usage activities that follow.	
Communication & influence, diffusion & dissemination	Means of spreading the innovation through various social networks.	Do you believe that you have any support from the community of foodservice managers? Who can act as influencers in the adoption of SMPs? How important is it to you to communicate changes relating to SMPs? How could you promote SMPs in formal and informal ways, and what would you need in order to do so? What are the roles of different actors in the promotion of SMPs?
Outer context	External influences on the organization's decision to adopt an innovation.	What factors in the organization's external environment can influence SMP adoption?
Linkage between developers and users	Connections that facilitate movement of the innovation from the resource system to the user system.	What resources would you need in order to foster the adoption of SMPs?

Table 6. Institutional Information and Foodservice Characteristics for 17 Foodservice Managers in Quebec Healthcare Institutions

Information and Characteristics	Number of participants
Years of experience	
<5	3
5 to 15	7
>15	7
Education	
B.Sc. Dietetics	11
Diet tech.	4
Culinary + cont. studies	2
Position	
Foodservice coordinator	2
Head of foodservices	11
Head of sector, foodservices	3
Assistant to head of foodservices	1
Type of facility	
CH-only	3
CHSLD-only	3
Two or more types	11
Type of region	
Urban	10
Rural	3
Both	4
Production & distribution mode	
Hot	7
Cold	3
Both	7
Food outsourcing	
Complete	1
Partial	2
None declared	14

APPENDIX I


SUSTAINABLE MENU PRACTICES
HEALTH
• Adjust to the specific **needs** of the clientele served.
• Limit **ultra-processed** foods.
• Serve animal products raised without non-therapeutic **antibiotics**.
• Choose plant protein foods often.
SOCIAL VALUES
• Offer recipes from **varied cultural backgrounds**, of the clientele.
• Commit to learning the cultural importance of food for the **indigenous** community.
• Favour **homemade recipes** for enriched products.
• Commit to **promoting** your sustainable menu for educational purposes.
• Offer **fair-trade** products when possible.
QUALITY
• Serve **fresh** and **appetizing** food.
• Offer **appreciated recipes** from taste panels.
• Offer **seasonal,** and preferably **local,** fruits and vegetables.
• Offer food with the least amount of **additives** and **preservatives**.
ENVIRONMENT
• Offer seafood & fish caught from **sustainable fishing or farming**.
• Reduce the purchase of **processed** foods.
• Serve **certified or verifiable sustainably** produced foods.
• Contribute to the protection of biodiversity by increasing **variety**.
• Reduce red meat and increase protein with the least environmental **impact** (ex. legumes, soy, insects, chicken, nuts, seeds).
• Cut food **waste** by re-using leftovers and adjusting portion sizes.
• Reduce the use of products supplied in **single-use or non-recyclable** packaging.
• Offer **water** as the primary beverage.
• **Compost** and **recycle** waste.
GOVERNANCE
• Engage with all food system stakeholders and recognize their role (ex. users, employees, purchasing groups).
• Make **evidence-based decisions**.
ECONOMY
• Manage an **efficient** foodservice that contributes to **local economy**.
Resource created on June 5th, 2018 (revision May 21st, 2019) by Béatrice Dagenais, DtP, MSc (cand.) & revised by Annie Marquez, DtP.
Reference: Lang, T. et Mason, P. (2017). Sustainable Diets. Devon, UK: Taylor & Francis Group.

APPENDIX II (SUPPLEMENTARY DATA)

Table 7. Supplementary Quotes from Facilitators and Barriers to SMP Adoption

FACILITATORS	
Attributes of sustainable menu practices	**On visibility of benefits:** "*Today we have less and less red meat. I think there is an environmental impact.*" (PL) **On gradual implementation:** *"Our role is to establish annual objectives to improve our practices every year, and to prioritize based on what we are able to do. We must be realistic, small steps every year will make sure that we will have more and more sustainable menu practices.*" (PI) **On relative advantage:** "*The city of [name of a city] in the last year has put into place compost on their territory. So there are probably a lot of people in our personnel that have started composting at home. So setting up composting in their workplace, well it will not necessarily be a huge change*." (PJ) **On testability:** "*Residents love corn on the cob. It's not something we have on the menu, but we do it as part of our thematic activities. So we work with the leisure [department]*." (PA)
Organizational antecedents for innovation	**On food outsourcing:** "*For sure if I weren't outsourcing, I could have more than this. The fact that I have to purchase lower grade meals really limits us*." (PN)
Organizational readiness for innovation	**On healthcare's responsibility:** "*From the point of view of healthcare services, we have a social responsibility, […] we are the healthcare network, we should be promoting that.*" (PY)
Implementation process	**On directorial support:** "*I can't do this alone in my corner. You know, our directors must decide to go forward and give us the means to realize it*." (PA) / "*Having openness at the level of the directors, it really helps us to advance in these projects.*" (PI) **On champion leaders:** "*A few years ago, there was a recycling project. We had a very motivated person in our team, and she was able to sustain the interest of all her colleagues. So, for sure the receptiveness to change, well it was very good because this employee had really been contagious with the others*." (PD)
Outer context	**On society readiness:** "*People ask more and more for sustainable initiatives. That's what we feel. Youth centers, I feel it a lot more than in long-term care centers with older populations, that come from another time. But yes, youth is more conscious to this, it's part of their learning. So it's not necessarily that much of a big change for them*." (PJ) **On trendiness:** "*Social media currently discusses this. I would say it's trendy to talk about sustainable development. Not only sustainable menu practices*." (PY)
BARRIERS	
Attributes of sustainable menu practices	**On perceived cost:** *"There will be financial impacts if we add more local unprocessed products. It means that I have to hire people to process it. And that costs more too."* (PE)
Organizational antecedents for innovation	**On organizational structure:** "*Since we have become an Integrated University Health and Social Services Network, I can say that the values have changed. We have become so large that we are not just [name of a facility] with our own values and own rules*." (PF)

	On clientele needs: "*At the youth level, I must say that our objective is that the clientele eats. To respect the policy, but we are very liberal at the level of youth centers, since it's kind of like their living environment*." (PJ)
Organizational readiness for innovation	**On prioritization:** "*It isn't all the spheres of sustainable development that are equally a priority right now. But I think that's normal because there are so many right now that we don't have time to prioritize them*." (PO) **On lack of time:** "*We try, but it cannot be our priority because we have so much to do daily so that it runs properly*." (PN) **On lack of human resources:** "*If I talk about offering fresh food, sometimes we will prefer for example a vegetable that will be frozen and already cut because we don't have the human resources to peel and cut it*." (PD)
Processes of assimilation	**On trade-offs:** "*Our harmonized menu had nice legume-based meals. But people were not eating them. So there's no point in having something in the menu to finally create food waste.* " (PZ)
Implementation process	**On employee involvement:** "*There are workers very open to this. There are others who are more reluctant. So, it's a little normal. We're used to having these reluctant people for each small change*." (PF)
Outer context	**On food procurement contracts:** "*We sign contracts with the group purchasing organization. So for sure that restrains us, we can't go buy anywhere what we need*." (PB) / "*Sometimes we would want to encourage a little more local. But we are compelled to respect contracts*." (PC) **On society readiness:** "*There is all this notion of, is the clientele ready to eat a lot of legumes, tofu, whole grains, things less processed? Not really. Because you know, if I tell a 90 year-old, well now today, you will only eat brown bread. He's going to look at me and tell me "Hey man, I've eaten white bread my whole life, and it's not you that's going to make me start eating brown bread." So, there's the whole environment versus quality aspect, and what people want to eat.*" (PZ) **On patient mores:** "*We have a large territory. So from one extremity to the other[…] I have a little more ethnicity here, while at [name of a city], they don't have any at all. Sometimes, that makes some variation in people's preferences too. So it's a little bit complex*." (PB) **On generational differences:** *"We try to integrate legumes in long-term centers, and it is very difficult […]Putting it regularly on the menu, it does not work. I have some residents who are more autonomous, a little younger, who tell me "you and your seeds there, we're getting irritated." So it's really difficult."* (PE) **On budget cuts:** "*There was a time when there was openness: there were pastry chefs, there were bakers, there was all that in institutional kitchens, but now we cut. So now everything arrives packaged, and we don't really process it anymore. We just assemble the food. So like it or not, the ecological impact is there*." (PZ) **On public perception:** "*The perception of the public and employee unions, like sometimes it's how can they do this and inject money into this, while we are always in [budget] cuts? I think that can be a barrier*." (PY) **On socioeconomic conditions:** "*Since the unemployment rate is very low, people have more possibilities. So I would say that finding manpower is a little difficult*." (PB) **On the agro-food system:** "*We had some potato producers, I would want that the potatoes come from here, and they are not able to provide for the area. That's our problem right now. We don't have any farmers that are apt to, even by combining multiple farmers, well we don't have a lot that produce potatoes."* (PY)

APPENDIX III (SUPPLEMENTARY DATA)

Table 8. Supplementary Quotes from Managerial Needs in SMP Adoption

MANAGERIAL NEEDS	
Improved resources	**On financial resources:** "*I'm telling you to buy local, but I'm not giving you any budget. How do you want me to do this? I have to feed these people. So if I have the choice to buy tomatoes in a crate that comes from […], the United States or whatever, and I have the choice of buying local tomatoes, and I know that the price is really not the same. Well at some point, you aren't giving me any choice*." (PB) **On human resources:** "*We need one person, some resource person to refer to, […] let's say one person per region that was trained, […] to be like a small vector for others*." (PY)
Increased communication	**On dissemination:** "*We have a communication service. So certainly at this point, I would work with them. Because we cannot hide this, but by deciding to really move forward with sustainable practices, at some point, we are shining light on our service, so it's interesting*." (PG) **On promoting reality:** "*We must be careful in our era of social media and the beautification of reality sometimes. I think the tendency should be a lot more humility right now.* (PZ)
Strengthened collaboration	**On teamwork:** "*Sometimes to tackle certain projects, we don't have a choice to work as a team*." (PI) / "*Individually, I don't see that we can change things. You know, we have to be more to succeed*." (PB) **On experience sharing:** "*Questioning what we are currently doing. When we start doing that, we are taking steps forward*." (PL) **On departmental involvement:** "*To have the support from other departments, because even if I recycle organic waste, well if they are thrown out in the end in the garbage, nothing comes of it. It's having the support from sanitation in our advances*." (PI) **On suppliers:** "*There is a long way to go with our suppliers. But for sure when there will be the demand, and they wont have the choice too, they must adapt themselves. But if no one does it for them, they wont start it.*" (PA) **On intermediaries:** "*The MAPAQ helped berry producers to finance the purchase of freezers. Because we couldn't keep blueberries that were supposed to be for the whole year in our freezers.*" (PI) **On the supplements industry:** "*Nutritional supplements, we only give half of a nutritional supplement per meal, because people don't consume them. So all little bottles that we open and must portion. Except we have a lot of difficulty to have it in bulk, either in one liters or even in two liters*." (PE) **On municipal services:** "*We try to do recycling at the level of canning, there is composting in certain sites too, depending on if the municipality will pick it up or not*." (PI)
Enhanced support	**On political will:** "*To have laws that will obligate us […] because sometimes it's difficult to explain higher cost for certain things. But if it's a demand, you know we can still do it.*" (PI) / "*I think the ministries, it must start from there. We really need a policy like the food policy. […] It was a good strategy.*" (PG)

On education: "*Food, it's bringing people to change their paradigms. What's the longest to change […] is to bring people to think like that. Thinking sustainable development is to project oneself into the future and say what planet are we leaving our children.*" (PL)
On influencers: "*I think that us, as foodservice coordinators, it's also our roles to influence*." (PK)
On developers: "*There is the committee […], the project of food procurement. You see, we are many healthcare centers that are collaborating with that. So I tell myself that that could be a lever*." (PE)
On research: "*We need people like you that do research. And that will present us things, and we will say, oh finally a study that says this, with facts*." (PL)

5.2 Complementary Results

This section aims to present study findings that were not detailed in the article. To begin, results from the first research objective, *Examine managerial and organizational motivations to adopt SMPs,* are discussed. This is followed by a description of the research methods process using the theoretical framework.

