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Hospital Menu Assessment of Nutrient Composition and Patient Satisfaction

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ABSTRACT

Patient satisfaction with menu items enhances intake and adequate intake of nutrients contained within hospital menus is required for recovery. A survey of foodservice leaders in Ontario hospitals determined the frequency and methods used to assess patient satisfaction with, and the nutritional composition of, menus. From this cross sectional study emerged descriptive themes, complemented by quantitative data that demonstrated gaps in practice. Findings suggest that over half of hospitals surveyed assess regular menus for nutritional adequacy; 53% assess therapeutic menus and 47% assess texture modified menus. This differed from hospitals governing long term care facilities in which 75 % of regular menus were assessed. The nutrient content of the menu must balance patient preferences. Most departments obtained patient feedback at the departmental and corporate levels. Results suggest external evidence-based standards are required to obligate foodservice leaders to assess nutritional adequacy and patient preferences, when creating or modifying hospital menus.

Keywords: hospital foodservice, patient satisfaction, hospital menus, long-term care menus, nutrient analysis

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CHAPTER 1

1.1 Introduction

At best, menus fail to be noticed by hospital administrators and government ministries when determining the overall satisfaction of a patient's hospital experience or a patient's recovery from injury and illness. At worst, menus are the target of patient complaints and media attention. Few researchers have examined the rationale, methodology, and frequency of evaluating hospital menus. Many factors or components directly impact hospital menus; this study will explore two: nutrient composition and patient satisfaction.

Hospital foodservice departments seek to foster positive patient experiences by providing food that is appetizing as determined by appearance, flavor, aroma, texture, and perceived healthfulness. High quality food is foundational to both patients' enjoyment of food and the nutritional adequacy of the menu (1).

In recent years, hospitals and long term care facilities have become increasingly focused on satisfaction ratings in all facets of the organization, which can be attributed to legislation mandating that patient satisfaction be measured and addressed and satisfaction indicators posted on public websites (2, 3). This direction has had some impact on foodservice. On a related note, studies have demonstrated that food quality and food service can influence patient's overall satisfaction with their hospital stays (4, 5). Hospital food and menus have garnered attention from patients, media and the public because of a perception that the food provided is neither appetizing nor nutritious. The perception is supported by commentary shared through conventional media outlets, YouTube videos, and blogs primarily from the United Kingdom (UK), United States and Canada (6, 7, 8). Intensifying this negative image is the awareness that many hospitals outsource much of their food and pre-prepared food have a reputation of being high in sugar, fat, salt and artificial flavors and colors. Alternatively, the perception that hospital food is of poor quality may originate from patients who feel unwell and are put off by any

flavor, appearance or aroma, as well as patients who are unfamiliar with the North American diet. Hospital foodservice is often the sole provider of food for some patients; therefore, if patients are unaccustomed to menu items their satisfaction may decrease, and consequently their intake.

Lack of standards or criteria allow for subjectivity when assessing patient satisfaction and nutrition quality of menus, as well as making it challenging to counter biased claims. In Canada, and perhaps in most western countries, there are no commonly accepted comprehensive standards for menu evaluation, although for most foodservice operations the menu is pivotal to its success. The menus is the focal point around which all components of foodservice are connected (9). Payne-Palacio and Theis (2008) believe the menu is the single most important planning tool in a foodservice operation because it drives operations and is a tool for controlling food, labor, equipment and other costs (10). Experts in this area offer differing components for consideration when menu planning with no mention of using these components in menu evaluation. The exception is Pluckett and Green (2004), who provides a menu evaluation checklist covering appearance, preparation, cost, labor and patient preference but fails to include nutrient composition (11). Factors, and the components of menu planning in which they fall (see Figure 1), can differ depending on the legislation, financial objectives, environment, and complexity of the foodservice department. For long-term care facilities, Mayerson and Thompson (2013) suggest four components in menu planning, including food production, nutrition care, quality food and meal service but do not consider resident preference and budget (12). Payne-Palacio and Theis (2008) offer broad categories for menu planning: i) nutritional requirements and food habits of the population, ii) goals of the organization, iii) funding, iv) limitations of equipment and facilities, v) number and skill of employees, and vi) type of service (10). Whereas, Khan (1990), who gives heavier weight to operational components, and describes three consumer components (food characteristics, food habits, and nutritional requirements) and six management components (organizational goals, market conditions, budget, facilities and equipment, personnel

skills, and production types) (9). For Ontario hospital food service operations, it is proposed that six balanced components directly influence menus as illustrated in Figure 1.

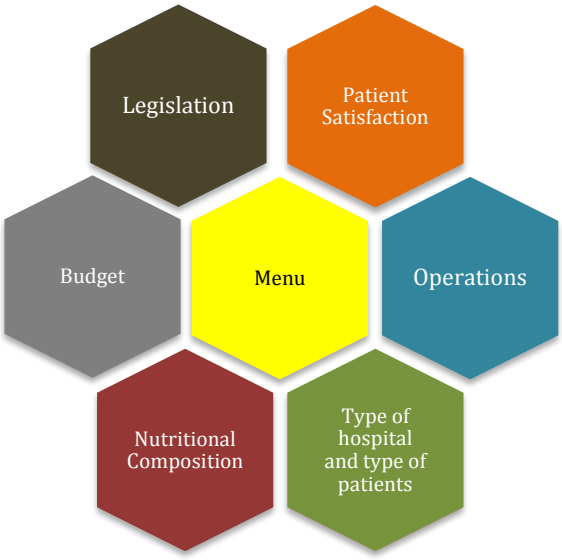

Figure 1. Components of menu planning and evaluation

Advancement of any foodservice operation is contingent upon the individual and interdependent success of all six menu components. The aim of hospital foodservices is to provide nutritionally adequate regular, therapeutic and modified texture menus that meet or exceed patient expectations, while balancing budget and operational capacity, support hospital functions, reflect community culture, and adhere to legislative requirements. It is proposed that each of the six components be considered during menu planning then assessed individually and as a group during menu evaluation. The interdependency of the six components necessitates balance. For example, a reduction in funding for food may lead to purchasing lower quality menu items with poor nutritional content, resulting inpatient dissatisfaction and poor intake and subsequent increase in food waste.

Metrics and assessment methods are available for most of the menu components. Operations can be assessed for effectiveness and efficiencies using time studies, lean methodology and audits. Key areas of the operation are regularly investigated by local health inspectors to ensure compliance with provincial food premise regulations. Budgets are monitored monthly, quarterly and annually with foodservice leaders accountable to hospital administrators for variances. Compliance with municipal, provincial and federal legislation is another component for consideration when evaluating menus, although despite the numerous pieces of legislation governing hospitals, none directly address nutritional composition or patient satisfaction with menus. The type of care provided, characteristics of the patient population served, sociocultural composition of the community, size and location of the hospital are factors within the *type of hospital, type of patient* component. Mayerson and Thompson (2013) suggest that when menu planning consideration should be given to the demographics of the population served such as age, gender ratio, percentage of patients receiving therapeutic diets and regional, cultural and ethnic influences which are all patient related attributes (12). For example pediatric hospitals have nutritious snacks available 24 hours a day and meal times are aligned with therapy and sleep schedules of children. Hospitals in remote northern regions of Ontario often have a narrow range of food items from which to build their menus whereas smaller hospitals may have limited selection because they purchase items in small volumes. Hospitals with short lengths of stay typically have shorter cycle menus giving rise to less variety but more operational efficiencies such as simplified ordering procedures, standardized production sheets, and more accurate budget projections (13). Focusing on the needs of patients, in balance with the other menu components, is aligned with patient centered care. The findings of a systematic review conducted by Dall'Oglio and colleagues (2015) support this approach, they found that the quality of hospital menus should be primarily based on clinical needs (14).

In contrast to the operational, legislative and budget components, there are few evidence based practices or metrics for assessing the nutritional adequacy of and patient satisfaction with menus and currently no known practices for assessing alignment with

type of hospital and type of patient. This is a gap in knowledge and practice. Furthermore, Ontario hospitals and long term care facilities fall under the same provincial ministry; however, unlike long-term care facilities, there are no regulations mandating analysis of hospital menus for nutritional composition and assessment of patient satisfaction with food and foodservices.

1.2 Study Significance

The intent of this study is to provide useful direction for government agencies, hospital administrators and foodservice leaders who can affect improvements in the quality of hospital menus. Improvement to two specific menu components, nutritional quality and patient satisfaction, contributes to a better patient experience. With competing priorities and limited resources, foodservice leaders are challenged to consistently gather data to make informed decisions about nutritional adequacy and patient preferences when planning menus. Using components for menu planning and evaluation, as illustrated in Figure 1 (page 3) coupled with the model for menu improvement shown in Figure 3 (page 43), provides structure and rigor to quality improvement processes. Implementation of these models requires resources, education and enforcement.

1.3 Definition of Terms

Academic hospitals: there are 24 in Ontario and they have four accountabilities: system role, care, research and education (15)

Assessment: the act of assessing something or someone; assessing a single independent menu component (16)

Benchmarking: a standard or point of reference against which things may be compared (16)

Best practices: methods or techniques found to be the most effective and practical as a means of achieving an objective while making the optimum use of resources (17)

CBORD: nutrition management software (18)

Computrition: foodservice management software (19)

Cycle menu: a carefully planned set of menus that are rotated at definite time periods, for example a 2-week or 3-week cycle (9)

Diet string: the list of diet orders, including therapeutic, texture modified and fluid consistencies for one patient

Evaluation: the making of a judgment about the amount, number, or value of something (16)

Lean management principles: used traditionally in manufacturing companies to drive out waste so that all work adds value and serves the customer's needs. Staff members are involved in helping to redesign processes to improve flow and reduce waste (20).

Non-select menu: a menu providing one food item for each course thereby offering no choice (9)

Outsource: to obtain goods or services from an outside supplier or source (16)

Quality of care: the act of patient centeredness; respect for the patient's goals, and preferences (21)

Regular menu: a standard menu without therapeutic or texture modifications (10).

Room service: a food distribution system that enables patients or their families to select menu items from a variety of choices within their diet order, and request the time at which the tray is to be delivered to the patient's room (22)

Select menu: a menu providing a choice of at least two food items for each course or menu category (10)

Therapeutic menu: a menu that meets the criteria of a therapeutic diet prescribed to meet medical or special nutritional needs (23)

Texture modified menu: comprised of foods that are easy to chew, or of minced or pureed texture (24)

1.4 Thesis Organization

Following the introduction are five chapters. Chapter 2 contains a review of the literature, Chapter 3 includes the purpose of the study and its methodology, and Chapter 4 presents the results of the menu nutrient analyses, and patient satisfaction. Chapter 5 is a discussion of the themes that emerged from the open-ended questions in the context of past research, and Chapter 6 includes the study's limitations, implications for practice, recommendations for future studies and conclusions. Appendices follow references in the final section.

CHAPTER 2

2.1 Literature Review

2.1.1 Legislation and standards controlling or influencing foodservice functions

Enacting legislation, publishing evidence-based standards, and revising healthy eating guidelines to foster environments that support healthy food selections are dominant trends in developed and developing countries. Brazil's Ten Steps to Healthy Diets and the Dietary Guidelines for Americans 2015-2020 are two examples of guidelines designed to inform the public about healthy eating that can be used to inform hospital based foodservice menus (25, 26). Similarly, the province of Ontario has adopted the legislative route to foster healthy eating. It amended the Education Act in 2008 to include nutritional standards for schools; stipulated the food items in the Day Care Act that shall be provided to children; detailed menu planning, assessment and patient satisfaction tasks and accountabilities in the Long Term Care Act; and passed the Healthy Menu Choices Act that mandates the total calories and potentially other nutritional information for each menu item be posted in multisite restaurants (27, 28, 29, 30).

This trend to formalize healthy eating requirements, together with increased media attention on hospital menus and heightened awareness of the prevalence of malnutrition in Canadian acute care hospitals, creates the environment for the introduction of comprehensive standards or legislation to improve hospital food and menus. There are many mechanisms to potentially initiate change; one option is amendments to the Ontario Public Hospitals Act which is currently silent on the provision of food to patients (31).

Patient satisfaction with health care services is addressed in Ontario's Excellent Care for All Act, which recognizes the importance of the patient experience by directing hospitals to conduct patient and caregiver surveys at least once every fiscal year. There are no requirements regarding survey content allowing individual organizations to determine the

questions and methodology; consequently, questions about food and menus can be excluded. Survey results are intended to inform annual quality improvement plans and form one part of an accountability mechanism for addressing deficiencies, which involves developing the plans in consultation with patients and posting them on each hospital's public website (32).

An alternative to a legislative approach is the development of national evidence based standards to guide menu planning and evaluation particularly in terms of nutrient composition and patient satisfaction. Two regions of Australia, Scotland, UK and Ireland have introduced comprehensive self-explanatory menu planning standards in the past few years (33, 34, 35, 23, 36, 37). In Australia, the document Nutrition Standards for Adult Inpatients in New South Wales Hospitals illustrates a sophisticated menu standard that identifies three bands of foods based on their nutritional density to guide menu planning; it also recommends goals for 10 nutrients and a minimum number of food choices. It fails to recommend completing a nutrient analysis to determine whether the hospital complies with the standards (35). Similarly, in South Australia, a document was published that outlines food and menu standards, considers menu planning for specific patient populations, and recommends dietitians to undertake a gap analysis to determine where the menu deviates from the standards, a form of menu assessment (33). These standards provide consistent guidance across the region and were welcomed and adopted by dietitians, foodservice leaders and manufacturers (38).

Menu planning is detailed by the UK's National Health System (NHS) in the document Healthier and More Sustainable Catering: The scientific principles for developing nutrient –based standards for planning nutritionally balanced menus; however there is only a brief indirect mention of assessing menus for nutritional adequacy (36). The Scottish government developed the most comprehensive approach as outlined in two documents Food, Fluid and Nutrition Care (2014) and Food in Hospitals (2008). These documents cite 19 standards with rationale specifically for hospitals, as well as require assessment of

menus for nutritional adequacy. The documents also state all dishes and menus are analyzed for nutritional content and recommend that hospitals with longer staying patients work towards a full analysis of all therapeutic and special diet menus to ensure nutrient specifications are being met over an average of a week (23).

