Room Service:
Patient Expectations and Experiences

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Abstract

Background: Patient expectations and the foodservice are largely overlooked in patient experience research. Hospital foodservices face added challenges being subject to a negative stereotype. Hotel-style room service is a current innovation in hospital foodservices seeking to improve patient experiences and reverse long-held images.

Objective: To assess and determine the impact of the first hospital room service system in New Zealand on patient foodservice expectations and experiences, in a private hospital setting.

Methods: To determine the impact of room service on patient experience, this study replicates the design of a mixed-method study undertaken at the study hospital in 2016 when a traditional hospital ordering and delivery foodservice system was in place. Patients booked for at least a one-night stay during the three-week data collection period were recruited (n=38). The foodservice was assessed using four foodservice quality constructs; food quality; meal service quality; staff and service issues; and hunger and satiety. Patient expectations and experiences were quantitatively collected using an adapted version of the 2016 questionnaire. A sub-sample (n=16) of participants participated in semi-structured interviews prior to admission to determine explanatory factors for their expectations scores. Findings were compared to the results of the 2016 study.

Results: Questionnaire results showed patients’ high expectations were generally met or exceeded by their room service experiences. A statistically significant difference was seen between mean expectation and experience scores for the food quality and hunger and satiety constructs. Participants with previous foodservice experience at the study hospital, and those over 65 years of age had higher expectations for these constructs. No
differences between age or gender groups were apparent in experience scores. Experience scores for the temperature of meals and drinks were lower than expectation scores, suggesting an area of improvement for the foodservice. Sixty percent of participants experienced a clinical condition that affected their ability to consume and enjoy the hospital meals. Tolerance of institutional systems emerged as the strongest explanatory factor for patient expectations followed by past experiences and post-operative clinical condition. The largest difference in patient expectations and experiences between room service and a traditional hospital foodservice system captured in this study was higher experience scores for the hunger and satiety construct.

**Conclusion:** Patients have realistic expectations of hospital foodservices which is based on their past experiences and understanding of institutional systems. Institutional systems tolerance moderates patients’ expectations however, expectations are still high for room service as a personalized service and for a private institution. Hospital room service generated high patient experience scores, notably for hunger and satiety with increased access to food compared to the traditional hospital foodservice system. A patient’s clinical condition has an influence on their foodservice experience and warrants further investigation as a moderator of quality perceptions. Assessing patient expectations and experiences is a reliable form of feedback for foodservices, successfully identifying areas for improvement.
Preface

The candidate undertook this research as part of the requirements for the Masters of Dietetics degree. The research was originally proposed by Dr Penny Field, primary supervisor and Kirsten Webster, secondary supervisor; alongside Ashley Calkin, Dietetic advisor. The project was funded by the Department of Human Nutrition, University of Otago. The research was conducted in a period of 28 weeks between September 2017 and November 2018. The candidate was responsible for the following under supervision from her supervisors, Mercy Hospital Dietitian Victoria Wood and the Study Statistician Dr Jill Haszard:

- Refinement of study protocol
- Critical review of the literature on room service and patient foodservice expectations and experiences.
- Contributing to ethics applications to the University of Otago and Mercy Hospital.
- Contributing to application for Maori Consultation, University of Otago.
- Questionnaire and interview development and pretesting
- Development of study information and consent forms for participants.
- Recruitment of participants
- Administering data collection; distribution and collection of questionnaires and interviewing of patients.
- Selective transcribing of interviews
- Qualitative data analysis
- Statistical analysis
- Synthesizing data
- Drafting and final write up of thesis.
Subscale analyses and linear regression analysis was undertaken by Dr Jill Haszard (Biostatistician, Department of Human Nutrition, University of Otago).
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Nick, for pushing me when I needed it and all the little things that helped get me through each day. You help me believe I can do hard things.

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<tr>
<td>ACHFPSQ</td>
<td>Acute Care Hospital Foodservice Patient Satisfaction Questionnaire</td>
</tr>
<tr>
<td>CI</td>
<td>Confidence Interval</td>
</tr>
<tr>
<td>Cronbach’s α</td>
<td>Cronbach’s alpha</td>
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<tr>
<td>FEQ</td>
<td>Foodservice Expectations Questionnaire</td>
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<tr>
<td>FEEQ</td>
<td>Foodservice Expectations and Experiences Questionnaire</td>
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<tr>
<td>n=</td>
<td>Number</td>
</tr>
<tr>
<td>POS</td>
<td>Point of Service</td>
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<tr>
<td>Q</td>
<td>Question</td>
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<td>SD</td>
<td>Standard Deviation</td>
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1 Introduction

For most patients, the hospital foodservice makes a major contribution to their overall hospital experience (1–5). The foodservice has an important role as the sole provider of nutrition for patients (3,6–8). In spite of ongoing quality improvement initiatives, malnutrition rates in hospitals remain high (8–10). Poor food intake in hospitals not only has implications for patient recovery but also results in high plate waste, which has environmental and financial costs (7,10,11). A further complication is the negative stereotype of hospital food, often reflected in media criticism (12–15). These issues can be the result of patient dissatisfaction with the foodservice, and suggest that the foodservice is not providing a high quality service (2,7,10).

Previously, the most commonly used patient-centered measure of hospital service quality was patient satisfaction (2,16). In recent times, this measure has moved to patient experience, which is considered to be a broader measure than patient satisfaction (16–18). Experience as a measure focuses on patients’ overall perception of a service based on actual events (16–18). Patient experience is now an important form of feedback for hospital services and is being widely used as a quality performance indicator for patient-centered services, including foodservices (17,19–21). Hospital foodservice experience is an emerging field, however it is hampered by often not being included in general inpatient experience research (3,19,22).

According to expectation disconfirmation theory from the field of marketing, expectations are strong determinants of experiences (23–27). For quality assessments, expectations add context to experience scores and when compared, can be used to highlight gaps in the quality of a service and direct decisions for improvements (24–28). In the realm of the hospital foodservice, hospital food providers who understand what patients expect, will be able to enhance their experience and ensure they receive optimal
nutrition while under the foodservice’s care (13,23,24,29). To date, expectations have been rarely or only superficially investigated in patient experience and foodservice research (18,24,28,30).

In order to improve patient experience, hospital foodservices are seeking new methods of providing food to patients (31–33). Hotel-style room service is an innovation in hospital foodservices that is challenging the current norms of hospital food (3,5,33–35). This foodservice system counters some of the inconveniences patients’ face with a traditional hospital foodservice by giving patients the autonomy to order their food on demand, and receive it within a set timeframe (5,34,36). Room service is known to enhance aspects of the patient foodservice experience and increase patient ratings for the quality of the food and service (5,10,11,31,36–39). Room service has had rising popularity in hospitals overseas but only recently has been implemented in a New Zealand hospital (3,33,40,41).

A private hospital located in Dunedin, New Zealand, transitioned to a hotel-style room service in February 2018 (41–43). With the room service foodservice system, patients can order food anytime between 7am and 7pm from an a-la-carte menu, and the meal will be delivered within 45 minutes (41,42).

The impact of a hospital room service system is unknown in New Zealand, let alone what patients expect from room service and how this compares to a traditional hospital foodservice. This study will investigate New Zealand patients’ expectations and experiences of hospital room service.
2 Literature Review

Hotel-style room service systems are emerging as a new approach to enhancing hospital foodservice (3,5,29,33,44). A hospital foodservice is a complex system comprising of unified functional sub-systems related to the production, distribution and serving of food to patients (32,45–48). Differences between hospital foodservice systems have been shown to influence how much patients eat and their level of satisfaction with the foodservice (2,3,5,35,49). Room service is becoming increasingly popular as patients and foodservice managers perceive it to deliver higher quality food and service compared to alternative, traditional hospital foodservice systems (10,11,33,37,44,50). A concurrent trend is the use of patient experience as a quality measure for health services, including hospital foodservices (3,17–21,48,51,52).

The aim of this literature review is to explore the influence of room service as a hospital foodservice system on patient foodservice experience. The relationship between patient foodservice expectations and experiences will also be examined, followed by a brief review of their measurement tools.

Literature was obtained from multiple searches of the following databases; ProQuest, Ovid, University of Otago and PubMed. The key search words used singly and in combination were; Patient, Expectation/s, Experience/s, Satisfaction, Room Service, Hospital, Foodservice, Food and Meal.

2.1 Foodservice systems in hospitals

Decisions to change hospital foodservice systems are driven by many factors, including an increasing number of patients expressing their dissatisfaction with hospital food (3,5,7). Advances in technology have also enabled foodservices to streamline their processes to cater for large groups of people (53,54). In some countries and commercial
enterprises such as private hospitals, change has been driven by competitive health markets that push health providers to meet or exceed patient expectations, while finding cost-efficient ways to do so (5,29,55). To understand how hospital foodservice systems including room service systems operate, it is important to first consider the parts or subsystems that make up a foodservice system, in particular ordering and delivery systems.

2.1.1 Meal ordering systems

The timing and method of meal ordering has an important influence on a patient’s experience of the foodservice (31,35,53,54). In a traditional hospital foodservice system with set meal times, patients order their food choices up to a day in advance (46). This enables the foodservice to accurately forecast and prepare appropriate quantities of food, minimizing food waste in production (46). A key disadvantage of this system is the cost to the patient, who is required to order in advance. This is challenging as patients have to assume what they will feel like eating in the future and will not be able to make changes if their appetite, clinical condition or prescribed diet changes (31,35,54). Often, this results in plate waste and ordered meals being discarded (10,48).

An alternative system is Point of Service (POS), which addresses some of the shortfalls of traditional hospital meal ordering. POS systems enable patients to order their food choices closer to the time of consumption (34,35,49). POS ordering is most commonly associated with bulk trolley and room service (35,49). A bulk trolley meal delivery system delivers food to the wards that is then plated to order during set meal times. Patients are able to select and portion their meals according to their appetite and preferences at the time (35,49). Whereas room service enables patients to order within a wider, more flexible timeframe rather than during set meal times (31,37,38). This flexibility in ordering has been shown to be beneficial in increasing food intake for
those who are very ill, have nausea or a decreased appetite as it increases food access for when patients are hungry outside standard meal times (5,31,36,37).

POS facilitates patient choice by enabling patients to choose what and how much food they would like to receive close to the time they consume it (35,48). This has been shown to result in increased food intake and decreased plate waste (10,35,48). Ensuring adequate food intake in hospitals is crucial in preventing malnutrition (11,51,56). Reducing food waste is beneficial for mitigating environmental impacts but can also save costs for hospital foodservices which can act as a powerful motivator to change systems (35).

Promoting patient choice through POS may also be more acceptable for modern day patients because of the increase in self-service options in other parts of their lives. Self-service amenities like ATMs, online ordering and self-checkouts in retail stores are now common place. For some patients, food is a source of comfort and familiarity in an anxiety provoking hospital setting (3,35,57). The increased choice with food in hospital additionally offers a sense of autonomy, which the patients do not often have over their hospital medical care (3,35,57). Increasing patient autonomy around food also helps hospitals achieve an overarching quality goal of promoting patient-centered care (10,17,58,59).

### 2.1.2 Meal delivery systems

Meal delivery systems are how hospital food is delivered to patients (distribution) and how it is served to them (service) (45,47). Many traditional hospital foodservices distribute meals using a tray service system. This typically entails the assembling of pre-ordered meals on individualized trays on a tray line in the hospital kitchen, which are then delivered to wards in trolleys and served to patients on the tray (45). Tray service systems use a range of methods for managing food temperature; from heated plate
bases, insulated covers, or by delivering in thermalized carts (45). The tray line delivery method is seen an effective approach to streamline the process of assembling and delivering large quantities of patient meals (45). However, common patient complaints of the tray delivery system are eating to the hospitals timeframe instead of their own appetite, and receiving hot food cold and cold food hot (5,54). Room service in particular counters these limitations, as patients are able to order on demand and have their food delivered as soon as it is made (3,5,10,35).

2.1.3 **Rationale for changing systems**

Many studies have shown patients rate both bulk trolley and room service POS meal ordering and delivery systems more positively than traditional hospital systems (3,10,35–37,49). It is difficult to separate these outcomes to determine whether they are a result of the ordering or delivery aspect of the system as the two subsystems are interlinked. Therefore, their benefits are considered together below.

Changing ordering and delivery to a POS system has been shown to increase patients’ perception of the quality of hospital food in relation to flavour, texture and temperature (35–37,49). Hartwell *et al.* compared patient ratings of a traditional tray line meal delivery system, with ratings of a newly introduced bulk trolley system (49). With the menu remaining unchanged, patient scores for temperature, flavour and texture of the food with the bulk trolley system were higher (49). The temperature result may be based only on patient perception, as the actual temperature was not measured in the study. Nevertheless, the new method for ordering and delivery increased the perceived quality of food when there was no change to the food itself (17). This increase in food quality ratings is commonly seen when a POS system replaces a traditional foodservice system (2,35).
Higher satisfaction ratings from POS systems are attributed to the enhanced interaction between patients and service staff compared to traditional tray delivery (3,35). POS demands greater communication and interaction with foodservice staff when patients order and receive their meals. This interpersonal factor may also be why ordering with a menu spoken by a staff member has higher satisfaction ratings compared to ordering on written menus (21). One foodservice reported an increase in foodservice satisfaction scores with no change to the food or menu, but through enhancing customer service (3). Interpersonal elements may also increase patient satisfaction as interaction with service staff can be a form of emotional support for patients, and part of the hospital experience involves reducing the stress or anxiety from being unwell in hospital. This is a prime example of how the foodservice plays an important role in offering comfort to its patients (3). The main disadvantage to changing a hospital meal delivery system to POS is the added staff expense involved in taking patients meal orders before each meal, three or more times a day (5). This can be justified as a worthwhile investment for hospital foodservices if it lifts patients’ perception of the food, improves their overall experience and increases their food intake while in hospital (32).

2.2 Room service

Over the past two decades, hotel-style room service has become increasingly popular as a form of hospital foodservice (3,5,44). Room service is defined as the “meal distribution process where food service employees deliver cooked-to-order foods after a patient has placed an order from a restaurant-style selective menu” (34). It has gained popularity especially in America due to a competitive health market but is also seen in Europe and Australia (10,11,29,44). Room service has been shown to increase both patient food intake and satisfaction, enhance patient experience and reduce hospital meal plate waste (3,10,31,47). The section below examines the influence of room service on patient satisfaction and experience using four well-established constructs of
foodservice satisfaction; food quality, meal service quality, staff and service issues, and hunger and satiety (1,8,24).

2.2.1 Food quality

The food quality construct assesses the physical sensory attributes, or the tangible characteristics of the food itself, including the taste, flavour and presentation of the meal, as well the intangible factor of menu variety (1).

Five studies assessing patient satisfaction with room service all report an increase in food quality ratings compared to their previous traditional hospital foodservice system (10,31,36–38). Interestingly, Doordujin et al. found no change in food quality ratings (11). However, as all these studies used different measurement tools and most were not validated, so comparison of results is difficult.

A reason why foodservice managers believe food quality is enhanced with room service is due to the variety of made fresh to order menu choices that would be less possible with other foodservice systems (5,36,37). Room service is usually associated with an upscale, a la carte, static menu that includes “comfort foods”, so patients can choose options from grilled salmon to macaroni and cheese (34,36,50). A room service menu itself influences patient satisfaction, as Wadden et al. found, with an increase in overall patient and food quality satisfaction with a room service menu compared to a traditional cyclic menu (50). Acute stay patients also have more items to choose from compared to the standard 2-3 main options that are typically offered with a traditional hospital cyclic menu (5,29,36). However, a static menu can be a concern for long term patients who can become weary of the same menu choices every day. Some hospitals with room service have countered this by offering a separate menu for these patients (60).
2.2.2 Meal service quality

Meal service quality is how the service system influences the temperature of the food when it reaches the patient (1). The review below also includes the component of service design and processes under this construct.

Keeping food at the correct temperature is an imperative requirement for food safety control (47). Foods not kept at the correct temperature are less pleasant to eat and can be unsafe (4,47). The widely accepted standard is for hot meals and drinks to be served hot and cold items to be served cold. Temperature retention is a notorious challenge for hospital foodservices, with busy hospital environments easily causing delays to the distribution and service of meals to patients, resulting in loss of temperature and quality (12). With room service, studies indicate patients perceive better temperature of the meals (34,44). With a cooked to order and individualized delivery room service system the food is likely to spend less time in transit, so the temperature should be better retained when it reaches the patient (57). Although, Sheehan-Smith and Doorduijn et al. both reported a drop in temperature ratings or issues with specific items such as hot drinks (5,11). It is important to note these studies assess temperature using patient ratings - whether the patients judged the food to be hot or cold enough, not by actual recorded temperature. Food may be at an adequate temperature by food service standards, but patient experience ratings are subject to only how hot or cold patients perceive it to be.

The service design in room service providing flexibility to order on demand within an open timeframe is the most distinguishing element and reported advantage of room service (34,36,38,57). The room service system increases patient autonomy and access to food outside traditional meal times (11,60). The latter is particularly important for patients who are very ill, experience nausea, decreased appetite or who may miss meals
due to timing of surgeries (31). A study by McLymont et al. with cancer patients, found only 45% of patients were eating half or more of their main meal with a traditional hospital foodservice system (31). The main reasons patients were eating less or none of their meal were because they were sleeping, not in their room, their clinical condition or a lack of appetite (31). However, after implementation of room service, 88% of patients consumed more than 50% of their main meal (31). This increase in food intake has important implications for cancer patients with increased nutritional requirements (31).

Room service can also be perceived to be a more personalized service due to its origins in the hotel industry as a luxury service. Patients may be more likely to make personal requests around their food, particularly if they have special dietary requirements if they feel these can be catered for. This personalization has the potential to further enhance the meal service quality for patients and enhance their experience (5,29).

2.2.3 Staff and service issues

The staff and service issues construct assesses patient satisfaction with the personnel who directly provide the service, and the intangible services they provide (1,8).

The interpersonal element discussed earlier in Section 2.1.3, is known to be enhanced in room service through increased interaction (5,10,61). In research that has assessed this construct with room service such as McCray et al., staff ratings were already high prior to room service so no significant difference with room service was observed (10). Interestingly however, staff and service was the highest scoring construct in this study (10). This finding aligns with a key feature of room service as a personalized service, which relies on excellent staff and customer service.
2.2.4 Hunger and satiety

The more recently recognized hunger and satiety construct assesses the degree to which the foodservice fulfills and satisfies patient appetites (8,24). Recent research has identified hunger and satiety as an extra dimension of foodservice that has a significant influence on overall patient foodservice experience, and is well understood by clinical and foodservice Dietitians (8,24). Optimizing food intake and ensuring patients are satiated is crucial for hospital foodservices, as hospital meals are part of medical therapy to avoid the complications from malnutrition and promote recovery (38,62).

Mounting evidence shows room service increases food and nutrient intake, and decreases plate waste when compared to traditional hospital foodservices (5,10,31,60). This may be achieved because room service increases patients access to food, as opposed to limiting it to set meal times. The increase in menu choices discussed in Section 2.2.1, also helps promote food intake by providing more options patients may crave. Ensuring patients are satiated is a key reason why room service has become popular as a hospital foodservice system, as it recognizes that patients’ appetites vary and set meal times and limited menu selections do not always suit (31,36).

This review of room service in light of the four foodservice constructs highlights how patient experience of hospital foodservices including room service stretches far beyond the quality of the food. The service times, staff interactions and menu variety all influence patients’ foodservice experience. There is a mounting body of literature indicating room service enhances overall patient and food quality satisfaction, increases patient food and nutrient intake, and addresses many of the negative issues patients face with a traditional hospital foodservice system (10,31).
2.3 Patient expectations and experience

A key driver for changes to hospital foodservices is to enhance the patient experience (3,10,39). This last section reviews literature on patient experiences and its relationship with patient expectations, with a closer look at how these are applied in evaluating hospital foodservices.