5.2.1 Motivations to adopt SMPs

Foodservice managers may be motivated to adopt SMPs through a number of factors. These motivators were found in three components of the innovation-diffusion process[34]: organizational antecedents for innovation, the adoption process, and linkage between developers and users.

Organizational antecedents for innovation. Foodservice managers did not perceive the healthcare organization as innovative, as little had been done in the past few years towards food sustainability. Some managers alluded to occasional but inconsistent organizational openness. "*I know that at the education level, we do a lot […] in schools. But at the level of the healthcare network, I don't feel like we do*." (PA).

Foodservice managers described the healthcare system in Quebec as always changing, with constant re-structuring and budget cuts. Although foodservices eventually get accustomed to these incessant changes, team exhaustion was a consequence. "*Already in the healthcare system organization, changes in the last three years, it stirs up people. I think already we have a lot of teams that are exhausted*." (PY). Conversely, one participant mentioned that re-structuring could actually be an ideal time to implement changes, as it is one amidst many. "*I think that the more you do changes, the more people are open to: Alright […] well it's changing again, let's do it*." (PB).

Participants depicted themselves as capable of adapting their menus to their clientele. For instance, managers said that they listened to patient preferences and needs. "*When we talk about food sustainability, we really need to have things that correspond to our clientele's*

needs. That they enjoy it, and often we say in long-term care centers, every bite counts. So every bite must be nutritious because we know the portions are not that big." (PE).

Three other managers described being conscious about their need to change, and searched for new training and conferences to learn about food sustainability. However, managers mentioned that applying this knowledge in their foodservices was difficult. "*What are my values, what's important to me is one thing. What I can do as a head of foodservices at the [name of institution] is another thing*." (PZ) and "*Personally at home, I buy local as much as possible. But it isn't the reality here*." (PB).

While discussing SMPs during the interviews, a few foodservice managers realized that they do more than they thought in terms of SMP implementation. As each interview progressed, managers often described SMPs that they had implemented, without originally perceiving them being SMPs. For instance, one manager explained in the beginning of the interview that he did not participate in any SMPs, however later reflected on his efforts to offer homemade meals to patients and taking steps towards composting and recycling (PF).

Adoption process. The majority of foodservice managers declared that SMPs followed their personal values. They also noted that motivators were crucial to push them to adopt SMPs, such as having a sustainability-driven team and external assistance. The four most frequently mentioned motivations to adopt SMPs were: foodservice pride, clientele satisfaction and needs, environmental protection, and local/community pride.

When questioned on what were the objectives of adopting SMPs, managers had similar responses as their motivations. In fact, the most common objectives were to increase clientele satisfaction, reduce environmental impact, and offer fresh, quality and healthy foods to their users. One manager gave ideas on how these three objectives could be fulfilled, through projects focusing on quality of life: "*There could be practices that could bring a certain humanity to food. It could be [….] volunteers or family with their loved ones, with patients picking raspberries, in a gazebo under shade with a place to wash the raspberries and to sit as a family and eat raspberries and remember their childhood eating raspberries.*" (PZ).

Linkage between developers and users. Foodservice managers perceived resource developers as having a crucial role to increase their motivation towards SMP adoption. Organizations such as Nourish that aim to improve quality of care through food, as well as governmental programs were discussed as helpful to foodservices to adopt SMPs. Furthermore, universities were regarded as important and useful resources to develop up-to-date evidence on sustainability: "*We need people like you to do research. And that will present us things, and we will say finally we have a study that says this, facts. […] And with your study, one day when I will have the chance to have it between my hands, it will help me enormously*." (PL).

Managers also perceived that agents of change were important to effectively implement SMPs. For example, a resource person responsible for all sustainable development projects in the healthcare organization could be a great motivator. Participants also mentioned the need for tools such as informative documents, guidelines, as well as training in food sustainability. "*Tomorrow morning, I don't see myself doing a sustainable menu change without having a guide, guidelines, someone to refer to, concrete training. Not just what is food sustainability, but concretely, how to do it*." (PY).

5.2.2 Matching data analysis with the Diffusion of Innovations

The Diffusion of Innovations simplified theory was originally used to generate the research objectives, by grouping Greenhalgh et al.'s (2004) major determinants in innovation-diffusion with the three objectives. Upon data analysis, these pairings were minimally altered, from the acceptance of emergent codes in the study (Hsieh & Shannon, 2005). The original conceptual map was revised with this emerging data to generate Figure 2, with the dark red bubbles illustrating changes to the map.

Figure 2. Revised determinants of the innovation-diffusion process combined with research objectives

It was originally believed that the motivations objective would have results from the *attributes of the innovation*, however this was not the case. This objective rather generated results from the *linkage between developers and users*. *Attributes of the innovation* were rather found in the barriers and facilitators objective. Finally, the *outer context* became an emerging theme in the objective of managerial needs to adopt SMPs.

Chapter 6 – Discussion

The main objective of this study was to analyze the feasibility of adopting sustainable menu practices in healthcare foodservices in Quebec, by exploring foodservice manager motivations, perceived barriers and facilitators, as well as their expressed needs to adopt SMPs. This chapter presents a synthesis of main study results into three distinct themes. Strengths and limitations of this study are also proposed, followed by its practical implications. Finally, future directions for research are offered to sum up the chapter.

6.1 Prominent results and importance

Three key points can be taken away from the results of this study. First, although foodservice managers have great interest in SMPs, as shown with all participants having experimented with at least one SMP, the absence of organization-wide interest and lack of necessary knowledge prevented them from consistently implementing these practices. Second, inadequate managerial support was a major challenge for foodservice managers in the adoption and implementation of SMPs. Third, persistent collaboration between all food system actors was perceived as a need to ensure long-term food sustainability. Additionally, member-checking interview findings showed that study interpretations concurred with participants' perceptions, with a few minor contextual differences (see appendix VIII). These findings are further explored in the next sections.

6.1.1 Managerial interest is not sufficient for sustainable action

Motivations to adopt SMPs were discussed in this study, however less so than the other study themes. Foodservice managers showed motivation for food sustainability, however, their interest was not sufficient to move into action.

Study findings show that foodservice managers were particularly interested in food sustainability, attributable to the fact that SMPs fit with their personal values. SMPs were seen as highly important to ensure the provision of quality food to maintain population health and environmental stability. The large majority of the participants were dietitians or diet technicians, which could help explain their concern for the health, environment and quality

dimensions of food sustainability. Other studies have shown similar motivations to adopt certain SMPs in healthcare institutions (Conner et al., 2014; Heiss et al., 2015; Vogt & Kaiser, 2008). For instance, a USA study described how the dimensions of health, quality and social values were important for foodservice managers in local food procurement in healthcare institutions (Conner et al., 2014).

Nonetheless, the enthusiasm expressed by participants did not translate to many concrete sustainable actions. Many SMPs were attempted at a small scale, such as testing out the purchase of one local product in one foodservice. Serving fresh, appetizing and appreciated meals that met the clientele's needs were SMPs that foodservice managers accomplished daily. Some tested practices did not always successfully routinize in the long run, with the recurring example of replacing animal protein with plant protein in the menus. Other practices, such as composting and recycling were tried in only a few facilities. This finding was anticipated, as food sustainability is complex, can be influenced by various factors, and when coupled with the absence of clear definitions and guidelines, can contribute to managers feeling unengaged towards SMPs (Alarcon & Gerritsen, 2014; Hannon & Callaghan, 2011). Paramount to note is the differences between the feasibility of SMPs on a personal level, as compared to its feasibility on a work level. Adherence to food sustainability at home did not necessarily lead to sustainable practices in the workplace. This shows that there is a gap between being convinced by the benefits of SMPs, and what managers believe they can actually accomplish in their foodservices. Researchers in Ontario also identified a similar finding when comparing belief scores with behaviour scores on environmentally friendly practices in healthcare foodservices, in which respondents had lower scores for behaviours than for beliefs (Wilson & Garcia, 2011a).

Findings also show that managers lacked knowledge on SMPs and an understanding on how to effectively implement them in foodservices. The fact that participants realized during the interviews their foodservices were more sustainable than they thought concurs with this outcome. Raison & Scheer (2015) reported similar findings, in which managers had insufficient knowledge on local food procurement to be able to implement this practice in their foodservices. However, a few participants mentioned searching for training or information on

food sustainability to gain foodservice-specific knowledge. A study conducted with members of Dietitians of Canada found that dietitians believed it was necessary for their profession to learn more about food sustainability (Carlsson et al., 2019). It would thus be important to understand why there is a discrepancy between high interest in learning about food sustainability, and low interest in training. Perhaps a lack of time to dedicate to functions other than managerial daily tasks was a barrier to participating in knowledge-gaining activities. Nonetheless, increasing managerial literacy on SMPs and developing training on food sustainability could increase motivation, as managers would possibly feel equipped to implement SMPs (Hannon & Callaghan, 2011).

That being said, managers claimed that the lack of motivation from the healthcare organization was among their reasons for inaction. Although SMPs fit with their mission and role in health and healing (Gray et al., 2017), healthcare organizations in Quebec were not perceived as innovative towards sustainability. Studies have reported similar results, in which scarce "innovative culture" and insufficient administrative concern for green practices were barriers to sustainable action (Dauner et al., 2011; Wilson & Garcia, 2011b). Despite the fact that healthcare organizations are viewed as having a social responsibility to the community in exemplifying healthy and sustainable manners in both this study and in the literature (Harvie, Mikkelsen, & Shak, 2009; Klein et al., 2014; Ranke et al., 2014), these practices were not seen as a prime concern for administration. An interesting conundrum is the idea that food sustainability fits with managerial values and fits with organizational mission to heal community, but the two have competing underlying priorities. Understanding the values that lead to sustainable action is important (Gaspard, 2019a; Linton et al., 2018), however digging deeper into working goals that guide organizational decision-making processes could give a better idea on why there exists a discrepancy between values, mission and action.

Our study was conducted prior to the release of the new Canada's Food Guide (Government of Canada, 2019b). It would be intriguing to imagine how the results would have been different if the interviews were done after the release of the Guide. It is possible that managerial motivation would have been higher, and there would have been an increase in recruitment due to heightened interest on the subject of food sustainability. Interestingly, the member-checking

interview brought forward increased organizational motivation compared to the first data collection, with one participant stating that the Guide could be an important lever for future change. It is possible that this is due to the great attention received from its reveal. As more tools for professionals are being added to the Canada's Food Guide, managers could benefit from additional information for SMP implementation, which could lead to better participation in implementing practices (Government of Canada, 2019c). Moving forward, this governmental step towards sustainable practices could also be an important tool for managers advocating to make sustainability a higher priority for healthcare institutions.

6.1.2 Lack of support is a major barrier to SMP adoption

Barriers to adopting SMPs were extensively discussed by participants, whereas facilitators were seldom expressed. This was to be expected, given the little experience foodservice managers had with SMPs. As participants revealed multiple challenges, lack of support stood out as a major barrier. Accordingly, support was needed from three different areas: from healthcare foodservices, from society, and from the provincial government.

Fostering a supportive environment in healthcare foodservices was required to facilitate SMP adoption. When superiors were supportive of managers' desired changes to the foodservices, managers were more likely to innovate. Having a flexible administration has been demonstrated as helpful to implementing sustainable practices in the literature (Dauner et al., 2011; Linton et al., 2018; Montague et al., 2014). Despite this, findings showed disagreement on the amount of support and opposition that managers would face when adopting SMPs. Foodservices that had successfully implemented SMPs often had greater support, while the many that did not implement mentioned higher opposition. Organizational readiness for innovation, i.e. having more support and advocacy than opposition, could help SMP adoption (Greenhalgh et al., 2004). Having said this, obtaining the healthcare organization's support could be an immense facilitator for managers towards adopting SMPs (Dauner et al., 2011; Jilcott Pitts et al., 2016).

