

Trainee Dietitians Food Safety Knowledge, Attitudes and Training Experiences in Lebanon and Wales.

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Introduction

Dietitians are perceived to be key, trusted spokespersons who deliver food-related dietary advice to the general public which includes individuals who are immune-compromised¹. Individuals who have a compromised immune system have an increased risk of foodborne infection².

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 behaviors³.

Previous research has determined gaps in practicing registered dietitians general food safety knowledge and pathogen awareness⁴, which may result in patients being inadequately informed and thus, potentially more susceptible to foodborne illness. Dietitians need appropriate and adequate knowledge and skills to deliver effective food-safety advice, which can be gained during dietitian training⁵.

Training for dietitians in the UK and in Lebanon is very similar, however the approach to the food safety aspect of training varies between institutions. Food safety in Lebanon is a major public health issue⁶ and international differences are likely to have an impact on training requirements.

Purpose

The aim of this research was to compare knowledge, attitudes, and teaching approaches of trainee dietitians regarding food safety from two international universities that provide accredited dietetic degree courses.

Methods

Recruitment: Trainee dietitians (aged >18 years) studying at Cardiff Metropolitan University, Wales, UK ($n=34$) and The Modern University for Business and Science (MUBS) Beirut, Lebanon ($n=25$).

Data Collection: Utilised piloted self complete quantitative questionnaires. Questionnaires included a series of closed, multiple choice questions to determine reported profile, knowledge of food safety practices, attitudes towards and reported experience of food safety training.

Data analysis: Quantitative data analysis was undertaken using Microsoft Excel 2016 and IBM SPSS Statistics package 23.

Ethical Approval: Approval was obtained from the Health Care and Food, Ethics Panel at Cardiff Met (reference no: 9299) and the Ethics Panel at MUBS, Lebanon.

References

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Handouts

All posters from the ZERO2FIVE Food Industry Centre are available for download from: www.cardiffmet.ac.uk/health/zero2five/research

Results

Food safety education approaches and attitudes towards food safety

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

Students in the UK complete a one day training course specifically developed for people working in the food production sector, whereas students in Lebanon have elements of food safety integrated in lectures.

Table 1. Trainee dietitian food safety training approaches (Lebanon $n=25$; UK $n=34$).

Cardiff Met., Wales, UK	MUBS, Beirut, Lebanon
100% reported completing a one-day food safety training programme (Royal Society for Public Health Level 2 Award in Food Safety).	100% reported studying food safety as part of their degree course in modules such as 'food microbiology and parasitology', 'food hygiene' or 'food service management'.

Although both institutions provided food safety education for trainee dietitians, in-depth, clinically applicable food safety training regarding vulnerable patient groups was lacking.

Trainee dietitians in both institutions recognized the relevance and need for dietitians to deliver food safety information to patients, and reported that in-depth, clinically applicable food safety training regarding vulnerable patient groups was lacking (Table 2).

Significant differences ($p<0.05$) were determined, UK students were less confident to give food safety information, did not consider their training to be as adequate as in Lebanon and believed continual professional development would increase knowledge.

Table 2. Trainee dietitian attitudes towards food safety education and the provision of food safety information to clients (Lebanon $n=25$; UK $n=34$).

Proportion of trainee dietitians...	Lebanon	UK	Differences
... believed vulnerable patient groups needed to be given food safety information.	76%	100%	$\chi^2(3, n=59) = 9.112, p<0.05$, Cramer's V=0.39
... disagreed that the role of the dietitian is to only provide nutritional advice, not food safety information	72%	79%	$p>0.05$
... disagreed that the delivery of food safety information is not a priority for dietitians	68%	79%	$p>0.05$
... agreed the provision of food safety information should be a standard procedure for dietitians.	64%	76%	$p>0.05$
... believed educating dietitians to inform vulnerable patient groups of food safety may reduce the risk of food poisoning	84%	97%	$p>0.05$
... agreed they would be confident to give an immuno-compromised patient food safety information	76%	35%	$\chi^2(4, n=59) = 16.979, p<0.05$, Cramer's V=0.34
... agreed they consider the food safety training received during their dietetics degree to be adequate	72%	50%	$\chi^2(4, n=59) = 40.637, p<0.05$, Cramer's V=0.43
... agreed a continual professional development (CPD) course would ensure dietitians are knowledgeable of food safety.	76%	64%	$\chi^2(3, n=59) = 10.371, p<0.05$, Cramer's V=0.42

Food safety knowledge

Foodborne pathogens: The majority (64-92% Lebanon, 74-97% UK) indicated awareness of common foodborne pathogens. Greatest awareness was for Salmonella (92% Lebanon, 97% UK) (Figure 1), no significant differences ($p>0.05$) were determined in pathogen awareness between institutions.

