

Digesting Data:
The Social and Ideological Actions of *Eating Well with Canada's Food Guide*

By

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Abstract

Eating Well with Canada's Food Guide (CFG), Canada's official dietary guidelines, is designed to address high rates of obesity and diet-related chronic diseases in Canada. This dissertation reports on a qualitative study of the social and ideological actions that the CFG performs. The study draws on concepts from Rhetorical Genre Studies, Science and Technology Studies, and Multimodal Interactional Analysis, and applies them in the analysis of interviews with key informants involved with the latest revision of the CFG and registered dietitians (RDs) working with vulnerable populations, as well as in a rhetorical and multimodal analysis of the guidelines. The findings of the analyses suggest that the CFG relies heavily on the representations typically reserved for scientific evidence from nutrition science, which focus on nutrients rather than on food. In the context of the CFG, these typical scientific representations are used for non-scientific audiences or in non-scientific situations, that is, cease to be scientific and become *scientistic*. The *scientistic representations* create rhetorical complexities, such as layers of rhetorical action (*rhetorical laminations*), and contribute to multiple rhetorical failures of the CFG. The scientistic representations in the CFG and the rhetorical failures they produce influence how RDs conceptualize nutrition, and dominate, rather than facilitate, discussions about healthy eating. As a result, RDs develop new discursive activities whereby they have to rely on additional resources to translate the scientistic representations for people and apply the CFG to their lives. Overall, the study suggests that the CFG, instead of an enabling resource, serves as a limiting document: it limits *who* can make healthier food choices and

how such choices can be made. The study indicates that the CFG, as a rhetorical failure, has not achieved its intended social and ideological goals, or, in other words, has written itself out of usefulness.

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Abbreviations

BMI – Body mass index

CFG – *Eating Well with Canada's Food Guide*

CGT – Constructivist Grounded Theory

CNF – Canadian Nutrient File

DRI – Dietary Reference Intake

DSM – Diagnostic and Statistical Manual of Mental Disorders

ESL – English as a Second Language

ESP – English for Specific Purposes

FNIM – First Nations, Inuit and Métis

KI – Key informant for the revision of the CFG

MMI analysis – Multimodal Interactional Analysis

RD – Registered Dietitian

RDA – Recommended Dietary Allowance

RGS – Rhetorical Genre Studies

STS – Science and Technology Studies

Notations

- ... designates omitted material
- [] designates changed or added text

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Glossary

Antecedent Genre – A genre that historically precedes the genre in question (on societal, group, or personal scale). It may help writers or readers understand new situations or constrain writers' or readers' abilities to recognize and respond appropriately to new situations. See Jamieson (1973, 1975).

Chromosomal Imprint – Traces of the content and form of an antecedent genre in a new genre that carry the intent of and produce responses similar to the antecedent genre. See Jamieson (1975).

Conceptual Reality – See *virtual artifact*, cf. Smart (2006)

Discourse – Communication through symbolic representations (cf. Wickman, 2010, 2015).

Genre – Typified rhetorical action and recurrent social situation; a response to a recurrent social need. See Miller (1984, 2015); Paré & Smart (1994).

Intermediary Genre – A genre that facilitates the use of the form and/or content of one genre by another. See Tachino (2012).

Rhetorical Construction – The use of language, pictures, numbers, and layout to achieve a purpose (cf. Coe, Lingard, & Teslenko, 2002).

Rhetorical Move (or Move) – A “discoursal or rhetorical unit that performs a coherent communicative function” (Swales, 2004, p. 228).

Scientific Representation – Symbolic construction of empirical realities such as observed natural phenomena and physical entities, or of theoretical relationships, for example, numbers, specialized terminology, charts, figures, statistical notations (also called *representations of science*).

Scientific Representation – Typical scientific representations that might obscure, oversimplify, censor, or detract from important information when presented to non-scientific audiences, or used in situations where other ways of conveying information may be more suitable. See Bourdieu (1992, 1996).

Uptake – The effect of or response to an utterance. Responses to a genre and knowledge of what to do with, or how to act in response to the genre. See Austin (1975); Freedman (1994, 2002); Bawarshi (2015, 2016).

Virtual Artifact – A symbolic representation that produces a meaningful conceptual object, or a product of shared cognition that comes to exist through, and even apart from, the symbol(s) that represent it (Medway, 1996). Smart (2006) describes a virtual artifact as “a symbolically-represented conceptual reality” (p.199).

Chapter 1: Obesity, Nutrition, and *Eating Well with Canada's Food Guide*

Food Guide Writer: We have to consider not only the science, but also people's ability to understand the information. So, we definitely did, with the food guide, . . . a clear language assessment of it. How we deal with ensuring understanding of the scientific information is we do consultations with . . . consumers.

Registered Dietitian: I know from experience that people tend to just look at all those numbers and all that information and just kind of blank out. You know? And even the fact of how it's set, I mean, it's probably set up as easily as you could probably set it up with that amount of information, but people tend to not be very good with that kind of set up.

Interviewer: Yeah, like with the chart?

Registered Dietitian: Yeah, charts freak people out sometimes, you know? [laughs]

Eating Well with Canada's Food Guide (CFG)(Health Canada, 2011a) is a resource that contains Canada's official dietary guidelines and is based on scientific evidence from nutrition science. The CFG is an initiative of the Canadian federal government that is intended to address, in part, high rates of obesity and diet-related chronic disease in Canada. The two excerpts above, taken from the interview data, illustrate the issues that can arise when communicating scientific information to public audiences.

Obesity has received considerable attention in Canada. Some scholars (e.g., Katzmarzyk, 2002; Mokdad et al., 1999; Starky, 2005) have even described the rising rates of obesity as an epidemic because its rapid increase and population distribution resembles that of a communicable disease. In March 2016, the Senate of Canada released a report, *Obesity in Canada: A whole-of-society approach for a healthier Canada* (Standing Senate Committee on Social Affairs, Science and Technology [SSCSAST], 2016), urging immediate action to “beat back this crisis” (p. iv). Obesity has been associated with an increased risk of developing diet-related chronic diseases such as Type 2 diabetes, heart disease, and even some forms of cancer (Janssen, 2013), and many (e.g., Freedhoff et al., 2012) have argued that obesity itself is also a chronic disease. In 2014, 61.8% of Canadian men and 46.2% of Canadian women self-reported as either obese or overweight¹ (Statistics Canada, 2014). Obesity and diet-related chronic diseases not only impact the lives of individuals, but also have a serious negative impact on the healthcare system and the economy (Alter et al., 2012; Anis et al., 2010).

Research has demonstrated that the causes of obesity are complex (Vandenbroeck, Goossens, & Clemens, 2007), ranging from biological and genetic risk factors to social and environmental determinants, such as poverty, the built environment, and cultural values (Bellisari, 2013; Finegood, 2011; Gore & Kothari, 2012; Mikkonen & Raphael, 2010; Raine, 2004). These social and environmental

¹ Obesity is typically calculated using the body mass index (BMI), where overweight is measured as 25.0 - 29.9 kg/m² and obesity is measured as > 30.0 kg/m² (Health Canada, 2003)

determinants make up what some scholars have called an “obesogenic” environment (Swinburn, Egger, & Raza, 1999). Experts (Alvaro et al., 2010; Freedhoff et al., 2012) have increasingly recognized that in order to address the issue of obesity, it is necessary for individuals to make lifestyle changes, but that systemic issues must also be addressed. Systemic issues require collective action taken by government, industry, and the healthcare and education systems.

The Canadian federal government’s response to high rates of obesity and diet-related chronic diseases includes multiple initiatives, policies, and legislative interventions (Raphael, 2008; Ries & von Tigerstrom, 2010), among which is *Eating Well with Canada’s Food Guide* (CFG) (Health Canada, 2011a). The CFG was produced by Health Canada, the federal government’s ministry of health, and published in 2007. Since 2007, the CFG has garnered considerable, and often critical, attention from academic researchers, health professionals, and the public (e.g., Freedhoff & Hutchinson, 2014; Harnett, 2013). Criticisms of the CFG are often directed at the scientific evidence, or lack thereof, on which the guidelines are based, but also at the technical nature of its key messages, specifically the empirical measurements used to indicate serving sizes (e.g., Vogel, 2015).

The recent Senate report on obesity in Canada (SSCAST, 2016) includes multiple recommendations that the Canadian federal government should undertake in order to address obesity. Two of these recommendations concern the CFG, which the report describes as “at best ineffective, and at worst enabling with respect to the rising levels of unhealthy weights and diet-related chronic diseases in Canada” (SSCAST, 2016, p. 25). The first recommendation calls for an immediate and

complete revision of the CFG that reflects current scientific evidence about nutrition, focuses on meals rather than nutrients, and emphasizes fresh, whole foods over processed foods, similar to the approach taken in Brazil's dietary guidelines (Ministry of Health of Brazil, 2014). The second recommendation is for the revision of the CFG to be guided by an expert committee that does not include representatives from the food or agricultural industries. While the report highlights many key issues with the content of the CFG, it does not address how the communication of the dietary guidelines may contribute to its ineffectiveness.

This dissertation reports on a study that was prompted by questions regarding the effectiveness of the CFG's communication of dietary guidelines. In the study, I conduct an investigation of the 2007 version of the CFG and its performance within selected social situations. The study aims to uncover the social and ideological actions that the CFG performs through the use of language, pictures, numbers, and layout, that is, the rhetorical construction (cf. Coe, Lingard, & Teslenko, 2002) of the CFG, as well as investigate the historical and social influences on the revision of the CFG and its use by registered dietitians (RDs) who work with vulnerable populations such as low income, immigrant, and indigenous populations across Canada. Through an analysis of the CFG's discourse, seen as communication through symbolic representations (cf. Wickman, 2010, 2015), and semi-structured interviews with the CFG producers and RDs, the study explores how the CFG rhetorically constructs nutrition information, as well as the discursive practices and social roles implicated in its development and use (cf. Paré & Smart, 1994).

Background

The CFG's history dates back to 1942 and it has undergone seven major revisions (Health Canada, 2007a). The original CFG, entitled *Canada's Official Food Rules*, focused on the prevention of nutrient deficiencies during World War II when food was scarce and being rationed (see Mosby, 2014 for further details). Based on changes in the overall diet and health of the Canadian population, the 1982 version shifted focus from the prevention of nutrient deficiencies to the prevention of chronic disease, including obesity. This focus is largely preserved in the 2007 version, which was renamed *Eating Well with Canada's Food Guide*.

The 2007 version was published following a lengthy five-year review and revision process that included an update to the CFG's scientific basis and consultations with experts, stakeholders, and consumers (Health Canada, 2007a; Katamay et al., 2007). The 2007 CFG consists of a standard, six-page paper-based version of the dietary guidelines (Health Canada, 2011a)(Appendix A) that targets the general Canadian population, a four-page paper-based First Nations, Inuit and Métis (FNIM) version of the dietary guidelines intended to provide more culturally appropriate representations of the guidelines for these populations (Health Canada, 2007b)(Appendix B), a complementary website (Health Canada, 2011b), and a resource for educators and communicators (Health Canada, 2013a). While the focus of the CFG has shifted throughout its history, its main purpose has been to "guid[e] food selection and promot[e] the nutritional health of Canadians" (Health Canada, 2007a, para. 1) and, since 1982, its objective has been, ultimately, to reduce the number of Canadians at risk of developing diet-related chronic diseases (Bush &

Kirkpatrick, 2003; Bush, Martineau, Pronk, & Brulé, 2007; Nielsen, 1983). The CFG is primarily a health policy and promotion initiative that is widely used within the healthcare system and included in the health curricula of public school systems across Canada.

Prior Research on Dietary Guidelines

This section provides an overview of research that has been conducted specifically on the CFG and on dietary guidelines and dietary advice in general.

Research on the CFG. Despite initiatives like the CFG, obesity rates in Canada remain high and consumption of healthy foods like vegetables and fruit appears to have declined (Statistics Canada, 2015). Even though the CFG is intended to be only one among many approaches to addressing the complex problem of obesity and diet-related chronic diseases, low compliance rates with the CFG suggest its role has been minimal (Allen, Taylor, Rozwadowski, Boyko, & Blackburn, 2011; Fowler, Evers, & Campbell, 2012; Johnson-Down & Egeland, 2010; Rossiter, Evers, & Pender, 2012; Strawson et al., 2013). Mathe et al. (2015) demonstrated that compliance with the CFG is low despite the fact that many Canadians are aware of the CFG and its specific dietary recommendations, while Abramovitch et al. (2012) demonstrated that Canadians' misperceptions of some aspects of the CFG, namely, the serving sizes, may actually result in overconsumption of food.

Previous research on the discourse of the CFG provides some insight into the reasons for low compliance rates with the guidelines. For example, Henwood, Harris, and Spoel (2011) found that healthy living has been framed as a matter of choice,

and that information, such as dietary guidelines, are considered tools to aid people in making “correct choices” (p. 2029), but that this information does not account for the complex lives of people in Canada where the ability to make healthy choices may be more affected by environmental, social, and emotional factors than a simple lack of information. Ristovski-Slijepcevic, Chapman, and Beagan (2008) also noted that the mainstream food practices conveyed through the CFG tend to highlight individual responsibility for health. In addition, Ristovski-Slijepcevic, Chapman, and Beagan (2010) have indicated that the dietary guidelines use “western-originating strategies for conveying healthy eating information” (p. 467), such as reliance on nutrition science, and that, as these guidelines become normalized within families, other food practices, such as traditional ones from different ethno-cultural backgrounds, become marginalized. As a result, the CFG creates a sense of “good” and “bad” practices associated with ethno-cultural backgrounds, where knowledge from nutrition science holds more perceived value than locally and socially acquired knowledge of food and food practices (Ristovski-Slijepcevic et al., 2010).

Research on other dietary guidelines. Research conducted on the discourse of dietary guidelines from countries whose approach to conveying nutrition information is similar to the CFG can provide additional insight into the role that dietary guidelines play in addressing obesity and diet-related chronic disease. Dietary guidelines in general have been criticized as being the products of the broader trend of “nutritionism,” a term that was coined by Scrinis (2008) and popularized by Pollan (2008). Nutritionism, also known as nutritional reductionism, “is characterized by a reductive *focus* [emphasis in original] on the nutrient

composition of foods as the means for understanding their healthfulness, as well as by a reductive *interpretation* [emphasis in original] of the role of these nutrients in bodily health” (Scrinis, 2013, p. 2). Scrinis (2013) does not disparage the value of science for investigating the relationship between nutrition and health, but he argues, “these insights have often been interpreted in a reductive manner and then translated into nutritionally reductive dietary advice” (p. 5).

Scholars have also studied how dietary guidelines that are based on nutrients affect how people think and talk about food. Mudry (2006, 2009) investigated the historical development of the concept of calories, the history of the USDA dietary guidelines, and what she referred to as the discourses of quantification. She demonstrated that discourses of quantification, primarily the concept of the calorie, emerged from scientific practices that sought to measure relationships between food and health, and these scientific discourses then formed the basis of the USDA’s dietary guidelines. Mudry (2009) argued that discourses of quantification do not reflect empirical reality, but their use “invents a world within which certain sentences are true or false, certain behaviours are beneficial and harmful, and certain courses of action are recommended” (p. 12). Other scholars have also explored the moral and ethical aspects of discourses of quantification in dietary advice more generally and how these discourses serve to create a sense of “good” and “bad” food and construct new ways of thinking and talking about food (e.g., Biltkoff, Mudry, Kimura, Landecker, & Guthman, 2014). In addition, Yates-Doerr (2012), drawing on her field work in Guatemala, demonstrated how discourses that reduce food to nutrients may appear to offer simplicity to the complexity of

nutrition, and how these discourses only produce confusion when there is no knowledge of nutrients shared by nutrition experts and community members who are learning about nutrition.

In sum, previous research on dietary guidelines and dietary advice have demonstrated how the reduction of healthy eating to a matter of nutrient intake has produced discourses of quantification that influence how people think and talk about food. Given the limited amount of research that has been conducted on the discourse of the CFG, I designed and conducted a preliminary investigation to gain a better understanding of how the CFG conveys dietary information and how this information is perceived. The next section provides a brief overview of the findings from the preliminary investigation.

Preliminary Investigation of the CFG

The preliminary investigation was conducted in early 2014 to uncover how the CFG discursively constructs nutrition and healthy eating, as well as to understand readers' perceptions of the CFG. In order to explore the discursive construction, or the communication of concepts through linguistic or other symbolic means, of nutrition and healthy eating in the CFG, I conducted a thematic analysis (Saldaña, 2013) of the language, graphics, and layout in the standard version of the CFG, followed by a readability analysis (Added Bytes, 2014). To better understand how the CFG is perceived by people with a high literacy level, I administered a perception questionnaire to a convenience sample of 80 undergraduate and graduate university students. The perception questionnaire queried respondents'

previous knowledge of and experience with the CFG and their ability to comprehend the CFG.

Thematic analysis of the CFG. Exploratory thematic coding (Saldaña, 2013) of the language, graphics, and layout in the standard CFG version revealed one theme that did not appear in any of the literature that I had reviewed up to that point, but seemingly played a significant role in the discursive construction of nutrition in the CFG. This theme concerned scientific representations and included the following categories: numbers and charts, empirical and cooking measurements, and specialized terminology.

The first example is the use of numbers and charts, which are common ways to visualize data in the sciences. The second page of the standard CFG version (Appendix A) includes a chart that indicates recommended numbers of daily servings with columns that represent age and sex categories and rows that represent the four major food groups (Figure 1.1). The numbers in the chart are intended to provide readers with information regarding daily intake of the four major food groups.

There is also an example of a Nutrition Facts label on the CFG (Figure 1.2), which is required on all packaged foods in Canada according to Canadian nutrition labeling laws (Health Canada, 2015). The CFG includes an example of the label to show readers how to read the chart to make “wise” food choices. It is another chart that explains the percent of different nutritional elements present in a food product. The example includes only zeros, which does not provide useful information and may be confusing to the reader.

Recommended Number of Food Guide Servings per Day									
Age in Years	Children			Teens		Adults			
	2-3	4-8	9-13	14-18		19-50		51+	
Sex	Girls and Boys		Females	Males	Females	Males	Females	Males	
Vegetables and Fruit	4	5	6	7	8	7-8	8-10	7	7
Grain Products	3	4	6	6	7	6-7	8	6	7
Milk and Alternatives	2	2	3-4	3-4	3-4	2	2	3	3
Meat and Alternatives	1	1	1-2	2	3	2	3	2	3

Figure 1.1. Chart of recommended number of servings in standard CFG version (Health Canada, 2011a)

Nutrition Facts	
Amount	% Daily Value
Per 0 mL (0 g)	
Calories 0	
Fat 0 g	0 %
Saturated 0 g	0 %
+ Trans 0 g	
Cholesterol 0 mg	
Sodium 0 mg	0 %
Carbohydrate 0 g	0 %
Fibre 0 g	0 %
Sugars 0 g	
Protein 0 g	
Vitamin A 0 %	Vitamin C 0 %
Calcium 0 %	Iron 0 %

Figure 1.2. Nutrition Facts label in standard CFG version (Health Canada, 2011a)

The next example of this theme is the use of specific empirical and cooking measurements. The CFG conveys specific measurements in multiple ways, mostly with numbers, but also with pictures (Figure 1.3). The ways in which sizes are

represented do not always resemble common food practices: for instance, using a liquid measuring cup to measure servings of meat (Figure 1.3). The third example of this theme is the use of specialized terminology, such as unsaturated fats, folic acid, and minerals. These terms require a fairly sophisticated knowledge of nutrition, chemistry, etc., to understand.



Figure 1.3. Serving size example in standard CFG version (Health Canada, 2011a).

These three examples of scientific representations in the standard CFG version appear to over-simplify complex scientific information from nutrition sciences for use in a non-scientific situation, that is, the everyday food practices of real Canadians. As such, I borrowed Bourdieu's (1992) term "scientific representations" (p. 207) to label this theme. Derived from the concept of "scientism" (e.g., Haack, 2003; Sorell, 2013), which views the scientific method as more valuable than other methods of inquiry, the term "scientific" is used by scholars to describe situations where science, characterized as systematic, impersonal, and objective, is valued over other human ways of knowing (e.g., Bourdieu, 1996; Segal, 2012). Bourdieu (1992) uses the term *scientific representations* to describe how typical

scientific methods for data representation might obscure, oversimplify, censor, or detract from important information when presented to non-scientific audiences or used in situations where other ways of conveying information may be more suitable.

Readability analysis. Following the thematic analysis, I conducted a readability analysis to account for the discursual inconsistencies observed in the CFG (cf. Schryer, 2000), for example, sections that include paragraphs with long sentences and sections with short sentences in point form. I ran the standard version of the CFG through an online readability calculator (Added Bytes, 2014), which provided the Flesch-Kincaid reading ease score and grade level (Kincaid, Fishburne, Rogers, & Chissom, 1975). The reading ease score measures the comprehensibility of a text by formulas that utilize the number of syllables per word and the length of sentences. The reading ease score ranges from 1-100 and the higher the score, the easier the text is to comprehend. These scores provide equivalencies with grade levels in the U.S. education system.

I calculated the readability score for the entire standard version of the CFG first, and then calculated each section separately in order to gain a better understanding of some of the textual differences observed in different sections. Overall, the standard version received a reading ease score of 70.7, which corresponds with a grade level of 6.6. However, the scores for different segments of the text ranged from 34.3 to 87.9, which correspond with U.S. grade levels that range from 2.5 to 19.7, which implies graduate level education. The wide range of readability demonstrates that readers with a grade 2 level of education may easily understand some sections of the CFG, but not others, which might require a

graduate degree to decipher. This wide spread in the level of readability of the standard version of the CFG accounts for some of the discursial inconsistencies and raises questions regarding the accessibility of the CFG to all Canadians.

Perception questionnaire. The preliminary investigation included a perception questionnaire that addressed readers' perceptions of the CFG (Appendix C). The questionnaire included three black and white copies of excerpts from the recommendations for the vegetables and fruit in the standard version of the CFG: the recommended servings per day (Fig. 1 in survey), examples of a serving size (Fig. 2 in survey), and the textual descriptions of how to choose vegetables and fruit (Fig. 3 in survey) (Figure 1.4). The questionnaire was designed to elicit quantitative and qualitative data.

Findings from the qualitative analysis of written responses on the perception questionnaire provided insight into how the CFG may help or hinder readers' comprehension of and ability to act on dietary guidelines. The question that elicited qualitative data asked respondents: "What stands out most to you in Figure 1 and/or 2? Describe in your own words" (see Figure 1.4). The written responses were coded thematically (Saldaña, 2013) and three themes emerged from the analysis that further clarified results of the thematic and readability analyses.

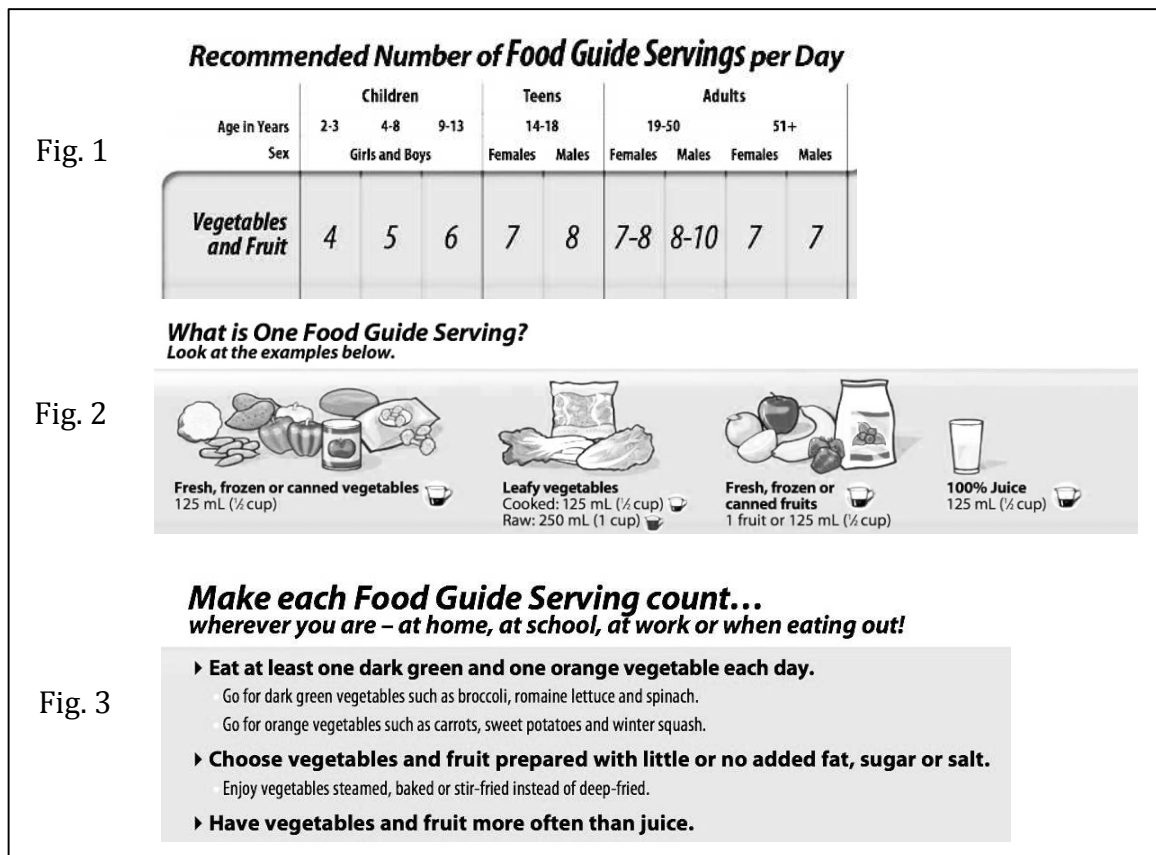


Figure 1.4. Samples in perception questionnaire of recommendations for vegetables and fruit in standard CFG version (Health Canada, 2011a)

Theme 1. Too simple or too complicated

Example responses:

- “How much goddamn broccoli trees am I supposed to eat!? 3? 20? 136? Beats me!”
- “1 + 2 have info that is condensed + shortened, but in the process important info and details have been lost”
- “I think Fig 1 is incomprehensible.”

Theme 2. Impractical information

Example responses:

- “The measurements are informative, but since I don’t measure my veggies the measurement isn’t that helpful (ex. how many cups is a baked potato?)”
- “somewhat accurate info regarding portions. However the amount that fits in the measure depends on whether it is whole, sliced, chopped or pureed.”
- “it is difficult to visualize portion sizes that are described in abstract terms (like ½ cup)”

Theme 3. Relationships between parts of the CFG

Example responses:

- “Neither [figure] makes sense without the other”
- “Figure 1 answers how many servings I should have per day, but that means nothing to me until I see figure 2 and understand how much a serving is.”

While respondents’ claims that the CFG is too simplified or too complicated may be on opposite ends of the spectrum, in many ways these responses mean the same thing: it is not clear what readers are supposed to do in order to follow the dietary guidelines. This speaks to a possible disconnect between the CFG and everyday food practices of people in Canada. Finally, responses demonstrate that each section of the CFG by itself may be confusing or does not provide enough information as to be useful to the reader. These statements indicate that an analysis of the CFG needs to examine the relationships between the language, pictures, numbers, charts, and layout in the CFG.

Main conclusions of the preliminary investigation. The preliminary investigation raised a number of issues that provided a springboard for the development of my doctoral research study. Mainly, it is not clear what population the CFG addresses. The preliminary investigation suggests that the CFG producers have taken a scientific approach to conveying dietary information, which implicitly draws on readers' scientific literacy and their prior knowledge of how scientific information is typically presented in order to interpret and understand the information. That is, the standard version of the CFG appears to have been designed for an audience with high levels of education. The scientific representations and the inconsistencies in the readability of the CFG might limit accessibility and understanding of the information; and questionnaire responses indicated that readers do not necessarily understand what *to do* with the information. Findings suggest that the CFG may constrain the actions of readers, as opposed to its aim of enabling better food choices.

Overall, given the scientific representations and inconsistencies in the readability in the standard version, the CFG does not appear to address the whole Canadian population. Poor health outcomes, such as the development of obesity and diet-related chronic diseases, have been linked to less access to education and low literacy levels, among multiple other social determinants of health (Mikkonen & Raphael, 2010; Rootman & Gordon-El-Bihbety, 2008), to which populations, such as low income, immigrant, or indigenous populations, tend to be more vulnerable. Given that the CFG seeks to address the issues of obesity and diet-related chronic diseases, the preliminary investigation prompted me to further investigate whether

the CFG either enables or constrains the health-related choices made by vulnerable populations in Canada. The research questions and research design of the main study are based on the findings of this preliminary investigation.

Research Objectives and Development of Research Questions

The findings of the preliminary investigation described above highlighted issues with the content, readability, and readers' perceptions of the CFG, including how understanding and use of the CFG may be influenced by readers' prior knowledge. The findings also highlighted that an analysis of the CFG needs to examine the relationships between the language, pictures, numbers, charts, and layout, which all appear to play an important role in communicating nutrition information in the CFG, and the actions performed by these types of communication, or the rhetorical construction (cf. Coe et al., 2002) of the CFG. The following research questions emerged as a result of the preliminary investigation:

1. How is scientific evidence used and presented in the CFG?
2. How does the rhetorical construction of the CFG either enable or constrain health-related choices made by Canadians?
3. Does the CFG address the dietary needs of diverse Canadian populations?

As I began designing my study, the issue of scientific representation in the CFG necessitated an investigation of the context in which the CFG was developed, that is, it became important for my study to include an investigation of the revision

process for the CFG and the experiences of key informants (KIs) involved in the revision process. In addition, defining the “Canadian population” proved to be problematic and in order to understand how the CFG enables and constrains Canadians’ health-related choices, I needed to first understand the situations in which Canadians encounter the CFG and how the CFG has been presented to them. As such, I narrowed my focus to one specific population who frequently use the CFG and through whom many Canadians encounter the CFG: registered dietitians (RDs) (Barr, Yarker, Levy-Milne, & Chapman, 2004) who work with a variety of populations, including vulnerable ones, across Canada.

By shifting the focus of my study to the contexts for the production of the CFG and its use by RDs who work with vulnerable populations, I seek to discover how the CFG constructs nutrition information and what effects this construction produces. In other words, the objective of my study is to examine the CFG as a “site. . . of social and ideological action” (Schryer, 1993, p. 204). More specifically, in this study, I investigate the ideologies, or “norms and values that come to seem unquestioned, common sense - an unquestioned approach to acting through language” (Devitt, 2009, p. 339), embedded in the CFG through its production, as well as its rhetoric, or “what discourse does” (Coe et al., 2002, p. 5). My original research questions were modified to reflect this objective, and evolved throughout the process of data collection and analysis. The overarching question that emerged through the process of data collection and analysis is:

What social and ideological actions does the CFG perform?

In order to locate answers to the overarching question, it is necessary to understand what ideologies influenced the development of the 2007 version of the CFG and what social action(s) was expected from it; how the CFG is used by RDs to prevent or manage obesity and chronic disease in various Canadian populations, and how the underlying ideologies and the expected social action(s) are rhetorically constructed in the CFG. In other words, the overarching research question consists of three sub-questions:

1. What were the main influences on the revision of the CFG?
2. How is the CFG used by RDs?
3. How is nutrition information rhetorically constructed in the CFG?

The aim of the study is to gain a greater understanding of the role that the CFG plays in Canada. The study specifically seeks to gain insight into how context shaped the revision of the CFG, and how the CFG in turn shapes RDs' practice. By exploring the social and ideological actions that the CFG performs, I hope to contribute to discussions about the effectiveness and usefulness of health policy and promotion initiatives, such as the CFG, for addressing high rates of obesity and diet-related chronic diseases.

Overview of Dissertation

The dissertation consists of eight chapters, including this one. Chapter 2 provides an overview of the conceptual framework that guided my research design,

data collection, analysis, and interpretation. Chapter 3 outlines the research design, methods for the research study, and trustworthiness of the study. Chapters 4, 5, and 6 describe the study's findings and are organized by the context for revising the CFG, RDs' use of the CFG, and the rhetoric of the CFG respectively. Chapter 7 provides a discussion of and interpretation of the study's findings. Finally, Chapter 8 includes a summary of the study and its findings, as well as a discussion of the study's limitations, contributions to writing research, and practical implications, and concludes with directions for future research.

Chapter 2: Conceptual Framework

Theories can be viewed as “a generalizing, evidence-supported assertion, or ‘knowledge claim’, regarding the nature of, and sometimes causalities within, a particular realm of material and/or social reality” (Smart, Currie, & Falconer, 2014, p. 86), and are distinguished from concepts, which are “particular facet[s] of a larger theory” (Smart, Currie, & Falconer, 2014, p. 86). To conduct an examination of the contexts in which the CFG was produced and is now used, I draw on concepts from several theoretical and analytical approaches to develop a conceptual framework for studying the social and ideological actions that the CFG performs. The conceptual framework is based on a social constructivist perspective that views knowledge as co-constructed between individuals and society and becomes objectified through a process of reification (Berger & Luckman, 1967). More specifically, I take a social perspective on written discourse in my study, which views “writing as social action” (Cooper, 1989, p.1). I situate my study in what Donahue and Lillis (2014) refer to as a “social practice model” (p. 68) that conceptualizes, investigates, and theorizes about the “‘observable practice’ of writing, that is what people do with and around writing” (p. 69).

Social perspectives on written discourse emerged in the 1980s (e.g., Cooper & Holzman, 1989; Reither, 1985) when approaches to the teaching and learning of writing shifted away from a focus on product and, later, individual process of writing (Britton; 1982; Elbow; 1973; Emig, 1977; Flower & Hayes, 1981). A social perspective on writing recognizes purpose, audience, and context as fundamental to composing processes (Cooper & Holzman, 1989; Reither, 1985) and views the

activity of writing as participation in socially-constructed and dynamic systems that coordinate social action and are a “means by which writers comprehend their world” (Cooper, 1989, p. 8). Thus, writing research expanded to include a study of writing *contexts* in order to “understand why a text is written as it is, how it might have been written differently, how it came to some goals but not others, how it could have been written better” (Prior, 2004, p. 167); not only the study of texts, but also the “acts and facts created by texts” (Bazerman, 2004, p. 311). My study of how the CFG was produced and shaped by its context, and how it has shaped RDs’ practice is informed by social approaches to writing, as described above, and more specifically, I draw on Rhetorical Genre Studies (RGS)(e.g., Artemeva & Freedman, 2006; Bakhtin, 1986; Bazerman, 1988; Devitt, 2004; Freedman & Medway, 1994; Miller, 1984; Paré & Smart, 1994; Russell, 1997; Schryer, 1993). In addition, throughout the dissertation, I refer to written discourse as “text”, which is “a unique material object” (Prior, 2004, p. 169) that represents ideas, actions, and social processes through symbols such as language, pictures, numbers, etc.

This chapter consists of three major sections. First, I provide a brief description of RGS, followed by a discussion of the theoretical concepts from RGS that I draw on in the study and the use of RGS for studying non-routine texts. Second, I provide an overview of social perspectives on scientific evidence, scientific representations, and knowledge translation from Science and Technology Studies (STS). Third, I provide an overview of the analytical approaches offered by Multimodal Analysis and its relevance to my study. The chapter concludes with a brief summary of the conceptual framework for my study.

Rhetorical Genre Studies (RGS)

RGS is based on Carolyn Miller's (1984) groundbreaking work, *Genre as Social Action*. RGS scholars view writing as having a dialectical relationship between text and context, where the form and function of a text is influenced by the social context, and at the same time, the social context is created or reproduced through the writing, reading, and use of this text. Within this dialectical relationship, *genres*, which are typified and recognizable texts that exhibit similar features and structures, develop as they respond to the needs of recurring, socially constructed situations. In other words, in RGS, genres are typified actions and recurrent situations that are both shaped by and shape or reproduce social contexts (e.g., Bawarshi, 2000; Paré & Smart, 1994), or as Miller (2015) describes, genre is "a structural nexis between action and structure, between agent and institution, between past and future" (p. 69). Genres are "stabilized-for-now" (Schryer, 1993) sites of ideological actions and rhetorical strategies and they "strategically embody attitudes, values, and ways of doing" (Coe et al., 2002, p. 3). Key concepts developed within RGS as (a) antecedent genre (Jamieson, 1975), b) uptake (Freadman, 1994, 2002; Bawarshi, 2015; 2016), (c) intermediary genre (Tachino, 2012), and d) virtual artifacts (Medway, 1996) play key roles in my investigation.

Antecedent genre. Antecedent genres are prior genres that constrain writers' or readers' abilities to recognize and respond appropriately to new situations (Jamieson, 1973, 1975). Antecedent genres have played an important role in RGS scholarship, particularly how antecedent genres and genre knowledge constrain writers' awareness of and ability to produce new genres (e.g., Artemeva &

Fox, 2010; Artemeva & Myles, 2015; Devitt, 2004; Reiff & Bawarshi, 2010; Rounsaville, Goldberg, & Bawarshi, 2008). Many of these studies are based on Jamieson's research (1973, 1975) that demonstrated how writers rely on past experience and antecedent genres when they encounter new situations because of perceived similarities between rhetorical situations. Jamieson (1975) observed that traces of the content and form of an antecedent genre, referred to as the "chromosomal imprint" (p. 406), passes from one genre to the next, and can have "powerful rhetorical constraints" (p. 407) on the "content, intent, and form" (p. 407) of the discourse that has taken up the antecedent genre. The *chromosomal imprint* of antecedent genres not only exerts rhetorical constraints over new situations but also creates expectations to which writers and readers respond. Jamieson (1975) also noted that a writer's choice of antecedent genre is not always appropriate or consistent with the needs and demands of a situation and can constrain both the writer's and the audience's response (Jamieson, 1975).

RGS scholars have explored the role of antecedent genres in constraining and enabling new, or subsequent, discourses. For example, Dryer (2008) examined how the antecedents to modern municipal zoning codes not only have spatial and material consequences but also regulate writers' and readers' discursive activities in current city planning processes. Miller & Shepherd (2009) argued that recurrence in the Internet, specifically blogs, occurs through authors' reliance on and deference to antecedent genres as a way to "find, or construct, stability within volatile or chaotic environments, to resist change even as it washes over us" (p. 285). Additionally, Devitt & Reiff (2014) demonstrated how the use of some antecedent genres can

provide access to new situations. They provided the example of 19th century women entering public debates by drawing on the antecedent genre of prayer (Devitt & Reiff, 2014). The chromosomal imprint of antecedent genres, according to RGS scholars, can influence the form and substance, as well as the social and ideological actions that new, or subsequent, genres perform.