A possible reason for limited administrative support to foodservice managers was the perceived high cost of SMPs. If the administration was convinced that SMPs would cost them

more, it was perceived to be less likely that they would be open to adopt SMPs. Many managers believed that SMPs would require an input of financial resources, while others realized that the lower cost of some practices could offset the higher cost of others. Although debated, adopting SMPs could help organizations save money (Alarcon & Gerritsen, 2014), or at least keep organizations from not spending more money, as the varying costs of SMPs could balance each other out (Dauner et al., 2011; Linton et al., 2018; Montague et al., 2014). These various perceptions on SMP cost could stem from insufficient knowledge on SMPs (Hannon & Callaghan, 2011). Perhaps educating managers on food sustainability and the impacts on their foodservices could help debunk these misperceptions, and eliminate important barriers (Alarcon & Gerritsen, 2014). Nonetheless, if some SMPs require financial resources, implementation is less likely if additional funding for sustainability projects is not available, as discussed in the "organizational readiness for innovation determinant" (Greenhalgh et al., 2004).

Foodservice managers in this study mostly focused on the perception of financial costs of SMPs to their foodservices, with no mention of external costs to the food system from present actions (Gaspard, 2018). Externalities would be equally as important to take into account, as purchasing unsustainable food can induce negative costs to the environment and to society (Institute of Medicine and National Research Council, 2012). In fact, there is increasing financial and external costs to healthcare from prevailing unhealthy diets (Candari, Cylus, & Nolte, 2017; Gaspard, 2018; Swinburn et al., 2019). It is thus necessary to consider both types of costs to improve patient care, environmental protection, and future generation sustenance (Laur, Valaitis, Bell, & Keller, 2017; Swinburn et al., 2019).

Along with lack of financial resources, managers explained that they did not have enough time, energy and adequate infrastructure to commit to sustainability changes. On top of this, SMPs were not seen as a priority to the healthcare organization. Insufficient organizational understanding of the role of nutrition-related care in healing could be a reason for lack of prioritization that prevents sustainable action (Gray et al., 2017; Laur et al., 2017). Cost-oriented administration could be another possible reason for lack of prioritization, as managers are held accountable to stay within budgets (Linton et al., 2018). Many participants described

that they simply could not focus time and energy on sustainable changes that were not seen as a prime concern to their organization. Foodservices did not have enough dedicated time and resources for SMPs, thereby not fulfilling Greenhalgh et al.'s "organizational readiness for innovation" determinant for SMP adoption.

Along with perceived higher cost, other attributes of SMPs were barriers to their adoption. For instance, it was widely suggested that SMPs were very complex. This result is not surprising. In fact, considering healthy eating recommendations in menus is already challenging for foodservice managers (Ducak & Keller, 2011), and adding sustainability principles amplifies the complexity of the task (Wilson & Garcia, 2011b). It is thus logical that foodservice managers had a difficult time to apply principles when they did not possess adequate knowledge on how to implement them. However, participants suggested that local and gradual implementation was a short-term stimulator for longer-term progress. When sustainable menus were implemented in one foodservice, managers could test out the pros and cons in order to assess feasibility in their other facilities. Given the large scale of food sustainability, implementing SMPs gradually into existing processes and ways of working could help adhesion (Laur et al., 2017). Participants voiced their concern on trying all practices at once, illustrating how this was impossible in their contexts. Gradually implementing one practice at a time could lead to better acceptance and increased efficiency in working methods. A case study on the process of SMP implementation in a hospital foodservice in the USA found similar results, showing that each small step could help increase menu sustainability in the long run (Dauner et al., 2011). In line with Greenhalgh et al. (2004), practices that are perceived to be more complex are less likely to be adopted. It is thus imperative to move towards gradual changes that can be more easily adopted and implemented.

Lack of organizational support could also stem from the absence of sufficient financial, human and temporal resources to implement sustainable changes. When this is coupled with constant budget cuts, foodservice managers found it difficult to commit to SMPs. Many studies found an overall lack of resources as an important barrier to adopting sustainable practices (Dauner et al., 2011; Ducak & Keller, 2011; Linton et al., 2018; Montague et al., 2014; Perline et al., 2015; Ranke et al., 2014; Wilson & Garcia, 2011a, 2011b). Being granted supplemental

resources would give managers the control to carry out more SMPs. Healthcare organizations are heavy users of resources, and are in an important position to improve the sustainability of the food system both downstream to the community and users, as well as upstream to the food producers and suppliers (EAT, 2019a; Gaspard, 2019b; M. E. Smith, 2012). Moving forward, although additional resources would be facilitating, managers could still implement SMPs that would require little to no input of additional resources. For instance, the reduction of single-use packaging products does not require financial resource input, as illustrated in a Minnesota hospital banning the service of bottled water to reduce plastic waste (Dauner et al., 2011), as well as in a Montana hospital promoting a "community mug program" to encourage cafeteria users to bring their own mugs, greatly reducing Styrofoam cup use in the process (Montague et al., 2014). These examples illustrate how a certain sequence of actions can be followed to increase SMP adoption, starting with those that require little to no use of additional resources. For instance, foodservice managers could start with SMPs that allow for cost savings, such as waste reduction practices before introducing new SMPs, as well as those that improve existing processes, as they require less changes in ways of working. However, it should be noted that foodservices are complex systems, which are prone to unexpected obstacles, such that the sustainability of new practices is difficultly achieved without extra work needing time, energy and money (Story et al., 2009). Innovations such as SMPs in complex healthcare organizations thus require greater support to better implement them (Landry et al., 2007).

Besides support from the healthcare organization, social acceptance could be a great facilitator in sustainable development (Dauner et al., 2011; Montague et al., 2014), but could become a major barrier when sustainability is disapproved by society. Surprisingly, participants rarely discussed society's perceptions of hospital food, commonly known to be portrayed negatively by the media (Mollé, 2014). Although food sustainability is a popular topic, findings show a discrepancy in perceptions of societal readiness towards genuine change. Research suggests that there is a growing public awareness on sustainability, however the demand for sustainable measures is not yet great enough for change (Alsaffar, 2016). The current study also shows that tailoring to the clientele's food preferences was important for managers, but this could be negatively impacted with SMP adoption. Some SMPs could limit or change the food offered, which may not be in line with current client preferences. Other studies show similar results,

such as foodservice managers' perception of clientele's disapproval for unfamiliar items (Perline et al., 2015). One foodservice manager discussed in the member-checking interview the importance of adequately assessing the "truthfulness" their own perceptions, such as quantitavely measuring the acceptability of vegetarian meals in their context before arguing that these will necessarily be rejected. Moreover, another manager mentioned that their job was to always put the clientele's preferences first, not imposing menus simply because they are sustainable. Although this participant was the only one discussing the need for trade-offs between the social value dimension of food sustainability and the other dimensions, other studies in the literature have highlighted that even if the food served is healthy, preserves the environment, etc., it will still be dismissed if not culturally acceptable (Drewnowski, 2017). Another possible reason for low readiness and support by society was inadequate knowledge on food sustainability (Kramer, Ferguson, & Reynolds, 2019). Although leaders, influencers and social media were described in this study as encouraging sustainable practices and inspiring a change in habits, a fundamental way to increase acceptance is education (Bellotti, 2010). People need to learn about sustainability, what actions foodservices take, why it is important that they do, and how this may impact them (Laur et al., 2017). Increasing food literacy by engaging with the clientele is thus important when taking on the endeavour of SMPs (Dietitians of Canada, 2019; J. Reynolds, 2018).

Lastly, foodservice managers in this study found that the government's involvement and support for food sustainability was necessary, but quite lacking. Managers deplored the unwillingness of governments to genuinely act on food sustainability. As one foodservice manager described during her member-checking interview, we are currently in a state of emergency, and we need more governmental actions to improve health of the people and of the planet. Canadian consumers have spoken in favour of SMPs, suggesting the need for public institutions such as hospitals, long-term care centers and schools to implement more sustainable food in their services (Kramer et al., 2019), which requires governmental action. Furthermore, findings from this study illustrate the lack of flexibility felt by foodservice managers, who must act within governmental regulations. For instance, regulations within purchasing contracts gave managers little latitude in regards to what they can purchase and from who (Act respecting contracting by public bodies, C-65.1, 2006). One such rule is that

managers may not choose a supplier based on the locality of the food distributed, unless it is of equal or lesser cost, as it is discriminative (Governement du Québec, 2017b). This regulatory barrier to local food procurement was similarly found in another study from Ontario, Canada (Linton et al., 2018). In addition, managers stated that local food procurement was restricted by certain rules that made small-scale suppliers unable to enter the tenders. The limited number of suppliers could also hinder managers' autonomy in making sustainable decisions (Ranke et al., 2014). Managers stated that they must also work to reduce the cost of patient meals per day, and adapt to constant budget cuts, which poses challenges to changing menus. The reshaping of the healthcare system, in which Integrated Health and Social Services Centres and Integrated University Health and Social Services Centres were created (Act to modify the organization and governance of the health and social services network in particular by abolishing the regional agencies, O-7.2, 2015), also brought about many issues for foodservices, as did the recent menu harmonization. A study from another Canadian province found comparable results, where healthcare requirements, foodservice regulations, and organization structure were all challenges for managers to implement nutrition-related changes (Laur et al., 2017).

Along with governmental regulations that may hinder the adoption of SMPs, findings from this study show that managers did not feel that there was enough political action towards SMPs. In fact, the Ministry of Agriculture, Fisheries and Food of Quebec released a bio-food policy in March 2018 in which they promote healthy, local and organic food procurement (Governement du Québec, 2018b), however not many measures yet support healthcare foodservices directly. Policies and programs are needed to develop a healthier and more sustainable food system (Harvie et al., 2009; Story et al., 2009), and guidelines transpiring from these policies are required (Kimmons, Wood, Villarante, & Lederer, 2012). The majority of managers in our study perceived that a sustainable food policy in healthcare foodservices was necessary for a wider range of SMPs to be implemented, along with the required resources to put them into practice. Requiring managers to carry out certain practices could facilitate and compel foodservices towards SMP implementation (Story et al., 2009). A study by Carlsson et al. (2019) found that dietitians who hold positions with the capacities of leveraging sustainable food in policy-making could be a way to collaborate with the

government. Advocacy for sustainable development in healthcare is necessary to change the current food system and to allow for more sustainability measures to be taken (Greenhalgh et al., 2004; Harvie et al., 2009). Findings from this study demonstrate the need to campaign for not merely governmental policies that speak to managers working towards food sustainability, but allowing these policies to lead to action. For instance, in order to accelerate the adoption of SMPs, there would need to be a harmonization of the regulations within the healthcare organization, such as food procurement rules, along with the bio-food policy inclinations. Favouring local food suppliers by allowing cost flexibility, subsidizing small-scale local and organic producers, and permitting seasonal variation in contracts are all actions that could benefit the purchase of local, fresh and organic food. Greater governmental investment in healthcare foodservices would also allow for rewards at all levels of health, environment and economy (Harvie et al., 2009). These findings concerning the insufficient government involvement in SMPs are quite interesting, as very few studies in the literature have reported such issues, or at least to the extent described in this study, apart from one Canadian study reporting hindering governmental regulations (Linton et al., 2018).

6.1.3 Collaboration is essential for all-round food sustainability

The third prominent result from this study is the explicit need for increased collaboration between all food system actors in order to enable food system sustainability. Joint efforts in this regard were sparse, and prevented foodservice managers from implementing SMPs. Collaboration with multiple stakeholders in the food system was perceived as a need by managers, as described below.