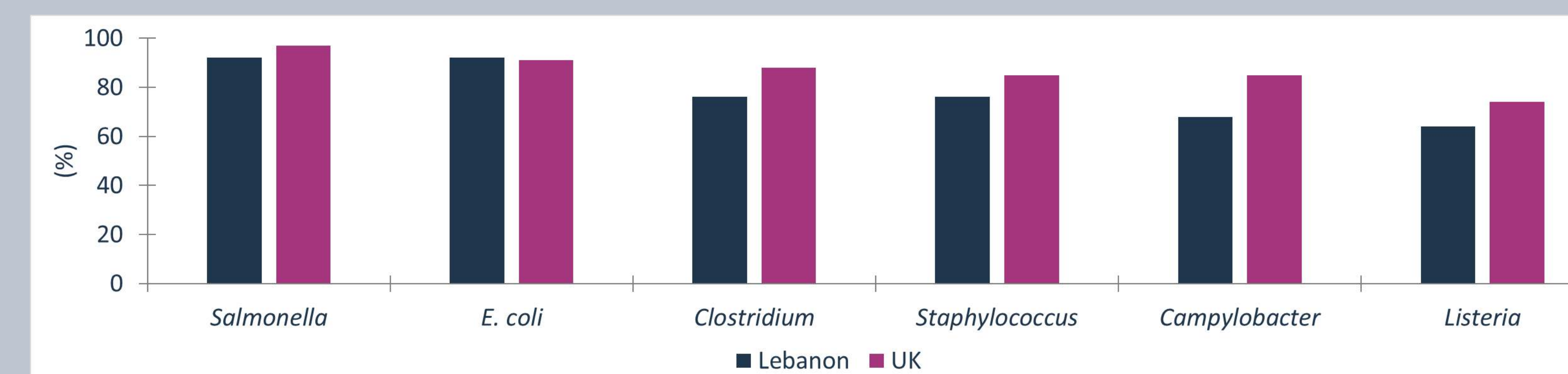


Figure 1. Awareness of foodborne pathogens (Lebanon $n=25$; UK $n=34$)

Refrigeration: Positive attitudes were expressed towards checking refrigerator operating temperatures (Lebanon 96%, UK 79%), awareness of recommended refrigerator operating temperatures ($\leq 5.0^\circ\text{C}$) were significantly greater in Lebanon (96%) than in the UK (71%).

Cooking: Although the majority (Lebanon 84%, UK 85%), were aware of the need to use a thermometer to ensure food safety, knowledge of recommended cooking temperature was lacking, only 41% in UK knew the correct temperature ($\geq 70^\circ\text{C}$), significantly fewer ($p<0.05$) (24%) were aware in Lebanon.

Handwashing: The majority were aware of the need to implement handwashing after handling raw meat (Lebanon 96%, UK 91%). However, significantly fewer ($p<0.05$) in UK (85%) were aware of the need to wash hands before handling ready-to-eat (RTE) foods than in Lebanon (100%). Only 80% in Lebanon identified the need to implement handwashing before commencing food preparation compared to 97% in the UK (Figure 2).



Figure 2. Awareness of occasions that require handwashing (Lebanon $n=25$; UK $n=34$)

Cross-contamination: The majority were aware that practices such as failing to clean a chopping board after cutting raw chicken before preparing salad (Lebanon 96%, UK 100%) and using the same chopping board for raw and ready-to-eat food (Lebanon 92%, UK 97%) would increase the risk of cross-contamination. Awareness of other practices were lacking. Significantly fewer ($p<0.05$) in Lebanon (40%) were aware washing raw meat increases the risk of cross-contamination compared to UK (74%), conversely, (Lebanon 28%, UK 18%) believed that failing to wash raw meat would increase the risk of cross-contamination (Figure 3).

