# Proactively asking about allergens: Background

Roughly 5% of the UK population report having a food hypersensitivity, which includes both food intolerances (difficulty digesting certain foods and having an unpleasant physical reaction to them) and allergic reactions (when the body's immune system reacts unusually to specific foods) (Turner et al., 2021), and 60% of those (3% of the UK population) have IgE-mediated food allergy (Food Standards Agency, 2020b). Such allergies, caused by an allergen-specific immunoglobulin E (IgE) antibody, can lead to rapid and potentially life-threatening allergic reactions. Hospital admissions for food anaphylaxis are increasing: from 1998 to 2018 they increased from 1.23 to 4.04 per 100,000 population per year, an annual increase of 5.7% (Baseggio Conrado et al., 2021). Allergies tend to have the most severe symptoms, whereas intolerances are not life-threatening, but individuals with either need to know the ingredients in their food in order to avoid adverse reactions.

An analysis of deaths due to food allergens between 1992 and 2012 found that the majority of incidences (59%) occurred as a result of food being bought from food businesses, with about a quarter of those originating from take-aways (Turner et al., 2015). A particular hazard of eating out of home is that even if consumers are aware of their own food allergies, they may not know all the ingredients of their purchases. In 2021, after the death of a minor who had an allergic reaction to a baguette that did not require allergen labelling, the UK Government introduced 'Natasha's Law', which requires any business producing pre-packaged for direct sale food to label it with a full ingredients list, with allergenic ingredients emphasised within the list. This supplements previous legislation from 2014, which required Food Business Operators (FBOs)—restaurants, cafes, takeaways and businesses that produce, manufacture or pre-pack food—to inform customers if their food and drink products contain any of 14 key allergens, either explicitly in writing or with a clear instruction about how to obtain the information (e.g. asking staff) (Food Standards Agency, 2022).

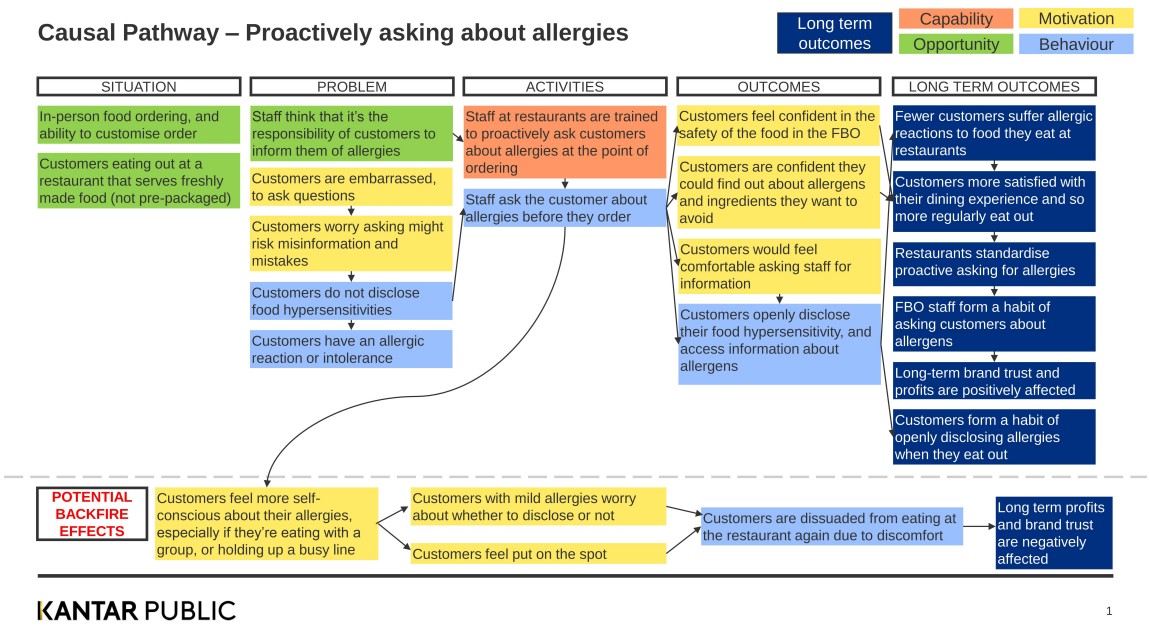
FBOs selling non-pre-packaged food in the UK are not obliged to provide full written information. A report into provision of food allergen information, prepared in the lead up to the 2014 legislation, found that 20% of businesses selling non-pre-packaged food only provided allergen information orally and 7% provided no information at all, and that training of staff was variable (Smeaton and IFF Research, 2013). There was a consensus amongst businesses that training was needed for staff about how to impart allergen information to customers and clients (Smeaton and IFF Research, 2013). That study also reported that the most common reason for not giving information about all the 14 food allergens was 'no customer demand'. Similarly, a study involving staff from 28 takeaway businesses found unanimous agreement that it is the customers' responsibility to inform them of food allergies (Soon, 2018).

