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Observations of mealtimes in hospital aged care rehabilitation wards

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Abstract

Malnutrition is common in long-stay elderly hospitalized patients and their dietary intakes are often poor, despite the provision of adequate quantities of food to meet patient needs. The aim of this study was to identify environmental factors that were associated with achieving adequate food consumption in a hospital context. This study observed the daily routines of 30 elderly patients over 2 days in rehabilitation wards in three Australian hospitals. All activities associated with mealtimes were recorded, from the commencement of breakfast to the conclusion of supper at the end of the day. Four key themes emerged: the eating location; assistance given at meals; negative and positive interruptions. The time taken to eat meals averaged 22 min, ranging from 3 to 55 min. Food intakes appeared to be better when meals were consumed communally in a dining room. There were many occasions when patients needed more assistance to eat than was available. The most common factors negatively affecting meal consumption were medication rounds, inappropriate placement of trays, packaging being hard to open, and patient showering. The presence of visitors, dietitians and nutrition assistants appeared to improve dietary intakes. Trials of protected mealtimes in Australian hospitals are certainly important and timely.

Keywords

mealtimes, observations, aged, care, rehabilitation, hospital, wards

Disciplines

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Observations of mealtimes in hospital aged care rehabilitation wards

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Keywords: Elderly, Hospital, Food Service, Dietary Intake, Malnutrition, Mealtimes

Abstract

Objectives: Malnutrition is common in long-stay elderly hospitalized patients and their dietary intakes are often poor, despite the provision of adequate quantities of food to meet patient needs. The aim of this study was to identify environmental factors that were associated with achieving adequate food consumption in a hospital context. This study observed the daily routines of 30 elderly patients over two days in rehabilitation wards in three Australian hospitals. All activities associated with mealtimes were recorded, from the commencement of breakfast to the conclusion of supper at the end of the day. Four key themes emerged: the eating location; assistance given at meals; negative and positive interruptions. The time taken to eat meals averaged 22 minutes, ranging from 3 to 55 minutes. Food intakes appeared to be better when meals were consumed communally in a dining room. There were many occasions when patients needed more assistance to eat than was available. The most common factors negatively affecting meal consumption were medication rounds, inappropriate placement of trays, packaging being hard to open, and patient showering. The presence of visitors, dietitians and nutrition assistants appeared to improve dietary intakes. A trial of the protected mealtime concept would be worthwhile in the Australian hospital context.

1. INTRODUCTION

The problem of hospital malnutrition has been well documented, and elderly, long-stay rehabilitation patients are at particular risk, with estimated rates of malnutrition being up to 49% in Australian hospitals (Beck, Patch, Milosavljevic, Mason et al. 2001; Visvanathan, Penhall & Chapman 2004; Neumann, Miller, Daniels & Crotty 2005; Banks, Ash, Bauer & Gaskill 2007). Dietary intakes can be influenced by many factors, including the patient's medical condition, appetite, the degree of flexibility in the foodservice, the amount of food packaging and the availability of assistance to eat (Isaksson 1982; Stephen et al. 1997; Green 1999).

Even when adequate food is provided to meet the patients' energy and protein needs, a high proportion of rehabilitation patients fail to meet their estimated nutritional requirements (Sullivan et al. 1999). We have previously reported in a companion paper

to the current study that even when patients were provided with adequate energy and protein to meet their estimated requirements that their nutritional intakes were suboptimal (Walton, Williams, Tapsell & Batterham 2007). This suggests that more attention needs to be paid to other factors besides the food provided from the menu itself. Patients do not always eat well as they may have a reduced appetite, may have difficulty reaching their meal tray, may have difficulty with food and beverage packaging, do not always receive enough assistance at mealtimes and may have suboptimal social interaction to encourage them to eat (Kayser-Jones & Schell 1997; Schenker 2003; Xia & McCutcheon 2006; Tsang 2008). Issues such as inadequate staffing, limited training about nutrition and the urgency of competing staff tasks can also be barriers to achieving adequate dietary intakes in hospital (Singh, Watt, Veitch, Cantor et al. 2006; Adams, Bowie, Simmance, Murray et al. 2008).

Exploratory studies have exposed stakeholder views on factors which contribute to the many and varied issues culminating in the significant issue of hospital malnutrition and the systemic failure to identify food and nutrition as clinical care within key policy directives (Walton, Williams & Tapsell 2006; Ross, Mudge, Young & Banks 2011). One recent observational study in a geriatric ward in an Australian hospital has highlighted the time needed by nurses and others to assist patients with meals (Tsang 2008).