2.3.1 Patient expectations

Patient expectations are currently understood as a patient’s belief of what will occur or be achieved, prior to the use of a hospital service (24,61). The rationale for evaluating patient expectations is rooted in expectations disconfirmation theory from the field of marketing (24,28,30). Disconfirmation theory explains how a consumer’s level of satisfaction with a service is based on whether it met, fell below or exceeded their expectations (24,25,28). In healthcare the theory is used to understand what patients expect of a service to identify gaps or areas of improvement (28,30).

Patient expectations are known to be influenced by prior experience, their image of the service provider and the opinions of others – including ideas represented in mass media and advertisements (24,25). Patients with prior experience of a service have something to compare to, and typically have more realistic expectations (24,25).

Patient expectations can be high or low and categorized into tolerable or intolerable. For example, high satisfaction or exceeded expectations can be caused by low expectations and a tolerable service (24,25). This was seen in Bowling et al. where the researchers measured ideal expectations and realistic expectations of a health clinic service and found there was a gap between them (30). Realistic expectations were lower than what patients ideally would hope to happen (30).
2.3.2 Patient experience

Patient satisfaction was previously the standard quality measure used in monitoring the quality of hospital care and services (17,18). In recent times patient satisfaction is being replaced by patient experience (16–18). Patient satisfaction asks patients opinion in rating the quality of a service (16–18). Whereas patient experience encompasses patient satisfaction and more, as experience is a broader concept which assesses actual events that did and did not occur (16–18). There is a consensus emerging on the use of patient experience as a measure for health services because it captures quality dimensions that are difficult to evaluate objectively (16–18).

Following disconfirmation theory, experience is strongly determined by expectations prior to receiving the service. An individual’s expectations are what they compare their experience to, which determines their rating of quality of the service (24,25,28). Considering patient expectations adds context to patient experience scores but there is a limited amount of research that has done this.

2.3.3 Patient foodservice expectations and experience

Appendix A i. summarizes studies which have examined patients views on aspects of their foodservice experience, collected either prior to receiving the service (to assess expectations) and/or after experiencing the service. Although most studies do not measure experiences explicitly since patient foodservice experience is still a relatively new concept, they do assess aspects of what was experienced. Three related food or patient expectations and experience studies are included in Appendix A ii. for comparison. In studies using disconfirmation theory to explore expectations, expectations are compared to the actual received service and the “gap” between them is deemed to be an indicator of quality. The literature review tables in Appendix A reveal that expectations are not commonly researched alongside experience or satisfaction,
even though expectations are considered to be a strong determining factor. The time when the tool was administered is also noted as some literature suggests this has an influence on experience scores, with inpatient surveys scoring higher than those completed post-discharge (2,17).

2.3.4 Measurement tools

At present, there are no known tools developed solely to measure patient foodservice expectations apart from Lowerson’s 2016 Foodservice Expectations Questionnaire (FEQ) (24). Although Lowerson created the first explicit and validated tool measuring foodservice expectations, foodservice expectations have been explored using similar methods in previous literature (24). A PhD thesis by a leading hospital foodservice researcher reports a study design similar to the FEQ study and collected information from patients prior to their experience of a meal service, with one question asking how satisfied did the patient expect to be with their meal (48). The widely used Acute Care Hospital Foodservice Patient Satisfaction Questionnaire (ACHFPSQ) also has one question that asks patients whether the food met their expectations (1,7,8,23,32,62). Studies using the ACHFPSQ have found that expectations are a strong predictor of patient satisfaction with the foodservice (23,62). Simply asking if meals met expectations however, provides no context for what their expectations were, nor any detail on where improvements could be made.

There is demand for a standardized universal tool to assess patient expectations. Patients today are more educated about their food than they have been in the past, and this is continuing to intensify as public interest in nutrition and cuisine grows (45,50). Foodservices have to keep up with this trend (32,48). New Zealand Health Partnerships recognize that patient expectations are evolving, and hospital foodservices should reflect
this change (63). There is no public documentation however, of how they will investigate patient expectations.

A number of authors have found that patient foodservice expectations are affected by institutional stereotyping (12,13,48,54). Institutional stereotyping is the negative stigma consumers often place on hospital food before they have experienced it, due to how hospital food is represented in mass media (13). Commonly, this results in low expectations for hospital foodservices compared to other commercial foodservices (2,13,20). The carryover effect on patient foodservice experience has not yet been explored.

As noted in Section 2.2 above, patient experience of the foodservice is not solely based on the quality of the food received (1,24,54,62,64). Multiple tangible and intangible factors collectively determine the overall experience. This is why tools used to assess experience are often separated into constructs such as; food quality, meal service quality, staff and service issues and hunger and satiety (1,8,65). Food quality is often the strongest predictor of patient satisfaction, usually followed by staff and service issues (1,8,32,64). However the constructs are interdependent (35). For example food quality is influenced by the other constructs, in room service; quick delivery time (meal service) retains the quality of food, and interpersonal interaction with staff can increase patients’ perception of the food quality (35). One limitation of assessing the foodservice holistically is that issues with specific meal items can be overlooked (56). Hannan-Jones and Capra have addressed this by developing an assessment tool for single meal items, to be used in conjunction with experience surveys (56).

Although patient experience is becoming a widely used measure, no gold standard measurement tool for patient experiences exists (2,18). In hospital foodservice, patient
experience is an emerging field, so quality assessment tools are typically self-administered written questionnaires still measuring patient satisfaction (2,51). As illustrated in Appendix A i., some foodservice studies utilize qualitative methods such as interviewing to collect descriptive information (2). Alternative methods in foodservice experience research also include; meal time observations, focus groups with patients and free text survey comments (2).

Lack of a universal tool is also true for assessing general hospital experience (18). A comprehensive 2015 review found 13 different published patient experience tools of which; nine used quantitative methods such as a survey (of which six were validated) and four used a mix of a qualitative method alongside a quantitative method (18). However, all the tools reviewed only collected information at the “generalizable, less descriptive” level. This is a limitation of quantitative data in experience research, insufficient detailed information is collected to use as the basis for organizational changes, and explains why patient interviews are becoming more popular (17,18). This review also noted that no validated qualitative method exists.

For both patient experience and patient foodservice experience tools, very few are validated as they are often created for single use in research to assess the effect of a change in a service (2,12,18). This lack of consistency in measurement tools makes it hard to compare findings and to assess whether quality improvements have sustained results.

In New Zealand, inpatient experiences are monitored by the Health Quality Safety Commission using a small subset of Picker Institute questions (66). The ratings from this survey are used to identify gaps in service delivery and benchmark District Health Boards (58). However, none of the survey questions are related to hospital foodservice
or patients meal experience (66). Like other countries, inpatient experience surveys often exclude or only include a single item on hospital food (3,22,64). In the United Kingdom, the National Health Service inpatient experience survey only ask for an overall rating of the food and whether there was a choice of food (22). As hospital food is a distinguishing element in the hospital experience and an element of the hospital care provided (as nutrition therapy), the foodservice needs to be more thoroughly assessed in national patient experiences surveys for benchmarking and quality assurance purposes (24,64,67).

### 2.4 Conclusion

This review has demonstrated how differences in hospital foodservice systems have been shown to influence not only the quality of the food but patients overall foodservice experience. The innovation of hospital room service ordering and delivery system especially enhances patient experience and addresses many of the unhelpful issues patients face with a traditional hospital foodservice. Assessing patient experiences is now a well-established form of feedback for quality improvement. Foodservices are an important element of the patient experience but are not sufficiently investigated in general patient experience surveys. The majority of studies examining foodservice experience available to date only address some aspects of foodservice experience as it is still an emerging area of inquiry. In addition, there is a good rationale to consider expectations to add context to experience scores, but this is rarely done in patient or foodservice research. Consequently, patient expectations of room service remain largely unknown, and how this affects patient foodservice experience is yet to be explored.
3 Objective Statement

Hospital foodservices play an important role providing food-based nutrition support to patients. To achieve this requires a complex system comprising of many different linked components, with foodservice systems varying between hospitals. Room service meal ordering and delivery is the latest trend in hospital foodservices, supported by literature indicating a more timely, bespoke system enhances many aspects of the foodservice for patients. Concurrently, another patient-centered innovation is gaining traction; previous tools assessing patient satisfaction with hospital services are being updated to patient experiences. Patient expectations and experience are important measures for quality assurance that can reliably indicate service gaps requiring improvement. Foodservice experience as part of overall hospital experience is an emerging field, further disadvantaged by the foodservice element often not being considered or under examined in general patient experience research. Few studies have assessed any aspect of patient expectations of a foodservice, so what patients expect of room service foodservice is unknown. This research investigates the first known hospital room service in New Zealand, to discover the impact of room service on New Zealand patients’ expectations and experiences.

The aim of this study is to answer the research question: how do New Zealand hospital patient expectations and experiences of food service change with the introduction of a room service meal system? The specific objectives of the study are:

1. To assess patient expectations of a ‘room service’ meal system in a private hospital setting.

2. To assess patient experiences of a ‘room service’ meal system in a private hospital setting.
3. To explore factors influencing the relationship between patients’ food service expectations and experiences in a private hospital setting using a ‘room service’ meal system.

4. To determine the impact on patient foodservice expectations and experiences of a room service system of food service.

The impact of the room service will be determined by comparing results to the findings of a pilot study undertaken at the study hospital in 2016, when a traditional foodservice system was in place.

Patient expectations and experiences of room service will be assessed using the four widely accepted foodservice constructs of food quality, meal service quality, staff and service issues and hunger and satiety; to encompass a holistic view of the foodservice. In addition, other known contributing factors of patient foodservice experience will be explored such as; physical environment, prior hospital experience and clinical conditions. The same methodology carried out in the 2016 study has been followed to allow for comparison of results, using both quantitative and qualitative methods.
4 Subjects and Methods

This section presents the study design, methods, data collection tools and quality assurance processes used in the study.

4.1 Study design

The study is a follow up of a pilot study undertaken at the study hospital in 2016. The 2016 pilot study used a three-phase study design to assess patient expectations and satisfaction with the study hospital’s traditional hospital foodservice system prior to the commissioning of room service. The study design for the current research replicates the design of the pilot study to meet the aim of assessing the impact of room service on patient expectations and experiences. Satisfaction has been updated to experience, which is now accepted to be a broader measure of patient quality perceptions as discussed in Section 2.3.2.

The study hospital is a 41-bed, private hospital located in Dunedin, New Zealand. The hospital mainly provides elective surgery to around seven thousand patients a year, most only requiring an overnight stay and the majority of whom are New Zealand Europeans with an average age of 70 years (43). The foodservice transitioned to a hotel-style room service in February 2018 and became the first hospital room service in New Zealand (41,42). Patients can order their food anytime between 7am and 7pm from an a-la-carte menu, and the meal will be delivered within 45 minutes (41,42).

4.1.1 Data collection phases

As illustrated in Figure 1 below, data was collected in three phases:

Once patients gave consent to participate in the study, participants completed the first questionnaire assessing their expectations of the foodservice. This was completed prior
to their booked admission at the study hospital. Demographic and past hospital experience information was also collected in the first questionnaire.

A subsample of participants who returned their completed expectations questionnaire and consent form before their admission and had the time before their hospital admission were interviewed. Participants were interviewed to explore the reasons for their responses on the expectations questionnaire.

Lastly, all participants who completed the expectations questionnaire filled in the final questionnaire on their experience of study hospital’s room service, on the morning of their discharge day.

![Figure 1. Three phases of data collection](image)

A total of 25 participants were needed to be able to detect a 10% difference in expectations and experience scores between those who had the traditional hospital foodservice system and those who experience room service, with 80% power and 0.05 significance level. To allow for drop out, a goal of 30 participants were sought to complete the two questionnaires, phase 1 and 3 of the study.

To extensively capture as many different themes behind patient expectations, 15-20 participants were sought to participant in the interview and complete all 3 phases of the study. Participants were recruited from patients booked for a minimum of one overnight stay in the main ward of the study hospital during the 3-week data collection period.
Data was collected six months after the implementation of room service when the system was stable. No major changes were made to the room service during data collection to influence participant experience scores.

### 4.1.2 Rationale for study design

The 2016 pilot study proved the methods undertaken were able to capture patient expectations and satisfaction with the foodservice. The current research has similar aims to the pilot, the only difference being to assess the impact of a room service system. Following the same design as the pilot study, using the FEQ and expectations interview allows the results to be compared and the impact of room service on patient expectations and experiences to be determined.

The strengths of mixed-methodology are relevant to this research. The quantitative element accords with majority of foodservice and patient experience research which utilizes self-administered questionnaires, as outlined in Section 2.3.4 of the literature review. The FEQ was also validated in the pilot study with high Cronbach’s alphas for the four foodservice constructs which gives confidence in its ability to measure the desired constructs (24). The qualitative interviews supplement the quantitative methods by gathering information unable to be obtained by the questionnaire, as done in other patient experience research (17,18,21).

By utilizing quantitative and qualitative methods, this research not only explicitly measures and quantifies patient expectations and experiences, but also gives the researcher the flexibility to explore underlying themes that may explain trends in the data. Together these methods address the aims of the research.
4.2 Development of data collection tools

4.2.1 Foodservice Expectations and Experiences Questionnaire

The questionnaire used in the 2016 pilot study underwent minor adaptations to capture experiences whilst enabling comparison of results between the current and 2016 study (24). With the adaptations, the 21-item Foodservice Expectations and Experiences Questionnaire (FEEQ) was produced. Following the 2016 FEQ, the FEEQ is two versions of the same questionnaire, with corresponding word changes to assess patient expectations prior to admission, then their pre-discharge foodservice experience. For example, Question one in the expectations questionnaire “At Mercy Hospital I expect the meals I receive to be high quality” corresponds with Question one in the experience questionnaire “At Mercy Hospital the meals I received were high quality”. Both questionnaires are included in Appendix B. The two matched versions of the questionnaire allow expectations and experiences to be compared and their relationship explored. Responses to questions were obtained using a 5-point Likert-type scale, with the option of free text for additional comments for questions requiring specified answers such as desired menu items or clinical conditions experienced. The use of a Likert-scale is common practice with this type of quality assessment questionnaire as it forces a single response from the participant on the category that best aligns with their view, and collects responses in a categorized manner (1,48,68). Whereas free text responses provide insight into the more contextual factors the tool does not explicitly measure (8,71).

For holistic assessment of patient foodservice experience, the questionnaire questions are based on four established foodservice constructs; food quality, meal service quality, staff and service issues and hunger and satiety (1,8). Physical environment, another recognized influencing factor of foodservice experience was also included (1). A table
detailing the questions exploring each foodservice construct is included in Appendix B.

Four questions were added when developing the FEEQ. A question on presentation of meals was included as with institutional food the presentation influences people’s perception of food quality, hence this question was included under the food quality construct (2,35). The ACHFPSQ the FEQ was based on had one question on presentation of the crockery and cutlery and the overall meal tray as part of the meal service construct (1). However, these items do not specifically assess the presentation of the actual food, so this has been specified in the FEEQ.

A question on timing was included to specifically explore the timing of meals, as this is one of the main distinguishing elements of the room service delivery model. Timing is included as a measure of meal service quality, as the design of the service determines when the meals are served to the patient.

Following Neighbours and Mclachlan’s studies in 2017, a question to assess the influence of patient’s clinical symptoms on their foodservice experience was added (52,70). This 2017 work suggests clinical condition may be an important and to date overlooked explanatory variable for hospital foodservice experience.

Lowerson’s FEQ question on previous hospital stays underwent minor modifications to capture previous foodservice experience specifically at the study hospital prior to room service being implemented. This question aimed to evaluate whether prior experience of the study hospital foodservice influenced expectations and experiences of the new room service system.

In addition to gathering data on specific issues, these four questions sought to enhance the discriminatory power of the FEEQ by canvassing more potentially explanatory factors. As the results from the 2016 pilot study showed very high expectations and satisfaction levels with the previous foodservice system, it was anticipated it may be
difficult to distinguish a significant difference in expectation or experiences with room service.

Other adaptations to the FEQ included redesigning the questionnaire formatting to make it more visually appealing. A fillable electronic copy of the expectations questionnaire was created for participants to complete electronically (Appendix B).

The additional and revised questions underwent expert review from study supervisors and qualitative pretesting for content and face validity (71,72). A condensed version of the expectations and experience questionnaire including all added and revised questions was created. A sample of n=16 people known through connections of the researcher completed both questionnaires and were asked to make comments on clarity and readability. Pretesting participants met the study participant inclusion criteria, and individuals who fit the typical participant profile (New Zealand European, over 50 years old) from the prior study were included to represent likely participants (24). A subsample of the pretesting participants (n=7) were cognitively interviewed by the researcher for face and content validity (72). The cognitive interviews involved the researcher asking the participants to individually complete the questionnaire and express their thinking and understanding of the questions out loud. These interviews assessed the questionnaire’s face value and if respondents understood the objective measures (72). This process informed minor improvements to the questionnaire for clarity and specificity. Appendix B v. outlines the changes made as a result of the pretesting.

### 4.2.2 Interview schedule

A set of fourteen questions to guide the expectations interview was compiled. The interviews were conducted to explore the reasons for participant responses to selected questions on the expectation’s questionnaire. Nine questions from the pilot study interview schedule were carried over and new questions were introduced to specifically
explore the influence of room service on expectations and responses to the new questionnaire questions. The interview questions explored expectations related to a combination of tangible and intangible foodservice factors for each of the foodservice constructs. New and revised interview questions were also tested for content and face validity through expert review by study supervisors and cognitive interviewing alongside the pretesting of the questionnaire. Changes following pre-testing are included in Appendix B.

The complete interview schedule is included in Appendix B iv. along with justifications for the inclusion of each question.

4.3 Data collection

4.3.1 Ethical consideration

According to Ministry of Health criteria, the study is classified as minimal risk health research (73). Ethical approval was obtained from the University of Otago Human Ethics Committee (Health) and the study hospital Ethics Committee prior to recruitment commencing (74). Maori consultation was also undertaken with the University of Otago Ngāi Tahu Research Consultation Committee. Eligible patients were informed of the purpose of the study, their rights, what information was required for the research and the need to sign a consent form to participate in the study. Participant Study Information is available in Appendix C. As data was being collected from hospital patients, it was made clear that there was no disadvantage or impact on care at the study hospital for those who decided not to participate. See Appendix C for University of Otago and Mercy Hospital ethics applications and approvals and Ngāi Tahu consultation.

Only the researcher was aware of patient identities and participants were assigned a unique identifier code upon commencing the study. To protect patient confidentiality, only unique identifiers were used on data collection records and all subsequent analyses.
Only basic demographic information was sought i.e. self-reported age range, gender, ethnicity, length of current and last hospital stay and used solely for the research.

4.3.2 Recruitment

The participant inclusion criteria were; adults, 18 years of age and above, English speaking, with a booked admission to the study hospital for a minimum of one overnight stay during the three-week data collection period August 6th to August 24th, 2018.

Initially, 20 patients each week who fulfilled the inclusion criteria were randomly selected for invitation to participate in the study. A study hospital preadmission administrator randomly selected patients across each week from the patient management software TrakCare. The randomization process for choosing participants was the first five eligible patients lodged for admission in TrakCare each day for four days a week, over the three weeks. The researcher was given contact information five to seven days before each patient’s admission and contacted patients by phone to provide information about the study. A $20 supermarket voucher was offered for completion of the study. If an individual agreed to participate, the first questionnaire was sent to them electronically via email or a paper copy via post, together with the consent form and study information (Appendix C). Those who declined to participate were not contacted again.

