

“How can you be allergic to peas?” – A qualitative study to explore food handler’s knowledge, attitudes and understanding of food allergens

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ABSTRACT

It is clear that there is an increasing proportion of the United Kingdom (UK) population who are suffering with food allergies and this combined with an increase in the frequency of eating away from home (where there is less control over the content of food) poses a significant risk. In December 2014, the European Union (EU) introduced legislation which aimed to ensure that customers with food allergens could make informed choices and safely consume food, without the risk of a potentially life-threatening reaction. The research used semi-structured interviews with staff from a BCB, located in the North West of the UK, as the aim of the research was to explore food handlers’ knowledge, attitudes and understanding of food allergens. The findings of the semi-structured interviews identified five themes: E-learning training programmes: the staff felt that these were ineffective and did not take into account individual learning styles. Responsibility: there is a lack of clarity as to who is responsible, with staff believing the key responsibility lies with the customer. Communication: similarly, communication, both within the kitchen and within the company was not clear and likely to give rise to confusion. Need to make a profit: the staff felt that the drive for profit meant that customer safety was being compromised, especially when staff numbers were reduced. Staff awareness: the staff felt confident in their own ability to prepare a safe meal but indicated that staff may be dismissive towards claims of allergen sufferers. In conclusion, these themes illustrate that a significant risk exists for allergen sufferers, who rely upon the knowledge, attitudes and understanding of BCB staff to ensure their meals are safely prepared.

Key words: food allergens; food handlers; e-learning; knowledge; attitudes

POVZETEK

Jasno je, da se v Združenem kraljestvu povečuje delež ljudi, ki trpijo za alergijami na hrano, hkrati pa se povečuje pogostost prehranjevanja izven doma (kjer je manj nadzora nad vsebnostjo hrane), kar predstavlja veliko tveganje. Decembra 2014 je Evropska unija (EU) sprejela zakonodajo, ki naj bi strankam z alergijami na hrano zagotavljala dovolj informacij za izbiro in varno

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uživanje hrane, brez tveganja, da bi prišlo do smrtno nevarnih reakcij. Raziskava temelji na pol strukturiranih intervjujih z osebjem iz gostinskih podjetij na severozahodu Združenega kraljestva, saj je bil namen raziskati znanje, odnos in razumevanje alergij na hrano tistih, ki z njo rokujejo. Ugotovitve pol strukturiranih intervjujev so opredelile pet tem: Programi usposabljanja z e-učenjem: osebje meni, da so neučinkoviti in ne upoštevajo posameznih stilov učenja. Odgovornost: premalo je jasno, kdo je odgovoren, osebje pa meni, da je ključna odgovornost na strani stranke. Komunikacija: podobno tudi komunikacija, tako v kuhinji kot znotraj podjetja, ni bila jasna in bi lahko povzročila zmedo. Potreba po dobičku: osebje meni, da želja po dobičku ogroža varnost strank, še posebej ob zmanjšanju števila zaposlenih. Ozaveščenost osebja: osebje se je počutilo samozavestne glede lastne sposobnosti za pripravo varnega obroka, a se je izkazalo, da včasih ne upoštevajo zahtev ljudi, ki trpijo za alergijami. Za konec, te teme kažejo veliko tveganje za ljudi z alergijami na hrano, ki se zanašajo na znanje odnos in razumevanje osebja v gostinskih podjetjih, ki naj bi zagotavljalo, da so obroki varno pripravljani.

Ključne besede: alergeni v hrani; rokovanje s hrano; e-učenje; znanje; odnos

INTRODUCTION

Food allergies are globally relevant and are significantly increasing in both severity and prevalence, with the data showing an upward trend to include more food product triggers. [1,2] It is estimated that between 11 and 26 million people in Europe suffer from food allergies [3], with an estimated 2 million people in the UK, living with a diagnosed food allergy [4].

Those suffering from food allergies can show a variety of different symptoms, ranging from mild rashes through to reactions such as anaphylactic shock, with these more serious reactions having the potential to be life-threatening. The increase in prevalence and reactions rates presents itself as a serious public health concern and one that needs to be continually monitored and addressed.