However, consumers with allergies and hypersensitivities may be reluctant to actively seek information about ingredients. Two surveys of adults with food hypersensitivities conducted in the UK found that many feel that asking questions about the food may lead to them being perceived as fussy, and therefore risks them being embarrassed, and that asking might increase the risk of misinformation and mistakes (Barnett et al., 2017; Knibb, Hawkins and Rigby, 2021). A survey

conducted in the UK of adults with food hypersensitivities found that 12% (of the 885 respondents) said they would never ask staff in a restaurant or take-away for allergen information before ordering and 14% would ask only about half the time or occasionally (Knibb, Hawkins and Rigby, 2021). The respondents were asked how comfortable they felt about asking for allergen information and 39% were not comfortable (did not respond either ‘very’ or ‘fairly’ comfortable); 36% were not confident (did not respond that they were ‘very’ or ‘fairly’ confident) that the information provided verbally by staff when eating out allows them to identify foods that cause a reaction. Confidence may be lower in younger age groups: a separate survey of those aged 16-24 in the UK found 54% did not respond they were ‘very’ or ‘quite’ confident when asking for allergen information (Kovacs, 2018). Further, how comfortable participants were in asking for information from staff when eating out, and how confident they were in the verbal information provided when eating out, were negatively correlated with impairment to quality of life (both with medium effect sizes); feeling more comfortable in asking staff for information about food when eating out predicted better quality of life (Knibb, Hawkins and Rigby, 2021) in a regression analysis (standardised beta = 0.21).

A survey conducted in the UK in 2018 showed that barriers to actively seeking information could be addressed if staff were more proactive in communicating allergen information (see causal pathway in Figure 1 for a visual representation) (Kovacs, 2018). When asked which actions would help them manage their condition, 72% of 16-24 year olds said that it would help if waiting staff could pro-actively ask if anyone on the table has a food allergy or intolerance when taking the reservation or the food order (Kovacs, 2018). Further, if staff take the lead, that could be good for businesses if it increases the amount of business they get from people with hypersensitivities. The majority of respondents in a survey of 16-24 year olds with food hypersensitivity reported having avoided eating out in the last six months due to their hypersensitivity (63% of those with a food allergy and 51% of those with a food intolerance) (Kovacs, 2018). In addition, customers with food allergies and intolerances say that the best eating out experiences involve knowledgeable and attentive staff (Barnett et al., 2017). This is not surprising, since knowledgeable staff should indicate a safer experience (Young et al., 2019).

**Figure 1: Casual pathway: how staff proactively asking about allergens can improve outcomes**



## 3.1 Feasibility Trial

To assess whether it would be possible to improve confidence around allergens reporting, the FSA commissioned a feasibility study, designed and run by the Behavioural Practice, from 3rd to 20th March 2020. Staff in branches of a multinational FBO were trained to ask customers “Do you suffer from any food allergies or intolerances?” at point of sale and to follow up with relevant information on allergens for customers who answered “Yes” (McPhedran et al., 2021). This was a matched pairs cluster quasi-randomised trial, with five pairs of branches at one large FBO selected for participation. After service, customers in all ten branches (five intervention, five control) were asked to complete an in-store survey on a tablet. They were asked about their perception of the safety of the food sold in the FBO, their trust in the FBO, their confidence to ask about allergens, their satisfaction with the visit, and their allergen status. The trial was scheduled to run for two months but had to be curtailed due to the pandemic. UK government directives resulted in the temporary closure of the FBO.

The aim of the feasibility study was to investigate the practicability of a fully powered trial. Specifically: (1) the willingness of FBOs to participate, (2) the willingness of customers to participate, (3) consistency of staff delivery of the intervention, (4) suitability of the survey as a method of measuring outcomes, and (5) appropriateness of the analytical approach.

Results suggested that a full trial would be feasible, with the main difficulty being FBO recruitment, which was adversely affected by the pandemic. The survey response rate was about 0.3%, which was sufficient to run the analysis (and informed design and power calculation considerations for this trial) but was lower than expected—possibly due to people not wanting to handle the tablets during the pandemic. The intervention was relatively consistently delivered in the treatment group, with between 65.4% and 100% of treatment-branch customers who completed the survey saying they had been asked. However, many customers in the control arm were asked about allergens (30.8%-65.6% across the five branches). This suggested the need for increased fidelity checks on both control and intervention groups, and the desirability of a sensitivity analysis. It was hypothesized that staff in the control arm might have been encouraged to ask about allergens due to the mode of delivery of the survey, via a tablet in-store, which may have encouraged staff to take the survey before the trial began (as well as discouraging customers from responding, since people were wary about touching surfaces due to Covid-19.) Therefore, we also changed the method of delivery of the survey to a QR code that was given to customers on leaflets and displayed on table toppers in-store.

In the feasibility trial, the survey measures were sensitive enough to run a multi-level analysis in order to get an estimate of the intra-class correlation coefficient to inform the power analysis for this trial. The feasibility study was not powered to investigate performance on outcome measures; however, the numerical effects of being asked about allergens at point of sale were in the direction that was expected. Safety concerns about the food was numerically lower amongst those who were asked about allergens ($M = 2.31$ vs $M = 2.49$), trust numerically higher ($M = 4.38$ vs $M = 4.36$) and confidence about asking staff for information about ingredients numerically higher ($M = 4.68$ vs $M = 4.57$). (All measured on 5-point Likert scales.) It was not possible to collect information on allergens declarations, which we had expected to get from till data, because of data sharing issues.

At the same time as the feasibility trial was taking place, the FSA commissioned a UK-wide public consultation, which involved a range of stakeholders (food businesses, patient groups, health care and academia, local authorities and the FSA) to identify unanswered research questions (Turner et al., 2021). That consultation concluded that “improving traceability of allergens in the food supply chain” was one of five priority themes. Under that theme, the priority research questions were: *How should information be communicated (through the food supply chain) to consumers with Food Hyper-Sensitivities, to (a) improve consumer confidence in terms of*

*possible allergen content?, and (b) reduce the incidence of unintended allergen exposure?* The present research aims to address these questions.

This fully powered randomized controlled trial builds on the feasibility study to investigate the efficacy of being proactively asked about allergies or intolerances by food business staff. This study measured the impact of this intervention on perceptions of food safety, confidence in identifying ingredients that may cause allergies or intolerances, confidence in asking about allergens, and likelihood of declaring allergies or intolerances.