To compare the expectations and experience results with the results of the 2016 study, the study statistician advised matching study participant demographics as closely as possible. This did not hinder initial random selection of patients as the 2016 study participant demographics represented the typical patient profile of the study hospital (24,43). A matching goal of similar age and sex demographics was decided. Ethnicity and previous hospital experience were not included in the matching goal due to ethical
consideration and previous hospital experience information unable to be obtained prior to recruitment. Throughout data collection, the demographics of the study participants recruited to date were reviewed and compared to the pilot study participant demographics. During the last week of data collection, males and patients over the age of 75 who met the inclusion criteria were specifically selected to be invited into the study, to reach the matching goal.

Many of the randomly selected patients were unable to be contacted to be recruited, and there were low returns of questionnaires. To counter this, over the last two weeks of data collection an additional 32 patients who fit the inclusion criteria were randomly selected to be invited to participate in the study.

4.3.3 Data Collection by Phase

4.3.3.1 Expectations Questionnaire

A fillable electronic copy of the first questionnaire was emailed immediately to patients who agreed to participate during the phone call inviting them into the study. Emailed with the questionnaire was the study information and an electronic consent form for participants to sign and return. A secure study hospital email address assigned to the researcher was used solely for email correspondence with participants. For participants who were unable to receive the questionnaire via email, paper copies of the questionnaire were sent by post. A small number of participants chose to pick up a hard copy of the questionnaire from reception during their next pre-admission appointment at the study hospital. A majority of participants returned their completed expectations questionnaire and consent form via email, while the remainder returned them via post or at the study hospital’s reception prior to their admission. Participants were informed the questionnaire should take no longer than 15 minutes to complete. Due to the timing of when booked admission details became available, the researcher had a short timeframe
(5-7 days) to recruit the participants before their admission. Participants were encouraged to return the completed questionnaire at their earliest convenience and given at least three full working days to return it prior to their admission.

4.3.3.2 Expectations Interview

Due to the short timeframe, all participants who returned their expectations questionnaire at least one day before their booked admission were invited to take part in the voluntary expectations interview. When possible, a time was organized between the researcher and the interviewee for the 15-20-minute interview. The researcher assessed the participant’s expectations questionnaire responses to determine which questions from the interview schedule to ask and included reference to their questionnaire responses in the interview. The researcher telephoned participants from a landline phone at the study hospital.

Verbal consent to participate and record the interview was obtained at the start of each interview and participants were reminded they did not have to answer any question they wished not to. Interviews were audio recorded using the ‘myPortal’ application, desktop version 6.2.260X (Unify Software and Solutions GmbH & Co. KG), a program connected to the study hospital phone system. Recordings were made for selective transcribing and subsequent analysis. One interview recording was lost due to a technical issue.

To adequately explore expectations of the foodservice while keeping interviews to fifteen to twenty minutes to prevent respondent fatigue, five to six questions from the full interview schedule were chosen prior to each interview. Interview questions were chosen intentionally from the schedule, based on the participant’s questionnaire responses, if they had a polarized response to the corresponding question or an unusual response to the rest of the participants. The aim was to choose one question from each of the four foodservice constructs. Although, in seven of the sixteen interviews, more
than one food quality construct questions was asked. A majority of the interview questions favored the food quality construct as it encompasses menu variety – a key area of interest as an enhanced element of the room service, as discussed in Section 2.2.1. An extra question was included in each interview to explore other related factors that do not fit into the existing foodservice constructs such as; the expected effect of participants clinical condition on their foodservice experience and their past hospital foodservice experiences. The last question was an open question to uncover any other issues that may not have been explored. To ensure all interview questions were asked and, in an attempt to cover the foodservice constructs as evenly as possible, a Microsoft Excel table was used to tally the question asked by construct across the interviews (Appendix D).

All interviews followed a semi-informal, open-ended questions approach that asked follow on questions during the interview to clarify and further explore participants interview responses (75). The researcher followed established strategies to maintain interviewer control as done in the 2016 pilot, which included directing the interview focus to the research aims and using micro counselling techniques from dietetic training to prevent introduction of biases (24,75).

4.3.3.3 Experience questionnaire

Each morning throughout the data collection period, the researcher checked the ward communication board for study participants’ discharge date and time. The study hospital generally discharged patients by 11am if being discharged that day. Participants who were being discharged were given a paper copy of the experience questionnaire to complete during the morning of their discharge. The researcher allowed twenty minutes for participants to complete the questionnaire. The researcher left participants to complete questionnaires on their own. Some participants were unable to complete their
questionnaire due to their hand dexterity being affected by surgery and were assisted to complete their questionnaire by family members or the researcher. The researcher remained neutral to participant’s responses when assisting them. After collection of the questionnaire by the researcher, participants were given a $20 supermarket voucher provided by the University of Otago to thank them for their participation in the study. Due to the researcher being unable to collect questionnaires on weekend days, participants who had a scheduled weekend discharge were given their expectations questionnaire to complete at the latest time possible, on the Friday evening prior to their Saturday morning discharge and collected by the researcher or the study hospital Dietitian the same evening.

4.3.4 Revisions

One question was added to the experience questionnaire during the first week of data collection period. Question 23 on duration of the participants stay (based on number of nights) was included to assess whether the length of stay influenced foodservice experience. Length of stays were calculated from date of admission and when the experience questionnaire was completed for participants who filled out the FEEQ prior to the revision.

4.4 Analysis

4.4.1 Scoring of the Questionnaires

Questionnaire responses were entered in to a Microsoft Excel 2016 sheet for analysis. Likert Scale responses, including reverse and alternate Likert Scales were coded in a consecutive manner i.e. Never = 1, Always = 5. Missing responses were noted as 0.
4.4.2 Quantitative analysis

Descriptive statistics (mean, standard deviations, percentages) for each question on each questionnaire and demographic profiles were calculated by the researcher within the Microsoft Excel spreadsheet. All other statistical analysis was undertaken using Stata 15.1 (StataCorp, College Station, Texas).

4.4.2.1 Subscale investigation

Quantitative foodservice expectations and experiences were represented in subscales of the four foodservice constructs. Cronbach’s alpha correlation coefficient was calculated for each subscale to derive a score for internal reliability of measuring the relevant construct (a value of >0.7 indicates internal reliability). Question 20 related to ‘bringing food from home’ responses was on a reverse Likert scale and was consequently reverse scored. Question 13 responses on ‘meal time routine’ uses an alternate Likert-scale and therefore was not included in the subscale analysis. Mean differences between expectation and experience were estimated by paired t-tests and 95% confidence intervals reported. Spearman correlations were also calculated.

Three inconsistencies identified in the 2016 study subscale analysis have been corrected in the present study. Firstly, the question regarding “healthy menu items” was included in the meal service construct in the preceding study, when according to Capra et al it belongs in the food quality construct, as it relates to menu variety (1,24). Secondly, the question regarding meal distractions was included in staff and service issues, where following Capra et al it is a separate question regarding the physical environment that should have been analyzed separately (1,24). Third, it was not stated whether the question “bring food from home” was reverse scored as it is on a reverse Likert-scale (24). While compromising on the comparability of results of the two studies, it was
decided it was more important to correct these in this study’s subscale analysis for accurate measurement of the affected foodservice aspects.

To assess whether sex or age was related to expectation or experience, linear regression models were used with both predictors in the same model. Differences in experience by length of stay (one night compared to more than one night) were estimated using unpaired t-tests. Differences in expectations and experience by whether the participant had past experience at the study hospital before were also estimated using unpaired t-tests.

To assess the impact of room service from the traditional hospital foodservice, mean construct expectations and experience scores for the two systems were compared and the differences calculated.

### 4.4.3 Qualitative interview analysis

The qualitative analysis of interview transcripts employed thematic analysis based on grounded theory, following Thomas’s general inductive approach (76). Thematic analysis is a qualitative analytic method that identifies, analyses and reports patterns and themes within data (77). Analysis based on grounded theory aims to produce credible and functional theory that links and represents the ideas present in the data. To identify changes in expectations following the introduction of room service the same analytical approach as Lowerson’s 2016 study was used (24). Following Thomas’s general inductive approach discoveries stem directly from the data. However, Thomas’ approach also has deductive elements as it assumes the coding of the data is driven by research objectives (76). The deductive component is important for the current research to narrow the focus of analysis to explanatory factors for expectations of the study.
hospital foodservice. The use of the key steps of Thomas’s general inductive approach is outlined below:

Raw data files

All interviews were selectively transcribed using Express Transcribe Software version 7.03 to Microsoft OneNote 2016 documents to create raw data files for analysis. The researcher transcribed all recorded speech only excluding redundant affirmative answers (e.g. repetitive yeses) and information blatantly not relevant to the study i.e. not relating to reasons for a participant’s response. This detailed approach to transcribing allowed for identification of all possible themes.

Identification of themes

All interview transcripts underwent extensive and iterative examination to identify explanatory themes for foodservice expectations. The researcher initially identified potential themes from six interviews chosen from different time points across the data collection period. The study supervisors then examined the same transcripts to independently identify review and refine these initial themes. After the parallel analysis of these six transcripts, overlapping themes emerged which formed the initial categories. Draft category definitions were discussed at length with the study supervisors. A clear definition, inclusion and exclusion criteria was created for each category to direct assigning of themes to categories. Analysis of remaining transcripts resulted in assigning themes to an existing category or a developing a new category. The category definitions were linked to the research objectives to ensure the findings were relevant to the research aims.

Coding and Strength of themes

Identified text from interview transcripts was coded to one or more categories. A
frequency table was generated to quantify the number of times a theme was identified across interview transcripts (Appendix D iii.). This allowed identification of relative strength of categories to be determined based on tallies for contributing themes.

Overlapping coding and uncoded text

Text irrelevant to the study aims was excluded from analysis and left un-coded in raw data files. Ideas in the text that applied to more than one category were coded into each applicable category.

Ongoing revision and refinement of categories

Once all interview data was identified and coded, the identified categories were further refined by ranking them super ordinately and comprehensively analyzing again for new insights, subtopics and identifying any opposing views. Quotes that strongly conveyed the essence of a category were chosen to represent it. Categories were aggregated where there was similarity or overarching themes.

Final categories were formed when no further reduction to the categories for conciseness was possible. These remaining categories emerged as the major explanatory themes for patient’s foodservice expectations at the study hospital. A mind map to illustrate emerging themes and connected categories was created.

4.5 Quality considerations

The researcher is trained in interviewing techniques from their dietetic training and made a conscious effort to remain unbiased during the interviews. Effort was taken not to influence participant’s expectations by refraining from providing additional information about the room service above the information participants were given in their preadmission and study information packs. Participants were directed to the study hospital’s website for more information on the room service when they requested it.
To ensure consistency of themes and categories produced from qualitative analysis, the research supervisors independently coded one third of the transcripts. This ensured robust identification of themes and identified possible new insights. Thomas’s approach assumes different researchers will have different interpretations to the same data due to the deductive component, as the findings are shaped by the researcher’s ideas (76). This quality assurance process by the supervisors sought to minimize any researcher bias in data identification and coding. An expert review was also undertaken by the research supervisors on the final categories to ensure comprehensiveness of the explanatory factors.
5 Results

This section reports study participant response rates, quantitative results from the FEEQ and the qualitative findings from the expectations interview. Comparison to the 2016 study findings is also reported in this section.

5.1 Response rate

A total of 38 participants completed both expectations and experiences questionnaires, completing phases one and three of the three phase study. A sub set of n=16 participants completed the expectations interview, thereby completing all three phases. The goal number of 30 participants to reach statistical power was achieved. Figure 2. Study participants by stage below illustrates the number of individuals involved at each stage, from recruitment to data collection.

One participant was lost to follow up due to postal delays; they did not complete the experience questionnaire as their expectations questionnaire was only received by post after their discharge from the study hospital.

Figure 2. Study participants by stage

Participant Selection
Patients who met study inclusion criteria
n=92

Unable to contact
n=28

Recruitment
Patients invited to participate in the study.
n=64

Expectations Questionnaire and Study information sent to agreeing patients
n=57

Phase 1: Expectations Questionnaire and consent form completed and returned.
n=39

Phase 2: Expectations interview prior to admission
n=16

Lost to follow up
n=1

Phase 3: Experience Questionnaire completed. n=38

Figure 2. Study participants by stage
5.2 Study participant characteristics

The characteristics of study participants are shown in Table 1 below. Study participant characteristics largely reflect the typical patient profile for the study hospital (43). All but one participant had prior hospital experience before their upcoming admission. However, for 62% of participants their last hospital admission was five or more years ago. Thirty-nine percent of participants had experienced the foodservice at the study hospital prior to room service being implemented. No participant had experienced the room service at the study hospital before nor had participated in the 2016 study.

5.2.1 Matching goal

As justified in Section 4.3.2, recruitment aimed to match the age and sex profile of participants in the current study with the profile of those who participated in the traditional hospital foodservice system study. While not matched exactly, the current study population broadly matches that of the 2016 study. Notably, the proportion of participants by age group is very similar. During recruitment the number of males selected to be invited to be part of the study was increased to reach the matching goal, however not all completed and returned their questionnaire. This resulted in slightly more female participants in the current study than in the 2016 study.
Table 1. Participant characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Study participants (%)</th>
<th>Matching Goal *</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (years)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-34</td>
<td>2 (5%)</td>
<td>7%</td>
</tr>
<tr>
<td>35-54</td>
<td>11 (28%)</td>
<td>21%</td>
</tr>
<tr>
<td>55-74</td>
<td>22 (56%)</td>
<td>58%</td>
</tr>
<tr>
<td>&gt;75</td>
<td>4 (10%)</td>
<td>14%</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>18 (46%)</td>
<td>54%</td>
</tr>
<tr>
<td>Female</td>
<td>21 (54%)</td>
<td>44%</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
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<td></td>
</tr>
<tr>
<td>New Zealand European</td>
<td>37 (95%)</td>
<td></td>
</tr>
<tr>
<td>New Zealand European/Maori</td>
<td>2 (5%)</td>
<td></td>
</tr>
<tr>
<td><strong>Previous hospital experience</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>38 (97%)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>1 (3%)</td>
<td></td>
</tr>
<tr>
<td><strong>Previous experience at study hospital</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>prior to room service being implemented</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>15 (39%)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>23 (59%)</td>
<td></td>
</tr>
<tr>
<td><strong>Most recent overnight stay at a hospital</strong></td>
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</tr>
<tr>
<td>Study Hospital</td>
<td>13 (33%)</td>
<td></td>
</tr>
<tr>
<td>Local Public</td>
<td>11 (28%)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>14 (36%)</td>
<td></td>
</tr>
<tr>
<td><strong>Time since last admission (years)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-1</td>
<td>5 (13%)</td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td>3 (8%)</td>
<td></td>
</tr>
<tr>
<td>2-3</td>
<td>4 (10%)</td>
<td></td>
</tr>
<tr>
<td>3-4</td>
<td>2 (5%)</td>
<td></td>
</tr>
<tr>
<td>5+</td>
<td>24 (62%)</td>
<td></td>
</tr>
<tr>
<td><strong>Length of admission during study</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(nights)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>20 (53%)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>7 (18%)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>4 (11%)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>5 (13%)</td>
<td></td>
</tr>
<tr>
<td>5+</td>
<td>2 (5%)</td>
<td></td>
</tr>
</tbody>
</table>

* participant characteristics in 2016 study.
5.3 Questionnaire results

The following section presents the results of the expectations and experience questionnaires.

5.3.1 Descriptive statistics

Figure 3 shows mean scores for expectations and experiences by question, which were overall high for both questionnaires. Some of the variations seen in the graph may be explained by the use of reverse and alternate order Likert scale responses for Questions 12, 13, 17, 20 and 21.

Patient expectation scores for room service were high, with 91% of responses being ‘mostly’ or ‘always’ across all construct-related questions in both the expectations and experience questionnaire. Percentages of responses to construct questions are given in Appendix D ii. The median values and interquartile ranges shown in Table 3 reinforce participants’ high expectations of and experiences with room service. In each of these reports, comparing experience scores with expectation scores indicates where experiences did or did not exceed expectations. These comparisons suggest the strengths of the foodservice as well as where there may be gaps in the service. For example, for questions six to eight assessing temperature of meals and drinks, experience scores were below expectations scores. This result was affirmed by four participants commenting on the food and drinks not being hot/cold enough in the free text section of the experience questionnaire. For example, Participant 909’s wrote: “Coffee was served with warm water (cooled from kitchen to ward). Yoghurt was not cold.”.
Numerical figures represent Likert Scale responses 1-Never to 5- Always. With the exception of Q12, 13 and 21 which had different Likert-scale responses. * Question 4 and Question 21 had an option for N/A and Unsure, respectively, these options were removed from the mean Likert-scale analysis.
### 5.3.2 Subscale analysis

Table 2. Subscale analysis by foodservice construct

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Mean (SD) expectation</th>
<th>Mean (SD) experience</th>
<th>Mean difference (95% CI)</th>
<th>p-value</th>
<th>Spearman’s correlation coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food quality</td>
<td>4.3 (0.5)</td>
<td>4.7 (0.4)</td>
<td><strong>0.4 (0.2, 0.6)</strong></td>
<td><strong>0.001</strong>*</td>
<td>0.09</td>
</tr>
<tr>
<td>Meal service</td>
<td>4.3 (0.6)</td>
<td>4.3 (0.6)</td>
<td>0.0 (-0.2, 0.2)</td>
<td>0.828</td>
<td>0.21</td>
</tr>
<tr>
<td>Staff and service</td>
<td>4.8 (0.4)</td>
<td>4.9 (0.2)</td>
<td>0.1 (-0.04, 0.3)</td>
<td>0.146</td>
<td>-0.35</td>
</tr>
<tr>
<td>Hunger and satiety</td>
<td>4.2 (0.4)</td>
<td>4.6 (0.6)</td>
<td><strong>0.4 (0.1, 0.6)</strong></td>
<td><strong>0.003</strong>*</td>
<td>-0.00</td>
</tr>
</tbody>
</table>

* p-value <0.05 indicates a statistically significant difference

The difference between expectation and experience scores for food quality and hunger, and satiety were statistically significant, suggesting participants were more satiated than they expected to be, and the quality of the food and menu variety also exceeded expectations. This significant difference in scores is also reflected in the increase in median and interquartile range values for the questions under these constructs (Table 3).

Overall, the meal service quality construct showed no significant change between mean expectation scores and experience scores (Table 2), despite the questions in this construct producing a range of expectation and experience scores. For experience questions six to eight regarding temperature of meals, the interquartile range values were lower than the expectation interquartile range values (Table 3). However, Question 12 regarding the timing of meals produced a higher experience score than expectation score which may have offset the lower temperature scores, resulting in no overall change for the construct. The higher experience score in Question 12 score also suggests patients valued the flexible timing of meals more than expected.
5.3.3 Correlation between Expectations and Experience

In Table 2. Subscale analysis by foodservice construct, the correlation coefficient scores between expectations and experience are given for all constructs, with weak linear relationships apparent between expectations and experiences. The strongest correlation was for the staff and service issues construct, at -0.35, which suggests a very weak negative relationship exists between expectations and experiences for staff and service issues.