Uptake. The notion of uptake in discourse stems from speech act theory, in particular, from Austin (1975) who explained that “it is essential to ‘secure an uptake’” (p. 139) to illocutionary acts, the act of saying something, through perlocutionary acts, the act of saying something that has “consequential effects upon the feelings, thoughts, or actions of the audience, or the speaker, or of other persons” (p. 101). More simply, uptake is the effect of or response to an utterance. Freadman (1994, 2002) expanded on Austin’s use of uptake by drawing on Searle’s (1969) distinction between regulative and constitutive rules. Searle (1969) explained, “Regulative rules regulate a pre-existing activity, an activity whose existence is logically independent of the rules. Constitutive rules constitute (and also regulate) an activity the existence of which is logically dependent on the rules” (p. 34), in other words, “constitutive rules . . . create or define new forms of behaviour” (p. 33). Freadman (1994) likened these constitutive rules to a tennis game, where the surrounding activity such as place, timing, audience, and participant roles, creates the game of tennis; the surrounding activity constitutes the “rules for play” (p. 46). It is only within these rules for play that the passing back and forth of a ball becomes the passing of shots and the meaning of these shots can be understood. Using the analogy of the tennis game, Freadman (1994) argued that a genre is a game, where

the rules for play, such as the time, place, audience, and purpose, determine the form and content of a text, and the meaning of a text lies in its performance as it takes up and is taken up by other texts. Uptake then, according to Freadman (1994, 2002) elucidates how people respond to a genre and whether or not they know what to do with, or how to act in response to the genre.

In contrast to Austin's notion of uptake, Freadman (2002) argued that, in her interpretation, uptake involves agency and that a text cannot determine its uptake; rather, she explained, that uptake "selects, defines, or represents the object" (p. 48), that is, the meaning and use of a text is understood by its uptake. Freadman (2002) goes on to explain:

Uptake is first the taking of an object; it is not the causation of a response by an intention. This is the hidden dimension of the long, ramified, intertextual memory of uptake: the object is taken from a set of possibilities. (p. 48)

Freadman (2012) explained that uptake is also subject to historical and material considerations, and that perceived recurrence does not mean that the situation is the same. For this reason, Freadman (2012) stated, "No genre can do more than predict the kind of uptake that would make it happy, and no speaker or writer can completely secure an uptake" (p. 560).

Bawarshi (2016) highlighted the role of agency in Freadman's conception of uptake, which he argued is inherent in uptake and subject to myriad factors.

Bawarshi (2015) argued that uptake may be guided by genre knowledge, but that

because uptake also “takes place within a complex scene of agency, it also exceeds genre knowledge and may not always or often be textually visible” (p. 189). To account for the “inter-textual factors that inform genre performance” (p. 188), Bawarshi (2015) draws on the metaphor of rhizomes developed by Deleuze and Guattari (1987). The rhizome metaphor, according to Deleuze and Guattari, takes a non-hierarchical perspective on phenomena that focuses on the lines of connection rather than fixed points. A rhizomatic view of uptake, according to Bawarshi (2015), focuses on the relationships between genres and the intertextual factors that shape these relationships, but also allows us to identify what is not taken up. He argued that this view of uptake “makes visible the unpredictable uptakes, the sweeps, transversals, the uptakes motivated by emotions, shaped by historical and material conditions, as well as long and short term memories” (p. 201).

Freadman’s (1994, 2002) conception of uptake has also been further expanded to account for what is taken up when people take up a genre. Emmons (2009), like Bawarshi (2015, 2016), shifted the focus of uptake from texts to the agents. However, in her study of the discourses associated with the treatment of depression, Emmons redefined uptake as “the disposition(s) assumed through the use of genres” (p. 139), and argued that uptake “encompasses the effects of those generic choices upon individuals” (p. 139). Emmons demonstrated how people need to first take up particular discourses, but it is only through this uptake that they are able to gain entry into a complex genre system. Similarly, Dryer (2008) focused on the material conditions that are produced through the uptake of genres, and expanded on Miller’s (1984) claim that “when we learn a genre . . . we learn what

ends we may have. . . . We learn to understand better the situations in which we find ourselves” (p. 165). In his study of municipal zoning code, Dryer (2008) demonstrated how social relations are created and defined through the uptake of a genre, and that a genre can persist by producing certain kinds of writers and readers.

Intermediary genre. Tachino (2012) introduced the concept of intermediary genre in order to provide further insight into the ways in which knowledge is produced and circulates between genres as they interact in complex social systems. Tachino defined an intermediary genre as “one that facilitates an uptake of another genre by yet another genre whether the uptake is of form or content” (p. 459). Intermediary genres can be distinguished from genres that operate as mediating artifacts that help achieve an objective. Rather, an intermediary genre supplies form and/or content that allows for one genre to take up other genres, for example, a press release is an intermediary genre that facilitates the uptake of a scientific article by a newspaper article. In addition, an intermediary genre “may group what may otherwise not be a ‘genre’” (p. 470). For example, in his study, Tachino demonstrated that the genre of preliminary hearing in the judicial system draws together multiple forms of evidence that are as diverse as media reports and policy documents.

Tachino (2012) further classified intermediary genres as primary or secondary. Primary intermediary genres include genres whose primary function is to facilitate uptake of one genre by another such as press releases. Secondary intermediary genres include any genre that has been used as an intermediary genre

even though it has a different primary function. Tachino provided the example of news articles that become intermediary genres when political satirists use them to “uptake” a political speech.

Virtual artifacts. Another concept that the study draws on is Medway’s (1996) concept of virtual artifacts. Medway (1996) drew on a constructivist semiotic theory to explore how communicative modes, including writing, are symbolic representations that help mediate and construct meaning, and also reality. Medway asserted that a symbolic representation “stands for, evokes, refers to, or means something else” (p. 478) and that it does not need to be similar to the object it represents, or need to refer to something that already exists. He explained, “some realities come into existence solely because representation has produced them” (p. 481). Symbolic representations, including the relationships between symbols, produce chains or webs of meaning for specific individuals or communities, and according to Medway, can create what he referred to as “virtual artifacts” (p. 483), which are similar to social facts as described by Durkheim (1938) and taken up by Bazerman (2004) who explained that “social facts are those things that people believe to be true, and therefore bear on how they define a situation” (p. 312). However, a virtual artifact is more than just a social fact, it is a real object that is a product of shared cognition and comes to exist through, and even apart from, the symbols that represent it. Knowledge of virtual artifacts is often unevenly distributed and understanding of the artifact requires collaborative communication and interpretation within the community who produces or uses the artifact. Smart (2006) described a virtual artifact as a “symbolically-represented conceptual reality”

(p. 199), which is perhaps a more accessible phrase, given new understandings of the term “virtual” with the proliferation of the Internet since Medway’s article in 1996.

Medway (1996) illustrated the concept of virtual artifacts, or conceptual realities, through a study of drawings produced by architectural design students, which also include numbers and language. Based on the students’ designs and dialogue between students and their teachers, Medway described how a material reality, such as a building, can actually be drawn into existence, where the representation of the building comes before the material building. The drawing of a building is an instrumental design that points towards a material building. Medway also showed that the material building may never be built, but the drawing, or symbolic representation, still evokes a conceptual building that may outlive the drawing, is real for the community of architects who created it, and has real social effects.

Symbolic representations, and the conceptual realities they give rise to, often emerge out of collaborative group activities and have complex histories, which have consequences for how the representations might be interpreted by their producers and consumers. From the producers’ perspective, symbolic representations create meaning, as in the producers intend a representation to be experienced or known in a particular way, which includes how the relationships between the different parts and modes in the representation are experienced. Medway (1996) provided an example of a drawing of a building that includes a series of drawn objects on a piece of paper that are intended to give the impression of, and thus experienced as,

flowing water. As Geisler (2001) explained, a final representation is stable, and the producers are aware of its intended meaning, flexibility, and the processes and decisions that were made throughout its history, but consumers often only have access to the stable, final representation. The conceptual reality of the building, in other words, may be more rich and complex than its symbolic representation, and may not be interpreted as such by consumers. In Medway's words, the final representation "will be all that outsiders have to go on, [and] may for originators do little more than gesture at the complex and diffuse network that is for them the 'real thing'" (p. 507). The actual symbolic representation, then, may only be an incomplete version of a conceptual reality and the symbolic representation's meaning will be re-interpreted and re-negotiated for different purposes in new situations, and may even give rise to new or different conceptual realities for consumers.

Medway (1996) applied the concept of virtual artifacts, that is conceptual realities, to the practice of writing and claimed that writing can "bring new epistemic realities into existence, either as precursors of changes to the material world or as alternatives to actuality that serve to increase awareness of how things are and might otherwise be" (p. 504), and in this way, writing helps create new knowledge that exists apart from the words themselves. McCarthy's (1991) research on the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) provides a useful illustration. In her study, McCarthy demonstrated how the DSM-III, a document that names, defines, and describes mental disorders, shaped how one psychiatrist wrote diagnostic reports, but also shaped her

conceptualization of mental disorders, that is, the DSM-III influenced how the psychiatrist determined and analyzed relevant patient information. In sum, writing might not result in a physical construction of bricks and mortar, but once a concept is written it produces objects that are social facts, which can be known or unknown, understood and misunderstood, and can either enable or constrain action.

RGS approaches to non-routine texts. RGS focuses on the investigation of typified discourse and recurrent social situations (Miller, 1984; Paré & Smart, 1994). However, some RGS scholars have also demonstrated that *non-recurring* and *non-routine* texts can both rely on and produce genre knowledge. For example, Berkenkotter (2001) illustrated how the DSM-IV, a non-routine text, organizes and creates common understandings in the disparate field of psychotherapy, and also generates generic approaches to diagnosing and treating mental disorders. In addition, Kain (2005), in her study of the development of an accessibility guide, observed that people apply genre knowledge even in non-routine and non-recurring texts and situations. There has been limited research on the CFG from the rhetorical perspective, and, thus, limited evidence to suggest that production of the CFG was a routine and recurring activity. As such, following Kain, in this study, I draw on RGS to conduct a study of the CFG as a non-recurring and non-routine text, and the many texts connected to, or implicated in, its production and use.

Science and Technology Studies (STS)

In addition to concepts from socio-rhetorical perspectives on writing, my study also draws on scholarly work from the STS, which explores the social, cultural,

and political influences on scientific research (e.g., Hackett, Amsterdamska, Lynch, & Wajcman, 2008; Jasanoff, 2004; Lynch & Woolgar, 1990; Sismondo, 2010) to explore the CFG as an evidence-based resource. Evidence can be considered any available information that provides support for, or proof of, a belief or proposition (e.g., Scott, 2006; Worrall, 2013). Evidence in nutrition science is derived from empirical data such as observations and measurements of natural phenomena, as well as by developing theoretical explanations of and relationships between these phenomena (Blumberg et al., 2010). However, it is important to note that information, or data collected from measurements or observations, does not necessarily make evidence. By nature, evidence, in order to prove or support a proposition, includes a level of human judgment (Amman & Knorr-Cetina, 1990; Scott, 2006), and requires human interpretation of what information, observations, measurements, or other types of data support a particular theoretical idea or proposition, and to what degree. Amman and Knorr-Cetina (1990) explain that, “data become evidence only after they have undergone elaborate processes of selection and transformation” (p. 88). In other words, data is subject to a complex set of social influences and human interactions in order to become evidence. It could be argued that it is only through and within human interaction that scientific information becomes evidence.

The social aspect of scientific evidence has been explored by several scholars (e.g., Berger & Luckmann, 1967; Foucault, 1970; Kuhn, 1996; Latour & Woolgar, 1979; Merton, 1973; Myers, 1990; Polanyi, 1962). Scholarly work on the social aspects of scientific evidence has demonstrated how knowledge, including scientific, is constructed within communities and through social interactions and even by

intuition. Through these social interactions, scientific fact is arrived at through consensus or agreement. For example, Kuhn (1996), in *The Structure of Scientific Revolutions*, describes scientific paradigms, which are the shared knowledge and assumptions within a mature or established scientific field. When anomalies appear that cannot be explained by the current scientific paradigm, a paradigm shift occurs as new questions and methods for answering questions emerge. Kuhn described how the emergence of new paradigms is marked by its practitioners beginning to talk to each other, rather than to a larger, more diverse audience. Paradigm shifts include the development of specialized ways of acting, being, and talking, that is, rules begin to form, instruments for answering questions are developed, and legitimate questions are formalized. This perspective on scientific inquiry helps, in part, to explain what constitutes evidence, and how it is used and interpreted by practitioners within a field of science and those in the greater community such as health professionals, policymakers, and even the public. The scientific information that serves as evidence, regardless of how it was collected or observed, quantitative or qualitative, will always need to be represented in some manner in order for it to be shared, known, used, and analyzed. While evidence itself is socially and culturally shaped, so too are representations of this scientific evidence.

Representation of science has been explored in depth from multiple perspectives (e.g., Hackett, Amsterdamska, Lynch, & Wajcman, 2008; Jasanoff, 2004; Lynch & Woolgar, 1990; Nelkin, 1995). Essentially, representation of scientific information is understood as the symbolic construction of empirical realities such as observed natural phenomena and physical entities, or of theoretical relationships.

Scientific representations can include, but are not limited to, anything from graphs and charts, to lab reports, to peer-reviewed journal articles and books, to research proposals, to textbooks, to health policy and legislation, and further abroad to public representations such as media reports, art, and even museum exhibits. These representations are mainly visually and linguistically constructed, and much of the previous research on representations of science focus on either the actual visual and linguistic elements of scientific representations, or the political, social, or cultural contexts that shape these representations (e.g., Coopmans, Vertesi, Lynch, & Woolgar, 2014; Lynch & Woolgar, 1990).

Lynch & Woolgar (1990) in describing the “contents” of scientific representation, explain that:

what scientists laboriously piece together, pick up in their hands, measure, show to one another, argue about, and circulate to others in their communities are not “natural objects” independent of cultural processes and literary forms. They are extracts, “tissue cultures,” and residues impressed within graphic matrices; ordered, shaped, and filtered samples; carefully aligned photographic traces and chart recordings; and verbal accounts. These are the proximal “things” taken into the laboratory and circulated in print, and they are a rich repository of “social” actions (p. 5).

While evidence itself is arguably socially constructed, representations of the scientific information that are used as evidence are unavoidably a product of the

social context in which they are produced, and thus reflect the ideologies of these contexts. Representation of scientific information begins even during the process of being transformed from data into evidence (e.g., Bazerman, 2004; Latour & Woolgar, 1979; Wickman, 2010, 2015).

In addition, there is increasing interest in STS in how scientific representations change and are transformed in new situations or for different audiences, particularly when scientific discourses are adapted for use with non-scientific audiences. For example, Fahnestock (1986) showed that scientific knowledge claims are transformed as they move from one rhetorical situation to another, often becoming more certain and unique in the process. The process of transforming scientific knowledge into information that is accessible or usable for different audiences and purposes is often referred to as *knowledge translation*; however, this term is understood in multiple ways. In the health and biomedical sciences, knowledge translation often refers to “the actual use of knowledge” (Straus, Tetroe, & Graham, 2009, p. 165) including its use by health care providers, patients, and policy-makers. In contrast, knowledge translation in STS can be considered the “recontextualization of scientific knowledge” (Calsamiglia & Van Dijk, 2004, p. 370), because scientific knowledge is not simply created by scientists and translated for other audiences and uses, but scientific knowledge is re-constructed and transformed in new situations for new purposes (Fahnestock, 2004; Myers, 2003). Myers (2003) notes that changes to scientific representations do not occur through linear processes, but can be understood through attending to social roles and

interactions between different discourses in addition to examining the form and content of scientific representations.

Multimodal Analysis

Finally, the CFG represents nutrition information using language, pictures, charts, and numbers, and as such, my study draws on Multimodal Analysis (e.g., Jewitt, 2009; Norris, 2012) as an analytical approach to investigating multimodal text. Writing and genre researchers (e.g., Fox & Artemeva, 2011; Wickman, 2010, 2015) have begun to acknowledge that meaning is created through more than just language in written discourse. Multimodal Analysis has grown out of various linguistics and discourse analysis traditions and holds a perspective on discourse as being socially situated and acting in concert with other “modes” (e.g., images, gesture, gaze, music) in meaning-making processes (Norris, 2012). A mode, according to Kress (2009), “is a socially shaped and culturally given resource for making meaning” (p. 54). Multimodality is based on three assumptions: language is only one means of communicating, other modes in a given situation also perform communicative functions, and people communicate via a complex configuration of multiple modes, hence the term “multimodal” (Jewitt, 2009).

My study is informed by Norris’ (2004, 2011) Multimodal Interactional (MMI) analysis, which is an action-based approach to multimodal analysis that focuses on the social action performed by varying modes, and the relationships between these modes, within a specific social context that is co-constructed by actors in interaction with each other and their situated, material context. Meaning-

making, according to MMI analysis, is accomplished through interactions that are mediated by modes. Norris (2009) describes interaction as “any action that a social actor performs in which the actor communicated a message” (p. 79). The focus of MMI analysis is on real-time interactions involving modes that are produced at the time of interaction (embodied modes), or modes that were produced prior to an interaction (disembodied modes). Disembodied modes are also referred to as frozen actions (Norris, 2004). MMI analysis includes both actors and mediated actions, but also places importance on the receiver of modes and as an integral part of the construction of meaning in a given action (e.g., Norris, 2004, 2011). While Norris considers written discourse as a frozen action, as described earlier, I view written discourse as a social action that plays an active role in shaping human activity, and as such I draw on MMI analysis to investigate how the multiple modes in the CFG create meaning and mediate RDs’ interactions with people.

Summary of Conceptual Framework

The conceptual framework for the study relies on multiple theoretical and analytical approaches for the study of the social and ideological actions of the CFG. First, key concepts from RGS, such as antecedent genre, uptake, intermediary genre, and virtual artifacts, inform investigations of text-mediated social actions and the textual features, social roles, composing processes, and reading practices associated with texts (Paré & Smart, 1994), even non-routine and non-recurring texts. Perspectives from STS provide social perspectives on the development of scientific representations and scientific evidence, as well as knowledge translation of

scientific evidence. Finally, MMI analysis facilitates investigations of the rhetorical actions performed by texts that rely on multiple modes of communication within social contexts.

Chapter 3: Methods

The preliminary investigation described in Chapter 1 highlighted several key issues with the content, readability, and readers' perceptions of the CFG. The findings from this preliminary investigation informed, in part, the design of the large-scale qualitative study presented in this dissertation in regards to the development of research questions, recruitment of participants, and methods of data collection and analysis. This chapter begins with an overview of the study design and a discussion of my role as a researcher, that is, the role of my educational and research background and their effect on the collection, analysis, and interpretation of data. I then provide details about the study participants and methods of data collection and data analysis. The chapter concludes with a discussion of the trustworthiness of the study.

Research Design

The research design for the study emerged from the outcomes of the preliminary investigation described in Chapter 1. In alignment with the conceptual framework for the study, the research design and methods of data collection and analysis were informed by a social constructivist perspective on knowledge creation. A social constructivist perspective on research is oriented toward bottom-up theory development and acknowledges the multiple meaning potentials in every situation and the largely interpretive nature of results (Cresswell & Plano Clark, 2011). Research conducted from a social constructivist worldview aims to understand and provide an interpretation of a lived experience in order to improve future practice,

and employs multiple methods and approaches – often qualitative and naturalistic – to collecting and analysing data. As such, the study has an *emergent* design that allows for flexibility throughout the research process as new ideas and information emerge (Hesse-Biber & Leavy, 2008). During the study the research questions, data collection, and analysis were adapted through a reflexive process involving the data, the emerging concepts, and myself.

The study employed a Constructivist Grounded Theory (CGT) methodology (also known as modified Grounded Theory), which complements a social constructivist perspective and an emergent research design (Charmaz, 2008; 2014). CGT provides a framework for a bottom-up approach to constructing theory where concurrent and recursive data collection and analysis allows for flexibility as patterns and themes begin to emerge out of the data. Grounded Theory was originally developed in the 1960's by sociologists Glaser and Strauss (e.g., 1967) as an explanatory framework for building theory and explaining phenomena. What distinguishes CGT from its roots in Glaser and Strauss, is the acknowledgement that researchers are socially-influenced and that research does not occur in a vacuum (Charmaz, 2014). Theory development in CGT is an interpretation of reality that is constructed as researchers interact with their data and discover patterns within and connections between data.

Role of the Researcher

A social constructivist perspective on research acknowledges the researcher's own meaning-making and values and their effects on the research

design. Therefore, it is important to discuss my education, experiences, and values that were brought to bear on the data collection, analyses and interpretations in the study. My undergraduate education in Applied Linguistics combined theoretical and social approaches to linguistics. I continued with Applied Linguistics for my graduate education, but the focus of my research became writing, non-literary genres, and social theories of learning. My education contributed to the development of a particular perspective on language whereby language is socially constructed but also constructs reality; meaning is negotiated within communities and contexts and developed through participation in and engagement with different communities and contexts.

In addition to my education, my professional research experience includes research in the field of Health Law and Policy. As part of this role, I gained knowledge of the complexities of health, such as the biological and genetic factors and the social and environmental determinants that affect it. By researching the communication of health and the biomedical sciences, my perspective on language as socially constructed and constructing was further developed. My research in this field has demonstrated that the communication and framing of health and biomedical issues plays a role in public understandings of health and science and the policy-making process. Furthermore, communication choices can have real world consequences for health at an individual and societal level.

Analyses of data for the study presented in this dissertation were also partially informed by the studies I have previously conducted that used inductive and recursive approaches to data analysis (e.g., Rachul, 2011; Rachul & Caulfield,

2015; Rachul & Zarzeczny, 2012). In sum, collection, analysis, and interpretations of data in this study are influenced by my education and professional research experience through which I have developed a perspective on health discourses as being shaped by and shaping social contexts.

Informed Consent

The large-scale study received approval to conduct research with human participants from the Carleton University Ethics Review Board in April 2014 (Appendix D). Research ethics approval was granted to conduct, audio-record, and transcribe interviews with two groups of participants. Compensation for participation was not offered to participants from either group. Further details are provided below for each group of participants.

Participants

In order to gain insight into the social contexts for the production and use of the CFG, two groups of participants were recruited for the study: a) key informants (KIs) recruited to obtain information on the revision of the 2007 version of the CFG, and b) registered dietitians (RDs) from across Canada who have used the CFG in their practice and who have worked with vulnerable populations, which included but were not limited to low-income, immigrant, or indigenous populations.

Key informants (KI). Potential study participants who were able to serve as KIs for the revision of the CFG were identified through discussions with people involved in the 2007 revision of the CFG, and which took place prior to the commencement of the study. To serve as KIs, potential participants were required to

have been involved in the revision and publication of the 2007 version of the CFG, and/or ongoing evaluation and maintenance of the CFG. Formal invitations to participate in the study were sent to the previously identified potential participants (Appendix E). Interested participants were asked to contact me directly via E-mail. After the interested participants had contacted me, I obtained their informed consent and negotiated further details regarding the time and location of interviews.

Three KIs consented to participate. Participants had a wide range of expertise in nutrition, communication, policy development, and evaluation, which informed their roles in the revision and maintenance of the CFG. To protect participant confidentiality, interview data were aggregated for analysis and findings have not been attributed to specific participants.² The abbreviation “KI” indicates the interview data elicited from this group of participants in the following chapters.

Registered dietitians (RDs). RDs are healthcare professionals who fill many roles that range from providing patient care and public health education to developing policies and resources related to dietary interventions and eating practices (Dietitians of Canada, 2015). The CFG is part of the federal government’s approach to addressing obesity and diet-related chronic disease, whose complex causes include social and environmental determinants such as poverty and food insecurity (Vandenbroeck et al., 2007). In addition, findings from the preliminary investigation described in Chapter 1 indicated that the CFG may be better suited to individuals with high levels of education. As such, working with vulnerable

² I have taken all possible steps to protect the identity of KI participants because of positions they hold.

populations was identified as a necessary, but not exclusive, criterion for recruitment of RD participants. Potential study participants were identified as RDs who consider part of the population that they work with as vulnerable, which included but was not limited to low income, immigrant, and indigenous populations. Recruitment notices were placed in monthly newsletters published by the western, central, and northern regional chapters of RDs' professional association, the Dietitians of Canada, to account for the geographical, cultural, and political diversity of Canada (Appendix F). Interested RDs were asked to contact me directly via E-mail. After the interested RDs had contacted me, I obtained informed consent and negotiated details regarding the time and location or mode (i.e. Skype or telephone) of the interviews.

Ten RDs from three regions in Canada in both urban and rural areas agreed to participate in the study. There were five RDs from western Canada, three RDs from central Canada, and two RDs from northern Canada. RD participants provided a variety of perspectives from different geographical and workplace settings that were considered important for analysis, but because the RD profession in Canada is small, individual participant profiles cannot be provided to protect participant confidentiality. Therefore, interview data are not attributed to specific RDs, rather a number is assigned: "RD#". The 10 RDs who participated in the study are employed in outpatient clinics, hospitals, public health departments, and government agencies. Their responsibilities include patient intervention, nutrition education, resource development and advocacy, and individual consultations and group classes or workshops. While recruitment of participants *focused* on RDs who work with

vulnerable populations, the recruited RDs work with a variety of populations, not all of them vulnerable, and their responses to interview questions reflect their experience with all of these populations. The RD participants' professional experience ranges from one year to more than 30 years.

Methods of Data Collection

The standard and FNIM versions of the CFG and semi-structured and unstructured interviews with KI and RD participants served as sources of data in the study. As well, some RD participants provided me with other material artifacts during interviews as examples of additional resources they use to teach nutrition.

Interviews with KIs. Semi-structured interviews of 40 minutes were conducted with two KIs who were involved in the revision of the CFG. A third KI who was not involved in the revision of the CFG, but who was associated with the CFG in a different capacity agreed to an informal interview, which complemented the analysis of the interviews with the other two KIs. An interview guide for the semi-structured interviews was based, in part, on the findings from the preliminary investigation described in Chapter 1 and covered topics about the revision process of the CFG, linguistic and visual details of the CFG and the complementary website, and about challenges with revising the CFG (Appendix G). Interviews were conducted in person at a location of the participants' choice. I audio-recorded and transcribed all of the interviews (see Appendix H for sample transcription)³.

³ Full transcriptions of interviews are available on request.

Interviews with RDs. Semi-structured interviews of 23 to 60 minutes were conducted with 10 RD participants in person or via telephone or Skype depending on participants' location and/or choice. An interview guide for the semi-structured interviews was developed based, in part, on the findings from the preliminary investigation described in Chapter 1 and covered questions about the CFG and the context for its use (Appendix I). Based on information gathered during the interview with RD1, the interview guide was revised and an additional question was added following the second interview with RD2 (Appendix I). The revised interview guide was used for interviews with the remaining eight RD participants, and follow-up e-mails were sent to the RD1 and RD2 to elicit responses to the additional questions on the revised interview guides that had not been covered during their interviews. I audio-recorded and transcribed all of the interviews (see Appendix J for a sample transcription).⁴

Texts. At the outset of the study, I was interested in the CFG's complementary website and its relationship to the standard paper version of the CFG. My initial plan was to conduct an analysis of the standard version of the CFG and the sections of the complementary website that participants from both groups highlighted in their interviews. The interview guides with both groups of participants (Appendices G & I) reflected my intention to study the website in more depth. However, after conducting the interviews with RDs it became clear that the website did not play a significant role in their practice. Instead my attention was

⁴ Full transcriptions of interviews are available on request.

drawn to the RD participants' frequent use of the First Nations, Inuit and Métis (FNIM) version of the CFG.

As a result, I chose to examine two texts for the study: the English-language standard and FNIM versions of the CFG. There are paper versions of both of these texts, and they can also be downloaded as a PDF and printed off from the CFG's complementary website (Health Canada, 2011b). The paper-based standard version of the CFG is a six-page fold-out text, where the inside pages contain the actual dietary guidelines, and the front and back pages provide additional information about lifestyle and physical activity for different age groups (Appendix A). The paper-based FNIM version is a four-page text that is intended to provide more culturally appropriate representations of the dietary guidelines for Canadian indigenous populations (Appendix B). Both of these texts include a variety of communicative modes including language, pictures, numbers, and charts.

During interviews with RDs, I also collected additional texts that informed the analysis of the interviews with RD participants. These texts include a paper copy of the standard version of the CFG with written and drawn modifications, texts from provincial or territorial health ministries, and texts from other non-governmental organizations.

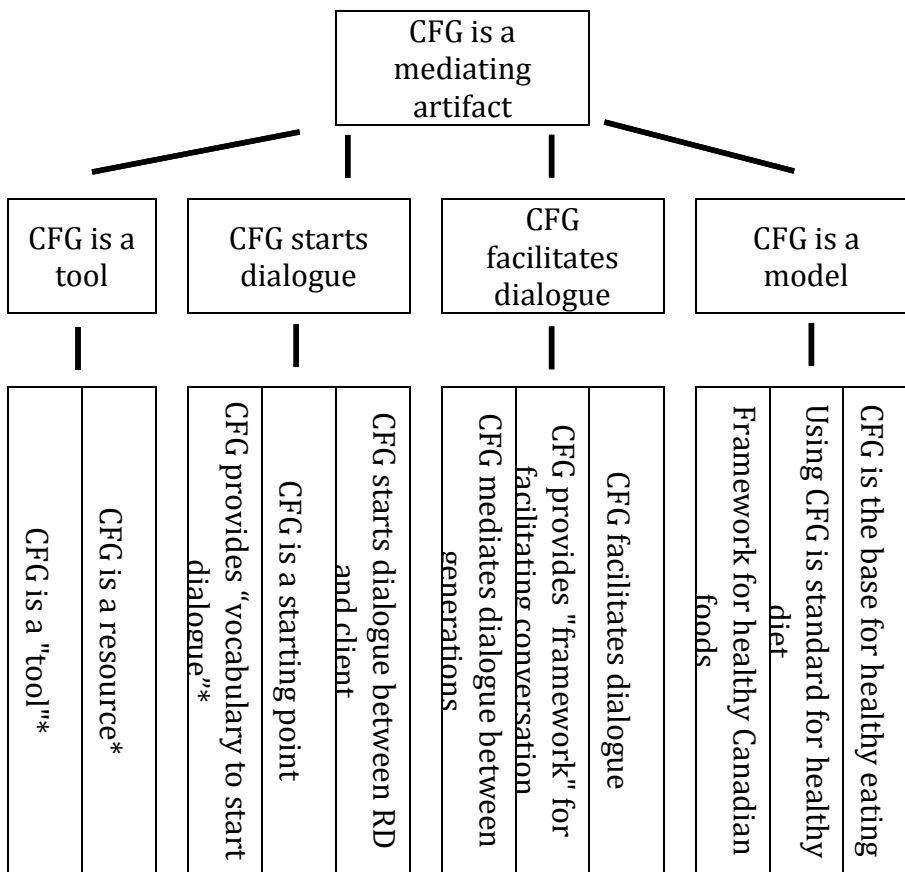
Methods of Data Analysis

Data analysis included both categorizing and connecting strategies (Maxwell, 2013; Maxwell & Miller, 2008) that allowed me to deconstruct and then reconstruct the data to provide a rich interpretation of the CFG and the contexts in which it was

revised and has been used. Categorizing strategies include identifying similarities and differences between data and connecting strategies include identifying the connections between data, or their relationships within space and time (Maxwell & Miller, 2008), both of which are inherent in CGT (Charmaz, 2014). The process of data collection and analysis began with the interviews with both participant groups, and based on findings from these analyses, I conducted an analysis of the CFG texts. The methods for the analysis of the interview transcripts and an MMI analysis of the CFG texts, and strategies for linking these data are outlined below.

Analysis of interviews. Interview transcripts were analyzed using qualitative coding methods consistent with CGT (Charmaz, 2014; Saldaña, 2013). Coding of interview transcripts for both groups of participants was conducted recursively using a constant comparison method (Miles & Huberman, 1984), but moved through two main phases. Analysis of interviews began with initial coding that I conducted manually. The unit of analysis for initial coding was a meaningful chunk of text in the interview transcripts. During initial coding, I gave each chunk of text a descriptive code that summarized the meaning of each unit of analysis (Saldaña, 2013), and sometimes included *in vivo* codes, which rely on words and expressions used by the participants (Charmaz, 2014). After the initial coding of interview transcripts, I conducted focused coding, meaning I identified salient patterns in my initial codes and developed descriptive codes to describe these patterns. During focused coding, I also began to categorize and organize codes as the connections between patterns and codes began to emerge. I relied on Microsoft Excel software to categorize and organize data during focused coding (see Figure 3.1

for a sample coding structure for a category with descriptive codes). The final coding structure for the interviews, including themes and categories, can be found in Appendices K and L.



*Quotation marks signify *in vivo* codes

Figure 3.1: Sample coding structure

Analysis of CFG texts. Following the analysis of the interviews with KIs and RDs, I conducted an analysis of the standard and FNIM versions of the CFG that drew on MMI analysis (Norris, 2004, 2012) and, as such, I considered all communicative modes in the CFG texts, including language, graphics, charts, and numbers, as well as the relationships between these modes. An important concept in MMI analysis that I

drew on for the analysis is modal density, which Norris (2004) describes as the combination of modal intensity, the weight that a particular mode carries, and modal complexity, the relationships between multiple modes that rely on each other for making meaning.

As explained in Chapter 3, MMI analysis focuses on the social action performed by modes within social contexts and I approached the MMI analysis of the CFG texts as an investigation of the rhetorical actions that the CFG performs. Paré and Smart (1994) note that exploring the social action of texts includes examining their observable features such as the rhetorical moves they make. As such, my analysis was inspired by Swales' (1990) concept of a rhetorical move from his English for Specific Purposes (ESP) genre analysis. A move is defined as a "discoursal or rhetorical unit that performs a coherent communicative function" (Swales, 2004, p. 228), and can be identified by the functional role it plays in a text. Bhatia (1993, 2004) further developed Swales' (1990) approach and extended it to discourses in professional settings. Bhatia suggests that an analysis of texts needs to begin with gathering information about a social situation, then selecting texts that are produced and used within this situation, and, in turn, analysing these texts based on the communicative purposes of the situation.

The MMI analysis of the CFG texts draws on Swales (1990) and Bhatia (1993, 2004). First, the findings from the analysis of the interviews with KIs and RDs provided information about the social situation and communicative functions (Bhatia, 1993, 2004) of the CFG and informed my selection and analyses of the standard and FNIM versions of the CFG. In addition, the unit of analysis is the

rhetorical moves, as defined by Swales (2004), and, for the purposes of this study a move could include a mode (chunks of text, picture, chart, etc.) or a group of modes. Swales' (1990) approach to genre analysis includes the identification of "steps" that realize each move, while Bhatia's (1993) approach includes the identification of "rhetorical strategies" (p. 30) through linguistic analysis, which may be more appropriate for non-linear multimodal texts. Through the MMI analysis of the CFG texts, I identified rhetorical moves in each text and the rhetorical strategies that realize each move. I relied on the findings from the analysis of the interviews with both participant groups to identify and compare the rhetorical moves in each text (Bhatia, 1993, 2004), and each rhetorical move was labeled according to the rhetorical action it performs. Labels were loosely based on Barron's (2012) study of rhetorical moves in public information messages, which investigated multimodal texts that have "the aim of changing our awareness, attitudes and behavioural patterns in relation to social ideas, tasks and practices in a manner of benefit for society" (p. 1).

Strategies for linking data. The categorizing strategies for analysing data presented above allowed me to deconstruct the data and discover the similarities and patterns between and within the data sources. To provide further insight and develop trustworthy interpretations, I employed connecting strategies that are consistent with CGT to reconstruct the data. Charmaz (2014) describes an emergent process in CGT for making connections between categories and sub-categories similar to axial coding outlined by Strauss and Corbin's (1990) approach to Grounded Theory, which Charmaz (2014) explains is a process that "reassembles

the data . . . [that] have [been] fractured during initial coding to give coherence to the emerging analysis” (p. 147). This emergent process of making connections between categories served as the development of theoretical codes (Charmaz, 2014), that is, it allowed me to begin theorizing about my data by drawing on the conceptual framework for my study as described in Chapter 2.

The connecting strategies described above were used to explore the relationships in the data sources within each participant group, and then they were employed to make connections between the data from interviews with the two participant groups and with data from the CFG texts, to create a theoretically-informed interpretation of the social and ideological actions that the CFG performs within the contexts of its production and use.

Memo-Writing

Memo-writing is an integral part of qualitative research and it played a key role in the collection, analysis, and interpretation of data in the study. Memos included insights, concepts, connections, and further questions that developed over the course of the study (Figure 3.2). I engaged in memo-writing beginning with the preliminary investigation described in Chapter 1 and continued throughout the study to make note of new analytic directions and theoretical insights that formed during analysis.

March 11th, 2015

Prior knowledge, or antecedent knowledge, is emerging as an important aspect of a person's ability to read, understand, and use the CFG. Yet there appears to be different types of knowledge that people must draw on for understanding and using the CFG: Content, Genre, and Procedural.

Prior Content Knowledge: CFG readers draw on prior nutrition knowledge, including healthy and unhealthy foods. They must also draw on knowledge of food more generally to identify the foods represented in the CFG.

Prior Genre Knowledge: The scientific representations in the CFG draw on readers' prior genre knowledge of how to read charts, calculate portions vs. servings, read cooking measurements, etc.

Prior Procedural Knowledge: In order to act on CFG guidelines, readers' must have prior procedural knowledge of food preparation and even grocery shopping skills.

In addition to the above forms of knowledge, literacy and lack of education also affects readers' abilities to understand the CFG. Low literacy and lack of education might fall under all of the above forms of knowledge as well.