Interestingly, the Alberta Health System's online resources devote significant attention to menu planning for supportive living sites; however, they do not to provide guidance for planning or assessing hospital menus (39). Likewise, British Columbia's Community Care and Assisted Living Act reference menu planning in long term but do not address menu assessment for nutritional adequacy (40)

2.1.2 Long term care: nutritional analysis of menus

Regulation rt100079 71 (5) under Ontario's Long Term Care Act recognizes that a menu is intended to meet the needs of a resident population and that individualized diets are developed for residents whose needs cannot be met through the menu. The regulation states that each menu shall provide adequate nutrients including fiber and calories based on the Dietary Reference Intakes (DRIs) and Canada's Food Guide (CFG); two references commonly used independently and together to assess the nutritional adequacy of menus (29).

Health Canada recognizes the DRIs as a comprehensive set of specific nutrient reference values for healthy populations that can be used for assessing and planning diets (41). Complementing the DRIs is CFG, which details the number of servings an individual should have from each of four food groups, to ensure consumption of adequate nutrients throughout the lifecycle (42). According to Long Term Care regulations, a dietitian must approve menus after analyzing them using CFG and the DRIs. The dietitian must be employed by the facility thus eliminating the option of outsourcing this task to those who may be unfamiliar with the culture and demographics of the residents or operations.

Further, the regulation stipulates that menus are to be reviewed and updated annually capturing inevitable product replacements due to changes in resident preferences, suppliers, equipment, product availability and other factors (29).

Conducting nutritional analyses of long term care menus reduces the risk of inadequate intake that could lead to malnutrition. Nutrient analysis of 18 long term care facility menus in Saskatoon, Saskatchewan revealed that menus did not meet the recommended dietary allowance or average intake for many micronutrients, were low in fiber, did not meet the protein requirements of males 50 to 74 years, and failed to provide the recommended number of servings of vegetables and fruits, and grain products according to CFG (43). Another study conducted in long term care facilities in Toronto, Ontario examined dietary intakes of residents and found their intakes did not meet the recommended levels of protein and many micronutrients. To counter inadequate intake, Aghdassi et al. (2006) recommended menu modifications and micronutrient supplementation (44); however, to determine specific modifications and the degree of supplementation, the nutrient content of the original menu must be known.

Regulation has proven to increase the quality of the menu and menu items in long term care facilities while at the same time erecting barriers. Mandating nutritional analysis has illuminated manufacturers' inability to provide a full range of macro- and micro-nutrient values for pre-prepared foods. Viveky et al (2013) concluded that while the use of CFG along with DRI recommendations contribute to the development of menus that meet most micronutrient requirements; adequate funding for quality food, nutrient analysis software programs and other resources are required to undertake the steps required to produce recipes for menu items acceptable to residents (1). In a study that engaged 35 nutrition managers, inadequate resources were identified as a barrier to menu planning, as well as Ministry of Health and Long Term Care standards and changing resident preferences (45).

2.1.3 Long term care: resident satisfaction with food and foodservice

Accommodating residents' preferences enhances their quality of life and increases satisfaction, while facilitating intake, which in turn reduces their risk of malnutrition and dehydration. Accountability for honoring resident preferences is entwined in the Long Term Care Act mandating that residents' councils be part of the menu planning and review process (29).

Assessing the variety of foods offered on the menu is important given variety and consequently choice are predictors of patient satisfaction (46, 47). Limited resources such as staff time and funding as well as regulations specifying variety and portion size have been found to be barriers to responding to the patient voice (45). The legislated 21-day menu cycle in long term care attempts to address the challenge of variety of foods (29).

2.1.4 Long term care: operations

Regulations under the Long Term Care Act obligate long term care facilities to employ cooks and develop menus that support some degree of in-house production. Foods prepared in the facility can be selected and modified to better meet the cultural preferences and nutritional requirements of resident populations than those that are outsourced (29). Indirectly, through the legislation, the Ministry of Health and Long Term Care recognizes that foods prepared in-house are likely of higher quality and more suited to the preferences of the resident population than those outsourced (29).

The Long Term Care Act sets out the number of hours and the duties of food service workers, the purpose of which is twofold. It protects food service staffing levels in times of funding reductions and it ensures fundamental food service tasks are known and completed (29).

2.1.5 Hospitals: nutritional analysis of menus

Menu planning principles and standards are well documented in textbooks, government guides and articles (10, 11, 23, 36, 37, 48). However, within these sources are few references describing the purpose of assessing the nutritional composition of menus and when it is, it is discussed in generalities, such as "Does the menu meet nutritional guidelines and organizational objectives?" (10). Menu planning guides also neglect to address how menus should be modified to address the needs of specific patient populations. Patients with renal disease are often prescribed diets that are limited in potassium, phosphorus and sodium; the elderly often require high intakes of protein related to sarcopenia; and male patients may require higher amounts of energy than female patients. Modification of menus requires knowledge of the amounts of specific nutrients in terms of meal or day or week, depending on the nutrient.

The importance of assessing hospital menus for nutritional adequacy was demonstrated by Trang et al (2015) in a study of regular and diabetic diets in three acute care Ontario hospitals. Researchers found energy content ranged from 1281 kcal to 3007 kcal and protein content from 49 grams to 159 grams per day. A comparison of the menus using DRIs and CFG revealed that menus did not consistently meet recommendations for macro- and micro-nutrients or for the number of servings cited in CFG (50). Similarly, a menu assessment conducted in Poland determined that of 222 samples obtained for theoretical qualitative and quantitative testing, 37.8% were inconsistent with Polish nutritional standards (51). Only with menu assessment for nutritional composition can foodservice leaders identify when hospital menus provide inadequate, adequate or excessive amounts of specific nutrients.

In another Ontario study, Arcand et al (2012) offered an example of how menu assessment informs practice. Researchers examined the sodium content of standard non-select menus and consecutive select menus for regular, diabetic and sodium restricted menus in three acute care hospitals. The study included patient selected menus (84 regular

non-select, 633 regular, 628 diabetic and 973 low sodium) and found 86% of the non-select and 79% of the select menus exceeded the recommended 2300 mg of sodium per day (52). The researchers argued that the menus studied served a large group of nutritionally vulnerable patients and that it is important that low sodium food items be procured. In addition, they suggested the implementation of menu planning policies that lower sodium levels.

Providing patients with a nutritionally adequate menu is an essential factor in combating malnutrition in hospitals. The prevalence of malnutrition in Canadian acute care hospitals was found to be 45% by the Canadian Malnutrition Task Force (53), which is consistent with the research of Velasco and colleagues (2010) that found the prevalence varied from 31.5% to 58.5 % depending on the nutritional screening tool used (54). The most significant findings were published in a study by Allard et al (2016). In a population of 409 hospitalized patients in Canada, these researchers found that of those patients who had weight loss of greater than or equal to 5% during admission, their nutritional status declined and their length of stay increased (55). These findings are of particular interest to health ministries and hospital administrators considering length of stay has a significant impact on costs and quality of life. Further, Dupertuis (2003) observed that at least 59% of hospitalized inpatients were not unfed due to disease state, but rather insufficient intake was related to inadequate suppers, therapeutic diet orders, length of stay, being of the male gender and a high body mass index (56). This is congruent with the Canadian Malnutrition Task Force's recommendation to establish a "national standard for menu planning to ensure quality food is provided in hospitals and requires that foodservices staff provide adequate nutrients to meet the needs of diverse patients, as indicated in their nutrition care plans" (57). Calculating then assessing the nutritional composition of hospital menus is required to meet this recommendation.

The Canadian Malnutrition Task Force suggested that appetite and not wanting the food ordered contributed to patients' inability to consume adequate food and fluid in hospital

(58). The task force's published studies presumed that food was both provided in adequate amounts and of high nutritional value, whereas Kondrup's (1998) results show that poor quality food can contribute to patients' weight loss in hospitals and that this is preventable with appropriately designed menus with regular and fortified foods (59). Kowanko et al (2001) recommended that menus in acute care be reviewed and patients surveyed regularly to optimize the nutritional content of menus and patient satisfaction (60). The quality of individual menu items directly affects the quality of hospital menus, and assessment of nutritional composition can illuminate poor quality menu items. Information elicited from focus groups comprised of nutritional personnel suggested that they view the provision of quality food appropriate for the patient population as a priority (61).

Benchmarking, setting targets, or continuous improvements in relation to the nutritional analysis of menus is overlooked in the literature and government documents although it was found to be commonly used in the United States. Johnson and Chambers (2000), in an American study, found internal benchmarking was used by 71% of foodservice leaders and external benchmarking was used by 60% (62). Another study conducted by the same researchers (2006) using a Delphi process identified four categories of benchmarking for foodservice: operations, finance, customer service and human resources. Nutritional adequacy and patient satisfaction with menus were not among the categories (63).

2.1.6 Hospitals: Patient satisfaction with food and foodservice

Payne-Palacio and Theis (2008) suggest that the ultimate test of a successfully planned menu is the degree to which patients are satisfied (10); thus, patient satisfaction is an essential indicator when assessing the success of a foodservice operation. Research results are mixed whether food quality or service is the more important contributor to patient satisfaction. Dubé et al (1994), in a small Canadian study, found food quality and customization to be the key dimensions in determining patients' overall satisfaction; with aspects of service, such as attitude of staff who deliver the meals, timeliness of meals and

reliability, also contributing to patient satisfaction (64). Research also identified food quality attributes such as presentation, variety, temperature, taste, aroma, portion size, and range of choice as influencing patient satisfaction or intake (47, 57, 65, 66). Lau et al. (1998) found that food quality was the best indicator of overall patient satisfaction, and they also found that as patients' expectations were increasingly met, patients' ratings of quality continually increased (67). Several researchers argue that aspects of service attributes, such as quality, courtesy and attitude of staff, and timing and distribution of meal trays, have a greater effect on satisfaction than food attributes (64, 68). Pascula, a director of patient services of a large American hospital, reported that improving training for aides resulted in significant improvements in food satisfaction ratings although food had not changed (69). Patient satisfaction with food can be assessed using waste audits, sensory panels, meal rounds, surveys and tallies, whereas service is most often assessed with surveys, meal rounds and one-on-one conversations (70, 71).

Surveys are a commonly used patient satisfaction assessment tool that can be used at the department and corporate level. Departmental surveys often target specific dimensions of patient satisfaction and their content and frequency can be easily modified depending on the need. Hospitals commonly use third parties to conduct organization-wide patient satisfaction surveys because they may not have the expertise and they seek assurances that the process is unbiased and responses remain anonymous. Typically, these surveys contain one very general question related to the quality of food unless additional questions are added at a cost. Corporate level results can be compared to historical results, the Ontario average, or the highest score for comparable hospitals (72).

2.1.7 Quality improvement

A standardized approach is required to addressing deficiencies or gaps identified through nutritional analysis, patient surveys or other mechanisms. The Model for Improvement Cycle is used when structuring quality improvement projects for health care systems and processes; and is therefore applicable to foodservice. It consists of three questions

followed by the rapid cycle improvement process; a series of Plan-Do-Study-Act cycles as illustrated in Figure 2. A team comprised of staff with differing roles and expertise works through the improvement cycles.

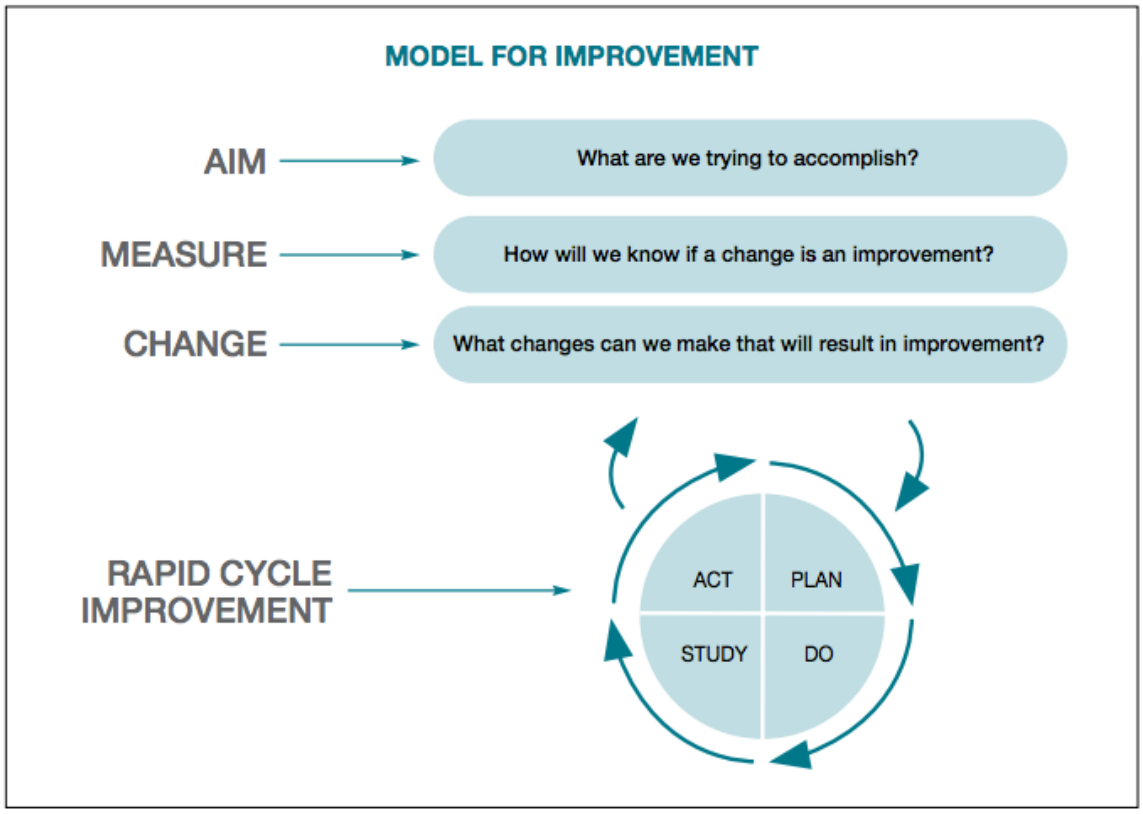

Figure 2. Model for Improvement (73)

CHAPTER 3

3.1 Purpose

This exploratory cross sectional study of Ontario hospital foodservice departments set out to determine the following:

1. The prevalence of menu nutritional analysis.
2. The methods used to complete the menu nutritional analysis and frequency of analyses.
3. The nutrients assessed and criteria used to determine whether the nutrients are provided in amounts required for health and recognizing that specific nutrients are required to foster recovery from illness and injury.
4. The method(s) used by hospitals to assess patient satisfaction of the menu and frequency of assessments.