In addition, the way people are eating is changing. Due to the increasing number of allergic people and the rise of 'eating out' culture in the UK, particularly within popular Branded Catering Businesses (BCBs) – considered to be a chain of catering establishments operating in line with a corporate personality and design – it could be argued that BCBs should now be a focal point when addressing the issue of food allergies.

Society has seen a cultural shift over recent decades with more and more people eating out and with more regularity [5]. This is reflected in the rapid growth of the hospitality sector, which is currently the third largest private sector in the UK, employing more than 3 million people and generating £130bn in economic activity. BCBs constitute a large portion of this market and are experiencing an exponential growth, resulting in thousands of people being served each day [6]. While many other businesses and companies within retail are facing uncertain futures and slipping into administration, the demand for BCBs remains.

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21%-31% of allergen ingestion occurs when eating in restaurants and 13%-23% occurs in other eating out environments such as workplaces and school canteens.

As there currently is no cure for food allergies, this makes avoidance the only real way for an allergic person to prevent themselves from having an allergic reaction.

According to Versluis et al., [7] 21%-31% of allergen ingestion occurs when eating in restaurants and 13%-23% occurs in other eating out environments such as workplaces and school canteens. With the large number of BCBs now operating in the UK and this level of incidents taking place outside the home, it is clear that practices and methods of controlling allergens within these organisations must be robust and easily understood. As there currently is no cure for food allergies, this makes avoidance the only real way for an allergic person to prevent themselves from having an allergic reaction. Therefore, the information that is presented to the consumer detailing the ingredients and content of food must be clear and accurate to allow them to make an informed choice at the point of sale [8].

A range of legislation exists in order to protect food allergen sufferers: Article 14 of European Union (EU) Regulation 178/2002 (laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety) prohibits food from being placed onto the market if it is deemed to be either injurious to health or unfit for human consumption; Article 5 of EU regulation 852/2004 requires food retailers to have in place procedures to manage food safety based on Hazard Analysis Critical Control points (HACCP) principles and Annex II of the EU Food information for Consumers Regulation (EU) No. 11669/2011 and Commission Delegated Regulation (EU) No. 78/2014 outlines the 14 allergens that must be labelled or indicated as being present in foods (Box 1), resulting in the EU having one of the most comprehensive food allergen lists available.

The UK's response to these EU regulations, The Food Information for Consumers Regulation 2014, states that businesses must be capable of communicating to their customers which of their dishes contain any of the 14 specified allergens.

Box 1: List of EU allergens [9]

- Cereals containing gluten namely wheat (such as spelt and Khorasan wheat), rye, barley
- Crustaceans and products thereof (for example prawns, lobster, crabs and crayfish)
- Egg and products thereof
- Fish and products thereof
- Peanuts and products thereof
- Soybeans and products thereof
- Milk and products thereof (including lactose)
- Nuts (namely almond, hazelnut, walnut, cashew, pecan nut, Brazil nut, pistachio nut and Macadamia nut (Queensland nut))
- Celery and products thereof
- Mustard and products thereof
- Sesame seeds and products thereof
- Sulphur dioxide and/ or sulphites at concentrations of more than 10mg/kg or 10mg/L (litre)
- Lupin and products thereof
- Molluscs and products thereof (for example mussels, clams, oysters, scallops, snails and squid)

The preparation and handling of food in BCBs is therefore of paramount importance. Personal team members at all levels employed at BCBs need to have at least a basic knowledge of food allergies. This includes knowing the allergens and the various pathways in which an ingredient could become part of a finished dish through cross-contamination during the storage, preparation, cooking and serving stages.

Yet staff at BCBs are often employed on minimum wage, possess few formal qualifications [10] and are young, with 29% of people employed in the industry aged under 21 years old [11]. This can lead to a high level of staff turnover, meaning that these businesses are constantly having to train new members of staff.

This should imply that BCBs are well-practiced in developing new employees to a high standard of training in a short space of time. The vast majority of BCBs have now chosen to use e-learning as their method of training staff and spend considerable sums with specialist companies in order to ensure that they are getting a product/service that is capable of delivering this. However, Sahasrabudhe and Kanungo, [12] claim the effectiveness and long-term sustainability of this training platform with regard to food service personnel’s knowledge can be questioned and BCBs are now recognising that E-learning must be used in conjunction with practical training and refreshed at very regular intervals [13].