Table 3. Key statistics analysis by construct and question

<table>
<thead>
<tr>
<th>Foodservice Construct</th>
<th>Expectations Questionnaire (n=39)</th>
<th>Experiences Questionnaire (n=38)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Median score (25th, 75th percentiles)</td>
<td>Median score (25th, 75th percentiles)</td>
</tr>
<tr>
<td><strong>Food quality</strong></td>
<td>Cronbach’s α=0.91</td>
<td>Cronbach’s α=0.79</td>
</tr>
<tr>
<td>Q1 Meal Quality</td>
<td>5 (4, 5)</td>
<td>5 (4, 5)</td>
</tr>
<tr>
<td>Q2 Taste of Meals</td>
<td>4 (4,5)</td>
<td>5 (4,5)</td>
</tr>
<tr>
<td>Q3 Flavours</td>
<td>4 (4,5)</td>
<td>4.5 (4,5)</td>
</tr>
<tr>
<td>Q4 Vegetables</td>
<td>4 (4,5)</td>
<td>5 (4,5)^</td>
</tr>
<tr>
<td>Q5 Presentation</td>
<td>4 (4,5)</td>
<td>5 (4,5)</td>
</tr>
<tr>
<td>Q9 Menu variety</td>
<td>4 (3,5)</td>
<td>5 (5,5)</td>
</tr>
<tr>
<td>Q10 Healthy options</td>
<td>5 (4,5)</td>
<td>5 (5,5)</td>
</tr>
<tr>
<td><strong>Meal service quality</strong></td>
<td>Cronbach’s α=0.64</td>
<td>Cronbach’s α=0.56</td>
</tr>
<tr>
<td>Q6 Cold Foods</td>
<td>5 (5,5)</td>
<td>5 (5,5)</td>
</tr>
<tr>
<td>Q7 Hot Foods</td>
<td>5 (5,5)</td>
<td>5 (4,5)</td>
</tr>
<tr>
<td>Q8 Hot drinks</td>
<td>5 (5,5)</td>
<td>4 (4,5)</td>
</tr>
<tr>
<td>Q12 Timing of meals</td>
<td>3 (2,4)</td>
<td>4 (3,4)</td>
</tr>
<tr>
<td><strong>Staff and service issues</strong></td>
<td>Cronbach’s α=0.77</td>
<td>Cronbach’s α=0.30</td>
</tr>
<tr>
<td>Q14 Helpful Staff</td>
<td>5 (4,5)</td>
<td>5 (5,5)</td>
</tr>
<tr>
<td>Q15 Clean/Tidy Staff</td>
<td>5 (5,5)</td>
<td>5 (5,5)</td>
</tr>
<tr>
<td>Q16 Friendly/Polite Staff</td>
<td>5 (5,5)</td>
<td>5 (5,5)</td>
</tr>
<tr>
<td><strong>Hunger and satiety</strong></td>
<td>Cronbach’s α=0.32</td>
<td>Cronbach’s α=0.32</td>
</tr>
<tr>
<td>Q18 Full after meals</td>
<td>4 (4,4)</td>
<td>5 (4,5)</td>
</tr>
<tr>
<td>Q19 Receive enough food</td>
<td>4 (4,5)</td>
<td>5 (5,5)</td>
</tr>
<tr>
<td>Q20 Bring food from home*</td>
<td>1 (1,2)</td>
<td>1 (1,1)</td>
</tr>
<tr>
<td><strong>Questions analyzed separately:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q17 Physical Environment</td>
<td>2 (2,3)</td>
<td>1 (1,1)</td>
</tr>
<tr>
<td>Q21 Clinical Condition^</td>
<td>4 (3,4)</td>
<td>2 (1,3)</td>
</tr>
</tbody>
</table>

* Reverse scored when included in subscale. Q13 on meal time routine removed due to alternate order Likert scale. ^ “Not Applicable” and “Unsure” responses were excluded from analysis.
5.3.4 Internal Reliability

Cronbach’s alpha measured the internal consistency of questions within a construct, with a score of >0.7 indicating internal reliability. Despite having the same questions as the pilot study (apart from added questions five and twelve) which generated adequate Cronbach’s alphas, in the current study, only questions in the food quality and expectations staff and service issues constructs achieved internal reliability. The correction for inconsistencies identified in the 2016 subscale analysis (discussed in Section 4.4.2.1) would have influenced this, suggesting the 2016 Cronbach’s alphas may not be a true indication of internal reliability.

The influence of clinical conditions (Question 21) on patient’s ability to consume and enjoy hospital meals scored lower in experience than expectations, implying it affected participants to a lower degree than they expected.

5.3.5 Prior Experience at Study Hospital

Table 4. Influence of prior experience on expectations and experience

<table>
<thead>
<tr>
<th>Subscale</th>
<th>No prior experience at Study Hospital Mean (SD)</th>
<th>Prior Study Hospital experience Mean (SD)</th>
<th>Mean difference (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expectations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food quality</td>
<td>4.1 (0.6)</td>
<td>4.6 (0.4)</td>
<td>0.4 (0.04, 0.8)</td>
<td>0.031*</td>
</tr>
<tr>
<td>Meal service</td>
<td>4.3 (0.6)</td>
<td>4.5 (0.4)</td>
<td>0.2 (-0.1, 0.6)</td>
<td>0.240</td>
</tr>
<tr>
<td>Staff and service</td>
<td>4.7 (0.4)</td>
<td>4.9 (0.3)</td>
<td>0.1 (-0.1, 0.4)</td>
<td>0.312</td>
</tr>
<tr>
<td>Hunger and satiety</td>
<td>4.1 (0.4)</td>
<td>4.4 (0.3)</td>
<td>0.3 (0.1, 0.6)</td>
<td>0.010*</td>
</tr>
<tr>
<td><strong>Experiences</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food quality</td>
<td>4.7 (0.3)</td>
<td>4.6 (0.4)</td>
<td>-0.2 (-0.4, 0.1)</td>
<td>0.190</td>
</tr>
<tr>
<td>Meal service</td>
<td>4.3 (0.4)</td>
<td>4.2 (0.8)</td>
<td>-0.1 (-0.5, 0.3)</td>
<td>0.512</td>
</tr>
<tr>
<td>Staff and service</td>
<td>4.9 (0.2)</td>
<td>4.9 (0.2)</td>
<td>0.0 (-0.2, 0.1)</td>
<td>0.625</td>
</tr>
<tr>
<td>Hunger and satiety</td>
<td>4.5 (0.7)</td>
<td>4.7 (0.4)</td>
<td>0.1 (-0.3, 0.6)</td>
<td>0.566</td>
</tr>
</tbody>
</table>

*p-value <0.05 indicates statistical significance.

Prior experience at the study hospital resulted in slightly higher mean expectation scores across all constructs, the difference was statistically significant for the food quality and hunger and satiety constructs. However, differences between the two groups were
negligible all constructs for mean experience scores across. A slightly greater difference between experience and expectation scores was measured for participants who had not experienced foodservice at the study hospital and, those who had. This suggests room service had a larger impact on experience scores for those who had no prior experience of the study hospital foodservice.

5.3.6 Length of stay and Experience Scores

There were no significantly significant differences in mean scores for experience between participants who had stayed one night and those who had stayed more than one night (Table 5). Spearman’s correlation coefficient scores indicated weak positive linear relationships (<0.30) between length of stay and experiences, except for the hunger and satiety construct where experience scores slightly decreased resulting in a negative linear relationship.

Table 5. Length of stay and experience scores by construct

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Mean (SD) length of stay=1 night (n=20)</th>
<th>Mean (SD) length of stay &gt;1 night (n=18)</th>
<th>Mean difference (95% CI)</th>
<th>p-value</th>
<th>Spearman’s correlation coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food quality</td>
<td>4.6 (0.4)</td>
<td>4.7 (0.3)</td>
<td>0.1 (-0.1, 0.4)</td>
<td>0.293</td>
<td>0.12</td>
</tr>
<tr>
<td>Meal service</td>
<td>4.2 (0.6)</td>
<td>4.4 (0.5)</td>
<td>0.1 (-0.2, 0.5)</td>
<td>0.482</td>
<td>0.11</td>
</tr>
<tr>
<td>Staff and service</td>
<td>4.8 (0.3)</td>
<td>4.9 (0.1)</td>
<td>0.1 (-0.02, 0.2)</td>
<td>0.103</td>
<td>0.23</td>
</tr>
<tr>
<td>Hunger and satiety</td>
<td>4.7 (0.6)</td>
<td>4.5 (0.7)</td>
<td>-0.2 (-0.6, 0.2)</td>
<td>0.286</td>
<td>-0.11</td>
</tr>
</tbody>
</table>

5.3.7 Expectations and Experiences between age and gender groups

Table 6 below shows a comparison of mean expectation and experience scores by construct to explore differences between gender and age groups. The 95% confidence intervals indicate there were no significant differences between expectations or experience scores between genders and those under 65 years. However, participants over 65 years of age had statistically significant higher expectations for food quality and hunger and satiety than those under 55 years of age. Although these higher expectations did not carry over in differences between experience scores.
Table 6. Mean expectations and experience score differences by gender and age group.

<table>
<thead>
<tr>
<th></th>
<th>Mean difference (95% CI)</th>
<th>Sex (male compared to female)</th>
<th>Age (compared to &lt;55yrs)</th>
<th>65yrs or older</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expectations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food quality</td>
<td>-0.2 (-0.5, 0.2)</td>
<td>0.3 (-0.2, 0.8)</td>
<td><strong>0.5 (0.1, 0.9)</strong>*</td>
<td></td>
</tr>
<tr>
<td>Meal service</td>
<td>-0.1 (-0.4, 0.2)</td>
<td>0.1 (-0.4, 0.5)</td>
<td>0.2 (-0.2, 0.6)</td>
<td></td>
</tr>
<tr>
<td>Staff and service</td>
<td>-0.1 (-0.3, 0.1)</td>
<td>0.1 (-0.2, 0.4)</td>
<td>0.2 (-0.1, 0.5)</td>
<td></td>
</tr>
<tr>
<td>Hunger and satiety</td>
<td>-0.1 (-0.4, 0.1)</td>
<td>0.1 (-0.2, 0.4)</td>
<td><strong>0.4 (0.1, 0.7)</strong>*</td>
<td></td>
</tr>
<tr>
<td><strong>Experiences</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food quality</td>
<td>0.0 (-0.3, 0.2)</td>
<td>-0.2 (-0.5, 0.2)</td>
<td>-0.1 (-0.4, 0.1)</td>
<td></td>
</tr>
<tr>
<td>Meal service</td>
<td>0.0 (-0.3, 0.4)</td>
<td>-0.1 (-0.6, 0.4)</td>
<td>-0.2 (-0.6, 0.2)</td>
<td></td>
</tr>
<tr>
<td>Staff and service</td>
<td>0.0 (-0.1, 0.2)</td>
<td>0.0 (-0.2, 0.2)</td>
<td>0.0 (-0.2, 0.1)</td>
<td></td>
</tr>
<tr>
<td>Hunger and satiety</td>
<td>-0.3 (-0.7, 0.1)</td>
<td>-0.1 (-0.6, 0.5)</td>
<td>0.0 (-0.5, 0.4)</td>
<td></td>
</tr>
</tbody>
</table>

*Statistically significant with a 95% confidence interval

5.3.8 Free text Responses

Twenty-four people added an additional comment to their experience questionnaire in the free-text comment section, of which fourteen were positive towards their room service experience. Typical comments included:

“Amazing menu. Whatever I ordered I got. Person on the phone was friendly and helpful. My arm was in a sling, but the foodservice assistant helped me open my juice, spread butter on my toast and put yoghurt in my fruit salad.” - Participant 174

“Being able to have food delivered as required. As I was on limited solids for a large part of my stay this made meal times easier” - Participant 355

Ten responses identified areas for improvement. Four commented negatively about the temperature of their drinks and meals. The others made specific comments about some meal items or the ordering process. For example; “roast chicken was extra dry and mushroom sauce had no mushroom taste” – Participant 012 and “Having to order spreads and condiments separately e.g. toast with butter and topping. I forgot the butter
or marg a couple of times. People preparing meals could use discretion and call person to ask if they missed that.”- Participant 337.

5.3.9 Clinical Condition

Sixty percent of participants reported experiencing a clinical condition that affected their ability to consume and enjoy hospital meals. Thirty-two percent of study participants experienced reduced appetite. Other clinical conditions participants stated included eating with only one mobile arm and fatigue from anesthetic.

Table 7. Experienced clinical conditions reported by participants

<table>
<thead>
<tr>
<th>Clinical Condition</th>
<th>No. Participants</th>
<th>% of Total Study Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced Appetite</td>
<td>12</td>
<td>32%</td>
</tr>
<tr>
<td>Difficulty Swallowing</td>
<td>8</td>
<td>21%</td>
</tr>
<tr>
<td>Pain</td>
<td>7</td>
<td>18%</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>13%</td>
</tr>
<tr>
<td>Nausea</td>
<td>5</td>
<td>13%</td>
</tr>
<tr>
<td>Constipation</td>
<td>3</td>
<td>8%</td>
</tr>
<tr>
<td>Taste Changes</td>
<td>1</td>
<td>3%</td>
</tr>
<tr>
<td>Vomiting</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>None</td>
<td>9</td>
<td>24%</td>
</tr>
<tr>
<td>No response</td>
<td>6</td>
<td>16%</td>
</tr>
</tbody>
</table>

Participants that experienced more than one symptom were counted in each applicable symptom.

5.3.10 Room Service vs Traditional Hospital Foodservice

A comparison of mean expectations and experience construct scores between the 2016 and current study indicate minimal differences between room service and the traditional hospital foodservice system (Table 8) (24). Food quality expectations and experiences scores for the two systems are identical with both showing a statistically significant increase from expectation scores. For the meal service construct, there was lower expectations and experience scores with room service, however this is not significant as the standard deviations indicate overlap between scores for each system. For the staff and service issues construct scores were also near identical between systems. The greatest difference between the two systems was satisfaction and experience scores for
the hunger and satiety construct, this construct received an overall higher score with the room service system.

Table 8. Mean expectations and experience scores between traditional and room service foodservice systems

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Traditional Hospital Foodservice</th>
<th>Room Service</th>
<th>Expectations differences</th>
<th>Satisfaction/Experience difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD) expectation</td>
<td>Mean (SD) satisfaction</td>
<td>Mean (SD) expectation</td>
<td>Mean (SD) experience</td>
</tr>
<tr>
<td>Food quality</td>
<td>4.3 (0.5)</td>
<td>4.7 (0.4)*</td>
<td>4.3 (0.5)</td>
<td>4.7 (0.4)*</td>
</tr>
<tr>
<td>Meal service</td>
<td>4.8 (0.4)</td>
<td>4.7 (0.6)</td>
<td>4.3 (0.6)</td>
<td>4.3 (0.6)</td>
</tr>
<tr>
<td>Staff and service</td>
<td>4.6 (0.5)</td>
<td>4.9 (0.2)*</td>
<td>4.8 (0.4)</td>
<td>4.9 (0.2)</td>
</tr>
<tr>
<td>Hunger and satiety</td>
<td>4.1 (0.8)</td>
<td>3.9 (0.3)</td>
<td>4.2 (0.4)</td>
<td>4.6 (0.6)*</td>
</tr>
</tbody>
</table>

*p<0.05, statistically significant change from corresponding expectation score for foodservice system.

5.4 Qualitative results

This section summarizes the explanatory factors for participants’ foodservice and room service expectations arising from qualitative analysis of the expectation interviews. The five factors summarized below emerged as overarching categories of explanations for participants’ foodservice expectations. Categories are presented below in hierarchical order from strongest to moderate. Figure 4, a mind-map of the explanatory factors below portrays the themes, subthemes and inter-relationships. Appendix D iii. presents a table with the definitions of each theme and the number of interviews the theme was present in. The frequency of each theme across the interviews determined the strength of the category.
Figure 4. Explanatory factors for patient’s hospital foodservice and room service expectations
5.4.1 Institutional Systems Tolerance

The strongest theme to emerge was institutional systems tolerance. Interviewees reflected a forbearing attitude to the hospital foodservice as an institution based on their understanding of hospital systems. They expressed realistic expectations to how the foodservice would perform, considering the constraints they thought the hospital and foodservice faced. This involved expecting inconveniences as inpatients, compromises on the quality of the food and preparing to be tolerant of these potentially undesirable aspects of their future experience. This theme is connected to past experience as participants drew on previous hospital experiences.

Eleven out of sixteen interviewees discussed unwelcome aspects of being in hospital that are to be expected and tolerated as a patient. It was a common impression that hospital environments are busy places, with staff having duties to fulfill. When asked if sounds, smells and staff would distract them from their meal, interviewees expressed:

“I mean you're going to hospital, you know it's going to be a busy place, and it's possibly going to be noisy, and there's staff coming in and out all the time, you know, you're not really going there for the food. I don't think it would distract me from the food at all” – Participant 816

There was also an expectation by twelve interviewees of courteous staff, as they are seen as paid employees hired to provide good service and carry out duties within the hospital system. Good service was necessary and represented the image of the whole institution. This sub theme is included within institutional systems tolerance as interviewees were compassionate towards staff members, with some expressing understanding to the possibility of lower standards of service.
“If it's their job to deliver meals to their clients which I would be. Then I would expect them to do it as, to the best of their ability. If their ability is perhaps at a lower standard to what I would expect. As long as they were doing it to the best of their ability. Then that's fine by me.” - Participant 449

5.4.1.1 Foodservice systems tolerance

Within institutional systems category, distinct from tolerance of the general hospital environment, was interviewees’ understanding of institutional foodservice systems and how they expected this would affect the meal and service they received. Interviewees had a general understanding of traditional hospital foodservice systems from past experiences. They could reflect how the foodservice system influenced the meal they received, specifically the scale of production and whether the food was produced on-site or outsourced. Interviewees’ knowledge of foodservice systems was heavily influenced by media representation and criticism of public hospital foodservices.

“... in the public hospital system I'm referring to now is that the meals have got an absolute reputation for being produced in a mass-produced way...the meals aren’t even prepared in Dunedin...the attention to the fine detail of preparing, cooking and preparing and presenting vegetables just wouldn't be possible... I have homemade low fat, low sugar muesli [at home]...I can’t imagine that would be possible in a, large institution. Where they're trying to cater for a whole lot of different appetites.” – Participant 909

Tolerance towards system-related factors appeared to be because as patients, they perceive changing the foodservice is not within their control, and they depend on the foodservice for their nutritional needs.
“...a hospital, doesn’t matter how big or how small, has got to run
umm to their schedules that they've set out... because I'm there as a
patient, I could understand that they gotta ask me early enough to see
what I wanted and they got all these other patients in all these other
rooms. I appreciate what they've got to do, and I appreciate whatever
I'm going to get I'm going to get roughly about the same time they put
out the meals” – Participant 263

Some interviewees expressed tolerance due to the short duration of their admission.
Three interviewees also thought the short duration of their stay would prevent an
accurate evaluation of their foodservice experience.

“... at the end of the day no matter what it is, I'm only going to be
there for one night, so I'm just going to be happy with whatever I
get...I just put down always because whatever I get given is, will be
fine.” – Participant 206

Other sub-themes contributing to the institutional and foodservice systems tolerance
category include; being considerate of other patients, understanding the foodservice is
catering to a group; adequate choice, not all usual food items will be available; and
portion sizing, that appropriate portion sizes will be served to cater for different
appetites, with adequate amounts to sustain people between meals.

5.4.2 Past Experience

The next strongest factor influencing patient’s expectations was past experiences. The
category of past experiences is defined as patients comparing or benchmarking their
expectations of the foodservice in their upcoming admission against actual past
experiences to other types of foodservices. Stereotypical ideas of foodservices were not
included in this category to exclude generalized bias from common beliefs.
Past hospital experience emerged as a major contributor to this theme being present in 14 of the 16 interviews. To contribute to this explanatory factor, it was not enough for past hospital experience to be merely mentioned, instead interviewees had to have made a direct comparison of what they were expecting in their upcoming admission against a previous hospital food experience. All prior experience was relevant, whether the experiences were at public or private hospitals, and whether they were a patient who experienced it themselves or second hand from family members.