Although SMPs would be adopted in foodservices, participants described how all departments of the institution would also be affected by these changes. For instance, adding composting bins in the cafeteria would require users to sort their waste; sending water jugs and cups to patient floors would entail staff to send them back to get cleaned; and encouraging patients to visit the institution's garden would require the nursing staff to clean patients. Organization-wide approval and comprehension of SMPs was thought to greatly stimulate long-term adhesion to these practices, in line with Greenhalgh et al.'s (2004) "organizational antecedents for innovation". This is an important and emerging result, as to the best of our knowledge,

considering departmental repercussions in institutions other than in foodservices was rarely discussed in the literature reviewed. In this study, foodservice managers also emphasized the importance of communication and organization-wide involvement in the decision-making process. Other studies have found that the path to a sustained change is one that involves the whole organization, enhances communication channels, and develops sound relationships within this organization (Dauner et al., 2011; Jilcott Pitts et al., 2016; Laur et al., 2017). Moreover, it has been argued that other health professionals in healthcare, such as physicians and nurses, are in a critical position to take a role in sustainable development and to support the foodservice staff in providing the best quality of care possible (Gray et al., 2017; Harvie et al., 2009; Reinhardt & Salvador, 2018). Although participants believed that foodservice changes had to be communicated to all institutional departments, findings from this study surprisingly did not include the role of all healthcare professionals in sustainable development. This may be due to the fact that managers did not frequently visit the treating floors, thus were not aware of the actions other healthcare professionals take in terms of sustainable development.

Furthermore, managers perceived collaboration between all healthcare institutions' foodservices in Quebec as a key partnership. Foodservice managers stated that they could greatly learn from each other by sharing their successful and not-so-successful experiences. Good communication between foodservice managers has been discussed elsewhere as beneficial in providing opportunities for adopting sustainable practices (Dauner et al., 2011; Montague et al., 2014). Conversely, findings from our study show that managers did not regularly share these experiences, probably from a lack of means to do so. Nonetheless, a few managers voiced their desire to learn about other foodservices' experiences of successful SMP implementation. Despite not being discussed, perhaps establishing a provincial-wide sustainability committee within managers may contribute to fostering positive relationships between institutions. A good social network could be a facilitating factor towards SMP adoption, from Greenhalgh et al.'s (2004) "outer context" determinant. This could be an important support system for managers to share their experiences and gradually adapt their menus (Harris et al., 2012; Montague et al., 2014).

Additionally, collaboration from the foodservice staff was also deemed necessary to facilitate SMP adoption. Results from this study show a discrepancy between perceived employee open-mindedness and resistance. Some managers described employees who have been opposed to any and all changes, while other managers had remarkably participating teams. This result is somewhat unexpected. As the healthcare system in Quebec is constantly undergoing major changes, foodservice teams are often exhausted and overworked, thus would likely be resistant to any additional change. This was not the case for all foodservices, where some employees demonstrated consciousness of the environmental impacts of their actions. Although studies in the literature seldom debated on employee openness to change, they did express the need for champion leaders to help spread positive change (Greenhalgh et al., 2004; Laur et al., 2017). Similarly, one participant from this study mentioned the ease of implementing SMPs when an employee encouraged others to follow suit. Foodservice managers also discussed how educating staff and providing training could be helpful in increasing staff motivation. Studies show that when foodservice managers educate employees on the value of sustainable menu practices, it can help them adhere to these practices (Dauner et al., 2011; Perline et al., 2015; Wilson & Garcia, 2011b). This is especially important, as many SMPs require additional work for the employees, such that their responses to SMPs are more likely to be negative if no education is provided (Montague et al., 2014). Education and training can also transform dismissive thoughts to enthusiasm, as employees will understand why foodservices are implementing these changes, giving them a reason for changing their behaviour (Laur et al., 2017). Furthermore, this study highlighted the importance of involving foodservice employees in changes that are likely to affect them. Employees that voiced their concern over decisions were perceived to be more likely to follow through without hesitation, as they felt that their needs were taken into account. This has also been discussed in studies that explored sustainable practices, in which staff involvement provided many opportunities for SMP implementation (Dauner et al., 2011; Linton et al., 2018; Montague et al., 2014). When foodservice staff are involved in changes, they feel more listened to, and believe that their contribution to the service is valued (Laur et al., 2017). Needless to say, foodservice employees' collaboration would help SMP implementation run more smoothly, through better teamwork and support (Greenhalgh et al., 2004). Moving forward, giving staff a greater role in SMP implementation was thought to be extremely valuable for managers, as they could gain

field knowledge on the appropriate ways to implement certain practices. Perhaps setting up working meetings with employees could encourage them to help transform foodservices towards increasingly sustainable menus.

Rightfully, foodservice managers believed that institutions should be leaders and drive sustainable initiatives to reduce their environmental impact, while continuing to provide the best care for patient health and healing. Results from this study have also highlighted that when foodservices obtained additional help, either from sustainable committees inside their organization, or from programs outside their organizations, SMP implementation was more manageable. Sustainability committees put into place by the healthcare organization have been shown to be helpful in other foodservices (Harris et al., 2012; Montague et al., 2014). Sustainable food programs have also been discussed as beneficial for improving foodservice sustainability in the literature (Harris et al., 2012; Ranke et al., 2014; Story et al., 2009). Project developers such as Nourish in Canada and Health Care Without Harm in the USA create a community of managers who want to improve the sustainability of their foodservices (Health Care Without Harm, 2017; Nourish, 2019a). These projects can both increase managerial motivation to implement sustainable practices as well as provide them with resources to accomplish SMP implementation. For instance, findings from this study show that informational material and guidelines on sustainability could be helpful for managers. Similarly, a study found that having a guidebook that directs managers on local food procurement accelerated the implementation of this practice (Raison & Scheer, 2015). Increasing managerial ease with SMPs could make them more likely to adopt them (Greenhalgh et al., 2004). Furthermore, having access to a case manager from outside the organization that would assist managers in implementing SMPs was explained multiple times in this study as a great possible facilitator. Various programs could also support foodservice managers, such as collaborating with Équiterre and Aliments du Québec, assisting Quebec foodservice managers in evaluating how much local food is served, and giving advice on how to increase their proportion in the menus (Aliments du Québec, 2019; Équiterre, 2018). These programs could create institution-wide visions to drive sustainable development (Dauner et al., 2011; Jilcott Pitts et al., 2016). Healthcare institutions also need to collaborate with municipal services to ensure proper continuity with foodservice efforts. The fact that many cities did not

offer recycling and organic waste pick up programs for large establishments was a barrier for many managers. Multiple healthcare facilities remarked that they did not have access to these services, free for households in many cities in Quebec (Recyc-Québec, 2018), and they had to resort to either hiring an exterior company to pick up the waste or throw all waste in the garbage. As the healthcare system more often than not sustains budget cuts, managers generally chose the latter option. Thus, foodservice managers need to push for collaboration with municipalities so that the costs to the environment from inadequate waste disposal are reduced (Pongrácz, 2007).

Finally, food suppliers and distributors were perceived as prime drivers of food procurement potentiality in foodservices in this study. Managers described being bound to contracts they sign with suppliers, and had to offer food to patients based on foods outlined in this contract (Act respecting contracting by public bodies, C-65.1, 2006). Although they had some flexibility to deviate from their commitments, managers explained that most of the food offered to their clientele extended from the signed contracts. Thus, food suppliers and distributors have an important role to play in healthcare, with their provision being given to heal patients (Klein, 2015). If they ultimately engage in food sustainability activities, they can distribute their knowledge on sustainable food to the community. For instance, participants in this study noted the lack of information they received from suppliers; often ending up empty handed on knowing the provenance of their food. This was reported in other studies, in which databases on local food were unclear and meat traceability was difficult (Harvie et al., 2009; Ranke et al., 2014). Moving forward, engaging with suppliers and understanding the challenges that they face may create action to help food procurement, foodservice, and food consumption. Leveraging the position of healthcare organizations with their greater purchasing power may help encourage supplier commitment to sustainable practices, as described by both participants and other studies (Harvie et al., 2009; Reinhardt & Salvador, 2018).

6.2 Strengths and limitations of this thesis

6.2.1 Strengths

To the best of our knowledge, this is the first study qualitatively exploring the feasibility of sustainable menu practices as perceived by foodservice managers working in healthcare institutions in Quebec. Our study thus adds to existing body of knowledge on this subject. Few studies have extensively reviewed all possible SMPs in all types of foodservice facilities, in both rural and urban contexts, and our study attempted to capture this information all at once.

By using both inductive and deductive approaches, our study can be grounded on known theory and allow for the construction of emerging themes (Elo & Kyngäs, 2008; Hsieh & Shannon, 2005). Greenhalgh et al.'s (2004) model of the Diffusion of innovations provided a useful base from which to work, and our study is more solid from its application. As our participants were from complex service organizations, the framework was applicable to our study, and provided a reflection on how groups of people behave in a complex social system (May, Johnson, & Finch, 2016). Most determinants responded well to the theoretical framework. When comparing figures from the original and from the revised matching of research objectives with the Greenhalgh et al.'s (2004) determinants (Figures 1 and 2), only slight modifications were made for better interpretation of the results, once data started emerging.

The partnership with Nourish was also an important added strength to our study. In fact, their knowledge from the field was helpful to guide and improve research operationalization. For instance, after giving our partners a draft of the interview guide, they were able to give us outside perspective on the questions, and improved their formulation for the final copy.

Moreover, qualitative research does not aim for generalization of data, rather aspiring to an in-depth exploration of participant perspectives (Patton, 2015). Our study performed exactly this, as in-depth descriptions somewhat allowed for a saturation of perspectives, showing robustness in qualitative research (Patton, 1999). Member checking was also an added strength

to our study (Creswell, 2002). This method proved to be difficult for recruitment in a short period of time, as shown with the less than 50% participation rate. Eight participants were still able to give their views on the analysis, which was helpful to add quality to our study. Their opinions all tended towards an agreement with what was summarized with the majority of participants, emphasizing on already discussed points, or clarifying what had already been said. Positive responses thus allowed an added validity to the qualitative study (Creswell, 2002).

Another strength of our research is our data collection method. Participants were interviewed while at work, i.e. their natural setting considering the nature of the research. This is a positive notion in qualitative research, as it allows for a better understanding of participant realities compared to experimental studies (Pope & Mays, 2007). This strength was clearly illustrated in particular for one of the interviews conducted. The participant was interrupted by her employees three times during the course of the interview, which she later used as an example to demonstrate how her daily activities keep her unduly busy, disabling her from committing time to new projects. Finally, the last strength to mention considers the interview process. During the interview, participants were presented with documentation defining and explaining SMPs. As participants were submitted to the same description, they all benefitted from the same basic knowledge on SMPs to answer interview questions, unless they were familiar with SMPs beforehand.

6.2.2 Limitations

In terms of research methods, this study contains a few limitations. Although in-depth descriptions of specific cases are proper to qualitative studies, their case-dependent nature is a limitation in itself (Patton, 1999). Qualitative studies depend on the context in which data is collected, where time, place and situation can influence results. Furthermore, purposeful sampling opts for information-rich cases to gain a strong understanding of the research topic (Patton, 2015). That being said, a selection bias may occur, as participants who reached out in recruitment may have been part of those who were especially interested in food sustainability (Patton, 1999). In addition to this, participants were interviewed on a topic with evidence-based benefits, which may result in a social desirability bias (Callegaro, 2011). This goes

similarly for this study's collaboration with Nourish, in which a social desirability bias may also occur, from interest in their Guide to Sustainable Menu project.

Moreover, an important limitation to consider in this study is the laborious administrative delays and predicaments that did not permit some institutions to take part in our study. Recruitment was not possible for 28% (eight of thirty) healthcare institutions, causing a potential selection bias from lack of institutional availability (J. Smith & Noble, 2014). For the institutions that accepted our study through institutional convenience, recruitment was demanding. Foodservice managers have hectic schedules and are under immense pressure, and setting aside one hour of their time was very generous. This may also explain the lower participation rate for the member-checking interview. In addition to this, although all interview documentation was sent to the participants beforehand, most of them did not have time to read the documents pertaining to both the first and the follow-up interviews. This may be a limitation, in the sense that some participants may have been prepared for the interview, while others less so.

