

A Qualitative and Quantitative Understanding of Dietitian Food Safety Training in a Welsh and a Lebanese University

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Introduction

Patients associated with a greater susceptibility to foodborne disease (including primary immunodeficiency, treatment with radiation or with immunosuppressive drugs for cancer and diseases of the immune system, diabetics, those with liver or kidney disease, pregnant women, young infants, and the elderly)¹ have an increased risk of foodborne infection and efforts are required to reduce the risk².

Dietitians are perceived to be key, trusted spokespersons who deliver food-related dietary advice to immune-compromised patients³. Provision of food safety advice by trained registered dietitians can inform such patients of risks associated with increased foodborne illness and risk-reducing food safety behaviours⁴. Previous research has determined gaps in practicing registered dietitians general food safety knowledge and pathogen awareness⁵ which may result in patients being inadequately informed and thus, potentially more susceptible to foodborne illness. Dietitians need appropriate / adequate knowledge and skills to deliver effective food-safety advice, which can be gained during dietitian training⁶.

Purpose

The aim of this research was to determine a cross-cultural comparison of trainee dietitian teaching approaches in two international Universities as well as undertake a comparison of trainee dietitians food safety cognitive influences.

Methods

Quantitative surveys: Piloted self-complete (paper based) surveys were completed by trainee dietitians at Cardiff Metropolitan University (Cardiff Met), Cardiff, Wales, UK ($n=34$) and the Modern University for Business and Science (MUBS), Beirut, Lebanon ($n=25$).

Surveys included a series of closed, multiple choice questions to determine respondent profile, knowledge of food safety practices, attitudes towards and reported experience of food safety training.

Qualitative interviews: Structured interviews were undertaken with dietetic lecturers according to a predetermined interview schedule to ascertain teaching approaches and perceptions of the dietitians' role in delivery of food safety information.

Data analysis: Quantitative data analysis was undertaken using Microsoft Excel 2016 and a thematic analysis of data was conducted using Nvivo (11) to identify themes in food safety perceptions.

Ethical Approval: Approval was obtained from the Health Care and Food, Ethics Panel at Cardiff Met., and the Ethics Panel at MUBS, Lebanon.

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Results and Discussion

Food safety training of trainee dietitians

All trainee dietitians in both institutions reportedly received food-safety education as part of dietetic degree training, however, the approach to teaching trainee dietitians regarding food safety varied between institutions (see Table 1).

	Cardiff Met., Wales, UK	MUBS, Lebanon
Food safety training approaches	<ul style="list-style-type: none">Reported participation in a one-day food-safety training course (Royal Society for Public Health Level 2 Award in Food Safety).Trainee dietitians attend hospital placements to embed dietetic skills in a clinical environment.	<ul style="list-style-type: none">Reported attendance to food microbiology, food hygiene and food service management lectures; trainee dietitians also offered Hazard Analysis Critical Control Point (HACCP) and International Standard for Organisation (ISO) training courses.Further food safety training may be available during a "food service practicum" (possibly in a hospital setting).
Reported trainee dietitian food safety training experiences and perceptions	<ul style="list-style-type: none">Only 50% considered the food safety training received during the dietetics degree to be adequate to inform patient about food safety.Only 35% indicated they would be confident to give an immunocompromised patient food safety information.91% would like to learn more about food safety for immunocompromised patients.100% agreed a continual professional development (CPD) course would ensure dietitians are knowledgeable of food safety.	<ul style="list-style-type: none">72% believed they still had more to learn to enable them to inform patients about food safety in the home.40% felt the food safety education they received was not clinically applicable.76% indicated they would be confident to give an immunocompromised patient food safety information.68% would like to learn more about food safety for immunocompromised patients.76% agreed a continual professional development (CPD) course would ensure dietitians are knowledgeable of food safety.

Table 1. Trainee dietitian food safety training approaches, experiences and perceptions.

MUBS lecturing staff recognised that "it's very important" that dietitians are provided with food safety information as although some dietitians "will remain in the kitchen for the whole day". It was also reported that other, clinical dietitians would have patient contact "so we have to provide food safety information and we have to train students in this" (Lecturer, MUBS).

In MUBS the food safety training is intended to ensure "students will definitely be ready" to fully educate patients about food safety as well as nutritional issues (Lecturer, MUBS).

Although both institutions recognised the relevance and need for dietitians to adequately and effectively deliver food safety information to patients, in-depth, clinically applicable food safety training regarding vulnerable patient groups was lacking. Many trainee dietitians indicated the desire for further food safety education.

Trainee dietitian attitudes towards food safety information provision

More (7-12%) trainee dietitians in Wales expressed positive attitudes towards food safety information delivery, prioritisation and the need for food safety provision as standard procedure (see Table 2). However, many trainee-dietitians (76-100%) from both institutions indicated they believed that food safety should be part of a dietitian's role when advising immunocompromised patients. Trainee dietitians from Wales indicated a lack of confidence in advising patients regarding food safety (see quotes below) and perceived need for more food safety training.

"I wouldn't feel confident to inform patients about food safety."

"I have some knowledge but not confident."

"Could have refresher as only received one-off training."

Proportion of trainee dietitians.....	Cardiff Met., Wales	MUBS, Lebanon
....believed vulnerable patient groups needed to be given food safety information.	100%	76%
....disagreed that the role of the dietitian is to only provide nutritional advice, not food safety information	79%	72%
....disagreed that the delivery of food safety information is not a priority for dietitians	79%	68%
....agreed the provision of food safety information should be a standard procedure for dietitians.	76%	64%
....believed educating dietitians to inform vulnerable patient groups of food safety may reduce the risk of food poisoning	97%	84%

Table 2. Trainee dietitian attitudes towards food safety information provision.