“My father in law was in public, for about 6 weeks last year. And what he was getting dished was terrible. So that's the only comparison I've got.” - Participant 816

All interviewees who had experienced the foodservice at the study hospital prior to room service had high expectations for room service due to their highly positive past experiences. Interviewees commented:

“I had absolutely no problem about the foodservice before...I found the service so excellent... So if it was as good as it was before, I won't have a problem.” - Participant 718

In relation to room service, half of the interviewees were unsure as what to expect, as they had not experienced anything like room service before. No interviewee drew a parallel with past-experience of room service in a traditional hotel setting.

“I have absolutely no feel or no experience of what might, what can change... I don't have an expectation that there's going to be a waiter with a white suit and a chef’s cap and wine list. I just don't know.” – Participant 718
Some interviewees saw room service as an attempt at service improvement. Participants expected room service to be better than their previous hospital foodservice experiences. 

“I think just the quality, of the whole, like the food and the delivery and the service will be a lot better now, with a room service type thing.” – Participant 212.

Past experiences with foodservices in the public hospital system, particularly the local public hospital was used as a benchmark for expectations. Interviewees expected the study hospital foodservice would be of higher quality than what they had experienced in a public hospital - “I'm just expecting it to be a bit more than what I'd get at public hospital.” – Participant 263. This theme is linked to the themes of private nature, and noticeable care/effort.

Interviewees also drew from their usual meal experiences at home when explaining their expectations - “Yes, like I do it at home. So you know it would be nice to have it when you're not feeling that well.” – Participant 524.

Benchmarking against restaurants was also apparent, with a few participants stating they do not expect a restaurant-like service:

“It's not like a restaurant and you put an order in and you'd expect it to be absolutely perfect within 20 minutes sort of thing...you don't expect it to be absolutely restaurant quality when they've got a lot of people to feed.” – Participant 206

5.4.3 Post-surgery clinical condition

Another major explanatory factor for foodservice expectations was participants’ idea of how their physical state, mood and appetite post-surgery would influence when and what they eat. Twelve out of the sixteen interviewees predicted their clinical condition, post-surgery, would influence their foodservice experience. Commonly they expected
not to want to consume food and utilize the foodservice due to nausea or fatigue until they felt more well. “...like for myself I suppose I don’t think I'm going to be eating much after my surgery” – Participant 798

The relative importance of food post-surgery was also raised, three participants thought food was of low importance in hospital, since activity levels decrease, and recovery was more important; whereas two participants believed food was an important part of recovery post-surgery. “... it's not really your main focus, when you've had an operation...You're hungry but you're not always hungry straight away you know.” – Participant 811

“...you need your strength to recover you know, and food is a big part of that.”
– Participant 167

Four interviewees welcomed the flexible timing of meals with room service, as they expected they and other patients would not be certain when they would feel like eating due to their post-surgery clinical condition. They also thought it would increase patient autonomy over their food and deliver a more personalized service. “...in hospital, everyone seems more or less do most of it for you, so I guess it [room service] gives you a bit of control over something” – Participant 708

5.4.4 Noticeable care and effort

Close to half of the interviewees expected service to exceed the institutional stereotype standard of hospital foodservice, which would be evident in noticeable care and effort by staff and in the quality of the food. Interviewees expected to see attempts of going beyond the institutional stereotype in tangible aspects of the food such as the presentation of the food, and in the service from staff, expecting a more personalized service where personal requests would be fulfilled. The strength of this explanatory
factor was moderate compared to the above categories but links to private nature and scale of production. Interviewees believed a personalized, attention-to-detail service would be more possible in a private hospital setting and with a room service system. “I think, the connotation is that, that because its room service, it might be someone has taken a bit more care on it” – Participant 811

“Well I think a) people are paying...people go to private hospitals because they expect a higher standard than what you would otherwise get at the in the public system.” – Participant 909

5.4.5 Private Hospital Nature

Another moderately strong theme to emerge as an explanatory factor for foodservice expectations was the study hospital being a private hospital and commercial healthcare provider. Six interviewees had higher expectations for private hospital foodservices, due it being a paid service, regardless who was funding their admission. This expectation was often benchmarked to public hospital foodservices.

”...being private, I would it expect it to be a little bit better than that, a public one, because its private I suppose, and it's not such a big place and I guess the fact that you're paying the money, even though your insurance is paying the money. You would it expect it to be of better quality... the expectations are higher, in a private hospital, than a public one” – Participant 206

The reputation of the study hospital also influenced expectations in a similar way. One comment that was typical from the three interviewees who had this expectation was: “…because of the reputation of Mercy hospital and um yeah I think that’s why the meals I get there will be better than I would at public” - Participant 263
5.4.6 Comparison of qualitative findings from room service study with findings from the traditional hospital foodservice system study

Table 9 below compares the key qualitative findings of the present study with the qualitative findings of 2016 study when the traditional hospital foodservice system was in place (24). Explanatory categories emerging from both sets of interviews are presented in order of strength, highest to lowest.

Table 9. Explanatory factors for patient expectations by foodservice system

<table>
<thead>
<tr>
<th>Room Service (n=16)</th>
<th>Traditional Hospital Foodservice (n=10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional Systems Tolerance</td>
<td>Private Institutions</td>
</tr>
<tr>
<td>Past-Experience</td>
<td>Prior Experience</td>
</tr>
<tr>
<td>Post-Operative Clinical Condition</td>
<td>Meal Quality</td>
</tr>
<tr>
<td>Noticeable Care/Effort</td>
<td>Access to Food</td>
</tr>
<tr>
<td>Private Hospital Nature</td>
<td>Choice</td>
</tr>
</tbody>
</table>

Past-experience (prior experience in the 2016 study) were ranked equally as the second explanatory category for patients’ expectations. Notable is the private hospital nature being the weakest explanatory factor in the room service study, whereas the matching “private institutions” was the most influential factor in the traditional hospital foodservice system study.

Interestingly, the implication of an institution on patient foodservice expectations was also present in the 2016 study interviews, but only emerged as a subtheme under the meal quality category (24).
6 Discussion

The impact of a room service on patient foodservice expectations and experiences is unknown. This study explores patients’ expectations and experiences of the first hospital room service in New Zealand, addressing this gap in the literature. Comparison of questionnaire results from this study and a 2016 study when a traditional hospital foodservice system was in place reveal marginal differences. With high patient expectations in both studies being met or exceeded with high experience scores. These somewhat surprising findings can be explained by the qualitative results for patient expectations with some interesting differences arising between the two studies.

6.1 Patient expectations and experiences of room service

Patients expectations of and experiences with room service were positively high with 91% of responses in the upper limits. This may in part be explained by the major theme emerging from the interviews, institutional systems tolerance.

6.1.1 Institutional Systems Tolerance

Institutional systems tolerance was a major explanatory factor which moderated patient expectations. Interviewee’s accommodating attitude to ideal expectations not being met was based on their ideas and understanding of the hospital foodservice system. This pragmatism coincides with findings from a study on patient clinic expectations, where patient’s realistic expectations were lower than their ideal expectations (30). The implication of an institution on foodservice expectations also emerged in the 2016 study results however as a lesser explanatory factor (24). It is well known that the reputation of hospital food is not very positive amongst the general public (12,13,20,48). The study region population is likely to hold even more polarized negative views of hospital foodservices due to relatively recent media coverage of problems with the public hospital foodservice from a change of contractor (14,78).
Institutional systems tolerance sets patient’s expectations and perceptions of their meal experience in the context of the hospital setting, not a restaurant. Even with a personalized hotel-style room service, the hospital setting had implications on patients’ expectations particularly around scale of production and consideration of other patients. This perspective expands from institutional stereotyping of the hospital foodservice to include a sense of empathy towards the constraints the foodservice operates with. The moderating effect from institutional ideas of hospital foodservices on patient expectations is an important novel finding.

6.1.2 Prior hospital experience and private nature

The influence of past experience seen in this study fits well with the disconfirmation theory (Section 2.3.1) which postulates past experiences directly influence expectations (24,25,79). Even though participants had no prior-experience of room service to inform expectations, their high expectations were based on what they knew and understood about hospital foodservice systems from past experiences. Patients who had experienced the study hospital food service before had higher expectations for food quality and hunger and satiety. This also links to the private nature of the hospital, with patients stating they already had access to food in between meals with the traditional hospital foodservice system. Participants’ high expectations related to the private nature of the hospital are similar to Shabbir et al. and Lowerson’s findings, with extra effort from staff and in the quality of the food expected, as the hospital operated as a paid, private sector service (24,28). It is surprising that the influence of private nature was not as strong an explanatory theme in the current research as it was in the 2016 study. This may come down to the differences in participants, as systems tolerance dominated the present study participants’ expectations.
6.1.3 Foodservice experience

Experience scores did not differ between age or gender groups, which is consistent with other foodservice research from Hartwell, Tranter et al. and Fallon et al. (48,62,69). Statistically significant differences between expectations and experience scores for food quality and hunger and satiety constructs indicate the foodservice exceeded expectations in both these areas. The higher experience score for food quality accords with findings from previous studies which have demonstrated room service enhances patient perception of the quality of food (10,31,37). Although the higher experience than expectation score is identical to the results for food quality in the 2016 study, so it cannot be completely credited to the change of system.

The lower experience than expectation scores for temperature of foods is an excellent example of the value in measuring expectations, to indicate shortfalls in the quality of the service (24,25,28). The free text comments also confirmed this issue which highlights the usefulness of comment boxes in surveys, as found in previous research (8,69). As noted in Section 2.2.2, temperature is particularly subject to patient criticism as it is based on individual perceptions, rather than the actual temperature of the food which may have been within an acceptable range. Nevertheless, it is a quality aspect worth further investigating to improve.

A distinguishing element of room service, being able to order on demand, was clearly valued by participants with greater mean experience scores than expectation scores. This finding further supports the literature, emphasizing a key benefit of room service as a hospital foodservice system for patients (10,31,36,38).

The influence of patients’ clinical condition on their foodservice experience emerged as an important finding. Most useful is the finding that 32% of participants experienced reduced appetite. This could be limiting the amount and types of foods and drinks they consume from the foodservice and influence experience scores. This seemingly obvious
variable has been considered in one other study which found the severity of a patient’s illness affected their satisfaction with hospital services, including the foodservice (80). Otherwise, the impact of clinical condition has only been reported in foodservice studies as incidental findings. For example, in Tranter et al., in a miscellaneous category for patient satisfaction survey comments, the most frequent comment was “no appetite” (69). In Naithani et al., patients also reported being affected by loss of appetite and trouble swallowing (20). Neighbours in 2017 produced a similar finding and suggested it is a largely unconsidered explanatory factor for patient foodservice experiences (52). These examples highlight how patient’s clinical condition is rarely considered, yet for patients it has a significant impact on their foodservice experience. Participants in this study expected their clinical condition to exert an influence. Recognizing the effect of clinical conditions along with the foodservice quality constructs helps build a broader picture of the patient foodservice experience and provide some context to experience scores.

6.2 Room service vs traditional hospital foodservice system

Where other room service research has reported significant increases in patient satisfaction when room service replaces a traditional hospital foodservice system, in this study, there were only marginal differences across all mean foodservice construct scores (10,11,31,36–38). This result may represent a ceiling effect (81). This possibility was suspected as the traditional hospital foodservice system at the study hospital already had high expectation and satisfaction scores (24). In the present study, institutional systems tolerance and patients not knowing what to expect with room service may have suppressed the effect of any higher expectations associated with room service as a personalized service. High scores could also be due to the ‘halo’ effect of a private institution. As seen in other research, people could not add more to their expectations
and experiences as they were already very high for a private hospital (24,28,62).
High expectations scores despite institutional systems tolerance may indicate the FEEQ failed to discriminate between truly high expectations and experiences and high expectations and experiences from easy-to-please patients. Alternatively, it could simply be hard to quantify even higher experiences from already high expectations on the Likert-scale as the maximum of the scale has been reached, resulting in the ceiling effect. Experience interviews could have been undertaken in both the current and 2016 study to qualitatively measure experiences, which may have better discerned differences between room service and traditional hospital foodservice, as it did for expectations. Surprisingly, room service meal service scores were lower in expectations and experience compared to traditional foodservice system scores. The lower temperature rating with room service is contrary to what most researchers have found with room service (31,35,36). Although Doorduijn et al. also reported a decrease in food temperature ratings with room service (11). For the study hospital, the decreased temperature rating with room service may be because the traditional system used insulated trolleys to deliver the meals. Whereas at the time of this study room service was not using insulated trolleys, as the food was being delivered straight after it was made. On occasion if there were multiple orders to be delivered at the same time, some meal items may have not retained their ideal temperature in transit.

The largest difference between system scores was with the hunger and satiety construct. This construct generated higher experience than expectations scores as well as when compared to the traditional system. This is likely due to the increased access to food. This finding suggests participants were less likely to go hungry with room service, which aligns with research that room service increases food intake (10,31,35,36,38). This has important implications for the prevention of malnutrition in hospitals and improving post-surgery recovery. However, the weak Cronbach’s alpha for the hunger
and satiety construct limit the magnitude of this finding.

6.3 **Strengths and limitations**

The present study followed the same research design as the 2016 study and recruited a matched study population to enable a fair comparison with the traditional hospital foodservice system. The timing of data collection when the room service system was stable and administration of the experience questionnaire to participants as inpatients also ensured unbiased assessment of experiences.

The food quality construct achieved strong internal reliability for both questionnaires proving the set of questions is a true measure of the food quality of the foodservice. All other constructs however, had weaker Cronbach alphas than the 2016 pilot study, reducing the usefulness of these results. This is likely to be due to the inconsistencies identified in the 2016 study subscale analysis, which were corrected to be a strength of this research. High expectations and experience scores in both studies due to the ‘halo effect’ of a private institution also limited the ability to detect a difference between room service and the traditional system. This suggests the FEEQ does not sufficiently discriminate higher experiences from high expectations. Additionally, the small sample size of predominantly New Zealand Europeans limit the generalizability of the findings.

Despite these limitations, the mixed methodology proved useful in highlighting differences in expectations between the two systems. A gap in the assessment of foodservice quality was also identified, demonstrating the applicability of this research in practice.

6.4 **Implications for future research**

Introduction of a room service system requires large capital expenditure (34). Further research is urgently needed to expand on the findings from this study for a deeper understanding of the impact of room service on patient expectations and experiences. Specifically:
• Exploring how room service affects patient expectations and experiences in other settings and populations, such as public hospitals, children and other ethnicities.

• Further developing the FEEQ by addressing its limitation to discriminate higher experiences from high expectations.

Foodservice experience should also be more broadly analyzed by qualitative measures, which may better detect differences between hospital foodservice systems unable to be quantified by questionnaires alone. Findings from this research also suggest patient expectations prior to the use of a service and clinical conditions should be considered in patient experience studies.

6.5 Conclusion

This groundbreaking study set out to assess the impact of the first hospital room service system in New Zealand on patient foodservice expectations and experiences. Surprisingly, marginal differences were found in foodservice construct scores between room service and the previous traditional hospital foodservice system at the study hospital. Qualitative analysis showed institutional systems tolerance and lack of prior experience moderated patients’ expectations for room service. Additionally, the ‘halo’ effect of a private institution limited the ability to distinguish the impact of the new room service. However, strengths of a room service system were identified, as well as area of improvement regarding the temperature of the meals and drinks. This clearly illustrates the value in assessing patient expectations and experiences as a form of feedback for hospital foodservices. Findings from this research should help inform improvements to hospital foodservices and patient feedback instruments. Further exploration into room service in different settings is needed to determine its influence on patient expectations and experiences.
7 Application to Practice

The findings of this research provide insight into what New Zealand patients expect and experience with a hospital room service foodservice system. It adds to the growing body of literature on hospital room service and patient foodservice expectations and experiences. The results can be applied in practice to inform quality improvements for the study hospital foodservice, and other hospital foodservices nationwide. In particular, the results will help other hospitals determine if a room service system is the logical next step for their foodservice to enhance patient foodservice experiences.

The increased access to food and improved hunger and satiety scores also suggest a room service meal ordering and delivery system could be a used as a strategy in preventing malnutrition in hospitals.

Dietitians in hospital foodservices and other settings should ensure they apply robust patient-centered quality measures as part of their quality management program. This research provides an exemplary model for how this can be done by:

1. Moving away from patient satisfaction and using the more inclusive measure of patient experiences
2. Assessing what patients expect prior to the use of a service, to benchmark their actual experiences to for identifying areas of improvement.
3. Considering patient experiences as multi-dimensional. For example, clinical conditions should be considered as part of the whole patient foodservice experience to provide context to experience scores.
4. Collecting both quantitative and qualitative data to provide context for patient expectations and experiences.

The study is also the first known to assess a change in foodservice systems in New Zealand. Given the recent contracting out of many New Zealand District Health Board
foodservices and the budget constraints the public health sector faces, the tools developed in this research could be applied to monitor the impact of changes to hospital foodservices on patients’ foodservice experiences, to inform future decisions (63,78). The research also highlights the institutional stereotype of hospital food is alive in New Zealand patient’s expectations to the point they have developed a tolerance and realistic expectations for hospital foodservices, even for private hospitals. This provides foodservice dietitians with evidence that they need to address the disappointment patients anticipate with hospital food before they have even tried it. This could be tainting their meal experience and effecting their meal intake prejudicially. Quality improvements should be directed to exceed these expectations and encourage positive experiences to ensure patient’s meet their nutritional requirements in hospital.

