# A Comparison of Food Safety Knowledge, Attitudes and Training Experiences of Trainee Dietitians from a Welsh and a Lebanese University





# Introduction

Dietitians are perceived to be key, trusted spokespersons who deliver foodrelated dietary advice to the general public which includes individuals who are immune-compromised'. Individuals who have a compromised immune system have an increased risk of foodborne infection<sup>2</sup>.

Provision of food safety advice by trained registered dietitians can inform such patients of risks associated with increased foodborne illness and riskreducing food safety behaviors<sup>3</sup>.

Previous research has determined gaps in practicing registered dietitians general food safety knowledge and pathogen awareness<sup>4</sup>, 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 training<sup>°</sup>.

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 issue<sup>6</sup> 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 respondent 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.

All trainee dietitians in both institutions reportedly received food-safety education as part of the dietetic degree training, however, 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 dietician food safety training approaches

100% reported completing a one-day food safety training programme (Royal Society for Public Health Level 2 Award in Food Safety)

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.

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 (continuing education) would increase knowledge.

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

**Proportion of trainee** . believed vulnerab be given food safety . disagreed that the only provide nutritiona information

. disagreed that the information is not a pr agreed the provision

should be a standard . believed educating patient groups of for food poisoning

. agreed they would nmuno-compromise information

.. agreed they consid received during their . agreed a continual

(CPD) course would knowledgeable of foo

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# Results

## Food safety education approaches

#### Cardiff Met., UK

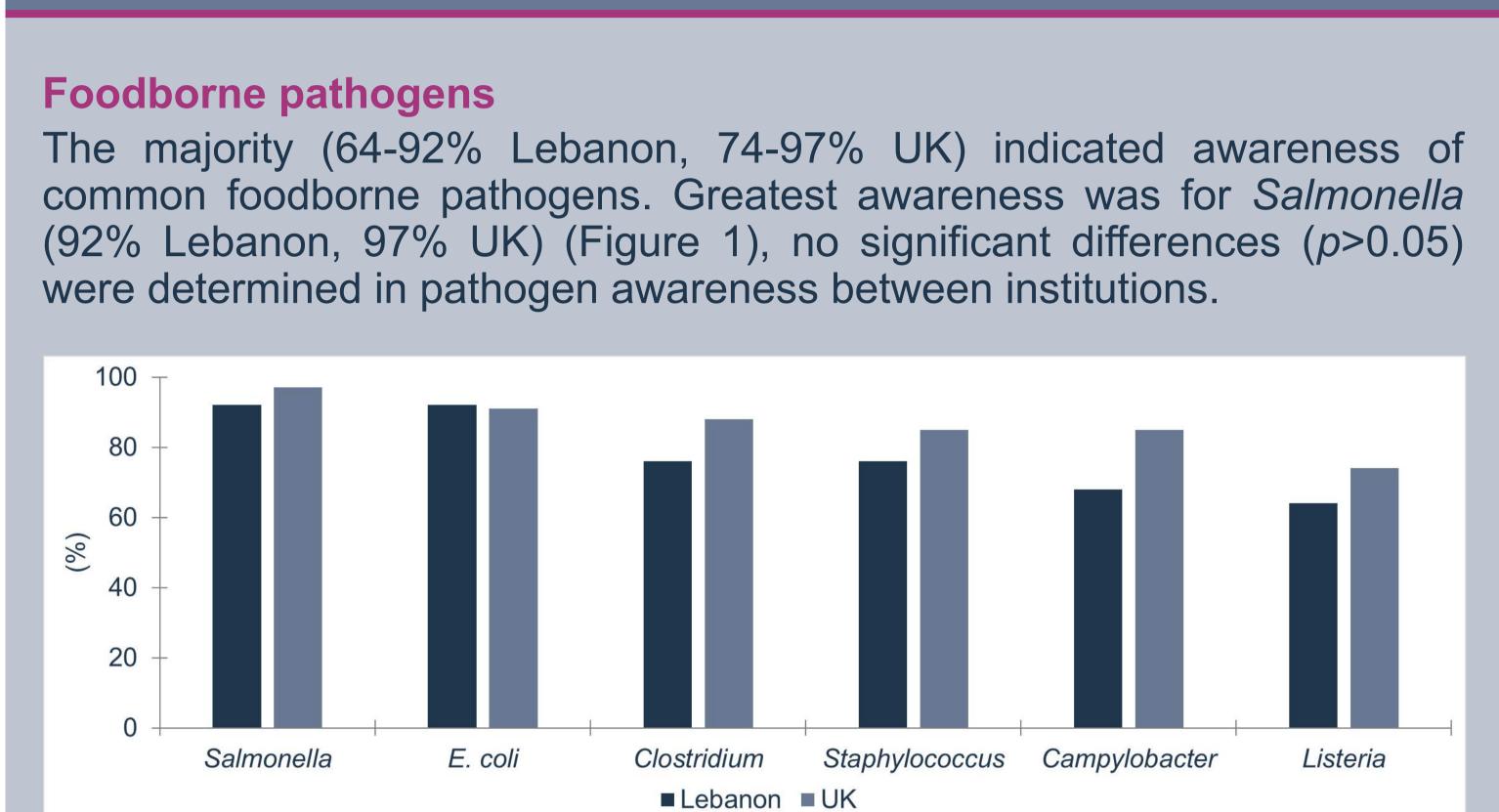
MUBS, Lebanon

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'.