McAdams et al. [14] found that chefs were knowledgeable about food allergies and were passionate about providing safe meals to guests. However, the same study concluded that there was a general lack of access to important food allergen risk management resources and training. This is supported by Bailey et al., [15] when investigating restaurants employees’ knowledge of anaphylaxis. The true or false questionnaire in this study highlighted that 90% of staff had received allergen training, yet only 50% of participants could not name more than three of these. Of the 90 participants, 80% reported that they felt confident in providing a safe meal to an allergic customer.

This shows a level of disparity and demonstrates a worrying gap in knowledge. The lack of association between the participant’s knowledge and their comfort level in providing a safe meal is alarming and poses a significant danger to their customers.

Therefore, whilst providing people with the knowledge they need to operate safely at work is essential, translating that newly acquired knowledge into behaviour change is an entirely different task, made challenging due to other variables such as attitude, beliefs and personal values [16].

Previous research has employed a quantitative approach to establishing employees knowledge and attitudes towards food allergens [17, 18, 19, 15, 20, 21, 22, 14]. From this, the researcher identified a significant lack of qualitative research into this subject. The aim of this qualitative research is to explore food handlers’ knowledge, understanding and attitudes relating to food allergens and provides an opportunity to give an honest and detailed account of how food service employees perceive allergens and their feelings, thoughts and attitudes towards them.

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This research design allowed the researcher to approach micro-level topics, such as the individual's views, experiences and attitudes and also explore meso-level issues around social groups, organisations and communities.

METHODS

Research design

The research took a qualitative approach and consisted of a series of semi-structured interviews with 6 team members of staff from a BCB, with each participant being asked the same questions (appendix 1). This research design allowed the researcher to approach micro-level topics, such as the individual's views, experiences and attitudes and also explore meso-level issues around social groups, organisations and communities [23]. This proved particularly beneficial when investigating how allergens are viewed across peer-groups and within a large organisation.

Sampling

This research project adopted a purposive sampling technique. Denscombe [24] believes purposive sampling provides a way of getting relevant information by selecting people most likely to have the experience or expertise to provide quality information and valuable insights in the research topic. The researcher selected participants based on their suitability and ability to contribute relevant responses to the researcher's questions. According to Malterud [25], the more information the sample holds, relevant for the actual study, the lower the number of participants is required. The figure of 6 participants was chosen as it represents one half of the whole kitchen team within the average chosen BCB (Table 1).

Table 1. Participant Information

Participant number	Length of time in industry	Current role	Training
1	16 years	Kitchen manager	Across various BCBs
2	8 years	Team leader	Across various BCBs
3	4 years	Commis chef	In- house only
4	4 years	FOH Assistant Manager to Commis chef	In- house only
5	1.5 years	Desserts	In house e-learning training
6	10 years	Sous chef	Across various BCBs Formal college qualification

Participants 1 and 2 stated they had children who were allergen sufferers and participant 3 stated they were an allergen sufferer themselves.

All participants had also undertaken the in-house, e-learning training within the last 12 months.

Semi-Structured Interviews

The questions for the semi-structure interview were generated by the author for the purpose of this research. The questions within the semi-structured interview were focused on the participants' knowledge, attitudes and understanding of food allergens.

Data collection

As this research was undertaken as part of the BSc (Hons) Environmental Health degree programme, prior to collection of any data, ethical approval was obtained from Liverpool John Moores University.

A BCB located in the North-West of England was identified and contacted asking if they would like to participate in the study. Once they had agreed, potential participants were approached in the work place and informed of the nature and purpose of the research. Confidentiality and anonymity were discussed and assured with the potential participants, as at this point concern was expressed that their comments would be fed back to their manager. Once the participants had been identified and had given consent to be interviewed, individual arrangements were made to conduct an interview with each participant. For convenience, the interviews were undertaken at participants’ workplace. The interviews took place in a private function room within the workplace. The use of this room was agreed with the BCB and the interviews were made as informal as possible, with no other persons present in the room. This was important to ensure the interviewee would be in a familiar location to help them feel comfortable and eliminated any bias from management or co-workers being present. All interviews were audio recorded and upon completion of the interviews the audio recording were transcribed and all identifying information anonymised. As this was a semi-structured interview, all participants were asked the same questions as set out in the semi-structured interview and probed on answers where the interviewer wished to explore further. Participants were also able to discuss areas not covered by the semi-structured interview but related to this topic.