Furthermore, there are some limitations in regards to the interviews themselves. As I was the interviewer for all of data collection, all participants were subject to the same questioning, however as a student, my inexperience in semi-structured interviews and the question format may have affected the results (Silverman, 2010). Moreover, the presence of a recorder during the interviews may have induced participants to hold back on their discussion or may have made them uncomfortable. Through data analysis, we have also realized that our interview guide may be limited in regards to the first research objective. The questions relating to managerial motivations and will to adopt SMPs were not thoroughly investigated, nor did the probing questions enable further results.

Finally, although Greenhalgh et al. (2004)'s revised Diffusion of Innovations theory was helpful to structure data collection and provided important guidance for data analysis, its use brought two limitations to this study. First, there was some data that overlapped between the nine determinants of the innovation diffusion, similarly found in Olstad et al. (2011). The research team questioned the lengthiness of the model and proposed an abridged version for

the context of complex service organizations. Second, there was a particular area in which the theory was not suitable for our data, the outer context. The data that emerged focused on the political context and the social environment context, which are not widely discussed in Greenhalgh et al. (2004)'s revised Diffusion of Innovations theory. In this case, we had to use conceptual insights from the Advocacy Coalition Framework to complete data analysis (Sabatier, 1988).

6.3 Practical implications of this study

Of uppermost importance are the study results' direct benefits to participants. Our results demonstrate that numerous foodservice managers across Quebec experience similar situations: they have enthusiasm for food sustainability, but must deal with many challenges, thus have the same needs to further adopt SMPs. When managers understand that they must cope with comparable circumstances, it may motivate them to work together in tackling SMPs. In addition, providing the participants with evidence of provincial-wide situations in foodservices may help them convince their superiors of the need to engage more thoroughly in food sustainability for the Quebec healthcare organization.

From a nutritional science point of view, there is an agreement in the research community that food choices and current operations in the food system are reasons for the degradation of the environment and the health issues of the people (Rose et al., 2019). Many works published by independent research teams in 2019 as well as Canada's Food Guide essentially point towards the same recommendations, indicating strong scientific consensus (Government of Canada, 2019c; IPCC, 2019; Rose et al., 2019; Willett et al., 2019). It is thus time to take action to change food choices, and transform the food system (Rose et al., 2019; Willett et al., 2019). All these initiatives, actions and research such as this one set the stage for a movement towards a more sustainable food system.

As our study was carried out directly in collaboration with Nourish, the results could be used quite practically in line with their Guide to Sustainable Menus project. Our implication in this partnership has already proven beneficial for Nourish, as the knowledge generated by our research has been included in the development of the Guide. For instance, our research

produced data on the challenges for foodservice managers, which were included in the Guide. A more elaborate version of the SMP-defining documentation used during the interviews was also added to the Guide in order to orient readers on food sustainability and SMPs. In addition to this, our revision of the Guide allowed for more scientific sources to be added in its introduction. Furthermore, our study results will be used when Nourish will disseminate the = Guide to Sustainable Menus to all foodservice managers in Quebec, expected to begin in fall 2019. As managers pled for more training, tools, and guidelines, with outside help from change agents, simply presenting them with the Guide will not be enough. Providing adequate education and solid guidance to managers would be a better way to diffuse the Guide throughout the province. This may lead to greater managerial SMP adoption, better staff assimilation, and eventual SMP implementation, with all the known benefits of a more sustainable foodservice. It would be interesting for Nourish to review the challenges and needs outlined in this research, in order to both properly disseminate the Guide and to continue their advocacy for a better food system in healthcare with further work.

That being said, following an IKTE approach provided benefits for both the researchers and the knowledge users, as there was sharing of a common vision (Stanley, Hoiting, Burton, Harris, & Norman, 2007). Along with helping the Guide to Sustainable Menus' development, this partnership allowed for the community leaders to specify their field needs, and to gain knowledge on research (Canadian Institutes of Health Research, 2012). In fact, there was an initial consensus with partners on the research object, in order to adequately respond to their needs. Then, throughout the study, transferring research knowledge allowed the community partners to understand the complexity of healthcare organizations and research (Khan et al., 2018). Our study also benefitted from the practical knowledge of foodservice managers working on the field and understanding specific processes. Their involvement in formulating the research objectives, in recruitment and other study operations was greatly valued. Collaborative research between practice and theory is highly beneficial, as community partners and research partners can both teach each other as well as learn from each other from their areas of expertise (Stanley et al., 2007). Lastly, our partnership allowed for a greater exposure of the results to both communities. Various actors in the food system may feel that they are called to action when introduced to this knowledge. For instance, the desire to play a

part in the sustainable food movement may contribute to increased commitment from food suppliers and distributors, as well as the provincial government. The dissemination of the results through both circles could thus lead to increased support and engagement towards sustainable food systems from numerous stakeholders.

6.4 Future directions for research

Hereafter, other studies are necessary to continue the discussion on food sustainability and its feasibility in healthcare institutions. As our interview guide did not provide a full picture of the managerial motivations, future studies may further investigate this objective more thoroughly, as well as compare motivations of various actors in foodservices and in the organization. For instance, exploring the reasons for foodservice staff's adherence or resistance to change from their point of view could uncover valuable findings. Exploring perspectives from other food system actors such as food suppliers and distributers, as well as local farmers and producers is also needed. Their engagement in food sustainability could provide insight on the feasibility of SMPs before it actually reaches foodservices. Probing on governmental disposition to accept SMPs would also be a worthy area to investigate, as many of the barriers displayed by our results relate to governmental inaction. Another potential area of investigation is how (and if) organizational discourse and uptake of SMPs has evolved since the release of Canada's Food Guide. As our study was conducted in 2018, our results may not reflect the current institutional stance. Furthermore, studies should evaluate impacts from institutions that have successfully implemented SMPs, in order to find ways to incorporate more practices in all Quebec healthcare foodservices. Finally, studies using other types of research approaches would be beneficial to support our data. For instance, quantitative approaches may precisely measure which SMPs have been successfully implemented, which are subsequently viable, and which are impossible in foodservices. This could give an idea on which SMPs should be implemented initially, and find alternative solutions for those that are deemed unachievable.

Chapter 7 – Conclusion

Our current food system is unsustainable, and intensifying the conversation on food sustainability is paramount to transform the food system towards a more sustainable one (Burlingame & Dernini, 2010; Harvie et al., 2009; Story et al., 2009). The proven benefits of food sustainability on population health and environmental survival are key to opening this dialogue (IPCC, 2019; IPES-Food, 2017; Rose et al., 2019; Willett et al., 2019). In the context of public institutions, innumerable amounts of resources are used on a daily basis, which could be improved by establishing sustainable menu practices in foodservices (Alarcon & Gerritsen, 2014; Gray et al., 2017; Ranke et al., 2014). As healthcare institutions have a responsibility to exemplify healthy lifestyles to the community, their contributions can be significant, as much for human health, local economy, and environmental durability (Alarcon & Gerritsen, 2014; Gray et al., 2017; Klein et al., 2014). However, little is known about the organizational appreciation of SMPs in their foodservices. It is in these circumstances that this thesis attempts to understand the feasibility of SMPs in healthcare institutions in Quebec.

Although foodservice managers are motivated by the values that SMPs promote, the presence of numerous barriers at various levels and limited facilitators slows their adoption. This comes to show that there is rarely a simple way to adopt SMPs, which is a concerning result. Managers must work through multiple challenges before being able to adopt, implement and further routinize SMPs in their foodservices. This perceived complexity and demanding task can hinder their motivation to engage with food sustainability. In light of these results, it is of uttermost importance to provide managers with additional assistance to stimulate further SMPs in more healthcare institutions' foodservices. Managers require further education and training, support from their institution and from society, as well as collaboration with all food system stakeholders. Greater impact also lies in changing institutional policies and governmental law in order to change systematic prescription, by a better union of health and sustainability policies.

This research thus contributes to our understanding of managerial perceptions on the applicability of SMPs in healthcare institutions' foodservices. The rapid evolution of

mentalities on environmental issues and advocacy for social movements on sustainability allow for an incredible window of opportunity to convince decision-makers and facilitate the adoption of sustainable practices. Further research should probe perceptions on the feasibility of SMPs in the food system, from numerous points of view such as suppliers, distributors, farmers, patients, society and the government. Beyond SMP feasibility, studies should evaluate innovative institutions in order to support the implementation of SMPs in all healthcare foodservices in the province.

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Appendix I – Certificates of ethics approval

By the CÉR-DIS

Centre intégré universitaire de santé et de services sociaux du Centre-Sud-de-l'Île-de-Montréal
Québec

Comité d'éthique de la recherche – Dépendances, Inégalités sociales et Santé publique (CÉR-DIS)

PAR COURRIER ÉLECTRONIQUE

Le 11 juillet 2018

Madame Geneviève Mercille, Ph.D.
Professeure adjointe
Département de nutrition
Université de Montréal

Madame Béatrice Dagenais
Candidate à la maîtrise
Département de nutrition
Université de Montréal

Objet : **Résultat positif de l'examen éthique et de l'examen scientifique du projet de recherche multicentrique suivant** : « *L'adoption des pratiques de menus durables dans les établissements de santé québécois : une étude de faisabilité* » - (**MP-DIS-1819-59**)

Mesdames,

Le Comité d'éthique de la recherche (CER) en Dépendances, Inégalités sociales et Santé publique (CER-DIS) du CIUSSS Centre-Sud de l'île de Montréal, qui agit comme CER évaluateur pour le projet de recherche multicentrique mentionné en titre, déclare par la présente que le résultat de l'examen éthique de ce projet de recherche est positif.

Le document joint en annexe à la présente lettre :

- décrit comment notre CER a procédé pour effectuer l'examen éthique de ce projet,
- identifie la version des documents décrivant la recherche qui ont été approuvés par notre CER et
- indique les moyens passifs qui ont été établis pour le suivi éthique continu de la recherche.

Notre CER confirme également que vous avez déposé les documents requis pour établir que votre projet de recherche a fait l'objet d'un examen scientifique dont le résultat est positif.

Comme le prévoit l'article 11.1 du *Cadre de référence des établissements publics du réseau de la santé et des services sociaux (RSSS) pour l'autorisation d'une recherche menée dans plus d'un établissement*, vous pouvez déposer une copie de la présente lettre de notre CER auprès des établissements publics du RSSS à qui vous demanderez l'autorisation de réaliser la recherche dans leurs murs ou sous leurs auspices.

Si un établissement vous demande d'apporter des modifications administratives à la version finale d'un document qui a été approuvé par notre CER, veuillez vous entendre avec cet établissement pour que notre CER reçoive une copie du document modifié indiquant clairement les modifications apportées. Si notre CER juge que ces modifications administratives affectent l'acceptabilité éthique du projet, il suspendra son approbation éthique pour l'établissement en cause.

Sur demande d'un établissement qui a autorisé la réalisation de cette recherche, nous lui fournirons les extraits de nos procès-verbaux se rapportant à ce projet.

PLUS FORT AVEC VOUS

66, rue Ste-Catherine Est)
Montréal (Québec) H2X 1K6
Téléphone : 514 527-2361
www.ciusss-centresudmtl.gouv.qc.ca

Si la réalisation de cette recherche se poursuit pendant plus d'un an, notre CER en confirmera à chaque année l'acceptabilité éthique, à la date anniversaire de la présente lettre, à condition que vous déposiez auprès du CER avant la date anniversaire un rapport d'étape annuel décrivant dans son ensemble la réalisation de la recherche.

présidente du CER-DIS

p.j. Annexe décrivant la teneur de l'examen éthique effectué et des moyens fixés pour le suivi éthique continu

By the CERES

Université de Montréal

N° de certificat
18-112-CERES-D

Comité d'éthique de la recherche en santé

CERTIFICAT D'APPROBATION ÉTHIQUE

Le Comité d'éthique de la recherche en santé (CERES), selon les procédures en vigueur, en vertu des documents qui lui ont été fournis, a examiné le projet de recherche suivant et conclu qu'il respecte les règles d'éthique énoncées dans la Politique sur la recherche avec des êtres humains *de l'Université de Montréal.*

Projet	
Titre du projet	**L'adoption des pratiques de menus durables dans les établissements de santé québécois: Une étude de faisabilité**
Étudiante requérante	**Béatrice Dagenais** (ND), Candidate à la M. Sc. en nutrition, Faculté de médecine - Département de nutrition
Sous la direction de	Geneviève Mercille, professeure adjointe, Faculté de médecine - Département de nutrition, Université de Montréal

Financement	
Organisme	Non financé (MITACS en cours)
Programme	
Titre de l'octroi si différent	
Numéro d'octroi	
Chercheur principal	
No de compte	

MODALITÉS D'APPLICATION

Tout changement anticipé au protocole de recherche doit être communiqué au CERES qui en évaluera l'impact au chapitre de l'éthique.