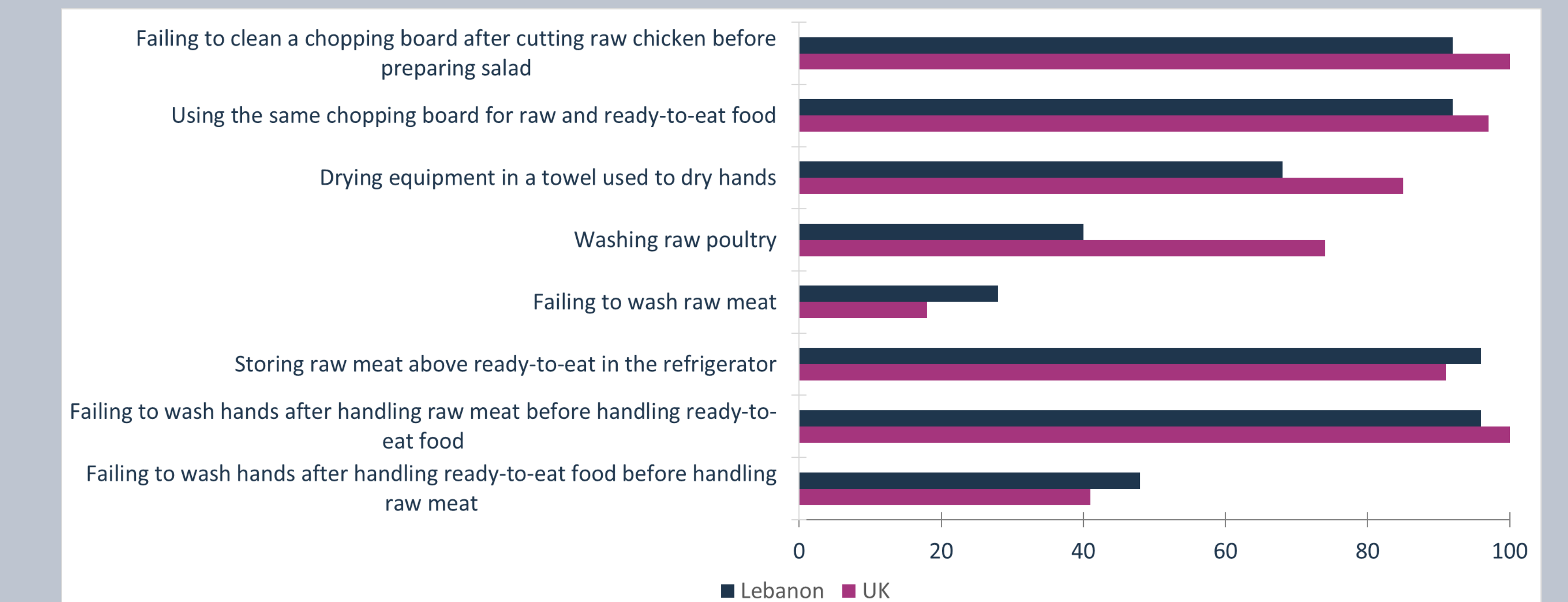


Figure 3. Awareness of cross-contamination associated practices (Lebanon $n=25$; UK $n=34$)

Date labelling: Although UK students had significantly greater ($p<0.05$) awareness regarding date labelling on foods, confusion was indicated with only 32% (Lebanon) — 62% (UK) students indicating awareness that the 'use by' date is the date label that indicates food safety. Some believed the 'best before' date (Lebanon 40%, UK 12%), to be the indicator of food safety, whereas over a quarter, at both institutions, did not know or believed the date labels to have the same meaning (Lebanon 28%, UK 27%).

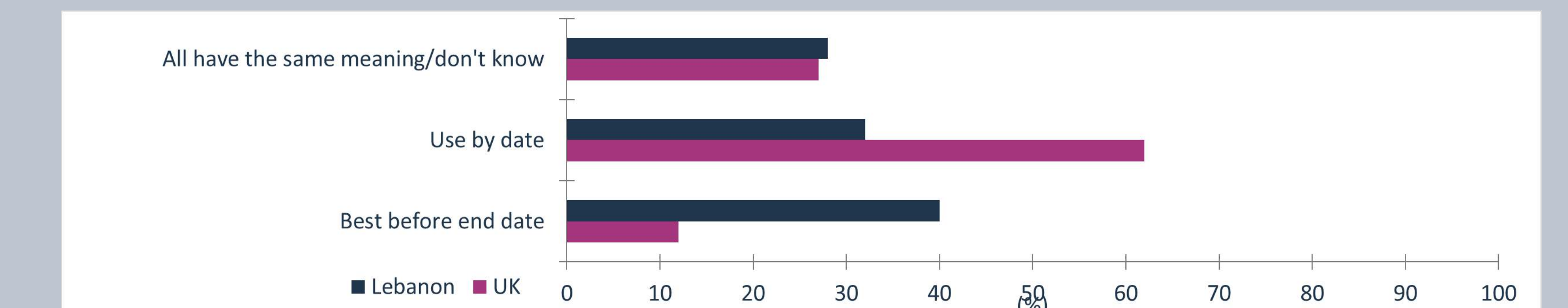


Figure 4. Awareness of cross-contamination associated practices (Lebanon $n=25$; UK $n=34$)

Storage duration: Awareness of the recommendation to consume RTE foods within two days of opening was lacking (Lebanon <84%, UK <70%).

Significance of study

- Trainee dietitians from both institutions indicated that food safety should be part of a dietitian's role when advising vulnerable patients. Differences in knowledge between institutions may suggest that teaching approach affects knowledge retention. Teaching approaches to food safety applied at both institutions, although different, are not clinically applicable to enable trainee dietitians to inform and enable vulnerable patients to reduce foodborne infection risks.
- There is a need to expand the research to explore the awareness and attitudes of trainee dietitians in other countries where training approaches may differ. These findings identify the need for specifically targeted training for trainee dietitians.