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Review

Protected Mealtimes in hospitals and nutritional intake: Systematic review and meta-analyses

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ABSTRACT

Objectives: Protected Mealtimes is an intervention developed to address the problem of malnutrition, particularly in the hospital setting. The intervention aims to provide interruption-free time to eat during a hospital admission, thus supporting increased nutritional intake. This review aimed to determine the impact of Protected Mealtimes on the nutritional intake of hospitalised patients.
Design: The review was registered with the PROSPERO International Prospective Register of Systematic Reviews (CRD42015023423) and followed the PRISMA guidelines. Meta-analyses were conducted of energy and protein intake.
Data sources: Seven databases were searched to identify relevant publications: Ovid MEDLINE, Embase, CINAHL Plus, PsycInfo, Scopus, Cochrane Library (including NHS economic evaluations), and NICE clinical guidelines. A supplementary internet search of Google and Google Scholar was undertaken. The search terms protect* AND (mealtime* OR "meal time*") were used for all searches.
Review methods: Eligible studies were original research where Protected Mealtimes was implemented in hospitals and nutritional intake measured. Studies were selected for inclusion following a systematic process of identification, screening and eligibility assessment. Two authors completed the screening and eligibility assessment, and quality assessment of included studies. The Quality Criteria Checklist for Primary Research was used to evaluate the quality of each study, whilst the overall body of evidence was assessed using the GRADE approach. One author extracted data and ran the meta-analyses, these were verified by a second author.
Results: Database and hand searching yielded 150 papers for consideration; the final review library was seven studies where nutritional intake of patients had been evaluated before and after the introduction of Protected Mealtimes. No clinical trials of the intervention were identified. The meta-analyses of energy and protein intake in four observational studies found no effect in favour of Protected Mealtimes implementation. The GRADE of evidence was rated as very low.
Conclusions: Given the small number of observational studies and the quality of evidence on the effect of the intervention on nutritional intake, we conclude that there is insufficient evidence for widespread implementation of Protected Mealtimes in hospitals. More research including clinical trials, with subgroup reporting of patients' nutritional status and estimated energy requirements are needed to further understand the merits of this complex healthcare intervention.

What is already known about the topic?

- Protected Mealtimes is a complex healthcare intervention that aims to stop all non-urgent clinical activity in the ward environment and provide a conducive eating environment. Patients are given time to eat through an increase in positive mealtime interruptions (including feeding assistance), and decrease negative interruptions (including diagnostic procedures and ward rounds).
- Protected Mealtimes has been developed as a solution to the problem of malnutrition which is prevalent within the hospital setting.

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What this paper adds?

- This systematic review of the literature identified there is a dearth of evidence (only seven studies) where nutritional intake of patients was evaluated before and after the introduction of Protected Mealtimes.
- No effect on energy nor protein intake in favour of the introduction of Protected Mealtimes was observed through meta-analyses. The GRADE of evidence was rated as very low.
- More research including clinical trials, with subgroup reporting of patients' nutritional status and estimated energy requirements are needed to further understand the merits of this intervention.

1. Introduction

Malnutrition in hospitalised patients is a significant problem internationally. Usually a comorbidity of another primary reason for hospital admission, malnutrition is associated with significant adverse outcomes including increased mortality and length of stay and decreased quality of life (White et al., 2012). The resultant costs to health and social systems are also significant; estimated at £19.6 billion in the UK alone for the period 2011–2012 (Elia, 2015).

Many approaches have been considered within healthcare systems in an effort to prevent and treat malnutrition. These include menu changes such as adding oral nutrition support products (Stratton and Elia, 2007) or other high energy, high protein menu items, and fortifying existing menu items to increase their nutrient density (Collins and Porter, 2015). Other approaches have modified service aspects such as providing mealtime assistance (Tassone et al., 2015).