7.1 Reflection

Originally when I took up this research project, my focus was around the questionnaire. The interviews seemed superfluous to measuring expectations. However, I found them to be the most fun and enlightening aspect of data collection. I felt humbled to talk to strangers who shared their opinions so freely, though it did not seem like much to them, it gave me much more information than what I could see from their questionnaires. Although transcribing 4 hours’ worth of interviews was a challenge for me, I can see the information I collated from them has enriched my findings and has truly identified something novel. This has made me appreciate the value in qualitative research to explore different perspectives. It has also taught me the value in listening to patients and putting their experience in the center of what you are trying to do. As a Dietitian this is important for ensuring practical nutrition interventions. From this experience, I now know not to just rely on ratings but to take the time to listen to clients and seek what an ideal experience looks like for them, to find out how can I achieve this with them.
8 References


11. Doorduijn AS, Van Gamen Y, Vasse E, De Roos NM. At Your Request® room


32. Theurer VA. Improving Patient Satisfaction in a Hospital Foodservice System Using Low-Cost Interventions: Determining Whether a Room Service System is the Next Step [Internet]. All Graduate Plan B and other reports. Utah State University; 2011. Available from: http://digitalcommons.usu.edu/gradreports/32


57. Nor ZM. Hospital foodservice directors identify the important aspects when implementing room service in hospital foodservice. Iowa State University [Internet]. 2010; Available from: http://lib.dr.iastate.edu/etd


70. McLachlan PL. Exploring Patients’ Expectations of a New Zealand Public


76. Thomas DR. A general inductive approach for analyzing qualitative evaluation data. University of Auckland; 2003.


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## Appendix A  Literature review tables

i. Review of published patient foodservice expectations and experience studies

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<th>Author/s and year</th>
<th>Title</th>
<th>Measured Expectations</th>
<th>Measured Element of Experience</th>
<th>Aims of Study</th>
<th>Tool/Method used</th>
<th>Time administered</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hartwell 2004 (48)</td>
<td>Patient Experience, Nutritional Intake and Satisfaction with Hospital Food Service</td>
<td>✓ pre-meal questionnaire with one specific question on expectations.</td>
<td>✓ follow-up questionnaire completed post meal</td>
<td>Measure and assess patient satisfaction with the hospital foodservice between pre-plated and bulk trolley delivery systems.</td>
<td>Written Self-administered Questionnaires</td>
<td>Before and after meal service</td>
<td>Patient expectations of hospital food not high. Satisfaction with traditional tray line system slightly below expectations. Bulk trolley delivery system enhanced food quality and patient satisfaction</td>
</tr>
<tr>
<td>Lowerson 2017 (24)</td>
<td>Patient Foodservice Expectations and Satisfaction Study</td>
<td>✓</td>
<td>✓</td>
<td>Explore determinants of and create a measurement tool for patient expectations and satisfaction of a hospital foodservice</td>
<td>Written Self-administered Questionnaires (validated) and semi-structured interview. Constructs measured: food quality, hunger and satiety.</td>
<td>Expectations questionnaire and interview pre-admission. Satisfaction questionnaire – day of discharge.</td>
<td>Expectations closely related to satisfaction levels. Private institution and previous experience strong influencing factors of expectations.</td>
</tr>
<tr>
<td>Capra et al. 2005 (1)</td>
<td>The acute hospital foodservice patient satisfaction questionnaire (ACHFPSQ): the</td>
<td>Included one question on if food met expectations.</td>
<td>✓</td>
<td>Design a valid and reliable questionnaire to measure patient satisfaction with</td>
<td>Written self-administered questionnaire (validated).</td>
<td>One subsample group completed the questionnaire during hospital admission as an</td>
<td>Differentiates foodservice satisfaction into four main constructs. Alpha coefficients for each</td>
</tr>
<tr>
<td>Reference</td>
<td>Purpose</td>
<td>Methodology</td>
<td>Constructs measured</td>
<td>Setting</td>
<td>Findings</td>
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<tr>
<td>Wright et al. 2006. (64)</td>
<td>Consumer evaluation of hospital foodservice quality: an empirical investigation</td>
<td>Included one question on if food met expectations. ✓</td>
<td>Estimate relationship between patient satisfaction with hospital foodservices and potential influencing factors. Same ACHFPSQ questionnaire developed by Capra et al. (1).</td>
<td>Inpatient. Other subsample completed post-discharge.</td>
<td>Satisfaction strongly associated with variety, meat texture, temperature, taste and menu staff.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fallon et al. 2008 (62)</td>
<td>Use of the Acute Care Hospital Foodservice Patient Satisfaction Questionnaire to monitor trends in patient satisfaction with foodservice at an acute care private hospital</td>
<td>Included one question to find out whether or not food met expectations. ✓</td>
<td>Monitor trends in patient satisfaction in a private hospital setting between 2003-2005. Same ACHFPSQ questionnaire developed by Capra (1).</td>
<td>During hospital admission as in-patient.</td>
<td>Overall satisfaction was high over studied time period. Staff and service issues most highly rated construct, food quality was the least. Significant association between expectations of the hospital food and appetite and overall satisfaction.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Porter &amp; Cant 2009 (23)</td>
<td>Exploring hospital patients’ satisfaction with cook-chill foodservice</td>
<td>Included one question to find out whether or not food met expectations. ✓</td>
<td>Explore patient satisfaction with a hospital foodservice before and after a</td>
<td>During hospital admission as in-patient.</td>
<td>Switching to off-site cook chill system did not decrease patient satisfaction with the food. Significant moderate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Researcher</td>
<td>Title</td>
<td>Question to identify if food met expectations</td>
<td>Methodology</td>
<td>Questionnaire Used</td>
<td>Timeframe</td>
<td>Main Findings</td>
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<tr>
<td>Theurer 2011 (32)</td>
<td>Improving patient satisfaction in a hospital foodservice system using low-cost interventions: determining whether a room service system is the next step</td>
<td>Included one question to find out whether or not food met expectations.</td>
<td>Assess foodservice satisfaction before and after implementing low cost interventions to determine if a hospital should deploy room service.</td>
<td>Same ACHFPSQ questionnaire developed by Capra (1).</td>
<td>During hospital admission as in-patient.</td>
<td>Low cost interventions were not effective in significantly improving foodservice satisfaction. Suggests patient expectations are harder to meet and exceed with a traditional hospital foodservice.</td>
<td></td>
</tr>
<tr>
<td>Messina et al. 2012 (8)</td>
<td>Patients’ evaluation of hospital foodservice quality in Italy: what do patients really value?</td>
<td>Included one question to find out whether or not food met expectations.</td>
<td>Investigated patient satisfaction with hospital food and influencing factors.</td>
<td>Modified ACHFPSQ, included a new construct of hunger and satiety.</td>
<td>During hospital admission as in-patient.</td>
<td>Staff and service most positively rated. Food quality was found to be the most influential factor in patient satisfaction however was the least positively rated.</td>
<td></td>
</tr>
<tr>
<td>Aminuddin et al. 2018 (7)</td>
<td>Patient satisfaction with hospital foodservice and its impact on plate waste in public hospitals in East Malaysia</td>
<td>Included one question to find out whether or not food met expectations.</td>
<td>Determine relationship between patient foodservice satisfaction and plate waste.</td>
<td>Same ACHFPSQ questionnaire developed by Capra (1).</td>
<td>During hospital admission as in-patient.</td>
<td>Foodservice satisfaction is not significantly related to plate waste.</td>
<td></td>
</tr>
<tr>
<td>Dube et al. 1994 (65)</td>
<td>Determining the complexity of patient satisfaction with foodservices</td>
<td>Determined patient satisfaction with foodservices.</td>
<td>Written self-administered questionnaire</td>
<td>&gt;5 days post-discharge</td>
<td>Food quality is most important determining factor of patient satisfaction.</td>
<td></td>
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<tr>
<td>Study</td>
<td>Title</td>
<td>Methods</td>
<td>Constructs measured: food quality, meal service quality, staff and service issues.</td>
<td>Results</td>
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<tr>
<td>Belanger &amp; Dube 1996 (82)</td>
<td>The Emotional Experience of Hospitalization: Its Moderators and Its Role in Patient Satisfaction with Foodservices</td>
<td>Investigate patients emotional experience in hospital and their satisfaction with a foodservice.</td>
<td>Same questionnaire as Dube et al. (65).</td>
<td>One questionnaire per day of hospital admission. Patients who felt more in control of their situation were more satisfied with the foodservice.</td>
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<td>Hartwell 2006 (4)</td>
<td>Foodservice in hospital: development of a theoretical model for patient experience and satisfaction using one hospital in the UK National Health Service as a case study</td>
<td>Critically evaluate the patient meal experience</td>
<td>Focus group with patients, patient’s guests and hospital staff.</td>
<td>Foodservice experience is multi-dimensional. Patients are limited to the foodservice for food in hospital.</td>
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<td>Wadden et al. 2006 (37)</td>
<td>Traditional versus room service menu styles for pediatric patients</td>
<td>Participants were interviewed, and responses were evaluated to determine if expectations were met or not met.</td>
<td>Constructs measured: food quality and meal service.</td>
<td>During hospital admission as in-patient. Overall foodservice and food quality satisfaction increased with a room service style menu.</td>
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<td>Study</td>
<td>Methodology</td>
<td>Constructs measured;</td>
<td>Setting</td>
<td>Findings</td>
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<td>Naithani et al. 2008 (20)</td>
<td>Hospital inpatients’ experiences of access to food: a qualitative interview and observational study</td>
<td>Examine patient experiences of access to food in hospitals.</td>
<td>During hospital admission as in-patient.</td>
<td>Over half of participants reported having trouble accessing food, for reasons such as meal times and the ordering system. Participants reported hospital food met their expectations.</td>
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<td>Johns et al. 2009 (54)</td>
<td>Improving the provision of meals in hospital. The patients’ viewpoint</td>
<td>Investigated patients most liked and disliked aspects of the hospital meal experience</td>
<td>During hospital admission as in-patient.</td>
<td>Patients view of hospital food overall met expectations, however expectations were low.</td>
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<td>Tranter et al. 2009 (69)</td>
<td>Can Patient-Written Comments Help Explain Patient Satisfaction with Food Quality?</td>
<td>Analysis of qualitative comments written in hospital foodservice surveys.</td>
<td>Post-discharge</td>
<td>Patient satisfaction with food quality differed based on length of stay and whether a patient provided written comments or not. Written comments associated with significantly lower food rating.</td>
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<tr>
<td>Reference</td>
<td>Purpose</td>
<td>Methods</td>
<td>Data Collection</td>
<td>Findings</td>
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<td>Hartwell et al. 2015 (51)</td>
<td>What do patients value in the hospital meal experience?</td>
<td>Investigate aspects of patient meal experience and impact of influencing factors on satisfaction.</td>
<td>Written self-administered questionnaire. Developed from semi-structured interviews with patients and hospital staff.</td>
<td>During hospital admission as in-patient. Food quality and service quality statistically significant in predicting factors of patient satisfaction with the foodservice.</td>
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<td>Ottrey and Porter 2017 (21)</td>
<td>Exploring patients’ experience of hospital meal-ordering systems</td>
<td>Explore patient experience with written, spoken and visual hospital foodservice menus.</td>
<td>Semi-structured interviews Construct measured: staff and service issues.</td>
<td>During hospital admission as in-patient after at least two days admission. Visual menu helped patients form realistic expectations of the food. Spoken menu valued for being able to request more information about menu items.</td>
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<tr>
<td>Hannan-Jones and Capra 2017 (56)</td>
<td>Developing a valid meal assessment tool for hospital patients</td>
<td>One question included if meal met expectations.</td>
<td>Develop a valid meal assessment tool to assess patient’s views on specific meal items</td>
<td>During hospital admission Poorer performing meal items were identified by the tool. Suggests this tool can be used to identify specific meal issues alongside the information collected from satisfaction surveys.</td>
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</table>
### ii. Review of non-hospital-foodservice expectations and experiences studies

<table>
<thead>
<tr>
<th>Author/s and year</th>
<th>Title</th>
<th>Measured Expectation</th>
<th>Measured Aspect of Experience</th>
<th>Aim of Study</th>
<th>Tool used</th>
<th>Time administered</th>
<th>Relevant Results</th>
</tr>
</thead>
</table>
| Shabbir et al. 2016 (28) | Equating the expected and perceived service quality  
A comparison between public and private healthcare service providers | ✓ in same questionnaire during admission. | ✓                             | Compare expected and received service quality between public and private hospitals. | Written Self-Administered Questionnaire – including 3 questions on hospital meal services | 1-6+ days during admission | Expectations were higher for private hospitals. Smaller gap between expectations and perceived service quality for private hospitals. |
| Bowling et al. 2012 (30) | The measurement of patients’ expectations for health care: a review and psychometric testing of a measure of patients’ expectations | ✓ Measured ideal expectations and realistic expectations | ✓                             | Explore patient expectations and develop an expectations questionnaire. | Written Self-administered Questionnaire (validated). Questionnaire developed from semi-structured interviews with patients. | Pre-visit and post clinic visit. | Pre-visit realistic expectations lower than ideal expectations. Post-visit experiences fell in-between realistic and ideal expectations. |
| Cardello et al. 1996 (13) | Attitudes of Consumers Toward Military and Other Institutional Foods | ✓                             | ✓                             | Investigated expected acceptability of food in 7 foodservice settings. Also looked at expected and actual acceptability of 30 food items. | Written Self-Administered Questionnaire | Various time points. | Expected acceptability low for institutional food. Actual acceptability scores usually higher than expectations. |
Appendix B  Questionnaire and interview schedule

i. Expectations Questionnaire

Foodservice Expectations Questionnaire

Welcome and thank you for being part of the Food Service Expectation and Experience study. This Questionnaire is in 2 sections and should take approximately 15 minutes to complete.

Please answer every question - there are no right or wrong answers.
Please contact us if you have any questions - thank you for your time.

Section 1:

Expectations of Food and Food Service at Mercy Hospital

People often have pre-formed ideas about what hospital meals will be like. These ideas can influence their meal experience. When answering the questions below please consider what you expect the meals to be like during your upcoming stay at Mercy Hospital.
For each question select the option that best applies to you. Please answer every question.

1. At Mercy Hospital I expect the meals I receive to be of high quality
   ○ Never    ○ Rarely   ○ Sometimes   ○ Mostly   ○ Always

2. At Mercy Hospital I expect to be satisfied with the taste of the meals
   ○ Never    ○ Rarely   ○ Sometimes   ○ Mostly   ○ Always

3. At Mercy Hospital I expect the meals to have excellent and distinct flavours
   ○ Never    ○ Rarely   ○ Sometimes   ○ Mostly   ○ Always

4. At Mercy Hospital I expect to like the way the vegetables are cooked
   ○ Never    ○ Rarely   ○ Sometimes   ○ Mostly   ○ Always

5. At Mercy Hospital I expect the food to be visually appealing and well-presented
   ○ Never    ○ Rarely   ○ Sometimes   ○ Mostly   ○ Always

6. At Mercy Hospital I expect the cold foods to be served cold
   ○ Never    ○ Rarely   ○ Sometimes   ○ Mostly   ○ Always

7. At Mercy Hospital I expect the hot foods to be served hot
   ○ Never    ○ Rarely   ○ Sometimes   ○ Mostly   ○ Always

8. At Mercy Hospital I expect the hot drinks to be served hot
   ○ Never    ○ Rarely   ○ Sometimes   ○ Mostly   ○ Always
9. At Mercy Hospital I expect the menu to have enough variety to allow me to choose an option I feel like eating
   - Never
   - Rarely
   - Sometimes
   - Mostly
   - Always

10. At Mercy Hospital I expect healthy meal options to be on the menu
    - Never
    - Rarely
    - Sometimes
    - Mostly
    - Always

11. While at Mercy Hospital do you expect there to be any foods and drinks that you normally have that will not be provided?
    - Yes
    - No

   [If Yes, please list these items: ________________________________]

12. How important is it for you to be able to order when you want, and receive your meal within 45 minutes or at the time you request?
    - Not Important
    - Slightly Important
    - Moderately Important
    - Important
    - Very Important

13. While at Mercy Hospital how do you expect the time you receive your meals to be compared to your usual routine at home
    - Much Earlier
    - Earlier
    - Similar
    - Later
    - Much Later

14. At Mercy Hospital I expect the staff who deliver the menu and meals to be helpful
    - Never
    - Rarely
    - Sometimes
    - Mostly
    - Always
15. At Mercy Hospital I expect the staff who deliver my meals to be clean and tidy
   ○ Never ○ Rarely ○ Sometimes ○ Mostly ○ Always

16. At Mercy Hospital I expect the staff who clear away my meals to be friendly and polite
   ○ Never ○ Rarely ○ Sometimes ○ Mostly ○ Always

17. At Mercy Hospital I expect that the smells, sounds and staff will distract me from enjoying my meals
   ○ Never ○ Rarely ○ Sometimes ○ Mostly ○ Always

18. At Mercy Hospital I expect to feel full after finishing my meals
   ○ Never ○ Rarely ○ Sometimes ○ Mostly ○ Always

19. At Mercy Hospital I expect to receive enough food and drink to meet my needs and feel satisfied
   ○ Never ○ Rarely ○ Sometimes ○ Mostly ○ Always

20. During my time at Mercy Hospital I expect I will need to bring food from home for my needs to be met
   ○ Never ○ Rarely ○ Sometimes ○ Mostly ○ Always

21. I expect my condition while I am in hospital will influence my ability to consume and enjoy the hospital meals
   ○ Never ○ A little ○ Somewhat ○ A moderate amount ○ A great deal ○ Unsure
Section 2: Information about you

Questions 20-24: Information about you and your past hospital visits. For each question tick the option that best applies to you. Please answer every question.

22. Sex
   ○ Male   ○ Female

23. Age in years
   ○ 18-24   ○ 25-34   ○ 35-44   ○ 45-54   ○ 55-64   ○ 65-74
   ○ 75+

24. What ethnic group do you belong to? Please mark all spaces that apply to you.
   New Zealand European
   Māori
   Samoan
   Cook Island Māori
   Tongan
   Niuean
   Chinese
   Indian
   Other such as Dutch, Japanese, Tokelauan, please state: ______________________

25. Have you previously stayed overnight in a hospital?
   ○ Yes   ○ No
   If YES, which hospital did you have your most recent stay:
   __________________________________________________________

26. If you have answered YES to question 25, how recently?
   ○ 0-1 years ago
   ○ 1-2 years ago
   ○ 2-3 years ago
   ○ 3-4 years ago
   ○ >5 years ago
27. Have you been a patient at Mercy Hospital and received a meal from the foodservice before the change to Room Service on February 15, 2018?
   ○ Yes  ○ No

28. If you have answered YES to question 27, when was your most recent admission to Mercy Hospital?
   ○ 0-1 years ago
   ○ 1-2 years ago
   ○ 2-3 years ago
   ○ 3-4 years ago
   ○ >5 years ago

Thank you for completing the survey. Your responses will be helpful in increasing our understanding about expectations of food in hospitals.

Once completed please return your survey to the student researcher via email or in the fast post envelope provided at your earliest convenience, alongside the consent form. The follow-on experience survey will be handed to you by the student researcher prior to your discharge at Mercy Hospital.

If you have any questions free to contact: Kirsten Garcia
   Email: kirsten.garcia@mercyhospital.org.nz
   Student Researcher, Department of Human Nutrition

Dr Penny Field
Phone: 034797956 Email: penny.field@otago.ac.nz
Senior Lecturer, Department of Human Nutrition

Victoria Wood
Phone: 034676649
Email: victoria.wood@mercyhospital.org.nz
Dietitian, Mercy Hospital
Foodservice Experience Questionnaire

Welcome and thank you for being part of the Food Service Expectation and Experience study.
This Questionnaire should take approximately 15 minutes to complete.
Please answer every question - there are no right or wrong answers.
Please contact us if you have any questions - thank you for your time.

Section 1:
Your Experience with the Food and Room Service at Mercy Hospital
Please think back to the meals and drinks you received during your stay at Mercy Hospital. While answering these questions consider your expectations of the food and food service, and whether your expectations were met.
For each question tick the option that best applies to you. Please answer every question.