The interviewer effect was considered and throughout each interview the researcher made every effort to ensure that they maintained an unobtrusive approach, ensuring that the participant was not made to feel in any way pressured to give an untrue or inaccurate response.

Data analysis

All interviews were recorded for the purpose of transcription and each participant was allocated a number to ensure anonymity. The responses for each interviewee were transcribed and then collated for each answer. From these collated answers, the researchers examined responses and clustered similar responses together. This enabled themes to emerge and is based upon the approach identified as “cutting and sorting” by Ryan and Bernard [26]. The extraction of themes ensures validity of data in that the more frequently an experience is raised, the more authentic the theme becomes. This is to say that there may have been issues raised that were specific to an individual that did not make it into a theme as it was too unique an experience.

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RESULTS

From the semi-structured interviews, the following key themes were identified:

Theme 1: Quality of in house e-learning

Theme 2: Responsibility

Theme 3: Communication

Theme 4: The impact of making a profit

Theme 5: Staff attitudes

Theme 1: Quality of in house e-learning

All the interview participants had carried out company provided e-learning within the previous year. However, when questioned, most participants struggled to explain specific allergens.

"Lupin is a type of fish, isn't it?" (Participant 1)

Whilst all participants agreed that training on allergens was important and needed to be undertaken, the method of training came under some criticism.

"Inadequate and virtually useless" (Participant 6)

"I don't count [the e-learning] as training, at the end there's a test but you can't fail it – you just redo it until you get all the answers right." (Participant 1)

The participants all held the viewpoint that the e-learning did not take into account their individual learning styles and felt that it was only provided so that the company could 'tick a box'. Participants felt that e-learning should be used in conjunction with other methods of training to help them remember of the information:

"I would prefer a classroom-based element so you can take notes back to look on, the problem with only having E-learning is that you can't go back into the training once you've done it." (Participant 4)

Participants felt that being able to engage with a person or have the opportunity to ask questions would be beneficial to them:

"E-learning was ok, but I felt very much on my own and if I didn't understand a certain thing there was no option for me to ask anybody." (Participant 6)

Participants identified the time that is required to complete the training as another problem with this training platform:

"I work long hours and only get one day off per week so having to spend that day off sat at a computer doing training is not really ideal for me." (Participant 3)

Although one interviewee working part-time had a different perspective, explaining that it is

"Convenient because I don't have to travel to work to do the training, I can just do it at home and in my own time." (Participant 5)

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Theme 2: Responsibility

When asked about the responsibility around safe meal preparation, each participant gave responses that could be seen as contradictory. For instance, *Participant 3* made the following comments all in the space of one half an hour interview:

"It's the customer's responsibility to tell us that they are allergic, with the amount of people we serve everyday it just wouldn't be practical for us to ask everyone."

"It's everybody's responsibility. Someone could die if it's not done properly."

"We all know what we should do, but in practice we're too busy and the kitchen just isn't set up for it."

Theme 3: Communication

In terms of communication, there were two prevalent findings. The first being that communication at a central company level did not appear to be effective or monitored.

"A lot of people don't take any notice of the messages that pop up when you log on talking about a recalled batch, they just click yes and go straight to work thinking someone else will have addressed the issue." (Participant 4)

Communications between front of house staff and chefs constituted the second finding. There appeared to be some conflict between the two areas with chefs blaming front of house staff for not communicating detail around customer allergy clearly enough.

"The process is that an allergy request should be put on the ticket, then the waiter or manager comes in and tells you what it is. In reality, everyone is so busy the meal gets cooked and goes out to the customer then it bounces back because it's wrong and you have to remake the whole meal." (Participant 2)

"We get it a lot where a meal gets sent back to us from the customer who is allergic to something on the plate and we didn't get the message." (Participant 6)

Theme 4: Need to make a profit

The participants indicated that the within the company they work for, the main focus is often on how much money they can make and the focus on customer safety *"sometimes takes a back seat"* (Participant 2).

This is evident with the cutting of labour and working with a 'skeleton team' in order to increase profitability.