Figure 3.2. Sample memo

Trustworthiness

An important part of conducting qualitative research is demonstrating the trustworthiness of the study and minimizing threats to validity. There has been a long debate among qualitative researchers about the positivist roots of the concept of validity and how best to address threats to validity in qualitative research (e.g., Hammersley & Atkinson, 2007; Lincoln, Lynham, & Guba, 2011), but for this study I rely on Maxwell's (2013) definition of validity as "the correctness or credibility of a description, conclusion, explanation, interpretation, or other sort of account" (p. 122). According to Maxwell, there are two main threats to validity in qualitative research: researcher bias and reactivity. Previous research experience and

theoretical perspectives can contribute to a researcher's bias and influence data collection, analysis, and interpretation of research findings. Reactivity describes "the influence of the researcher on the setting or individuals studied" (Maxwell, 2013, p. 124). In this study, I have adopted a social constructivist approach, which values the role of the researcher in knowledge creation. However, it is important to foreground the participants' voices and understandings of their practice while still acknowledging my active role in the interpretation of the study's findings. As such, I did not seek to eliminate, but to minimize researcher bias and reactivity, and I employed four strategies, described below, to build evidence of validity in my study (Maxwell, 2013).

Two strategies that I employed in my study to minimize threats to validity were the use of rich data and comparison between data sources. Rich data included verbatim transcriptions of complete interviews, which allowed me to check my own interpretations of data and avoid focusing on pre-conceived ideas of important concepts emerging from the interview analyses. I also used the constant comparison method (Miles & Huberman, 1984) during analysis of data sources to minimize threats to the validity of the study. Memo-writing throughout the research process provided a reference for the ideas and interpretations that emerged from collection and analysis of rich data and constant comparison across and within the sources of data.

Member checks is a process of soliciting feedback about data, such as interview transcripts, and conclusions from research participants, and is a common way to build evidence of trustworthiness in qualitative research (Maxwell, 2013). I

conducted member checks at two different points in the study, both occurring after the analyses of interviews was completed. For both member checks, participants were contacted via e-mail and given the opportunity to provide feedback on whether they agreed that their confidentiality was protected and that the representation and interpretation of their interview data were accurate. The first member check was conducted with RD participants in Fall 2015. RD participants were asked to review a sub-set of findings from the preliminary analysis of interview data. Eight out of 10 (80%) RD participants responded, two of which requested minor changes and additions to their transcripts. The second member check was conducted with KIs and RDs in Winter 2016; participants were asked to review the complete findings of their interview analysis. One KI responded and seven of 10 (70%) RDs responded, one of which requested minor additions to their interview transcript. I made the requested additions and changes to interview transcripts, which are indicated in the dissertation by “member check, DATE”. Overall, participants’ responses were positive. For example, the KI noted, “I believe that you captured well our conversation.” In addition, one RD wrote, “Thank you so much for following up and sharing this information. I have no concerns whatsoever,” and another RD shared, “Thanks . . . for your work on this and for giving a platform for RDs' voices to be heard!”

Triangulation refers to the collection of “information from a diverse range of individuals and settings, using a variety of methods” (Maxwell, 2013, p. 128) in order to build evidence of validity in qualitative research studies. Triangulation was achieved in the study in three ways: data, theory, and methodological triangulation

(Janesick, 2000). Data triangulation was provided by collecting data from multiple study participants from two different groups who provided different perspectives on the production and use of the CFG, in addition to collecting data from the two versions of the CFG and materials provided by the RD participants. Theory triangulation was achieved through the use of multiple theoretical and analytical perspectives used for interpretation of the data, including concepts from RGS, STS, and Multimodal Analysis. Triangulation of methods was achieved through employing categorizing and connecting strategies for analysis within and across interview transcriptions and the CFG texts (Charmaz, 2014). These strategies included qualitative coding methods for analysing interview transcripts (Saldaña, 2013), as well as an MMI analysis (Norris, 2004) of the CFG inspired by Swales' (1990) concept of rhetorical moves.

Chapter 4: Constructing Healthy Eating

This chapter describes the findings from the analysis of interviews with KIs about the 2007 CFG revision and explores the context for and historical and social influences on the revision of the CFG. The interview data have been supplemented by literature published on the Health Canada website, in peer-reviewed journal articles, and in consumer testing reports available from Library and Archives Canada. Three major themes emerged from the analysis of interviews, which include *updating the CFG*, *transforming science*, and *communicating healthy eating* (Appendix K). This chapter discusses each of these respective themes in depth and concludes with a chapter summary.

Updating the CFG

The CFG was revised during a 5-year process starting in 2002 (Health Canada, 2007a) and the most recent version was published in 2007. This 5-year process started with a review of the 1992 CFG version that was conducted from 2002 to 2004; based on findings from this review a decision was made to revise the CFG. One KI explains what prompted the review and the revision:

The timing. . . . The other [CFG version] had been in place since 1992. Since then we've had some new science around nutrition, mostly around the DRIs, the dietary reference intakes. So we really needed to do a review to make sure that . . . it still aligned with those recommendations, and also looking at data from CCHS [Canadian Community Health Survey] again just to see [if]

Canadians changed the way that they are eating. And looking at the result from CHMS [Canadian Health Measures Survey] in terms of looking at the types of chronic diseases that are in Canada. And also the change in food environments. Since 1992 there was more foods available, the preference for certain foods increase or decrease over time. It needed to be updated from a science perspective, but also from a fit perspective in terms of . . . where the food tendencies were at in Canada and what was available.

The review included an assessment of the scientific evidence that informed the CFG, changes in the major health concerns that Canadians face and the food environment in Canada, as well as the use and understanding of the CFG. Several challenges were identified during the review of the 1992 version that prompted a revision to address consumer confusion with serving sizes and ranges, unclear terminology, a lack of multicultural representation and outdated graphics (Health Canada, 2007a; Katamay et al., 2007).

KIs describe the revision process as taking place within interdisciplinary working groups responsible for different parts of the revision. For example, there was a team responsible for the development of content for the standard version of the CFG that is sometimes referred to as “the consumer piece” (KI), and another team responsible for the development of the interactive website. The interdisciplinary teams often included external consultants, such as specialist writers or communications agencies, that provided expertise required to fulfill the responsibilities of each working group.

In addition to updating the scientific basis of the CFG and considering changes in Canadians' health and the food environment in Canada, the revised CFG and the many decisions about how to communicate and disseminate the dietary guidance were subject to publication policies that were in place during the period between 2004 and 2007. KIs explain that policy "changes on a regular basis, so at the time, it was a little more flexible in terms of doing publications" and that "we had a little more liberty at the time that we did the food guide in terms of how we developed the website". An accessibility policy played a role in some of the decisions that were made regarding the visuals and literacy level of the CFG. One KI notes "we do have to make sure it's accessible. We have a Health Canada accessibility policy. So, everything that we did, we did have to ensure that it's accessible". In addition, the *Official Languages Act* (1985), a Canadian language law, required that "everything had to be available in English and French" (KI).

The timing of the CFG revision offered opportunities to develop additional resources that were previously unavailable for the CFG. The years spanning 1992 to 2002, when the revision process began, included an exceptional period of technological development and change, most notably the advent of widespread and public use of the Internet (Statistics Canada, 2003). KIs explain that the revision published in 2007 was the first time that web-based digital technologies were available as a possible medium for the CFG. As such, in order to complement the paper version of the CFG, a decision was made to develop a website with interactive features. One KI explains that additional resources were developed as a result of the review of the 1992 version of the CFG:

They basically did a review of the 1992 food guide and the results led to a revision of the food guide itself. And then that's when complementary resources were also developed with the print resource that included the web component and the educators and communicators resource.

The design and communication of nutrition information in the CFG occurred within a specific time and location, which had a significant impact on the form and the function of the CFG resources. The 2007 CFG was based on scientific evidence about nutrition that was current in the mid-2000s and consumer and expert perspectives on food and food practices in Canada during the same time. Moreover, the timing of the revision of the CFG was subject to publication and accessibility policies and was also a catalyst for the development of additional resources such as an interactive website.

Transforming Science

According to KIs, findings from the review of the 1992 CFG indicated that the scientific basis for the CFG needed to be reviewed and updated and they describe how the revision process began with a complex process of transforming scientific evidence about human nutrient requirements into a food-based model. KIs explain that the transformation of scientific evidence was carried out using multiple forms of evidence, such as data on food consumption and disease prevalence in Canada, or by relying on previous versions of the CFG.

The CFG is based on scientific evidence from nutrition science, and as one KI notes, “the science behind the food guide is actually very strong.” The 1942 CFG version was based on Recommended Dietary Allowances (RDAs), the average level of daily intake of nutrients that is sufficient to meet nutrient requirements, which were first developed in the U.S. and Canadian RDAs were developed in 1945. RDAs were reassessed and renamed Dietary Reference Intakes (DRIs) in 1997, which are the values of required macro and micro nutrients that people need to maintain their health and help prevent chronic disease (Health Canada, 2013b). According to KIs, the transformation of scientific evidence for the 2007 CFG involved an update to the DRIs, which occurred in 2004 (Katamay et al., 2007).⁵

DRIs are published in long reports that also include detailed overviews of the nutrients and the methods used to determine the DRI values (Health Canada, 2011c), but the DRI tables are also publicly available on Health Canada’s website. The DRI tables include the values of specific nutrients (e.g., vitamin A, iron, magnesium) for different age and sex categories (Figure 4.1) and also include information about physical activity for these age and sex categories. The development of DRIs is a process that is foundational, but separate from the development of the CFG. The DRI reports inform other nutrition-related policies and initiatives in Canada as well, such as the Nutrition Facts labels for food products (Health Canada, 2013b).

⁵ Updates to the DRIs for calcium and Vitamin D were made in 2009, which prompted some changes to the 2007 version of the CFG, which was re-published in 2011 with updated information about vitamin D (Health Canada, 2013b).

Dietary Reference Intakes
Reference Values for Vitamins

Unit	Vitamin A ^{1,2}						Vitamin D ^{**}						Vitamin E ⁵			Vitamin K		
	µg/day (RAE)		IU/day (RAE)		IU/day ⁴		µg/day ⁴		IU/day ⁴		mg/day		µg/day		µg/day			
	EAR	RDA/AI	UL ³	EAR	RDA/AI	UL ³	EAR	RDA/AI	UL	EAR	RDA/AI	UL	EAR	RDA/AI	UL ⁶	AI	UL ⁷	
Infants	0-6 mo	ND	400*	600	ND	1333*	2000	ND	10*	25	ND	400*	1000	ND	4*	ND	2.0*	ND
	7-12 mo	ND	500*	600	ND	1667*	2000	ND	10*	38	ND	400*	1500	ND	5*	ND	2.5*	ND
	Children																	
Males	1-3 y	210	300	600	700	1000	2000	10	15	63	400	600	2500	5	6	200	30*	ND
	4-8 y	275	400	900	917	1333	3000	10	15	75	400	600	3000	6	7	300	55*	ND
	9-13 y	445	600	1700	1483	2000	5667	10	15	100	400	600	4000	9	11	600	60*	ND
Females	14-18 y	465	700	2800	2100	3000	9333	10	15	100	400	600	4000	12	15	800	75*	ND
	19-30 y	500	700	3000	2083	3000	10000	10	15	100	400	600	4000	12	15	1000	120*	ND
	31-50 y	625	900	3000	2083	3000	10000	10	15	100	400	600	4000	12	15	1000	120*	ND
Pregnancy	≤18 y	530	750	2800	1767	2500	9333	10	15	100	400	600	4000	12	15	800	75*	ND
	19-30 y	550	770	3000	1833	2567	10000	10	15	100	400	600	4000	12	15	1000	90*	ND
	31-50 y	550	770	3000	1833	2567	10000	10	15	100	400	600	4000	12	15	1000	90*	ND
Lactation																		
Lactation	≤18 y	885	1200	2800	2950	4000	9333	10	15	100	400	600	4000	16	19	800	75*	ND
	19-30 y	900	1300	3000	3000	4333	10000	10	15	100	400	600	4000	16	19	1000	90*	ND
	31-50 y	900	1300	3000	3000	4333	10000	10	15	100	400	600	4000	16	19	1000	90*	ND

This table presents Estimated Average Requirements (EARs) in italics, Recommended Dietary Allowances (RDAs) in bold type and Adequate Intakes (AIs) in ordinary type followed by an asterisk (*). Tolerable Upper Intake Levels (ULs) are in shaded columns.

** New 2010 values have replaced previous 1987 values.
¹ As Retinol Activity Equivalents (RAE). See conversion factors for more details.
² No DRIs are established for beta-carotene or other carotenoids. However, existing recommendations for consumption of carotenoid-rich fruits and vegetables are supported.
³ UL as preformed vitamin A only. Beta-carotene supplements are advised only to serve as a provitamin A source for individuals at risk of vitamin A deficiency.
⁴ These reference values assume minimal sun exposure.
⁵ EAR and RDA/AI as alpha-tocopherol (2R-stereoisomeric forms) only. See conversion factors for more details.
⁶ The UL for vitamin E applies only to synthetic vitamin E (all isomeric forms) obtained from supplements, fortified foods, or a combination of the two.
⁷ Due to lack of suitable data, a UL could not be established for vitamin K. This does not mean that there is no potential for adverse effects resulting from high intakes.

Figure 4.1. Sample DRI table (Health Canada, 2010a).

The DRI values represent macro and micro nutrients, and not actual food, so the scientific evidence needed to be further transformed into a food intake pattern (Katamay et al., 2007), or a “model of . . . how healthy eating could be. And it’s a model to help reach our nutrition requirements” (KI). Development of a food intake

pattern relied on the 1992 CFG as well as on food consumption surveys and the Canadian Nutrient File (CNF) (Health Canada, 2012) to develop a pattern that reflects Canadian food practices (Katamay et al., 2007). KIs explain that it was important to base the dietary guidelines on scientific evidence regarding nutrient requirements, but also to situate this evidence within the Canadian context. They state, “we can’t just take [evidence] on its own, we need to look at it in a bigger context” and that they have a “very comprehensive way of looking at the evidence. We look at the science base, but we also look at the context in which Canadians are living.”

The development of the new food intake pattern for the 2007 version of the CFG relied on information from the 1992 version. Katamay et al. (2007) explain that the development of the food intake pattern used “the food groups and directional statements . . . from the 1992 Food Guide as a starting point” (p. 157). Beginning with the food groups and recommendations included in the 1992 CFG, the food intake pattern was then developed through a complex process that transformed the DRIs using data from food consumption surveys that provide information about foods that Canadians frequently eat, as well as consultations with experts. A KI explains that the process of situating scientific evidence:

takes our food environment into consideration, and it takes also the preference of Canadians because when we developed [the 2007] food guide we had some very interesting data that was not available before this food guide, which was from the CCHS data. And from there we were able to look at

what types of food were most chosen by Canadians. It may not represent the individual, but it represents that Canadians at large tend to eat a lot of carrots.

The resulting food intake pattern provides quantities of foods within the four major food groupings that are intended to ensure adequate nutrient intake for several age and sex categories (Figure 4.2). The quantities of food are represented as numbers of servings for the food groups from the 1992 version of the CFG. The serving sizes appear to have been developed based on the CNF, which calculates nutrient values per 100g of food (Health Canada, 2012), but have been adjusted to cooking measurements. The CFG website explains that:

A Food Guide Serving is simply a reference amount. It helps you understand how much [emphasis in original] food is recommended every day from each of the four food groups. In some cases, a Food Guide Serving may be close to what you eat, such as an apple. In other cases, such as rice or pasta, you may serve yourself more than one Food Guide Serving. (Health Canada, 2007c, para. 1)

In other words, an individual serving size does not represent a recommended portion of food, but the cumulative number of serving sizes per day represents the recommended amount of food from each food group each day, regardless of how much is eaten at each meal.

Table 3. Eating Well with Canada's Food Guide (2007): Number of Food Guide Servings for Males and Females by Age								
	Age in Years							
	2-3	4-8	9-13	14-18	19-30	31-50	51-70	71+
Males								
Vegetables and Fruit	4	5	6	8	10	8	7	7
Grain Products	3	4	6	7	8	8	7	7
Milk and Alternatives	2	2	3-4	3-4	2	2	3	3
Meat and Alternatives	1	1	2	3	3	3	3	3
Unsaturated Fat (g)	30	30	30	45	45	45	45	45
Females								
Vegetables and Fruit	4	5	6	7	8	7	7	7
Grain Products	3	4	6	6	7	6	6	6
Milk and Alternatives	2	2	3-4	3-4	2	2	3	3
Meat and Alternatives	1	1	1	2	2	2	2	2
Unsaturated Fat (g)	30	30	30	30	30	30	30	30

Figure 4.2. Food intake pattern (Katamay et al., 2007)⁶

The food intake pattern also included the development of a series of recommendations that addressed the differences in quality between different food choices within the four major food groupings (Figure 4.3), for example, "Eat at least one dark green and one orange vegetable each day" (Katamay et al., 2007, p. 162). A KI explains how these recommendations were also written to reflect Canadian food consumption patterns:

These are all foods that Canadians would typically eat. The dark green vegetables and orange vegetables and the fresh vegetables are emphasized. Your grains, whole grains are emphasized, and things that do appear and are consumed in Canada. So we didn't put all images of whole grains because people eat white rice. There's recommendation on having your milk every

⁶ Figure 4.3 is reprinted by permission of the publisher, Oxford University Press, from "Nutrition Reviews" (see Appendix M).

day, so that's why [the milk] is more prominent. Trying to encourage to eat more vegetables. It's not super obvious but there's a rationale behind it.

Food Group	Statement
Vegetables and Fruit	Eat at least one dark green and one orange vegetable each day.
	Choose vegetables and fruit prepared with little or no added fat, sugar or salt.
	Have vegetables and fruit more often than juice.
Grain Products	Make at least half of your grain products whole grain each day.
	Choose grain products that are lower in fat, sugar or salt.
Milk and Alternatives	Drink skim, 1%, or 2% milk each day.
	Select lower fat milk alternatives.
Meat and Alternatives	Have meat alternatives such as beans, lentils and tofu often.
	Eat at least two Food Guide Servings of fish each week.
	Select lean meat and alternatives prepared with little or no added fat or salt.
Oils and Fats	Include a small amount – 30 to 45 mL (2 to 3 Tbsp) – of unsaturated fat each day. This includes oil used for cooking, salad dressings, margarine and mayonnaise.

Figure 4.3. Food choice recommendations (Katamay et al., 2007)⁷

Communicating Healthy Eating

In addition to updating the scientific basis of the CFG, key findings from the review of the 1992 CFG prompted an update of the CFG's appearance and usability (especially serving sizes), as well as inclusion of multicultural representations. A KI sums up the task in one question: "how do we translate the dietary recommendation intakes into a way of eating that would be suitable for a lot of Canadians?" The same KI states, "it was really about the translation of the science into more lay language." That is, from the KIs' perspectives, revising the CFG was a knowledge translation

⁷ Figure 4.4 is reprinted by permission of the publisher, Oxford University Press, from "Nutrition Reviews" (see Appendix M).

activity, where the food intake pattern needed to be translated into a document intended for a wide audience. KIs note that the translation of the food intake pattern into the CFG relied on visual elements (i.e., rainbow graphic) and food representations (i.e., four food groups) from the previous version of the CFG, as well as consultations with stakeholders and consumer testing to help translate the food intake pattern into the 2007 CFG. KIs also attributed difficulties with revising the CFG and perceptions of the CFG after it was published to issues with the communication of the dietary guidelines and not the evidence base: “the science behind the food guide is actually very strong and there’s a lot of credibility in it. It’s mainly the messaging that we need to focus [on] more and the education part.”

The translation of the food intake pattern into the CFG was influenced by the material and practical constraints of the CFG resources, the purpose and communicative goals of the CFG, the target audiences for the CFG, and feedback from stakeholder consultations and consumer testing. The CFG producers drew on knowledge of typical scientific representations, previous versions of the CFG, and typical nutrition education strategies, as well as prior experience, to transform the food intake pattern into a resource for public use.

Creating a group of resources. The revision of the CFG was influenced, in large part, by material and practical constraints. Part of the task of revising the CFG was establishing what form the resource would take. The 1992 version of the CFG was a two-piece paper document, where the two pieces were connected with a perforated edge. One piece was a single, double-sided page that provided the dietary guidelines, and the second piece was a 16-page booklet that contained additional

information about the development of the CFG and how to use it. For the 2007 version, a decision was made to shorten the CFG into a single, shorter paper document and develop a complementary website. A KI explains:

Through the years, and because of cost, the [1992] food guide became the 1-pager and [the 16-page booklet] got lost. So one of our task[s] when we reviewed the food guide was to have everything into one piece. So everyone thinks that it's longer than before, but it's shorter than what we had before.

KIs explain that shortening the paper document and developing the website was a possible way to limit the costs associated with printing the CFG. However, a KI observes, "we did ask people whether . . . people need to have the printed food guide 'cause we were trying to actually not print as many. And we did get a response that people still want the printed document." In response to consumers' preferences, the paper version of the CFG remained the main document.

In respect to the development of multiple resources in 2007, additional to the paper-based version, a KI explains, "they're not all silos. The print resource isn't its own thing, the web isn't its own thing." The CFG became a group of resources that work in concert to provide the dietary guidelines. Essentially, the CFG resources (i.e. print resource, interactive website) were designed to interact in order to provide a fuller understanding of the dietary guidelines. While the resources work in concert, KIs describe distinct functions for each of these resources, where the print resource is considered the main document that provides the guidelines for healthy eating. As

a KI explains, the interactive website is “not meant to provide any new guidance; the website is really an extension of the guide,” and the purpose of the website is “to facilitate the understanding of the food guide by consumers and also to provide a portal or a way for intermediaries to access various information to facilitate their ability to communicate and educate using the food guide.” The guide for communicators and educators provides more in-depth information about the dietary guidelines in the CFG as well as tips and tools to assist intermediaries with teaching the guidelines to children and adults. The First Nations, Inuit and Métis (FNIM) version was developed concurrently with the resources described above and it was designed as a more culturally appropriate version of the dietary guidelines for Canada’s indigenous populations, and translations of the CFG into several languages were also produced.

The addition of a website and the shortening of the print resource raised questions regarding what information to include in each resource and determining the relationship between the resources. A KI explains, “2007 was the first time we had the comprehensive site that complemented the print resource. So, it allowed us to kind of expand on the information in the print resource.” The website provided a previously unavailable opportunity to expand on information in the print resource and was able to fulfill a complementary function because there was “more space, more room to provide content” (KI). Since the print resource was shortened and the website provided more space for content, some information was moved from the print resource to the website in the 2007 version. For example, information about how to understand and use the CFG, which previously was part of the 16-page

booklet in the 1992 version, was placed on the website instead of including it in the paper resource.

Decisions about what information to include in each of the resources were further determined by the capabilities specific to the website. One KI mentions, “we knew there was interest in having interactive tools to support the use and understanding of the food guide.” An interactive feature called My Food Guide (Government of Canada, 2016) was developed that allows users to create a customized one-page food guide. The My Food Guide interactive feature on the website replaced features from the 1992 version of the CFG that were removed from the 2007 paper version because of the shortened length of the print resource. One KI explains:

We wanted to have a better laid out printer friendly version, so obviously it's a 6 page colour guide, and it's not that easy to print, but that was also one of the intentions of the My Food Guide, . . . it allowed people to kind of customize what was on the print food guide into one page. In 1992, it was one page double-sided, so people could put it on their fridge, so the My Food Guide was a one page print-out that gave you recommendations for your age and sex and you choose different foods that you like and then one of the objectives was to, people had a one-pager to put on their fridge.

In other words, according to KIs, the CFG is a group of resources that together provide Canada's official dietary guidelines. Information that is considered

necessary for understanding and using the CFG is spread across the various resources, where the print resource is considered the main document and the website and other resources are complementary but provide valuable information for fully understanding the print resource. Dividing the CFG across several resources was a result of financial constraints and decisions to shorten the paper version, but also seen as an opportunity to provide more detailed, individualized, and interactive guidance for healthy living.

Establishing purpose. KIs explain that the CFG is a “population health tool” and its overarching purpose is health promotion: “the food guide itself is to promote health and prevent nutritional related chronic diseases” and “to promote healthy eating to Canadians.” More specifically, KIs mention that the purpose of the CFG is “to meet nutrient needs within an acceptable calorie range.” In other words, revising the CFG was more than just constructing a food intake pattern, and the dietary recommendations appear to be shaped by multiple purposes and intended outcomes. KIs also explain the anticipated, or hoped for, outcomes of Canadians following the CFG:

Following the food guide can help not only meet your nutritional needs from a macro and micro nutrient perspective, but also long term can help decrease the risk of nutrition-related chronic diseases, as well as decrease the risk of obesity. So all of the issues that are very prominent in Canada, and this is one way to help address them.

As a model of healthy eating, the CFG not only provides guidance on what to eat, but KIs also explain that it can be used as the standard with which other diets can be compared. For example, researchers might use the CFG as a model for their research. One KI explains that researchers “often use it as a baseline of what Canadians should be eating.” Another KI explains that the CFG can be used to determine the health trends and diet claims provided by other sources of nutrition information:

The food guide I think can be both something that is basic and that people can go to to be able to say, yeah, if it’s completely different from the food guide, maybe I need to question it a bit.

As one KI describes, “we’re trying to do a lot with one document.” The KIs explain that the CFG plays an important role in health policy and programs in Canada and that it “informs a lot of other projects and/or policies, programs, initiatives across the country . . . [the CFG is] foundational to many things from promotion, to surveillance, to policy development, guideline development . . .” According to KIs, the CFG is meant to do more than promote health or provide dietary recommendations. The KIs explain that any activities that are carried out by the ministry of health that concern healthy eating are based on the CFG:

All of these [promotion] activities [are] really to promote healthy eating to Canadians and the basis of healthy eating . . . always comes back to our

national guidelines, which is the food guide. So all of [the] social marketing activities, education activities, were grounded in the food guide.

One KI explains that even when the CFG is not mentioned explicitly, there is an assumption that the term “healthy eating” refers to the CFG: “Even if we’re not always saying food guide, food guide, food guide, healthy eating is about Canada’s Food Guide.”

Findings from the analysis of interviews with KIs revealed that the CFG, essentially, is a tool that is meant to assist Canadians with making healthier lifestyle choices. The CFG was constructed not only to describe what a healthy eating pattern looks like, but also to outline *how* Canadians can follow this pattern within a Canadian-specific context. KIs describe how the CFG is meant to be flexible and not an exclusive model for healthy eating. They explain that the CFG “presents only one model, so it’s one pattern of eating. So it doesn’t mean there aren’t other ways of eating that . . . you could follow to achieve the recommendations,” and clarify that “it is only a guide . . . people need to understand that this is something that needs to be flexible.” Within this flexibility, however, one KI emphasizes, “you need to follow the quality as well as the quantity to really reach the food guide recommendations.” In other words, the quality of people’s food choices in addition to the quantity of food is important.

KIs also explain how the CFG is meant to describe eating as not just being about health, but that healthy eating is part of a holistic approach to well-being, which includes physical activity. To reflect this perspective on healthy eating, the

title of the CFG was revised from *Canada's Food Guide to Healthy Eating* to *Eating Well with Canada's Food Guide*. One KI explains, "eating well sounds a bit more encompassing of, you know, it's also about pleasure and it's about comfort and eating is not just about health, it's about well-being and so this why we moved to this new title." An important part of the CFG's emphasis on well-being was also to include guidance on physical activity and provide links to Canada's official physical activity guidelines as well (PHAC, 2011) in order to "link [the CFG] with the importance of physical activity and well-being and certain food needs to be very limited" (KI). The placement of the additional information about physical activity, foods that people should limit, and tips for living a healthy lifestyle on the back pages of the CFG was also a strategy to emphasize their importance. A KI explains:

We also put on the back of the food guide . . . we put it on the back on purpose 'cause that's prime real estate, where you put down the food guide and it's upside down and it's there, . . . what foods are high in fat and sugar and salt. Some people think, oh, it's on the back so they don't see it as important, but actually that was how, that's prime real estate on that resource.

The main purpose of the CFG, according to KIs, is to promote healthy eating with the goal of reducing Canadians' risk of developing diet-related chronic diseases, including obesity. The development of the CFG responds to the need to address the problems of obesity and diet-related chronic diseases in Canada. As a response to this need, the CFG provides a tool for Canadians to make healthier food and lifestyle

choices; a tool that presumably reflects how Canadians eat and what food is available in Canada. The CFG, while constructed to promote health, also serves many other policies and initiatives, and serves as the “official” healthy eating pattern. Most importantly, the underlying assumption of the CFG’s purpose highlights that health and healthy outcomes are the responsibility of the individual.

Addressing audience. According to KIs, “the biggest challenge is . . . the diversity of Canada and having something that meets the whole population.” KIs also acknowledge that they were not able to meet everyone’s needs:

We have such a diverse population in Canada, you want to reach adults, but you want it to resonate for people from coast to coast, for people from different cultures . . . We did our best. Is it perfect? No. If you wanted, then it would be important to target it more to each audience, but it was just not realistic really.

Developing and communicating dietary guidelines that address the many needs in Canada presented a number of obstacles while revising the CFG and despite the inability to address every need, the CFG was written with a particular audience in mind and specific needs were considered when communicating the dietary guidelines. KIs explain, “the audience is very vast,” but that “the focus is for healthy population. It’s not providing disease specific guidance. The intention is healthy Canadians.” Some of the communication choices when developing the CFG, however, were directed towards particular demographics: “When we developed the

consumer piece, we wrote it for adults, particularly with children, and we tried to keep in mind lower literacy” (KI).

KIs discussed that, due to the diversity of Canada’s population, it was difficult to produce a document that all Canadians can read and understand. They claim that “it’s hard to have a document [that] can satisfy all the needs because there are so many different variables that affect people’s understanding.” KIs claim that it is difficult to develop a document that does not require at least a certain level of literacy due to the representations of scientific evidence about nutrition. A KI observes:

The other thing that is very difficult with nutrition in particular, is the whole bringing down the literacy level. Because the language of nutrition has a lot of complex words in it that you can't really easily replace. And there’s a lot of numbers. And when you start incorporating numbers, people shut down. It’s very complicated.

In addition to literacy, KIs cite prior knowledge as a factor that affects Canadians’ ability to read and understand the CFG. The CFG is geared towards audiences that have experience with cooking and have at least a little knowledge about nutrition prior to reading the CFG. A KI explains:

The other thing that is difficult for the food guide is the fact that people eat a lot of combined meals, right? And we have an example, how to break it down,

you have all of your food in a meal, then separate it. So, following a food guide, ideally, also requires a lot of cooking. So you see there's a lot of links to being able to follow a food guide well. It requires some education from a nutrition perspective, but also a cooking perspective. And, you know, people that cook will understand these measures much better. They will be able to relate to it and understand what goes in their food.

Another way of addressing the linguistic and cultural differences in Canada's population was the development of the FNIM version, as well as multiple language translations of the CFG. KIs explain that for the FNIM version "the recommendations are the same, but it was a little bit more adapted to represent the foods, so [the FNIM version] has been culturally adapted." In addition to legislated English and French versions of the CFG, multiple language translations were also seen as an important way to address a larger audience. Unlike the FNIM version, the other language translations are not cultural adaptations:

In order to increase the accessibility, there was [sic] also translated versions that were created. So they were not adapted versions, there were strictly translated. So, it decreases the barrier with the language, but they didn't necessarily adapt from a cultural perspective. (KI)

While the target audience may be healthy adults with children, the CFG producers also recognized that many other people and organizations use the CFG for

different purposes. KIs mention that “the other audience . . . is public health, hospitals, ‘cause very often their own recommendations will be based on the food guide.” In other words, other healthcare organizations and professionals rely on the CFG to conduct their work. In order to make up for the CFG’s inability to address the many needs that Canadians face, the CFG was also developed with the knowledge and intention that it would be used and further taught and modified by “intermediaries” (KI) who are described as “communicators and educators, so could be public health professionals, could be teachers, could be allied health professionals” (KI), and includes RDs. A KI explains, “one of our target audiences is intermediaries,” who “have a role to play . . . in translating the science.” KIs said that it was challenging, and even impossible, to develop guidelines that addressed all possible audiences, so creating guidelines with the intention that intermediaries could adapt the guidelines to different contexts helps account for Canada’s diverse populations and needs. KIs explain, “one of the big purposes of the food guide is for it to be used as a foundation for other policies, programs, and initiatives where people can tailor it to the needs of their population” and “it is a guide and can be adapted when people work with . . . other subgroups.”

So, while the CFG may target healthy adults with children, and CFG producers have attempted to account for lower literacy and numeracy levels, the CFG is also constructed in full knowledge that it will need to be taught and modified for specific populations and needs. Some of the communication choices in the CFG were based on the expectation that intermediaries, such as RDs, would provide further explanation of the concepts in the CFG and modify the guidelines to the needs of

particular people and populations. Some of the design and visuals reflect the anticipated uses of the CFG by intermediaries. KIs explain, “we designed a cover so that it would be simple, so that intermediaries could use this information with younger children” and, similarly, that “we wanted to have the cover very clean, so that if you’re working as an intermediary with people that are low literacy, you can use that as an education tool.”

Canada’s population is diverse, but the target population, on which communication choices were based, is healthy adults with children. KIs discuss how they considered literacy and numeracy, as well as cultural and linguistic differences when revising the CFG, but that they were unable to fully address these issues because of the nature of nutrition science (i.e., numbers and specialized terminology) and the diversity of needs that Canadians face. KIs admit that despite efforts to account for lower literacy and numeracy levels, the CFG requires a fairly high literacy level and knowledge of cooking and other nutrition knowledge in order to use the CFG. Responsibility for healthy choices is placed on individuals, yet the CFG was designed in a way that limits who can make these healthy choices by requiring a certain level of knowledge about cooking and nutrition.

Consulting audience. An important part of transforming science and addressing the CFG’s many audiences was considering stakeholder and consumer perspectives and opinions. One KI notes, “how we deal with ensuring understanding of the scientific information is we do consultations with intermediaries, consumers.” Consultations with stakeholders, which included a wide range of experts and consumers, were conducted during the initial review of the 1992 CFG to assess

needs and preferences for the revised version. Consumer testing was then conducted later in the revision process to test multiple possible layouts and designs for the revised CFG (Ekos Research, 2006a, 2006b).

Stakeholder consultations that were conducted during the review of the 1992 version of the CFG revealed that the public was interested in having more individualized guidelines, which a KI observes, “is a trend in nutrition.” As one KI explains, “it’s a population health tool. And people did want more individualization.” The same KI mentions that the ranges of daily servings in the 1992 version was broad and during the consultations, people asked ‘where do I fit in?’” The process of designing the CFG and communicating the food intake pattern became a balancing act between developing a population health tool and individualizing the guidelines. KIs indicated that this balancing act had an impact on many of the choices that were made in the design and communication of the CFG.

In order to address the desire for more individualized guidelines, one KI explains, “that’s why [in] this food guide, we have different age and sex groups. So that was as close as we can get to customizing, individualizing the food guide for a population health purpose.” These age and sex groups were added to the chart of daily recommended servings, in which the age and sex categories form the columns and the four food groups form the rows (see Appendix A & B). Creating more categories for the daily recommended servings also increased the use of numbers in the CFG and thereby the complexity of the CFG, but there appeared to be a positive response during the consumer testing phase of the revision:

We decided to go in terms of having it by age group, so a little bit more individualization. And we knew that it added to the complexity, because you have a lot of numbers here, but when we tested it consumers said ‘yes, I want to know for my age group, I want to know for me.’ And this was bringing a little bit of the individual factor into something that is meant to be for a whole population. (KI)

There was concern, however, about increasing the complexity of the CFG, not only because the complexity raises the literacy level, but also, as one KI observes, many Canadians have trouble meeting even simple recommendations and are not ready for more complex, detailed recommendations:

Even as a guide, something as basic as . . . the key recommendations to eat more vegetables and fruit, well most Canadians are not able to reach that very simple and only one of the multiple recommendations in the food guide. So a lot of people may want something that is more complex, more individualistic, but there’s a lot, I think, room to grow.

In response to a perceived need to provide more individualized dietary guidelines, the guidelines were further categorized according to age and sex and conveyed through a chart with rows, columns, and numbers, which were borrowed from the DRI tables and food intake pattern. Despite being aware of the added complexity to the guidelines and aware of the inability for many Canadians to meet

even simple recommendations, the CFG producers relied on scientific methods for data representation in the 2007 CFG. KIs also discuss how the CFG cannot adequately address individual needs, and that modifying the CFG to suit particular needs and populations can be considered the responsibility of stakeholders and intermediaries:

We're trying to meet the needs of many. And we think we did the best job as we can, but it will never satisfy people who want very individualistic advice, which is why we work very close with intermediaries, as well, in the provinces and the territories. 'Cause they then will modify the guide to suit their specific population needs.

In addition to developing a chart with age and sex categories to increase the individualization of the CFG guidelines, results from consumer testing also had an impact on some of the other communication choices in the CFG. As previously noted, the CFG producers considered the quality of food choices, along with the quantity of food, an important part of meeting the CFG's recommendations. KIs describe relying on their knowledge of typical reading orientations to highlight the importance of the food quality guidance and designing the layout of the CFG to communicate the importance of the quality of people's food choices: "we tested having it on the left, because we thought, you know, read left to right." However, consumers did not appear to interpret the information as expected. One KI explains, "it confused people. It was not the preferred way . . . [we] ended up putting it at the end." As a result, the

recommendations regarding the quality of food choices were placed after the information about daily recommended servings and descriptions of serving sizes (see Appendix A). However, as a KI observes, “there’s concern that nobody gets to the end to read it.”

Serving sizes have been a frequent point of confusion for consumers (Katamay et al., 2007), and the results of the consumer testing influenced how serving sizes were represented. As previously noted, KIs emphasize that the guidelines are flexible and that the revised CFG needed to address the diversity of Canada’s population while maintaining the flexibility of the guidelines. KIs explain how they drew on their knowledge of typical nutrition education practices to represent examples of serving sizes:

What we thought was a more consumer-friendly way of looking at serving size, [was] by having reference to the hand . . . we had also discussed in our group having reference to typical objects, and you see that sometimes in nutrition education, like a tennis ball, or a computer mouse or something like that.

However, after consultations with experts, the CFG producers rejected the plan to represent serving sizes with typical household objects for cultural reasons. One KI explains, “we moved away from that because we had some of our experts that said that not everybody could necessarily relate to the objects that we were using.” KIs also describe how they chose not to use hands to represent serving sizes

after consumer testing because consumers indicated that these representations were confusing and they preferred more precise representations. One KI explains:

Consumers didn't like the hand approach either because they got really confused. They were like, "yeah, but my husband, his hands are thicker than mine," and then, like, "How do I know which hand to use?" . . . we thought it would be so much more simple, and it doesn't have to be precise, but consumers wanted the precision.