Toute interruption prématurée du projet ou tout incident grave doit être immédiatement signalé au CERES

Selon les règles universitaires en vigueur, un suivi annuel est minimalement exigé pour maintenir la validité de la présente approbation éthique, et ce, jusqu'à la fin du projet. Le questionnaire de suivi est disponible sur la page web du CERES.

Comité d'éthique de la recherche en santé
Université de Montréal

12 juillet 2018
Date de délivrance

1er août 2019
Date de fin de validité

adresse postale
C.P. 6128, succ. Centre-ville
Montréal QC H3C 3J7

3333 Queen-Mary
2e étage, bur. 220-3
Montréal QC H3V 1A2

Téléphone : 514-343-6111 poste 2604
ceres@umontreal.ca
www.ceres.umontreal.ca

Appendix II – Consent Form

Faculté de Médecine
Département de Nutrition

FORMULAIRE D'INFORMATION ET DE CONSENTEMENT

L'adoption des pratiques de menus durables dans les établissements de santé québécois : une étude de faisabilité

Chercheur principal : Geneviève Mercille, professeure adjointe, Faculté de Médecine, Département de Nutrition, Université de Montréal

Co-chercheurs : Béatrice Dagenais, Étudiante à la maitrise, Faculté de Médecine, Département de Nutrition, Université de Montréal

Organisme subventionnaire : MITACS Accélération & Fondation McConnell

***
Vous êtes invité(e) à participer à un projet de recherche. Veuillez prendre le temps de considérer les renseignements qui suivent avant de vous décider. Il se peut que ce formulaire contienne des mots ou des expressions que vous ne comprenez pas ou que vous vous posiez des questions. Si c'est le cas, n'hésitez pas à en faire part à Geneviève Mercille ou Béatrice Dagenais. Prenez tout le temps nécessaire pour vous décider. Votre participation à ce projet de recherche est volontaire.
***

1. Description du projet de recherche

L'objectif général de l'étude est d'analyser la faisabilité d'adopter des menus qui respectent les principes de développement durable c'est-à-dire, des choix de mets et d'aliments dans les menus en considérant leurs impacts sur l'environnement, la santé, l'économie, et la société, dans le contexte des services alimentaires des établissements de santé québécois. En effet, l'étude a pour objectif de mieux comprendre les motivations envers les principes de menus dits durables, de même que les barrières et les facilitateurs à l'adoption de ces pratiques.

2. Participation attendue au projet

Votre participation à ce projet implique :

1. De prendre part à une entrevue, en face à face, par visioconférence ou par téléphone qui sera enregistrée (audio seulement). Durant cette rencontre d'une durée d'environ 60 à 75 minutes, des thèmes reliés à l'alimentation durable dans les services alimentaires seront abordés. Les questions posées vous seront remises avant l'entrevue afin de vous familiariser avec le sujet.
2. De remplir un très court questionnaire permettant de recueillir des informations sociodémographiques. Ces informations seront conservées dans un dossier séparé des transcriptions et votre identité ne pourra pas être associée à vos propos.

3. De plus, il vous sera possible de discuter des résultats généraux de l'analyse préliminaire, afin de voir si vous vous sentez représenté par les interprétations faites par l'équipe de recherche. Pour ce faire, les résultats généraux vous seront envoyés afin d'en prendre connaissance et on vous demandera si vous trouvez ces interprétations justes par rapport aux réalités vécues dans votre milieu lors d'un suivi téléphonique de 15 à 20 minutes avec l'étudiante-chercheure. Cette deuxième entrevue est également facultative, et n'affectera pas votre participation à la première entrevue.

3. Avantages de la participation au projet

La participation à cette étude pourrait vous fournir une occasion de réfléchir sur les pratiques de développement de menu utilisées en service alimentaire. Plus largement, votre participation pourrait permettre une meilleure compréhension des expériences de la gestion de développement durables des services alimentaires des établissements de santé québécois.

4. Risques et inconvénients de la participation au projet

La participation à ce projet de recherche comporte peu de risques et inconvénients pour vous. En participant à cette recherche, vous ne courez pas de risques ou d'inconvénients particuliers hormis le temps requis pour les entrevues et le sondage. Si certaines questions d'entrevue vous rendent mal à l'aise, vous n'êtes pas obligé d'y répondre. Vous pouvez également demander de suspendre l'entrevue en tout temps. De plus, si vous ressentez un malaise, le Programme d'aide aux employés du [*nom de l'établissement*] est disponible pour répondre à vos besoins d'écoute, de réconfort, et de conseils.

5. Confidentialité des données de la recherche

Les informations resteront confidentielles dans les limites prévues par la loi. Suite à l'entrevue, l'enregistrement sera transcrit en verbatim (texte) et codée par l'étudiante-chercheure par l'utilisation d'un pseudonyme. Toute autre information susceptible de vous identifier sera également codée. Seules l'étudiante-chercheure et la directrice de recherche auront accès à vos données codées. Vos données de recherche, la clé du code et votre formulaire de consentement seront conservés séparément sur un serveur sécurisé de l'Université de Montréal et les formulaires dans un local verrouillé du département de nutrition de l'Université de Montréal. Toutes les données de la recherche seront conservées sur un serveur sécurisé de l'Université de Montréal. L'enregistrement sera détruit après la transcription, tandis que le verbatim sera détruit 7 ans après le dépôt du mémoire (le dépôt est prévu pour 2019). Aucun renseignement nominatif ne sera publié ni divulgué lors de la diffusion des résultats de recherche. Malgré les précautions prises, il est possible que certains de vos propos soient reconnus par un professionnel travaillant dans le même secteur que vous.

À des fins de surveillance ou de contrôle de la recherche, il est possible que l'équipe de recherche doive permettre l'accès à votre dossier de recherche à une personne mandatée par le Comité d'éthique de la recherche en Dépendance, Inégalités sociales et Santé publique, par le Comité d'éthique de la recherche en santé de l'Université de Montréal ou par l'établissement. Ces personnes adhèrent tous à une politique de stricte confidentialité.

À des fins de protection, notamment afin de pouvoir communiquer avec vous rapidement, vos noms et prénoms, vos coordonnées et la date de début et de fin de votre participation au projet seront conservés pendant un an après la fin du projet dans un répertoire à part maintenu par le chercheur responsable.

Vous pouvez, en tout temps, demander au chercheur de consulter votre dossier de recherche pour vérifier les renseignements recueillis à votre sujet et les faire rectifier au besoin et ce, aussi longtemps que le chercheur responsable du projet ou l'établissement détiennent ces informations. Cependant, afin de préserver l'intégrité scientifique du projet, il est possible que vous n'ayez accès à certaines de ces informations qu'une fois votre participation à la recherche terminée.

6. Diffusion des résultats de la recherche

Afin de vous rendre accessible les résultats généraux de la recherche, un résumé des résultats vous sera envoyé après le dépôt du mémoire de maîtrise. De plus, la publication d'un article scientifique est prévue, résumant le déroulement et les résultats du projet de recherche.

7. Compensation financière pour la participation à la recherche

Votre participation à ce projet de recherche ne vous apportera pas d'avantages financiers. [*Cependant, si les entrevues se déroulent pendant vos heures de travail, vous serez rémunérés par votre employeur.*]

8. Liberté de participation à la recherche et droit de retrait

Vous êtes libre d'accepter ou de refuser de participer à ce projet de recherche, sans contrainte ni pression extérieure. Vous pouvez vous retirer de cette étude à n'importe quel moment, sans avoir à donner de raison, et sans conséquence pour vous. Vous avez simplement à aviser la personne-ressource de l'équipe de recherche et ce, par simple avis verbal. En cas de retrait, vous pouvez demander la destruction des données vous concernant s'agissant des entrevues individuelles. Cependant, il sera impossible de retirer vos données des analyses menées une fois ces dernières publiées ou diffusées.

9. Utilisation secondaire des données

Avec votre permission, il se peut que les renseignements que vous fournirez soient utilisés, avant la date prévue de leur destruction, dans le cadre de quelques projets de recherche (*2 à 3*) qui porteront sur les différentes facettes du thème pour lequel vous êtes sollicité(e) aujourd'hui. Ces projets éventuels seront sous la responsabilité du chercheur principal et seront autorisés par le Comité d'éthique de la recherche du CIUSSS du Centre-Sud de l'île de Montréal. L'équipe de recherche s'engage à maintenir et à protéger la confidentialité de vos données aux mêmes conditions que pour le présent projet.

10. Responsabilité en cas de préjudice

En acceptant de participer à ce projet, vous ne renoncez à aucun de vos droits ni ne libérez les chercheurs ou l'établissement de leur responsabilité civile et professionnelle.

11. Personnes ressources

Si vous avez des questions sur les aspects scientifiques du projet de recherche, ou si vous voulez vous retirer de l'étude, vous pouvez contacter la directrice de l'étudiante-chercheure : Geneviève Mercille, professeure adjointe, Dt.P., PhD, Faculté de Médecine, Département de nutrition de l'Université de Montréal, (514-343-6111 poste 28841; genevieve.mercille.1@umontreal.ca).

Si vous souhaitez vous renseigner sur vos droits ou pour formuler une plainte, vous pouvez joindre le commissaire aux plaintes et à la qualité des services du [*nom de l'établissement*] au numéro suivant: [*insérer numéro et poste*].

Pour toute question concernant les aspects éthiques du projet, vous pouvez contacter le Comité d'éthique de la recherche en Dépendance, Inégalités sociales, Santé publique 514-527-9565, poste 3789 ou encore par courriel à christine.brassard.ccsmtl@ssss.gouv.qc.ca

12. Consentement à la recherche

J'ai pris connaissance de la documentation ci-jointe, décrivant la nature et le déroulement du projet. Je comprends que je peux prendre mon temps pour réfléchir avant de donner mon accord ou non à participer à la recherche sans avoir subi de pression à cet effet. Je peux poser des questions à l'équipe de recherche et exiger des réponses satisfaisantes. Je comprends qu'en participant à ce projet de recherche, je ne renonce à aucun de mes droits ni ne dégage les chercheurs de leurs responsabilités. Je pourrai à tout moment, sur simple avis de ma part, revenir sur ma décision de participer et serai alors immédiatement libéré de mon engagement. La participation à l'entrevue individuelle ne m'oblige pas à participer à la deuxième entrevue qui portera sur les résultats des analyses préliminaires.

☐ J'accepte de participer à une première entrevue individuelle

☐ J'accepte de participer à une deuxième entrevue téléphonique faisant retour sur les résultats préliminaires

☐ J'accepte que les renseignements que je fournis soient utilisés avant leur destruction dans le cadre de 2-3 projets de recherche ultérieurs visant à approfondir des questions concernant l'alimentation durable dans les services alimentaires des établissements de santé québécois

_____	_____	_____
Nom du participant	Signature	Date

Déclaration de la personne ayant obtenu le consentement

Je certifie avoir expliqué au participant la nature de la recherche ainsi que le contenu de ce formulaire et lui avoir indiqué qu'il reste à tout moment libre de mettre un terme à sa participation au projet. Je lui remettrai une copie signée du présent formulaire.

