

Sustainable Food & Medicine at the Royal Infirmary Edinburgh

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ABSTRACT

Introduction: Nutritional quality is an essential element in the recovery and psychological care of patients. A group of Edinburgh University medical students attempted to determine whether the method of procurement of meals at the Royal Infirmary of Edinburgh (RIE) affects nutritional quality, whilst exploring their sustainability.

Methods: Interviews with several people involved in food production and procurement were carried out. A survey of patients was also conducted to assess their opinions regarding the sourcing of food for hospitals.

Results: Interviews with the catering manager and a patient representative revealed that patient meals are prepared in Trowbridge, England, transported to Glasgow where they are frozen for several weeks, before being transferred to the RIE; creating a substantial carbon footprint. The patients' meals are NHS budget-limited; a contrast to the staff meals that are fresh, locally supplied and profit-based. 54.5% of the seventy-seven respondents rated the food as good/very good, and 5.2% rated it as very poor. A dietician stated that the food was nutritionally sound.

90% of patients would prefer locally sourced meals. A local organic farmer, who is very committed to sustainable local food, suggested that East Lothian could produce enough food for the hospital. Other hospitals who use local produce revealed that they have not only saved money but patient satisfaction had improved.

Discussion: Our results clearly show the appetite for and affordability of local procurement in hospitals. In addition, we have found that the current food provided at the RIE is generally well received by patients. The authors suggest that the current method of procurement at the RIE should be reviewed at the next opportunity and a more cost effective and sustainable method sought whilst maintaining patient satisfaction with provided food.

Key Words: Sustainability; Food; Hospital; Patient Satisfaction

Introduction

Food is medicine, and at the Royal Infirmary of Edinburgh (RIE) food quality and nutrition are essential to the recovery and care of the patients, both physically and psychosocially. It is therefore crucial to have food at the highest possible standard, beyond just meeting the nutritional needs of all patients. However, this must be balanced with the need for a cost-effective means of obtaining hospital food.

Furthermore, NHS procurement is a major contributor to climate change, accounting for 60% of NHS carbon emissions in 2004, rising to a peak of 65% in 2010¹. Although food and catering made up only 2% of procurement emissions in the same year in Scotland that still equates to 20 000 tonnes of CO₂². It is therefore worth examining the efficiency of food provision for the 1600 meals provided daily for patients.

The RIE obtains its food for patients from over 400 miles away in England. The rationale for this is that the RIE is tied into a long-term contract with a large, well-renowned global business due to this being an apparently cheaper method of food procurement. Despite the lower initial cost, our investigation uncovered a substantial carbon footprint and a large amount of waste. Logistical limitations can make improvements to this system difficult. This project is aiming to explore the nutritional and sustainability issues involved in the food production system and to suggest changes in the method of catering provision.

A select few hospitals around the country have broken the mould and now use fresh, local produce that is prepared and served in the hospital. Nottingham City Hospital and Royal Brompton Hospital, London, are two such hospitals³⁻⁴. They have found that the switch to local food has not only increased business for local suppliers and helped the local economy but also lowered the carbon footprint and improved patient satisfaction, whilst still being economically viable³⁻⁴. In December 2011 the NHS completed a sustainability survey⁵ in England that highlighted that, although sustainability may not be at the forefront of people's minds when thinking of potential improvements in the NHS patients feel improvements in catering could bring large improvements.

This, combined with the successful implementation of local food strategies at the two aforementioned hospitals, suggests the demand for, and feasibility of, a new food delivery system. In view of this we have made several recommendations in our report that, if adopted, would allow more sustainable, patient-focused catering.

Methods

Interviews

Before describing a novel system of food procurement, the current system had to be investigated. Through our interviews with the RIE catering manager, an employee of a related sub-contractor, *Apetito*⁶, and a patient representative we explored the full process behind food procurement which involves multi-national infrastructure giant Balfour Beatty and their sub-contractor. We also interviewed the catering manager of the staff canteen, a dietician at the hospital, the chairman of Nourish (Scotland's

Sustainable Local Food Network), and Claudia Beamish a Member Scottish Parliament (MSP). Interviewers each had a number of pre-set questions.

Questionnaire

In order to investigate patients' perceptions about hospital foods and their knowledge of its source we conducted a questionnaire with a sample of patients on wards randomly selected to reduce the risk of bias. After receiving ethical approval from the ethics committee and permission from the ward charge nurses, we conducted a pilot of a sample of 5 patients that highlighted the need for amendments to the questionnaire to enhance the clarity of responses. The questionnaire asked patients to rate the quality of food they had received whilst in hospital and to assess patient appetite for locally sourced food for their meals.

