

MALNUTRITION IN OLDER PATIENTS:

REDESIGNING THE FOOD AND NUTRITION SERVICE THROUGH A MULTIDISCIPLINARY AND PARTICIPATIVE PROCESS



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Malnutrition and help with eating and drinking are continuing challenges to the development of person-centred care (1). Forty percent of patients aged 65 years and over are at risk of developing malnutrition, or their situation worsens whilst in hospital (2-5), predisposing to disease, delaying recovery and increasing the likelihood of discharge into care (5, 6). The 'mappmal' project aims to find a solution to the problem of hospital malnutrition in older people, by using a joined up multidisciplinary approach whilst exploiting state-of-the-art technology.

THE MAPPMAL PROJECT

A diverse group of researchers from the disciplines of Nutrition and Dietetics, Food Science, Design, Ergonomics, Sociology, Computer Science, Speech and Language Therapy and Medicine, worked collaboratively to radically rethink food provision and nutritional management for older people in hospital. The objectives of the project were to define the current system for food provision for older people in hospital and to identify opportunities for intervention with input from key users (nurses, doctors, catering staff, management, healthcare assistants, older people, dietitians and other professions allied to medicine) and stakeholders (Royal College of Nursing, National Patient Safety Agency, BAPEN, British Dietetics Association, Hospital Caterers Association, Age UK). The project also aimed to devise a new system for food provision and nutritional management and then 'test' the new system by asking users and stakeholders (who were referred to as the 'Food Family') about their perceptions of its workability and amenability to become part of everyday practice.

DEFINING THE STATUS QUO

An ethnographic study of current practice with respect to hospital food provision for older patients was conducted in five hospitals within two NHS Trusts. The main factors which contributed to inadequate food intake identified are summarised in Table 1. One core problem identified was that food charts are inconsistently used and do not provide accurate information on intake of nutrients. Whilst no accurate information on nutrient intake is available, shortfalls go unnoticed. Furthermore, nobody is solely responsible for nutritional care and nobody is held to account. The reliance on paper records also means that there can be delays in the referral system. In addition, domestic staff who deliver and clear the food, are not involved in handovers and so know little about the patients they are serving. Overall current systems do not facilitate good nutritional care with respect to providing an overview,

prompting appropriate actions and ensuring these actions have been taken.

DEVELOPING THE NEW SYSTEM: HOSPITALFOODIE

Following verification of these findings by the Food Family, 'opportunities for intervention' were identified and developed in workshops with the Food Family into a prototype for a new system for food provision for older patients. This iterative process involved ongoing input from users (Table 2). The final prototype developed is called 'hospitalfoodie' (food on demand information exchange (www.hospitalfoodie.com)).

The hospitalfoodie system is a nutritional management and food provision system that facilitates increased engagement of all staff in the process of providing adequate nutrition to patients and embeds a chain of accountability for nutritional care. The system is based on a set of interactive, interlinked patient and staff interfaces at the bedside, nurses' stations and the offices of relevant healthcare, management and catering staff. Each patient has a bedside touch screen for their nutritional management. The multidisciplinary team can access and act on patient nutrition information remotely and at the bedside. Hospitalfoodie comprises two core elements: nutritional management systems and food products and systems. The core components and functions of the system are as follows:

- Nutritional screening: hospitalfoodie prompts and facilitates staff to complete a patient's nutritional screening on admission and weekly thereafter. It calculates and adjusts the patient's nutritional requirements in real time.
- Tailored menus: the system facilitates patient-tailored food choices by enabling recording of preferences. Staff can enter requirements (e.g. specialised diets, textural requirements) so that food choices presented to the patient always suit their needs. The patient orders their food/drink through the bedside interactive touch screen.

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Table 1: Core factors that contribute to poor nutritional care identified in the ethnographic study and verified by the Food Family

Factor identified	
Inefficient and inflexible food ordering	Ordering systems designed for processing by catering rather than to tempt appetite.
Poor meal time ambience	Cluttered multipurpose non-adjustable eating surfaces.
Inflexible meal service	Three large meals a day: patients were over faced by portion size, yet limited provision for meals outside set times.
Shortcomings in screening and monitoring	Screening generally took place but review was more variable. Food intake not accurately monitored.
Assistance at mealtimes	On busy wards, those requiring assistance were not always identified and assisted.
Lack of accountability for nutritional care	Nobody is solely responsible and nobody is held to account.