"Pretty much every shift now management are sending staff home halfway through a shift or only putting one or two chefs on when we really need a lot more than that to be able to do our jobs safely... This comes from head office ... The management here don't have any control really, they either cut hours or get disciplinary action taken against them." (Participant 1)

"It's the customer's responsibility to tell us that they are allergic, with the amount of people we serve everyday it just wouldn't be practical for us to ask everyone."

The participants indicated that the within the company they work for, the main focus is often on how much money they can make and the focus on customer safety.

All participants indicated to the researcher that the speed at which food is served seemed to take priority over safety.

"If there's no lead chef of kitchen manager working on a shift because they are saving hours, then I think there's a bigger risk because it leaves us less-experienced people on shift, and we don't always know what to do." (Participant 4)

Participants did not feel that the company had the public's best interests at heart as chefs were rarely provided with the tools they need to prepare food in the right way.

"We don't get enough allergy boards and the kitchen isn't really set up for allergy prep. You just have to wipe down the section you're on before you make the meal." (Participant 5)

All participants indicated to the researcher that the speed at which food is served seemed to take priority over safety. There is a significant pressure put on food handlers to ensure the food goes out as quickly as possible. Participants explained that this pressure comes from their head office and filters down through the ranks until it reaches them.

"If we don't get food out within a certain time, we get it in the neck from our manager, so often we have to cut corners to avoid getting a bollocking." (Participant 2)

By extension, the company also appear to have a built-in way to avoid litigation through denying any and all accountability – leaving all the decision making to the customer.

"Our menu is huge, and we have so many different meals that when someone asks us if a certain allergen is in a particular dish, we just give them that book [Allergen suffering customers visiting these businesses are given information via a Food Allergen Book] to read because we don't always have the time to go and look on a box or a label." (Participant 1)

Theme 5: Staff Attitudes

Participants were asked questions about how they felt preparing and cooking a meal for an allergic guest, all six responded that they were happy to serve guests and felt very confident in their ability.

"For me it's about experience, I've been doing this for a long time now, so I know what I'm doing." (Participant 1)

There was the common consensus that customers often exaggerate or even lie about being allergic to certain foods:

"Most of the time customers just don't like a certain food but say that they're allergic... I'm allergic to peas and mushrooms is a common one we hear; how can you be allergic to peas? You just don't want them that's all." (Participant 6).

Some participants felt strongly that older and more experienced chefs had a more relaxed and perhaps dismissive attitude towards allergens.

"I've known a few chefs who have a lot of years' experience who always say, "it was fine 10 years ago, why should things be different now?" (Participant 3)

"Our menu is huge, and we have so many different meals that when someone asks us if a certain allergen is in a particular dish, we just give them that book [Allergen suffering customers visiting these businesses are given information via a Food Allergen Book] to read because we don't always have the time to go and look on a box or a label."

"Some more experienced chefs seem to not really give a shit that tends to be the older chefs who don't care because it never used to be talked about that much." (Participant 5).

Pressures put on chefs can also alter their attitude towards food allergens.

"Chefs don't take it as seriously here because they're under so much pressure to get the food out to the customer quickly, they get in trouble because they're falling behind which stops them taking the time they need to serve a safe meal." (Participant 4)

Limitations

The research utilised a small sample of staff within a single BCB (n=6). It must be acknowledged that for qualitative research, the participants has a degree of control over the data collected, as the researcher is unable to verify any claims made. In addition, the researcher's background was as an employee within a BCB and therefore their own experiences may influence the interpretation of the results.

DISCUSSION

The results of the qualitative research indicated 5 key themes.

For BCBs the introduction of e-learning can be seen as a cost effective way of training staff, however, it is not without its issues. The findings, in-line with Sahasrabudhe and Kanungo (2014), indicates that its effectiveness can be questioned. The training package provided by the BCB appears to promote only surface learning (where staff are focused on only reproducing or repeating information) and not deep learning (where staff are focused on understanding information). Most staff feel it offers little value, perhaps because it does not take into account an individual's particular learning style and this suggests that there is little engagement with the training provided. A failure to fully understand what allergens are, which echoes the findings of Bailey et al. [14] and how they can contaminate food, therefore puts allergen sufferers at risk due to inappropriate practices.