_____	_____	_____
Nom et rôle	Signature	Date

Déclaration du chercheur/de la chercheuse responsable du projet de recherche

Je certifie qu'on a expliqué au participant les termes du présent formulaire d'information et de consentement, que l'on a répondu à ses questions et qu'on lui a clairement indiqué qu'il demeure libre de mettre un terme à sa participation, et ce, sans préjudice.

Je m'engage avec l'équipe de recherche à respecter ce qui a été convenu au formulaire d'information et de consentement et à en remettre une copie signée au participant.

_____	_____
Nom et signature du chercheur/de la chercheuse	Date

L'original du formulaire sera conservé au Département de Nutrition de l'Université de Montréal, au 2405 chemin de la Côte-Sainte-Catherine, et une copie signée sera remise au participant.

Le projet de recherche et le présent formulaire d'information et de consentement ont été approuvés par le Comité d'éthique de la recherche en Dépendance, Inégalités sociales, Santé publique le 11 juillet 2018.

Appendix III – Interview guide

L'adoption de pratiques de menus durables dans les établissements de santé québécois : une étude de faisabilité

Béatrice Dagenais, M.Sc. (cand.)
Geneviève Mercille, Ph.D.

Guide d'entrevue

I. Introduction

1. En quelques phrases, pouvez-vous me décrire votre service alimentaire ?
2. Quels sont vos rôles et vos responsabilités dans votre organisation ?
3. En ce qui trait à l'alimentation de votre clientèle, quel est le processus de prise de décision dans votre organisation ?
4. Quelles connaissances avez-vous de l'alimentation durable en milieu de santé ? *Quelle est votre définition de l'alimentation durable ?*

II. Présentation des pratiques de menus durables (fiche PMD)

III. Perceptions des pratiques de menus durables

5. Quelle expérience antérieure avez-vous avec des PMD ?
6. Quelles sont vos perceptions de l'adoption de PMD dans un service alimentaire ?
7. Quelle importance accordez-vous à l'adoption de PMD au sein de votre service alimentaire?
    a. Adopter des PMD vise quoi comme objectif, selon vous ?
    b. Comment l'adoption de PMD correspond ou ne correspond pas avec les valeurs, les objectifs et les stratégies de votre service alimentaire ?
    c. Comment l'adoption de PMD correspond ou ne correspond pas avec les façons de travailler de votre service alimentaire ?
8. Quelles sont les motivations qui vous inciteraient (*ou qui vous ont incité*) à implanter des PMD dans votre service alimentaire?
9. En vous référant au contexte de votre organisation, pouvez-vous décrire la réception au changement ?
    a. Si vous étiez à adopter des PMD dans votre service alimentaire, quelle structure et quelles ressources sont disponibles pour des nouveaux projets ? (*Ou quelles structures et ressources étaient disponibles pour des nouveaux projets dans votre SA ?)*
10. Selon vous, quelles sont les barrières à implanter les PMD ?
11. Selon vous, quels sont les facilitateurs à implanter les PMD ?
12. Quelles actions seriez-vous prêts à entreprendre pour incorporer des PMD dans les menus, selon les opportunités offertes dans votre contexte ? *(N/A si affirmatif à la question 5)*
13. En vous référant au passé, qu'anticipez-vous comme support ou opposition dans l'adoption de PMD ? *(Ou qu'avez-vous eu comme support ou opposition dans l'adoption de PMD ?)*
14. Pensez-vous avoir de l'appui dans la communauté de gestionnaires ?
    a. Qui sont les individus qui pourraient agir (*ou qui agissent*) en tant qu'influenceur dans l'adoption de PMD ?
15. Afin que les employés du service alimentaire adhèrent aux PMD, quels facteurs sont nécessaires, selon vous ?
    a. *Ayant déjà implanté des PMD dans votre SA, comment l'organisation s'est-elle faite ?*
16. Quelles ressources auriez-vous de besoin afin de favoriser l'adoption de PMD ?
17. Pour vous, quelle est la signification d'un succès dans l'adoption de PMD ?
18. Quels facteurs dans l'environnement externe à l'organisation du service alimentaire pourraient influencer l'adoption de PMD ?
19. Quelle importance accordez-vous à communiquer les changements dans le processus d'adoption de PMD ?
    a. Quel est le rôle de différents acteurs dans la promotion de PMD ?
    b. Quels moyens formels et informels auriez-vous besoin pour promouvoir les PMD ?

Appendix IV – Document defining SMPs

PRATIQUES DE MENUS DURABLES

SANTÉ

- Définir les **besoins précis** de chaque type de clientèle desservie.
- Offrir des produits animaux **sans antibiotique**.

VALEURS SOCIALES

- Offrir des recettes d'**origine culturelle variée** représentant bien la population desservie.
- S'engager à apprendre l'importance culturelle des mets des groupes **autochtones** de votre communauté.
- Favoriser les **recettes maison** pour les produits enrichis.
- S'engager à **promouvoir** votre menu durable à des fins éducatives.

QUALITÉ

- Offrir des aliments **frais** et **appétissants**
- Offrir des **recettes appréciées** en panel de dégustation.
- Offrir des fruits et légumes **de saison, préférablement local.**
- Offrir des aliments avec le moins d'**additifs** ou d'**agents de conservation**.

ENVIRONNEMENT

- Offrir des fruits de mer & poissons issus de **pêche ou aqua-culture durable**.
- Réduire les produits **transformés**.
- Offrir des aliments **biologiques** ou issus de **pratiques durables**.
- Augmenter la **variété** pour contribuer à la protection de la biodiversité.
- Réduire les viandes rouges et augmenter les protéines ayant le moins d'**impact** environnemental (ex. légumineuses, soya, insectes, poulet).
- Réduire le **gaspillage** en réutilisant les restes et en ajustant la taille des portions.
- Réduire l'utilisation de produits en emballages **non-réutilisables**.
- Offrir de l'**eau** comme seul breuvage de base.

GOUVERNANCE

- Reconnaître le rôle de chaque **acteur** impliqué (ex. usagers, clients, fournisseurs, groupe d'achat).
- Prendre des **décisions** basées sur des preuves.

ÉCONOMIE

- Gérer un service alimentaire **efficace**, qui contribue à l'**économie locale.**

Fiche créée le 5 juin 2018 par Béatrice Dagenais, DIP, MSc (cand.) & révisée par Annie Marquez, DIP. Référence : Lang, T. et Mason, P. (2017). Sustainable Diets. Devon, UK: Taylor & Francis Group.

Appendix V – Institution Information and Foodservice Characteristics Form

Informations sur les caractéristiques de l'établissement et du service alimentaire

1. Par rapport à votre travail en tant que gestionnaire de menus,
    a. Combien d'années d'expérience avez-vous ? _____
    b. Quelle formation détenez-vous ? _____
    c. Quel est votre poste officiel ? _____
2. Dans quel type d'établissement de santé faites-vous la gestion de menus ?
   (CH / CHSLD / CPEJ / CR / CLSC)
3. Vos services alimentaires se retrouvent dans quel type de région ?
   (Rural / Urbain)
4. Quel est le mode de production & distribution de vos services alimentaires ?
   (Chaud / Froid)
5. La gestion de vos services alimentaires est-elle en impartition ?
   (Oui / Non)

Appendix VI – Codebook

DICTIONNAIRE DE CODIFICATION 6.0

1 Attributs de l'innovation

Définition : Attributs perçus de l'innovation qui aide à expliquer la variabilité d'adoption de l'innovation.

1.1 Avantage relatif

Définition : Degré auquel l'innovation est perçu comme étant meilleur/plus efficace que ce qu'il remplace, ayant un avantage clair, certain et non-ambigüe.
« *J'ai l'impression qu'en achetant des produits locaux, le coût sera plus onéreux.* »

1.2 Complexité

Définition : Degré auquel l'innovation est perçue comme étant relativement facile à comprendre et à utiliser.
« *Parce que c'est très difficile de le mettre en pratique.* »

1.3 Observabilité

Définition : Degré auquel les résultats de l'innovation sont visibles et possibles aux adopteurs potentiels.
« *Ben moi j'vois juste du positif là, j'vois pas personnellement quelque chose de mal là-dedans.* »

1.4 Testabilité et adaptabilité

Définition : Degré auquel l'innovation peut être testée et expérimentée, qu'elle peut être essayé en parties et faite de façon graduelle, qu'elle peut être adaptée, raffinée ou modifiée pour répondre aux besoins et au contexte de l'organisation.
« *Si j'fais un petit pas à chaque jour, ben j'vais réussir à avancer.* »

1.99 Autres

Autres citations jugées pertinentes pour la catégorie 1 mais qui n'entrent pas pour l'instant dans les sous-catégories ci-dessus. Elles seront à distribuer dans de nouvelles catégories plus tard.

2 Antécédents de l'organisation

Définition : Traits généraux de l'organisation qui la rend plus ou moins innovatrice.

2.1 Contexte réceptif au changement

Définition : Capacité de l'organisation à saisir des nouvelles idées pour faire face au changement, s'adapter, être ouvert au changement et démontrer du leadership.
« *On embarque dans le bateau comme tout le monde, et de dire qu'on est précurseur là-dedans, c'est difficile.*»

2.2 Déterminants structuraux du caractère innovant

Définition : La structure de l'organisation qui la rend plus ou moins innovatrice : grandeur et maturité, division en départements/unités semi-autonomes, spécialisée, décentralisation des décisions.
« *À partir du moment que les CIUSSS ont été crées, c'est des énormes entités. Même si une décision est prise à la tête, pour que la répercussion se rende jusqu'aux résidents et aux usagers, le chemin est long.* »

2.3 Capacité d'assimiler des nouvelles connaissances

Définition : Capacité d'identifier, d'interpréter, de partager la nouvelle information; faire des liens avec des connaissances déjà acquises; et la mettre à usage appropriée.
« *Je trouve qu'on est quand même conscientisés.* »

2.99 Autres

Autres citations jugées pertinentes pour la catégorie 2 mais qui n'entrent pas pour l'instant dans les sous-catégories ci-dessus. Elles seront à distribuer dans de nouvelles catégories plus tard.

3 État de préparation de l'organisation

Définition : État de préparation et volonté de l'organisation à adopter une innovation.

3.1 Correspondance innovation-organisation

Définition : Perception que l'innovation s'harmonise avec les valeurs, normes, stratégies, objectifs, compétences, et les façons de travailler de l'organisation, ainsi que si celle-ci semble réaliste.
« *Ça va vraiment dans la, dans la mission dans le fond de l'organisation là*. »

3.2 Évaluation des implications

Définition : Perception que les implications nécessaires à la réalisation de l'innovation sont anticipées, et que les effets subséquents ont été évalués par l'organisation.
« *Plus on est de gens à embarquer dans tout ça, plus ça va être facile.* »

3.3 Équilibre des pouvoirs

Définition : Perception de certaines personnes (ou groupes de personnes) qui supportent et d'autres qui s'opposent à l'innovation.
« *On a une opposition au niveau de la direction, surtout si au niveau budgétaire.* »

3.4 Ressources allouées

Définition : Perception de la présence ou l'absence de ressources matérielles, financières, humaines et temporelles dédiées à l'innovation, nécessaires à l'adoption de l'innovation.
« *Les budgets qui sont alloués à l'alimentation, c'est minime là.*»

3.99 Autres

Autres citations jugées pertinentes pour la catégorie 3 mais qui n'entrent pas pour l'instant dans les sous-catégories ci-dessus. Elles seront à distribuer dans de nouvelles catégories plus tard.

4 Processus d'adoption

Définition : Caractéristiques de l'adopteur potentiel qui influence la décision d'adopter l'innovation.