3.2 Methods

This study was reviewed by Research Western's Non-Medical Research Ethics Board and approved by the Office of Research Services/Office of Research Ethics. Implicit verbal consent obtained when using a telephone survey was confirmed. Refer to Appendix A for the approval notice.

A literature review was undertaken to identify potential gaps in practice and research. There were three focuses of the review: legislation and standards about menu planning and evaluation from national and international jurisdictions, Ontario's Long Term Care Act and research about Ontario's long term care sector, and hospital oriented research that examined menus and patient satisfaction with food and foodservices. Manuscripts that were reviewed included government documents related to hospital services, articles published in refereed journals, university textbooks and manuals on foodservice operations, food industry and hospital resources in appropriate websites, and popular media reports or blogs.

Questions were developed based on gaps in the literature review and experience working in the field. The questions were intentionally simple and broad, and contained words common to the industry. The number of questions was appropriate for the intended length of the interview and this remained following the collapsing of several of the questions.

Based on literature findings, the survey methodology was selected to explore the topic of assessment of nutritional composition and patient satisfaction of hospital menus. Given that the premise was to explore the topics with foodservice leaders from across the province, a telephone survey method was selected. Telephone interview, rather than self - administered electronic or mail based questionnaires, was selected as the data collection method to allow for probing and obtain more detailed and nuanced responses, which was consistent with an exploratory approach. This approach also allowed the interviewer to

easily validate information by cross checking responses. A responder may answer positively to a general question then may be unable to provide specific answers to a detailed question arising from the general question. A survey tool was drafted using open and closed-ended questions and reviewed by two foodservice leaders for content. One reviewer oversaw the operation of four different food preparation and distribution systems on five sites; the other reviewer had immediate knowledge of the operations of a foodservice operation that serviced about 1000 meals per day using two different foodservice systems. Revisions to the survey tool were made based on feedback (refer to Appendix B for the original survey tool).

The final exploratory survey was comprised of open and closed-ended questions in an effort to provide a comprehensive picture of the current state of menu evaluation in Ontario hospitals, while recognizing the diversity of food preparation and distribution systems, menus, and resources among Ontario hospitals. The questionnaire was divided into three sections: demographic information, menu analysis and patient satisfaction. The order of the questions allowed the respondent to answer straightforward and less contentious questions first to decrease the propensity for defensiveness. The final open-ended question allowed respondents to provide additional information as necessary.

Questions in the interview tool that assessed patient satisfaction with menus and menu items were originally distinct, however responses during the first few interviews revealed that hospital departmental and corporate level surveys do not distinguish between menu items and menus and asking these questions separately created confusion. Therefore, initial and subsequent responses to questions 28 and 29 were combined, 30 and 31 were combined; and 35 and 37 were combined during interviews and analysis.

3.3 Respondents

All foodservice managers and directors working in Ontario hospitals not affiliated with long term care facilities were contacted, as well as some working in hospitals associated with long term care facilities. A list of approximately 140 inpatient hospital corporations was obtained from the Ontario Ministry of Health and Long Term Care website. Forty-five hospital-based managers responded each from different hospitals, six from academic centers, 16 community hospitals with under 100 beds, and 23 from hospitals with 100 beds and over. An additional 12 foodservice leaders, each from a hospital affiliated with long term care facilities participated to determine whether legislation affects practice. Long-term care facilities must comply with Ontario's Long Term Care Act and the requirements for menu planning and assessing resident satisfaction and the nutritional adequacy of menus may not be applicable to hospitals. The emphasis of this study was on hospitals not associated with long term care facilities. Hospitals without inpatient units were excluded from the study. Pediatric, mental health, rehabilitation and other specialty hospitals were categorized based on the number of beds to ensure their responses remained anonymous.

Recruitment of respondents proved challenging. It often took several phone calls identify the name of the foodservice leader and to schedule a time for an interview. Foodservice leaders typically have demanding workloads with matters of urgency arising throughout the day and dedicating time for the interview was difficult for many of them. Some foodservice leaders work at more than one site further complicating availability.

The aim of recruitment was to obtain responses from foodservice leaders in each of the four categories: large hospitals, small hospitals, academic hospitals and hospitals affiliated with long term care facilities. The ratio of hospitals included in the sample does not reflect the actual ratio of hospitals in Ontario. Designating large hospitals as having greater than or equal to 100 beds and small hospitals having less than 100 beds was arbitrary and in retrospect provided an adequate approximation of the number of meals

served and the complexity of operations. Some large and small Ontario hospital corporations also govern long-term care facilities. Given long term care facilities are required to comply with the Long Term Care Act, and one menu generally serves both the hospital and long term care facilities for reasons of efficiencies, it was presumed that these menus would be evaluated in terms of nutritional adequacy and resident satisfaction.

The locations of hospitals surveyed extended from small towns in northern Ontario to large urban cities in southwestern Ontario. Hospitals ranged in size from 12 to 1,000 beds. The number of meals served at lunch was intended as a proxy for foodservice size or capacity. Fourteen hospitals operated foodservice departments on more than one site and it was assumed, for the purposes of the study, that the same menu processes were used for multiple sites.

3.4 Procedure

Foodservice managers and directors were initially contacted via email using the letter of information, followed by telephone calls to request their participation and were again informed that consenting to the interview was their implicit consent to participate in the study. Upon agreement, a time to conduct the telephone survey was scheduled. One researcher made the initial contact and conducted the telephone surveys for consistency. Although captured in the letter of information, during the initial telephone conversation the interviewer explained the anticipated length of the interview and that the respondent's responses would remain confidential and be written down. At the beginning of the actual interview, the researcher again reminded the respondent that the responses were confidential and explained the general format of the interview. Respondents were asked a series of close- and open-ended questions in a consistent sequence. As the interview proceeded, the interviewer used a friendly conversational tone, asked one question at a time, attempted to remain neutral, encouraged responses by remaining silent or using a consistent non-leading non-bias probes, and transitioned between the three sections. The researcher probed when respondents were not forth coming, repeated the question when requested and when the respondent did not directly answer the question. At the end of the interview the interviewer thanked the respondent and inquired whether the respondent would like a copy of the article if it were to be published. Following the interview, notes made during phone calls were reviewed and clarifications made where necessary. Hand written notes were taken during the interviews and then captured on an Excel spreadsheet along with quantitative data. Excel version 14.4.8 (2011) was used. Interviews were 20 to 40 minutes in length and occurred between March and July 2016.

Telephone surveys were conducted to increase response rate and allow for probing when asking open-ended questions to explore priorities, issues and barriers. Following the survey format enabled the researcher to question respondents in a consistent manner (75). The personal contact afforded by telephone interviews allowed the researcher to build rapport which facilitated dialogue leading to more in-depth and nuanced responses than if the survey was conducted online or on paper. As with other types of surveys, potential

respondents could choose not to participate by declining the initial request or not answering telephone calls for scheduled interviews. The survey was designed to be completed in 30 minutes, consequently some originally designed open-ended questions were changed to close ended questions when the survey was being constructed to reduce the time required for completion of the interview.

Deductive analysis of survey responses to open-ended questions revealed themes. Responses from foodservice leaders were transcribed into a Word document (Word 14.4.4 (2011), color coded based on key words and phrases, and then categorized. Themes were then titled and the responses reviewed to ensure fit.

3.5 Data Analysis

This exploratory study was intended to produce simple statistical analysis to complement the themes that emerged from the responses to the open-ended questions. Foodservice leaders' responses were transposed onto an Excel spreadsheet used also for quantitative data then highlighted for commonalities. Each response was transferred to a Word document where themes were refined as documented in Chapter 4.

A priori, the intention was to compare large, small and academic hospitals in terms of:

1. Completion of analysis of regular, therapeutic and texture modified menus for nutritional composition
2. Methods used to analyze menus and frequency of analysis
3. The nutrients assessed and criteria used to determine if nutrients were provided in amount that maintained health recognizing that specific nutrients are required to foster recovery from illness and injury
4. Number of hospitals that gathered patient satisfaction data at the department level and the methods used to gather the data
5. Number of hospitals that gathered patient satisfaction data at the corporate level and the methods used to gather the data

Categorical data required the use of Pearson Chi Square, which was applied to nine sets of quantitative data to determine whether observed differences between large and small hospitals arose by chance. Quantitative data was entered into Excel software and frequencies obtained with binary coding where applicable.

Following several interviews, it became evident that specific survey questions generated responses that differed from what was initially intended. Question 3 inquired about food preparation systems, which naturally expanded to the number of menu items being

outsourced and whether the cold plating, hot plating, or short order cooking was used. Question 14 asked about the nutritional compositions of therapeutic menus. Responses revealed little commonalities among foodservice operations in terms of menu titles and categorization of therapeutic diets; consequently responses were recorded verbatim rather than quantitatively as originally designed. When asked what nutrients are assessed in question 22, many respondents struggled with naming each of them and some offered to access them either on line or in hard copy, however, this would have been prohibitive in terms of time; therefore question 22 became an open-ended question.

CHAPTER 4

4.1 Menu and Nutrient Analyses: Results and Discussion

4.1.1 Hospital and respondent characteristics

From the list of approximately 140 inpatient hospital corporations provided by the Ontario Ministry of Health and Long Term Care, 45 hospital-based managers responded: six from academic centers, 16 community hospitals with under 100 beds, and 23 from hospitals with 100 beds and over. An additional 12 foodservice managers working in hospitals with governance links to long-term care were also surveyed as described in Table 1. Table 1 also lists the number of meals served at lunch. Other than where specifically identified, the five large academic hospitals were added to the large hospital group totaling 28; and one academic hospital was added to the small hospital group totaling 17.

Table 1. Description of sample hospitals

Type of Hospital	Range of number of meals served at lunch	Average number of meals served at lunch	Number of hospitals
Small hospital with <100 beds	12 – 85	36	16
Large hospital with >= 100 beds	115 – 1000	362	23
Academic hospitals	60 – 580	297	6
Hospital associated with a long term care facility	7 – 800	105	12

To provide context to the results, various aspects of foodservice operations at each hospital were explored. This survey found large hospitals distribute food employing predominantly cold plating systems (64%) and estimates by foodservice leaders reveal that most (75%) outsource greater than or equal to 70% of menu items indicating the remainder of hospitals produce menu items from scratch or semi-scratch as shown in Table 2. This has a bearing on the nutritional composition of menu items. With scratch

and some semi-scratch items there is an opportunity to augment the nutritional value of the foods by preparing them with more nutritious ingredients. For example, nuts or dried fruit could be mixed into to outsourced muffin batter before it is portioned and baked.

Outsourcing menu items stems from the need to control labor costs that have been rising for decades. Funding cuts together with rising food costs and high labor costs was the foremost challenge for foodservice leaders surveyed, with 64% directly referencing funding as one of their major challenges.

Table 2. Foodservice department food source and plating systems

	Outsource <70%	**Outsource =>70%**	**Cold Plating**	**Hot Plating**
Large hospitals	7	21	18	10
Small hospitals	11	6	6	11

4.1.2 Hospital menu characteristics

Most hospitals (78%) planned their own menus and the rest adapted menus created by external foodservice companies to meet the preferences of their patient populations. Cycle menus were one to five weeks often depending on the average length of stay; this is consistent with menu planning guidelines (10).

Hospital menus are more commonly non-selective (38%) indicating patients do not have choice, however, their preferences may be obtained upon admission, or a combination of the non-select and selective (42%). According to the results summarized in Table 3, small hospitals are more apt to have non-select menus, while large ones more frequently have a combination. About half of large hospitals (51%) have a combination of non-select and select menus. The Pearson Chi-Square analysis demonstrated a significant difference

(value 10.71 with a df = 2, asymptotic significance 0.0047) between large and small hospitals, which may be attributed to large hospitals having patient populations large enough to warrant two or more meal service systems. For example, patients with short lengths of stay such as in pre- and post-natal units may receive non-select menus where as those in longer-stay hospital units benefit from select menus.

Table 3. Type of selective menu according to size of hospital

	Selective menu	Non-Selective Menu	Combination Select and Non-select
Large hospitals	6	6	16
Small hospitals	4	10	2
Total	10	17	19

4.1.3 Menu characteristics according to personnel involved

Foodservice personnel in differing roles contribute to menu development. The number and type of positions involved were dependent on the size of the foodservice department: 71% of hospitals had directors or managers who contributing to menu development, 42% had technicians or supervisors, 16% had clinical technicians, 29% had production staff, 67% had clinical dietitians, 16% had dietary aides and 9% had purchasers. The number of staff and the diversity of roles were influenced by the complexity of the menu with each role bringing a perspective that is mirrored in one or more of the six components of the menu evaluation illustrated in Figure 1 (page 3). For example, production staff and technicians focus on the operational capacity to store, prepare and distribute menu items; clinical dietitians review nutritional values of menu items; and the directors attend to budget and legislative requirements.

4.1.4 Prevalence of menu analyses

Analysis of regular menus for nutritional composition was completed by 55.5% of total hospitals compared with 75% of the 12 hospitals that governed long-term care facilities. The response was classified as "no assessment" when the respondent did not know whether the menu was assessed, the foodservice department analyzed individual patient menus only, or generic recipes were used as approximations of the actual recipe. This percentage declined in hospitals to 53% for assessment of therapeutic menus and 47% for texture modified menus, whereas the number remained more consistent for hospitals with long term care facilities at 75% of therapeutic menus and 66% for texture modified menus (refer to Table 4 for a more detailed breakdown of findings). Interestingly, six foodservice leaders reported they assessed individual patient diets but not menus.

Menu analysis was a collaborative effort with 40% of foodservice departments having dietitians involved, which is in contrast to the Long Term Care Act that states each menu must be assessed by a dietitian (29), about a quarter (27%) had foodservice leaders involved; slightly fewer (22%) had diet technicians; and some (16%) had staff members with quality or systems administration experience.

Table 4. Completed menu analyses for nutritional composition

	Regular Menus	**Therapeutic Menus**	**Texture Modified Menus**
Large hospitals	65%	61%	57%
Small hospitals	43%	43%	31%
Academic hospitals	50%	50%	50%
Hospitals governing long term care facilities	75%	75%	66%

4.1.5 Methods and frequencies in menu analysis for nutritional composition

Hospitals used a variety of tools to analyze menus. Of the 25 hospital foodservice departments that analyzed menus, 76% used specialized software such as CBORD or Computrition to analyze regular diets, while the remainder created spreadsheets using Excel (15%), or completed the analysis manually (12%).