Our group split up into pairs and interviewed a total of 77 patients. These patients had to be in the RIE at the time of the study and had to have eaten hospital food. Wards were excluded if patients' illnesses were likely to interfere with their eating ability (eg- vomiting, nausea, NG tube in-situ). Confidentiality was respected at all times and a professional attitude was maintained with staff and patients.

Results

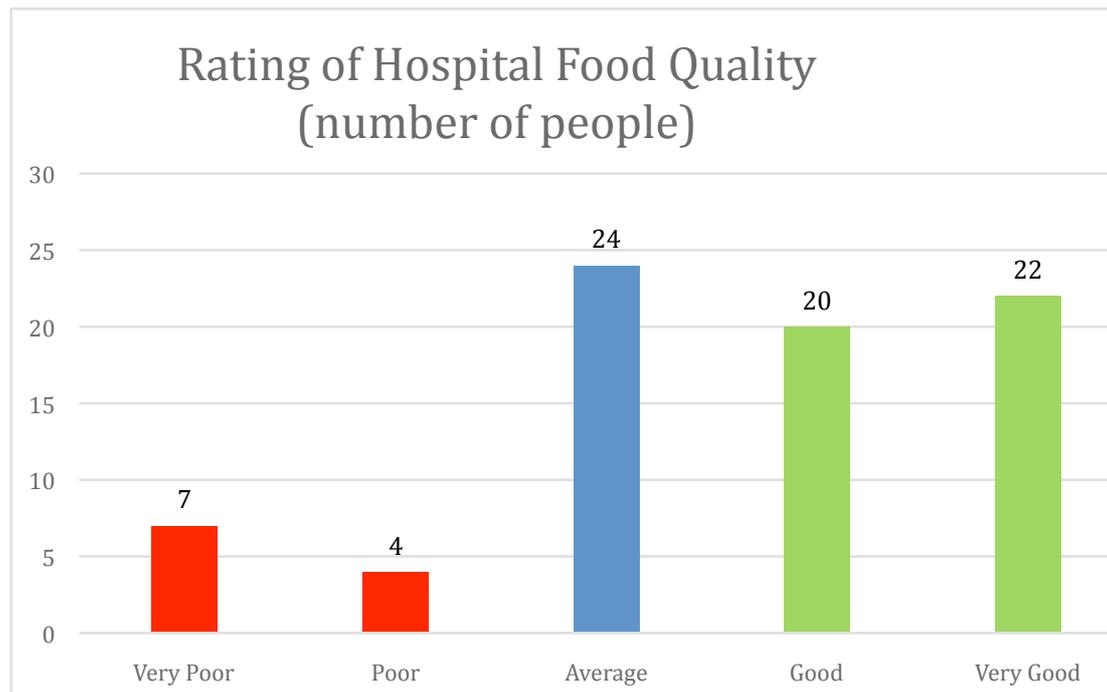


Figure 1 – How patients rate the quality of meals at the hospital

Figure 1 shows that 54.5% of patients rate the food provided it as 'good' or 'very good' and only 5.2% rated it as very poor. This is an extremely reassuring finding as there is often a concern that patients find hospital food of poor quality. The questionnaire found that 90% of the respondents would prefer that the food was locally sourced. Our questionnaire highlighted that there is a considerable quantity of food wastage, with 61.8% of the patients saying that they regularly left food uneaten.

As a result of our interviews with the hospital staff we found that the food for the hospital came from Trowbridge in England and could be stored for up to a month. This was in contrast to the staff's food that was made from fresh, local produce. Our interview with Pete Ritchie, Director of Nourish Scotland⁷, and local organic farmer highlighted that East Lothian alone could produce more than enough to fill the hospital's orders. After interviewing a dietician at the RIE it became clear that the patient food was nutritionally sound and of a high quality. All types of dietary requirements are catered for and all meals on the menu are reviewed by the dietetic department and changed if necessary.

Discussion

The food served at the RIE is subject to a complex acquisition process. It is initially prepared in a factory in Trowbridge, England, to a set recipe. The meals undergo a rigorous screening and testing process including metal detection. It is then frozen and driven to Glasgow, in refrigerated vehicles, where it is stored for up to a month. It is then delivered to the RIE's hospital freezers where it can be kept for as long as required. The meals are loaded into a "regeneration oven" and reheated to 82°C before being served. This process is convoluted and necessitates a large carbon footprint.

The NHS pays Apetito £7 per patient per day for their meals. This compares with a real cost of around £3-4 per patient per day for the meals. In contrast, the staff canteen is able to vary their spend on meals according to profit predictions, thus developing and improving the quality of food provided. Furthermore, all food for staff and visitors is made from fresh, local produce that is cooked and prepared on site. Indeed, the staff canteen holds a healthy eating award.