However, rather than understanding this as a type of hierarchy of responsibility, participants seemed to switch between the various levels of responsibility, thus creating a confused model of responsibility. This again leaves the allergen sufferer vulnerable, as BCB may be unwilling to take responsibility or unclear as to their own level of responsibility in relation to dealing with allergen food requests.

In terms of communication, the participants highlighted two particular areas. Firstly, the communication between the BCB and its staff. Information about the recall of potentially contaminated food is provided via the till system, yet participants admit that there is no system to verify that staff have actually read this information and participants are happy to shift the responsibility for dealing with this issue to someone else. Secondly, the communication between kitchen based staff and Front of House (FOH) based staff. The participants felt that the flow of

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E-learning can be seen as a cost effective way of training staff.

The participants feel that the main focus for their employer is to make money and that this can compromise allergen sufferer safety.

It is perhaps unsurprising that all participants believe that they personally would be able to provide a safe meal for an allergen suffering customer – although given the concerns around their training this could be debated.

information from the FOH staff is inadequate, the result being that meals were returned to the kitchen. The concern here is that even though the allergen sufferer may have positively engaged with the FOH to advise them of their allergen status, this message is not being transmitted to the kitchen staff. This presents situation where the allergen sufferer may consume food, thinking that based on the information they have provided, it is safe for them to eat. Interestingly, the comments focus on the inconvenience this causes for the participants and not the danger it poses to the allergen sufferer. This may be in part due to the nature of staff within the BCB, with Bolton et al. [10] and Daley [11] commenting upon the lack of formal qualification, young age and high turnover of staff typically found in BCBs.

The participants feel that the main focus for their employer is to make money and that this can compromise allergen sufferer safety; whether this be due to reducing the staff, not providing appropriate equipment and/or emphasising the need to get meals out as quickly as possible. In addition, participants felt that the BCB, in order to avoid litigation, deliberately passed the responsibility of deciding which meals would be safe to the allergen sufferer themselves (via the Food Allergen Book). This also meant that the participants did not have to spend time themselves identifying which products contained which allergens. The danger here is that should the BCB change products and fail to update its information or staff use alternative products, the allergen sufferer again is potentially exposed to a high level of risk.

It is perhaps unsurprising that all participants believe that they personally would be able to provide a safe meal for an allergen suffering customer – although given the concerns around their training this could be debated. This is consistent with the results of Ahjua and Sicher's [19] research which also identified high levels of confidence in the ability to prepare safe meals but a corresponding lack of knowledge about allergens. However, participants did indicate that other members of staff could pose a significant risk. This is based on the belief that customers are using allergens as an excuse not to eat certain types of food. These attitudes, which seem to predominate amongst the more senior members of staff, could help to influence the culture of the workplace and perceptions of more junior staff, which would perpetuate such attitudes. Regardless of how actively an allergen suffering customer engages with the staff, if they are simply not believed how can they be sure that the food produced for them is safe to eat? This perhaps reflects the idea, identified by Clayton et al. [17], that although staff are aware of the dangers, they perceive their business to be low risk.

CONCLUSION

With the rise in allergen sufferers and the popularity of BCBs, the potential for allergen-related incidents has increased. This research offers an insight into the attitudes, knowledge and understanding of BCB staff towards food allergens. Whilst the staff show some understanding of the

need to protect allergen sufferer, there appears to be a failure in accepting responsibility for this. All staff professed to be confident in their own ability to provide safe meals but less so about their willingness to accept responsibility for doing so. Staff feel that the responsibility lies with the allergen sufferer themselves. Yet the staff admit that even when the allergen sufferer engages with the process of informing the establishment, the culture and processes that exist provide multiple opportunities for this information provided to be lost or ignored. So, whilst a range of legislation may be in place to protect allergen sufferers, in order for it to be effective staff must both understand why it is there and how to comply with it – the continued failure to do so will only compromise allergen sufferer safety. Therefore, it is apparent that a cultural shift is required within BCBs, so that responsibility around food allergens does not solely lie with the allergen sufferer themselves. BCBs should ensure staff must receive appropriate and effective training on this matter, going into greater depth than the current "ticking-a-box" e-learning provision and create a culture where consumer safety is as important as profit.

Staff feel that the responsibility lies with the allergen sufferer themselves.

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