The aims of the current study were to:

1. Describe ward activities which have a positive or negative influence on dietary intakes
2. Determine the times taken to start and complete meals
3. Make recommendations that would make the ward environment more conducive to eating at mealtimes.

2. METHODS

2.1 Study Design

Thirty inpatients were recruited from rehabilitation wards in three hospitals of the Illawarra region on New South Wales, Australia. The hospitals included one private and two public hospitals with varying foodservice systems. Purposeful sampling was used, with the Nurse Unit Manager or delegate on each ward inviting patients within a shared room of four or five beds to participate. Inclusion criteria included any patient within a shared room who gave consent. Exclusion criteria were any patient who had no oral intake or who was receiving any enteral or parenteral nutrition. Ethics approval for the study was obtained from the University of Wollongong and Illawarra Area Health Service Human Research Ethics Committee. Written consent was obtained from patients or their next of kin where the patient was cognitively unable to provide informed consent.

The study consisted of two components: observational studies of patients and staff at mealtimes and a series of individual questionnaire-based interviews with patients

and nursing staff This study accompanies the quantitative findings regarding dietary intakes, nutritional status and diagnoses that were reported in our earlier paper (Walton, Williams, Tapsell & Batterham 2007).

2.1.1 Observational Study

The three sites were visited on varying days over a three month period during late 2004. Overt observations in each location were undertaken over two days, commencing prior to the breakfast service and concluding after the supper service each day. Four to five patients were observed at any one time in a shared room and a maximum of three researchers were present at any one time. The researchers each observed in four hour shifts and sat discretely outside the room wherever possible. However the design of some wards meant that the observers needed to sit inside the room to be able to see all the patients. Visits were conducted over a two day period to try to reduce observation bias and to allow for variations in appetite.

Observations were carried out by the first author and four student dietitians. A standard form was used to record hospital code, patient code, date, name of the observer, time and each corresponding activity (eg. 7.30 a.m. Breakfast tray delivered, 7.35 a.m. Patient starts eating). This allowed the time taken to start and complete meals to be recorded. Other relevant observations were included on the recording sheet (eg. 8.25am: Patients goes to the physiotherapy gym; 12.30 p.m.: Patient having difficulty feeding alone). An accompanying list of prompts (e.g. When does the patient start eating? Is assistance provided? Are foods bought in by family?) and training of the researchers guided the consistency of observations.

The observation sheets were then reviewed to extract key observations, highlight those interruptions which were positive in nature in relation to food intake and those that were negative, as well as to determine the meal timings. A maximum of three researchers were responsible for the observations in any one ward. One lunch meal was observed by all three researchers on at least one occasion and the separate observations and timings were compared and discussed to ensure consistency between researchers.

2.1.2 Staff and Patient Questionnaire

A questionnaire was completed with patients and nurses using an interview to clarify aspects of care, service delivery and aspects of patient appetite. Interviews were conducted with individual nurses and patients who agreed to take part. The interviews were used to incorporate opinions from the participants and to clarify that the observed activities were accurate, and so were not conducted until the last afternoon or evening of each of the two day study sessions. The questions covered access to food between meals, barriers to food intake, time available for eating, assistance to eat, food quality, food brought by relatives and friends, and overall satisfaction with the food services provided.

2.2 Data analysis

A combination of content and thematic analysis was used to identify key topics from the observations (Patton 2002). These were later grouped into overarching themes using

QSR Nvivo 2.0™ qualitative analysis software (1999-2002) to look for exemplar observations for each topic.

The number and types of interruptions at meal times were also determined and categorised into those perceived to have a positive influence on dietary intakes and those likely to have a negative impact. Descriptive statistics were calculated for the times taken to commence the main meals (breakfast, lunch and tea), as well as the time taken to consume them. The Shapiro-Wilk test of normality was used and Wilcoxon Signed Rank tests were used as the data was non-parametric. All statistical analyses were completed using the Statistical Package for the Social Sciences (SPSS Version 15 for Windows, 2006, SPSS Inc., Chicago, IL).

3. Results

3.1 Observations

A total of 14 male and 16 female patients were observed and their activities documented. The mean age was 79.2 (+9.2) years, the mean length of stay was 52 days and the most common reasons for admission were cerebrovascular accident or a fracture. The observation records were summarised under four key themes (eating location, assistance at meals, negative and positive interruptions), incorporating 16 topics. Table 1 summarises these themes and gives one exemplar observation for each topic.