The most commonly used criteria against which menus were assessed was CFG; it was used by 18 hospitals. Eleven hospitals used peer-reviewed literature to assess menus; eight used the criteria compiled from an outsourced food company, health association or other source; and five used the DRIs. Foodservice departments may have used one or a combination of CFG, DRIs, peer-reviewed literature or externally determined criteria to assess the nutritional adequacy of menus. In addition, some departments did not assess their menu's nutritional composition against predetermined criteria while others may have used internally developed criteria.

One or more barriers to assessing the nutritional composition of menus were identified by 85% of the respondents. About 30% reported inappropriate or lack of specialized software, 45% declared insufficient time, 30% stated lack of nutrient values for menu items, and 15% reported lack of skilled personnel.

The time of menu assessment for nutritional composition is often dependent on when the menu is implemented or updated. Twenty percent of hospitals surveyed analyzed menus for nutritional composition only when new menus were implemented. Accuracy of the analysis may be compromised following multiple menu substitutions and changes. To negate this risk, about 48% of hospitals update their assessment as changes to the menu are made and 16% complete it annually. Of the remaining 25 foodservice departments, 20% complete assessments equal to or greater than every two years.

Some survey respondents reported modifying menus rather than developing new ones. One respondent reported that her department created its menu 10 years ago, another eighteen years ago. With infrequent menu development, the finding that 29% of foodservice departments have formal menu approval processes was expected.

4.1.6 Nutrients assessed and criteria used

Clinical dietitians rely on regular menus comprised of high quality foods to provide adequate nutrients for most patients. They also rely on therapeutic menus to help address rehabilitative needs, acute illnesses, and more frequently chronic disease. Knowing the nutritional composition of therapeutic menus is critical when determining interventions for specific patients. Without this information, a dietitian could modify a diet that contains macro- or micro-nutrients in quantities detrimental to a patient's recovery. In contrast to a nutrient analysis of a hospital menu, CFG provides a gross estimate of nutrients and was used as an assessment tool alone or in combination with other tools by 36% of hospitals, despite ongoing debate about its relevance. Currently, no broadly accepted evidence-based criteria for the nutritional composition of regular or therapeutic diets are common to all hospitals in Ontario.

Within the sample of hospitals studied, of those that completed nutrient analyses, the number of nutrients assessed varied from several to 16. There was little consistency among hospitals in the analysis of micronutrients with several foodservice leaders stating that they could analyze any particular micronutrient upon request. Macronutrients such as protein, calories, and trans-fat were commonly assessed.

Hospitals are not mandated to assess menus for macro- and micro-nutrients, nor are there evidence-based practices, which in part explain the gap in practice, lack of consistency among hospitals and the variability of knowledge among foodservice leaders of the

nutrients analyzed. In contrast, Ontario's Long Term Care Act mandates long-term care facility menus be assessed using CFG and the DRIs.

4.1.7 Methods and frequencies of patient satisfaction assessments

Most hospitals obtain patient satisfaction feedback at departmental and organizational or corporate levels as described in Table 5.

Table 5. Patient satisfaction solicited by department and hospital/corporation

	Solicited by department	**Solicited by hospital/corporation**
Large hospitals	89%	86%
Small hospitals	82%	81%

As presented in Table 6, foodservice departments (87%) seek feedback from patients. The feedback facilitates an understanding of their satisfaction with the quality of menu items, service, and/or accuracy of menu items received according to their request and diet order. Over 50% of foodservice departments surveyed patients at least annually with some surveying patients weekly or monthly and 13% engaged volunteers or dietetic interns to conduct ongoing surveys or intermittent surveys such as those for new products. Of those foodservice departments that sought feedback, few identified targets, about a third compared results to previous periods, 7% compared results to those of other hospitals, and 4% reported comparing results to previous periods and to those of other hospitals. Over a third of respondents (38%) stated that their departments obtained informal feedback from dietary aides who pick up meal tickets, deliver trays or take meal orders either at the bedside or over the telephone. Additional informal feedback was commonly provided by nursing staff and registered dietitians and on meal tickets by patients. Waste audits or tray returns are used by approximately 18% of foodservice departments and meal rounds by 9%.

Patient satisfaction is important to the success of foodservice departments as evidenced by 86% of large hospitals and 94% of small hospitals using formal and informal methods to garner information about satisfaction as described in Table 6. Provision of quality food, accommodating cultural preferences and religious requirements while meeting budget, food safety and nutritional parameters is a challenge voiced by foodservice leaders. In the current study, 20% of respondents directly cited patient satisfaction with the temperature of hot food and the flavor of food their foremost concerns, whereas others stated culturally and age-appropriated foods as challenges.

Table 6. Number of foodservice departments obtaining patient feedback

	Obtain patient feedback about menu items	**Does not obtain feedback about menu items**
Large hospitals	24	4
Small hospitals	16	1
Total	40	5

Foodservice survey methodology could be strengthened by asking targeted questions, comparing results to previous periods and the results of comparator hospitals. Only two hospitals do both as illustrated in Table 7. Differences in foodservice systems, sociocultural attributes of patient populations, hospital location, funding, number of therapeutic diets and other factors, make departmental comparisons difficult.

In general, there is no commonly accepted or best practice to obtain patient satisfaction data at the departmental level nor is there an expectation that it is collected; consequently, analysis of patient satisfaction data is limited. Of the 20 foodservice departments that

measure patient satisfaction, 75% trend results over periods of time, 15% compare their results to those of other foodservice departments, and 10% do both.

Table 7. Departmental level patient satisfaction result comparisons

	Previous periods	Other hospitals	No comparison	Previous periods and other hospitals
Large hospitals	12	2	13	1
Small hospitals	3	1	12	1
Total	15	3	25	2

Most Ontario hospitals (84%) survey inpatients or recently discharged patients regarding the care they received using standard survey instruments. General questions about food or foodservice are asked by 36% of hospitals, this does not have to be the case. Specific questions are asked either verbally or through use of instruments by 7% of respondents thereby providing data that can inform decisions about the identification and selection of quality improvement projects. About 42% of foodservice managers reported not knowing the corporate level questions asked, and 16% reported no food or foodservice related questions were asked, as detailed in Table 8. Not knowing the questions asked or not receiving the findings leaves the foodservice leaders with one less reliable source from which he or she can assess the foodservice operation.

Table 8. Corporate level patient satisfaction result comparisons

	General questions	Specific questions	No questions	No known questions
Large hospitals	11	2	4	11
Small hospitals	5	1	3	8
Total	16	3	7	19

About 30% of corporate level survey results were not analyzed using targets or benchmarks, while 36% compared results to those obtained previously or to other hospitals; 7% did both as demonstrated in Table 9.

Table 9. Type of corporate benchmarks used for comparison

	Previous periods	**Other hospitals**	**No comparisons**	**Previous periods and other hospitals**	**Benchmarks unknown**
Large hospitals	**3**	**5**	**10**	**3**	**7**
Small hospitals	**5**	**3**	**2**	**0**	**7**
Total	**8**	**8**	**12**	**3**	**14**

CHAPTER 5

5.1 Descriptive Themes and Discussion

Descriptive themes emerged from the responses to open-ended questions posed to hospital foodservice managers or directors, most of which were aligned with the study's purposes. These themes are illustrated throughout this chapter with direct quotes from the interviewees. Two exceptions are those that arose in response to open-ended questions such as question eight that inquired about issues facing foodservices and question 40 that asked about priorities (refer to Appendix B for the survey). Survey responses revealed that budget and staffing were priorities for foodservice leaders, more so than the nutritional content and patient satisfaction with the menu and this may be attributed to years of funding reductions experienced by Ontario hospitals.

Scarcity of resources was an overarching theme and staffing was a minor theme. One respondent expressed that "costs are challenging, rising prices and hospitals have not received funding increases in past four years, We have had to be very careful with our resources and have had to cut back {33}". Another said, "…we are always looking to cut back, this is the biggest issue and we need to change meal delivery because of cost {9}," and a third mentioned "that cost is always a challenge; budgets don't reflect the increasing cost of food and labor {26}". Several suggested foodservices "is not appreciated by hospital leaders {14}" and that they hold foodservices "more accountable for resources and budgets and are cut first because they do not provide direct patient care {33}". Other foodservice leaders pointed out that when "hospitals look to cut funding they tend to look at service areas first rather than clinical areas {31}". Based on the number and content of the responses, it was evident that inadequate funding affects the balance of menu components (refer to Figure 1 on page 3 for the model). Giving more weight, attention and time to budgeting than the remaining menu components was evidenced by a respondent who remarked, "being fiscally responsible is the highest priority {29}". A foodservice leader in a large community hospital said the three most important issues were "food costs, food costs, food costs; they have gone up significantly,

and it is difficult to provide a healthy menu within budget {35}". Another respondent made a connection between budget and patient satisfaction, both menu components, when she commented it was a challenge to "obtain patient satisfaction while achieving budget targets {43}". Several respondents acknowledged that high labor rates increase the meal day costs, and do not allow for additional staff to cover unforeseen events or routine tasks such as cleaning. One stated, "labor costs are triple that paid in other foodservice establishments such as restaurants {36}". A strategy to reduce further funding cuts was offered…"lobbying for adequate staff would be easier with standards such as those in the Long Term Care Act {13}".

Staffing was a theme that emerged with 30 % of respondents citing challenges such as lack of staff coverage for vacations, sick time, staff training and insufficient hours to analyzed menus: "I would love to have time to do nutritional analysis {9}," reported a foodservice leader from a small hospital. A respondent from another small hospital remarked, "…we have staffing problems because so few people work for us, it is difficult to find people with training, most are part time jobs. It's a slow process to get full time jobs and they get frustrated, about six or seven people work part time in the kitchen {5}". Skilled employees are required to complete repetitive routine work, understand the complexities of therapeutic diets, and adhere to food safety protocols while working in an environment of constant change.

5.1.1 Purpose: Prevalence of menu nutritional analysis

Legislation mandating nutritional analysis of hospital menus increases the number of hospitals undertaking analysis as demonstrated in this study. Regulations under Ontario's Long Term Care Act mandates that long term care facilities complete menu analysis, and adherence is ensured by compliance officers (29). Likewise, the Nutrition Standard for New South Wales in Australia stipulates that hospital menus are expected to meet the nutritional needs of the patient population including specific patient groups (35). Other jurisdictions have similar nutrition standards however evidence of compliance with

standards, specifically those that require nutritional assessment of menus, has not been publically communicated.

Evidence-based standards provide guidance for foodservice leaders that would standardize menu planning and menu assessment leading to nutritionally adequate menus. Additionally, standards would result in Ontario-wide improvements in practice; allow for comparisons among similar hospitals; and increase awareness among hospital administrators, patients, families and clinicians of the importance of the nutritional content of menus, all of which lead to better patient care. Results of this study indicate that enforcement of standards in Ontario's long-term care increases the prevalence of the nutritional analysis of menus. Many respondents state they seek standards to guide menu planning and assessment; therefore initially voluntary guidelines may be appropriate followed by legislated standards if compliance is low. Use of a process and model would provide the structures to facilitate achieving standards by foodservice departments.

5.1.2.2 Continuous menu improvements

Quality is a function of taste, variety, flavor and perception that the menu is healthy (72). Continuous improvements to the menu are integral to meeting patient expectations and subsequently encouraging intake. At the same time, continuous improvements must target the nutritional composition of the menu. Diversity in foodservice operations coupled with unique patient populations served indicates that each menu requires individualized quality improvement strategies (64). Improving the quality of food and service is complex given the tangible, intangible, and interrelated factors within each menu component. For example, each step of menu planning that falls within the operations component (see Figure 1 on page 3) requires examination to identify specific activities for improvement to meet predetermined food quality standards.

Few foodservice departments surveyed employ regular improvement strategies to address the nutritional adequacy of menus, or patient acceptance of menu items or the menu, and most do not have formal menu approval processes indicating that regular improvement cycles are not commonly used. Failure to use improvement cycles, (as illustrated in Figure 2 on page 19) results in missed opportunities for incremental improvements. Continuous improvement requires leadership commitment to improve operations and processes to meet patient needs with efficiency and consistency in a cost-effective manner (73).

Although the Model for Improvement Cycle (refer to Figure 2 on page 19) is applicable to foodservice, modifications are proposed to enhance its effectiveness for menu improvements. The Model for Menu Improvement (Figure 3 on page 43) is a tool designed to provide structure and processes to make incremental improvements to menu planning, implementation and assessment in the hospital setting. The first step in using the Model for Menu Improvement (Figure 3) is to identify the improvement related to a gap or deficiency that has surfaced through nutritional analysis or patient satisfaction assessment methods. The second step asks the team involved to determine how the improvement will be measured, and the third step is to consider changes required for the improvement. The proposed improvement can be then incorporated into the menu planning cycle.