1. At Mercy Hospital the meals I received were high quality
   ○ Never ○ Rarely ○ Sometimes ○ Mostly ○ Always

2. At Mercy Hospital I was satisfied with the taste of the meals
   ○ Never ○ Rarely ○ Sometimes ○ Mostly ○ Always

3. At Mercy Hospital the meals had excellent and distinct flavours
   ○ Never ○ Rarely ○ Sometimes ○ Mostly ○ Always

4. At Mercy Hospital I liked the way the vegetables were cooked
   ○ Never ○ Rarely ○ Sometimes ○ Mostly ○ Always ○ Not applicable

5. At Mercy Hospital the food was visually appealing and well-presented
   ○ Never ○ Rarely ○ Sometimes ○ Mostly ○ Always

6. At Mercy Hospital the cold foods were served cold
   ○ Never ○ Rarely ○ Sometimes ○ Mostly ○ Always

7. At Mercy Hospital the hot foods were served hot
   ○ Never ○ Rarely ○ Sometimes ○ Mostly ○ Always

8. At Mercy Hospital the hot drinks were served hot
   ○ Never ○ Rarely ○ Sometimes ○ Mostly ○ Always
9. At Mercy Hospital the menu had enough variety to allow me to choose an option I felt like eating
   ○ Never ○ Rarely ○ Sometimes ○ Mostly ○ Always

10. At Mercy Hospital healthy meal options were on the menu
    ○ Never ○ Rarely ○ Sometimes ○ Mostly ○ Always

11. While at Mercy Hospital were there any foods and drinks that you normally consume that you wanted, that were not available?
    ○ Yes ○ No

   If Yes please list these items:

12. How important was it for you to be able to order when you wanted to, and receive your meal within 45 minutes or at the time you requested?
    ○ Very Important ○ Important ○ Moderately Important ○ Slightly Important ○ Not Important

13. While at Mercy Hospital how was the time you received your meals, compared to your usual routine at home
    ○ Much Earlier ○ Earlier ○ Similar ○ Later ○ Much Later

14. At Mercy Hospital the staff who delivered the menu and meals were helpful
    ○ Never ○ Rarely ○ Sometimes ○ Mostly ○ Always
15. At Mercy Hospital the staff who delivered my meals were clean and tidy
   ○ Never       ○ Rarely       ○ Sometimes       ○ Mostly       ○ Always

16. At Mercy Hospital the staff who cleared away my meals were friendly and polite
   ○ Never       ○ Rarely       ○ Sometimes       ○ Mostly       ○ Always

17. At Mercy Hospital the smells, sounds and staff distracted me from enjoying my meals
   ○ Never       ○ Rarely       ○ Sometimes       ○ Mostly       ○ Always

18. At Mercy Hospital I was full after finishing my meals
   ○ Never       ○ Rarely       ○ Sometimes       ○ Mostly       ○ Always

19. At Mercy Hospital I received enough food and drink to meet my needs and feel satisfied
   ○ Never       ○ Rarely       ○ Sometimes       ○ Mostly       ○ Always

20. During my time at Mercy Hospital I needed food to be brought in for my needs to be met
   ○ Never       ○ Rarely       ○ Sometimes       ○ Mostly       ○ Always

21. My condition while I was in hospital influenced my ability to consume and enjoy the hospital meals
   ○ Never       ○ A Little       ○ Somewhat       ○ A Moderate Amount       ○ A Great Deal

22. If applicable, please state which conditions you experienced that affected your ability to consume and enjoy the hospital meals (Please select all that apply):
   ○ Reduced appetite       ○ Vomiting       ○ Taste changes       ○ Pain
   ○ Nausea       ○ Constipation       ○ Difficulty Swallowing       ○ None

   ○ Other (please state):
23. How many nights was your current admission in Mercy Hospital?

- [ ] 1 Night
- [ ] 2 Nights
- [ ] 3 Nights
- [ ] 4 Nights
- [ ] 5+ Nights

24. Is there any other aspect of your foodservice experience at Mercy Hospital that you would like to tell us about?

Thank you for completing the survey. Your responses will be helpful in increasing our understanding about room service and expectations and experiences of food in hospitals. The student researcher, an honorary Mercy Hospital staff member will collect this form from you.

If you have any questions free to contact: Kirsten Garcia
Email: kirsten.garcia@mercyhospital.org.nz
Student Researcher, Department of Human Nutrition

Dr Penny Field
Phone: 034797956 Email: penny.field@otago.ac.nz
Senior Lecturer, Department of Human Nutrition

Victoria Wood
Phone: 034676649
Email: victoria.wood@mercyhospital.org.nz
Dietitian, Mercy Hospital
### Construct/topic assessed by FEEQ question

<table>
<thead>
<tr>
<th>Questionnaire question</th>
<th>Food quality</th>
<th>Meal service</th>
<th>Staff and service issues</th>
<th>Hunger and satiety</th>
<th>Other</th>
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Physical environment

Clinical condition
iv. Interview schedule and rationale

<table>
<thead>
<tr>
<th>Interview Questions</th>
<th>Rationale for inclusion and related question/s</th>
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<tbody>
<tr>
<td>1. In the expectations questionnaire you indicated that your last hospital stay was at x hospital, is this correct?</td>
<td>Explores patient’s expectations compared to their previous experiences. Relates to Questions 25-28</td>
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<tr>
<td>a. Do you expect a similar food experience at Mercy Hospital during your admission?</td>
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<td>b. If yes/no, why?</td>
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<td>Variation: In the expectations questionnaire you stated that you experienced Mercy Hospital foodservice before room service was implemented. What do you expect will be different about your experience with the foodservice during your upcoming admission?</td>
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<td>a. Why is that?</td>
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<td>2. In the survey you put down that you expect the meal to be …. quality, I am interested in why? What makes a meal high quality for you?</td>
<td>Explores expectations for food quality. Relates to Question 1</td>
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<td>3. With a room service system, how do you expected the food to be presented?</td>
<td>Explores expectations for food quality. Relates to Question 5</td>
</tr>
<tr>
<td>4. In the survey you indicated you expected meals to taste …. I am interested in why?</td>
<td>Explores expectations for food quality Relates to Question 2 and 3</td>
</tr>
<tr>
<td>5. Are there any particular foods you would like to be served for breakfast, lunch, dinner or snacks while in Mercy Hospital?</td>
<td>Explores expectations for food quality through menu variety. Responses may also provide suggestions to the foodservice about patients’ preferences Relates to Questions 9-11</td>
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<tr>
<td>6. In the survey you said you expect there to be food and drinks that you normally consume will/will not be supplied. How important having the choice for these options on the menu for you? If it is important to you, why is important?</td>
<td>Explores expectations for food quality through menu variety Relates to Question 11</td>
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<td>Are these items for any particular dietary need?</td>
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<tr>
<td>7. Turn now to what you expect from the staff that help you order, deliver and take away your meals? I am interested in why you have these expectations?</td>
<td>Explores expectations for staff and service quality. Relates to Questions 14-16</td>
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</table>
8. Do you expect that the staff who deliver and take away your meals to have an impact on how much you enjoy your meals? Why is that? **Explores expectations for staff and service quality.** **Relates to Questions 14-17**

9. With room service, you will be able to order food whenever you want from 7am to 7pm, which will then be cooked and delivered within 45 minutes or at a time you request. You answered it will be ____ important, for you to be able to order close to the time you will receive your food. Why is that? **Explores expectations for meal service quality, with timing of meals.** **Relates to Questions 12**

10. You said you felt the sounds, smells and staff will distract you from enjoying your meals ______. Are there any other factors about being in hospital that you expect to impact the ability to enjoy meals? Is this from previous experience? **Explores expectations related to environmental factors** **Relates to Question 17**

11. Do you have any dietary requirements? How do you expect they will be catered for with room service? **Explores if expectations are influenced by dietary requirements**

12. You said you expected to receive enough food and drink to meet your needs and feel satisfied ____. Why is that? What do you expect the foodservice to do to meet your needs? **Explores expectations with hunger and satiety** **Relates to Question 19**

13. You said, you expect your condition while you are in hospital, will influence your ability to consume and enjoy the hospital meals ______. Why is that? **Explores expectations with clinical conditions on patient’s hospital foodservice experience.** **Relates to Question 21**

14. Is there anything else that you would like to say about your expectations of the Mercy hospital foodservices? **Explores overall expectations for hospital foodservice. Concluding question – serves as a final opportunity to uncover areas of expectations that may have not been explored.**
v. Changes made to questionnaire and interview schedule from pretesting

<table>
<thead>
<tr>
<th>Prior to pre-testing</th>
<th>Changes from pre-testing</th>
<th>Rationale</th>
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<tbody>
<tr>
<td><strong>Expectations Questionnaire</strong></td>
<td></td>
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<tr>
<td>Q12. How important do you expect it will be for you to be able to order when you want to, and receive your meal within 45 minutes or at the time you request?</td>
<td>Q12. How important is it for you to be able to order when you want, and receive your meal within 45 minutes or at the time you request?</td>
<td>For conciseness</td>
</tr>
<tr>
<td>Q21. I expect my clinical condition while I am at Mercy Hospital will affect my appetite</td>
<td>Q21. I expect my condition while I am in hospital will influence my ability to consume and enjoy the hospital meals</td>
<td>Question previously seemed obvious. Question was changed for specificity on effect on consumption and enjoyment of the hospital meals. “Unsure” was added as a response for an extra option. Responses placed on a Likert scale for consistency with other questionnaire responses and to capture a wider range of opinions.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rationale: “Unsure” was added as a response for an extra option. Responses placed on a Likert scale for consistency with other questionnaire responses and to capture a wider range of opinions.</td>
</tr>
<tr>
<td>Q25. Have you previously spent time in a hospital?</td>
<td>Q25. Have you previously stayed overnight in a hospital?</td>
<td>For specificity, as some pre-testers took the original question to also include day visits and visiting family members.</td>
</tr>
<tr>
<td><strong>Experience Questionnaire</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introduction: “While answering these questions consider your expectations of the food and food service and whether the meals and service met your expectations.”</td>
<td>“While answering these questions consider your expectations of the food and food service, and whether your expectations were met.”</td>
<td>For conciseness</td>
</tr>
<tr>
<td>Q21. During my stay in hospital, I experienced the following conditions which affected my</td>
<td>Q21. My condition while I was in hospital influenced my ability to consume and enjoy the hospital meals</td>
<td>Matched question to expectations question for comparison. Separated symptoms into a</td>
</tr>
</tbody>
</table>
ability to consume and enjoy the hospital meals (Please select all that apply):  
- Reduced appetite  
- Vomiting  
- Taste changes  
- Pain  
- Nausea  
- Constipation  
- Difficulty Swallowing  
Other please state:

<table>
<thead>
<tr>
<th>Question 2. What are your expectations of room service compared to how meals are usually served in hospitals? What is the basis for these expectations?</th>
<th>Removed from interview schedule</th>
<th>Interview Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question 10. You answered you expect it will be ___ important, for you to be able to order close to the time you will receive your food. What informed your answer?</td>
<td>Broad question that could be answered by the other questions in the interview schedule.</td>
<td></td>
</tr>
<tr>
<td>Question 13. You said, you expect your condition while you are in hospital, will influence your ability to consume and enjoy the hospital meals _________. Why is that?</td>
<td>For conciseness and less formal tone.</td>
<td></td>
</tr>
<tr>
<td>Question 14. How do you expect your condition before and after surgery will influence your ability to enjoy your meals?</td>
<td>This question was updated in the expectations survey. Interview question was updated to match it.</td>
<td></td>
</tr>
</tbody>
</table>
Appendix C  Ethical and other approvals

i. University of Otago ethics application and approval

Human Ethics Committee (Health)
Minimal Risk Health Research – Audit and audit related studies

1. Title of Study: Patient Expectations and Experiences of Room Service

2. Investigators
   Principal Investigator (University of Otago staff member responsible for project)
   
   Name: Dr Penny Field  
   Department/School: Human Nutrition  
   Title: Senior Lecturer  
   Email: penny.field@otago.ac.nz

   Co-investigators
   
   Name: Kirsten Webster  
   Department/School: Human Nutrition  
   Title: Teaching Fellow  
   Email: kirsten.webster@otago.ac.nz

   Student investigator
   
   Name: Kirsten Garcia  
   Department/School: Human Nutrition  
   Level of Study: Master of Dietetics  
   Email: gark8603@student.otago.ac.nz

Where there are more co-investigators or student investigators, insert details on a separate sheet.

3. Study Description:
   a. Briefly and in plain English describe the proposed study and the relevant background
   b. Please attach the study protocol, if available

This study is a follow up to a 2016 study of Mercy Hospital Foodservices by a Master of Dietetics student exploring patient expectations and satisfactions. In February 2018 Mercy Hospital undertook a major change in their foodservice system to ‘room service’, a hotel style meal delivery system. Patients are now able to order food and beverages anytime between 7am-7pm from a restaurant style menu and the meal will be delivered within 30-45 minutes. This is the first known hospital room service food service system in New Zealand. Overseas literature indicates room service has a positive impact on patient food experience and intake we want to explore the experience of New Zealand patients. The current study seeks to assess the impact of room service by comparing patient expectations and experiences with room service with previous data collected when Mercy Hospital operated a traditional hospital pre order menu and tray meal delivery system.

Two versions of a single questionnaire with corresponding word changes will be used to assess expectations and experience (attached). The questionnaire is based on the previous study’s Foodservice Expectation Questionnaire with small additions informed by a literature review. The questionnaire will be pilot tested before being administered to randomly selected patients booked for a surgical procedure requiring a minimum of one overnight stay at Mercy Hospital. Patients will be invited to participate in the study and receive the expectations questionnaire to complete prior to their admission to Mercy Hospital. Up to 20 participants across the 4-week data collection period who have completed the expectations questionnaire will be invited to undertake a semi-structured phone interview to explore the reasoning behind their survey responses prior to their admission. The final experience questionnaire will be given to participants on the morning of their discharge from Mercy Hospital. The results from the questionnaires will be compared to the 2016 findings. Study Protocol attached.
4. Peer review
Has Peer Review been carried out?
☐ Yes - Please attach peer review
☒ No - Please provide explanation

This 2018 follow on study uses the same methods and study protocol as the original 2016 study which was peer reviewed, copy attached.

5. Funding Body/Sponsor
The sponsor is the organisation with overall responsibility for the initiation, management and financing arrangements of a study.

Which of the following best describe the sponsor(s) of your study?
☒ University of Otago
☐ Collaborative research group
☐ Other government agency
☐ Medical device company
☐ Another academic institution
☐ District health board (DHB)
☐ Pharmaceutical company
☐ Other (e.g. non-governmental organisation (NGO), or contract research organisation)

6. Is your study based on de-identified data which has been previously collected in a database?
☐ Yes - go to question 10
☒ No - go to next question

7. Does your study include access to health information where individuals are identifiable and is an audit of health provision, process and/or outcome?
☒ Yes - go to question 8
☐ No - a full University of Otago Human Ethics (Health) application is required. The Application Form can be found on the University of Otago Human Ethics web page. Please do not proceed with this conditional ethics review form.

8. If your study seeks access to identifiable health information will you be seeking informed consent?
☐ Yes - Attach a Participant Information Sheet and Consent Form (Templates can be found on the University of Otago Human Ethics web page) - go to question 9
☒ No - From your audit, will you publish any health information in a form which could reasonably be expected to identify any individual?
☐ No - go to question 9
☐ Yes - a full University of Otago Human Ethics (Health) application is required. The Application Form can be found on the University of Otago Human Ethics web page. Please do not proceed with this conditional ethics review form.

9. Where identifiable health information is being accessed:
   a. You must receive authorisation allowing you to access the information from the Health Agency where the information is held.
☐ I have ALREADY obtained authorisation (Attach a copy of the authorisation)
☐ I will be obtaining authorisation from the Mercy Hospital Ethics Committee before commencing the research, upon receipt of University of Otago Ethical Approval.
☐ As a clinical leader I already have the appropriate authority
Briefly explain your role:

b. A confidentiality agreement is required (if not included in the locality authority) confirming that patient confidentiality will be maintained at all times by all those using this information. (Confidentiality Agreement will be included in Mercy Hospital Approvals).

10. Where de-identified information is being accessed, the agency from which the information is being obtained may need to provide authorisation for the use of the information for the study.
☐ We have already obtained (attach a copy of the authorisation)
☐ We will be obtaining authorisation before commencing the research
☐ We do not need authorisation for this information (Please provide an explanation)

11. The University of Otago has a Policy for Research Consultation with Māori. Have you already completed, or do you propose to undertake Māori consultation? (Please see http://www.otago.ac.nz/research/macconsultation/index.html).
☐ Yes, we have already undertaken consultation (attach a copy of your completed Research Consultation with Māori Form)
☐ No - if no, provide a brief outline of reasons why not (This is not required for Audit studies)

Signatures

Researcher statement
I confirm that:

• I have read the Health Information Privacy Code, specifically Rule 10 Limits on Use of Health Information and Rule 11 Limits on Disclosure of Health Information and my proposed research complies with both Rules;
• The information contained in this form is true and accurate;
• I will not commence this research without the required authorisations and agreements being in place before the study commences.

Applicant signature: 
(Principal Investigator)

Name: (please print)  Dr Penny Field

Date:

Departmental Approval
I have read this application and believe it satisfies the criteria as outlined above and I further acknowledge that the study being proposed complies with established ethical standards set out in the guidelines from the National Ethics Advisory Committee and the Health Information Privacy Code.
specifically Rule 10 Limits on Use of Health Information and Rule 11 Limits on Disclosure of Health Information. The research proposed in this application is compatible with the University of Otago policies and I give my consent for the application to be forwarded to the subcommittee of the University of Otago Human Ethics Committee (Health) with my recommendation that it be approved. I will also ensure that all authorisations and agreements described in the application will be in place before the study commences.

Departmental Approval Signature
(Head of Department or Head of Clinical Services):

Name: [please print]

Date: 27 July 2018

Check list

☐ Has the Principal Investigator signed (page 5)?

☐ Has the application been signed and approved by the Head of Department (page 5)?

☐ If applicable, (see question 8 [a] and 9) attach a signed authorisation

☐ If applicable, (see question 8 [b]) attach confidentiality agreement

☐ If applicable, (see Question 7) attach a Participant Information Sheet and Consent form.

☐ If applicable, (see question 10) attach Research Consultation with Māori form

1 In cases where the Head of Department is also the principal researcher then the appropriate Dean or Pro Vice Chancellor must sign.
Patient Expectations and Experiences of Room Service
Study Protocol

Research Question:
How do NZ hospital patient expectations and experiences of food service change with the introduction of room service meal system?

Objectives:
1. To assess patient expectations of a 'room service' meal system in a private hospital setting.
2. To assess patient experiences of a 'room service' meal system in a private hospital setting.
3. To explore factors influencing the relationship between patients' food service expectations and experiences in a private hospital setting using a 'room service' meal system.
4. To determine the impact on patient foodservice expectations and experiences of a room service system of food service.

This study is a follow up to a previous study undertaken in 2016 at Mercy Hospital, Dunedin by Masters of Dietetics student, Sarah Lowerson. Lowerson found that patient foodservice expectation levels strongly predicted patient food service satisfaction levels(1). In February this year, Mercy Hospital changed their meal service to a room service system. Room service is a hotel style meal delivery system where patients can order food anytime between 7am and 7pm from a restaurant style menu with the meal delivered 30-45 minutes later. This is the first hospital room service system in New Zealand. Overseas studies have shown room service has a beneficial impact on patient food experience (2–4). However, the impact for New Zealand patients is unknown. The study seeks to assess the impact of room service by comparing patient expectations of and experiences of the room service system with data collected by Lowerson in 2016 when a traditional hospital tray meal delivery system was in place at Mercy Hospital.

Research design and methods:
A literature review completed by the Master of Dietetics student researcher examined the influence of meal systems including room service, on patient foodservice expectations and experience. The literature review has informed additions to Lowerson’s validated Foodservice Expectation Questionnaire (FEQ)(1). A revised tool will be used to measure patient expectations and experience with room service in 2018 (attached). Results will be compared to Lowerson’s 2016 findings. Two versions of a single questionnaire with corresponding word changes will be used to assess expectations and experience. Preliminary statistical advice has been sought from Statistician, Jill Haszard, see data analysis plan below. The questionnaire will be pilot tested before being administered to randomly selected patients booked for a surgical procedure requiring a minimum of one overnight stay.

Participant inclusion criteria: Adults 18 years of age and above, English speaking, admitted to Mercy Hospital for elective procedures for a minimum of one overnight stay during the four-week period from July 30 2018 to August 24 2018. Participants will be assigned unique identifier codes. Minimal demographic information is sought; self-reported age range, gender, rural or urban dwelling, length of current and last hospital stay.

Recruitment: Thirty participants are sought for the Study. The Mercy Hospital Dietitian using Patient Management Software (Trendcare) will review patients booked in for procedures during the data collection period of July 30 2018 to August 24 2018.
The first 15 adult, English speaking patients with confirmed bookings for procedures requiring an overnight stay, in each of these four weeks, will be assigned to the study.