## Attitudes towards food safety

Lebanon	UK	Differences
76%	100%	X <sup>2</sup> (3, <i>n</i> =59) = 9.112, <i>p</i> <0.05, Cramer's V = 0.39
72%	79%	<i>p</i> >0.05
68%	79%.	<i>p</i> >0.05
64%	76%	<i>p</i> >0.05
84%	97%	<i>p</i> >0.05
76%	35%	X <sup>2</sup> (4, <i>n</i> =59) = 16.979, <i>p</i> <0.05, Cramer's V = 0.34
72%	50%	$X^{2}(4, n=59) = 40.637, p < 0.05, Cramer's V$ = 0.43
76%	64%	X <sup>2</sup> (3, <i>n</i> =59) = 10.371, <i>p</i> <0.05, Cramer's V = 0.42
	76% 72% 68% 64% 84% 76%	76%  100%    72%  79%    68%  79%.    64%  76%    84%  97%    76%  35%    72%  50%

## Food safety knowledge





## Refrigeration

Positive attitudes were expressed towards checking refrigerator operating temperatures (Lebanon 96%, UK 79%), however reported awareness of recommended refrigerator operating temperatures (≤5.0°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 ( $\geq 70^{\circ}$ 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).

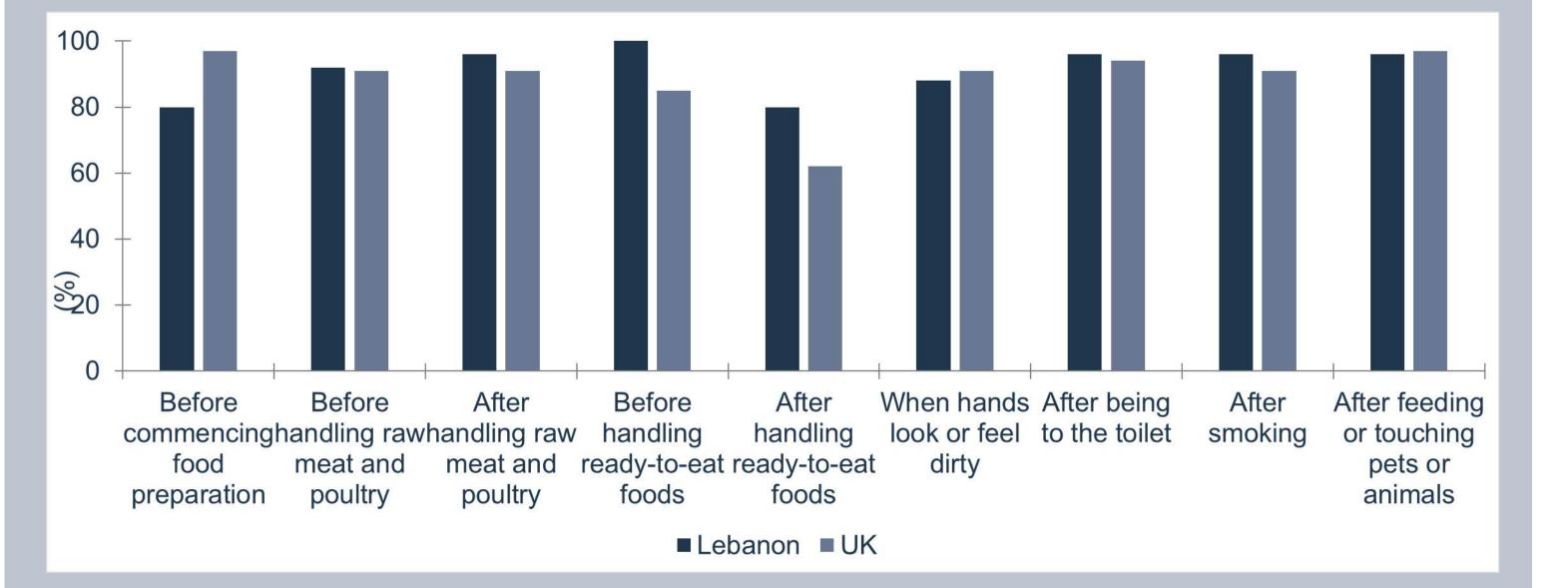


Figure 2. Awareness of occasions that require handwashing (Lebanon *n*=25; UK *n*=34)

## Food safety knowledge

#### **Cross-contamination**

As indicated in Figure 3, although 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 that washing raw meat increases the risk of cross-contamination compared to UK (74%), concernedly, (Lebanon 28%, UK 18%) believed that failing to wash raw meat would increase the risk of crosscontamination.