Table 1- Key themes, topics and exemplar observations

Key Theme and Topics	Exemplar observation for each topic
Key Theme: 1 Eating location	
1.1 Bedside	<i>"Sitting out of bed. There is no conversation in the room, apart from patient 3 talking with the researcher, after she says hello"</i>
1.2 Bed	<i>"Breakfast tray arrives. Patient sits on side of bed to eat breakfast, with tray table in front. Nurse assisting with patients eating position and tray."</i>
1.3 Dining room	<i>"Patient is now sitting out at the dining table with other patients and their visitors. The television is off, but the music is still playing. Nurse gives patient a bib for dinner"</i>
Key Theme: 2 Assistance at meals	
2.1 Nursing assistance	<i>"Lunch is delivered. The tray is delivered by a nurse, who says hello, moves the tray table closer, takes off the lids, butters bread and puts the straws into drinks"</i>

- 2.2 Food service assistance *“Food Service Assistant adjusts the tray table and moves it closer to patient 2, who is sitting out in a chair with a bib on. She assists patient to open his milk container before leaving the room. She and he discuss the difficulty of opening some packages”*
- 2.3 Other assistance *“Relative of another patient is assisting the patient with eating (cutting up food)”*

Key Theme: 3 Positive interruptions

- 3.1 Socialising *“This patient also promotes social interaction with other patients which facilitates consumption in other patients”*
- 3.2 Visitors *“Daughter has arrived and is assisting with eating, opening food items, for example salt and pepper.”*
- 3.3 Allied Health Rounds *“Dietitian enters the room and sees how each of the patients are going with their meal. She asks each patient about their meal. She encourages the patient to finish his Resource Plus after lunch.”*

Key Theme: 4 Negative interruptions

- 4.1 Medication rounds *“The medication nurse is making rounds and taking blood when the morning tea is being served”*
- 4.2 X-ray appointments *“Lunch has just arrived and stretcher transfer has arrived to take patient off to an x-ray”*
- 4.3 Food and beverage packaging *“Starts to prepare cereal (stabs box with a knife) and realises that his spoon is missing”*
- 4.4 Medical rounds *“She is seated, when the lunch meal is sat in front of her. She begins immediately. Requests a glass of milk instead of tea/coffee and receives it. Doctor asks “how are you going?” She explains she still feels some pain. Doctor consult whilst still eating meal. He explains the x-rays and explains that everything will be fine.*
- 4.5 Allied Health rounds *“Lunch is delivered... Patient doesn’t need assistance and commences straight away. Physiotherapist visits patient and talks with him about home exercises and walking for about a minute.....Occupational Therapist visits to confirm that his wife is picking up equipment for home. He has little more of the meal.”*
- 4.6 Bathroom *“Patient is still in the bathroom. Food Service Assistant delivers tray to where she usually eats”..... “Patient still not back for breakfast”*
- 4.7 Sleeping *“Morning tea trolley..... Patient is asleep and the new juice still sits on her bedside table.....Patient still asleep in bed.”*
-

3.2 Interviews with patients and staff

Eleven patients, ten nurses and one doctor agreed to take part in the interview-administered questionnaire. Nurses rated the ability of the current food service system to meet the needs of long stay patients as follows: 20% 'fair', 20% 'good' and 60% 'very good'. There were concerns, however, over the influence of the current level of staffing in allowing patients to be identified as needing assistance with meals, with 11% stating that 'there was not enough time'. When asked if there was enough time to assist patients in a timely manner, 25% felt that there 'wasn't adequate' time. All nurses reported that extra snacks and drinks were available for patients between meals, although 20% of nurses noted that the availability of these snacks was not always communicated to patients.

Nurses felt that patients being unwell, having a poor appetite, the high level of packaging of the food, the presentation of the meals and the eating environment (ie in a ward rather than a dining room) were all potential barriers to adequate dietary intakes.

The patients were mostly positive regarding the hospital meals. However 60% of patients felt the meals were too large. Of those who rated the size 'well', 75% were receiving a small meal already. While only 22% of the patients felt that they needed assistance with eating, 44% of the patients said they needed assistance to open food and beverage packaging. When asked to comment on whether nurses were available during mealtimes, 33% of patients responded 'yes', 33% 'usually' and 33% said 'no'. Opinions were mixed about where patients liked to consume their meals, but 40% of patients preferred to use a dining room when available.