As a result of consumer testing and consultations with experts, the serving sizes are now represented by empirical measurements, indicated through numbers and pictures. One KI explains, "what we ended up to have a bit of a visual, and it's not everywhere, but when we have the cup, we have the visual cup."

There were several challenges to overcome during the revision process, namely trying to individualize a population health tool, and addressing confusion with representations of serving sizes. The CFG producers relied on their own understanding and knowledge of nutrition science and the food intake pattern to address these concerns, even when this approach increased the complexity of the CFG and the level of literacy and numeracy required to read and understand the CFG. Also, while consumer testing indicated that people wanted more individualized and precise guidelines, the problems with the CFG persist.

Chapter Summary

The CFG was revised in response to a review of the 1992 version that indicated that its scientific basis and appearance needed to be updated. The process of revising the CFG included updating and transforming the scientific evidence into DRIs, and then into a food intake pattern. The transformation of the scientific evidence relied on other resources such as previous versions of the CFG, the CNF, and data about food consumption and disease prevalence in Canada. According to KIs, the translation, or recontextualization, of the food intake pattern for lay audiences was influenced by practical constraints, such as financial limitations and a shortened paper version, the purpose of the CFG, the target audiences for the CFG, and feedback from stakeholder consultations and consumer testing. As a result, the CFG encompasses a group of resources that are intended to provide a flexible model of healthy eating for healthy Canadians.

Chapter 5: Reconstructing Healthy Eating

This chapter presents the findings from the analysis of interviews with RDs from across Canada who work with vulnerable populations and explores how the CFG shapes RDs' practice and how understanding and use of the CFG is shaped by the context of RDs' practice and the needs of the people with whom they work. Four major themes emerged from the analysis of interviews with RDs : *Addressing health concerns and barriers to health, deciding to use the CFG, teaching healthy eating with the CFG, and creating new discursive practices* (Appendix L). This chapter describes each of these themes and concludes with a chapter summary.

Addressing Health Concerns and Barriers to Health

The RD participants' practices vary considerably and include providing patient care, nutrition counseling, and health training; promoting health, and developing nutrition resources. Depending on the context in which RD participants work, they refer to the people they work with as clients, patients, and often simply just people. The RD participants work in a variety of settings, such as clinics and hospitals and community-based unemployment programs and daycares, and occupy government training or resource development positions, among others. While RD participants in the study often fill multiple roles in their positions, one of their central roles involves interacting with individuals in consultation sessions or groups of people in workshops. RD participants work with a wide range of populations, including vulnerable populations such as immigrant, low income, and indigenous populations, among others. People seek RDs' services for a variety of reasons, which

differ according to each RD participant's position and work location. In a clinic or hospital setting, people may be referred to an RD by their family doctor for health reasons. In a public health setting, people may come into contact with an RD as part of a larger program that includes a dietary component (e.g., programs for people living with disabilities, programs for new or expecting mothers), or voluntarily participating in workshops available to the members of the public. While RDs' positions differ considerably in terms of where they work, the roles they fill, and the people with whom they work, in general, RD participants describe the overarching purpose of their work as addressing health concerns and the barriers to eating well that people may face.

Addressing health concerns. As health professionals, RDs' interests lie primarily in the health-related outcomes of diet and nutrition, and the RD participants describe prevention and management of diet-related chronic diseases, including obesity, as one of the leading purposes for their work and their interactions with people. In order to address the larger issues of chronic disease and obesity, whether through prevention or management, RDs describe one of their roles as helping people make "healthy changes" (RD9). One RD explains that, overall, RDs "support people in nutrition" (RD2).

Addressing barriers to eating well. In addition to the prevention and management of chronic disease, RD participants indicate that they often help people make healthy changes in the face of numerous barriers to eating well. Many of these barriers concern physical limitations due to illness that might complicate grocery shopping and food preparation, a lack of experience with cooking, low literacy that

makes reading labels and other nutrition resources difficult, busy lifestyles, and sometimes the vast amounts of contradictory messages about food and health in the media. Barriers to eating well are also often much more complicated and, as an RD notes, can include “food insecurity and the whole lack of income, lack of jobs, lack of education, even the access to healthcare, it’s all intertwined” (RD8).

Many RDs mention that they often work with people who have very little experience or background knowledge about nutrition or healthy food practices, which complicates an RD’s job. One RD explains, “some people have never been taught anything different. If they grew up on potato chips and pop, they don’t know the difference between a lean chicken breast or a lean drumstick” (RD5). Another RD describes problems associated with what is known as “the nutrition transition” (RD10) that many indigenous populations are experiencing, which is described as a “huge cultural shift . . . people are struggling to go from a traditional diet to the store bought diet and they don’t have the knowledge of how to do that and to eat well” (RD10). Similarly, another RD explains, “There’s a knowledge gap in cooking skills . . . from the residential school history. And if a lot of parents didn't have those cooking skills, then their kids haven’t learned those cooking skills” (RD9).

One of the most common barriers to healthy eating, according to RD participants, is food insecurity where a person or population has less access to healthy and affordable food due to financial limitations or even geographical location. For example, one RD explains that the financial and seasonal difficulties of trying to eat well in northern Canada are because of “very high food prices at the stores . . . and access to food. During freeze up and break up grocery stores might

run out of food, just because the shipments can't come in" (RD9). Another RD indicates that when people need to access the food bank, their access to healthy food is also limited: "They get the sugary cereals for breakfast and they get processed meats for sandwiches, and white bread. . . . You got a dose of food, but it's not very healthy" (RD5).

Inadequate housing and overcrowding can also contribute to problems of food insecurity. RDs explain that some people do not have adequate food preparation facilities, either due to overcrowding in houses or homelessness. One RD explains, "I have quite a few people who are homeless, so you have to feel out whether they even have a stove or a fridge" (RD7), and another RD explains, "Cooking facilities sometimes are a little bit limited as well. You need your pots and pans and knives . . . and sometimes you have very crowded houses, and not a lot of space to do a lot of cooking" (RD9).

RDs view their role, regardless of their specific working situation, as addressing people's health concerns as they relate to diet and nutrition, but also addressing the barriers that people are facing when it comes to eating well. They seek to help people make healthy changes either to prevent or manage diet-related chronic disease and obesity. However, RDs also recognize that addressing diet-related health concerns is more than just making healthy changes. People face a number of systemic and personal barriers that may make healthy changes difficult, or even impossible. It is within these complex situations that RDs use the CFG and teach nutrition.

Deciding to Use the CFG

The role of the CFG in helping to fulfill the purposes and meet the needs described above varies greatly and depends on RDs' specific positions and work contexts, as well as the population with whom RDs' work. Work contexts and populations influence if and when RDs use the CFG including the print resources and website, as well as which version of the CFG they use.

Considering professional practice. RDs note that their professional practice, including their specific positions, influences whether or not they use the CFG and the usefulness of the CFG. In general, some RDs note that they use the CFG because it is considered an integral part of their profession. One RD explains that the CFG is "very widely supported by dietitians; in school and internship that was what everyone uses" (RD6), and another RD notes, "I think most dietitians see it as a given that it's one of the things we use" (RD1). Yet another RD explains, "for all dietitians, in theory, the food guide informs your practice, but it's not necessarily something that's talked about all the time" (RD4).

The location of RDs' interactions with people and the amount of time they have with people can play an important role in whether an RD uses the CFG. Some RDs work out of a single location where people visit them. In this context, the CFG's paper resources are easily stored and accessed. However, many of the RD participants describe traveling between multiple locations, which can also make it difficult to have the CFG and other resources on hand. One RD explains, "I'm in two different towers in the hospital. So, I go from north to south and then I'm traveling over to another site for the outpatient clinic. And another site for the psych" (RD7).

In addition to moving between locations, some RDs describe other practical barriers to using the CFG. Thus, RD7 explains, “I might have 15 minutes to spend with somebody” and “I don’t use [the CFG] too often. I find it’s so many pages.”

The CFG, as described in Chapter 4, includes multiple print-based versions, but also a complementary website. Many RDs do not choose to use the website and they seldom refer people to the website. In reference to the website, RDs indicate that its “level is too complicated. There’s a lot of information there but . . . it could be clearer” (RD3) and that they “don’t find it super easy to navigate” (RD6). One RD explains that access to the website can also be limited during interactions with people and that referring people to the website is not helpful, “just because Internet’s a bit of a stretch . . . just [because of] access” (RD9). When RDs do use the website, they may do so in lieu of the paper resource or to access the My Food Guide feature (Government of Canada, 2016). RDs explain that they use the website if they “don’t have enough physical copies” (RD5) or if they “can’t get the printed copy anywhere. One RD mentions that there are limited resources to print copies: “We have to print it ourselves, and you know, with all the cost cutting . . .” (RD8). In respect to the My Food Guide feature, one RD explains, “sometimes I’ll . . . [use it], ‘cause there’s that option to choose your foods that you eat and make your food guide. So if you don’t like juice, you wouldn’t put it on there” (RD2). Another RD also mentions that the website can be handy for professional purposes: “If I ever need to reference something like a serving size of something unusual, I’ll go online because they have a complete list” (RD5).

Some of the RDs also indicate that they no longer use the CFG, or only use it in specific situations, but that the CFG continues to structure their conversations with people and inform their practice. For example, RD7 sometimes uses the CFG as a familiar referent when explaining other resources to clients: “Usually I’m talking to them about the balanced plate and I’ll say to them, ‘This is just another way of talking about Canada’s Food Guide without actually having to add up a number of portions that you’re eating’.” Other RDs note that they may not refer explicitly to the CFG, but that it still influences their practice. For example, RDs explain, “Sometimes I might not call it the food guide but we kind of use some of the basis of it. I sometimes will use the food guide in my mind to get the dialogue going in the conversation” (RD2), and “In my own mind, in terms of looking at the adequacy of someone’s eating habits, I’ll draw from” the CFG (RD4). The CFG also informs other resources that RDs develop; for example, many group presentations are “based on a lot of what the food guide says” (RD2).

Considering audience. In addition to RDs’ positions and work contexts, the use and usefulness of the CFG may also depend on the population or person they are working with. One RD uses the CFG with many of the people she works with and explains that the CFG “covers the whole population, since some of my work is quite broad” (RD3). Conversely, other RDs note that the CFG is more effective for certain populations: “I think it’s great with kids. It’s great with someone who really knows *nothing* about nutrition. It’s a really good starting point” (RD4); and less effective with other populations: “Because it’s not compatible with the indigenous philosophy or worldview, it’s not a very strong tool” (RD8). Since the CFG is based on frequently

eaten foods in Canada, it does not reflect the traditional or ethnic diets of some populations in Canada. RD3 mentions, “I think there’s cultural foods that are missing from here. This is very mainstream, and there’s lots of cultural foods that are part of different cultures that are not adequately represented.” RD10 claims, “if you’re following a western diet, [the CFG] can work,” and goes on to explain that, the four food groups in the CFG are not useful for Inuit populations:

The traditional Inuit diet has no meat alternatives. And, it has no milk, and no vegetables, and pretty much no grains . . . there is no way to fit that diet into the four food group mold. It just does not work. But it is . . . a very healthy diet.

Through the member check, RD10 clarifies that the traditional diet has no milk “for people other than babies” (Sept. 9, 2015), and that there are very few fruit and vegetables, and further explains, “berries are a fruit. Seaweed, though an algae, is treated as a vegetable. Plant greens are also consumed, though often as a tea as opposed to a vegetable” (Sept. 9, 2015).

The population or person with whom RDs work can also determine the version of the CFG RDs use, with the FNIM version of the CFG being used when they are working with indigenous populations and the standard version being used with other populations. Some RDs, however, note that the FNIM version may not always be appropriate even when they work with a population that the FNIM version supposedly addresses. RD10, who works with Inuit populations, explains that the “First Nation food guide applies way more to . . . other southern First Nation groups.

But trying to lump all First Nations and Inuit and Métis into one . . . it does not work for the traditional eating for Inuit.” RD6 who works with indigenous populations explains:

Not everyone prefers the [FNIM] version, but sometimes they do. . . . Every reserve is different with how much of the traditional foods they’re able to get and if it’s a bad year for hunting or fishing, it’ll be more relevant to . . . the regular Canada’s Food Guide. I’ll always bring both and let them choose.

Some RDs use the different language translations of the CFG with some populations. An RD who works with immigrant populations observes, “sometimes you see a look of relief on some of the clients when they realize that they have something they can read” (RD2). Another RD even notes that, depending on a person’s needs, older versions of the CFG may be more helpful. The RD explains:

If you’re going to not get enough of anything, maybe cut down on the grains. Try to make sure you're getting your vegetables and fruit and your milk and the protein sources . . . You do need starch, but . . . probably you could get away with the old Canada’s Food Guide . . . actually, I use that sometimes.
(RD7)

RDs’ use of the CFG, including which version and whether they use the website, is largely determined by their working situation and the people they work

with. Where they work, the length of their interactions with people, and the populations they work with may determine whether the CFG's paper and website resources are appropriate. In some cases, RDs might not even use the CFG, but they still draw on concepts from the CFG to aid their work. The population that RDs work with also influences which version of the CFG the RDs use, but even the FNIM version is of limited use with some of its target populations. The next section explores how the CFG is used to teach nutrition and the effects of using the CFG to teach nutrition.

Teaching Healthy Eating with the CFG

Due to the limitations of time and location, as well as the kinds of populations with whom the RD participants interact, the use and usefulness of the CFG is limited. However, using the CFG is one way for RDs to help people make healthier changes in order to prevent and/or manage diet-related chronic disease and obesity. RDs describe teaching with the CFG as mediating interactions, clarifying the CFG's purpose, individualizing the CFG, managing perceptions of the CFG, and translating science.

Mediating interactions. RDs describe the CFG as a tool that models healthy eating and facilitates dialogue between themselves and the people with whom they work. While RDs often refer to the CFG as a "tool," they hold varying perspectives on the usefulness of such a tool. Some RDs find the CFG useful for describing vast amounts of information about nutrition: "It becomes very challenging to cohesively describe what a healthy dietary pattern looks like unless you have some sort of

tool; . . . it gives us a framework to guide that conversation” (RD1). Another RD notes that the CFG is a useful tool that helps health professionals perform different tasks: “It’s a very quick, easy tool to develop a meal plan for somebody. So it’s useful for nurses, doctors; it’s a great teaching tool” (RD10). Other RDs are less positive: “It’s a tool, but I wouldn’t say that it’s the best tool” (RD9).

Many RDs describe the CFG as an example of a healthy dietary pattern, although many note that it is only one healthy diet among many possible options. An RD notes, “It’s just one tool that addresses the way that we achieve the healthy eating pattern” (RD1). RDs explain how the CFG is a model of healthy eating that can provide people with an example to imitate or move closer towards. RD6 mentions, “it’s a good resource to bring people back to the basics of healthy eating.” Another RD also explains that the CFG can be used to not only model a healthy diet but with some populations, like newcomers to Canada, also to explain what Canadian foods are healthy. RD3 explains:

I use it in a very simple fashion. In a sense it’s kind of a framework of what are Canadian foods that we have that are healthy foods. . . . Then [people] go to the grocery store, so I try to give them that bit of framework of what to look for.

In addition to the CFG being a tool that models a healthy diet, many RDs describe how the CFG mediates between themselves and people who have varying levels of nutrition knowledge, literacy levels and different cultural approaches to

food and nutrition. Many RDs mention that the CFG provides a common vocabulary to facilitate dialogue about nutrition. For example, RD1 notes, “the primary reason why I use it is because it is a defined tool and it gives us a vocabulary to begin to talk about food.” Another RD comments on the usefulness of the pictures in the CFG for mediating discussions:

[The front page] is nice because it shows pictures of the foods not words. So, we’re all on the same wavelength. Because sometimes in the groups I talk with, like, English as a second language, it’s not all Spanish, a lot of it’s different languages, so it keeps us all on the same wavelength. (RD2)

Along the same lines, RD5 says, “people generally know that there’s four food groups,” and other RDs also observe that some of the concepts in the CFG are common knowledge and do not require explaining. RDs also note that the CFG is widely available:

Most . . . [people] have seen [the CFG] before, whether a long time ago at school or a lot of the communities will have it around, like in the waiting rooms and things. So most of them have a basic understanding of it. (RD9)

RD2 also observes that the CFG is known to many Canadians, whether it is the current version or older versions:

It's something that's kind of familiar Canada-wide. Some people who aren't from Canada have never seen it before, but a lot of people have seen it in some form, whether it's the old one from when they were a kid, to even the kids now. Most people have at least some familiarity with it. They don't always know it word by word, but they have an idea of what it is. It's kind of that nice bridge, and it's familiar.

In other words, the CFG helps mediate discussions of healthy eating because of Canadians' familiarity with it. Having a document with a long history that many Canadians encounter throughout their lives provides a natural starting point for discussion that all parties can participate in regardless of level of nutrition knowledge or literacy levels.

RDs also value having a tool that is evidence-based: "We try to base everything on science as evidence" (RD2). RD6 explains that one of the reasons for using the CFG is that "it's Health Canada; it's all evidence-based." RD1 explains that the evidence, however, may be better understood with the help of intermediaries:

It definitely provides clear, evidence-based information. I know there's a lot of discussion out there about the evidence behind the food guide and about how much it's filtered down into relevant detailed information. I think definitely in the hands of a registered dietitian that conversation goes a lot further than if this is just handed out at school, for example, or just handed out in a workplace.

So, in addition to the CFG providing a common language for talking about nutrition in Canada, the CFG also mediates between scientific information about nutrition, health professionals who have expertise about nutrition, and people who are seeking to increase their knowledge of nutrition and abilities to make healthy food choices.

For RDs, the CFG performs particular functions within the context of their practice. They employ the CFG as a tool to teach nutrition, as a model to demonstrate the concept of healthy eating, and as an artifact that mediates between themselves and people who have varying levels of nutrition knowledge. The CFG is also known, to varying degrees, to many Canadians. Regardless of the version that Canadians are familiar with, the CFG serves as an artifact that mediates discussions about healthy eating in Canada.

Clarifying purpose. RDs describe how, in order to use the CFG as a tool, they must first explain to people what the CFG is and how it works. RDs explain that people often think the CFG is a “rule” (RD2) or a “prescription” (RD8). RDs describe how they often have to explain to people that the CFG does not constitute a set of rules, but is intended to provide only guidelines for healthy eating. RD2 notes:

You’re not going to tell [people] . . . they have to do this, but it’s just a guide . . . you’re always supposed to say this is a guideline. Some people need more food than this if they’re highly active, or some people might need more of these foods if they have low iron, depending on what your doctor says.

In addition to explaining the flexibility of the CFG, RDs discuss how they use the CFG for setting goals. For example, RD2 encourages people to, “use it as a way to set goals for themselves, [I] say ‘what’s something you can work on and where can you go from there?’” Another RD observes that the CFG is most effective when used to set goals: “whenever people are able to begin goal setting in a realistic way, in a way that links the evidence with something that is actually feasible and realistic in their lives . . . that’s when we see change” (RD1).

In other words, when using the CFG to teach nutrition, RDs indicate that they often have to clarify the purpose of the CFG, namely that it is not a set of rules to follow, but that it is only a guideline that is flexible and needs to be tailored to an individual’s needs. Further, RDs explain to people that it can be used as an example of a healthy diet that they could use to gauge their eating habits and use to set goals as people try to make healthy changes in their lives.

Individualizing guidelines. RDs indicate that the CFG needs to be tailored to the specific person or population that they are working with because “it’s a little too general . . . we cover everybody and sometimes it’s so general it doesn’t become meaningful” (RD3). RDs customize their teaching and specifically the use of the CFG for the people with whom they work. When conducting individual consultations, RDs report that they begin sessions with learning more about a specific person’s needs and lifestyle and tailoring a session in response. For example, RD5 explains, “I find that getting a good clear picture of what they’re currently doing before I make any recommendations is really helpful . . . So figuring out what they’re currently spending their money on and then adjusting recommendations based on that.”

Sometimes the RD's specific work setting determines how they approach teaching and using the CFG: "For the most part, if they're coming to me, they're coming to me for a reason, and so I usually [consider those reasons with] . . . the teaching that I'm doing" (RD1).

RDs consider many factors when they adapt individual sessions or group presentations to people's needs. In individual consultations, RDs consider factors such as background knowledge, culture, and/or financial limitations when teaching and using the CFG. For example, RD9 who commonly works with indigenous populations with less education and lower literacy levels says, "I just generally make a couple [of] basic recommendations to people, just because of the population I work with here." When using the CFG, RD9 also relates it to a traditional diet: "I explain why milk and alternatives is on [the CFG], for bones and stuff. So, we talk about traditional sources of calcium and vitamin D. Like fish head soup, or caribou stomach contents, or arctic char." RDs also report that they individualize the CFG for specific people, for example, one RD explains, "I usually circle the recommendation that's specific to . . . [the person]. So I'll circle what their numbers should be. And then I tell them where I see them at . . . I'll circle it and personalize it to them" (RD9).

RD1 notes:

I actually start with the food guide, but I write quite a bit on it and then I individualize it for . . . [the person] and choose a daily meal pattern, so that they can put the totals for the day into specific meal times and snacks, so that they can begin to see how they've reached their totals.

When making presentations, RDs consider the audience. For example, one RD explains, “in my presentations I do, with some of the ESL groups, which is often the newcomers, people who do have financial issues . . . I show them a lot of pictures of the less expensive healthy choices” (RD2). Another RD accounts for a population’s background knowledge when planning presentations:

For lower literacy, lower English language, I focus more on . . . these different groups of foods and these are the healthier foods. I don't focus so much on the portion sizes. Now for other groups, I would, certainly seniors because . . . they have a good understanding of these different groups, so we may focus more on . . . the portion sizes and how much they should be having and what nutrients and so forth that they would be getting. So you focus a bit more for different population groups. (RD3)

In addition, depending on a person or population’s needs and circumstances, RDs may ignore certain parts of the CFG, emphasize or prioritize other parts, or use additional or alternative resources. For example, RDs rarely refer to the entire CFG during interactions with people. RD5 says, “ I usually skip over the first page entirely” and “I never flip it over. I don’t even remember what’s on that side,” and RD7 tends to “emphasize the foods that are the healthier ones. So, de-emphasizing the juice, and . . . emphasizing the yogurt from the milk group.” RDs also explain that, for low income populations, they focus on specific types of foods represented in the CFG. When the CFG does not address a particular need, RDs rely on alternative

resources, for example, as RD1 explains, “I use a different version of the food guide for people who are vegetarian.”

To summarize, because RDs work with a wide range of people and populations, they know that some information in the CFG may be irrelevant for some people or may not address someone’s specific needs. Therefore, RDs consider a person’s or population’s needs and circumstances when they use the CFG to teach nutrition. RDs tailor their interactions in terms of the level of detail and the content they cover in the CFG. RDs also emphasize, prioritize, and ignore certain parts of the CFG depending on the needs and circumstances of a particular person or population.

Managing perceptions. According to RDs, teaching nutrition with the CFG is often influenced by a person’s or population’s perspective on the CFG. RDs mention that some people lack interest in the CFG, or as RD4 explains, “as soon as you pull out Canada’s Food Guide, a lot of people kind of tune out.” However, RDs have highlighted two issues that affect how receptive people are to using the CFG. One concerns the CFG’s reputation for being industry supported, and the other concerns the historical relationship between Canada’s indigenous populations and the Canadian government.

RDs mention that the role of the food and agricultural industries in the development of the CFG is a concern for some people. One RD explains that the involvement of the food and agricultural industries as a stakeholder during the CFG’s revision process “almost causes the food guide to lose credibility. Some of it is based on science, it’s a good tool, but then those conflicts of interest kind of ruin its credibility for the public” (RD4). RD2 explains how a person’s perception of how the

CFG was developed affects their perspective on the CFG: “If you think that an industry has a word in a guide, you’re going to assume that they’re going to promote what they sell.”

As a result of people’s suspicions regarding the involvement of the food and agricultural industries in developing the guidelines, discussions about the credibility of the CFG sometimes becomes part of the interactions that RDs have with the people with whom they work. RD5 illustrates:

I had a patient come in recently who . . . ripped a strip off of me because Canada’s Food Guide was funded by food corporations. And I said, ‘You’re right! I don’t agree with that either, but I can’t do anything about it.’ So, I just had to argue the side that there’s also a lot of research, a lot of health professionals who have a say that are putting together these guidelines . . . ‘we can still trust this to some degree because we’re not 100% swayed by the industry.’

While the concern over food industry is often raised by the people with whom RDs interact, some RDs also note their own discomfort with the role of the food and agricultural industries as a stakeholder in the development of the CFG. RD4 observes, “if someone has ties to food industry, they shouldn’t have a seat at the table for determining what the food guide’s going to say . . . people’s health should come before profit.” Another RD agrees, “their interests are completely different than the purpose of the guide. The purpose of the guide is health. The purpose of the

food industry is money” (RD5). In a member check, RD4 reiterated the importance of this issue and explained, “ties with food industry representatives is . . . a BIG issue” (January 28th, 2016). RD4 worries about the influence of industry on some of the key messages:

Of course there's going to be a note in CFG about adding fats and oils if the canola oil people are at the table, or that we absolutely need milk and other dairy products if Dairy Farmers of Canada is involved, or that there's no recommendation to limit red meat if the beef people are there. (member check, January 28th, 2016).

Another important concern that affects the usefulness of the CFG as a teaching tool with some populations is the relationship between the government and specific populations. In particular, the complex and difficult history between Canada’s indigenous populations and the federal government influences some indigenous populations’ reception of the CFG, even the FNIM version that supposedly targets these populations. RD8 explains:

It’s got a bias against it, because of the whole mistrust of the government and the whole history, the whole concept of colonization and the residential schools and the Indian Act. All these things play a huge part really underlying We think it’s just the food guide, but it’s actually not just the food guide. History matters. And who is delivering this matters. So, the

government is delivering this and however good it is, because of the history, it really is not going to work.

In other words, RDs indicate that people's perceptions of the CFG influence the interactions they have when they use the CFG to teach nutrition. While some people simply lack interest in the CFG, others have concerns about the role of the food and agricultural industries in the development of the guidelines, which sometimes must be addressed prior to using the CFG for teaching. The CFG may also be ineffective when used with certain populations because of the source of the message, and the complex history between the producers of the CFG and its audience.

Translating science. Perhaps the biggest difficulty with using the CFG to teach people nutrition is that many of the people that RDs work with lack the knowledge, experience, or skills required to fully understand and use the CFG. For example, they may not have any prior experience with scientific representations or cooking skills. In addition to the need to clarify the purpose of the CFG, individualize the CFG, and manage perceptions of the CFG, RDs indicate that when they use the CFG, they often need to focus on the numbers, charts, and the general layout. RDs spend time on the scientific parts of the CFG, such as the serving sizes, and they rely on numerous other resources to teach the concepts, replace the CFG with more appropriate resources, or approach teaching healthy eating in a completely different way. They focus on translating the science and applying the CFG to people's everyday lives.

RDs indicate that the charts and numbers, namely, the recommended number of servings and the serving sizes, are difficult or even intimidating for many people, or, as RD7 observes, “people tend to . . . look at all those numbers and all that information and just kind of blank out.” Another RD explains, “most people when they have confusion with [the CFG], this is where they have confusion. It’s servings, or it’s portions. It’s the amounts and even things like . . . if you have spinach raw, it’s a cup; if it’s cooked, it’s half a cup” (RD2). RDs indicate that many people struggle with the scientific aspects of the CFG, which can be particularly difficult for people with little or no education. RD5 notes:

It's not a simple document. And especially with the patients who don't even have . . . their elementary education, it's really hard to explain the chart, and the serving sizes and food groups and there are just too many components. It's not simple enough.

According to some RDs, another difficulty many people experience lies in trying to put the different parts of the CFG together. RD10 explains:

You have to read a grid to figure out what age group you are and how many servings to have and then to take that information and apply it to the second page in the food guide, then you have to figure out what a serving is. It's too high level for a lot of our population.

RDs report that teaching people how to interpret these aspects of the CFG is often time-consuming. For example, RD1 explains, “I’ll try to do a little bit of teaching on serving size vs. portions vs. total daily intake, which takes some time and it’s probably one of the most complicated parts for people to really grasp.” Similarly, RDs report that using the CFG not only takes time, but also requires a lot of attention. RD10 says, “you have to really want to sit down and read the food guide and do some math and figure out what you should be having, if you want to use that food guide” and “you’ve got to flip back and forth between pages. You’ve got to write down some notes about where you fit.”

Some RDs report that the difficulty lies in the concept of the serving size specifically, which requires a lot of attention, or as RD6 observes, “I feel like we end up focusing on serving size.” Another RD notes that the serving size is not intuitive for people:

They do get confused about . . . the daily values more than anything . . . the whole idea of grams, and that is kind of weird for them, too. So, I try to point out 5 grams is like a teaspoon, and 15 grams is like a tablespoon, 125 grams is a half a cup. But I do try to make it more . . . concrete, let’s say. Something they can relate to a little bit better. ‘Cause to them, a gram, what the heck’s a gram, right? (RD7)

RDs also report that they have to explain to people the difference between serving sizes, which are based on and modified from specific amounts of nutrients

per 100g amounts of food (cf. Chapter 4), and portion sizes, which are typical amounts of food that people might eat. For example, a portion might be one carrot, but a CFG serving size is 125mL or ½ cup (see Appendix A). RD8 explains, “the one complaint is the portion sizes are way too big. So, we talk about . . . it says 7 or 8, by the time you have half a bagel and a sandwich and a snack and dinner, you’re done.” Serving sizes and portions are sometimes similar, but this is not always made clear in the CFG and RDs note that differences often need to be identified. RD2 provides some examples: “cereal is one of those things that, what a serving is, is not what people usually eat” or “if you have a full bagel, that’s 2 servings. It’s your portion of food your going to eat, but that’s 2 servings. So that’s where people get confused.” RDs note that serving sizes are often smaller than an actual portion, and “when people talk about Canada’s Food Guide, they’re actually overwhelmed by the number of servings that they’re supposed to eat” (RD7). RD1 explains to people:

What’s listed is an arbitrary recommendation for a serving size that you might choose. Now what you put on your plate will only match this if you choose to make it match this. It’s not what you typically put on your plate.

RD2 describes how the serving sizes actually have an effect on how people think about their food practices:

It naturally gravitates people into thinking that they only can have one [serving] at a time. So, if you have to have seven servings of grain, people

almost start to think they have to have one serving at breakfast, one serving at snack. Like it's the portion versus serving which is confusing.

Some of the language in the CFG is also difficult for many people who do not have the literacy level required to read the CFG. Many RDs indicate that they only focus on the pictures in the CFG, because much of the language is too difficult for some people, or as one RD notes, "I find it quite wordy" (RD9). RD3 who finds the literacy level of the CFG too high for some people mentions, "I think a lower literacy version with more pictures might be more beneficial for some groups."

In addition to spending time focusing on amounts and sizes of servings with people, RDs also report how they spend time making concepts used in the CFG more practical and applying them to real life because, as RD9 explains, "there's that missing step between here's your numbers versus practically how can you use it . . . It takes that extra step, which a lot of people don't have the skills to do that." Another RD says, "it's very difficult for clients to take in an approximating tool like this to their own life" (RD1). For example, it may be difficult for a person who has "no idea how to budget and find inexpensive healthy foods. . . . [The CFG] isn't going to tell her anything about that" (RD5). RDs report being often asked, "how do you assemble these into a meal?" (RD5). RD2 notes that there is some practical advice in the CFG, but it's "tagged on at the end."

Given the problems with the CFG discussed above, RDs find that they need to provide practical examples of real meals and practical tips for different food practices, or even create opportunities for people to participate in healthy eating

activities. RD1 describes an example she uses to relate the CFG to a real life situation that people may experience:

Let's consider a Boston Pizza meal; bowl of pasta, garlic bread, maybe a dessert. . . . Then we break it down . . . so there might be up to 12 servings, for example, in that meal, and helping them begin to relate the food guide to real life.

Similarly, RDs use the CFG to help solve real life problems, because in contrast to numbers, "people like hearing evidence like stories" (RD2). RD2 further illustrates how to apply the CFG to real life:

Sometimes we'll take the food guide and actually put them together as a meal. So you put a piece of salmon and a muffin and things like that. And then we'll tell people, if you're having a sandwich, if you have 2 slices of bread, that's 2 servings. So we use those real life . . . what people actually eat. We show them that if you eat a sandwich, it's very healthy to eat, but yes it has 2 servings. Just to show them that it's not bad to have 2 servings at one meal.

Some RDs also indicate that they provide practical tips that may make the CFG a little more accessible and usable. One RD provides tips for choosing and preparing food to replace the use of numbers, which "take[s] out the numbers and . . . the guesswork" (RD2). RD7 tells people:

A good food rule to have, you shouldn't have an awful lot of food rules, but a good one to have would be that every time that you eat or drink something, every time that you eat, especially, to have a vegetable or a fruit. But especially the vegetables, to make sure that you're getting those in.

Many RDs report that they provide opportunities to participate in real food practices as a way to apply the CFG to real life. For example, RDs describe teaching people how to use the CFG for grocery shopping. RD9 will sometimes conduct grocery tours with people. She explains, "when you're going through the store and pointing out those things, it really makes a big difference, as opposed to me talking to you . . . but you have no frame of reference to apply it." RD9 also uses the CFG to help people write grocery lists:

I've used it with some moms who are writing their grocery list for the week . . . we look at the food guide and pick and choose foods of what they're going to purchase that week and use it for meal planning.

Many RDs comment that real life examples and opportunities to participate in food practices are the most effective for teaching nutrition. RD2 explains, "that's what attracts people. It's 'do you have recipes?' and 'can we do cooking classes?' That's what people want because that's what people do. We don't eat nutrients, we eat food." RD2 goes on to explain that we need to

go back to a Home Ec. Basis . . . people lost that because we almost belittled it, said we need science, nutrition, and nutrients and minerals. That's great for people if they do research on foods or try and understand disease, but when you're talking to people, they're cooking food and eating it, or they're going out to eat it. That's how it works.

To summarize, RDs report that using the CFG to teach nutrition is a knowledge translation process. RDs report that many people with whom they work find the numbers, charts, language, and layout of the CFG difficult to understand and use, or even intimidating. As a result RDs spend a lot of time translating the scientific representations, like the chart of recommended daily servings and examples of serving sizes, in the CFG and explaining how the different parts of the CFG work together. RDs also report that they also have to go one extra step and explain how a person can use the CFG to make healthier choices. They provide real life examples, provide practical tips, and create opportunities for people to participate in real life food practices like grocery shopping and cooking classes.

Creating New Discursive Activities

Many RD participants report that in order to minimize the difficulties with using the CFG to mediate discussions about healthy eating, they rely on other resources and ways of communicating when teaching about nutrition to increase people's understanding of the CFG. These other resources and ways of communicating help clarify the purposes of the CFG, individualize the CFG, manage

perceptions of the CFG, and, in large part, help RDs to translate the science on which the CFG is based and apply the CFG to people's everyday lives. For example, one RD explains:

People aren't aware of what a serving size is and so I'll try to explain very clearly and I also pull out my food models and say, "Oh, this is a serving of yogurt;" "This is what half a cup of pasta looks like." So, I supplement the pictures with actual models, or I'll just pull out a measuring cup. And then circling those numbers as well, so, that they can try to make that association: . . . eight servings means if it's half a cup a serving, in total, you're getting four cups in a day. (RD5)

When teaching about nutrition, RDs report using communicative modes that are embodied, that is, produced during their interactions with people, and disembodied, that is, produced prior to these interactions (Norris, 2004). The embodied modes include speaking about, instead of just showing, certain parts of the CFG and writing and drawing on the CFG. For example, RD1 provided a sample CFG with the handwritten and drawn modifications she makes during a consultation (Figure 5.1) and explains, "I expand the guide a little so that they can have one reference tool to go to that has a little bit more information." Another embodied mode that RDs commonly employ is the Zimbabwe Hand Jive (Family Health Magazine, 2012), which uses gestures that indicate serving sizes of different kinds of food; for example, one fist represents an appropriate portion of grain products like

pasta, as RD4 explains, “I find it more practical than saying half a cup or a cup. It’s just easier.” Another RD explains:

When I explain serving size, serving sizes and portions, I do teach the hand jive at the same time . . . as teaching the food guide, so that people get a sense of what those portions would look like visually. (RD1)

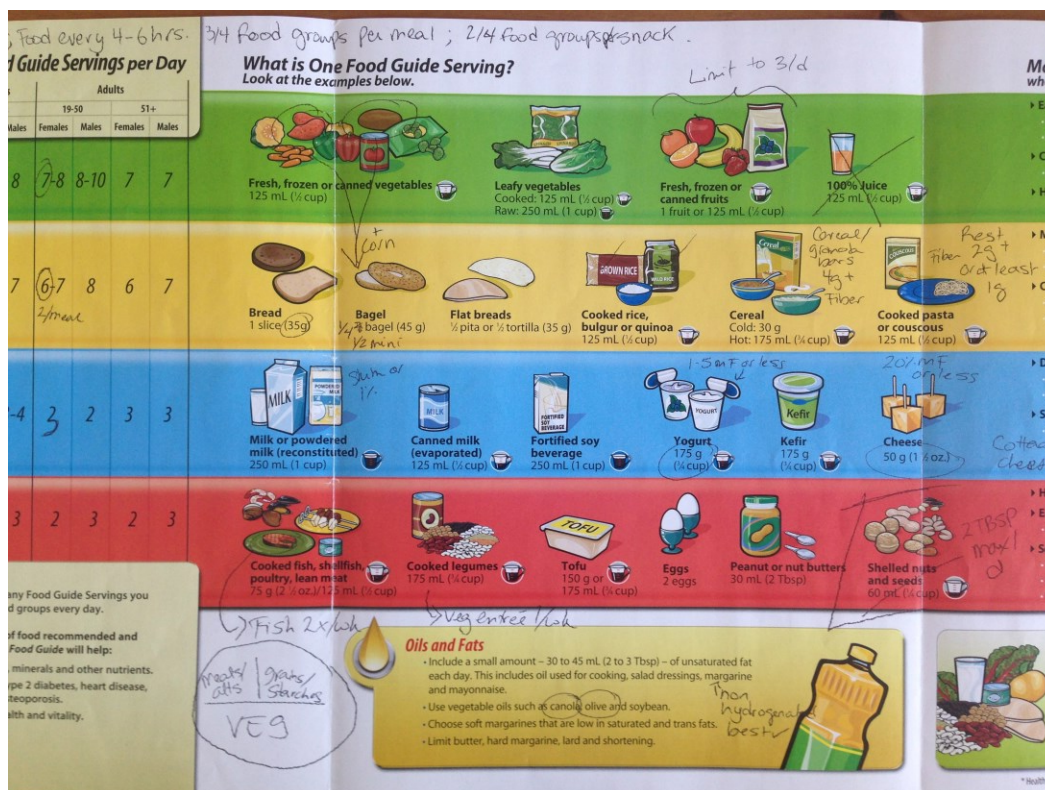


Figure 5.1. Sample of RD's modified CFG (used with permission)

RDs rely on many disembodied modes as well. These modes include food models that are plastic fish replicas of different types of food (Figure 5.2), which, sometimes, as RD2 notes, “are set to be a serving.” RD2 also explains, “We ordered

some food models here to show mixed dishes, spaghetti and meatballs and tacos and stuff. Just to show . . . [people] that it's okay if it's in the middle, if it's all mixed up.”