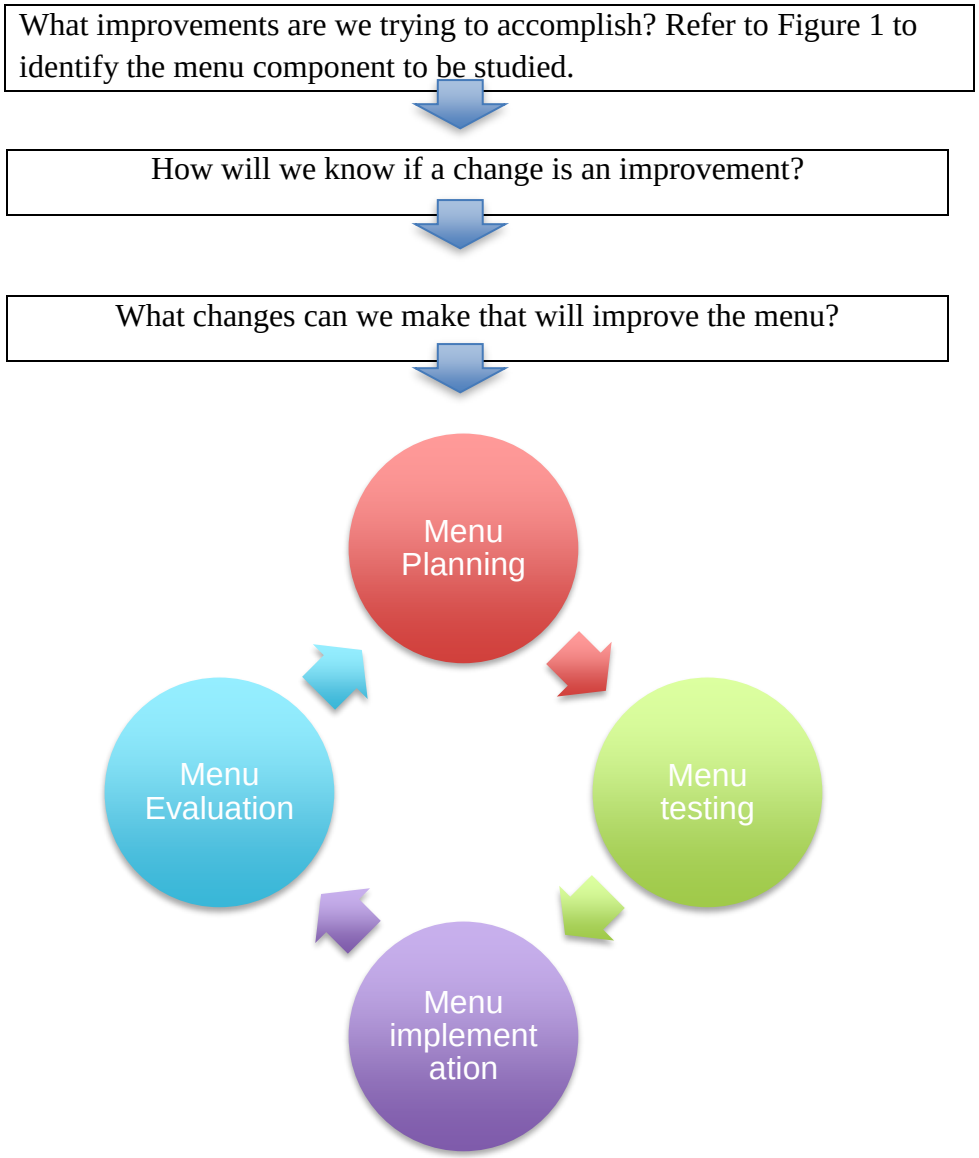

Figure 3. Model for Menu Improvement

As outlined in the menu planning cycle, robust collaborative menu planning with staff from differing roles and patient involvement flows from identification of the proposed changes and is the first step to building a solid menu. Menu testing follows planning. Tools, as itemized in Table 10, can be used in the testing phase and are applicable to one

or more of the six components that drive menu evaluation (however, this is not a comprehensive list):

Table 10. Potential menu assessment tools for the testing phase

Menu Component	Potential Assessment Tools
Budget	• Complete budget projections • Analyze the differences in cost of menu substitutions
Patient Satisfaction	• Conduct sensory taste panels that include patients in its membership • Conduct patient council sensory taste panels
Legislative Requirements	• Compare changes to legislative requirements
Operations	• Assess whether the skill mix of the staff, number of allocated hours, equipment, and facilities can produce the menu items and the menu at predetermined level of quality
Alignment with Hospital and Community Attributes	• Assess whether the menu and menu items reflect the culture of the community, hospital's mission, and clinical programs
Nutritional Composition	• Select menu assessment criteria then complete a nutritional analysis of the menu, including each therapeutic and texture modified diets • Solicit clinical dietitians' recommendations for changes in best practice for therapeutic diet composition

Once testing has been completed, the menu is implemented and deviations to the plan are identified. Table 11 lists samples of metrics for monitoring improvements and identifying deviations and deficits within each of the six menu components.

Table 11. Potential menu assessment tools for monitoring phases

Menu Component	Potential Monitoring Tools
Budget	Compare budgeted versus actual
Patient Satisfaction	• Survey patients • Conduct tray return or waste audits • Solicit feedback received by clinical dietitians from patients • Monitor notes on tray tickets, phone calls to techs or the diet office • Complete meal rounds
Legislative Requirements	• Ensure legislative requirements are met
Operations	• Use *lean* methodology to create efficiencies with new processes in foodservices • Monitor overtime, sick time and injuries • Use audit tools and auditing processes to ensure food safety practices are maintained • Monitor use of equipment and plating required to store, prepare and serve new menu items • When selective menus are used, identify the popularity of menu items through tracking the items ordered
Alignment with Hospital and Community Attributes	• Survey patients • Conduct focus groups • Consult with patient advisory councils • Solicit feedback from clinical dietitians, speech language pathologists, nursing staff, nursing leaders, medical staff and others external to the department
Nutritional Composition	• Solicit feedback from clinical dietitians • Maintain a database of menu items so substitutions can be assessed for their impact on the nutritional composition of the menu

The final step is to compile and assess results. During the study phase, improvements, deficits or gaps arising from the implementation phase are studied. Questions asked are "*What went right? What went wrong?"* and in doing so potential changes for the next

menu planning phase emerge. For this "trial and learning" approach to succeed, it should be completed on a regular basis allowing the logical sequence of these four steps to eventually lead to exponential improvements (73).

5.1.2 Purpose: Methods and frequencies of menu analysis for nutritional composition

5.1.2.1 Theme: Menu planning frequency and approach

Menu planning practices are based on long standing conventions rather than evidence. Menu planning processes are well documented in textbooks and resources created by health authorizes in Australia, Scotland, UK and Ireland (10, 11, 33, 36, 37, 38); however most do not identify the frequency of menu renewal or the roles/job positions that should be involved. Ontario's Long Term Care Act (29) and the Menu and Nutritional Standards for Public Hospitals in South Australia are exceptions; the latter of which states service staff, production staff, the nutrition manager, the dietitian and suppliers have responsibilities in menu development (33). Interviews with respondents revealed that menu planning is a collaborative effort enlisting the expertise from staff from various roles as well as nursing leaders and speech language pathologists in some cases. Frequency of menu planning is inconsistent as demonstrated by responses from foodservice leaders: "new menus are not developed, we tweak current menus {10};" and another states "we have rolling updates {13}". It is apparent that in some hospitals menus evolve over many years: "we developed menus in 1998 and build on them by looking at tray returns, product changes and diet changes {16}".

This study revealed that some foodservice departments expand and deepen the patient experience by involving patients in menu planning committees through surveys and councils, particularly when there is a major undertaking thereby ensuring the community's preferences are considered. A foodservice leader who led a food preparation and distribution change said "we involved patient and family councils when

we moved to a restaurant style menu {44}". This is consistent with NHS's Ten Key Characteristics for its patient-focused food and drink strategy, one of which is to involve people who use healthcare services in the planning and monitoring of foodservice (74).

5.1.2.2 Theme: Methods for analyzing menus

Hospitals use one of three methods to analyze menus: manual calculations, Excel spreadsheets, or specialized software such as CBORD or Computrition. Manual calculations are believed to be cumbersome producing relatively inaccessible data that cannot be easily manipulated or updated. Although Excel spreadsheets were used by only 11%, the reaction regarding their effectiveness was mixed. Older specialized software systems and those designed for long-term care were also used, with some respondents planning to upgrade to newer systems. CBORD and Computrition were the most frequently cited software systems in use. Availability of funding and high maintenance costs of systems were cited by several foodservice leaders as impediments to implementing specialized software.

Specialized software was reported to have advantages as well as limitations. "We have a computer system that is not fully installed or usable but when it is we will keep the analysis up to date on a regular basis, manual inputting is difficult and a huge task {24}" said a respondent from a large community hospital. Several foodservice leaders identified limitations of specialized software such as having software coded for generic recipes or brands not used by the foodservice department; databases with American values; staff requiring nutrition education to use the software; and its labor intensiveness. The most common limitation cited involved food manufacturers. One respondent remarked that the software "was only as good as the data in there, you need to make sure the data from companies is correct and it is a lot of work to input the data {30}". While another said "we don't get notified by companies of changes and their websites are not always up to date, we need accurate information to ensure the system is current {21}".

Similarly another respondent stated, "…what you put into CBORD you get out…not all nutrients are available from food companies such as potassium and phosphorus {36}".

Foodservice leaders from both small and large community hospitals recognized the benefits of specialized software for nutritional analysis and those that do not have it are seeking to purchase it. One respondent explained her department is "looking to move from an Excel database to a CBORD database {20}". Another has placed nutritional analysis software on the "list of quality improvement initiatives [because we do not have an analyses] {25}," and a third stated that "Medietary software is old and we will be getting a new software system {30}".

Once the type and amounts of nutrients contained in the menu have been identified, the amounts are typically assessed using predetermined criteria. Four types of criteria were commonly used: CFG, the DRIs, peer review literature, and guidelines created by an outsourced food company or an association. In some cases, the DRIs were not used because there was an assumption that if the menu complied with CFG then it would contain the full complement of micronutrients. In 2003, Wendland et al reported that developing long term care menus using CFG results in iatrogenic malnutrition because by complying with it, most seniors do not consume adequate quantities to meet their needs (76). More recently, the guide has been criticized on several fronts: food industry lobby groups are said to have influenced modifications to further their own objectives; it is relatively silent on the consumption of processed foods and trans fats; it encourages the consumption of juice rather than whole fruits; and the age category of 51 years and older fails to consider the needs of the older elderly (77, 78). In March 2016, the Senate Committee on Social Affairs, Science and Technology released a report containing the recommendation that the Minister of Health immediately undertake a complete revision of CFG in order that it can better reflect scientific evidence (79).

Health Canada states that DRIs "are a comprehensive set of nutrient reference values for healthy populations that can be used for assessing and planning diets (31)". Trumbo et al (2013) concur, and add that the DRIs can be used for assessing nutrient inadequacies of individuals and groups (80). The DRIs are appropriate for assessing regular menus and texture-modified menus without therapeutic components; however, they are not intended for use when planning and assessing therapeutic menus.

CFG and the DRIs are based on the needs of large healthy populations and may not meet the nutritional needs of those who are ill or injured. In 2009, the Irish document, Food and Nutritional Care in Hospitals Guidelines for Preventing Under-Nutrition in Acute Hospitals, recognized that healthy eating guidelines are rarely appropriate for patients given that the guidelines are aimed at preventing chronic disease in healthy populations and most patients have greater nutritional needs and struggle with poor appetites, therefore requiring nutrient dense foods (37). Until more appropriate criteria for regular diets are developed for hospitalized patients, these tools will likely continue to be used. The NHS recommends each hospital establish nutrient-based standards for specific populations (36). Further, it recommends involvement of dietitians and the use of nutrient analysis software to plan the menus (74). A respondent working in a large community hospital recognized the need for standards similar to those created by the NHS, "we lack standards regarding menus and nutritional components of menus; there is a need for published literature to make changes to our menus {18}".

Published peer reviewed articles are the best source for criteria from which to assess specific therapeutic diets. Review of the literature may be beyond the scope and role of most foodservice leaders and possibly require the expertise of dietitians working in clinical areas where the therapeutic diets are frequently prescribed. Using peer review studies to devise therapeutic diets is time intensive and may result in variability among hospitals thereby increasing the complexity of patient transfers and discharges.

Foodservice companies, the Heart and Stroke Foundation and others have developed criteria for assessing menus. Interviews conducted for this study revealed that the criteria used by foodservice companies were formulated by registered dietitians and a review of the Heart and Stroke Foundation's website indicated detailed dietary guidelines that appear to be based in science although no references were cited (81). Developing criteria can be time consuming and labor intense, but has the advantage that it can be based on credible sources such as government recommendations, the DRIs, as well as peer review studies and it can be customized to meet the unique requirements of a patient population.

In hospitals, therapeutic and texture modified menus are usually adaptations of the regular menu, therefore it is essential that the regular menu be nutritionally adequate. Adaptations should be based on evidence from scientific peer reviewed articles and should evolve with the emergence of new research. A summary of nutrients contained in each therapeutic menu, together with scientifically founded criteria, is necessary for foodservice leaders and dietitians to be confident that the menu meets the clinical needs of the intended patient population.

Research demonstrates that modified texture menus, specifically pureed menus, may be of inferior nutritional content than regular menus. Considering the hospital foodservice department is usually the sole provider of food for patients on texture modified diets, it is crucial that modified textured menus are nutritionally adequate and meet the sociocultural needs of the patient population. Using diet analysis software, Durant et al (2008) showed that modified texture diets contain fewer calories than regular diets in long term care facilities (82). Similarly, Dahl et al (2007) analyzed pureed foods from 20 facilities in two provinces and discovered inadequacies across the facilities and provinces (83). From the research, it is apparent that there is a gap in practice regarding texture-modified menus. In a study that examined issues associated with the use of modified texture foods,

Keller et al (2012) poses the questions “What is the nutrient content of pureed and minced foods prepared by standardized recipes?” and “Do standardized recipes meet nutritional recommendations? (84)”. Many hospitals outsource pureed entrees due to the labor involved in pureeing items and the risk to patients if consistencies are inaccurate. Outsourced items are likely to have more consistent textures and have the nutrient contents on their labels or manufacturers’ websites.

Foodservice leaders reported that four roles are primarily involved in the analysis of the nutritional composition of the menu: dietitians, foodservice leaders, diet technicians and staff members with quality or computer systems experience. The number of staff and the particular roles involved in menu analysis may be contingent on the type, complexity and objectivity of criteria used to assess the menu. Foodservice leaders often rely on dietitians to assess menus for nutritional adequacy and approve them. To fulfill this accountability, dietitians must have the appropriate tools, complete information, and scientifically based criteria upon which to make the assessment. This study demonstrates that not all hospitals have software to itemize the nutrient values of all menu items and to calculate the total nutrient values per meal, day or week; nor are all the nutrient values available from manufacturers. Further the criteria commonly used to assess the menu is appropriate for healthy children and adults and not for patient populations recovering from illness or injury.

5.1.3. Purpose: Nutrients assessed and criteria used

5.1.3.1 Healthy menus

It is the obligation of every hospital to offer a nutritionally adequate menu that promotes healthy eating and recovery from injury and illness; it is the prerogative of the patient to choose the menu items he or she consumes. Patients and clinicians expect hospitals to provide healthy menu items. Dietitians, when appropriate, use hospital menus when counseling patients and patients may use their meal tickets to gain an understanding of the foods they should select when discharged. Eighteen percent of the study respondents

expressed concerns about maintaining a healthy menu, which is consistent with Watters et al (2003) findings that among foodservice characteristics influencing satisfaction, patients ranked food quality first, then variety, followed by healthiness (71). A respondent, who cited the Canadian Malnutrition Task Force findings agree, he said that his department "was working to improve patients' eating habits to decrease length of stay {20}".