Most patients (70%) indicated that they were given enough time with their meals. Observations, however, indicated that on three occasions patients did not have enough time to eat what they wanted from their meal before it was removed. When asked what foods and beverages were brought in by family, treats such as cake and chocolates were the most common items identified. When asked about ideas for improvements, the patients mentioned such items as: easier to open packaging, softer vegetables and meats, and an improved temperature and taste of some meal items.

3.3 Meal interruptions

Table 2 summarises the positive and negative influences on dietary intakes by patients. Difficulty in opening food and beverage packaging was the largest negative factor at each main meal, while inappropriate tray and/or patient position was the next highest barrier, impacting on all three main meals. Medication rounds at the breakfast meal were also a regular negative interruption, as were x-rays being scheduled at lunch time.

A total of 93 occasions of mealtime assistance were noted, provided by nurses (61), food service assistants (14), visitors (8), the researchers (7) and other patients (3). Food service assistance was usually provided when the meal was delivered, with all other types of assistance being provided at any time during the meal. One hospital had a dining room where each course was served 'restaurant style' to each patient who went to the dining room, and these interactions were not recorded, as it was apparent that the

food service staff provided very specific assistance to all patients in the dining room. All lids were removed and all patients ate at dining tables of four to six patients.

Three of the patients required no assistance at meal times, with one patient actually providing assistance to other patients when required. Several patients needed more than one type of assistance at meals (e.g. three nursing assists and one food service assist at a breakfast meal).

Table 2: Observed interruptions that could influence dietary intakes

Activity	Breakfast (n=55)	Lunch (n=49)	Tea (n=50)
Positive influences			
Dietitian	0	10.0%	0
Visitors	0	6.0%	38.0%
Additional food provided by Doctor	0	4.0%	0
Nutrition Assistant	14.5%	2.0%	0
Negative influences			
Packaging hard to open	40.0%	33.0%	34.0%
Tray &/or patient position inappropriate	22.0%	18.5%	16.0%
Medication round	34.5%	16.5%	14.0%
Physiotherapist visiting	14.5%	4.0%	0
In the shower	11.0%	0	0
Asked about a shower	7.0%	0	0
Asleep	2.0%	2.0%	0
Taken to x-ray	0	6.0%	0
Occupational Therapist visiting	2.0%	2.0%	0
Doctor visiting	0	8.0%	0

Footnote: Totals are greater than 100% because of multiple interruptions to individual patients

3.4 Meal timings

Table 3 indicates that there was a statistically significant difference between the time taken to start breakfast and the time taken to start lunch (P=0.040). The range of time taken to start breakfast was large (0-36 minutes), however the median time to commence was only one minute, compared to no delay for lunch and tea.

The mean, median and range of time taken to eat each of the three main meals were very similar and there were no significant differences between the three meal times. Not all the observation forms contained all of the recommended timing information: 55

records were available for breakfast, 49 for lunch and 50 for dinner, instead of the 60 that should have been available for each meal.

Table 3: Time to start meals and the time taken to eat the meals

Meal		Time from tray delivery to commencement of meal (minutes)	Time to eat meal (minutes)
Breakfast (n=55)	Mean (\pm SD)	4.5 \pm 7.9*	21.4 \pm 9.7
	Median	1.0	20.0
	Range	0- 36	5- 46
Lunch (n=49)	Mean (\pm SD)	1.8 \pm 3.5	23.5 \pm 10.7
	Median	0.0	21.0
	Range	0- 9	3- 51
Tea (n=50)	Mean (\pm SD)	1.8 \pm 3.5	21.8 \pm 10
	Median	0.0	20.0
	Range	0- 17	3- 55
Combined Meals (n=154)	Mean (\pm SD)	2.8 \pm 5.7	22.2 \pm 10.1
	Median	0.0	20.0
	Range	0- 36	3- 55

Legend: * Significant difference ($P = 0.040$) in the time to start breakfast vs time to start lunch