Alternatively, RDs might also use real items like a deck of cards to show a serving size of meat or an actual box of cereal to teach nutrition label reading instead of using the example provided in the CFG.



a) clockwise from top left: fried chicken breast, muffin, frozen peas, cooked brown rice

b) back of food model with portion size information

Figure 5.2. Example of plastic food models used by RDs (used with permission)

Finally, the RDs in the study have extensive collections of other written resources that provide additional information for specific diets (e.g., vegetarian), health needs (e.g., diabetes) or cultural food practices (e.g., South Asian cooking) that help RDs to adapt the CFG and healthy eating to specific needs and

circumstances, and to provide alternative ways of describing portions and food groupings. One of the most common resources that RDs describe using is the divided plate (Harvard University, 2011). Some RDs explain that people report more success with the divided plate than with the CFG. One RD explains that people tell stories like “I’ve lost 60 pounds in the last year because of that class that I went to and you told me about [the divided plate] and I even lost those pounds and my dog ate it,’ and yet . . . [the person] succeeded because it was a simple concept” (RD7). Additional written resources are commonly produced by provincial and territorial health ministries, non-governmental organizations (e.g. the Canadian Diabetes Association’s recipe database [CDA, 2015]) and academic bodies (e.g., the Harvard School of Public Health’s Healthy Eating Plate [Harvard University, 2011]).

Thus, RDs report that they use additional or alternative resources to supplement the CFG with additional information, to help further explain some concepts in the CFG, and/or to translate concepts into something more practical. The additional and alternative resources discussed above are also often used to connect the CFG to “real life,” and, in some cases, replace the CFG entirely in the situations wherein the CFG is not effective or appropriate. In other words, RDs report that the CFG is difficult to understand and interpret and it prompts the creation of new multimodal discursive activities.

Chapter Summary

The RD participants perform multiple roles in a variety of positions, but in general they view their work as addressing the health-related outcomes of nutrition

and the barriers to eating well that people face. The CFG informs much of the work that RDs do, but the effectiveness of using the CFG to teach nutrition depends on the needs of the population or person with whom they work. RDs do not tend to use the CFG alone because it requires the people with whom they work to have a relatively high level of literacy and numeracy, and often requires large amounts of time to cover its content. When RDs use the CFG to teach nutrition, they tend to use only the standard or FNIM version of the CFG and not the website because of its complexity and inconvenience. RDs explain that they use the CFG to mediate their discussions with people, but that they also have to clarify its purpose as a flexible model that can be used to set goals and individualize the guidelines to the needs of a specific person or population. In addition, RDs report that they often have to manage people's perceptions of the CFG's credibility in terms of the food and agricultural industries' involvement or, for example, complex and difficult relationships between the government and indigenous populations. The most salient influence the CFG has on RDs' interactions with people is that RDs find they spend a significant amount of time translating and teaching people how to read and understand the scientific representations, particularly the chart of recommended daily servings and the serving sizes (Appendices A & B). RDs have to draw on other resources and create new activities in order to translate the scientific representations and make them more practical for the real lives and situations that people are facing.

Chapter 6: The Rhetoric of the CFG

This chapter includes the findings from the MMI analysis that focused on the rhetorical moves (Swales, 1990) in the CFG. Findings from the analysis of interviews with KIs and RDs have provided insight into some of the social roles, as well as the composing and reading processes (Paré & Smart, 1994) associated with the CFG, which, in turn, has informed the MMI analysis of the CFG. Thus, KIs indicate that the CFG is a group of paper-based and electronic resources working together, but RDs report that they tend to only use the two paper-based texts in their interactions with people. This finding prompted me to concentrate on an analysis of paper-based standard and FNIM versions of the CFG. The chapter begins with a description of the rhetorical move structure of each CFG text, including the rhetorical moves and a description of the rhetorical strategies that realize each move, which is followed by a comparison of the two texts. I then provide a discussion of the issues in the CFG highlighted through the analysis.

Rhetorical Move Structure of the Standard Version of the CFG

This section describes the rhetorical moves that appear in the standard version of the CFG. The identification of rhetorical moves was inspired by the process developed by Swales (1990), which was further developed by and extended to discourses in professional settings by Bhatia (1993). They are realized in the CFG texts through written language, pictures, numbers, charts, formatting, and layout. Figures 6.1 and 6.2 below provide an overview of the outside and inside pages of the standard version of the CFG accompanied by a schematic of the rhetorical moves in

the document (cf. Swales, 1990). The moves are numbered to correspond with the numbers provided in the schematic.

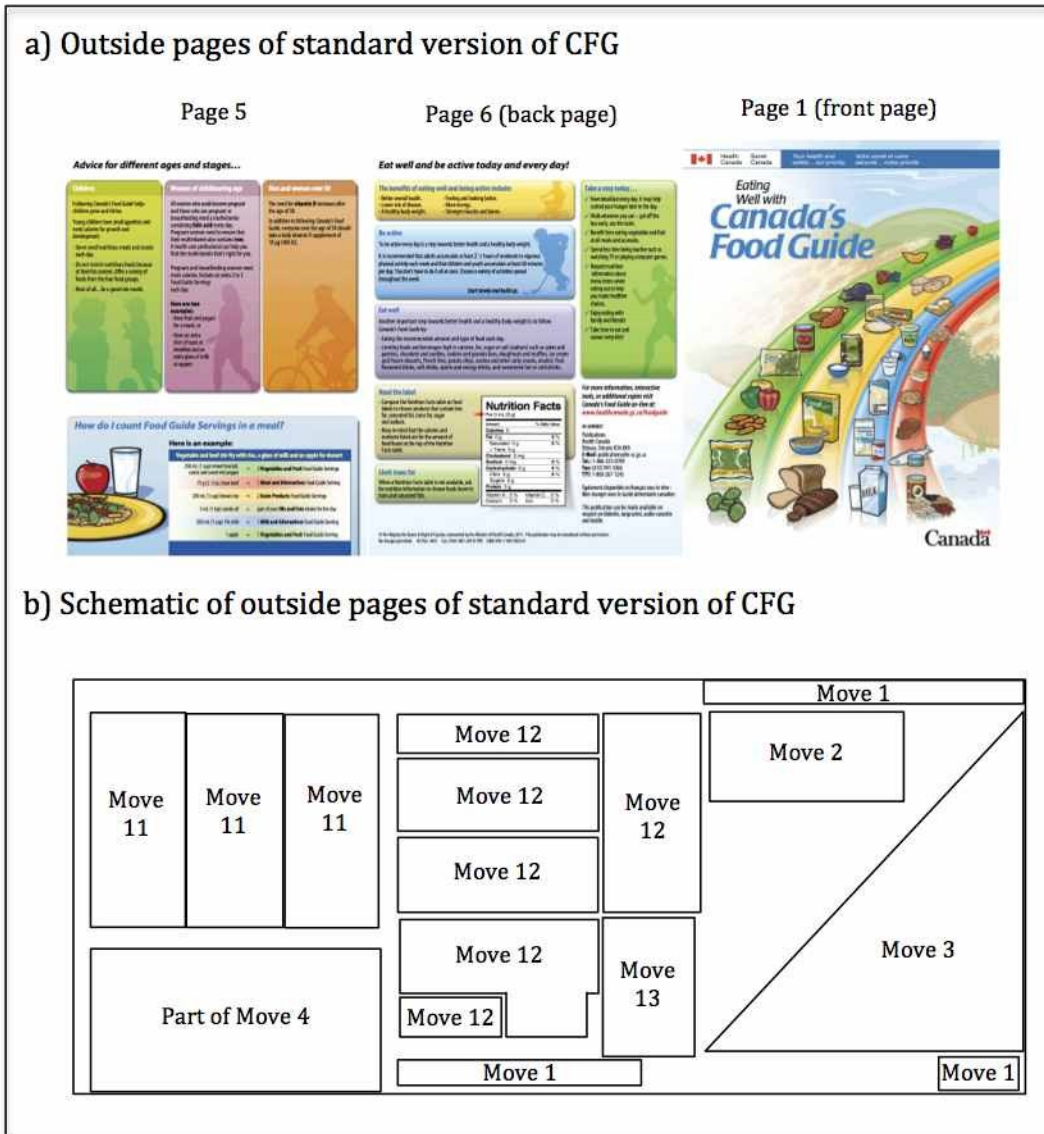


Figure 6.1. Outside pages of standard CFG version (Health Canada, 2011a)

5. Presenting rationale
 6. Categorizing food types
 7. Presenting course of action
 8. Providing details of healthy diet
 9. Providing details of audience participation
 10. Highlighting special dietary considerations
 11. Highlighting demographic that requires special consideration
 12. Inciting audience participation
 13. Suggesting further information or services
-
1. Establishing credibility

Establishing credibility is a common rhetorical move found in public information messages (Barron, 2012), and is a move “designed to build trust and give the target audience confidence as to the truth and reliability of the message communicated” (p. 170). The rhetorical strategies that realize this move include the use of logos and slogans from the federal government and government departments responsible for producing the CFG, which serve to emphasize where the information comes from and that the information can be considered legitimate and trustworthy (Figure 6.1). The back page of the CFG also provides copyright information that supports the credibility of the document.

2. Capturing attention

The *capturing attention* move comprises the title of the text (Figure 6.1). Barron (2012) explains that capturing attention is important because “if this move is not successful, communication fails to achieve its dominant goal(s)” (p. 167). The title on the standard version of the CFG includes a brief statement about the purpose of the document. The purpose is indicated by a gerund on the first portion of the title, “Eating Well with,” and implies the ultimate goal of the guidelines. The name of the guidelines is presented in a different font size and colour from the purpose.

3. Summarizing visually

The majority of the first page of the standard version of the CFG is the *summarizing visually* move (Figure 6.1). The rainbow graphic demonstrates the four food groups, examples of foods within these groups, and recommended proportions of each food group as shown in the different widths of the stripes of the rainbow. The rainbow graphic also shows perspective, where the rainbow appears to be moving further back as the stripes grow smaller from bottom towards the top of the page. The perspective serves the rhetorical purpose of showing the difference in food quality, with the healthier choices appearing larger and at the “front” of the rainbow and the quality lessening as the images steadily grow smaller as they move “backwards” or further away on the rainbow. Both KIs and RDs indicate that the visual summary is useful when working with populations with lower levels of literacy and numeracy, where the CFG’s key messages of proportion, variety, and food quality can still be communicated without language and numbers.

4. Providing instructions for interpretation and use of CFG

The *providing instructions for interpretation and use* move is presented in two separate locations on the standard version of the CFG that are not in close proximity to each other and only one of these sections is indicated by a descriptive title (Figures 6.1 & 6.2). Part of this rhetorical move appears on the inside pages of the standard CFG, and consists of a sentence that describes the function of the CFG and provides a reading cue to show where to apply the instructions. However, due to proximity, this part of the rhetorical move appears to be part of the adjacent rhetorical move 5 (Figure 6.3). The remainder of this rhetorical move is located on the outside pages of the CFG, and is visually presented as a complete rhetorical move (Figure 6.1). In addition, the standard version presents examples of how to interpret the CFG using the mathematical symbol “=” to translate real food options into CFG servings.

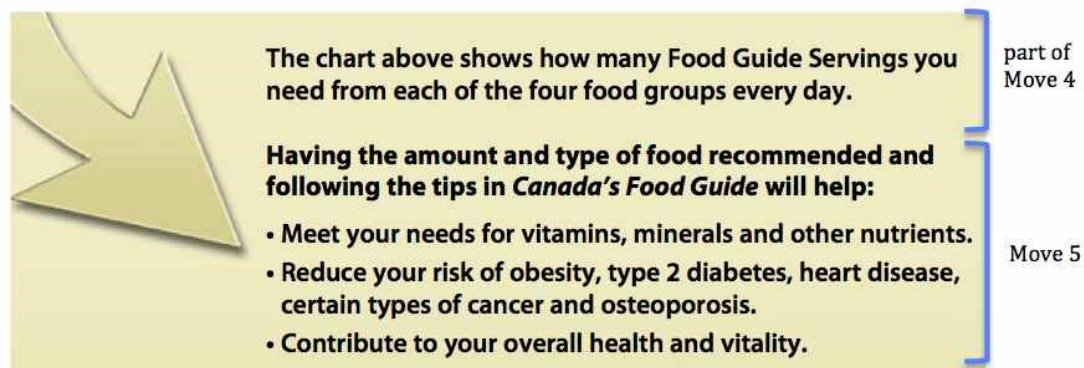


Figure 6.3. Part of move 4 and move 5 in standard CFG version (Health Canada, 2011a)

5. Presenting rationale

The *presenting rationale* move demonstrates reasons for and benefits of following the CFG, and is indicated by bolded text for the first sentence on the standard version (Figure 6.3). The bolded text is the only evidence that the preceding text serves a different rhetorical function and is, indeed, a different rhetorical move (Figure 6.2). The standard version of the CFG also provides a reading cue in the form of an arrow that directs readers from the top of the page and information about move 7 to move 5 (Figure 6.2). The arrow draws readers' attention to the relationship between two parts of the CFG. Move 5 is conveyed verbally, and it uses gerunds to convey the rhetorical purpose of the move. For example, the standard version states, "*Having* [emphasis added] the amount and type of food recommended . . ." (Health Canada, 2011a). By using gerunds in the subject position, these actions become the necessary pre-conditions for reaping the nutritional and health benefits of following the guidelines. Since these pre-conditions are actions that users must perform, it also highlights the personal agency of users in respect to their own health. This is further emphasized by the use of the second person pronouns.

6. Categorizing food types

As I began to identify rhetorical moves in the standard version of the CFG, I found that a two-dimensional, linear approach to identifying rhetorical moves conflicted with an MMI analysis, and did not always fully capture the communicative functions that a mode or group of modes was performing, and that, in some cases, a

mode appeared to belong to several different rhetorical moves while still performing the same communicative function in each move. To address this issue, I drew on Norris' (2004) concept of modal density, which includes modal intensity and complexity, to help determine modes and groups of modes that perform a communicative function, that is, a rhetorical move. I considered modes or groups of modes that served a distinct communicative function as a separate rhetorical move, even when they appeared in the background behind other rhetorical moves (Figure 6.4). As such, I developed a layered approach to the analysis of the CFG texts, where I considered two layers that each contain rhetorical moves, but one layer appears in the background (modal intensity) and the rhetorical moves between the two layers appear to rely on each other for meaning (modal complexity). My understanding of the layers of modes in the CFG texts was further informed by the concept of *chronotopic laminations* (Bakhtin, 1981; Prior, 1998; Prior & Shipka, 2003). Based on Goffman (1981) and Goodwin and Duranti (1992), *chronotopic laminations* are described as “the simultaneous layering of multiple activity frames and stances . . . which are relatively foregrounded and backgrounded” (Prior & Shipka, 2003, p. 187) in literate acts. I have adapted this concept and refer to layers of rhetorical moves as *rhetorical laminations*.

Thus, in the standard version of the CFG, the *categorizing food types* move appears in the background behind moves 7 to 9, which all rely on move 6 to convey meaning, in the standard version of the CFG (Figure 6.4). Move 6 demonstrates the four food groups verbally and visually with the use of coloured stripes that correspond to the colours of the rainbow on the first page of the standard version

(Figures 6.1 & 6.2). In addition, move 6 provides visual continuity and ties together moves 7 to 9 in order to demonstrate that, together, moves 7 to 9 constitute the dietary guidelines.

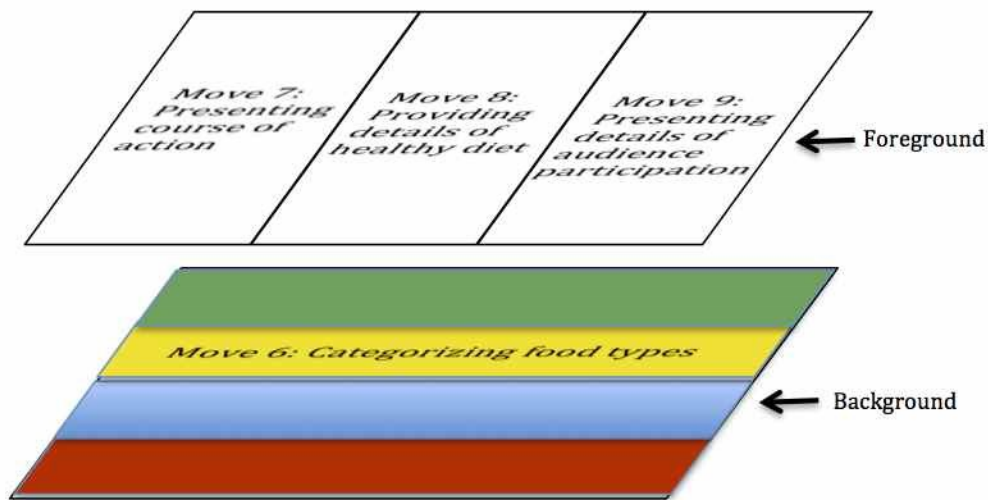


Figure 6.4. Layered rhetorical moves in standard CFG version

7. Presenting course of action

The *presenting course of action* move uses a chart format with rows and columns to convey numeric amounts of food intake, or numbers of food group servings that should be consumed each day (Figure 6.1). The authority of the information is indicated by the word “recommended” (Health Canada, 2011a). The columns are categorized by age and sex and the rows rely on move 6 to demonstrate the numbers of servings for each food group each day (Figure 6.4).

8. Providing details of healthy diet

The *providing details of healthy diet* move provides additional information that readers need in order to act on move 7, and is indicated by a title that anticipates readers' questions: "What is one Food Guide serving?" (Health Canada, 2011a)(Figure 6.1). This rhetorical move also relies on move 6 in order to show verbal and visual examples of foods that belong in each of the four food groups (Figure 6.4). In addition to examples of foods, move 8 also demonstrates the empirical measurements of serving sizes for each food example. The empirical measurements are conveyed through metric measurements (e.g., 125 mL, 35g), cooking measurements (e.g., 1 cup), and sometimes by typical food portions (e.g., 1 slice of bread). For food examples that can be measured using liquid measurements, a picture of a liquid measuring cup is also provided that indicates the serving size amount. The standard version of the CFG provides examples of commonly eaten foods in Canada (cf. Chapter 4).

9. Presenting details of audience participation

The *presenting details of audience participation* move demonstrates advice for choosing and preparing foods in each of the four food groups (Figure 6.2) and also relies on move 6 for meaning (Figure 6.4). KIs indicate that this section provides information about food quality that is necessary for a healthy diet (cf. Chapter 4). This rhetorical move includes a repetitive, point-form format that verbally suggests a specific action in bold text (e.g., "**Select lower fat milk alternatives** [emphasis in original]" [Health Canada, 2011a]) followed by further

instructions for performing these actions (e.g., “Compare the Nutrition Facts table on yogurts or cheeses to make wise choices” [Health Canada, 2011a]).

10. Highlighting special dietary considerations

The *highlighting special dietary considerations* move includes information not covered by the four food groups, but that are considered important when making healthy food choices. This move appears twice in the standard version of the CFG, both on page 4 (Figure 6.2). The repetition provides evidence of a cyclical structure (Crookes, 1986; Samraj, 2002) of rhetorical moves in the standard version. One appearance of this move provides suggestions for how much and what kind of oils and fats to consume on a daily basis and provides examples of foods where these oils and fats are found. The other appearance of this move recommends drinking water regularly.

11. Highlighting demographic that requires special consideration

Highlighting demographic that requires special consideration is a move that is repeated multiple times in the standard version of the CFG, which provides further evidence of a cyclical structure of rhetorical moves (Figure 6.1). Each instance of the move focuses on a different demographic group: children, women of childbearing age, and men and women over 50. These three sections are presented beside each other and come under the same title to indicate similar communicative functions. Within each section for each demographic group, verbal explanations of the special consideration are provided (e.g., “The need for **vitamin D** [emphasis in original]

increases after the age of 50” [Health Canada, 2011a]), as well as specific actions to address the special consideration. Sometimes these suggested actions are provided in point-form and sometimes in continuous prose depending on the section. The section about women of childbearing age suggests further services (e.g., “A health care professional can help you . . .” [Health Canada, 2011a]), and also provides further suggestions for performing suggested actions.

12. Inciting audience participation

The *inciting audience participation* move also has a cyclical structure and repeats seven times in the standard version. Move 12 encourages readers to not only eat well, but to be physically active and live a healthy lifestyle overall (Figure 6.1). These moves suggest an action (e.g., “Be active” [Health Canada, 2011a]), justify advice, describe benefits of the action, and provide instructions for performing the action. All of the suggested actions use imperative grammatical structures. The information in these moves is sometimes provided in point-form (sometimes indicated by a dot and sometimes by a check mark) and sometimes in continuous prose. In addition to verbal suggestions, this move includes visual examples, primarily visual examples of physical activity, but the standard version also includes a visual example of the Nutrition Facts label (cf. Chapter 1, p. 11) and a graphic that conveys a variety of food from the four food groups. The visual examples of physical activity on the standard version are located in the sections that mention physical activity, but also in sections that realize rhetorical move 11, which do not mention physical activity.

13. Suggesting further information/services

Finally, the standard version of the CFG provides details about where to access additional information (Figure 6.1). This information includes details about accessing more information about the CFG on the complementary website or alternatively by contacting Health Canada. The move provides the CFG website's URL and multiple ways to contact Health Canada. In addition, there is also a note that readers can request multiple formats of the CFG, e.g., audio-cassette or braille.

Rhetorical Move Structure of the FNIM Version of the CFG

This section describes the rhetorical moves that appear in the FNIM version of the CFG, which are realized through written language, pictures, numbers, charts, formatting, and layout. Figures 6.5 and 6.6 provide an overview of the outside and inside pages of the FNIM version of the CFG accompanied by a schematic of the rhetorical moves in the document. The rhetorical moves are numbered to correspond with the numbers in the schematic.

a) Outside pages of FNIM version of CFG



b) Schematic of outside pages of FNIM version of CFG

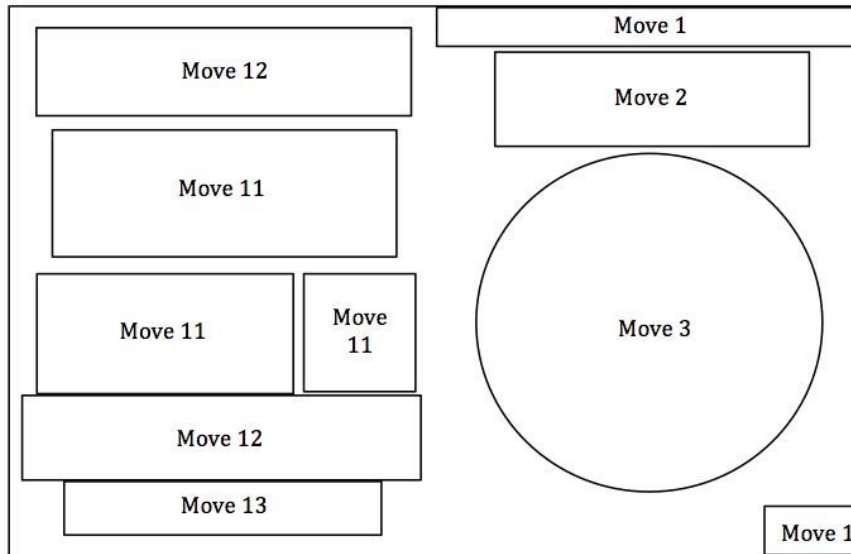


Figure 6.5. Outside pages of FNIM version of CFG (Health Canada, 2007b)

a) Inside pages of FNIM version of CFG

Page 2

How to use Canada's Food Guide

The Food Guide shows how many servings to choose from each food group every day and how much food makes a serving.

Recommended Number of Food Guide Servings per Day

Food Group	Men 19-50	Women 19-50	Men 51-70	Women 51-70
Vegetables and Fruit	4	5-6	7-8	7-10
Grain Products	3	4-6	6-7	7-8
Milk and Alternatives	2	2-4	3-4	3-4
Meat and Alternatives	1	1-2	2	3

Page 3

Eating Well Every Day

Canada's Food Guide describes healthy eating for Canadians two years of age or older. Choosing the amount and type of food recommended in Canada's Food Guide will help:

- maintain and improve your health
- meet your needs for vitamins, minerals and other nutrients
- lower your risk of obesity, Type 2 diabetes, heart disease, certain types of cancer and osteoporosis, stroke and high blood pressure.

What is our Food Guide Servings?
Look at the examples below.

Eat at least two dark green and one orange vegetable each day. Choose vegetables and fruit prepared with little or no added fat, sugar or salt. Some vegetables and fruit taste better when frozen.

Make at least half of your grain products whole grain each day. Choose grain products that are lower in fat, sugar or salt.

Drink 625 mL (2 cups) of water, 75% of 2% milk each day. Select lower fat milk alternatives. Check fortified soy beverages if you do not drink milk.

Have one alternative each to beans, lentils and tofu (tofu). Eat at least two food sources containing 10g or more total protein, processed with little or no added fat or salt.

When cooking or adding fat to food:

- Heat oil in the pan, use vegetable oils with unsaturated fats. These include canola, olive and soybean oils.
- Use fat in a small amount (2 to 3 tablespoons or about 30-45 mL) each day. This amount includes oil used for cooking, salad dressings, margarine and mayonnaise.
- Traditional fats that are liquid at room temperature, such as olive and walnut oil, or margarine, also contain unsaturated fats. They can be used in oil in part of the 2-3 tablespoons of unsaturated fat recommendation per day.
- Choose soft margarines that are low in saturated and trans fats.
- Limit butter, hard margarine, lard, shortening and bacon fat.

*Health Canada provides advice for healthy eating to reduce the risk of chronic disease. See the latest information. Contact your provincial or territorial government for information about healthy eating support tools.

b) Schematic of inside pages of FNIM version of CFG

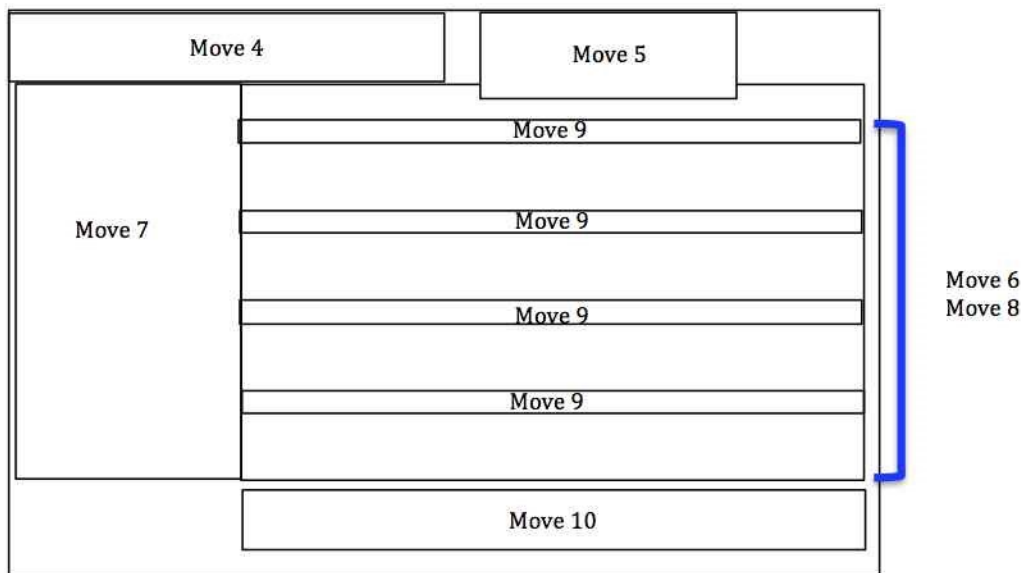


Figure 6.6. Inside pages of FNIM version of CFG (Health Canada, 2007b)

The rhetorical move structure in standard version of the CFG is as follows:

1. Establishing credibility

2. Capturing attention
 3. Summarizing visually
 4. Providing instructions for interpretation and use of CFG
 5. Presenting rationale
 6. Categorizing food types
 7. Presenting course of action
 8. Providing details of healthy diet
 9. Providing details of audience participation
 10. Highlighting special dietary considerations
 11. Highlighting demographic that requires special consideration
 12. Inciting audience participation
 13. Suggesting further information or services
-
1. Establishing credibility

The *establishing credibility* move in the FNIM version is similar to that in the standard version of the CFG as the same logos and slogans from the federal government and government departments responsible for producing the CFG are displayed on the front page, and copyright information is included on the back (Figure 6.5). The FNIM version also includes a statement on the back page that explains that it is based on the standard version of the CFG.

2. Capturing attention

The *capturing attention* move in the FNIM version is also similar to the standard version of the CFG, but the title is centred on the front page rather than aligned to the left (Figure 6.5). The FNIM version also includes a sub-title that indicates the target audience.

3. Summarizing visually

The majority of the first page on the FNIM version contains the *summarizing visually* move, but a different graphic representation from the standard version is used to provide a visual summary of the dietary guidelines (Figure 6.5). The graphic representation in the FNIM version is a cultural reference to an important concept in some indigenous cultures: the medicine wheel (Graham & Stamler, 2010). The graphic representation of the medicine wheel only demonstrates categories of foods and possible food options. The food environment is shown in the centre of the wheel surrounded by the four food groups indicating the important relationship between the two. The centre of the medicine wheel graphic shows not only the food environment, but also people participating in important food production practices.

4. Providing instructions for interpretation and use of CFG

The *providing instructions for interpretation and use* move is also on the inside pages in the FNIM version (Figure 6.6) and is articulated through language and numbers by providing a numbered, step-by-step process for reading, interpreting, and using the CFG, primarily how to read and interpret rhetorical

moves 7-9. This rhetorical move in the FNIM version is indicated by a descriptive title, “How to use Canada’s Food Guide” (Health Canada, 2007b), which is highlighted by a different font size and colour than the instructions.

5. Presenting rationale

The *presenting rationale* move demonstrates reasons for and benefits of following the CFG, and the FNIM version provides a sub-title to indicate move 5 (Figure 6.6). Similar to the standard version, this rhetorical move is conveyed verbally in the FNIM version, and it uses gerunds to convey the rhetorical purpose of the move, such as, “*Choosing* [emphasis added] the amount of and type of food recommended . . .” (Health Canada, 2007b). These gerunds and the use of second person pronouns also highlight the personal agency of users in respect to their own health.

6. Categorizing food types

The *categorizing food types* move is presented in the FNIM version similar to the standard version, which represents the four food groups verbally and visually with the use of coloured stripes that correspond to the colours of the four sections of the medicine wheel on the front page (Figure 6.5). The FNIM version contains *rhetorical lamination*, and move 6 is presented in the background of moves 7-9 to create meaning and visual continuity. Move 6 in the FNIM version indicates that vegetables and fruit can be “Fresh, frozen, and canned,” whereas this information is provide in move 8 in the standard version.

7. Presenting course of action

The *presenting course of action* move uses a similar chart as the standard version, but the chart has only 4 columns, or population categories, and the columns that indicate recommended servings of milk and alternatives for teens and adults contains a complex group of numbers further indicated by age categories (Figure 6.6). This move relies on move 6 to convey meaning.

8. Providing details of healthy diet

The *providing details of healthy diet* move presents information about types of food and examples of serving sizes in a similar way as the standard version (i.e., relies on move 6 to convey meaning), but the FNIM version also includes examples of foods that are part of different traditional indigenous diets, though examples of other foods available in Canada are also provided (Figure 6.6).

9. Presenting details of audience participation

The *presenting details of audience participation* move is integrated with rhetorical move 8 in the FNIM version, where the suggested specific actions or advice on food quality are written above the food examples within each food group (Figure 6.6). This move also relies on move 6 for meaning.

10. Highlighting special dietary considerations

Unlike the standard version, the *highlighting special dietary considerations* move appears only once in the FNIM version (Figure 6.6). This rhetorical move

provides suggestions for how much and what kind of oils and fats to consume on a daily basis and provides examples of foods in which these oils and fats are found. The FNIM version also includes information about sources of fat in traditional indigenous diets.

11. Highlighting demographic that requires special consideration

The *highlighting demographic that requires special consideration* move recurs multiple times in the FNIM version with three different demographic groups: people who do not eat or drink milk products, women of childbearing age, and women and men over the age of 50 (Figure 6.5). The repetition of this move indicates a cyclical structure of rhetorical moves (Crookes, 1986; Samraj, 2002) in the FNIM version. The latter two sections provide similar information as the same sections on the standard version, but the section for people who do not eat or drink milk products includes visual examples of the foods that the CFG offers as alternative ways to get the nutrients provided in milk products.

12. Inciting audience participation

The *inciting audience participation* move is also repeated multiple times on the FNIM version and encourages readers to not only eat well, but to be physically active and live a healthy lifestyle overall (Figure 6.5). The repeated instances of move 12 suggest actions (e.g., “Respect your body . . .” [Health Canada, 2007b]), justify advice, describe benefits of the action, and/or provide instructions for performing the action. The suggested actions that appear in move 12 on the FNIM

version use imperative grammatical structures. In some instances of this rhetorical move, information is provided in point-form and, in other instances of the move, in continuous prose. In addition to verbal suggestions, some instances of move 12 include visual examples, primarily visual examples of physical activity.

13. Suggesting further information/services

Finally, the FNIM version of the CFG includes a move that provides details about where and how to access additional information about the CFG such as the CFG website or by contacting Health Canada.

Comparison of the Standard and FNIM Versions of the CFG

The two versions of the CFG contain the same rhetorical moves, however, they often differ in the layout of the moves and the modes that realize these moves. Identifying communicative purposes and boundaries of the rhetorical moves involved constant comparison (Miles & Huberman, 1984) of the two versions of the CFG, which was sometimes difficult due to differences in the layouts of the two texts. Since the FNIM version states that it is based on the standard version (see FNIM move 1), and KIs describe the FNIM version as a “culturally-adapted translation” (cf. Chapter 4) of the standard CFG version, the standard version was considered the “prototype” (Swales, 1990), with the exception of move 4. By comparing the two texts, I was able to identify similarities and differences in the content, multimodal strategies, and layout of their rhetorical structure.

The content and multimodal strategies of the two CFG versions have many similarities, especially, the inside pages that present a *rhetorical lamination* of the actual dietary guidelines (moves 6 to 9). In both CFG versions, move 6 is presented in the background behind moves 7 to 9, which rely on move 6 for meaning. Information about numbers of recommended servings is presented in a chart with numbers, and serving sizes are presented with different forms of measurement. Overall, both versions present dietary guidelines using scientific representations and a mix of language, pictures, numbers, and charts.

One of the key differences between the two versions is in move 8 wherein the standard CFG version provides examples of foods that are commonly eaten in Canada, and the FNIM version provides examples of foods that are part of some traditional indigenous diets. There are also differences between the demographic groups that are highlighted in each version. Children are highlighted as a group in the standard version and people who do not eat or drink milk products are highlighted as a group in the FNIM version. While the standard version appears to address as many as people as possible, the FNIM version targets specific groups of people and/or diets.

One of the most striking differences between the two texts is the representation of the visual summary on the front pages of each text (move 3). The rainbow graphic on the standard version appears to be a functional (rather than a culturally meaningful) choice where the graphic can be manipulated to portray multiple kinds of information without violating any meaning that is internal to the rainbow. As a result, the rainbow graphic on the front page of the standard version

demonstrates proportions of food groups and differences in food quality by manipulating the width and perspective of the rainbow graphic, in addition to the food groups and examples of foods for each group. In contrast, the medicine wheel graphic on the FNIM version cannot be easily manipulated while also maintaining the cultural reference, and as such, the medicine wheel graphic only conveys the food groups and examples of foods for each group. However, the medicine wheel graphic is able to demonstrate the important relationship between food, the food environment, and people participating in important food production practices in the centre of the wheel, unlike the rainbow graphic on the standard CFG version.

In addition to content and multimodal strategies, there are also similarities and differences in the rhetorical structure in the two versions. First, distinguishing rhetorical move 4, *providing instructions for interpretation and use*, in the standard version became possible only through a comparison with the corresponding move in the FNIM version. As well, unpacking the communicative function of the sentence that appears above move 5 in the standard version (Figure 6.3) was a complicated task. I was able to locate a similar sentence in the FNIM version, and thus unpacked the communicative function that the sentence performed in relation to the larger segment of text in which it appeared. The sentence on the standard CFG version appears on a different page (Figure 6.2) than the section that contains the other portion of the rhetorical move of providing instructions (Figure 6.1).

Once I identified that similar rhetorical moves in the two texts are not only realized by different modes, but that the layout of similar rhetorical moves differed in the two texts, I was able to locate other similar rhetorical moves that are realized

differently. Specifically, I recognized that move 9 in the standard CFG version is presented as visually distinct, but that in the FNIM version, a similar communicative function was performed within move 8, thus resulting in another instance of rhetorical lamination (Figure 6.4). In addition, the standard CFG version provides specific tips for acting on the advice about food quality, whereas the FNIM version only provides the advice about food quality without tips for acting on the advice.

Rhetorical Failures

The MMI analysis of rhetorical moves in the standard and FNIM versions of the CFG and comparison of the two texts have highlighted a number of rhetorically problematic issues in the CFG texts. These issues include stylistic inconsistency, rhetorical silences and ambiguity, fragmented rhetoric, and rhetorical complexity that may make the CFG texts difficult to read and understand.