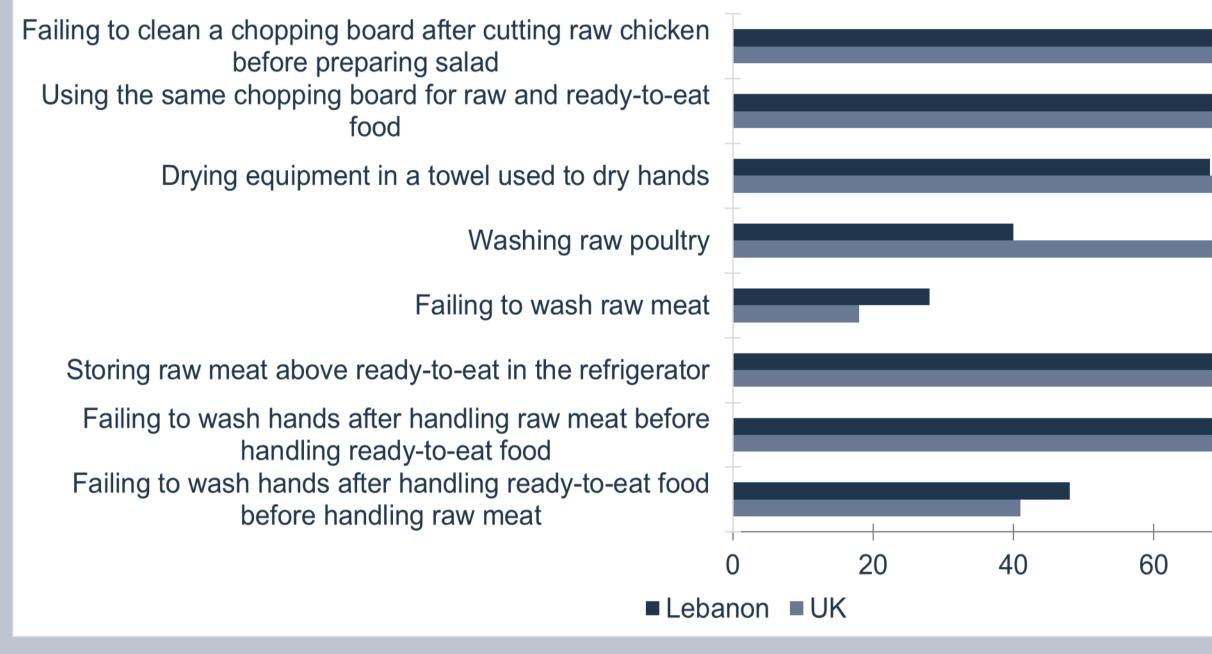


Figure 3. Awareness of cross-contamination associated practices (Lebanon *n*=25; UK *n*=34)

### **Date labelling**

Although UK students have significantly greater (p<0.05) awareness regarding the date labelling on foods, confusion regarding date labelling 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%).

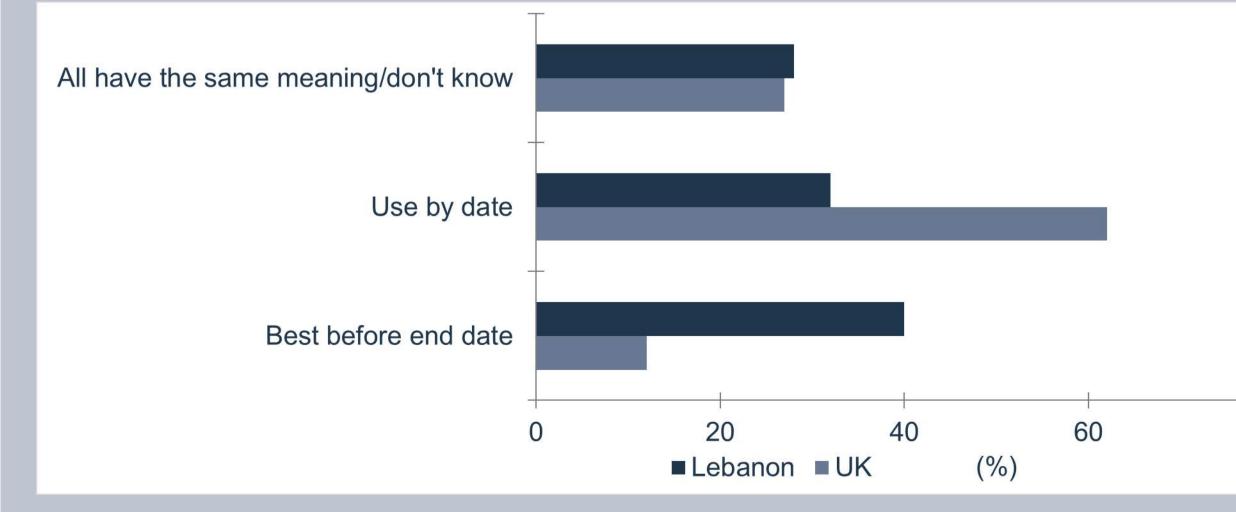


Figure 3. Awareness of cross-contamination associated practices (Lebanon *n*=25; UK *n*=34)

#### 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.

# Acknowledgements

Cardiff Met., the ZERO2FIVE Food Industry Centre and MUBS, wish to acknowledge the students who completed the questionnaire.

# 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