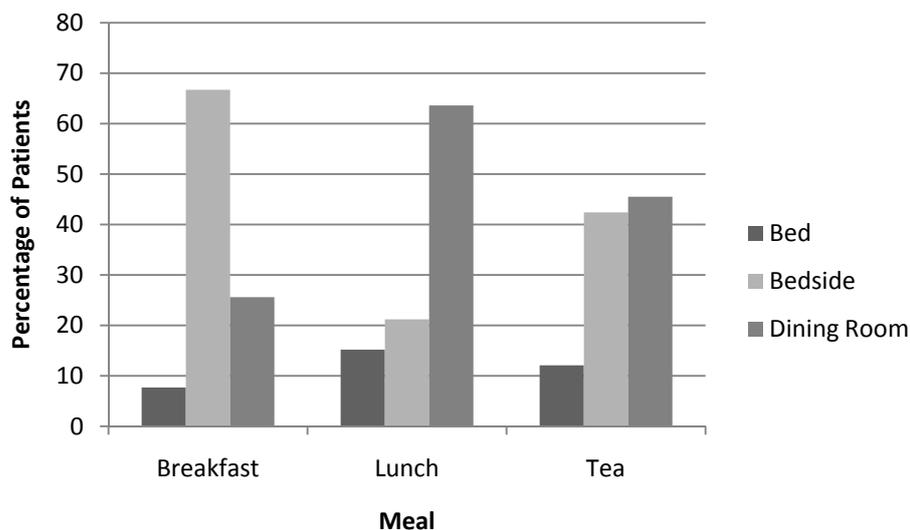


Figure 1: Dining location for each main meal vs the percentage of patients at the two hospitals with available dining rooms

3.5 Eating location

The bedside was the most common location for consuming meals. Only two of the three sites had a dining room available, and they were utilised frequently at lunch and tea meals (Figure 1). Eating at the bedside was the most popular location for the breakfast meal.

3.6 Eating Assistance

While assistance by nurses was available to many patients at meals, it was apparent that more was actually required. The involvement of the researchers, visitors and one patient at times in providing additional assistance was evident in the observations. Encouragement, assistance with opening packaging (e.g. cheese, cereals, nourishing supplements, condiments and biscuits), actual feeding, socialisation and providing a favourite food were all observed at various times. Observations indicated improved intakes when patients ate together in a dining room.

4. DISCUSSION

This study explored the activities occurring at mealtimes in three Australian aged care rehabilitation hospital wards so as to better understand their potential influences on dietary intakes and to develop strategies for ongoing feeding improvements. The issues identified are likely to be just as relevant in other countries.

4.1 Eating location

The primary eating location was the bedside, however when available a dining room was very popular for mobile patients at lunch and tea time. The importance of talking with patients and appropriate social interaction at mealtimes has been highlighted previously (McGlone et al. 1995). A dining room setting allows the opportunity for more social interaction at meals, which can support better food intakes (Edwards & Hartwell 2004; Wright et al 2006).

Improved socialisation between patients and staff was certainly observed in this study at the two hospitals which had a dining room. The private hospital provided patients with their meals one course at a time, with all plate covers removed and plates from earlier courses were cleared as they were finished. The dietary intakes seemed higher for some patients in the private hospital dining room. The social approach to the meal, the number of decanted food and beverage items, the ambience of the setting and the additional mealtime assistance afforded by the private hospital was certainly conducive to enhanced mealtime enjoyment and dietary intakes. The available data was difficult to interpret objectively, however, due to the small sample size, the differences in mobility and diagnoses between the two hospital sites, as well as the difference in food service systems (cook fresh vs cook chill) and menu.

4.2 Assistance at meals

Packaging of food items on meal trays seems to be used increasingly for a number of reasons, including: portion control, consistency, budget and food safety. However, older patients may be frail, may not recognise packaged food, and may have reduced manual dexterity, all of which can impact on their ability to open items. This can make many such patients feel more dependent (Tiivel & Davidson 2002). Issues related to limited meal set up assistance, feeding assistance and high levels of packaging are not unique to this study (McGlone et al. 1995, Schenker 2003, Bell et al 2013).

4.3 Negative interruptions

Several ward routines had a negative impact on mealtimes. These included showering during the time allocated to breakfast, medication rounds and some allied health staff arriving to start therapy. Although the allied health staff usually waited for the patients and socialised with them while they had their breakfast, the impact of their early presence is not known. Lunch time meals were sometimes interrupted by medical rounds, allied health reviews and x-rays. The Royal College of Physicians recommends that x-rays not be scheduled at mealtimes (Royal College of Physicians 2002). The tea meal was the least interrupted with medical procedures, although some patients still had medication rounds at that time. The issue of medication rounds interrupting meals has been reported elsewhere (Schenker 2003; Tsang 2008). While an essential part of care, it is important to try and structure ward routines to minimise mealtime interruptions.