The first issue identified through the MMI analysis of rhetorical moves in the CFG texts is *stylistic inconsistency*, which describes inconsistent choices in format, font, and grammatical structures within a text. The standard version of the CFG exhibits multiple stylistic inconsistencies throughout the whole document, but also within rhetorical moves. For example, stylistic inconsistencies include the use of both point-form and/or continuous prose and the use of mathematical equations to create meaning in move 4 on standard CFG version. Also, the back page of the standard version contains a cyclical structure of rhetorical moves (Crookes, 1986; Samraj, 2002) and move 12, *inciting audience participation*, is repeated six times in graphically distinct sections (Figure 6.2). Two of these sections contain continuous

prose, three sections are all point-form, and one section contains a mix of point form and continuous prose. It is not always clear why some sections contain continuous prose instead of point-form. One of the sections that realize move 12 contains a long list of foods to limit separated by commas in one long sentence. In contrast, the FNIM version contains similar information presented as a much more reader-friendly list in point form. In addition, only one section that realizes move 12 on the standard CFG version contains a phrase in bolded text that aligns differently than the continuous prose in the same section (Figure 6.2). The FNIM version of the CFG is more uniform in its style, with the exception of the inconsistencies between the sections that realize move 11 and the rest of the document.

Rhetorical silence is another issue revealed by the analysis of the two texts. Rhetorical silence is somewhat similar to Huckin's (2002) presuppositional textual silence, which assumes that information "is presumed to be already known or readily acceptable to the reader or listener and to be easily recoverable from the context" (p. 348). In contrast to Huckin's description, however, the silence in the CFG does not presume that information is already known or easily recoverable from context, but rather assumes that the intended uptake of the information is readily apparent or easily recoverable from the context, and therefore, the textual silences in the CFG can be interpreted much broader, as rhetorical silences. One case of rhetorical silence in both texts concerns the difference between CFG serving sizes and portion sizes. The CFG indicates that, in move 8, readers can identify the difference between the measurement, or the serving size, the corresponding pictures, and the amount of food that a person typically eats. For example, the CFG

indicates that a serving size of cereal is 30g and includes a corresponding picture of a bowl of cereal (Figure 6.7). A tacit assumption behind this depiction is that readers can identify when a CFG serving size is smaller than their typical portion of cereal, or bowl, and that their typical portion may in fact be two CFG servings of grain products.



Figure 6.7. Example of a serving size from the grain products food group in standard CFG version (Health Canada, 2011a)

Another case of rhetorical silence in the standard version of the CFG becomes apparent after a comparison with the FNIM version. The layout, content, and stylistic choices in the FNIM version provide explicit and clear direction for how to read and interpret the CFG. For example, move 4 in the FNIM version, *providing instructions for interpretation and use of CFG*, includes a clear heading and numbered steps that explicitly state the intended uptake of the section. In contrast, the standard version does not include either of these forms of information and assumes that readers know how to use the CFG without explicit instruction.

In addition, the CFG texts also contain graphics that demonstrate *rhetorical ambiguity*. Similar to the notion of rhetorical silence, rhetorical ambiguity refers to communicative modes whose meanings and intended uptake are not clear. For example, move 5, *presenting rationale*, in the standard version of the CFG includes a graphic of an arrow that extends from the top of page 2 on the inside pages and points toward Move 5 (Figure 6.2) Move 5 explains, verbally, that following moves 7 to 9 will contribute to health benefits for the readers. However, the arrow appears to only draw readers' attention to the relationship between move 5 and 7, while excluding moves 8 and 9. The arrow appears to be highlighting move 7 over the other two moves, yet it is not clear whether this representation is meaningful, or what the meaning may be, and, thus, demonstrates rhetorical ambiguity.

Other examples of rhetorical ambiguity are the pictures, or silhouetted figures, of people being physically active that are included in the sections that realize move 11. The sections focus on special dietary requirements for specific demographics and do not mention physical activity (Figure 6.2). The spatial proximity within graphically distinct sections implies a relationship between the language and the silhouettes, but the relationship is unclear or rhetorically ambiguous. The analysis of rhetorical structure revealed that this particular example also demonstrates another issue with the CFG texts, which is *fragmented rhetoric*. Fragmented rhetoric is most prominent in the cases of rhetorical moves that can only be fully understood by all of the modes that realize the move, or a mode can only be understood within the context of its rhetorical move, and the modes are not presented together or within special proximity of each other. The

silhouettes described above help realize move 12. Yet they lose their meaning since they are not located near, or on the same page, as the other sections that realize move 12, but with the sections that realize move 11 (Figure 6.1).

Another example of a rhetorical fragment is move 4 in the standard CFG version (Figures 6.1 and 6.2). Unlike in the FNIM version, move 4 in the standard version is presented in two different locations that do not share any visual coherence to indicate that, together, these two sections provide instructions for the interpretation and use of the CFG. The first section appears on page 2 (Figure 6.2) and describes the function of the guidelines in similar terms as in the FNIM version; however, due to its proximity to the move 5 and a lack of visual or verbal cues, this section appears to be part of move 5, or the rationale for using the CFG (Figure 6.3). The remainder of rhetorical move 4 appears in a visually distinct section on page 5 of the standard CFG (Figure 6.1). This section indicates a topic that refers to only a portion of what is required to interpret and use the CFG, followed by visual and verbal information about using the CFG.

Finally, the rhetorical laminations in the CFG texts, particularly the inside pages of both versions, demonstrates the CFG's *rhetorical complexity*. The layers of rhetorical moves described in moves 6 to 9 (Figure 6.4) rely on each other to create meaning, which Norris (2004) describes as modal complexity. In addition, moves 7 to 9 are displayed in the foreground and appear to hold more weight, or modal intensity (Norris, 2004) than move 6, which appears in the background. The rhetorical lamination of moves 6 to 9 is, on one hand, an efficient use of limited space, but, on the other hand, provides yet another type of interpretation for

readers and increases the complexity of the CFG. While the visual nature of move 6, that is, the coloured stripes, provides visual consistency and appears to serve as a reading cue that ties the different parts of the dietary guidelines together, the rhetorical lamination of moves demonstrates another rhetorical silence that presumes that readers can easily recover meaning from the context.

Chapter Summary

The multimodal analysis of the standard and FNIM versions of the CFG has revealed the overarching rhetorical actions that the CFG performs, but also highlighted the rhetorical failures of the CFG. The rhetorical moves in the CFG texts encourage detailed and specific actions and incite audiences to participate, or carry out these actions, for their own benefit. The moves in the CFG texts provide important cues towards the purposes, or the intended social actions, of the CFG, and how the CFG may be perceived by users. The previously discussed findings of the analysis of the interviews with KIs and RDs have informed the MMI analysis of rhetorical moves in the two CFG versions, thus providing insight into the rhetorical failures of the CFG, that is the stylistic inconsistencies, rhetorical silences and ambiguity, fragmented rhetoric, and rhetorical complexity that may make the CFG texts difficult to read and understand.

Chapter 7: The Persistence and Power of Scientific Representations

This chapter draws together and provides a discussion of the findings presented in Chapters 4, 5, and 6. The findings from interviews with KIs and RDs and the MMI analysis of the CFG texts reveal that scientific representations play a profound role in the social and ideological actions that the CFG performs. To further understand the influence of scientific representations on the CFG and, as a consequence, on RDs' practice, in this chapter, I trace the persistent and powerful "chromosomal imprint" (Jamieson, 1975, p. 406) of scientific evidence that informs the CFG and, in turn, influences how RDs conceptualize nutrition and use the CFG. The chapter concludes with a discussion of the social and ideological actions that the CFG performs in light of the chromosomal imprint of scientific evidence.

The CFG is Transformed and Constrained by Scientific Representations

The social and ideological actions of the CFG can be determined, in part, by tracing the process by which representations of scientific evidence were transformed during the revision process and how these representations constrained how the dietary guidelines in the CFG were presented.

Tracing the chromosomal imprint of scientific representations. Health Canada took an evidence-based approach to developing the CFG, that is, scientific evidence about macro and micro nutrients and their relationship to human health formed the basis of the dietary guidelines (Health Canada, 2010b). The representations of this scientific evidence, such as statistical data and specialized terminology, reflect the ideologies of nutrition science, a science that studies the

effects of macro and micro nutrients on health, or the ways of knowing and talking about nutrition (e.g., Coe et al., 2002; Lynch & Woolgar, 1990). Scientific representations develop within scientific communities and mediate knowledge creation by allowing nutrition scientists not only to communicate with each other easily and precisely about their results, but also to replicate and verify research results (e.g., Coopmans et al., 2014; Kuhn, 1996; Latour & Woolgar, 1979).

The CFG inherited scientific representations through a process that transformed scientific evidence about nutrients, first into Dietary Reference Intakes (DRIs) (Health Canada, 2010a) and then into a food intake pattern (Katamay et al., 2007), throughout which the content (required macro and micro nutrients for preventing disease and maintaining health) and form (numbers, charts, specialized terminology) of this evidence demonstrated resilience, revealing what Jamieson (1975) referred to as a “chromosomal imprint” (p. 406), or traces of the content, intent, and form of scientific evidence. The original representations of scientific evidence, and the subsequent DRI report and food intake pattern, were antecedent scientific texts that imposed powerful rhetorical constraints over the CFG; they not only constrained the form and content of the CFG, but also created particular views of nutrition to which the CFG producers and RDs responded.

As discussed in Chapter 4, the DRI report and the food intake pattern served as *intermediary* (Tachino, 2012) texts that facilitated the uptake of the scientific evidence by the CFG (cf. Chapter 4) and were the means by which the chromosomal imprint of the scientific evidence appeared in the CFG. As the evidence was transformed, the DRI report and then the food intake pattern carried the

chromosomal imprint of the scientific evidence, but the representations of the evidence became increasingly reductive the further away they moved from their original scientific context. The DRI report pulled together multiple sources of scientific evidence into one document that narrowed the complex scientific evidence into a series of charts with precise numbers and empirical measurements that represent values of required macro and micro nutrients that people need to maintain their health and help prevent chronic disease (Health Canada, 2013b) (Figure 4.1 on p.64). According to KIs, the DRI report was then transformed into the food intake pattern by drawing on information taken from previous versions of the CFG (i.e., food groups and directional statements), data from Canadian food consumption surveys, data on disease prevalence in Canada, and the Canadian Nutrient File (CNF) (Katamay et al., 2007). The food intake pattern further reduces the wide range of macro and micro nutrients into four categories of food types and reduces the daily values into uniform serving sizes. The food intake pattern includes a list of recommendations to clarify and account for the quality of different food choices within the four categories. While the DRI report and food intake pattern are reductive, and indeed different representations of the scientific evidence, they carry the chromosomal imprint of scientific evidence that views healthy eating according to nutrient values.

Constraining dietary guidelines. The CFG is considered a version of the food intake pattern that has been translated, or “recontextualized” (Calsamiglia & Van Dijk, 2004) for general audiences, and as such, also carries the chromosomal imprint of the scientific evidence. The development of the 2007 CFG was shaped by

practical constraints, such as financial limitations and a shortened paper version, but also the intended purpose and audiences for the CFG. The CFG was developed with the intention to enable Canadians to make healthier food choices. Designed as a population health tool and spread across a group of resources with different functions, the CFG was created to help reduce Canadians risk of developing chronic diseases, including obesity. The guidelines are meant to serve as a flexible model of healthy eating that reflects typical Canadian foods and a holistic approach to well-being. To meet these purposes, the food intake pattern was further simplified, and the scientific representations became *scientistic* as they were recontextualized (Calsamiglia & Van Dijk, 2004), that is, they were removed from their original scientific contexts and used within a resource intended for general audiences (Bourdieu, 1992).

As Chapter 1 indicates, according to Bourdieu (1992), scientific representations become *scientistic* if they obscure, oversimplify, censor, or detract from important information when presented to non-scientific audiences, or used in non-scientific situations. The *scientistic* representations in the CFG appear to be at odds with the purpose and audience for the CFG, and their use detracts from the CFG being able to respond appropriately to the needs and demands of the situations to which it responds. They also exerted powerful rhetorical constraints on the revision of the CFG, and its producers' abilities to respond to the needs and issues that arose during the revision process. For example, the response of the CFG producers to the trend towards individualized health advice was to include a chart of recommended daily servings categorized by age and sex (Appendix A & B).

Producers appeared unable to respond to consumer concerns in non-scientific ways, which further contributed to the inclusion of scientific representations in the CFG. For example, the numbers and specialized terminology of nutrition took precedence over creating a resource accessible to audiences with lower literacy and numeracy levels. Also, despite consistent confusion over the concept of serving sizes (Katamay et al., 2007), they remained an integral part of the dietary guidelines. KIs describe how attempts to represent serving sizes in less scientific ways to communicate their flexibility produced even more confusion for audiences during consumer testing. Rather than questioning the usefulness of the scientific concept of serving sizes to communicate healthy eating, the CFG producers chose to represent them as empirical measurements. One KI mentions that problems with the 2007 version of the CFG are, “primarily in the area of interpretation with serving sizes.” A recent internal review of the CFG indicated that the serving sizes remain problematic (KI).

As described in Chapter 6, the tension between the powerful rhetorical constraints of scientific representations and the CFG’s purpose resulted in a resource that is rhetorically complex. For instance, the scientific representations do not lend themselves to communicating flexibility, a goal of the CFG, and require that readers have prior knowledge of and experience with not only scientific representations but also with nutrition and cooking. The scientific representations, such as the chart of daily recommended servings and the serving size examples (Appendix A & B), add to the rhetorical complexity of the CFG. Together, the chart and serving size examples provide the dietary guidelines, and highlighting this relationship requires instructions for use. However, the CFG is divided among

multiple resources, and the instructions for use of the CFG are included in detail on the website, with only simplified instructions included in the paper resources. To further complicate the instructions, they are separated between two sections of the standard version with no clear indication of their relationship to each other. By dividing the CFG into multiple resources, the main guidelines as presented in the standard and FNIM versions contain rhetorical silences and ambiguity that further complicate the interpretation and use of the guidelines; for example, the differences between serving sizes and portions are not made explicit in the paper-based versions. In other words, the rhetorical failures observed in the CFG resources are often caused by the scientific representations.

The scientific representations, as a chromosomal imprint of the scientific evidence for nutrition, limit the CFG's ability to address the linguistic, cultural, socio-economic, and geographical diversity of Canada's population, and, therefore, it is also expected that intermediaries, such as RDs, will modify the CFG for specific populations and needs, and be yet another step in the knowledge translation process.

The CFG Transforms and Constrains RDs' Practice

The social and ideological actions that the CFG performs can be further determined by the uptake of the CFG, which "takes place within a complex scene of agency . . . and may not always or often be textually visible" (Bawarshi, 2015, p. 189). Freadman (1994, 2002) and later Bawarshi (2016) emphasized that texts do not directly elicit uptake, but that uptake first involves agency and the taking up of a text

within real time and space, which is subject to factors such as memory, emotion, and linguistic and discursive resources. RDs take up the CFG as a concept but also as a tool for teaching, both of which are influenced by the chromosomal imprint of scientific evidence.

Conceptualizing nutrition. The CFG producers drew on multiple resources to help transform scientific evidence about nutrients into a food-based model of healthy eating, and thus further developed a scientific and reductive representation of nutrition. These resources helped the CFG producers to construct a model of healthy eating that is based on frequently eaten foods that represent macro and micro nutrients, in order to make complex nutrition science more accessible to general audiences. This constructed model of healthy eating invoked a new way of thinking and talking about food. More specifically, the CFG has produced a new conceptual reality (Smart, 2006), similar to Medway's (1996) virtual artifacts, a concept he uses to describe how representations create reality. The concept of healthy eating that has emerged from the CFG's scientific representations has consequences for how RDs conceptualize nutrition, but also how RDs respond to and act within their respective contexts. RDs perceive the CFG as a real object that is not talked about as an idea or possibility, but that, as RD1 notes, "*is the healthy eating pattern.*" For RDs, the CFG has become a social fact (Bazerman, 2004; Durkheim 1938).

The conceptual reality that has emerged from the scientific representation of healthy eating structures RDs' interactions with people and frames RDs' knowledge about nutrition outside of, or apart from, the CFG texts. This conceptual

reality is evident in how RDs describe the CFG's implicit influence on their practice and their conversations with the people with whom they work, for example, when they draw on the concepts in the CFG to mentally assess a person's dietary behaviour, or to structure and develop presentations that do not explicitly refer to the CFG. The chromosomal imprint of scientific evidence emerges in this conceptual reality as well. This conceptual reality does not appear to include the entire CFG, but only the scientific representations such as the food groups, recommended numbers of servings, and serving sizes. RDs observe that many Canadians are familiar with the food groups and servings in the CFG, even from the CFG's older versions, and that these concepts evoke meaning for many people, thus, facilitating dialogue about healthy eating.

Taking up the CFG. In addition to creating a conceptual reality of healthy eating, the CFG is taken up by RDs as a tool to teach nutrition. RDs' uptake of the CFG is a process of selecting, defining, and representing (Freadman, 2002) healthy eating. The scientific representations, that is, the chromosomal imprint of scientific evidence, sometimes detract RDs from taking up the CFG and have a powerful influence over RDs' use of the CFG, and *how* they use it. By taking up the CFG, RDs also take up the rhetorical constraints of its scientific representations, but also the space, time, and social relations embedded in the CFG.

RDs commonly take up the CFG because of the normalized practices of their profession, or the CFG is "what everyone uses" (RD6). However, RDs rarely use the whole CFG, nor do they use the CFG in the ways it was intended, and it is this performance that provides insight into the CFG's social actions. When, where, and

how, or even if an RD chooses to take up the CFG is subject to the RD's work setting, experience with and perspective on the CFG, the population with whom the RD works, and the needs of that population.

A fruitful discussion of RDs' uptake of the CFG must include a discussion of the lack of uptake. The findings from Chapter 5 show that an RD's choice to not use the CFG often relates to the groups that the CFG excludes, whether this is due to low levels of literacy and numeracy, a lack of other forms of prior knowledge, or cultural and economic considerations. Some RDs choose not to use the CFG because of its questionable credibility due to the involvement of the food and agricultural industries as stakeholders during the revision. RDs' uptake of the CFG is also limited by the amount of time that the explanation of the CFG demands because of its length, breadth of information, and depth (i.e., rhetorical complexity). In short, the CFG, while developed as a resource for all Canadians, excludes many Canadians because of the complexity that the scientific representations impose on the guidelines, as well as its inability to be versatile and flexible for diverse audiences. In other words, the CFG has written itself out of usefulness for many of its target audiences.

RDs use the CFG as a tool for teaching nutrition, but they do not use the whole resource, that is, they do not take up the group of resources that constitute the CFG; they often only take up either of the two print resources, the standard and FNIM versions. Moreover, RDs say they rarely use the whole CFG, but ignore whole pages, or emphasize certain parts over others. In fact, RDs report that the scientific parts of the CFG dominate their discussions with people, whether it is in individual sessions or group workshops. The chart of daily recommended servings and the

examples of serving sizes (Appendix A & B) often become the focus and most time-consuming part of discussions. The meaning of the CFG is re-interpreted and re-negotiated collaboratively by RDs and the people with whom they work. As the findings in Chapter 5 suggest, RDs often find the process of collaborative interpretation difficult, as the meaning intended by the CFG producers is not evident in the print resources because of the rhetorical silences and complexity of these texts. As a consequence, new discursive activities emerge and even new tools are developed.

RDs describe how, because of the scientific parts of the CFG, they have to rely on additional resources, such as food models (Figure 5.2, p. 118) and the Hand Jive (p. 116), to teach people how to interpret the CFG, before the CFG can be used as a tool to teach nutrition. Essentially, the scientific representations in the CFG are further translated by RDs for people who may be unfamiliar with typical scientific representations. The scientific representations in the CFG are being used within a context so dissimilar to the context in which the antecedent scientific representations were developed that RDs, in addition to translating the science, also have to make the CFG more practical or relate it to a person's "real life." RDs reconstruct the healthy eating model not as a simplified, recontextualized version of the scientific evidence, but as everyday practices that people can participate in.

By taking up the CFG, RDs also "learn what ends . . . [they] may have" (Miller, 1984, p. 165), including the rhetorical constraints of the CFG's scientific representations and perspectives on food as nutrients and health as a personal choice. RDs take up the social relations between the government and the country's

citizens that may be tainted by the involvement of food and agricultural industries as stakeholders during the revision process or, for example, by the difficult and complex historical relationships between the federal government and Canada's indigenous populations. In a sense, the CFG produces a situation that RDs are "uptaken by" (Dryer, 2008, p. 507) that includes time, space, and social relations. The scientific aspects of the CFG constrain RDs interactions with people with whom they work, are inconsistent with the needs of many of these people, and seem to lead people away from, rather than towards, a healthier lifestyle.

The Social and Ideological Actions of the CFG

The overarching research question that guides the study is: what social and ideological actions does the CFG perform? In order to answer this question, I have explored how the CFG was produced and has been used, in addition to examining the CFG as a multimodal text. At the outset, I suspected that the most valuable insights into the CFG's social and ideological actions would come from understanding how the CFG is used and how it shapes the situations in which it is used. However, as I discovered later, in order to understand how the CFG shapes RDs' practice, I needed to look backwards. I needed to look past the context in which the 2007 CFG was produced and go back to the original scientific basis of the CFG as well as its historical roots. Only after I had located a starting place (of sorts) was I able to trace my way back again, using the consistent thread of scientific representations that acted as Jamieson's (1975) *chromosomal imprint*. The concept of the chromosomal imprint of antecedent genres has illuminated many of the

inconsistencies and complexities I observed in the standard and FNIM versions of the CFG, the RDs' descriptions of the CFG's effects on their practice, and ultimately illuminated the social and ideological actions that CFG performs.

The CFG, by way of intermediary texts, has proved to be yet another scientific, or, rather, scientific representation of the evidence that embodies the ideologies of nutrition science, or particular ways of knowing and doing, wherein healthy eating is viewed through the lens of nutrients rather than food. The ideologies of nutrition science, manifest in scientific representations, also shape the CFG producers' perspectives on what nutrition is and how it can be communicated. In other words, the CFG is a scientific representation, a reductive and contextualized form of scientific evidence, that communicates the ideologies of nutrition science in the hopes that, by taking up the ways of knowing and doing in nutrition science, Canadians would make healthier lifestyle choices. Yet the scientific representations, and the ideologies of nutrition science, are inconsistent with the needs that many Canadians, particularly vulnerable populations, are facing. As well, as RDs observe, it is perhaps inconsistent with how Canadians think about and understand food and eating practices. Furthermore, while the CFG encourages Canadians to take responsibility for their own health, it also limits *who* can make healthy choices and *how* they can make healthy choices. RDs are tasked with reconstructing the version of healthy eating presented in the CFG in a way that resonates with the people with whom they work. RDs have become an important link in a chain that carries the chromosomal imprint of scientific evidence, and creates new discursive activities to reconstruct healthy eating -- discursive activities that might not otherwise exist.

More simply, the CFG performs the social and ideological actions of creating a way of talking about food and health as a matter of adequate nutrient intake that impedes, rather than promotes, healthier lifestyle choices.

Tracing the chromosomal imprint of the scientific evidence not only illuminates the CFG's social and ideological actions, but may also provide clues to addressing the inconsistencies, complexity, and ineffectiveness of the CFG. To develop resources that will address the nutritional needs and barriers that Canadians face, the CFG requires more than a makeover. We need to look at its scientific basis and the ideologies that are communicated through different representations of the science. To extend the analogy of the chromosomal imprint, we need to look past the CFG's observable traits and examine its "genetic makeup." For example, representing the concept of servings sizes in more culturally appropriate or accessible ways does not address the fact that serving sizes are scientific constructs. We need to critically examine approaches to nutrition science that focus on nutrients rather than food, so that we can explore how the multiple representations of this science create different, and possibly unhelpful, ways of viewing the relationship between food and health. We also need to understand the ways that these representations have been transformed by other resources and contextual factors, such as food consumption data, that create new conceptual realities of healthy eating and may result in overly reductive perspectives on nutrition and health. Examining the "genetic makeup" of the representations of nutrition science and interactions between its representations and other contextual factors may help break "the manacles of an inappropriate" (Jamieson, 1975, p. 414)

approach to nutrition science, and may lead to more productive knowledge translation activities that address Canadians' needs better than simple alterations to the representations.

Chapter 8: Looking Forward

This chapter concludes the dissertation by looking forward towards possibilities for revisions to the CFG and the development of health policy and promotion initiatives more broadly. The chapter begins with a summary of the research study and its key findings. Following the summary, I discuss the limitations of the study, the contributions that the study makes to writing research, and the practical implications and recommendations for future revisions of the CFG and the development of healthy policy and promotion initiatives. I conclude the chapter with a discussion of directions for future research.

The study reported in this dissertation investigated the 2007 version of the CFG focusing on its rhetorical construction, discursive practices, and social roles implicated in its production and its use by RDs. The overarching research question that guided the study was:

What social and ideological actions does the CFG perform?

The overarching research question consisted of three sub-questions:

1. What were the main influences on the revision of the CFG?
2. How is the CFG used by RDs?
3. How is nutrition information rhetorically constructed in the CFG?

To answer these questions, I conducted and analyzed interviews with KIs about the 2007 revision of the CFG and with RDs who work with vulnerable populations across Canada, including, but not limited to, low income, immigrant, and indigenous populations. The interview analyses informed an investigation of the rhetorical move structure in the standard and FNIM versions of the CFG. I relied on a combination of theoretical and analytical approaches from Rhetorical Genre Studies (RGS), Science and Technology Studies (STS), and Multimodal Interactional (MMI) Analysis to develop a conceptual framework for the analysis of the CFG as a “site. . . of social and ideological action” (Schryer, 1993, p. 204). This conceptual framework allowed me to explore how the rhetorical construction of the CFG was shaped by and shapes the contexts of its production and its use by RDs.

Summary of Findings

The Canadian Senate report on obesity (SSCSAST, 2016) states that the CFG has been ineffective for addressing obesity and diet-related chronic diseases. The study’s findings support this claim, but also demonstrate that the effectiveness of dietary guidelines depends as much on *what* information (content) is communicated as on *how* dietary information (form) is communicated, and in fact, the content and form of the CFG are, in many ways, indistinguishable.

Overall, the study suggests that the CFG does not accomplish its intended goal of guiding Canadians towards healthier food choices, and impedes, rather than promotes, healthy eating. The CFG frames healthy eating as a matter of personal responsibility, highlighting that healthy choices reduce one’s risk of developing

obesity and diet-related chronic disease. Yet, as the Senate report (SSCAST, 2016) and such scholars as Bellisari (2013), Finegood (2011), Raine (2004), and others indicate, Canadians with lower income and less education are at a greater risk of developing obesity and diet-related chronic diseases. The high level of literacy and numeracy expected from the readers in the standard and FNIM versions of the CFG, as well as the scientific representations and rhetorical failures, limit who is able to use the CFG and what healthy choices they are able to make on its basis. The involvement of the food and agricultural industries in the revision of the CFG, as well as the complex and difficult historical relationship between the federal government and Canada's indigenous populations, discourage many Canadians and even intermediaries such as RDs from taking up the CFG.

The power and persistence of scientific representations has emerged as a key finding in the study. Scientific representations have been shown to have an important influence on the rhetorical failures of the CFG, and as such, be one of the causes of its ineffectiveness. The presence of representations of the scientific evidence from nutrition science persisted through multiple transformations of the scientific evidence and exerted powerful rhetorical constraints over the CFG and its producers. The scientific representations, such as numbers and specialized terminology, embody the ideologies (Kuhn, 1996) of nutrition science that are concerned with nutrients and their relationship to human health, as well as the ideologies of other resources that transformed the evidence such as food consumption surveys, which provide information about frequently eaten foods. As the scientific representations appeared in the DRI report and food intake pattern,

they carried the ideologies of nutrition science, but became increasingly reductive and scientific as they were recontextualized for new, nonscientific contexts. As a result, the dietary guidelines in the CFG present a reductive scientific representation of nutrients mapped onto foods that do not reflect a particular diet, but reflect foods that Canadians frequently eat regardless of the healthfulness of the food (including controversial items such as, for example, juice [e.g., SSCAST, 2016; Vogel, 2015]). The CFG, in other words, presents a reductive scientific construction of healthy eating.

The RD participants work with populations who may have minimal education and who may be facing numerous barriers to healthy eating such as food insecurity, overcrowded housing, and even overwhelming amounts of conflicting nutrition advice. The scientific representations used in the CFG influence how RDs conceptualize nutrition and act within their work contexts, but also present an obstacle that leads RDs either to choose alternative resources and approaches to teaching nutrition, or to teach people how to interpret the scientific representations, such as the chart of recommended number of servings and serving sizes (Appendix A & B), instead of focusing on helping people make healthier food choices. In order to help make the CFG useful for the people with whom they work and relevant to the issues that these people are facing, RDs must further translate the science and reconstruct the concept of healthy eating. It appears, based on the study's findings, that the CFG creates new, and perhaps unnecessary, discursive activities, and even a new conceptual reality of healthy eating.

In addition to and because of the scientific representations, the standard and FNIM versions of the CFG are rhetorically complex and fail to communicate the messages the CFG was intended to communicate. The CFG is meant to present a flexible model of healthy eating for all Canadians (cf. Chapter 4), yet the scientific representations and the chromosomal imprint (Jamieson, 1975) of scientific evidence communicate precision rather than flexibility because they reflect the discursive activities of scientists whose scientific representations developed as a way to communicate their results precisely and in a concise manner. As such, the scientific representations contribute to the CFG's rhetorical complexity. Rhetorical laminations, silences, ambiguity, and fragments in the standard and FNIM versions of the CFG require readers to draw on prior knowledge of and experience with scientific representations, as well as prior knowledge of cooking and nutrition, in order to interpret the scientific representations that convey the dietary guidelines. Not all Canadians possess these forms of knowledge.

In sum, the CFG is a rhetorically complex group of resources that bear the chromosomal imprint of scientific evidence from nutrition science. The CFG producers' attempts to provide a flexible model of healthy eating using examples of common Canadian foods do not mask the scientific basis of the CFG that is concerned with the role of macro and micro nutrients in the development of obesity and chronic diseases. This scientific perspective on nutrition is not necessarily consistent with the real concerns and needs of many Canadians, nor does it provide a useful approach for RDs as they help guide Canadians towards healthier choices. Similarly, the scientific representations of the scientific evidence are difficult to

interpret and use, and they dominate rather than facilitate RDs' interactions with Canadians.

Limitations

There are a number of limitations to the study. First, the study includes a small sample of participants. The revision of the CFG involved many different teams responsible for different stages and facets of the revision process and the KIs provided perspectives from teams that were responsible for the communication of the 2007 version of the CFG. In addition to the interviews with the KIs, I relied on publicly available information and peer-reviewed journal articles to explore the process of transforming scientific evidence into the CFG. Future research may include the recruitment of participants who were involved in the scientific review and translation activities to elicit additional insights into the historical and social influences on the 2007 version of the CFG. In addition, while steps were taken to recruit RDs that represented the geographical, linguistic, cultural, and socio-economic diversity of Canada (cf. Chapter 3), the RD participants who self-selected to take part in the study may not reflect all the views and experiences of RDs who work in different capacities and in different work settings than those represented by the RD participants.

Second, my study only considered the English-language standard and FNIM versions of the CFG, and did not examine other CFG resources such as the website, the resource for educators and communicators, or the translations of the CFG into other languages. Future research may include an examination of these other

resources to elicit additional social and ideological actions performed by the CFG and provide alternative perspectives on the CFG.

Finally, my study relied on a conceptual framework that included concepts from RGS, STS, and MMI Analysis, which influenced my research questions, data collection, and data analysis and interpretation. Other theoretical perspectives, such as those from the fields of health policy and knowledge translation, may provide additional perspectives.

Contributions to Writing Research

My study confirms Bhatia's (1993) view that an understanding of rhetorical actions and purposes of a text can be obtained only after an analysis of the contexts, in which it is produced and used, has been conducted. Only by gaining insight into the contexts in which the CFG was produced and then used by RDs (cf. Paré & Smart, 1994) have I been able to discern that only two documents from among an array of materials that constitute *Eating Well with the Canadian Food Guide* -- the CFG standard and FNIM versions-- are the ones that primarily perform the social and ideological actions of the whole complex resource. This realization led me to the discovery that my further analysis should concentrate on these resources rather than, for example, the CFG website, which RDs tend to dismiss (Lu, 2006). By having gathered information about the contexts in which the CFG had been produced and used prior to conducting the analysis of rhetorical moves in the standard and FNIM versions of the CFG, I was also able to discern the rhetorical actions of the CFG more reliably.

Schryer (2011) observed that “in order to investigate written or spoken texts in their social contexts, genre researchers have to weave together theoretical and methodological perspectives that permit them to investigate the way that texts interact with and co-construct their social networks” (p. 31). I would add that the work of genre researchers can provide theoretical and methodological perspectives that can benefit the work carried out in other fields, such as health policy and promotion, and can also be woven into work that investigates how *non-routine* and *non-recurring* texts interact with their social contexts. My study contributes to writing research by drawing on RGS and weaving some of its concepts into a conceptual framework for investigating non-routine text in order to contribute to the field of public health policy and promotion. Specifically, the concept of uptake is essential for understanding how and why the CFG is or is not taken up, and that, while consisting of multiple resources, the social and ideological actions that the CFG performs are predominantly carried out through only two of its resources, the paper-based standard and FNIM versions.

The MMI analysis of rhetorical moves in the two CFG versions was inspired by Swales’ (1990) ESP genre analysis, and, in particular, by his concept of rhetorical moves, which I adapted for non-routine texts. This analytical approach allowed me to develop a unique, to my knowledge, approach to investigating the layers of rhetorical action that multimodal texts perform, or *rhetorical laminations* (cf. Prior, 1998). The investigation of the rhetorical laminations in the CFG texts provided a fuller understanding of the possible relationships between modes and the rhetorical moves. This approach may prove useful as writing and genre researchers, from both

the RGS and ESP traditions, increasingly investigate multimodal texts in their social contexts.

Finally, I borrowed from Bourdieu (1992), and further developed the concept of *scientific representations*. I must note that the ideology of scientism, from which comes the term scientific, has been well-researched and well-theorized (e.g., Haack, 2003; Sorrel, 2013), and scholars other than Bourdieu have also used the term scientific representations. Bourdieu's use of the phrase was directed towards sociologists' use of representations from the natural sciences in their work on social and cultural phenomena. However, the term is broadly applicable to many non-scientific situations that rely on scientific representations, such as the CFG, and has the potential to inform future writing and genre research that addresses issues in science communication. The concept has provided a framework for understanding *how* and *why* difficulties may arise when scientific knowledge is translated and used in many disparate and non-scientific situations.

Practical Implications and Recommendations

As highlighted in the Senate report on obesity (SSCAST, 2016), high rates of obesity and diet-related chronic diseases have serious social and economic consequences and need to be addressed. The report includes multiple recommendations for the federal government to undertake in order to address obesity, including a revision of the CFG that takes an evidence-based approach to dietary guidelines, that is, an approach that focuses on meals rather than on

nutrients, and does not include consultations with representatives from the food and agricultural industries.

The findings of the study not only lend support to the Senate report recommendations, particularly to the shift from a nutrient-based approach to a food-based approach to the dietary guidelines, but also highlight the need to attend to the ideologies and perspectives on food and health that are embedded in different representations of the scientific evidence on which the dietary guidelines may be based. The findings suggest that the ideologies embedded in discursive choices constrain not only *what* it is possible to communicate, but also *how* writers and readers respond to these discursive choices.

In addition, in order to better address the linguistic, cultural, socio-economic, and geographical diversity of Canada's population, translation of scientific evidence into dietary guidelines for general audiences requires more than maintaining a certain grade level of reading or providing culturally-sensitive and inclusive graphics (though both of these are important, too). In order for future revisions to the CFG to respond appropriately to needs and demands, it is important to understand the ways that the CFG is taken up, investigate how the CFG is interpreted and used in specific contexts, and take into account the needs and objectives of the people who take up the CFG. Developing resources that are intended to help reduce the high rates of obesity and diet-related chronic diseases and mitigate their consequences, may require user testing that not only elicits consumer opinions, but also examines how, when, where, and by whom the CFG is

taken up. These implications and suggestion can be extended to the development of health policy and promotion initiatives more broadly.

Directions for Future Research

The study reported in this dissertation presents the first step in my future program of research and reveals several avenues for research that may prove fruitful. The study provides a better understanding of how the current CFG is constrained by scientific evidence, and how the scientific evidence constrains healthcare professionals' uptake of these resources. Future research that includes observations of interactions between RDs and the people with whom they work and interviews with these people, promises to provide further insight into how the CFG is used and interpreted. Additionally, consulting with people who use the CFG without the help of intermediaries and eliciting perspectives from people who use the CFG for purposes other than dietary advice, such as academic researchers, can provide a better understanding of the effectiveness of the CFG and its social and ideological actions. Investigating whether dietary guidelines, or health promotion materials more broadly, constitute a genre may contribute further knowledge of how the development and use of such texts occur within and are responses to routine and recurring situations.

More importantly, in 1982, the focus of the CFG shifted from the prevention of nutrient deficiencies to the prevention of obesity and diet-related chronic disease. Since that time, the rates of obesity and chronic disease in Canada have doubled for adults and tripled for children (SSCAST, 2016). While the CFG is only one of many

initiatives intended to address obesity and diet-related chronic diseases, it appears that to address the problem more fully, new or alternative strategies are required. Future research can explore such new strategies, for example, by examining and comparing the uptake of dietary guidelines produced in other countries, such as the highly regarded Brazilian dietary guidelines (Ministry of Health of Brazil, 2014), and provide insight into the effectiveness of alternative strategies.

Finally, many of the RD participants have indicated that providing *more* dietary information, including the CFG and additional resources, rarely translates into successful behaviour change for the people with whom RDs work. RDs report that they see people making changes when they are able to participate in *real* food practices, and that nutrition information is only useful in the context of someone's real life. As RD1 notes, "When you've actually taken the theory or the evidence and then made it fit and work for you and made it realistic for you, that's something that you're going to stick with for the long run." Essentially, RDs describe how they see people learning when they learn by doing. Further research that relies on theories of situated learning (Brown, Collins, & Duguid, 1989; Lave & Wenger, 1991; Rogoff, 1990) can contribute to our understanding of how people may acquire knowledge of and ability to participate in healthy behaviours. By understanding the types of activities that produce sustainable behaviour change, we may be better able to develop resources that *facilitate* these activities, rather than continue to develop resources like the CFG that possibly lead Canadians away from, rather than towards, healthier futures.