In general, respondents recognized deficits within their own hospital's menu, as evidenced by a respondent's statement that "the menu items are too high in salt and the menu doesn't contain enough fruits and vegetables {37}". Given most foodservice departments, the sodium content of menus is a particular issue. A foodservice leader in a large hospital viewed the high sodium content of menu items as multifaceted: "because we don't have cooks, we can't lower the sodium content of menu items given that we outsource most items. Industry does not have sodium guidelines and if they did, they don't have to follow them. Purchasing food through buying groups also limits our options {30}". While purchasing groups tend to reduce the cost of menu items, they also limit selection and require significant staff resources due to the number and frequency of product changes: "with HealthPRO, there are product changes every three months and it is difficult to keep up {31}" reflected a respondent from a large community hospital. These human resources may be better allocated to menu improvements than to implementing intermittent product changes with the aim of reducing costs.

Patient satisfaction can be understood in two general ways: catering to patient preferences without regard for nutrition to increase satisfaction ratings; or providing quality food items that patients understand are needed to address malnutrition, and enhance recovery from injury and illness. Donini et al (2008) studied methods of increasing the quality of foodservice in a rehab hospital and recommends that meals should be regarded as a form of treatment and not as a hotel service, and that achieving customer satisfaction by catering to patients' poor food choices may be contributing to the cause of their admission (70). Likewise, a leader from a small community hospital says "the challenge is we can't

just provide patients with what they want although patients have free choice, but we need to also teach them about food with good nutritional value {23}".

During the past thirty years, many hospitals were designed or redesigned and equipped to prepare outsourced foods. Recently, there has been a shift back to in-house production primarily to improve the quality of food and secondarily to incorporate more local foods on the menu. Hospitals now have limited options; they often do not have the space or equipment for in-house production, nor do they have the skilled staff. Belonging to a group-purchasing organization further reduces the foodservice department's flexibility; the contractual agreement obligates the department to purchase most pre-prepared foods which are often high in sodium, low in fiber, containing additives and preservatives unnecessary when using fresh ingredients, and not flavored to reflect community preferences. Lack of evidence-based standards or legislation has allowed decisions to be made based on operational efficiencies and budgets without considering ramifications to nutritional adequacy or patient satisfaction, demonstrating the importance of balancing the six components comprising the menu (as illustrated in Figure 1 on page 3), when making decisions.

The Irish document, Food and Nutritional Care in Hospitals Guidelines for Preventing Under-Nutrition in Acute Hospitals, identifies standards for hospital foodservice that are posted on the internet and one of the standards states that all patients have a right to safe nutritious foods (37). Similar to the Irish standards, the NHS on its public website informs patients they should expect nutritious, tasty, appetizing food and drink and menus that are approved by dietitians (36). This communication strategy encourages patients to hold hospitals accountable for the food they serve and it infers that dietitians have the resources and the expertise required to analyze menus. The NHS takes this a step further with a site that rates hospitals based on six indicators, one of which is food choice and quality. The indicator graphic clearly displays each hospital's rating bringing transparency and accountability to hospital foodservice (85). In Ontario, Long Term Care

inspection reports, which contain information about non-compliance with regulations, are posted on websites for public viewing. In contrast, Health Quality Ontario (HQO), an arm of the Ontario's Ministry of Health and Long Term Care, posts nine patient safety indicators on its public website, none of which correspond to foodservice, food or menus (86). With standards, foodservice leaders could better advocate for the resources required to provide healthy foods and healthy menus, and with specific indicators posted on public websites foodservice leaders and hospital leaders would be more accountable for the decisions they make about food and menus as well as the maintenance of infrastructure required to provide healthy foods and menus. A respondent adds to this perspective: "lack of standards; long term care has standards and hospitals don't, this is an issue because foodservice managers in long term care can lobby senior leaders and the board to increase foodservice human resources: the patient population is similar to that in long term care therefore we need similar standards {13}".

5.1.3.2 Theme: Nutrient composition of menus and the need for standards

Several themes emerged through interviews with foodservice leaders that led their departments' menu analysis for nutrient composition. Those respondents that have nutritional compositions of menus acknowledge their value, for example one leader said, "we are very happy with our database and confident in it. It answers questions and saves RD [registered dietitian] time and effort because it provides the amount of protein, etc. From a nutrition perspective, it is worth its weight in gold {33}". There are advantages to having the nutrient composition of menus, such as identifying the nutrients to target to improve the nutritional quality of the regular, therapeutic and texture modified diets; assessing foods that could potentially replace items that are discontinued or disliked; and using the data for educational purposes. A leader working in an academic hospital observed that without nutritional analysis, "we don't have carb counting in a useable form to share with patients, currently we have exchange based estimates or we manually look up what the manufacturer has provided for foods. Estimates are based on diabetic exchanges. When RDs [registered dietitians] ask for specific macro or micronutrients we

are unable to give the information to them. Patients on select menus don't know what they are receiving regarding nutrients {43}".

Respondents report the extent to which the menu can be analyzed is contingent upon the information supplied by vendors. According to several foodservice leaders, up to 16 nutrients can be assessed using specialized software. Nutrients frequently assessed were phosphorus and potassium because their values require close monitoring for patients prescribed renal diets. Sodium was also commonly monitored in response to Health Canada's target of lowering sodium intake to an average of 2300 mg per day by 2016 (87). Guidelines or standards created and communicated by government or a professional organization would signal to food manufacturers that providing a full complement of nutrients is essential to continuing business relationships with hospitals. Purchasing groups could apply additional pressure on food manufacturers by requiring this data to be included in product specifications.

Assessing menus for nutritional adequacy is more common in large community hospitals than small community or academic hospitals and far more common in long term care facilities due to legislative requirements. The frequency of menu analysis affects accuracy and is referred to in Ontario's Long Term Care Act that stipulates that menus shall be assessed annually (29). Menu substitutions due to discontinuation of products, patient preferences or changes in operations have an impact on the nutritional content of menus. Accurate analysis is required to assure therapeutic menus are within their parameters and that clinicians are confident that patients receive the foods allowed within their prescribed diet orders to meet their clinical needs. Standards for assessing the frequency of menu reassessment and criteria for therapeutic diets would guide the work of foodservice leaders.

Calculating individual patients' consumptions of macro- and micro-nutrients is common practice for clinical dietitians when completing nutritional assessments (88). A comprehensive database of each menu item's nutritional content stored in a software program, such as CBORD and Computrition, improves the accuracy and efficiency of clinical nutritional assessments. Many hospitals have these types of databases and processes that can also be used to assess hospital's regular, therapeutic and texture-modified menu for nutritional adequacy.

Given the prevalence of malnutrition and considering foodservice departments are the sole source of food for some residents and patients for extended periods, it is essential that the menu provides the correct balance of nutrients required to support health and recovery from illness or injury. This can only be accomplished if foodservice leaders and dietitians have accurate nutrient analyses of the menu. A respondent from a large community hospital stated: "having a completed menu analysis allows us to target sodium; two or three years ago we wanted to bring down sodium to 2300 mg per day and can now easily make decisions for changes, it allows us to work towards a goal and bring the sodium content of the menu down; the analysis allows for easier decision-making and allows us to work towards a goal. We need ministry guidelines for sodium {34}". The same respondent suggested patients directly benefit from nutritional assessments, "techs can run analysis for them and provide specific patients with data, often times they are looking at the protein content, or potassium, phosphorus and sodium content for patients on renal diets {34}".

Evidently, there are voids in the practice of analyzing menus for nutritional adequacy. First, unlike long term care facilities in Ontario, there is no obligation for hospitals to assess their menus for nutritional adequacy. Secondly, there is a lack of consistent practice among hospitals regarding the frequency of analyses, tools used in the analyses, assessment criteria, and roles involved. Respondents are aware of the gaps and are seeking guidelines: "there is a lack of Canadian guidelines to use when creating and

evaluating menus. We look to Australia. We need more criteria that is more specific than found in the DRIs so we look to the literature and find there is a shortage of Canadian data {26}". This sentiment was echoed by respondents from large and small hospitals: "there are no formal standards, menus haven't been reviewed for a long term, …we need standards and reliable comparisons {37}". Another mentioned "we are starting to eliminate poor menu choices- the guidelines we will use are still up for question {44}". Perhaps a leader from a large community hospital captured the beliefs of many when she said, "I believe we are in the throes of a revolution, there needs to be a more guided process for menus, we need more uniformity… having the same structure for acute care as for long term care would be helpful {39}".

Evidence-based provincial standards for menu assessment would enhance the quality of menus in hospitals. Accountability for adherence to menu standards would heighten the awareness of the importance of quality food, nutritional adequacy, and patient satisfaction with government ministries and hospital administrators holding foodservice leaders more accountable for menu quality. The same set of standards could help ensure diets meet pre-determined evidence-based criteria giving clinicians the confidence that the diets they are ordering meet patient needs. Accuracy of analysis could also be built into the guidelines by identifying the specific nutrients that require monitoring for regular, therapeutic and texture modified menus, frequency of analysis, and roles accountable for analyzing data and formulating recommendations. Standards for foodservice leaders would also assist them in lobbying hospital administrators for adequate funding; this could be in terms of food quality, adequate staffing, software, space, equipment and skilled staff to assess the nutritional adequacy of menu items and menus. Standards would also increase the quality of menus in Ontario hospitals while eliciting assurance of the quality of hospital food and countering the negative messages perpetuated in the popular media.

Once standards are established, development of corresponding indicators could follow, of which one or two could be posted for public review. Internal metrics would lead to quality improvement projects and external metrics such as those posted to public websites, similar to the NHS's practice, would introduce transparency regarding the quality of the menu, increase the accountability of foodservice leaders, and raise awareness of challenges in providing quality food and service among hospital administrators and ministry officials.

A study of the nutrition standards and therapeutic diet specifications in hospitals in New South Wales Australia describes how the standards improve care because foodservice providers and clinical dietitians adopted them, and there was a well-functioning review and modification process. Additionally, the nutritional standards raised the profile of nutrition related issues that may be in part because of a policy directive requiring all public hospitals to implement them (38).

5.1.3.3 Theme: Increasing complexity of care

Foodservice leaders reported challenges with providing complex therapeutic diets. Long *diet strings* increase the risk of patients receiving incorrect diets or menu items - a patient safety issue. Responsiveness to cultural and religious food requirements and patient preferences, together with complex diet orders, exacerbates the risk by further increasing the complexity of the diet. Accurate data bases containing allergens, nutritional composition of food items, and ingredients that do not meet cultural or religious requirements mitigate the risk by alerting foodservice personnel of menu items that contravene diet orders. There is agreement that accommodating individual patient non-therapeutic diet requirements is important. In a qualitative study, Keller et al (2013) found that nutrition care personnel believed patient centered care means being responsive to patients' individual menu preferences that could not be met with appropriate menus and meal supplements (61).

5.1.4 Purpose: Methods and frequencies of patient satisfaction assessments

5.1.4.1 Theme: Patient attributes affecting satisfaction

Providing menu items aligned with cultural preferences and religious requirements while meeting budget, food safety, and nutritional parameters is a challenge voiced by foodservice leaders in the study. Some patient attributes are specific to the hospital such as menus in northern Ontario hospitals that often incorporate foods common to Native cultures, those in some rural communities include foods popular with Mennonite communities, and menus in urban areas that offer Halal and Kosher items. A respondent from an academic hospital expressed that it is a "challenge to purchase outsourced foods that meet cultural needs and therapeutic requirements such as those for low sodium diets {44}". Others, from small hospitals, asked, "how do we store vegan and ethnic foods without having them expire? How do we meet the needs of these specific groups? {43}" and "how do we provide ethnic diverse meals at a reasonable cost? {20}".

Age and gender are thought to influence preferences and, in turn, menus. In a hospital with a patient population comprised primarily of men many of whom are in their 30's, portion size was reported to be important. Several foodservice leaders cited challenges meeting the preferences of various age groups in a hospital; one commented that when "patients range from nine years to 75 years…it is difficult to provide food items that meet the preferences of each patient population {31}". Another remarked it was difficult to satisfy the preferences of "mothers in the maternal child wing when the majority of patients are elderly…the elderly struggle with salad {16}". These suppositions contrast with those found by Sahin et al (2006), that gender and age were not significant variables in affecting overall satisfaction with food (89).

5.1.4.2 Theme: Menu attributes affecting satisfaction

Honoring patient preferences increases patient satisfaction, which improves intake. More specifically, Messina et al (2012) suggest offering a wider menu along with presentation and several other factors improves intake and accelerates recovery thereby

reducing length of stay (68). Variety, which provides choice, food quality and other attributes have been cited by researchers and respondents as affecting the overall perception of quality that has a positive impact on satisfaction (64, 66, 67, 68). A respondent said that "most food is outsourced and much of it is made for a heart health diet so the food is bland without salt {25}". Food quality was also reported to be influenced by the size and location of the hospital, with small hospitals and those in the north having difficulty purchasing high quality produce and other items. A foodservice leader in a small hospital located on the outskirts of a large city reported "that it is difficult seeing outsourced items not available to us because they are special orders [from HealthPro]; being small and getting what we need is difficult, we also need to wait for some food items because of infrequent deliveries {9}".

Decisions made to reduce costs associated with food procurement and preparation, according to foodservice leaders; influence the quality of food and the menu. Group purchasing, while beneficial from a cost perspective, limits variety given "menu items…must be included in the HealthPro contract {22}". Lower cost is the rationale to outsource food items; however, many unintended consequences emerge with this strategy as noted by the following foodservice leaders: "because years ago we moved to outsourcing food to cut labour costs, now we don't have the equipment to prepare fresh foods or the equipment is in disrepair {26}"; a second acknowledged "the biggest barrier to providing a nutritionally sound menu is outsourcing; it is difficult to obtain items that are low in sodium because we outsource our foods [and] we are dependent on industry for low sodium foods...it is a challenge to get outsourced menu items that meet the needs of therapeutic patients, that retherm well, and that are within budget {30}". In-house production is commonly viewed as superior to retherming with outsourced products. A foodservice leader from a large community hospital describes her experience with scratch cooking: "when a new building was being contemplated we started to look at cook chill and outsourced production and I fought to keep scratch cooking. We are extremely efficient. Very rarely do we get a negative comment only when patients come in with a negative perception. We have high patient satisfaction {35}". A foodservice leader from a

small community hospital agrees: "we have few complaints because food is made from scratch or semi-scratch unlike larger hospitals that outsource food {10}". Further, a foodservice leader found that "rethermability is a barrier to high patient satisfaction when 90% of products are outsourced {39}".