Protected Mealtimes is a complex healthcare intervention where almost all staff (clinical and non-clinical) have a role to play in improving the mealtime environment. The intervention includes a suite of mealtime practices aiming to provide periods on a hospital ward when all non-urgent clinical activity stops (Hospital Caterers Association, 2004) thus enabling the provision of a conducive eating environment (National Patient Safety Agency, 2008). This intervention aims to increase positive interruptions (including feeding assistance), and decrease negative interruptions (including diagnostic procedures and ward rounds) during each meal period. The initiative was developed with the hypothesis that providing interruption-free time to eat during a hospital admission would support increased nutritional intake (including energy and protein intake), particularly for malnourished patients. This is an important outcome of implementation – without change in nutritional intake to prevent or treat malnutrition in the target patient groups, the strategy will not deliver what it has been developed to achieve.

Protected Mealtimes has been implemented widely in the United Kingdom where the strategy originated (National Health Service, 2007), and to a lesser extent in Australia (Agarwal et al., 2012) and Canada (Cividin and Cabrera, 2015; Chan and Carpenter, 2015). The concept has also been incorporated into key guidelines for the care of older hospitalised patients (Age UK, 2010; Dietitians of Canada, 2014). As a complex, interprofessional approach, the success of Protected Mealtimes implementation relies on many hospital professional groups and individual staff. Within the original Protected Mealtimes policy (Hospital Caterers Association, 2004), almost all of the deliverable policy components lie within the remit of the clinical and foodservice teams, thus influencing the work patterns of numerous professional groups. Nursing work patterns are particularly affected with multiple changes to nursing practice suggested. An evaluation of Protected Mealtimes implementation undertaken by the National Health Service (2007) identified variability in the uptake of Protected Mealtimes across different meal periods, clinical areas and geographic locations. Lack of 'board to ward' level leadership and lack of staff education and training were key factors influencing implementation, whilst the existence of Protected Mealtimes policies were critical for success (NHS, 2007). Although a scoping review has been conducted of dietary, foodservice and mealtime interventions to promote food intake (Cheung et al., 2013), original research has not yet been synthesised to determine the effectiveness of Protected Mealtimes in contributing to improved nutritional intake. This review is necessary to critically examine the evidence that underpins Protected Mealtimes, and the effect of its implementation.

Specifically we aimed to systematically review the published literature to consider the impact of Protected Mealtimes on the nutritional intake of hospitalised patients.

2. Methods

The protocol for this review was registered with the PROSPERO International prospective register of systematic reviews (http://www.crd.york.ac.uk/PROSPERO/display_record.asp?ID=CRD42015023423). In a deviation from the published protocol, this review does not consider the barriers and enablers that influence Protected Mealtimes implementation as an outcome; implementation aspects are considered within the quality assessment and discussion.

2.1. Eligibility criteria

The PICO (Participant – Intervention – Comparator – Outcomes design) format of Shamseer et al. (2015) was used to develop criteria for review inclusion (Supplementary Table 1). Original research conducted with patients admitted to a hospital facility was considered, with studies undertaken in residential aged care facilities, nursing homes and other nonhospital group accommodations excluded. The intervention of interest was Protected Mealtimes, implemented as a suite of mealtime practices (not individual subcomponents of the intervention such as mealtime assistance), with comparison to usual care. Usual care was considered where there was no suite of Protected Mealtimes interventions in place. It is acknowledged that usual care practices may have some components of the intervention implemented through good clinical practice, for example encouragement of patients to consume their meals. The primary outcome measure was nutritional intake,including at least energy intake. No limits were placed on study design or publication style: full papers of original research as well as conference abstracts and letters to the editor were considered. No language restrictions were placed on the inclusion criteria so as not to bias the final library.

2.2. Search strategy

Search terms were determined through the examination of key words used in the relevant literature. The keyword search terms protect* AND (mealtime* OR "meal time*") were used for all searches. We aimed to identify original research relating to the suite of mealtime practices known internationally as 'Protected Mealtimes'. Subcomponents of the intervention (eg. mealtime assistance) were not included as search terms since these relate both to Protected Mealtimes and also studies of a specific single intervention.

Seven databases were searched to identify relevant publications: Ovid MEDLINE, Embase, CINAHL Plus, PsycInfo, Scopus, Cochrane Library (including NHS economic evaluations), and NICE clinical guidelines. A supplementary internet search of Google and Google Scholar (first 10 pages of each) was undertaken