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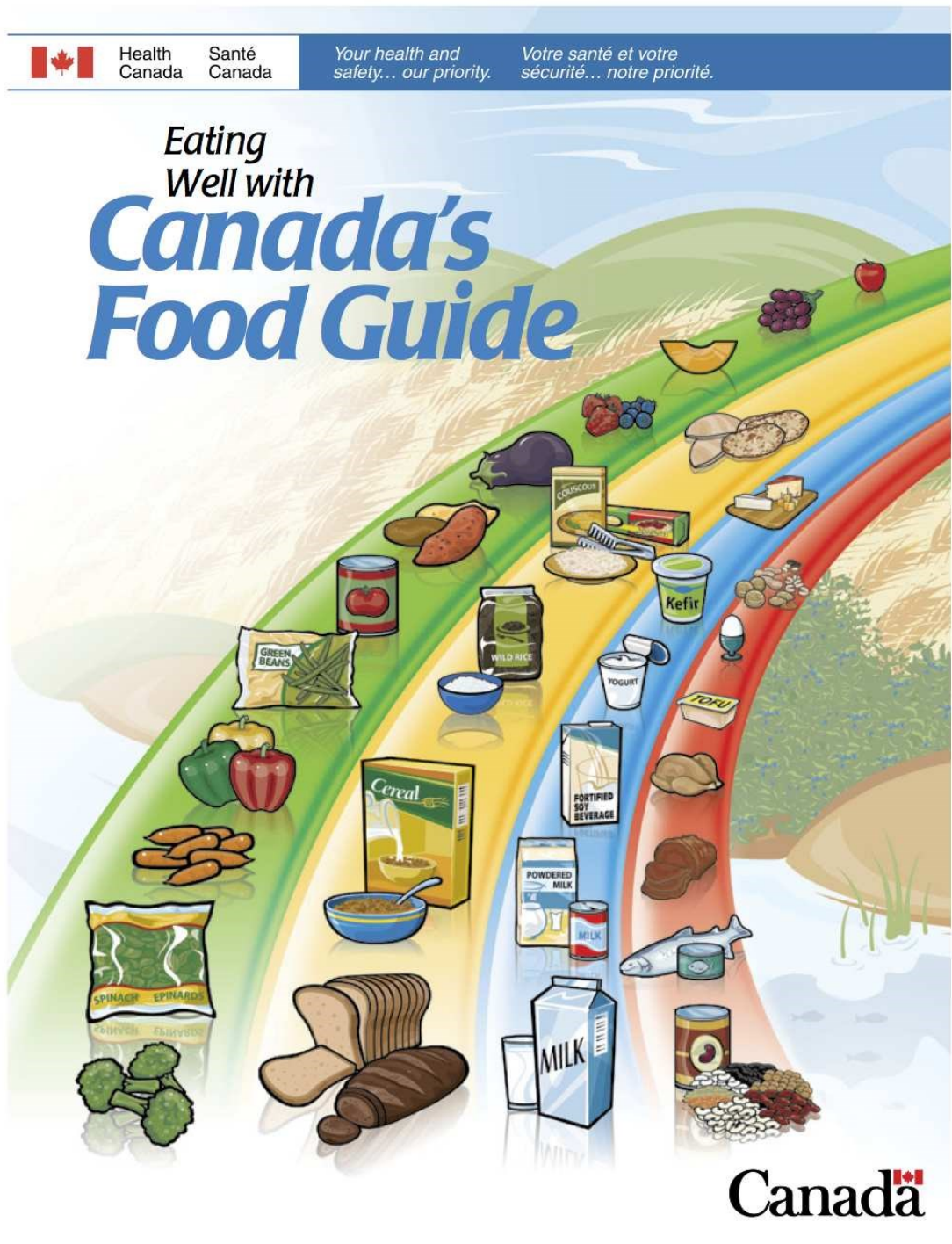
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Appendix A: Eating Well with Canada's Food Guide (Standard Version)

Health Canada, 2011a

Page 1: Cover

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Recommended Number of Food Guide Servings per Day

Age in Years	Children			Teens		Adults			
	2-3	4-8	9-13	14-18		19-50		51+	
	Sex			Females	Males	Females	Males	Females	Males
Vegetables and Fruit	4	5	6	7	8	7-8	8-10	7	7
Grain Products	3	4	6	6	7	6-7	8	6	7
Milk and Alternatives	2	2	3-4	3-4	3-4	2	2	3	3
Meat and Alternatives	1	1	1-2	2	3	2	3	2	3























The chart above shows how many Food Guide Servings you need from each of the four food groups every day.

Having the amount and type of food recommended and following the tips in *Canada's Food Guide* will help:

- Meet your needs for vitamins, minerals and other nutrients.
- Reduce your risk of obesity, type 2 diabetes, heart disease, certain types of cancer and osteoporosis.
- Contribute to your overall health and vitality.

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What is One Food Guide Serving?
Look at the examples below.

 <p>Fresh, frozen or canned vegetables 125 mL (½ cup)</p>		 <p>Leafy vegetables Cooked: 125 mL (½ cup) Raw: 250 mL (1 cup)</p>		 <p>Fresh, frozen or canned fruits 1 fruit or 125 mL (½ cup)</p>		 <p>100% Juice 125 mL (½ cup)</p>					
 <p>Bread 1 slice (35g)</p>		 <p>Bagel ½ bagel (45 g)</p>		 <p>Flat breads ½ pita or ½ tortilla (35 g)</p>		 <p>Cooked rice, bulgur or quinoa 125 mL (½ cup)</p>		 <p>Cereal Cold: 30 g Hot: 175 mL (¾ cup)</p>		 <p>Cooked pasta or couscous 125 mL (½ cup)</p>	
 <p>Milk or powdered milk (reconstituted) 250 mL (1 cup)</p>		 <p>Canned milk (evaporated) 125 mL (½ cup)</p>		 <p>Fortified soy beverage 250 mL (1 cup)</p>		 <p>Yogurt 175 g (¾ cup)</p>		 <p>Kefir 175 g (¾ cup)</p>		 <p>Cheese 50 g (1 ½ oz.)</p>	
 <p>Cooked fish, shellfish, poultry, lean meat 75 g (2 ½ oz.)/125 mL (½ cup)</p>		 <p>Cooked legumes 175 mL (¾ cup)</p>		 <p>Tofu 150 g or 175 mL (¾ cup)</p>		 <p>Eggs 2 eggs</p>		 <p>Peanut or nut butters 30 mL (2 Tbsp)</p>		 <p>Shelled nuts and seeds 60 mL (¼ cup)</p>	

Oils and Fats

- Include a small amount – 30 to 45 mL (2 to 3 Tbsp) – of unsaturated fat each day. This includes oil used for cooking, salad dressings, margarine and mayonnaise.
- Use vegetable oils such as canola, olive and soybean.
- Choose soft margarines that are low in saturated and trans fats.
- Limit butter, hard margarine, lard and shortening.

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Make each Food Guide Serving count...
wherever you are – at home, at school, at work or when eating out!

▶ **Eat at least one dark green and one orange vegetable each day.**

- Go for dark green vegetables such as broccoli, romaine lettuce and spinach.
- Go for orange vegetables such as carrots, sweet potatoes and winter squash.

▶ **Choose vegetables and fruit prepared with little or no added fat, sugar or salt.**

- Enjoy vegetables steamed, baked or stir-fried instead of deep-fried.

▶ **Have vegetables and fruit more often than juice.**

▶ **Make at least half of your grain products whole grain each day.**

- Eat a variety of whole grains such as barley, brown rice, oats, quinoa and wild rice.
- Enjoy whole grain breads, oatmeal or whole wheat pasta.

▶ **Choose grain products that are lower in fat, sugar or salt.**

- Compare the Nutrition Facts table on labels to make wise choices.
- Enjoy the true taste of grain products. When adding sauces or spreads, use small amounts.

▶ **Drink skim, 1%, or 2% milk each day.**

- Have 500 mL (2 cups) of milk every day for adequate vitamin D.
- Drink fortified soy beverages if you do not drink milk.

▶ **Select lower fat milk alternatives.**

- Compare the Nutrition Facts table on yogurts or cheeses to make wise choices.

▶ **Have meat alternatives such as beans, lentils and tofu often.**

▶ **Eat at least two Food Guide Servings of fish each week.***

- Choose fish such as char, herring, mackerel, salmon, sardines and trout.

▶ **Select lean meat and alternatives prepared with little or no added fat or salt.**




- Trim the visible fat from meats. Remove the skin on poultry.
- Use cooking methods such as roasting, baking or poaching that require little or no added fat.
- If you eat luncheon meats, sausages or prepackaged meats, choose those lower in salt (sodium) and fat.



* Health Canada provides advice for limiting exposure to mercury from certain types of fish. Refer to www.healthcanada.gc.ca for the latest information.

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Advice for different ages and stages...

Children	Women of childbearing age	Men and women over 50
<p>Following <i>Canada's Food Guide</i> helps children grow and thrive.</p> <p>Young children have small appetites and need calories for growth and development.</p> <ul style="list-style-type: none"> • Serve small nutritious meals and snacks each day. • Do not restrict nutritious foods because of their fat content. Offer a variety of foods from the four food groups. • Most of all... be a good role model. 	<p>All women who could become pregnant and those who are pregnant or breastfeeding need a multivitamin containing folic acid every day. Pregnant women need to ensure that their multivitamin also contains iron. A health care professional can help you find the multivitamin that's right for you.</p> <p>Pregnant and breastfeeding women need more calories. Include an extra 2 to 3 Food Guide Servings each day.</p> <p>Here are two examples:</p> <ul style="list-style-type: none"> • Have fruit and yogurt for a snack, or • Have an extra slice of toast at breakfast and an extra glass of milk at supper. 	<p>The need for vitamin D increases after the age of 50.</p> <p>In addition to following <i>Canada's Food Guide</i>, everyone over the age of 50 should take a daily vitamin D supplement of 10 µg (400 IU).</p> 

How do I count Food Guide Servings in a meal?

Here is an example:

Vegetable and beef stir-fry with rice, a glass of milk and an apple for dessert		
250 mL (1 cup) mixed broccoli, carrot and sweet red pepper	=	2 Vegetables and Fruit Food Guide Servings
75 g (2 ½ oz.) lean beef	=	1 Meat and Alternatives Food Guide Serving
250 mL (1 cup) brown rice	=	2 Grain Products Food Guide Servings
5 mL (1 tsp) canola oil	=	part of your Oils and Fats intake for the day
250 mL (1 cup) 1% milk	=	1 Milk and Alternatives Food Guide Serving
1 apple	=	1 Vegetables and Fruit Food Guide Serving



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Eat well and be active today and every day!

The benefits of eating well and being active include:

- Better overall health.
- Lower risk of disease.
- A healthy body weight.
- Feeling and looking better.
- More energy.
- Stronger muscles and bones.

Be active

To be active every day is a step towards better health and a healthy body weight.

It is recommended that adults accumulate at least 2 ½ hours of moderate to vigorous physical activity each week and that children and youth accumulate at least 60 minutes per day. You don't have to do it all at once. Choose a variety of activities spread throughout the week.

Start slowly and build up.

Eat well

Another important step towards better health and a healthy body weight is to follow *Canada's Food Guide* by:

- Eating the recommended amount and type of food each day.
- Limiting foods and beverages high in calories, fat, sugar or salt (sodium) such as cakes and pastries, chocolate and candies, cookies and granola bars, doughnuts and muffins, ice cream and frozen desserts, french fries, potato chips, nachos and other salty snacks, alcohol, fruit flavoured drinks, soft drinks, sports and energy drinks, and sweetened hot or cold drinks.

Read the label

- Compare the Nutrition Facts table on food labels to choose products that contain less fat, saturated fat, trans fat, sugar and sodium.
- Keep in mind that the calories and nutrients listed are for the amount of food found at the top of the Nutrition Facts table.

Limit trans fat

When a Nutrition Facts table is not available, ask for nutrition information to choose foods lower in trans and saturated fats.

Nutrition Facts

Per 0 mL (0 g)

Amount	% Daily Value
Calories 0	
Fat 0 g	0 %
Saturated 0 g	0 %
+ Trans 0 g	
Cholesterol 0 mg	
Sodium 0 mg	0 %
Carbohydrate 0 g	0 %
Fibre 0 g	0 %
Sugars 0 g	
Protein 0 g	
Vitamin A 0 %	Vitamin C 0 %
Calcium 0 %	Iron 0 %

Take a step today...

- ✓ Have breakfast every day. It may help control your hunger later in the day.
- ✓ Walk wherever you can – get off the bus early, use the stairs.
- ✓ Benefit from eating vegetables and fruit at all meals and as snacks.
- ✓ Spend less time being inactive such as watching TV or playing computer games.
- ✓ Request nutrition information about menu items when eating out to help you make healthier choices.
- ✓ Enjoy eating with family and friends!
- ✓ Take time to eat and savour every bite!

For more information, interactive tools, or additional copies visit *Canada's Food Guide on-line at:*
www.healthcanada.gc.ca/foodguide

or contact:

Publications
Health Canada
Ottawa, Ontario K1A 0K9
E-Mail: publications@hc-sc.gc.ca
Tel.: 1-866-225-0709
Fax: (613) 941-5366
TTY: 1-800-267-1245

Également disponible en français sous le titre :
Bien manger avec le Guide alimentaire canadien

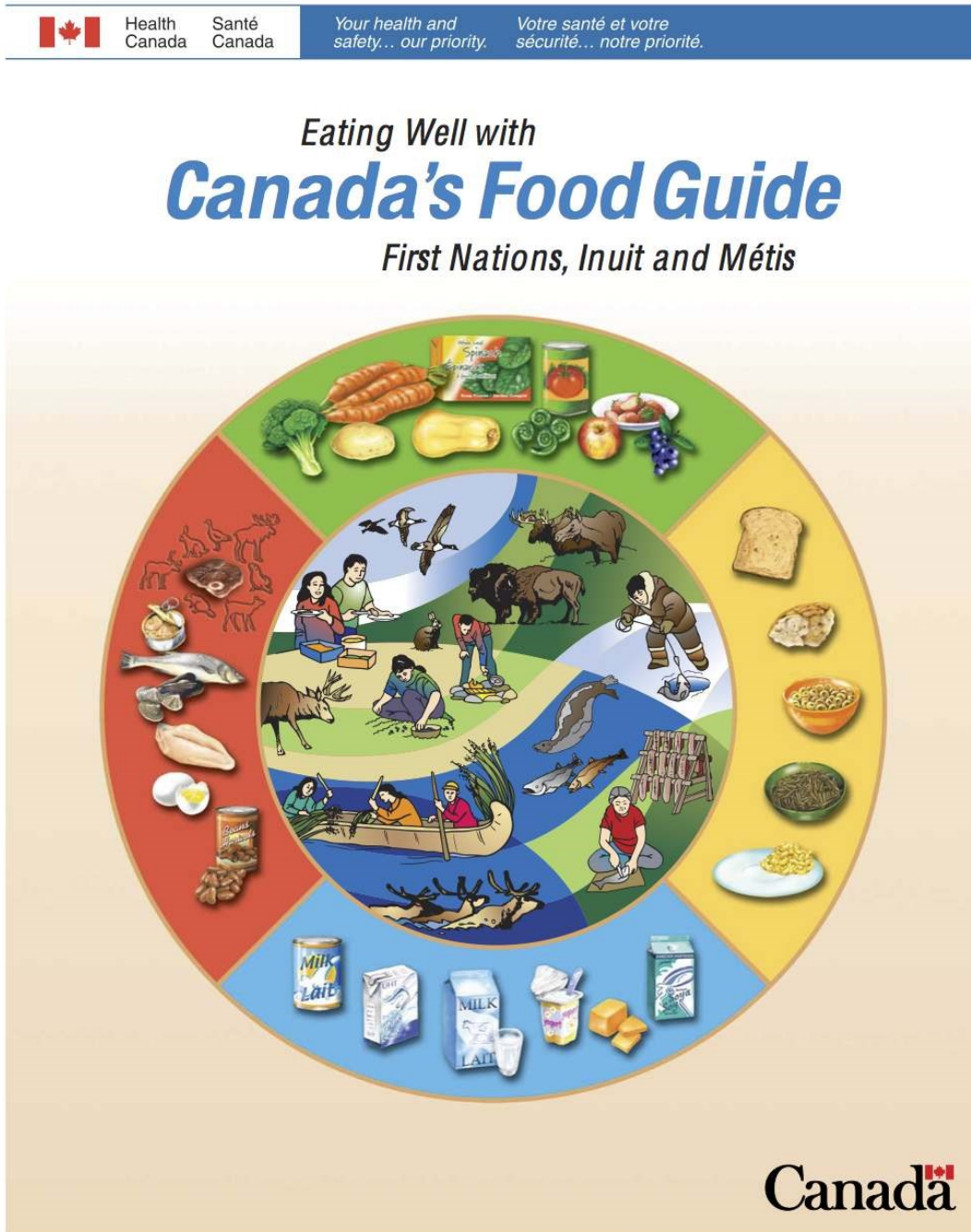
This publication can be made available on request on diskette, large print, audio-cassette and braille.

Appendix B: Eating Well with Canada's Food Guide: First Nations, Inuit, Métis

Health Canada, 2007b

Page 1: Cover

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How to use Canada's Food Guide
The Food Guide shows how many servings to choose from each food group every day and how much food makes a serving.

Vegetables and Fruit Fresh, frozen and canned.	Recommended Number of Food Guide Servings per day		
	Children 2-3 years old	Children 4-9 years old	Teens and Adults (Males)
	4	5-6	7-8
	3	4-6	6-7
	2	2-4	3-4
	1	1-2	2

1. Find your age and sex group in the chart below.
2. Follow down the column to the number of servings you need for each of the four food groups every day.
3. Look at the examples of the amount of food that counts as one serving. For instance, 125 mL (1/2 cup) of carrots is one serving in the Vegetables and Fruit food group.

What is one Food Guide Serving?
Look at the examples below.

1. **Vegetables and Fruit**
Eat at least one dark green and one orange vegetable each day. Choose vegetables and fruit prepared with little or no added fat, sugar or salt. Have vegetables and fruit more often than juice.

- Dark green and orange vegetables: 125 mL (1/2 cup)
- Other vegetables: 125 mL (1/2 cup)
- Leafy vegetables and other plants: cooked 125 mL (1/2 cup) or 230 mL (1 cup)
- Berries: 125 mL (1/2 cup)
- Fruit: 1 fruit or 230 mL (1/2 cup)
- 100% Juice: 125 mL (1/2 cup)

2. **Grain Products**
Make at least half of your grain products whole grain each day. Choose grain products that are lower in fat, sugar or salt.

- Bread: 1 slice (35 g)
- Barbecque: 35 g (2" x 2" x 1")
- Cold cereal: 30 g (see food package)
- Hot cereal: 175 mL (3/4 cup)
- Cooked pasta: 125 mL (1/2 cup)
- Cooked rice: whole grain 125 mL (1/2 cup)

3. **Milk and Alternatives**
Drink 500 mL (2 cups) of skim, 1% or 2% milk each day. Select lower fat milk alternatives. Drink fortified soy beverages if you do not drink milk.

- Powdered milk, reconstituted: 250 mL (1 cup)
- Milk
- Fortified soy beverage: 250 mL (1 cup)
- Canned milk (evaporated): 125 mL (1/2 cup)
- Yogurt: 175 g (3/4 cup)
- Cheese: 50 g (1/2 oz)

4. **Meat and Alternatives**
Have meat alternatives such as beans, lentils and tofu often. Eat at least two Food Guide Servings of fish each week. Select lean meat and alternatives prepared with little or no added fat or salt.

- Traditional meats and wild game: 75 g cooked (2 1/2 oz/125 mL (1/2 cup))
- Fish and shellfish: 75 g cooked (2 1/2 oz/125 mL (1/2 cup))
- Lean meat and poultry: 75 g cooked (2 1/2 oz/125 mL (1/2 cup))
- Beans - cooked: 175 mL (3/4 cup)
- Tofu: 2 cups
- Peas: 300 mL (1 cup)

When cooking or adding fat to food:

- Most of the time, use vegetable oils with unsaturated fats. These include canola, olive and soybean oils.
- Avoid eating more than 3 tablespoons or about 30-45 mL each day. This amount includes oil used for cooking, salad dressings, margarine and mayonnaise.

When eating:

- Choose soft margarines that are low in saturated and trans fats.
- Limit butter, hard margarine, lard, shortening and bacon fat.

*Health Canada provides advice for limiting exposure to mercury from certain types of fish. Refer to www.healthcanada.ca for the latest information. Consult local, provincial or territorial governments for information about eating locally caught fish.

Eating Well Every Day
Canada's Food Guide describes healthy eating for Canadians two years of age or older. Choosing the amount and type of food recommended in Canada's Food Guide will help:

- children and teens grow and thrive
- meet your needs for vitamins, minerals and other nutrients
- lower your risk of obesity, type 2 diabetes, heart disease, certain types of cancer and osteoporosis (weak and brittle bones).

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Respect your body... Your choices matter

Following Canada's Food Guide and limiting foods and drinks which contain a lot of calories, fat, sugar or salt are important ways to respect your body. Examples of foods and drinks to limit are:

- pop
- fruit flavoured drinks
- sweet drinks made from crystals
- sports and energy drinks
- candy and chocolate
- cakes, pastries, doughnuts and muffins
- granola bars and cookies
- ice cream and frozen desserts
- potato chips
- nachos and other salty snacks
- french fries
- alcohol

People who do not eat or drink milk products must plan carefully to make sure they get enough nutrients.

The traditional foods pictured here are examples of how people got, and continue to get, nutrients found in milk products. Since traditional foods are not eaten as much as in the past, people may not get these nutrients in the amounts needed for health.

People who do not eat or drink milk products need more individual advice from a health care provider.



Women of childbearing age

All women who could become pregnant, and pregnant and breastfeeding women, need a multivitamin with folic acid every day. Pregnant women should make sure that their multivitamin also contains iron. A health care provider can help you find the multivitamin that is right for you.

When pregnant and breastfeeding, women need to eat a little more. They should include an extra 2 to 3 Food Guide Servings from any of the food groups each day.

For example:

- have dry meat or fish and a small piece of bannock for a snack, or
- have an extra slice of toast at breakfast and an extra piece of cheese at lunch.

Women and men over the age of 50

The need for vitamin D increases after the age of 50.

In addition to following Canada's Food Guide, men and women over the age of 50 should take a daily vitamin D supplement of 10 µg (400 IU).

For strong body, mind and spirit, be active every day.



This guide is based on *Eating Well with Canada's Food Guide*.

For more information, interactive tools or additional copies visit Canada's Food Guide at: www.healthcanada.gc.ca/foodguide

or contact: Publications • Health Canada • Ottawa, Ontario K1A 0K9 • E-Mail: publications@hc-sc.gc.ca • Tel: 1-866-225-0709 • TTY: 1-800-267-1245 • Fax: (613) 941-5366

Également disponible en français sous le titre : Bien manger avec le Guide alimentaire canadien - Premières Nations, Inuit et Métis

This publication can be made available on request on diskette, large print, audio-cassette and braille.

Appendix C: Perception Questionnaire (Preliminary Investigation)

Questionnaire about *Canada's Food Guide*

The following survey explores your beliefs about diet and health, your previous experience with Canadian nutrition guidelines, as well as your ability to read and understand Canadian nutrition guidelines. The survey is part of a bigger study of knowledge translation practices and discourse in health policy and promotion.

No previous knowledge of *Canada's Food Guide* is required to complete this survey. The survey will take approximately 10-15 minutes. All responses will remain anonymous and no identifying information is collected. By completing and submitting the survey you will be agreeing to participate and indicating that you have been fully informed. If you have any questions and/or wish to know the results of the survey, please contact . . .

Demographic information

1. In what year were you born? _____
2. What is your gender?
 - 1) Male
 - 2) Female
3. What is the highest level of education you have completed?
 - 1) Have not completed high school
 - 2) High school
 - 3) University/College/Technical
 - 4) Graduate school (e.g., MA, PhD)/Professional degree (e.g., MD, JD)
4. Including yourself, how many people live in your household (including roommates)? _____
5. Who is responsible for food planning and grocery shopping (choose the best description)?
 - 1) I do it by myself.
 - 2) I share the responsibility with family members or roommates.
 - 3) Someone else shops and plans meals for me.
 - 4) I never eat at home.

Knowledge of *Canada's Food Guide*

6. Are you familiar with *Canada's Food Guide* published by Health Canada?

1	2	3	4	5	6	7	8	9	10
Not at all									Very familiar
Familiar									
7. If you are familiar with the *Canada's Food Guide*, how often do you read/access it?

1	2	3	4	5	6	7	8	9	10
Never read									Read everyday
8. If you have not read or do not read the *Canada's Food Guide*, why not? (choose only one)

19. How much does Figure 3 help you understand Figure 1 and 2? (E.g., Figure 3 helps me choose which fruits and vegetables to eat each day.)

1	2	3	4	5	6	7	8	9	10
Does not help me at all									Helps me understand completely

20. What stands out most to you in Figure 1 and/or 2? Describe in your own words.

Indicate how much you agree with the following statements:

21. Eating according to the *Canada's Food Guide* guidelines is easy (e.g., I can easily eat the suggested portions each day).

1	2	3	4	5	6	7	8	9	10
Strongly Disagree									Strongly Agree

22. Eating according to the *Canada's Food Guide* guidelines is affordable.

1	2	3	4	5	6	7	8	9	10
Strongly Disagree									Strongly Agree

Beliefs about Diet and Health

Indicate how much you agree with the following statements.

23. There is a relationship between my diet and my overall health.

1	2	3	4	5	6	7	8	9	10
Strongly Disagree									Strongly Agree

24. There is a relationship between my diet and my weight.

1	2	3	4	5	6	7	8	9	10
Strongly Disagree									Strongly Agree

25. If I were to develop, or if I have, a diet-related illness (e.g., diabetes II, heart disease, obesity), it is because of choices I have made.

1	2	3	4	5	6	7	8	9	10
Strongly Disagree									Strongly Agree

Appendix D: Ethics Clearance Forms



Carleton University Research Office
 Research Ethics Board
 1325 Dunton Tower
 1125 Colonel By Drive
 Ottawa, ON K1S 5B6 Canada
 Tel: 613-520-2517
 ethics@carleton.ca

Ethics Clearance Form – New Clearance

This is to certify that the Carleton University Research Ethics Board has examined the application for ethical clearance. The REB found the research project to meet appropriate ethical standards as outlined in the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Human, 2nd edition*, and the *Carleton University Policies and Procedures for the Ethical Conduct of Research*.

Date of Clearance: April 17, 2014

Researcher: Christen Rachul (Student Research: Ph.D. Student)

Department: Faculty of Arts and Social Sciences\Linguistics and Applied Language Studies (School of)

University: Carleton University

Research Supervisor (if applicable): Prof. Natalia Artemeva

Project Number: 101294

Alternate File Number (if applicable):

Project Title: Obesity, Responsibility and Knowledge Translation: A Multimodal, Genre-Based Analysis of Eating Well with Canada's Food Guide

Clearance Expires: May 31, 2015

All researchers are governed by the following conditions:

Annual Status Report: You are required to submit an Annual Status Report to either renew clearance or close the file. Failure to submit the Annual Status Report will result in the immediate suspension of the project. Funded projects will have accounts suspended until the report is submitted and approved.

Changes to the project: Any changes to the project must be submitted to the Carleton University Research Ethics Board for approval. All changes must be approved prior to the continuance of the research.

Adverse events: Should a participant suffer adversely from their participation in the project you are required to report the matter to the Carleton University Research Ethics Board. You must submit a written record of the event and indicate what steps you have taken to resolve the situation.

Suspension or termination of clearance: Failure to conduct the research in accordance with the principles of the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans, 2nd edition* and the *Carleton University Policies and Procedures for the Ethical Conduct of Research* may result in the suspension or termination of the research project.



Andy Adler
Chair, Carleton University Research Ethics Board



Louise Heslop
Vice-Chair, Carleton University Research Ethics Board



Carleton University
 Research Ethics Office
 Research Ethics Board
 511 Tory, 1125 Colonel By Drive
 Ottawa, ON K1S 5B6 Canada
 Tel: 613-520-2517, ethics@carleton.ca

Ethics Clearance Form – Clearance Renewal

This is to certify that the Carleton University Research Ethics Board has examined the application for ethical clearance. The REB found the research project to meet appropriate ethical standards as outlined in the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Human, 2nd edition*, and the *Carleton University Policies and Procedures for the Ethical Conduct of Research*.

Original Date of Clearance: April 17, 2014

Renewal Date of Clearance: May 01, 2015

Researcher: Christen Rachul (Student Research: Ph.D. Student)

Department: Faculty of Arts and Social Sciences\Linguistics and Applied Language Studies (School of)

University: Carleton University

Research Supervisor (if applicable): Natalia Artemeva

Project Number: 101294

Alternate File Number (if applicable):

Project Title: Obesity, Responsibility and Knowledge Translation: A Multimodal, Genre-Based Analysis of Eating Well with Canada's Food Guide

Funder (if applicable):

Clearance Expires: May 31, 2016

All researchers are governed by the following conditions:

Annual Status Report: You are required to submit an Annual Status Report to either renew clearance or close the file. Failure to submit the Annual Status Report will result in the immediate suspension of the project. Funded projects will have accounts suspended until the report is submitted and approved.

Changes to the project: Any changes to the project must be submitted to the Carleton University Research Ethics Board for approval. All changes must be approved prior to the continuance of the research.

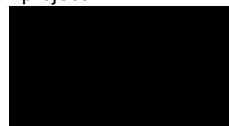
Adverse events: Should a participant suffer adversely from their participation in the project you are required to report the matter to the Carleton University Research Ethics Board. You must submit a written record of the event and indicate what steps you have taken to resolve the situation.

Suspension or termination of clearance: Failure to conduct the research in accordance with the principles of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans, 2nd edition and the Carleton University Policies and Procedures for the Ethical Conduct of Research may result in the suspension or termination of the research project.



Louise Heslop

Chair, Carleton University Research Ethics Board



Andy Adler

Vice-Chair, Carleton University Research Ethics Board

Appendix E: Recruitment E-mail for KIs

Dear _____,

I am following up on previous discussions we've had regarding my research interests in the *Eating Well with Canada's Food Guide* (CFG), during which you indicated interest in being contacted regarding participation in my research. I have now begun my research project and am recruiting participants for interviews. I am looking for participants who were involved in the revision of the 2007 version of the CFG and its website, or who are currently involved with ongoing revisions and maintenance of the guide and its website.

If you agree to participate, I will request an interview that will be 30-50 minutes. All interviews will be audio recorded and transcribed by the researcher. Only the researcher will have access to the audio-recordings. All identifiable information will be removed from transcripts. You will be able to choose a time and location of your choice for the interview.

Project Details

The purpose of the study is to investigate the textual and visual features of the 2007 version of the CFG and its website, as well as how it was revised and is now used by health practitioners. Specifically, the study focuses on the role of the CFG in promoting nutritional health and preventing obesity and chronic diseases. The study will include a multimodal analysis of the CFG and its website, as well as interviews with participants who were involved in the revision of the guide and development of the website, and/or are currently involved with ongoing revisions of the CFG and website. Interviews will also be conducted with registered dietitians who use the CFG for their professional practices.

By participating in this study, you may benefit by learning more about the textual and visual qualities of the current version of the CFG website as well as its effects on professional readers such as registered dietitians. Results may provide valuable information for future revisions of the CFG and its website, as well as for your professional practice.

If you would like to participate in the study, please reply to this e-mail at . . .

If you are aware of others who may be interested in participating in this study who also meet the criteria outlined above, please feel free to forward this e-mail to them.

Thank you for your valuable time, and I look forward to working with you in the coming months.

Sincerely,

Christen Rachul

Appendix F: Recruitment Notice for RDs



Volunteers needed for a study of *Canada's Food Guide*

Registered dietitians are invited to participate in a research study that investigates the textual and visual construction of scientific evidence, obesity and chronic disease in *Eating Well with Canada's Food Guide* and its website, as well as how it was revised and is now used by health practitioners who work with vulnerable populations in Canada. The researcher, Christen Rachul, is a PhD candidate at the School of Linguistics and Language Studies at Carleton University in Ottawa, ON.

The researcher is seeking registered dietitians who are interested in volunteering to participate and who meet the following criteria:

- a) work with a vulnerable population (e.g., low-income families, aboriginal populations, immigrant populations);
- b) either
 - a. use the food guide in their professional practice with this vulnerable population, or
 - b. have chosen against using the food guide for specific reasons;
- c) are able to participate in an interview of 30-50 minutes in length. Interviews may be conducted in person or via Skype. Details will be discussed with interested volunteers.

Note: All interviews (in person or by Skype) will be audio recorded and transcribed by the researcher. Only the researcher will have access to the audio-recordings. All identifiable information will be removed from transcripts.

By participating in this research study, you will have an opportunity to discuss the benefits and challenges of using the *Canada's Food Guide* for your professional practice that may contribute valuable information to help inform future nutrition policy and promotion initiatives in Canada.

If you are interested in participating in a one-on-one interview, please contact . . . by June 15, 2014.

If you are interested in participating in a Skype interview, please contact . . . by December 1, 2014.

Appendix G: Interview Guide for KIs

1. In what capacity were you involved in the revision of the 2007 version of the *Canada's Food Guide* (CFG) and development of the website?
2. What is your current association with the CFG?
3. Can you provide a brief sketch of the purpose of the CFG? How about the website?
4. What prompted the latest revision of the CFG published in 2007?
5. Who is the intended audience for the CFG? How about the website?
6. How did guidelines for publications from Health Canada or the federal government affect how the CFG and its website were written and designed? E.g., Are there any parts of the CFG or its website that you were required to include? Was there anything that you or the team would have liked to have included, but were unable to due to these guidelines?
7. What can you tell me about the following features of the CFG? How were choices made, and who made these choices?
 - a. Title: "Eating Well with Canada's Food Guide"
 - b. Graphics and layout
 - c. Measurements, including graphic depictions
8. There are several different ways of presenting the information in the CFG – e.g., servings per day, size of servings, and which foods to choose. These also involve different formats – a chart with numbers, series of pictures, and prose. Can you tell me about the process of choosing, designing, and formatting this aspect of the guide?
9. When was the website developed and launched? I.e., did a website exist previous to the revision that was published in 2007, was it launched along with the publication of the revised CFG, or was it after the publication of the 2007 version?
10. The website contains a lot of information that is not included in the print version of the CFG. How were choices made regarding what to include on the website component?
11. There is an interactive tool, My Food Guide, where people can create a personalized food guide. What prompted the development of this tool? This tool is hosted on a different website, why?
12. Were there guidelines or other considerations that affected how the website was constructed?
13. What do you see as the biggest challenge(s) to translating scientific information about nutrition to public audiences in Canada?

Appendix H: Sample KI Interview Transcript

C: The first one is just can you describe how you were involved in the food guide or what your association with the food guide is?

KI3: [section removed to protect participant identity]. So it was really about the translation of the science into more lay language, if you want. And we also had a subset of an external advisory committee that provided input on different things that we proposed. So everything that we did, we had different iterations and we did a lot of testing with consumers. And all of these focus testing, all of the research are available if you want to have a look at them. You probably already have seen those, they are on library and archives. [section removed to protect participant identity].

C: So, lots and lots of involvement. That's great. Do you have any current role with the food guide?

KI3: [section removed to protect participant identity] So all of these activities were really to promote healthy eating to Canadians and the basis of healthy eating to Canadians always come back to our national guidelines, which is the food guide. So all these social marketing activities, education activities, were grounded in the food guide. So even if we're not always saying food guide, food guide, food guide, healthy eating is about Canada's Food Guide. So, all the guidelines, yeah. [section removed to protect participant identity]

C: Oh, okay. Can you provide a brief sketch of the purpose of the food guide?

KI3: Okay. Well, the purpose of the food guide is to promote healthy eating to Canadians. And it presents only one model, so it's one pattern of eating. So it doesn't mean there aren't other ways of eating that would not, that you could follow to achieve the recommendations. But this is one way, an illustration of how healthy eating could be. And it's to, it's a model to help reach our nutrition requirements. So how do we translate the dietary recommendation intakes, for example, into a way of eating that would be suitable for a lot of Canadians? Because it represents, it takes our food environment into consideration, and it takes also the preference of Canadians because when we developed that food guide we had some very interesting data that was not available before this food guide, which was the CCHS data. And from there we were able to look at what the types of food were most chosen by Canadians. So it may not represent an individual, but it represents that Canadians at large tend to eat a lot of carrots. So, like, certainly this is a . . . carrots should appear on the food guide, so that it's relevant to a lot of people. So the other reason is that following the

food guide can help not only meet your nutritional needs from a macro and micro nutrient perspective, but also long term can help decrease the risk of nutrition-related chronic diseases, as well as decrease the risk of obesity. So all of the issues that are very prominent in Canada, and this is one way to help address them. The other thing I should say, and I have a long answer for this one, is that it is only a guide. And this is where it's really important that people need to understand that this is something that needs to be flexible. But even as a guide, something as basic as the, what are the key recommendations to eat more vegetables and fruit, well most Canadians are not able to reach that very simple and only one of the multiple recommendations in the food guide. So a lot of people may want something that is more complex, more individualistic, but there's lot, I think, room to grow if [garbled] something more complex than what is presented here. And as far as the website, the website is not, is really an extension of the guide. It's not meant to contain any new guidance. It's meant to illustrate, so we had more space, more room to provide content. It's more, it's meant to provide more examples and to illustrate how to implement the food guide into your life. And there's information for consumers and intermediaries. So that's what, it was meant as a complement. The other thing I should say that you probably have heard before is that people wonder why we ended up with a 6 pager, and before people think that the food guide was only a 1 pager, back to back. Originally when the previous food guide was done in '92, it was meant to have 2 pieces going together. So the 1-pager to put on the fridge, and a supporting piece that was a little booklet that extended and provided more details and they went hand in hand. But through the years, and because of cost, the food guide became the 1-pager, and this other piece got lost. So one of our mission with, or task when we reviewed the food guide was to have everything into one piece, so instead of having 2 pieces, so everyone thinks that it's longer than before, but it's shorter than what we had before. [laughs]

C: Very interesting. That's a good little piece to know. So do you know what prompted the latest, or the 2007 version?