In total 60 patients will be selected from the approximately 300 booked for short stay elective surgical procedures at Mercy Hospital between July 30 2018 to August 24 2018. Recruitment will commence the week prior, from July 25th 2018.

As soon as each selected patient’s surgery is booked by Mercy Hospital, one-two weeks prior to admission, the Mercy Hospital Dietitian or representative will telephone each patient on their preferred contact number held by Mercy Hospital.

The study will be explained to patients who will be asked if they are willing and able to receive Study information by email. Study information includes the Information Sheet, Consent Form, written Expectations Survey, return email address and instructions for returning completed forms to Mercy Hospital (attached). Patients who are willing to participate who do not have an email address and or a printer will have Study information posted to their home address with a postage-paid return envelope.

Data collection: The student researcher will collect primary data by written survey and brief telephone interview.

1. Expectations:
   a. Before admission, assess patient expectations of hospital food service with a written survey utilising a 5pt Likert scale. Expectations Survey attached. Participants will return the completed expectations survey to the Mercy Hospital Dietitian by email or post prior to their admission.
   b. Before admission 15 and up to 20 participants across four weeks who return a completed expectations survey will undertake a semi structured telephone interview with the student researcher. The interview will explore reasons for responses in the expectations survey, Interview format attached. As the completed surveys are returned the Mercy Hospital Dietitian will select 5 participants for interview ensuring an even spread across the 4 weeks. To accommodate the potentially short time interval between receipt of the completed survey and admission every second returned survey will be allocated to the interview group.

2. Experience:
   a. On the day of discharge, while still in a ward at Mercy Hospital participants will be asked to complete the matched written Experience survey. The survey will assess their experience with the Mercy Hospital room service, using a 5pt Likert scale. Experience Survey attached. Participants will be offered a supermarket voucher to the value of $20 for completing both written questionnaires. Participant signatures will be obtained for all vouchers issued.

Data Analysis:
Quantitative Analysis: Jill Hesmond, statistician, will support the following analysis of questionnaires:

Questionnaire results:
Descriptive statistics (mean, [SD]) for each question will be calculated. Numbers and percent of participants who answered “Most of the time/Always” or “Never/Rarely” will be reported for a more general, interpretable result. Differences between meal delivery systems will be determined using linear regression with scores log transformed if appropriate. Adjustment for covariates (age, gender,
previous hospital experience) will be undertaken and both unadjusted and adjusted analyses presented.

Sub-scale investigation
Combination of questions into subscales will be explored by assessing correlations between questions in a construct and calculating Cronbach’s alpha. If it is appropriate to combine scores into a scale this will be done by averaging available item scores across the subscale. Subsequently, descriptive statistics of the subscales will be calculated as before.

Comparison of expectation and experience
To assess how much expectations agree with experience, correlations will be used. Scatter plots will be produced for each of the questions (expectation vs experience) and correlation coefficients calculated. Unpaired two-tailed t-tests will ascertain the mean difference between expectation and satisfaction. If subscales are used, these will be the main results.

Demographic questions
Responses to both questionnaires may also be examined for differences across demographics (age, gender, previous hospital experience). If differences are apparent, then adjustments for comparison analyses will be explored.

Comparison of results with 2016 study
Results from the 2018 expectations and experiences surveys will be compared to results of the 2016 survey. Lowerson’s expectations and experiences results were slightly skewed and may suggest the original questions did not adequately discriminate between easily satisfied and harder to satisfy patients. Therefore, two (pre-tested) questions have been added to both 2018 survey instruments to determine if the discriminatory power can be enhanced.

Sample size
To be able to detect a 10% difference in expectations and satisfaction scores between those that had a traditional tray meal delivery and those that had a room service system; given a mean score of 4.3 and a standard deviation of 0.5 from Lowerson’s study. With 80% power and a 0.05 significance level, 25 participants will be required in the room service system. To allow for drop-out, 30 participants will be recruited.

Qualitative Analysis.
The student researcher will undertake selective transcription of interview data. Through an iterative process exploratory themes will be extracted that offer explanations for responses given on the expectations survey. Explanations for expectations and experience scores will be explored using Yin’s general analytic strategy (General Inductive approach using Grounded Theory). Both supervisors will review development of explanatory themes to ensure data quality.

References:
Dear

Thank you for expressing interest in our study investigating patient expectations and experiences of room service. Mercy Hospital is the first hospital in New Zealand to introduce a room service foodservice system. As researchers we are interested to learn how New Zealand patients experience hospital room service. For Mercy Hospital your feedback will be invaluable to ongoing quality initiatives, it will also support other hospital foodservices to better meet patient preferences and needs.

Please read the attached information sheet carefully. Take time to consider whether to participate. If you decide to participate we thank you. If you decide not to take part there will be no disadvantage to you and we thank you for considering our request.

This study is under a tight time constraint. If you do decide to participate we would greatly appreciate your response to the survey and the signed consent form (as outlined in the information sheet) at your earliest convenience.

Yours Sincerely,

Kirsten Garcia
Masters of Dietetics Student
Department of Human Nutrition, University of Otago
Student Researcher

Email: kristen.garcia@mercyhospital.org.nz
Phone: 03 467 6949
Patient Expectations and Experiences of Room Service Study

INFORMATION SHEET FOR PARTICIPANTS

Thank you for showing an interest in this project. Please read this information sheet carefully before deciding whether or not to participate. If you decide to participate we thank you. If you decide not to take part there will be no disadvantage to you and we thank you for considering our request.

What is the Aim of the Project?
We want to understand patient’s expectations of and experience with hospital food service with the change to room service. Mercy Hospital is the first hospital to transition to room service in New Zealand. It is of interest to study the effects of hospital room service in a New Zealand setting. This information will help support hospital foodservices to meet patient’s wants and needs.

The aim of this study is to use a quality assurance tool (a questionnaire) to assess patient expectations of and experiences with the room service. In addition, the information gathered will be given as feedback for Mercy Hospital to tell them know you think of the room service and areas of improvement.

The study is Kirsten Garcia’s Master of Dietetics research project, supervised by Dr Penny Field and Ms Kirsten Webster, University of Otago and overseen by Ms Victoria Wood, Dietitian, Mercy Hospital.

What Types of Participants are being sought?
We are seeking a random sample of people who are over 18 years of age who are booked for short stay elective surgical procedures at Mercy Hospital between July 30 2018 to August 24 2018.

What will Participants be asked to do?
If you agree to take part you will be asked to complete two written surveys, one prior to admission and one before discharge. These will ask about your expectations of and experience with the Mercy Hospital food service. You will need to sign a consent form (attached at the bottom of the document) alongside the expectation survey. After the return of your expectation survey and consent form by either email or post prior to admission, you may be contacted by the student researcher and invited to participate in a phone interview. This interview is expected to take 15-20 minutes and will explore your responses in the expectations survey. During the interview you may decline to answer any particular question(s) if you feel hesitant or uncomfortable. The researcher will ask your permission to...
record this interview to accurately capture your comments.

Prior to discharge you will receive a copy of the written Patient Foodservice Experience survey from the student researcher. You will be asked to complete this survey and return it to ward staff or your researcher, before you leave Mercy Hospital. After completing both the Foodservice Expectations and Foodservice Experience surveys you will be given a $20.00 supermarket voucher.

What data or information will be collected, and how will they be used?
We will be collecting information regarding your age, sex and whether you have previously spent time in a hospital. The purpose of collecting this information is so we are able to describe the overall characteristics of the study population. Upon entering the study you will be randomly allocated a study number from which data will be saved under. Only the student researcher (Kirsten Garcia) and Dr Penny Field will have access to personal information and even then only ID numbers will identify individuals.

No information that will identify you as an individual will be collected for the study. Anonymous data will be extracted from the written survey forms and interview transcripts. The student researcher at the completion of the project will destroy these forms. Data will be extracted from the audio recordings of the interviews, no copies will be made and the recordings will be erased from the student researcher’s computer at the end of the study in November 2018. Statistical analysis of survey results and telephone interviews will focus on patterns of responses, preserving participants anonymity.

If you agree to participate, can you withdraw later?
You may withdraw from participation in the project at any time and without any disadvantage to yourself. Withdrawing from the study will not affect the care you receive at Mercy Hospital.

Any questions?
If you have any questions now or in the future, please feel free to contact any of the researchers involved:

Kirsten Garcia
Email: kirsten.garcia@mercyhospital.org.nz
Student Researcher, Department of Human Nutrition

Dr Penny Field
Phone: 03479956 Email: penny.field@otago.ac.nz
Supervisor, Senior Lecturer, Department of Human Nutrition

Victoria Wood
Phone: 034676449 Email: victoria.wood@mercyhospital.org.nz
Dietitian, Mercy Hospital

This study has been approved by the Department stated above. However, if you have any concerns about the ethical conduct of the research you may contact the University of Otago Human Ethics Committee through the Human Ethics Committee Administrator (ph 03 479-8258). Any issues you raise will be treated in confidence and investigated and you will be informed of the outcome.
Patient Expectations and Experiences of Room Service Study
CONSENT FORM FOR PARTICIPANTS

I have read the Information Sheet concerning this project and understand what it is about. All my questions have been answered to my satisfaction. I understand that I am free to request further information at any stage.

I agree that—

1. I am volunteering to participate in this project.
2. I am free to withdraw from the project at any time without any disadvantage.
3. Written survey forms and audio recordings of the phone interview will be destroyed at the end of the project but any raw data on which the results of the project depend will be retained in secure storage for at least five years.
4. I know that as a participant I will complete two questionnaires: one about my expectations of the Mercy Hospital Food Service and a second questionnaire about my experience with the Mercy Hospital Food Service. I also know that I may be asked to participate in a recorded telephone interview with the student researcher.
5. I know that the telephone interview will explore the reasons for the responses I gave on the expectations questionnaire and that if the line of questioning develops in such a way that I feel hesitant or uncomfortable I may decline to answer any particular question(s), and/or may withdraw from the project without disadvantage of any kind.
6. I understand that the results of the project may be published and be available in the University of Otago Library, but that I agree that any personal identifying information will remain confidential between myself and the researcher during the study, and will not appear in any spoken or written report of the study.

7. I know that there is no payment offered for this study, and that no commercial use will be made of the data.

I agree to take part in this project.

........................................................................................................................ (Signature of participant)  (Date)
........................................................................................................................ (Printed Name)
iv. Study hospital ethics approval

9th August 2018

Jackie Wilde
Support Services Manager
Mercy Hospital
Private Bag 1919
Dunedin

Dear Jackie,

Re: Research Application - Room Service Patients Expectations and Experiences.

Thank you for presenting this research proposal for approval. It is with pleasure that Mercy Hospital Ethics Committee approves the inclusion of Mercy Hospital patients in this study.

To enable us to remain current with research involving patients at Mercy Hospital we request a final report or, if the research continues into next year, an annual update. We also require notification of any change in research processes.

We wish you well with the research and if you have any questions or concerns please do not hesitate to make contact.

Yours sincerely,

Philippa Pringle
Director of Clinical Services
v. Maori consultation application
Location
Mercy Hospital Dusseldor

Other relevant information

Reference
20106
vi. Maori consultation approval
This letter of suggestion, recommendation and advice is current for an 18 month period from Tuesday, 13 February 2018 to 13 August 2019.

Nahuku nea, na

Mark Brunton
Kaiwhakahaere Rangahau Māori
Research Manager Māori
Research Division
Te Whare Wānanga o Otago
Ph: +64 3 479 8738
Email: mark.brunton@otago.ac.nz
Web: www.otago.ac.nz
## Appendix D  Results

i. Interview questions asked across interviews

<table>
<thead>
<tr>
<th>Interview Participant ID</th>
<th>Past hospital experience</th>
<th>Food quality</th>
<th>Food quality</th>
<th>Food quality/ menu variety</th>
<th>Food quality/ menu variety</th>
<th>Staff and service issues</th>
<th>Staff and service issues</th>
<th>Meal service</th>
<th>Physical environment</th>
<th>Dietary Requirements</th>
<th>Hunger and satiety</th>
<th>Clinical condition</th>
<th>Final question</th>
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<td>811</td>
<td>x</td>
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### ii. Questionnaire percentages of responses

<table>
<thead>
<tr>
<th>Construct</th>
<th>Question</th>
<th><strong>Expectations Questionnaire</strong></th>
<th><strong>Experience Questionnaire</strong></th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Never/Rarely</td>
<td>Sometimes</td>
</tr>
<tr>
<td><strong>Food Quality</strong></td>
<td>Q1</td>
<td>0%</td>
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</tr>
<tr>
<td></td>
<td>Q2</td>
<td>3%</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>Q3</td>
<td>3%</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td>Q4</td>
<td>3%</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>Q5</td>
<td>5%</td>
<td>8%</td>
</tr>
<tr>
<td></td>
<td>Q9</td>
<td>0%</td>
<td>28%</td>
</tr>
<tr>
<td></td>
<td>Q10</td>
<td>0%</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Meal Service</strong></td>
<td>Q6</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
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<td>Q7</td>
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</tr>
<tr>
<td><strong>Staff and Service Issues</strong></td>
<td>Q8</td>
<td>3%</td>
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</tr>
<tr>
<td></td>
<td>Q14</td>
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<td>3%</td>
</tr>
<tr>
<td></td>
<td>Q15</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Hunger and Satiety</strong></td>
<td>Q16</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Q18</td>
<td>3%</td>
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<tr>
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<td>Q19</td>
<td>0%</td>
<td>8%</td>
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<tr>
<td><strong>Mean Percentage</strong></td>
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<td><strong>1%</strong></td>
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*Excludes questions with reverse and alternate Likert-scales and Question 4 N/A responses*
### Category definitions and frequency across interviews

<table>
<thead>
<tr>
<th>THEME</th>
<th>Hospital system tolerance</th>
<th>Courteous Staff</th>
<th>Considerate of other clients/patients</th>
<th>Choice</th>
<th>Scale of production</th>
<th>In/off site production</th>
<th>Portion sizing</th>
<th>Past hospital experience</th>
<th>Post study hospital experience</th>
<th>Past private hospital experience</th>
<th>Benchmarking local public hospital</th>
<th>Benchmarking public hospitals</th>
<th>Benchmarking home</th>
<th>Benchmarking restaurant</th>
<th>No prior room service experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>iii.</td>
<td>Qualitative analysis category definitions and frequency across interviews</td>
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<tr>
<td>Patients expectations are influenced by the idea of the hospital as an institution. Certain realities are to be expected as a patient coming in to a hospital which are out of the patient’s control. They will tolerate undesirable experiences such as interruptions, discomfort and noise. Split into hospital routine tolerance and foodservice system tolerance.</td>
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</tbody>
</table>

#### Institutional systems tolerance

- **Hospital system tolerance**
  - **Understanding/acceptance of the hospital system as a whole**
  - Understanding/staff factors related to the physical environment.
  - Ward environment, foodservice system and interactions with hospital staff.
  - Includes if patient understands how a hospital is organized.
  - Expectations based on the hospital as a foodservice system and if the staff member has had a bad day.

- **Courteous**
  - Tolerates inconveniences or sacrifices personal preferences.
  - Courteous to provide good service without expectation.
  - Duty to provide good service as part of their job.
  - Expects hospital staff to be friendly and if the staff had a bad day.

- **Considerate of other clients/patients**
  - Tolerates inconveniences or sacrifices personal preferences.
  - Expectations based on consideration of other patients' preferences and requirements. Understands catering to a population, not individual patients.
  - Tolerates inconveniences or sacrifices personal preferences.
  - Expectations based on consideration of other patients' preferences and requirements. Understands catering to a population, not individual patients.

- **Choice**
  - Tolerates inconveniences or sacrifices personal preferences.
  - Courteous to provide good service without expectation.
  - Duty to provide good service as part of their job.
  - Expects hospital staff to be friendly and if the staff had a bad day.

- **Scale of production**
  - Basis expectations on actual prior experiences at study or other hospital with hospital institution. 
  - Does not include merely if past experience at study hospital was discussed in the interview. 
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Participants expectations are directly based of their previous experience at a private hospital.

- **In/off site production**
  - Basis expectations on actual prior experiences at study or other hospital with hospital institution. 
  - Does not include merely if past experience at study hospital was discussed in the interview. 
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Participants expectations are directly based of their previous experience at a private hospital.

- **Portion sizing**
  - Basis expectations on actual prior experiences at study or other hospital with hospital institution. 
  - Does not include merely if past experience at study hospital was discussed in the interview. 
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Participants expectations are directly based of their previous experience at a private hospital.

- **Past hospital experience**
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Does not include merely if past experience at study hospital was discussed in the interview. 
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Participants expectations are directly based of their previous experience at a private hospital.

- **Post study hospital experience**
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Does not include merely if past experience at study hospital was discussed in the interview. 
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Participants expectations are directly based of their previous experience at a private hospital.

- **Past private hospital experience**
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Does not include merely if past experience at study hospital was discussed in the interview. 
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Participants expectations are directly based of their previous experience at a private hospital.

- **Benchmarking local public hospital**
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Does not include merely if past experience at study hospital was discussed in the interview. 
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Participants expectations are directly based of their previous experience at a private hospital.

- **Benchmarking public hospitals**
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Does not include merely if past experience at study hospital was discussed in the interview. 
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Participants expectations are directly based of their previous experience at a private hospital.

- **Benchmarking home**
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Does not include merely if past experience at study hospital was discussed in the interview. 
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Participants expectations are directly based of their previous experience at a private hospital.

- **Benchmarking restaurant**
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Does not include merely if past experience at study hospital was discussed in the interview. 
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Participants expectations are directly based of their previous experience at a private hospital.

- **No prior room service experience**
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Does not include merely if past experience at study hospital was discussed in the interview. 
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Participants expectations are directly based of their previous experience at a private hospital.

### Connected themes

- **Past operative experience**
  - Only small portions required due to poor appetite or for when appetite is back.
  - Includes if patient has made a direct comparison.
  - Includes if patient has made a direct comparison.
  - Includes if patient has made a direct comparison.
  - Includes if patient has made a direct comparison.

- **Benchmarking**
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Does not include merely if past experience at study hospital was discussed in the interview. 
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Participants expectations are directly based of their previous experience at a private hospital.

- **Past experience**
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Does not include merely if past experience at study hospital was discussed in the interview. 
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Participants expectations are directly based of their previous experience at a private hospital.

- **No prior hospital experience**
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Does not include merely if past experience at study hospital was discussed in the interview. 
  - Participants expectations are directly based of their previous experience at a private hospital.
  - Participants expectations are directly based of their previous experience at a private hospital.

### Interviews themes were present in

<table>
<thead>
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<th>Interview theme</th>
<th>No. of instances mentioned</th>
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<td>X</td>
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<tr>
<td>137</td>
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### Overall strength of Category

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<td>51</td>
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<tr>
<td>Category</td>
<td>Post-operative clinical condition</td>
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<tr>
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<tr>
<td>Definition</td>
<td>Expectation on how the patient will interact with the foodservice due to their clinical condition after surgery.</td>
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<table>
<thead>
<tr>
<th>THEME</th>
<th>Flexible timing</th>
<th>Personalised/bespoke service</th>
<th>Noticable care</th>
<th>Image of service provider</th>
<th>Private nature</th>
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<td>DEFINITION</td>
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<td>Connected themes</td>
<td>Personalised service</td>
<td>Connected to private nature</td>
<td>Foodservice system - less possible with bulk, more possible with on site. Past experiences - patients benchmark to past experiences</td>
<td>Compares to public hospital.</td>
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*199 compiled from interview notes due to lost audio recording