Table 2: The iterative research process

Stage 1	Ethnographic study: observations and interviews with Food Family and stakeholders to identify key issues
Stage 2	Workshop with Food Family and Stakeholders to validate key issues identified
Stage 3	Research team define key service principles and opportunities for development
Stage 4	Workshop with Food Family and Stakeholders for feedback on and further development of initial ideas
Stage 5	Research team develop core concepts for new system for food provision and nutritional management
Stage 6	Workshop with Food Family and Stakeholders for feedback on concepts and mock ups for the new system
End point	New service prototype for food provision and nutritional management of older hospital patients: hospitalfoodie

- Setting the scene: the hospitalfoodie system promotes an environment that is conducive to eating. Before each meal, the bedside interface presents the patient with a picture of the food they have ordered and a pre-meal checklist for

Figure 1. The hospitalfoodie bedside application for monitoring patient food consumption



An image of the food provided is presented to staff on a bedside touch screen and the member of staff erases the food consumed using their finger. Nutrients consumed are automatically calculated and entered into the patient's record.

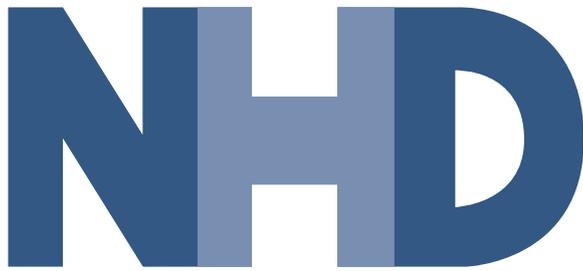
staff, including guidance on helping the patient into a safe and comfortable position, necessary help for safe eating, offering hand wipes and any equipment required (e.g. spectacles, dentures, assistive cutlery).

- Monitoring food and nutrient intake: the system facilitates more accurate monitoring of a patient's nutrient intake. A unique feature is a bedside touch screen application that allows staff to more accurately measure food intake based on what the patient consumes as opposed to what they ordered (Figure 1). Amounts of nutrients consumed are automatically calculated and tracked against individual targets. This provides more accurate information on nutrient intake and how this compares with the patient's individual requirements. The system alerts ward staff when a patient's nutritional requirements are not met and prompts appropriate remedial action for which the staff are then accountable.
- Mini meals: the system provides patients with six smaller energy and nutrient dense meals per day. Central catering will continue to provide smaller portions of breakfast, lunch and dinner. In addition, ward based mini meals will be provided during normal snack times. A range of nutrient dense, micronutrient fortified mini meals, including ice-creams, biscuits and cakes, soups and savoury scones, have been developed that can be provided at a ward level at anytime throughout the day. To facilitate the delivery of ward based mini meals and increase flexibility in access to food for patients outside set mealtimes, a purpose-designed hospitalfoodie ward food trolley has been designed.
- Information exchange: the hospitalfoodie system includes a series of interlinked staff and management interfaces tailored to the needs of different professional groups. This will improve communication between members of the team and will inform resource management, for example, increasing staffing levels on wards with high numbers of patients requiring assistance with meals. The system also generates a patient discharge summary of their nutritional care to assist in information exchange between care settings, i.e. when a patient is discharged or readmitted, a history of their nutritional status, needs and preferences is transferred with them. The system is designed to enable hospital wide nutritional performance to be tracked and audited.

THE NEXT STEPS

The hospitalfoodie prototype is the end point of the mappal project and further funding is currently being sought to pilot test the system in a series of simulation and ward based trials prior to a full implementation and evaluation trial.

For article references please email: info@networkhealthgroup.co.uk



Questions relating to: *Malnutrition in older patients.*

Type your answers below and then **print for your records**. Alternatively print and complete answers by hand.

Q.1	What is the 'mappmal' hospital project?
A	
Q.2	Briefly describe the main objectives of the mappmal project.
A	
Q.3	Describe two or three core factors that contribute to poor nutritional care in hospitals.
A	
Q.4	What is the 'hospitalfoodie' system?
A	
Q.5	What are the benefits of the bedside interactive touch screen?
A	
Q.6	How is food and nutrient intake monitored within the hospitalfoodie system?
A	
Q.7	Why are mini meals an important component of the hospitalfoodie system?
Q.8	What process within the hospitalfoodie system enables nutritional performance in hospitals to be audited?

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