KI3: So there was multiple things. The timing, like I said, the other one had been in place since 1992. Since then we've had some new science around nutrition, mostly around the DRIs, the dietary reference intakes. So we really needed to do a review to make sure that, well maybe it still aligns, what was being recommended because it hasn't changed that much when you look at them. Because basic healthy eating will continue to be the same. But, so there was that, making sure it still aligned with those recommendations, and also looking at data from CCHS again just to see has Canadians changed the way that they

are eating, are the issues still the same? And looking at the result from CHMS in terms of looking at the types of chronic diseases that are in Canada. Do we still have the same, have we seen a shift in health issues in relation to nutrition? And also the change in food environments. Since 1992 there was more foods available, the preference for certain foods increase or decrease with time. So, we just, it needed to be updated from a science perspective, but also from a fit perspective in terms of the tendencies, where the food tendencies were at in Canada and what was available. And also, you know, refreshed a little bit.

C: So how would you describe the intended audience for the food guide?

KI3: That's a big challenge. I think that's the biggest challenge for the food guide, because it's really, the audience is very vast. When we developed the consumer piece, as I call it, we wrote it for adults, particularly with children. And we tried to keep in mind lower literacy. However, it's very difficult because when it comes to nutrition there's a lot of numbers and numeracy increases the difficulty. And there's a lot of long words in nutrition, like, carbohydrate and words that there is no equivalent that are shorter. So it increases the literacy level. But we did our best to come as close as we could to grade 8 all over but I'm not sure that we succeeded. So it's for all Canadians, and then in order to increase the accessibility, there was also translated versions that were created. So they were not adapted versions, there were strictly translated. So, it decreases the barrier with the language, but they didn't necessarily adapt from a cultural perspective. And the other audience also, for the content more than the writing level and that kind of stuff, is public health, hospitals, 'cause very often their own guidance will be based, and their own recommendations will be based on the food guidance. So, the content more than the look is really for them. And then we also had the guide for educators and communicators. That was written at the higher level. Maybe grade 10. And it was for educators and communicators to help them with the food guide. And the same thing for the web. So the web, the target is adults.

C: Okay. So are there any guidelines more at a government level that influenced how things could be communicated, either for the consumer piece or the website, restrictions from just the government of Canada itself?

KI3: Yeah, and for that you may want to look at what's currently in place. You can find those guidelines online. And it changes. It changes on a regular basis, so at the time, I want to say it was a little bit more flexible in terms of doing publications. Certainly from a cost perspective, we wanted to limit the cost so that [garbled] going for one piece instead of the two pieces, as I was talking about. And we wanted to optimize the use of the website. But we had a little bit

more liberty to, if I can say that, at the time that we did the food guide in terms of how we developed the website. 'Cause we worked with an agency, we did a lot of testing that is also available as part of PORs for you to access. To make sure that the way we were putting the information together on the web, you know, made sense to a consumer in terms of navigation and all that. Since then, the information I think now, and I haven't been recently, but it's changing a little bit how they are presenting. 'Cause they have more strict guidelines in terms of the website, so that's being changed. But we don't really have control over that.

C: Right. Was there anything that you, because of these guidelines, that you would have liked to have done with the food guide but were unable to do?

KI3: I think from a time and cost perspective, we would have liked to have more attractive features. We were still able to put a few features in, like the My Food Guide and a few other things to download, but, yes, there's always more that you can do.

C: Right. That's true. So we'll talk a bit more about the textual and visual features of it. How were certain choices made in terms of, I'm actually interested in changing the title to the "Eating Well with . . ."

KI3: And all of that is also I think available through POR research, and you should find that out, 'cause it's a lot. So one of the things is that we had a few titles, that I don't remember by heart, but that we tested with consumers and with intermediaries as well. And we had different visuals, so for the cover that we tested. And one of the reasons that we moved away from "healthy eating with Canada's Food Guide" was that there seemed to be at the time a critique from consumers with the word healthy. It was just like, healthy, healthy, healthy. And "eating well" sounds a bit more encompassing of, it's also about pleasure and it's about comfort and eating is not just about health, it's about well-being and so this why we moved to this new title. At the time it resonated well with the testing audience.

C: That's interesting. So with the graphics and the layout, I guess this isn't a specific question, but going with more graphics as opposed to photographs of the different types of food, can you, I don't know if you know why those decisions were made.

KI3: We went with cartoon images for a few reasons, we call those cartoons, because the cost of photography is really high, the look of photography becomes outdated very quickly, and in terms of usability on both paper and website, cartoon images are more practical, you can use them in multiple

mediums. So these were the main reasons. And in terms of measurements also, like in terms of the graphics at the back, I think, you'll when you look at the different options that we had, we wanted to keep the reference to the rainbow and the 4 food groups, but we switched just to groups, right, from the guidance perspective. And we also wanted to link the food guide to where food comes from. So the earth, and this is where, the ocean and the water and all of that, so this is why we wanted to link it to more, the nature. And you had a question also about?

C: Measurements.

KI3: Measurements, right. So we ended up putting the imperial and the metric system for ease of use, and one thing that we tested, and you'll see that in the PORs, the more, what we thought was a more consumer-friendly way of looking at serving size, by having reference to the hand, we had also discussed in our group having reference to typical objects and you see that sometimes in nutrition education, like a tennis ball, or a mouse or something like that, and we got moved away from that because we had some of our experts that said that not everybody could necessarily relate to the objects that we were using. So to increase their reliability. And the other thing we did test was the hand, so for example, you know we were showing what 75 grams of meat would show and the palm of your hand or how much, thumbs would be the size of a piece of cheese. Or your fists would be like a half a cup or something like that. And it was really interesting because we thought it would test really well with consumers, we weren't sure with intermediaries, 'cause intermediaries they like the precision, so that we got. But consumers didn't like the hand approach either because they got really confused, they were like, "yeah, but my husband, his hands are thicker than mine," and then, like, "How do I know which hand to use?" and [garbled] we thought it would be so much more simple [laughs], and it doesn't have to be that precise, but consumers wanted the precision as well. But what we ended up to have a bit of a visual, and it's not everywhere, but when we have the cup, we have the visual cup here [points to CFG].

C: Yeah. And why, so some of them have the cups and some of them don't?

KI3: It's only when it's measured in cups, right? If it's in grams, of course, we don't have it here.

C: Some of them make sense, but things like meat?

KI3: Well, if you have ground meat or like a can of fish or whatever. You can measure it.

C: Ah. That makes sense, right.

KI3: It's, anywhere that we put it, have it in millilitres and cups. And we added this image. The other thing that we did, I don't know, it's not one of your questions, but in the PORs, you'll see the different ways that we tested it because this part is really, really important [points to prose advice]. Because that's really the guidance of the quality. So you have all the quantity here, you have the examples, these examples also follow the quality rules. But this, you need to follow the quality as well as the quantity to really reach the food guide recommendations. And originally because we thought this was so important, we tested it all, so having it on the left, because we thought, you know, read left to right, but it confused people. Like they, it was not the preferred way to end up putting it at the end, and so there's concern that nobody gets to the end to read it.

C: Yeah. I mean it's a lot of information.

KI3: It's a lot of information, yeah. And we tried also to, and one of the things that we weren't sure is that we were moving to something that the previous food guide was more for everyone, it was more of an average in terms of the quantities, and this time we decided to go in terms of having it by age group, so a little bit more individualization. And this is a trend in nutrition where people want the information more individualized for them. And we knew that it added to the complexity, because you have a lot of numbers here. But when we tested it, consumers said, "yes, I want to know for my age group, I want to know for me," and this was bringing a little bit of the individual factor into something that is meant to be for a whole population.

C: Right. Can I actually ask you, so you know why some of these have ranges and others don't?

KI3: Yeah, it's because it's a wide age range and if not, we would have to have more columns for age range. And so, we wanted to make sure that we covered everyone. So, you know, the younger would be the higher and the older would be the lower. It's to be very precise and then that's the problem, right? Where you lose precision then people get upset. [section removed to protect participant identity]. And the other thing I didn't mention that is important to know is that originally, because we know that this is not easy and it's not low literacy, right? This is why we wanted to have the cover very clean. So that if you're working as an intermediary with people that are low literacy or are, you can use that as an education tool. And it has a whole bunch of messages without any words and we wanted to make sure that it was clean of words.

And I think it's really important to mention because some people forget about it. And so the inside is where you want the more details and then the rest is a little bit more information to know. And this is to link with the importance of physical activity and well-being and certain food needs to be very limited.

C: So more and more information. A question about the Nutrition Facts table, do you know why the option of going with the 0s in it was made?

KI3: Yeah, we flipped back and forth with this one. When you put numbers, people started to look at the numbers too closely and started to try to read into the numbers we had there. And the other version, we had one that was like, the numbers you couldn't see, it was just kind of erased, like blurry. And that bugged people. So, if it was a bad decision, I don't know. I suspect everything can be criticized and analyzed.

C: Yep, it's true. I was going to ask you about, though I think you have touched on it, but the process of choosing and designing and formatting things like the, going with words here versus pictures there?

KI3: No, I think you'll find more in the POR in terms of why, and why we chose some of these foods that are also on the cover. I don't know if somebody touched on this, but we really looked at the food system in Canada and the preferences of Canadians for different foods. And some that we wanted to highlight a little bit more. So the ones that illustrate those qualitative recommendations, right? So these are all foods that Canadians would typically eat, the dark green vegetables and orange vegetables and the fresh vegetables are emphasized. Your grains, whole grains are emphasized, and things that are, do appear and are consumed in Canada. So we didn't put all whole grains because people eat white rice. You know there's recommendation on having your milk every day, so that's why this is more prominent. Trying to encourage to eat more vegetables, so there's kind of, it's not super obvious but there's a rationale behind it.

C: Was there a, even in terms of the order that these are going? [points to front cover].

KI3: Just for, I think, more at the beginning. Like, you know the whole grains and the milk recommendation and the recommendation around legumes. The green and orange vegetables.

C: Oh, okay. That makes sense. So I guess you've answered most of my questions here. I don't know if we need to go into the website as much. I have a lot of information about that one now. Unless there's anything you wanted to say

about the website that you thought was quite important? How the two communicate together?

KI3: No, I think I mentioned that it was a complement, the website, and I don't think there was a website before. It was just a pdf version of the resources. That was kind of a new component we added.

C: Yeah, from what I understand, and they were launched at the same time.

KI3: They were launched at the same time, yeah. That was really important. We were working really hard for that.

C: Okay. So there's a really general question I had, what would you say is the biggest challenge to translating scientific, very complex scientific information to a lay audience? Or just to the general public?

KI3: Well the main challenge we had is the vast audience to which this is targeted, right? So, we decided from a writing perspective, that we would target adults knowing that this would make, and target most likely the caregivers, the mothers, because that provides information for children and everybody in the family, right? So, we knew that this was too complex for children. However, and again that is why we designed a cover so that it would be simple, so that intermediaries could use this information with younger children. And we have such a diverse population in Canada, you want to reach adults, but you want it to resonate for people from coast to coast, for people from different cultures, so we did a lot of testing. And we made sure that we tested coast to coast, and we tested with different level of, socio-economic level, which could be related to literacy, different culture, cultural background. We did our best, is it perfect? No. If you wanted, then it would be important to target it more to each audience, but it was just not realistic, really. And this is certainly something that, again, it is a guide and can be adapted when people work with people with, other subgroups, right? Yeah, I think that's most difficult. And the other thing that is very difficult with nutrition in particular, is the whole bringing down the literacy level. Because the language of nutrition has a lot of complex words in it that you can't really easily replace. And there's a lot of numbers. And when you start incorporating numbers, people shut down. It's very complicated. Yes. The other thing that is difficult for the food guide, and we need to do education around that, is the fact that people eat a lot of combined meals, right? And we have an example here, how to break it down, you have all of your food in a meal, then separate it. So, following a food guide, ideally, also requires a lot of cooking. So you see there's a lot of links to being able to follow a food guide well. It requires a lot of education from a nutrition perspective,

but also a cooking perspective. And people that cook will understand these measures much better. They will be able to relate to it and understand what goes in their food. So, yeah, nutrition in Canada, we have a lot of challenges.

C: Yeah. No, definitely. That kind of makes me think, let me get the First Nations.

KI3: [section removed to protect participant identity] the recommendations are the same, but it was a little bit more adapted to represent the foods, so this one has been culturally adapted. And they tested it with the different sub-groups. [section removed to protect participant identity]

C: It's obviously, the attempt to recognize we're so diverse. I think that that's all the questions I have.

KI3: Oh something else I wanted to tell you, the other challenges in Canada is that people get their nutrition information from different sources, right? Like from media and whatnot and there's not always consistent messaging, and that contributes to confusion. So, what to believe, where to go, there's different, one month it's no gluten and the next month it's no lactose and people have to navigate this and become more media literate and nutrition literate to be able to see what's a fad and what is something that would be good for them or how to integrate that into regular healthy eating pattern. So, it's really confusing and that's why one of the things that we tried to do through the social marketing campaign that we did, was engage a lot of collaborators and partners to have similar messages when we're talking about healthy eating. And have that pushed out to different media, whether it's the web, social media, TV, radio, whatever, in a consistent manner, whether it's coming from the media company, or the dietitian, or that show, or the journalist writes an article, so that we would have more of a consistent message in Canada to try to reduce this confusion. I mean, it will never stop, mostly now with the Internet, right, but you can get everything, anything you want. So, yeah, it's confusing and complex. So the food guide, I think, can be both something that is basic and that people can go to to be able to say, yeah, if it's completely different from the food guide, maybe I need to question it a bit. But it's also a lightning rod because it's [laughs] something that, it tries to fit for everyone.

C: Yeah, for sure. One question, as you were talking about all the different information, one thing that is coming out a lot in my interviews with dietitians, a lot of their clients come to them about the food industry involvement in the food guide. Do you know, I don't know how much you can say about it, but how much of a role did they have? Or how much of a say maybe in some of that?

KI3: That's a very good question. And I think that's a bit of a part of a, and this was interesting for me, too, [section removed to protect participant identity], to me it was a well-balanced process. And what the thinking was that we wanted everybody that had an interest in nutrition, that had something to say in nutrition, and whether we want it or not, the industry is part of it. Because they make a lot of that food, they process a lot of that food, and they sell a lot of that food. So we wanted everybody at the table. And I think if you go back and you look at the working groups and all that, and at the comments, because we have got some patient process and whatnot, that we got feedback and input from all industry, governments, health professionals, different health professionals, consumers, so all of that was taken into consideration and all of the feedback was taken into consideration. So it's too bad that it seems to have become a bit of a myth, so this is sad, but that's part of it I guess.

C: Yeah. Some of the dietitians say they spend so much time just having to move their clients past that before they can just, some people are just like, oh no, no it's commercial, and no actually, scientifically this is the healthy eating, you know, you can still trust it. And so they spend some time, with some people, depends on obviously the person, like how much they know or care, but.

KI3: And when you think about it, the food industry makes a lot of money on the foods that are highly processed and very packaged and this is not what the food guide promotes. I think the farmers have more, were also another group that were consulted, but I think the idea behind the food guide is really the anchoring the more basic forms of food. And we still have consumer foods that are packaged, but your more healthy choices are still in the simpler version of the foods. Right? So I think sometimes we just get stuck with soundbites and we don't think too far behind.

C: Yeah, you hear something and you can't let it go [laughs]. I was curious about your perspective on that. It's good to know that, well, they didn't pay for the whole thing and so...[laughs].

KI3: No! No, there was no money from the food industry whatsoever.

C: Okay. Was there anything...that's all the questions I had. Is there anything that you think is really important for me to know, in terms of the process of making decisions or communicating stuff, or about the context of actually writing this food guide that is important for understanding how it exists right now?

KI3: The only thing I can say is that this was done in 2007 and I find that the communication environment is changing very fast now, quite quickly. And I think if we were to redo it today, we would rethink it. I don't know if it would

still be a paper version to be honest. First of all, it's very expensive. Even, but every time we ask people like should we stop the paper copy, like, No, No, No! We want it! So, it's really hard, right? And it's like, okay, but I think there would be other ways to do the promotion and other ways to personalize it even better because I think this is what people are looking for, because it's all about them. But that's what attracts more, and this is how, you know, others sell their stuff as well because you're special and different, this is what is good for you. So, I think there would be a way to do that, a little bit more, so it's more like the marketing around it, positioning around it. I think the information in it is really sound, but it's how do you make a food guide sexy? Which it's not that sexy, it's the food guide. You learn it in primary school, right? So it's not so much fun, but how do you bring this information to, into today's context and use the media? And this is true, the social marketing campaign, we were trying to do some of that, but again, the food guide is sound information, but not very sexy. From a selling perspective, it could be improved.

Appendix I: Interview Guides for RDs

Original interview guide for RDs:

1. How long have you been working as a registered dietitian?
2. What is your current working situation? For example, in a clinic, in a hospital, First Nations reservation, etc.
3. Describe the population of patients that you work with.
4. Do you use *Canada's Food Guide* during sessions with your patients?
 - a. Why or why not?
5. If you use the guide:
 - a. How is the guide used during a session with a patient?
 - b. What information in the guide do you usually focus on?
 - c. Are there parts of the food guide that you revise or advise patients to disregard? Which ones and why?
 - d. What in the food guide works well for your particular patient population?
 - e. Are there any questions that patients commonly ask that are specific to the food guide?
6. What barriers do your patient population typically face when it comes to nutrition?
 - a. Does the food guide help in addressing these barriers?
 - b. If so, how? If not, why not?
7. What is obesity? How does it relate to chronic disease?

Revised interview guide for RDs after initial interview:

1. How long have you been working as a registered dietitian?
2. What is your current working situation? For example, in a clinic, in a hospital, First Nations reservation, etc.
 - a. Have you had experience working as an RD in a different setting than your current one you just described?
3. Describe the population of patients that you work with.
 - a. (if applicable) describe the population of patients in the other settings you've worked in.
4. Do you use *Canada's Food Guide* during sessions with your patients?
 - a. Why or why not?
5. If you use the guide:
 - a. How is the guide used during a session with a patient?
 - b. What information in the guide do you usually focus on?
 - c. Are there parts of the food guide that you revise or advise patients to disregard? Which ones and why?
 - d. What in the food guide works well for your particular patient population?
 - e. Are there any questions that patients commonly ask that are specific to the food guide?
6. Are you familiar with the CFG website?

7. If so, do you ever access or refer your patients to any of the additional information on the CFG website?
 - a. Why or why not?
8. What barriers do your patient population typically face when it comes to nutrition?
 - a. Does the food guide help in addressing these barriers?
 - b. If so, how? If not, why not?
9. Thinking in terms of the context of your practice, or for the purposes of your practice, what is obesity? How does it relate to chronic disease?
 - a. How do obesity and chronic disease relate to nutrition?

After the second interview, the following question was added to the interview guide:

1. Do you ever use the CFG in your practice other than during sessions with clients? (e.g., policy development, provincial working groups)

Appendix J: Sample RD Interview Transcript

[section removed to protect participant identity]

C: If you want to describe the types of patients you work with, whether you do, like, one-on-one sessions or of it's more group classes. Is it within a clinic or in a hospital setting?

RD6: So, it's public health. So, it's more of a public health focus, but I do have some funding from my job to do, it's a diabetes prevention contract to work with First Nations groups and then that's a little bit less of a public health feel since I actually get to see the community members and do some kind of front line teaching and cooking classes and that kind of thing. There's not any real counseling, but that being said, any of the, any of the teaching, I do presentations, in classes there's always lots of questions that end up being clinically-focused. Most of the time, a lot of diabetes-related questions and just general health questions.

C: Okay. So, apart from the Aboriginal populations you work with for your diabetes stuff, do you see other populations of patients?

RD6: Our team is focused on adults, and there are other teams that focus on schools, and another team that focuses on mothers and children.

C: Okay, so you're mostly adults, then?

RD6: Adults, yeah.

C: Okay. Then do you use Canada's Food Guide in your classes, or in any part of your work with people?

RD6: Yep.

C: Yeah. And, why do you use it?

RD6: Why do I use it? It's a good resource to kind of bring people back to the basics of healthy eating. It's very widely supported by dietitians, you know in school and internship that was, I guess, what everyone uses. So, that's kind of just, now we all, like what I started using. And it's, you know, Health Canada, it's all evidence-based and that kind of thing. So, does that kind of answer your question?

[section removed to protect participant identity]

C: Are there any, like are you required to use it, or do you get to just choose to use it?

RD6: Well, no, we would get to use our discretion to choose whatever resources we want.

C: So, can you give me kind of a quick synopsis of how you would use it when you're working with clients?

RD6: Just go, I don't always go to it, I definitely don't start going into much detail, the questions usually come. But I would go over the 4 food groups, you know balanced eating, and usually it's nice to pick, you know, the age and sex and then go through some examples with people. And then the specific questions, like about serving sizes are what, like, how many servings would this be, or this is all I can eat for a meal? It gets really specific after that.

C: Okay. Is that when you're working with clients one-on-one or would that be in a group?

RD6: In a group.

C: Okay. So what information in the guide do you usually focus on? And you kind of touched on that a little bit.

RD6: Yeah, I feel like we end up focusing on serving size.

C: Oh, okay. That makes sense. Are there any parts of the food guide that kind of revise or tell patients, or clients, to do something differently or to ignore?

RD6: I just always stress that it's a guideline. It's not that everyone necessarily needs to be eating, you know, 7 servings of grain products. You know, that works for some people, but other people it doesn't. Again, we focus on, leaning towards the suggested servings of the meat and alternatives, but that's one that people usually over-consume. But, yeah, I wouldn't always say, I guess focusing on the lower 2 or 3 servings of meat and alternatives, but everything else is just kind of a guideline. Often, when I'm at the food guide, the healthy plate, the healthy plate model, so you know, just half your plate is your vegetables and that kind of takes care of it.

C: Right, okay. So do you have other resources you use alongside the food guide? Like the healthy plate?

RD6: Yeah, the healthy plate because it's realistic for what works for them. Yeah, that's usually the kind of starting off point.

C: Oh, okay. And what in the food guide works well with your particular populations?

RD6: The serving, like, the little pictures, right? You know like a loaf of bread, I think people like that, but there's definitely, you can't have everything on there, so there's some things that people will ask about. Like, the little pictures of the servings are the best. Everything else is just a lot of writing.

C: Right, that makes sense. What kind of questions do your clients ask? When, about what types of food, or...?

RD6: People will ask, you know, "if one serving of rice is this much, that's all I can have?" So, there's like a disconnect between the first page that has the recommended servings per day, and then what a serving size looks like. Everyone, so. It's kind of reiterating that. And I forget what the question was.

C: Well, what kinds of questions do they commonly ask?

RD6: Oh yeah, that's a big one. There's this disconnect, you go over, you need this many a day means, you know, so have 2 servings at lunch and at dinner, but then people see the serving sizes, they're not making the connection that servings, that's what we're talking about, servings are a bit...so you know.

C: Right, okay. Is there anything else in the food guide that they ever ask questions about?

RD6: I mean, I think a lot of people, especially right now, with, like at least the last few months, with like the gluten thing. I think a lot of people ask about the grains food group. And, well, "are we not supposed to eating these?" and, you know, "these are bad for you, so why is it on here?" or "what if you don't eat gluten, what should you, what about this row here?" So, yeah, that's a big thing.

C: yeah, a common sort of...a popular food hype thing? Are you familiar with the website that comes with the food guide?

RD6: The Health Canada website?

C: Yeah, the Health Canada website.

RD6: Yeah, I have visited it before.

C: Okay, do you ever tell clients to go see it?

RD6: No, not so much. I think it's probably listed on there [points to CFG]. But, no I haven't, actually, no. Just getting them to look at the food guide, like look at it again maybe once and put it up somewhere instead of just recycling it, it's a lot. So, I think if we're asking people to go and, cause the website's a little....well, it's a Health Canada website. So, it's not, I don't find it's super easy to navigate.

C: Okay, that makes sense. So do you ever use the food guide in your practice other than, like outside of seeing clients? So, for example, some dietitians are part of working groups or policy development or something like that.

RD6: Yep. No, I mean we talk about it, but [section removed to protect participant identity] we don't really, we're not really focusing on that right now. I know it comes up that, you know, oh it should be updated, or it should be sexier, what else do we, what resources are we using? But there's no actual next steps and stuff, it just kind of comes up in discussion. And we do have a workplace website, [section removed to protect participant identity], that there's a Canada's Food Guide presentation. So, I didn't develop personally, but the dietitian I work with developed it based on Canada's Food Guide. So, she took that and it's pretty much to, cause we can't do just one-off presentations, so we give people kind of the tools to do a presentation, a basic one. So, it wouldn't be something that we're directly presenting to people, it would be, someone's calling and asking for a presentation or some resources, that's something we'd give them.

C: Oh, okay. Like if a teacher wanted to talk to their kids, or their students I should say.

RD6: Yeah. They'll go to the website. [section removed to protect participant identity]

C: Okay, so some more general questions. What barriers do your patients, or your population of clients, typically face when it comes to nutrition?

RD6: Barriers? There's definitely, with the Aboriginal population, there's a lot of issues with barriers with access to food, so, like fresh food. Definitely a lot of food insecurity, and a lot of client's are on government transfer payments, and that kind of thing. On reserve there's not a lot of healthy choices. There's not a lot of fresh fruit and vegetables. So, to say, you know, for me I would stress that is the food group you need the most quantity of and then there's no access. So, that's a huge barrier. A lot of the reserves I go to are on dirt roads, an hour from a grocery store, no cell phone reception, and they can't get the things we recommend.

C: Right. So, how do you, knowing that that's a barrier for your clients, how do you balance that while trying to talk about diet and choices they make?

RD6: We have been working on, in the last couple of years, we're starting a good food box site, a good food box program on 5 of the 10 sites, or 6, at one point it was 6, but I think it's just 5. And then another big thing that we, with that population that we have to focus on, as health professionals is going over canned and frozen, it doesn't have to be fresh, right? If you can't get to a grocery store more than once a month, but just the way to choose healthy canned and frozen fruit and vegetables. And talking about how people don't consider that as healthy and answering any questions regarding that.

C: Oh, okay. And is obesity and chronic disease an issue for your population?

RD6: Yeah [laughs].

C: So, given that, how do you, how would you describe the relationship between nutrition and obesity and chronic disease?

RD6: There's definitely a direct relationship. I mean there's a bigger picture as far as the work I do, looking at the social determinants of health and everything like that. But, the funding that we're getting for this diabetes prevention project, is really looking at addressing the modifiable risk factors. So, healthy eating and exercise to prevent obesity and Type 2 diabetes. So, there's a huge relationship, but I think there's a much bigger picture that's not something we can fix right away. So, you know, we're also advocating for policies and that, and then kind of doing the kind of downstream work, you know, but that's not going to fix the bigger problem.

C: Right. Is there anything that you have been able to do, where you can see your clients actually making better choices? Like, what works in terms of people changing habits?

RD6: The practical stuff of when we're doing real hands on, like, we do the slow cooker community kitchen, giving out a lot of free stuff, but getting people to come and teaching them how to use these food, these foods that we recommend. How do you actually try to make healthier diabetic friendly recipes? And giving them every tool, every step of the way. So, not that there's no barriers, but there's less barriers when they have to try to do it on their own. And you know that's hard. We did an evaluation and everything 4 months later, and the long-term, you know, you can have self-reported behaviour change, which really was a positive evaluation. But if we were to try to measure something with a clinical marker, I don't know.

C: Right. Do you, so given these things we've been talking about, barriers and diabetes, and issues that are specific to your population, does the food guide help you address any of these?

RD6: Address the barriers?

C: Yeah. Or even working with disease-specific issues?

RD6: If you keep a journal of healthy eating, I mean, I guess it does. Yeah.

C: Okay, maybe this is a stretch, but can you describe how it does?

RD6: I guess it's the general message of, and again, of the healthy plate model fits with the food guide and just trying to give people some kind of direction. Because if they're ready to make some changes, it's really hard to know what you're supposed

to be doing. So, the food guide at least is something that's, you know, it's easy enough with that and to help and to try to help guide you. So, that can definitely help, but it's a lot more barriers, it can't address them.

C: So, I just made a note, so when you're working with the Aboriginal populations, do you use the First Nations guide, or just the standard?

RD6: I do both.

C: Both?

RD6: Yeah, just because there's different age groups I work with: elders, you know, young moms, just general, you know, a 30 to 50-year-old adult, and not everyone prefers the Metis, Inuit and First Nations version, but sometimes they do. It's hard 'cause, you know every community, too, every reserve is different with how much of the traditional foods they're able to get and, you know, if it's a bad year for hunting or fishing, it'll be kind of more relevant to the guide, to just the regular Canada's Food Guide. I'll always bring both and let them choose. I don't want to make, I don't want them to think I'm making assumptions either, you know, that they're all eating traditional foods. Even though there's enough, we've done little surveys within our districts, and there's enough evidence that there's still a lot, I think that traditional food is trying to become a bigger part of their diet, it kind of died off for awhile, but I mean there's barriers to that, too.

C: Okay. I think that's all the planned questions I have, is there anything you want to say about the food guide that I haven't touched on already that is important? In terms of your working, your practice or working with your population?

RD6: I think, I don't know if I necessarily report[?] the First Nation population, because there is a culturally appropriate food guide, but for the general population, I think it's so hard to compete with all of the imaging and graphic design and marketing that goes into food. I think it's very hard to compete in, it's hard and the food guide is so, and people think there's a secret out there to eating well. It's not going to be that because it is not, you know, eye-catching or sexy, and if you compare it to what the media do, right? I mean, it's like any industry versus not for profit, right? You can't compete. And it would be amazing to have the budget that like McDonald's has to their marketing.

C: No kidding.

RD6: You know, to have the resources and the people, the manpower to, but it's off-putting.

C: [laughs] limited money. That's good. Do you, in terms of it being kind of cartoonish, what aspect of the graphic design of it do you think is off-putting for your clients?

RD6: Well, like you said, the cartoon-y, you know. I don't know what it is. It looks very much like something you get in school. You know, something, and I don't have an actual adjective to what that means.

C: That's fine.

RD6: But, yeah, possibly cartoon-y, and I know they're trying to put a lot of information front and back, and to think of cutting anything out, it's all very important, but it's a lot. It's, people maybe look at the front page and I think sometimes, I think definitely the back page gets kind of lost.

C: Right.

RD6: So, I don't know if it's the cartoon-y stuff. I'm sure I could ask a graphic designer and he would know right away. His eye could pick up on it, this is what you change.

C: Yeah, I realize that your expertise is more in the actual nutrition, so [laughs]. I just thought maybe if any of your clients had ever made any specific comments.

RD6: Nothing specific, no.

C: That's okay. Alright, is there anything else you want to add?

RD6: Nope, I think that's all.

Appendix K: Coding Structure for Interviews with KIs

Themes and categories from analysis of KI interviews:⁸

1) Updating the CFG

- a) *Collective activity*
 - i) Collaboration
 - (1) Teamwork
 - (2) External assistance
 - ii) Sharing between government departments
- b) *Reason for revision*
 - i) Updating science
 - ii) Changing Canadian context
 - (1) Changes to food consumption and availability
 - (2) Changes in disease prevalence
 - iii) Practical needs
 - (1) Language needs
 - (2) Outdated appearance of 1992 CFG
- c) *Timing of revision*
 - (1) New scientific information
 - (2) Current Canadian food environment
 - (3) Availability of Internet
 - (4) Guidelines for publications change over time
- d) *Constraints on revision*
 - i) Material constraints
 - (1) Shortening paper version
 - (2) Technology/website limitations
 - ii) Financial constraints
 - iii) Human resource needs

⁸ The complete coding structure is large and not all parts of the coding structure relate to the study's research questions.

iv) Publication policy constraints

(1) Accessibility policies

(2) Language policy

2) Transforming Science (knowledge translation)

a) *Using scientific evidence*

b) *Using contextual evidence*

i) Using survey data (food consumption, disease prevalence)

ii) Relying on previous version of CFG

c) *Translating science for lay audiences*

i) Connecting to everyday life

ii) Making CFG usable

3) Communicating Healthy Eating

a) *Creating a group of resources*

i) Shortening paper version

(1) Removing information from paper version

(2) Reducing cost of printing

ii) Creating website

(1) Expanding on information from paper version

(2) Filling resource needs/interests with website

iii) Preferences for paper or website

iv) Relationship between resources

(1) Website as complement to CFG

(a) Facilitating understanding of dietary guidelines

(i) Increase public's understanding of CFG

(ii) Provide extra information for intermediaries

(2) Creating additional versions

(a) Creating cultural adaptation (FNIM version)

(b) Developing language translations

b) *Establishing purpose*

i) Intended purpose

(1) Promoting health and well-being

- (2) CFG as model of healthy eating
- (3) Flexibility of guidelines
- (4) Limits of CFG – Not for disease-specific guidance
- ii) Intended outcomes
 - (1) Meet nutrient requirements
 - (2) Reduce risk of obesity and chronic disease
- iii) CFG is multi-purpose
 - (1) Policy - used by institutions, programs
 - (2) Health promotion
 - (3) Research tool
- c) *Addressing audience*
 - i) Target audiences for the CFG
 - (1) Healthy populations
 - (2) Intermediaries
 - (3) Stakeholders
 - ii) Challenges with addressing audience
 - (1) Translating scientific representations
 - (2) Considering low literacy/numeracy levels
 - (3) Considering diversity of Canadian population
 - (4) Prior knowledge of readers
 - (a) Prior genre knowledge
 - (b) Prior content knowledge
 - (c) Prior procedural knowledge
 - iii) Role of intermediaries
 - (1) Intermediaries to translate science
 - (2) Intermediaries to adapt guidelines to specific populations
- d) *Consulting audience*
 - i) Consumer testing
 - (1) Testing with different populations
 - (2) Testing interpretation of language and visuals
 - ii) Noting differences between writers' and readers' preferences

iii) Making choices based on consumer opinion

(1) Considering health trends- Whole population vs. Individual

(a) Tensions between whole population and individual approach

(b) Individualizing guidelines

(i) Creating chart

(c) Letting others individualize CFG (cf. intermediary role)

(2) Changing layout of CFG (quantity to quality)

(3) Changing examples of servings

Appendix L: Coding Structure for Interviews with RDs

Themes and categories from analysis of RD interviews:⁹

1) Addressing Health Concerns and Barriers to Eating Well (Objective of RDs' work)

i) Addressing health concerns

- (1) Managing obesity and chronic disease
- (2) Promoting health/preventing obesity and chronic disease
- (3) Helping people make healthy changes

ii) Addressing barriers to eating well

- (1) Addressing personal barriers to eating well
 - (a) Acknowledging lack of cooking and nutrition knowledge
 - (b) Acknowledging low levels of literacy
 - (c) Acknowledging physical/health limitations
 - (d) Acknowledging lifestyle barriers (busy, too much information)
- (2) Addressing systemic barriers to eating well
 - (a) Acknowledging food insecurity
 - (b) Acknowledging overcrowded housing
 - (c) Acknowledging cultural barriers (e.g., nutrition transition)

2) Deciding to Use the CFG (Uptake of CFG)

a) Considering professional practice

- i) Using the CFG as normalized/expected practice
- ii) Choosing resources
 - (1) Using paper-based resources
 - (2) Choosing to use website
 - (a) Not using website
 - (i) Website is too complicated

⁹ The complete coding structure is large and not all parts of the coding structure relate to the study's research questions.

- (ii) Lack of access to Internet
- (b) Using website
 - (i) Using website as alternative to paper
 - (ii) Using website for My Food Guide (cf. individualizing)
 - (iii) Using website for professional purposes
- (3) Using concepts from CFG
 - (a) Using concepts to assess diets
 - (b) Using concepts to create other resources
- iii) Limitations of RDs' work setting on CFG use
 - (1) Limitations of location for CFG use
 - (a) RDs travel to people – resources difficult to carry around
 - (b) People travel to RDs – resources easily stored in one location
 - (2) Limitations of time for CFG use
- b) *Considering audience*
 - i) Assessing appropriateness of CFG for population
 - (1) Assessing cultural background
 - (2) Assessing prior knowledge
 - (a) Assessing prior knowledge of nutrition
 - (b) Assessing literacy levels
 - ii) Choosing appropriate version of CFG for population
 - (1) Using standard version
 - (2) Using FNIM version
 - (3) Using other language translations
 - (4) Letting people choose preferred version

3) Using the CFG to teach nutrition

- a) *Mediating Interactions*
 - i) CFG is a tool
 - ii) CFG starts dialogue
 - iii) CFG facilitates dialogue
 - iv) CFG is a model of healthy eating
- b) *Clarifying Purpose*

- i) Emphasizing flexibility of guidelines
- ii) Setting goals
- c) *Individualizing Guidelines*
 - i) Gathering information about person
 - (1) Assessing socio-economic background
 - (2) Assessing cultural background
 - (3) Assessing health needs
 - ii) Tailoring interaction to individual
 - (1) Marking individual's information in CFG
 - (2) Adjusting dietary recommendations
 - (3) Focusing CFG teaching
 - (a) Emphasizing
 - (b) Prioritizing
 - (c) Ignoring
 - (d) Supplementing
- d) *Managing Perceptions*
 - (1) Lack of interest in CFG
 - (2) Suspicion/Lack of credibility in CFG
 - (a) Individual's suspicion of CFG
 - (b) RDs' suspicion of CFG (cf. Uptake)
 - (3) History between government and population
- e) *Translating Science*
 - i) Teaching scientific representations
 - (1) Explaining serving sizes
 - (2) Teaching differences between serving sizes and portions
 - (3) Teaching relationships between different parts of CFG
 - (4) Focusing on serving sizes, portions, recommended daily servings (time-consuming)
 - (5) Clarifying misperceptions of servings
 - ii) Applying CFG to everyday life
 - (1) Providing examples from everyday life

(2) Removing numbers/simplifying CFG

(3) Creating opportunities to participate in real food practices (cf. new activities)

4) Creating new discursive activities (multimodality)

a) Roles of other resources in interactions

i) Resources as supplements to CFG

ii) Resources as alternatives to CFG

b) Embodied modes

i) Writing/drawing on CFG

ii) Speaking about CFG

iii) Hand Jive (gestures)

c) Disembodied modes

i) Food models and real artifacts

ii) Written resources

(1) Government resources

(2) NGO resources

(3) Academic resources

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