4.1 La décision d'adoption

Définition : Le processus de prise de décision dans l'organisation, comment et qui participe à cette prise de décision.
« *S'il s'agit vraiment d'un changement de menu, […] j'vais vraiment repasser par ma gestionnaire et le comité de menus pour que ça soit ré-approuvé pour pouvoir tout que le menu soit ré-analysé.* »

4.2 Motivations

Définition : Si l'adopteur potentiel est motivé ou pas à faire des changements et y a une volonté, selon l'importance qu'il y accorde, quelles sont ses motivations, ainsi que si l'innovation rencontre un certain besoin identifié.
« *J'pense que notre motivation ça, ce serait principalement ça, notre clientèle, leur offrir le meilleur possible.* »

4.3 Signification de l'innovation

Définition : La signification de l'innovation personnellement et dans le contexte de l'organisation, le sens donné à l'innovation, ainsi que qu'est-ce qui représente un succès dans l'organisation, et les objectifs qui sont rencontrés par l'innovation.
« *Si les gens sont satisfaits, reçoivent des aliments qu'ils apprécient, des aliments de qualité, des aliments locaux qui les plaisent, ça je pense que c'est un succès*. »

4.99 Autres

Autres citations jugées pertinentes pour la catégorie 3 mais qui n'entrent pas pour l'instant dans les sous-catégories ci-dessus. Elles seront à distribuer dans de nouvelles catégories plus tard.

5 Processus d'assimilation

Définition : Processus d'adoption par l'organisation, par le système dans son ensemble.

beaucoup de les impliquer dans le projet, dès le départ, et non un coup qu'on est rendu à l'implanter. »

5.1 Planification de la mise en œuvre

Définition : Comment l'organisation a planifié la mise en œuvre d'innovations.
« *Ça requiert beaucoup d'énergie, beaucoup de temps, et un peu d'argent aussi.* »

5.2 Séquence de continuité

Définition : Comment l'organisation fait un va et vient entre l'initiation, le développement et l'implantation, tout en ayant des chocs, des contretemps, et des surprises.
« *Quand on a voulu l'incorporer, on […] avait mis moitié-viande, moitié-légumineuse. Après ça, on a changé pour deux-tiers légumineuses, un tiers viande. Pis après ça, on l'a « switché » pour juste légumineuses, […] et ça pas été aimé.* »

5.99 Autres

Autres citations jugées pertinentes pour la catégorie 3 mais qui n'entrent pas pour l'instant dans les sous-catégories ci-dessus. Elles seront à distribuer dans de nouvelles catégories plus tard.

6 Processus d'implantation

Définition : Premières activités d'utilisation qui suit la décision d'adopter. La décision d'adopter est mise en pratique pour devenir une routine, ce qui est influencé par plusieurs facteurs organisationnels et la collaboration.

6.1 Structure organisationnelle et gestion

Définition : Le degré de flexibilité et d'adaptabilité de la structure organisationnelle en implantation, et les processus qui supportent la dévolution de la prise de décision dans l'organisation; avec du support et l'engagement de la direction pour influencer la mise en routine de l'innovation.
« *À l'interne, y'ont embarqué, sinon j'aurais pas pu. Fac ça pour moi, c'était pas une barrière, si ça l'aurait été une barrière, je pense pas que j'aurais pu m'embarquer là-dedans toute seule.* »

6.2 Ressources humaines

Définition : Les facteurs qui aident ou qui nuisent à l'adhérence et la mobilisation des employés quant à l'adoption de l'innovation, ainsi que le degré de compétence, de motivation, et de la capacité des employés.
« *C'est faire la formation aux employés, pis je pense que c'est beaucoup de les impliquer dans le projet, dès le départ, et non un coup qu'on est rendu à l'implanter.* »

6.3 Financement

Définition : La possibilité et la quantité de financement disponible en continu pour implanter l'innovation et sa mise en routine. C'est une réflexion après l'adoption.
« *On pourrait pas acheter la viande bio, on serait pas capable financièrement d'y arriver.* »

6.4 Communication intra-organisation

Définition : Le degré de communication efficace entre les départements de l'organisation de santé et entre les organisations de santé pour une mise en routine adéquate de l'innovation.
« *On a un comité de développement durable en place, […] donc ça j'pense c'est sur que ça peut nous aider.* »

6.5 Collaboration inter-organisation

Définition : Degré de collaboration et présence de partenariats efficaces avec d'autres organisations dans la communauté, et les besoins exprimés par l'organisation de santé.
« *Si on avait l'offre de nos fournisseurs, peut-être que ça l'aiderait.* »

6.99 Autres

Autres citations jugées pertinentes pour la catégorie 3 mais qui n'entrent pas pour l'instant dans les sous-catégories ci-dessus. Elles seront à distribuer dans de nouvelles catégories plus tard.

7 Communication, influence, dissémination et diffusion

Définition : Moyens de propager l'innovation, en utilisant des canaux de communication de façon informelle ou formelle.

7.1 Structure et homogénéité du réseau social

Définition : Structure et qualité du réseau social, en terme de sa formalité et sa direction (de façon horizontale ou verticale), ainsi que l'homogénéité entre les membres.
« *Ça serait intéressant de partager les bons coups au Québec.* »

7.2 Influenceurs

Définition : Individus qui ont une certaine influence sur les adopteurs potentiels, qui supportent l'innovation, ou qui font des liens sociaux entre les réseaux de l'intérieur et de l'extérieur de l'organisation.
« *D'avoir l'image connue, des fois ça aide là. T'sais d'avoir un porte-parole, qui est convaincu et convaincant.* »

7.3 Processus de promotion

Définition : Les moyens d'assurer la promotion de l'innovation (par qui et comment) pour une diffusion et une dissémination efficace.
« *Si y'avait un comité qui nous donnait le package, pis après on avait juste à diffuser ça.*»

7.4 Perception du contenu des messages véhiculés

Définition : Importance perçue à l'égard de la communication des messages concernant les changements apportés par l'innovation.
« *Je pense qu'il faut faire attention dans notre […] époque de médias sociaux d'embellissement de la réalité.* »

7.99 Autres

Autres citations jugées pertinentes pour la catégorie 3 mais qui n'entrent pas pour l'instant dans les sous-catégories ci-dessus. Elles seront à distribuer dans de nouvelles catégories plus tard.

8 Contexte externe

Définition : Influences externes sur la décision d'une organisation à adopter et implanter une innovation.

8.1 Directives politiques

Définition : Présence ou absence de politiques et mandats ministérielles qui pourraient influencer la décision d'adopter une innovation; changement de gouvernement qui pourrait influencer ces décisions politiques.
« *Faudrait qu'il ait une politique alimentaire québécoise. Quelque chose qui vient du gouvernement.* »

8.2 Opinion publique et évolution de la société

Définition : Influence de l'opinion publique par rapport à l'innovation; et évolutions de l'opinion de la société entre les générations.
« *Pis aussi les mœurs, où la population est rendue actuellement à ce niveau là.* »

8.3 Conditions socioéconomiques

Définition : Influence de l'atmosphère socioéconomique (par ex. l'impact d'une crise économique, nouvelles possibilités de financement) sur l'innovation dans le contexte de l'organisation.
« *Comme le taux de chômage est très bas, les gens y'ont plus de possibilités. Fac que j'te dirais que trouver la main d'œuvre, c'est un peu difficile.* »

8.4 Conditions du système agroalimentaire

Définition : Influence des conditions dans le système agroalimentaire québécois.
« Si je fais affaire avec ces petits fournisseurs, quels sont les règles d'hygiène salubrité qu'eux suivent ? Est-ce que mon aliment que je vais servir à ma clientèle va être correcte ou ne sera pas correcte ? »

8.99 Autres

Autres citations jugées pertinentes pour la catégorie 3 mais qui n'entrent pas pour l'instant dans les sous-catégories ci-dessus. Elles seront à distribuer dans de nouvelles catégories plus tard.

9 Liens avec les adopteurs potentiels

Définition : Connections qui facilitent le mouvement de l'innovation entre le développeur ou l'agent de changement et l'adopteur potentiel.

9.1 Rôle du développeur

Définition : Dans le stade de développement de l'innovation, les développeurs (ex. centre de recherche) ont des liens avec les utilisateurs potentiels, et ils assurent que leurs perspectives sont prises en compte pour atteindre un partage d'opinion sur la signification et la valeur de l'innovation.
« *Des gens qui font la recherche, ça en prend aujourd'hui. Toutes les leviers pis les moyens sont donnés pour ton étude, pis qu'est-ce que tu penses que j'vais faire avec ça moi ? J'peux te jurer que je vais l'utiliser.* »

9.2 Rôle de l'agent de changement

Définition : Dans le stade d'implantation, la présence d'agents de changement efficaces qui encouragent et supportent les adopteurs potentiels.
« *Ça l'aiderait d'avoir ça comme clé en main.* »

9.99 Autres

Autres citations jugées pertinentes pour la catégorie 3 mais qui n'entrent pas pour l'instant dans les sous-catégories ci-dessus. Elles seront à distribuer dans de nouvelles catégories plus tard.

99 Autres citations pertinentes

Autres citations jugées pertinentes, mais qui n'entrent pas pour l'instant dans aucune des catégories ci-dessus. Elles seront à distribuer dans de nouvelles catégories plus tard.

Appendix VII – Sustainable Menu Guide Chapter Example

Appendix VIII – Member-checking results

Eight participants took part in a member-checking interview. Overall, participants acknowledged that the results summarized well the motivations, barriers, opportunities and needs in foodservices regarding SMP adoption and implementation. They appreciated that some of their cases were outliers due to specific contextual factors. Comments were given on all three objectives, and are described below.

Objective 1: Motivations

PG agreed that the healthcare system in Quebec is not considered innovative, and managers must frequently argue that SMPs are worth the challenges to the organization. Having agents of change from inside and outside the organization to increase motivation matched PG and PO's views. Although participants agree that they have the knowledge and the motivations to adopt despite SMP implementation being infrequent, PE and PI reported that this inaction is due to the organization's lack of prioritization in regards to SMPs. Most participants agreed with the four motivations that push them to adopt SMPs (foodservice pride, community pride, clientele satisfaction, environmental protection). PO maintains that encouraging local economy should be added as a motivation, while PY disagrees with the clientele satisfaction motivator, arguing that having sustainable food will not increase clientele satisfaction, as the hospitalized population tends to be older and sustainability is a subject that inspires younger generations.

Objective 2: Facilitators and Barriers

In terms of SMP attributes, all participants agreed that partly replacing animal protein sources with plant protein sources was difficult to instil due to the older age of the hospitalized, with PE and PI mentioning that this practice was easier for youth centers. PO gave this some thought, saying that we must be careful of manager's perceived clientele preferences, arguing that actions taken in foodservices must be evidence-based. PZ also mentions that managers should not impose changes that they know will not be well received solely to obtain a sustainable menu. First and foremost, patient preferences must be taken into consideration. Perceived higher cost of SMPs is also debated, as summarized in the research results. SMP

benefits were highlighted, with PL adding that increasing the quality of the food will foster patient's pleasure of eating. Participants agree that SMPs must be adopted gradually.

Participants also agree on the lack of organizational support, with PL reiterating the inadequate budgets to pursue sustainable ambitions. However, PG and PO mention that support is now increasing in their organization, with directors being more receptive and engaged in sustainable practices since the first interview. In terms of employee adherence to change, some participants declare seeing some resistance, while others have multiple motivated workers. Although participants agree that they must respect certain norms in regards to their food procurement contracts, PB, PI, PO and PY allude to some latitude that managers can take to stray from the contracts. Nonetheless, PE mentions that new laws will bring about more surveillance on signed contracts.

In terms of societal conditions, participants agree that there is a movement pushing towards sustainability in Quebec. PO describes the new Canada's Food Guide as an important lever for change. This resource was released in January 2019, which after the first interview, but prior to the member checking interview.

Objective 3: Needs

All participant comments from this section concurred with the conveyed results. PI mentions that having a spokesperson as well as utilizing social media can be important levers to increase demand for a sustainable food system. There is also an agreed need for collaboration and partnerships between all food system actors in order to move forward. Managers need more financial and human resources, organizational engagement, and governmental will. As PI claims, we are in a state of emergency, thus, we need ministry obligations that will mobilize people to act on SMPs. PE adds that along with this obligation, managers need more resources and reasonable delays when the Ministry of Health makes demands like these.