One of the most important aspects of any catering service is consumer satisfaction: are patients actually satisfied with hospital food? We found that the majority of patient consumers of hospital food in the RIE reported that the quality of meals at the hospital was wither good or very good and were nutritionally sound. This is in stark contrast to the commonly quoted concerns with hospital food in the media⁸. Furthermore, this paper actually suggests that the standards for hospital meals are maintained by a thorough regulatory process unlike some hospitals south of the border⁹.

Wastage of food has become an important area globally, with up to 2 billion tonnes of food being wasted annually¹⁰. This questionnaire reported that over 60% of patients left food on their plate at the end of their meal. An array of factors beyond taste and nutrition influences food wastage at the individual level, such as the normal appetite of the patient, how well or unwell they feel and the ward environment that they are in. However, more importantly some food never found its way as far as the plate. The RIE food are supplied in packets in multiples of four. This meant that if there was only one order for a particular meal, three would be discarded. In addition, the orders are taken in a ward by ward basis. Therefore, if

patients on two adjacent wards wish to have one type of meal, both wards would be sent a pack of four with a total of six meals being thrown away,

Having ascertained how the current system works we went on to investigate whether the procurement of food from a local supplier could be a viable option. Pete Ritchie, Director of Nourish Scotland⁷, and local organic farmer, claims East Lothian alone produces three times as much food as it consumes and that, in the absence of national procurement contracts, there would be more than enough to fill the hospital's order. If this potential was harnessed by local hospitals it could result in the reduction of the NHS's carbon footprint, an increase in food quality and a reduction in the reliance of the RIE on centralised administrative bodies. Indeed, this model of locally-sourced hospital meals has been successfully championed by hospitals, such as the Nottingham City Hospital and Royal Brompton Hospital (London)^{3,4}. They have deviated from long-term contracts with large multinational businesses to the use of fresh, local produce that is prepared on site. They have found that the switch has not only increased business for local suppliers but also lowered the carbon footprint and improved patient satisfaction, whilst still being economically viable. There are some disadvantages associated with local supplied food that would need to be discussed prior to this concept being delivered at the RIE. For example, there is a less diverse range of foods due to seasonal fluctuations, a lack of longevity and the need for a large facility in the hospital to cook the food. Discussions with other UK hospitals would be essential to assess how such difficulties have been overcome.

However, as the RIE was built by Balfour Beattie as part of a Private Finance Initiative, the NHS is essentially locked into a contract for food provision. Therefore the method of food catering at the Royal Infirmary cannot be changed until this contract is over, regardless of its efficiency. This method of procurement gives contractor responsibility for the design, building, financing and operation of a public building in return for an annual payment for a specified number of years¹¹. Although the initial cost is lower than if the state built the hospital, the annual payments are large, £30million a year for Worcestershire Royal Hospital¹¹. However, the most concerning aspect of these contracts is reduced flexibility for the hospital to adapt to changes. In an attempt to raise awareness of these health and sustainability issues we contacted several politicians including Claudia Beamish, Labour MSP and Shadow Minister for Environment and Climate Change, who raised the issue in a recent Climate Justice debate in the Scottish Parliament, citing this project.

This is a small single centre study that has focused on a small number of patients, and whose aims were broad and aimed. Indeed, the RIE is linked into a private finance initiative contract that does not affect other Scottish hospitals so conclusions can only be reported to relate to the RIE. Furthermore, the sample may not be considered representative of the entire hospital population (n=77). Finally, to limit interviewer bias all interviews and questionnaires were carried out using pre-set questions that limited the quantity of information gained from patients. However, despite these limitations we do think that this study has highlighted areas that could

provide a basis for larger multi-centre research projects that could compare the sustainability and quality of NHS food across Scottish hospitals.

Conclusion

This study reports that current food provided at the RIE is nutritionally sound, and a majority of the patients find the food good or very good. This is in stark contrast to the commonly quoted media stories about hospital food. We recommend a simple food satisfaction survey becomes part of every patient's discharge to give a clearer indication of patient satisfaction with the meals they have and the drive quality improvement.

We also report that the current method of delivering patient meals lacks an efficient sustainability model, and is characterised by high levels of waste from an organisational level as meals are packed as a set of four. It is clear from our survey that patients would prefer food to be supplied locally, a system that has been shown to function well in other UK hospitals. We believe that, before the end of the current contract, further research should be conducted into the feasibility of locally sourced meals suitable for the RIE. Furthermore this should be carried out with a view to implementing a new, greener, higher quality, patient-friendly system as soon as it is feasible to do so.

Recommendations

- A food satisfaction survey should become part of every patient's discharge procedure.
- The current food procurement contract should be reviewed before the end of the current contract, with serious consideration given to an alternative procurement method, especially produce that is locally supplied.
- Further research should be conducted into the quality and sustainability of hospital food across Scottish hospitals

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