Variety of menu items allows for choice, which directly affects patient satisfaction (68). Choice allows patients to select foods they prefer which supports a patient centered approach to care defined by the Institute of Medicine as providing care "that is respectful of and responsive to individual patient preferences, needs and values (91)".

Challenges to meeting patient expectations for variety, according to survey respondents, are long lengths of stay and numerous diet restrictions. A respondent from a large community hospital said the department was focusing on increasing variety to improve patient satisfaction, a fundamental and commonly accepted strategy. Foodservice operations can present barriers to enhancing variety according to respondents such as menus that are too streamlined or too repetitive, storage and purchasing limitations, group purchasing contracts, items that do not cross multiple therapeutic and texture modified diets, suppliers limiting types of food offered including options of Halal and vegetarian entrees.

Variety can be measured three ways: by determining the number of options offered per meal with non-select menus providing one option and select menus providing two or more options for each course, the length of the cycle menu, and the number of repeated items within the cycle. Ontario's Long Term Care Act uses two of these three methods of ensuring variety; it mandates that every home has a 21-day menu cycle that includes alternate choices of entrees, vegetables and desserts at lunch and dinner (29). Unlike long term care facilities; there are no regulations or guidelines directing hospitals to examine quality attributes such as variety. A respondent from a small community hospital believes

regulations for hospitals should be analogous to those for long term care facilities given patient demographics are similar, with many patients incurring long lengths of stay while waiting for beds in long term care facilities. She continues: “the level of care in all dimensions including nutrition is subpar in hospitals. The Long Term Care Act says patients need to have choice and hospitals are not obligated to provide choice {12}”.

Cycle menus were used by all hospitals surveyed and ranged from one to five weeks. Their popularity is related to operational efficiencies such as reducing the need for ongoing menu planning; standardizing production and service; balancing workloads; controlling forecasts, purchasing and inventory functions; and simplifying budget projections (9). The length of menu cycle should be aligned with length of stay to reduce monotony that can lead to decreased intake. In long term care facilities, Carrier et al (2007) found that the risk of malnutrition decreased with a longer menu cycle, and these researchers speculate that providing several choices at each meal enhances satisfaction while providing a sense of control (92).

Menus range in choice from standard non-select menus that provide the same items for everyone receiving a specific therapeutic or texture modified diet regardless of preference, to restaurant style menus that provide a number of menu items that do not vary from day-to-day. More large hospitals than small ones have two or more types of menus because of large and diverse patient populations served. A respondent noted that most patients are elderly and have “stayed a long time in hospital so tire of the options on the one-week menu cycle; foodservice now offers these patients room service, and has about 40 to 45 % of patients receiving room service. Patients with brain injuries, dementia or who are ordered texture modified diets and fluid diets remain non-select {8}”. Several respondents acknowledged “to meet patient expectations, we are seeking to restore choice by moving from a non-select to a select menu {26}”. Patient populations and foodservice operations are two factors that influence whether the menu is select or non-select. Non-select menus are frequently used for patient populations with short lengths of stay or for

those who are unable to make choices, although family members may make choices. Small kitchens, inadequate storage, insufficient labor and limited equipment may necessitate the use of non-select menus. Senior hospital leaders may support the use of non-select menus because they do not require as many resources and are simpler to manage, additional complexity may indicate the need for more skilled staff, software systems or more sophisticated software systems and other supports. Choice is an important consideration when seeking strategies to improve overall patient satisfaction. Patients may have limited choice about their care, their environment, and with whom they interact so control over food choice increases in relevancy (70). Further, some experts speculate that patients seek control over their food because it may be one of the only things they understand and recognize (90).

5.1.4.3 Theme: Patient satisfaction assessment

Aspects of foodservice influence patients' overall perceptions of their hospital experience, and, as one respondent states, "patient satisfaction with the meal service is important because meals are focal points of patients' days {23}". When expectations are met, patients are more satisfied (93). The aim is to manage or exceed patient expectations, which is essential for the perception of quality hospital foodservices (93). Patient satisfaction with food and the menu is fundamental to intake. A foodservice leader concluded "…that for satisfied patients we must provide the menu items patients like and patient satisfaction is important to get people eating {17}".

Gathering data about patient satisfaction can occur on three levels: at the departmental level, clinical program level and corporate level. Few hospitals report receiving patient satisfaction information from clinical programs; consequently, this study focused on department and corporate level assessment.

Formal methodology allows targets to be set and progress to be monitored over time. Best or evidence based practice has not been established as demonstrated by diverse and very general guidelines to achieve patient satisfaction data as illustrated in Appendix C. None of the respondents that used surveys at the departmental level mentioned the use of validated survey tools. Respondents may not be aware of validated tools. Hanna-Jones and Capra (2016) developed a survey tool that quickly and accurately discriminates attributes of quality, taste and appearance in acute care hospitals (93), and Fallon et al (2008) offers a tool that identifies four foodservice dimensions used to determine trends in foodservice satisfaction and identify areas to target for quality improvement initiatives (94).

Informal feedback methods complement formal methods used such as notes on tray tickets and feedback relayed by nurses and dietitians. Hand written comments on meal tickets, although commonly used, tend to provide lower ratings for food quality and tend to differ from the domains found in surveys (47).

Survey methodology used by departments was diverse. The number of questions on the foodservices departmental survey ranged from 4 to 20 with some surveys being conducted routinely while others were conducted intermittently with changes to the menu or the foodservice delivery system. In an academic hospital, “techs follow scripts when surveying five patients per day {41}” and in a small community hospital, “volunteers ask specific questions about temperature, taste and overall satisfaction of 10 patients per week {4}”. Differences in surveying methodology make potential comparison among departments invalid.

Respondents report difficulties with benchmarking against other foodservice operations; a respondent working in an academic hospital commented that “our hospital is [very] unique therefore a benchmarking tool has limited value, this is the only hospital [like it]

in Canada and the length of stay and service styles in the United States are very different {46}". Setting targets and trending results over time complements benchmarking. Targets have limitations as explained by a respondent working in an academic hospital: "target setting is difficult in health care, patient satisfaction typically tracks low because people are generally unwell {42}". A leader from another academic hospital queries "some hospitals set internal targets; however, it is unknown who sets internal targets and how {45}". In contrast, benchmarks have been used by American foodservices for years (62, 63, 89). HQO is seeking submissions of potential quality indicators that would enhance quality of care. Currently, there are no posted foodservice indicators on the HQO public website (95). Creating, implementing and posting foodservice indicators would increase awareness of foodservice practices while strengthening the accountability of foodservice leaders and administrators for the practices that correspond to the indicators.

Corporate level surveys employed several types of methodologies. For example, the CEO of a large community hospital engaged patients in conversations, while most other hospitals used survey instruments either created in-house or by the National Research Council Canada (NRCC) (72). The NRCC survey tool contains one or two general questions about food, but it fails to provide context: "families or patients could answer the question(s) based on food from the cafeteria {46}" according to a respondent from an academic hospital. Another respondent remarked that the survey question "doesn't tell us much, there needs to be comments to follow up {42}". Mandated surveys containing questions too general to be relevant or not having survey results communicated to foodservice leaders are missed opportunities to identify areas of improvement, particularly in times of limited resources. Outsourcing surveys comes at a high cost particularly when results are not relevant or shared. These findings are similar to those in the United States where patient satisfaction surveys also do not include questions about food (63).

Patients' rating of the quality of food is subjective, being influenced by feelings of nausea, their disease processes, altered taste perceptions related to medications, unfamiliarity with the food, hospital policy, expectations, the prescription of a therapeutic or texture modified diets, or the relative quality of food consumed outside of hospital. The following remark from a respondent working at an academic hospital explains the challenge. "We are strict with therapeutic diets and need to accommodate so many with a standard menu and this is difficult; a person on a regular diet may find the food bland. At home a person with diabetes may eat sugar, however to provide an item not within a diet order we must get the clinical dietitian's approval {45}." Further, a study of patients' views of food in Iranian hospitals found that patients from Tehran province were typically dissatisfied while patients from the provinces had lower expectations and were satisfied with the food (96). Meal assessment tools are available to increase the objectivity of assessment in terms of quality, taste, and appearance allowing identification of specific deficiencies and judgments of the total meal. Results can assist foodservice leaders to ascertain specific improvements to better meet patient preferences (93). Considering that seven of 45 respondents in the current study rated quality of food as an issue, it is important for foodservice leaders to be aware that quality is essential for patient satisfaction and that tools are available for narrowing the range of quality attributes requiring improvement so focused strategies can be implemented.

5.1.4.4 Theme: Patient satisfaction assessment requires standard tool, and targets

Apart from contracted foodservices, many foodservice departments surveyed do not consistently use the same tool or survey methodology for each survey conducted; therefore they are unable to trend period over period or compare results to peers. Conversely, flexible surveying tools and survey frequencies allow foodservice departments to pose questions specific to issues and to conduct surveys when there are strategic or operational changes, for example one respondent reported using a survey before and after adopting a new foodservice distribution model. There is no standard

method of assessing patient satisfaction at the departmental level as demonstrated by the list of standards and guidelines in Appendix C.

Hospitals are not legislated to assess the quality of their food, the appropriateness of their menus, nor are they obligated to interpret and act on their patient satisfaction survey findings. Although most of the hospitals contacted sought patient feedback, a third compared that feedback to previous periods and few looked to their peers as comparators. In general, foodservice departments could use this data to conduct a more robust or sophisticated analysis leading to targeted improvements in practice.

The Excellent Care for All Act requires hospitals to conduct annual patient satisfaction surveys and allows hospitals to create the content or specificity of questions asked and the use of responses (32). Given that patient satisfaction with food and foodservice influences patient's overall satisfaction with the hospital, there is an opportunity, through corporate surveys, to gain a better understanding of patient's expectations so targeted improvements can be made. Results of corporate surveys that contain questions pertaining to foodservice would also increase hospital administrators' awareness of the challenges encountered by foodservice, and this in turn may increase support.

Comparison of foodservice indicators results among peer hospitals leads to competition, an issue concerning some foodservice leaders. Not meeting goals or targets may lead hospital administrators to investigate outsourcing foodservice operations or if a foodservice company currently provides service then considering not renewing its contract. Determining and sharing of common indicators and indicator results for patient satisfaction and nutritional composition of menus, while creating competition, would also elevate practice through healthy competition.

5.1.4.5 Methods of enhancing patient satisfaction

Patient satisfaction is primarily influenced by the food quality according to Watters et al (2003) (72). Assessing the quality of food can be undertaken within the foodservice department or directly with patients. Foodservice leaders report using sensory taste panels to assess the quality of potential menu items, a practice that is consistent with that supported by Payne-Palacio and Theis (2005). They also suggest that a team of foodservice staff who are knowledgeable about the product standards and who are trained to evaluate quality characteristics, conduct sensory analysis prior to serving meals as a method of assuring quality menu items are served to patients (10). The quality of menu items can be assessed based on flavor, aroma, texture, and appearance on an individual basis and how they complement other menu items.

Methods of meeting patient expectations in small hospitals differed from those in larger hospitals, a respondent from a small community hospital suggested: "large foodservice departments often have multi-step processes to obtain, input and act on patient preferences which takes time, whereas smaller foodservice operations tend to allow staff to visit patients in a timely manner to determine the cause of their discontent"{45}. Consistent with this summary are remarks made by other foodservice leaders: "patients benefit from being in a small hospital because when a patient is not eating well, dietary staff go out of their way to find what the patient wants even if it is not on the menu, this goes a long way to increase patient satisfaction {7}"; "because we are a small facility we can easily accommodate preference, so we obtain over 90% on quality {5}"; and "if the patient has difficulty eating because of surgery then the foodservice manager will ask the patient what he wants, if the patient wants porridge for supper the foodservice manager will talk directly to the doctor…we can visit patients to take their preferences and provide their preferred food so long as it complies with their therapeutic diet… we have high patient satisfaction because everyone is pretty friendly {12}". The ability to provide personal attention in a timely manner and to provide food items not on the menu to meet

patient preferences in the moment are the service elements that set small hospitals apart from larger ones.

Improving patient satisfaction is often a corporate strategy with requirements that each department implement its own initiatives to further the strategy. A respondent points out, "there are many strategies where there is a cost to improving patient satisfaction and there are no funds to do this," and continues to ask, "…what is the corporate driver and where should the investments be made? Each hospital sets its own driver for patient satisfaction and most hospitals are very financially challenged and must choose carefully what they target. Menus, nutritional values and costs should be benchmarked against other hospitals along with cost per patient day [to understand whether menus should be a corporate driver for patient satisfaction] {42}". If menu quality were selected as a corporate driver, the importance of foodservice strategies would be elevated, possibly increasing investments in tools and enhancing activities.

Study respondents freely shared their plans to raise patient satisfaction scores. Providing adequate variety was a common approach: "we would like to move from non-select to select but we don't have enough staff to do this {24}." Another foodservice leader said "we currently have a two week menu cycle and we are looking at extending it to three weeks because of patients' longer stays on one unit {20}".

5.1.4.6 Theme: Use of restaurant-style room service

Features of restaurant or hotel style service include patients selecting their requests for food or fluid from restaurant style menus that reflect their diet orders, phoning foodservice departments with their requests anytime between early morning and early evening, and preparing requests using appropriate cooking methods (versus retherm), then receiving their meal trays in 30 to 45 minutes. Having diet clerks who receive the phone calls employ a script and obtain patient satisfaction data enhances the service, as well

aides who deliver and pick up trays wearing waitstaff uniforms and having training in customer service (5). The type of meal service positively affects patient satisfaction with foodservice leaders believing that restaurant style service results in higher levels of patient satisfaction: “when we switched to restaurant style service, patient satisfaction skyrocketed; patients can have comfort food when they want it and they have more choice {36}”. This finding is consistent with Sheehan-Smith’s (2006) study of four hospitals in the early 2000s that found 22 advantages of room service; the most significant advantage was the ability for patients to choose the foods they want to eat at a time they want to eat (5). The second most cited advantage was improved patient satisfaction scores. Additional advantages were improved food temperatures, more choice, decrease in plate waste, decrease in number of complaints about food, improved food quality and decrease in food cost (5). Coulston (2011) suggested that with more people eating in restaurants, patients expect the same choice and quality in hospitals and to accommodate this trend, hospitals have been moving to restaurant style service (69).