Food safety knowledge of trainee dietitians in Cardiff Met. and MUBS

Analysis of data indicated significant differences between specific components of trainee-dietitian food-safety knowledge between institutions (see Figure 1).

- Knowledge of recommended cooking temperature to indicate food safety was lacking, although 41% in Cardiff Met knew the correct temperature, significantly fewer ($p<0.05$) were aware in MUBS (24%).
- All trainee dietitians indicated knowledge of recommended refrigeration temperatures ($\leq 5^{\circ}\text{C}$) in MUBS, which was significantly greater ($p<0.05$) than for Cardiff Met (68% awareness).
- Trainee dietitians at both institutions indicated confusion regarding date-labelling, awareness that 'use-by' dates indicate food safety was significantly greater ($p<0.05$) in Cardiff Met (62%) than MUBS (32%).
- No significant differences ($p>0.05$) were identified between institutions for knowledge of the need to wash hands before handling ready-to-eat foods or washing raw meat increasing the risk of cross contamination.

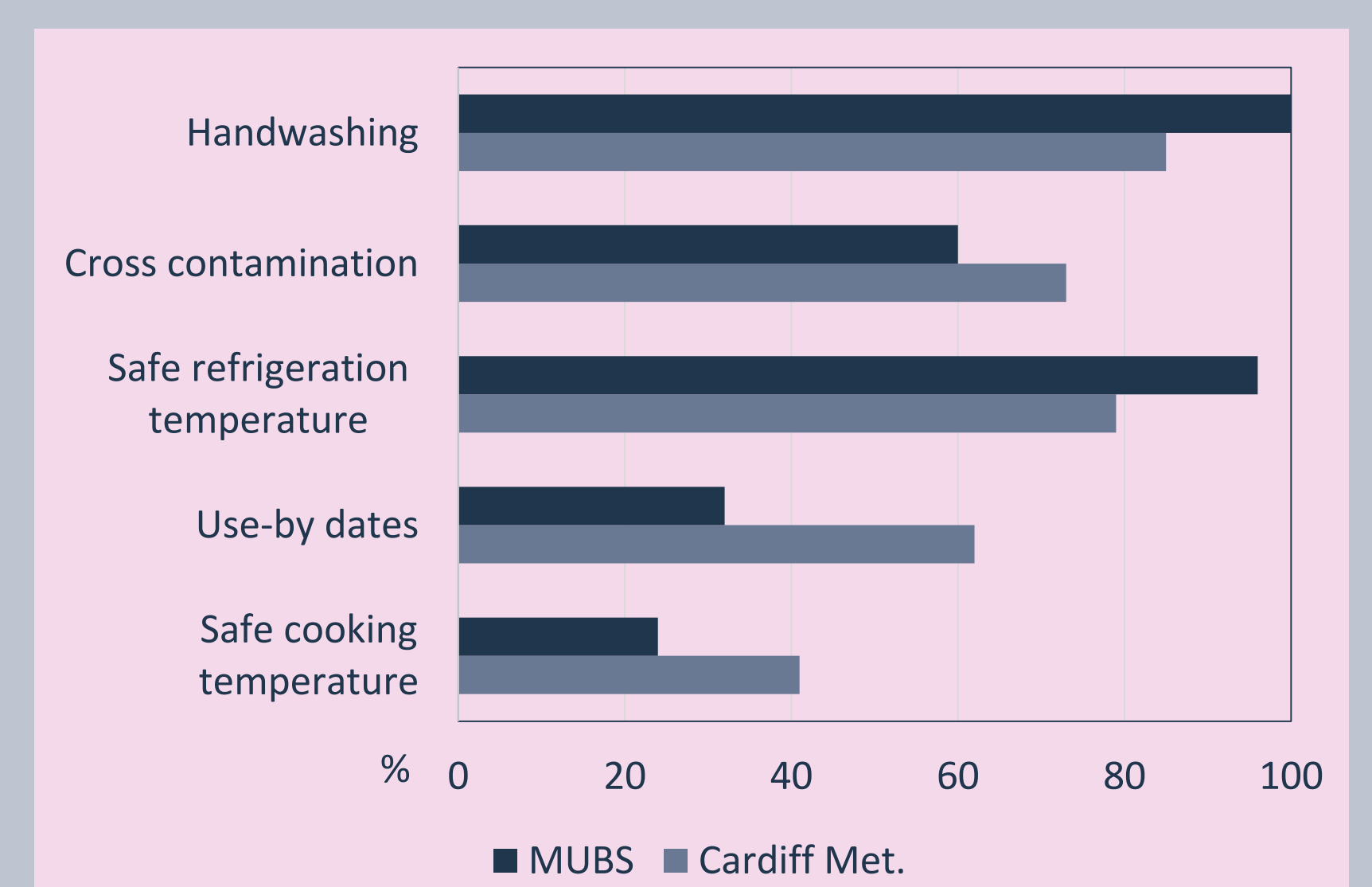


Figure 1. Knowledge of specific food safety factors.

Significance of study

- Food safety training approaches implemented at both institutions, although different, are not clinically applicable to enable trainee dietitians to inform and enable vulnerable patients to reduce risks associated with foodborne illness. Trainee dietitian knowledge of specific food safety factors differed between institutions suggesting potential impact of different teaching approaches.
- Awareness of important food safety recommendations was lacking in both institutions, as was a reported lack of confidence in advising vulnerable patients about food safety. Cumulatively, data suggests a need for improved food safety education and targeted training, specifically tailored to address generic and unique food safety needs of relevant vulnerable patient groups.