It has been reported that hospital staff can have difficulty in recognising the importance of meals, as they are often perceived to ‘interfere’ with clinical routines (Edwards & Nash 1999; Singh, Watt, Veitch, Cantor et al. 2006; Ross, Mudge, Young & Banks 2011). One UK report estimated that 11- 27% of meals may be missed by interruptions, illness or poor food quality (Holmes 1998). ‘Protected mealtimes’ is a concept that has been introduced to some hospital wards in the UK to quarantine a time for meals when all other, non-urgent medical activities are ceased for a period of time (Murray 2006). This intervention highlights the importance of the meals in holistic care and also means more staff are free from other medical duties, which in turn means less interruptions and more time to assist with meals (Weekes 2008).

4.4 Positive interruptions

Some interruptions to patient meals can encourage food intake. Several visitors brought in chocolates, sweets and cakes for patients, which would likely improve their intakes of energy in hospital. Visitors seemed to have a positive impact and were usually encouraging of intakes, with assistance also given with accessing food and feeding. Nurses could also be very positive in their approach to mealtimes. Several nurses were observed talking with patients about their meals and encouraging intakes when required.

Other interruptions at meals included the nutrition assistant taking meal orders during breakfast and the dietitian sometimes doing lunch time meal rounds to see what patients were eating and asking about their appetite and choices. An improved dietetic presence

at mealtimes has been suggested to allow dietitians to better monitor the dietary intakes of their patients and encourage better eating (Matthews et al. 2007).

4.5 Meal timings

The time taken to start the eating was similar between meals, with the exception of breakfast. The main difference at this meal related to the fact that many patients were often showering at that time and consequently 11% of patients were late for their breakfast meal. This would certainly impact on the quality and likely acceptability of a hot breakfast. Another interruption which was most notable at the breakfast meal was the medication round, with 34.5% of patients affected.

Patients took an average of 22.2 minutes to eat their meals, similar to the reported average of 21.1 minutes in a study in an Australian tertiary acute care hospital (Xia & McCutcheon 2006). However the range was large, with some patients taking up to 55 minutes. While many patients had finished eating at the time of tray collection, this did not necessarily mean that they had completed all of their meal. This was reported in our earlier companion paper; with only seven people (from 30) meeting their estimated daily energy requirements and only eight (from 30) meeting their estimated daily protein requirements (Walton, Williams, Tapsell & Batterham 2007).

4.6 Recommendations

1. Adequate staff are required to assist patients who require help not only with feeding, but with the position of their chair and/or tray table and the opening of any packaging.
2. Utilise a dining room wherever possible and encourage social interaction at meals as part of the rehabilitation process.
3. The concept of protected mealtimes should be investigated and implemented.
4. Better monitoring of actual dietary intakes is necessary, but further training would also be required.
5. Review the necessity for the current level of food and beverage packaging. Further studies are required to investigate the types of packaging that are less difficult to open, if there are any.

4.7 Limitations

Firstly, a small purposive sample of patients in shared rooms was used for the study. However repeat visits at three different hospitals resulted in 30 patients being involved, which is appropriate for such a qualitative study. The views expressed in the questionnaires are reflective of the volunteer staff and patients who agreed to take part.

Overt observations were utilised which meant that patients, staff and visitors were all aware of the researchers and may have changed their behaviours accordingly. Repeat observation days were incorporated as a means to minimise this potential bias. Five researchers being involved in the study could also have influenced the consistency of results. The chief investigator trained the other four researchers in consistent

observation techniques and developed standard recording forms and instructions to limit this problem.

Some details were not available for certain patients at some meals and thus the total number of patients included in the review of meal activities did not always total 60. As this study was primarily qualitative in nature, the detail about particular events and a rich understanding about the activities in the ward and interactions between patients and others are of more importance than the measurements of number of times that certain events occurred.

5. CONCLUSION

This study of three aged care rehabilitation wards has highlighted a number of hospital activities that may impact positively and negatively on the dietary intakes of long stay patients. The level of food and beverage packaging, a lack of feeding assistance at times, medication rounds (particularly at breakfast) and x-ray appointments were potential barriers to dietary intakes. Positive influences included the presence of visitors, adequate set up and feeding assistance, socialisation at meals and more user-friendly presentation of meals (e.g. decanted items). Trials of 'protected mealtimes' in Australia should be investigated so that a higher priority can be given to feeding assistance, encouragement and monitoring of intakes during entire meal times. Clearly more research is required regarding the effectiveness and cost benefit of more appropriate food and beverage packaging, socialisation at mealtimes, dining room environments and the influence of additional feeding assistance and encouragement. Further evidence will greatly assist in prioritising the importance of food and nutrition support as a key component of clinical patient care. It is high time for key policy directions that embrace and advocate the benefits of nutrition support for our ageing population.

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