In the current study, respondents observed additional advantages to the room service food system such that, “waste is significantly less than batch trays, there is a decreased number of dietitian visits because they are no longer recording preferences, and the diet office is no longer entering preferences; however, it took three to four years to educate staff especially nursing staff {8}”. Two respondents reported their preferred meal preparation and delivery system was room service but identified barriers to its implementation: “room service is the way to go but we need more labor, {24}” and “the room service model is not affordable {18}”.

5.2 Summary

Budgets, as reported by foodservice leaders, are a higher priority than the nutritional adequacy of menus and patient satisfaction. Disproportionate attention to funding has led to hospital kitchens with capacity to primarily retherm outsourced food items, thereby limiting menu item options. Having a range of items from which to build regular,

therapeutic and texture modified menus and having a variety of items on the menu enhances the quality of the menu and the patient experience. In the pursuit of lowering food costs, foodservice departments joined group-purchasing organizations, which also limits foodservices' options for menu items. It is apparent that foodservice resources and attention have been diverted from quality and have been directed to cost reduction with somewhat negative consequents. This gives rise to the importance of a balanced approach to decision making. Consideration of each of the six menu components illustrated in Figure 1 (on page 3) when making decisions illuminates unintended consequences.

Unlike jurisdictions throughout the world and Ontario's long term care sector, there are no expectations that menus should meet the nutritional needs and preferences of patient populations or subpopulations in Ontario hospitals. Menu planning conventions are well documented but lack of research indicates that conventional practice is not evidence-based practice. Menu assessment methodology is not well documented and where it is, such as in Ontario's Long Term Care Act, it is questionable whether the criteria used is appropriate for the patient population due to insufficient research. The NHS's requirement for each hospital to establish evidence-based standards for specific populations then develop and analyze the menus according to these standards avoids the flaws associated with CFG and the DRIs. If current peer reviewed studies are foundational to the standards on which the menu is created and assessed, the menu becomes evidence-based. For this strategy to succeed, clinical dietitians and foodservice leaders would need to develop and foster close working relationships based on their roles in menu planning and assessment of nutritional adequacy.

Foodservice leaders should consider using validated patient satisfaction surveys at regular intervals to assess changes in quality and satisfaction. Meal rounds, waste audits and other assessment techniques complement the surveys and contribute to assessing whether quality improvement techniques achieve their objectives.

Williams et al (2010) examined the creation and implementation of standards in NSW Australia and found a number of factors that contributed to their success including using strong evidence based recommendations, Ministry of Health endorsement followed by policies that mandated their adoption (38). Ontario's Ministry of Health and Long Term Care took a similar approach. There is opportunity for standards to be developed and adopted by hospitals to improve the nutritional quality and patient appreciation of hospital menus. Standards should be evidence based practices and include the analysis of nutrient composition of menus, frequency of analysis and roles accountable for completing the analysis. Also, the standards should include the requirement for patient involvement in sensory taste panels and selection of menu items, which supports patient centered care; use of validated patient satisfaction tools complemented by waste audits, meal rounds, and other assessment techniques that would provide foodservice leaders with the data to make informed decisions and to identify quality improvement initiatives.

Use of the improvement model adapted for menus allows for continuous incremental menu improvements resulting in better patient care. Implementation of this model necessitates education, dedicated time for a small team, and possible equipment depending on the improvement. Similar to the criteria used to assess menus, each foodservice department should develop its own menu planning and assessment processes guided by standards and based on its resources.

CHAPTER 6

6.1 Implications for practice

6.1.1 Balance menu components

Foodservice leaders are challenged to provide high quality regular, therapeutic and texture modified menus within the context of the six menu components illustrated in Figure 1 (on page 3). The aim is to maintain balance among components in the medium and long terms. When resources are directed inequitably to one or two of the components, it is at the detriment of the remaining components. For example, if increasing emphasis is placed on patient satisfaction without regard to other components, the nutritional composition may be compromised (such as replacing baked potatoes with French fries) as well as the budget (such as replacing chicken breast with beef steak). Considering how a response to a solution affects each of the six components will assist foodservice leaders anticipate consequences leading to more informed decision-making.

6.1.2 Standards

Many respondents declared their interest in implementing standards, which is aligned with practice in Australia, England, Scotland and Ireland. Few foodservice departments created their own standards; although most could not or chose not to because of lack of expertise, resources or awareness. External standards that obligate foodservice departments to create or adopt specific criteria to meet the needs of its patient population would provide the impetus to make improvements in this area. Senior administrators could use standards to assess foodservices' outcomes and identify areas for improvement; and many foodservice leaders would have a more systematic approach identifying areas for improvement as well as advocating for resources. At the aggregate level, standards would guide practice leading to more consistent and higher quality nutritional care throughout Ontario hospitals. Developing, implementing and monitoring adherence to standards would be a lengthy process with significant benefits to quality of care in the long term.

6.1.3 Quality improvement

Use of the proposed model for menu improvement illustrated in Figure 3 (on page 43) would assist foodservice leaders adopt a methodical approach to menu improvement and meeting standards. Identifying menu deficiencies through a nutritional analysis or patient satisfaction assessment is the preliminary step before the first step in the model. With every cycle of improvement, the menu should be closer to meeting standards resulting in better patient care and better care experience.

6.2 Limitations

Although research aims were met, there were some unavoidable limitations. All foodservice leaders working in hospitals not affiliated with a long-term care facility were contacted via email or letter and then followed up with a telephone call. Foodservice managers who agreed and were available to participate in the survey may have been more apt to participate if they knew they had highly functional operations with effective practices, thereby skewing the results positively. Over the course of the telephone surveys, it became apparent that some respondents overstated their responses as evidenced by a positive response given to a general question and then vague answers were given to specific questions stemming from the general one. Similarly, from the questions, respondents have been able to infer what is considered effective practice and this may have influenced their responses resulting in positively skewed results. Further, the study design was based on gathering self-reported data, which can also be positively biased. Future studies could include quantitative third party data that could verify self-reported data.

Foodservice leaders, who recognized that their departments had solid practices, may have been more inclined to participate in the study than those who did not. Although confidentiality was assured at several points in the lead up to the interview, foodservice leaders could have declined the invitation by not returning the initial email for telephone call, not accepting the invitation during the initial call to schedule an interview time, or not accepting the call at the agreed upon time. This may has introduced positive bias that could have been addressed by increasing the sample size. Another option may have been to screen for positive bias, albeit reducing the sample size.

The broad range of foodservice practices employed in hospitals necessitated the use of a combination of closed- and open-ended questions to capture the current state of nutritional analysis and patient satisfaction. Categorization of diverse responses to several

open-ended questions proved challenging but rewarding in the end because of the in-depth responses provided by the interviewees.

This study was confined to hospitals in Ontario due to time constraints and the benefit of a common legislative environment. Therefore, findings may not be generally applicable to other provinces and territories.

6.3 Future studies

The exploratory approach to this study resulted in ideas for future study. Broad areas of possible study are listed below:

- Developing evidence based guidelines for assessing menu alignment with type of hospital and type of patient.
- Establishing best or innovative practices in the assessment of the nutritional composition of menus.
- Identifying criteria for regular, therapeutic and texture modified menus against which hospital menus could be assessed.
- Determining whether quality improvement methodology elevates the practices of menu planning and analysis.
- Determining whether quality improvement methodology is appropriate for assessing patient satisfaction to meet the unique needs of the patient populations.
- Assessing the impact of legislated and voluntary standards in the delivery of quality foodservices in jurisdictions worldwide.
- Validating patient satisfaction tools for differing patient populations and under differing legislative and economic settings.
- Comparing nutritional compositions of menus and patient satisfaction of hospitals that outsource greater than or equal to 70% of their menu items with those hospitals that predominantly use in-house production.

6.4 Conclusion

There are six major components that affect hospital menus; two of these, nutrient composition and patient satisfaction with menus, were examined to explore how they are assessed and how often. A survey of foodservice leaders working in hospitals reveals that 42% of hospitals do not assess their regular menus for nutrient composition. This has implications for clinical nutrition and foodservice practice. Standards, including those for long term care in Ontario, have been enacted to ensure the nutrient content of menus meets the needs of patients. Patient satisfaction was assessed at the departmental and corporate levels. Limited consistency in practice led to the inability for foodservice leaders to identify trends or compare their results to those of comparators. Questions asked at the corporate level were often too general to seek out root causes or foodservice leaders were not provided the results. Hospitals strive to provide patient centered care; to do this foodservice departments must provide a choice of menu items, and ensure the menus are nutritionally adequate to maintain health or recover from illness or injury. Palatability is essential to ensure patients consume a variety of food in sufficient quantities given their medical status. Standards for measuring nutritional adequacy and patient satisfaction of menus in Ontario hospitals are lacking and further research is required to develop and implement standards.

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APPENDICES

Appendix A

Non-Medical Research Ethics Board Approval Form

Office of Research Services/ Office of Research Ethics

File No: 106693 Project Title: Hospital Menu Evaluation: Nutritional Analysis and Patient Satisfaction Assessment Project Work Flow State: Approval Decision Made

Description	File Name	Version Date
	106693 Garcia (P).pdf	20/05/2015
Initial Approval Notice	DOC083115-08312015164940-0009.pdf	31/08/2015
2016/06/07 - CER	DOC082616-0007.pdf	26/08/2016

Non-Medical Form 2.0

Recruitment and Informed Consent

4.12) * What method of obtaining consent will you use for participants? A copy of all forms being used for obtaining consent must be included with this submission please add to the attachments tab. Please note that templates for many of these documents can be found on our website at http://www.uwo.ca/research/services/ethics/nonmedical_reb/tips.html. Failure to use these templates may result in a delay in approval.

- [ ] Written consent
- [ ] Implicit consent (eg. by completion of a survey)
- [x] Implicit verbal consent (eg. telephone survey)
- [ ] Assent form
- [ ] Parental consent (must be used for children under the age of 18)
- [ ] Unable to obtain consent

Appendix B

Hospital Menu Evaluation:

Nutrient Analysis and Patient Satisfaction Assessment

Survey for Foodservice Leaders/Managers

Demographic Data

1. Type of hospital

- Academic => 100 beds
- Academic =< 99 beds
- Community = > 100 beds
- Community =< 99 beds
- Other

2. Number of meals served at lunch?

3. Food preparation system

4. Foodservice delivery system

5. Type of menu
   - Select
   - Non-select
   - Combination
   - Other

6. Does this hospital share a menu with another hospital or long term care facility?

Yes No, go to Q 8

7. Which facility, and is there a difference between menu development and menus?

Yes, go to Q 8 No, end interview

Priorities

8. What are the three most important issues facing your organization's foodservice department?

Menu Development

9. Are menus developed internally or externally? Internally Externally

10. Which positions are involved?

11. How are they developed?

Menu Analysis

12. Do you have the nutritional compositions for hospital's menus?
Yes No, go to Q 25

13. Do you have the nutritional composition for the hospital's regular menu?
Yes No

14. Do you have the nutritional compositions for the hospital's therapeutic menus?
Yes No, go to Q 16

15. Which therapeutic menus?

16. Do you know the nutritional composition of the hospital's texture-modified diets?
Yes No

17. Are menus analyzed internally? Yes, go to Q 19 No
18. Are menus analyzed externally Yes No

19. Which positions are involved?

20. How are the menus analyzed?

21. How/when are changes made after the menu has been assessed?

22. What nutrients are assessed?

Macronutrients?

- Fat
- Trans fats
- Carbohydrate
- Protein
- Fluid
- Fibre

Micronutrients?

- Vitamin A
- Vitamin C
- Vitamin D
- Iron
- Calcium
- Sodium
- Potassium
- Other

23. What targets or comparisons are used in the nutritional assessment?

24. How often are menu analyses completed?

25. What barriers have you encountered to analyzing menus for nutritional composition?

26. Do you have a formal menu approval process? Yes No, go to Q 28

27. What is involved in the approval process?

Patient Satisfaction

28. Does your department obtain patient feedback about menus?

Yes No, go to Q 35

29. Does your department obtain patient feedback about menu items?

Yes No, go to Q 35

30. How does your department obtain patient feedback about menus?

31. How does your department obtain patient feedback about menu items?

32. How often does your department obtain patient feedback about menu?

33. What menu assessment criteria do you seek feedback on at the departmental level?

34. What targets or benchmarks does your department use to assess patient satisfaction?

35. Does your organization obtain corporate/mandated patient feedback regarding menus?

Yes No, go to Q 40

36. How many questions on the corporate survey are devoted to menus or menu items?

37. How often does your organization obtain corporate/mandated patient feedback regarding specific menu items?

38. What menu assessment criteria are included in corporate survey?

39. What targets or benchmarks does your organization use to assess patient satisfaction?

Prioritization

40. During our discussion today what three items are of highest priority for you?

41. Would you like to receive a copy of the study results if it published? Yes No

Name and Email Address

Version 2015_06_10

Appendix C

Region Specific Guidelines for Patient Satisfaction Standards

Country	Source of Standards/Guidelines	Patient Satisfaction Guidelines
Scotland	Food, Fluid and Nutritional Care October 2014 Food in Hospitals, 2008 (23)	• 3.4 Patient groups are consulted about new menus and dishes before they are introduced. • No reference to assessment of patient satisfaction
South Australia	Menu and Nutritional Standards for Public Hospitals in South Australia (33)	*No reference to assessment of patient satisfaction*
NSW Australia	Nutrition Standards for Adult Inpatients in NSW Hospitals (35)	2. The menu will offer food choices that are appealing and which patients enjoy. This will assist them to meet their nutritional requirements.
UK	The Hospital Food Standards Panel's report on standards for food and drink in NHS hospitals (74)	*No reference to assessment of patient satisfaction*
Ontario	Long Term Care Regulations (29)	Menu is reviewed by the resident's council for the home
Alberta	Standards Compliance and Licensing Branch Long Term Care Accommodation Standards and Checklist (39)	Operators shall ensure that resident's opinions and feedback regarding meals, fluids and snacks are collected at least yearly and considered in the development of the menu
British Columbia	Residential Care Regulation (40)	62 2(ii) the food preferences and cultural background of the persons in care

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