

**Examination of Allergen Awareness and Associated Practices in the Healthcare
Environment**

By

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Abstract

The current literature suggests a rise in food allergies among individuals. In the past decade food allergy cases have risen by 50% and hospitalisations due to anaphylaxis has risen by 700% (Cahill, 2018). More than 17 million individuals are suffering from food allergies in Europe and more than 250 individuals are suffering from food allergies globally (Cahill, 2018). In Ireland, current prevalence data indicates that 5% of children and 3% of adults suffer from food allergies (INDI, 2015). To date, allergies to over 180 foods have been identified all over the world (*Safe-Food*, 2016). There are 14 food ingredients that must be declared as allergens in the EU. It is important that individuals with food allergies in healthcare settings are identified because they are often immunocompromised and if they eat food containing an allergen it may be life threatening to them. It is important that control measures are in place to reduce the use of food containing allergens in dishes and to control communication of allergens in the healthcare setting. A study of the awareness of allergens in the hospital environment should be carried out to determine the awareness of allergens among individuals working in the healthcare environment. The staff which should be included in the study are catering staff, healthcare assistants, nurses and agency staff.

This study is necessary because:

- The catering staff should be trained in allergen management because they need to be aware of allergen information when ordering, storing, preparing, cooking and serving food. Using recipes with foods containing the 14 allergens should be eliminated or minimised.
- Allergen hypersensitivity among residents should be documented. Documentation on resident's allergen information should be provided from resident admission by healthcare assistants and/ or nurses.
- Healthcare assistants and nurses help in the distribution of meals to residents at mealtimes, so allergen awareness is important.

Healthcare professionals across Leinster were surveyed to examine shortcomings on awareness of allergens and knowledge among healthcare workers. The survey gathered information and the information was used to create data sets and statistically analyse these.

Research conducted for this project in the healthcare environments, highlighted several practices that are often not adhered to, including:

- Insufficient food storage – there is no separate storage for foods containing allergens.
- Insufficient documentation system – a documentation system should be designed to separate residents with food allergies from the other residents. 24% of individuals surveyed report there is no separate storage areas or segregation for food containing allergens.
- Lack of training among all healthcare staff in the hospital. It is important to be aware of the 14 allergens recognised by the EU and what foods contain the allergens. 63% of healthcare staff have not received food allergen training.
- Lack of communication of allergen information with residents and their families. 33% of individuals surveyed report allergen information for food produced in the hospital cannot be easily accessed by patients.
- Poor knowledge of a hospital policy and no hospital policy in some cases. 35% of individuals surveyed report they are unsure if there is a hospital policy for managing patients with food allergy/ food intolerance and 14% surveyed believe there is not a hospital policy available.
- It is reported recipes are not standardised and there are no restrictions on food visitors/ patients can bring into healthcare environments. 49% of individuals reported they are not aware of what food allergens are in each dish produced by the hospital. There are no restrictions for food containing food allergens reported.
- Further investigation of potential routes of allergen cross-contamination and knowledge gaps among workers is warranted.

Moreover, it is outlined in the FSAI Guidance Notes on Allergen Information for Non-Prepacked Food that healthcare facilities must provide written food allergen information to patients who consume their meals outside of the regular dining areas, such as in their room or on the ward (FSAI, 2015). Allergen information is most effective when included on menus. If residents are not able to understand written food allergen information, the written information must be provided to their guardian in the interest of those residents (FSAI, 2015). Healthcare professionals should be educated and trained in food allergens and procedures for caring for a patient with food allergies. A national hospital policy should be available to healthcare

professionals. The study highlighted areas that need to be addressed to make healthcare facilities a safer place for patients with food allergies.

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Authors Declaration

I hereby certify that this material, which I now submit in part fulfilment of the requirement for the award of B.Sc. (Environmental Health) is entirely my own work and has not been taken from the work of others save and to the extent such work has been cited and acknowledged within the text of my own work.

Signed: _____

Candidate

Date: _____

Aims/ Objectives

Aims

The aim of this project is to examine allergen awareness and associated practices in the healthcare environment. This project will identify the areas that need to be addressed to improve allergen awareness and associated practices in the healthcare environment.

Objectives

The objectives of this project are:

- Identify shortcomings on awareness of allergens in the hospital environment.
- Identify if there is a lack of knowledge among healthcare workers on allergens.
- Identify if training of healthcare staff on allergen awareness is being conducted and if it is adequate.
- Identify if an allergen documentation system is in place for residents who have an allergen and if a better system could be implemented. Documentation for allergens should begin as soon as a resident is admitted to a healthcare setting.
- Identify allergens in food dishes and identify how allergen information about food dishes is available to residents.
- Identify how allergens are controlled in the healthcare setting (recipes, menus, ordering, storage, labelling, separate equipment, and controls during preparation, cooking and serving).

Chapter 1 - Literature Review

Literature Review

1.0 Food Allergens – A Growing Concern

Allergens in food are a growing concern with some referring to it as ‘the new epidemic’ (Dinakar *et al.*, -2016). It is perceived as a public health concern (Loh *et al.*, -2018) and a food safety concern (Dubois *et al.*, -2018). The presence of food allergens in food and unintentional presence of food allergens in food is a major food safety burden (Dubois *et al.*, -2018).

In 1906, Clemens von Pirquet first coined the term allergy (Universitäts-Kinderklinik, 2006). Allen and Prescott (2011) described food allergies as a ‘second wave’ of the allergy epidemic behind the ‘first wave’ of asthma. Similarly, Loh and Tang (2018) reported that challenge diagnosed food allergy has been reported to be as high as 10% in Western countries and the strongest prevalence is recognised among young children. In fact, a study was carried out by (Osborne *et al.*, 2011) to determine the prevalence food allergies in children. The sample population was a group of one-year old children and the result indicated that more than 10% of one-year old children had challenge proven food allergies. Food allergies are one of the most common chronic non-communicable diseases in children in many countries around the world (Prescott *et al.*, 2013). Non-communicable diseases can also be referred to as chronic diseases. Non-communicable diseases last for a long duration of time and result from a mix of genetic, physiological, environmental and behaviours factors (WHO, 2018). In Ireland, current prevalence data indicates that 5% of children and 3% of adults suffer from food allergies (INDI, 2015).

1.1 Declaring Food Allergens

To date, allergies to over 180 foods have been identified all over the world (Safefood, 2016). There are 14 food ingredients that must be declared as allergens in the EU. The allergens are outlined in Annex II Regulation (EU) No 1169/2011 (FSAI, 2019).

Table 1: List of 14 substances or products that cause food allergies outlined in Annex II Regulation (EU) No 1169/2011

1.	Cereals containing gluten – specifically wheat, rye, barley, oats, spelt, kamut, or their hybridised strains and products thereof
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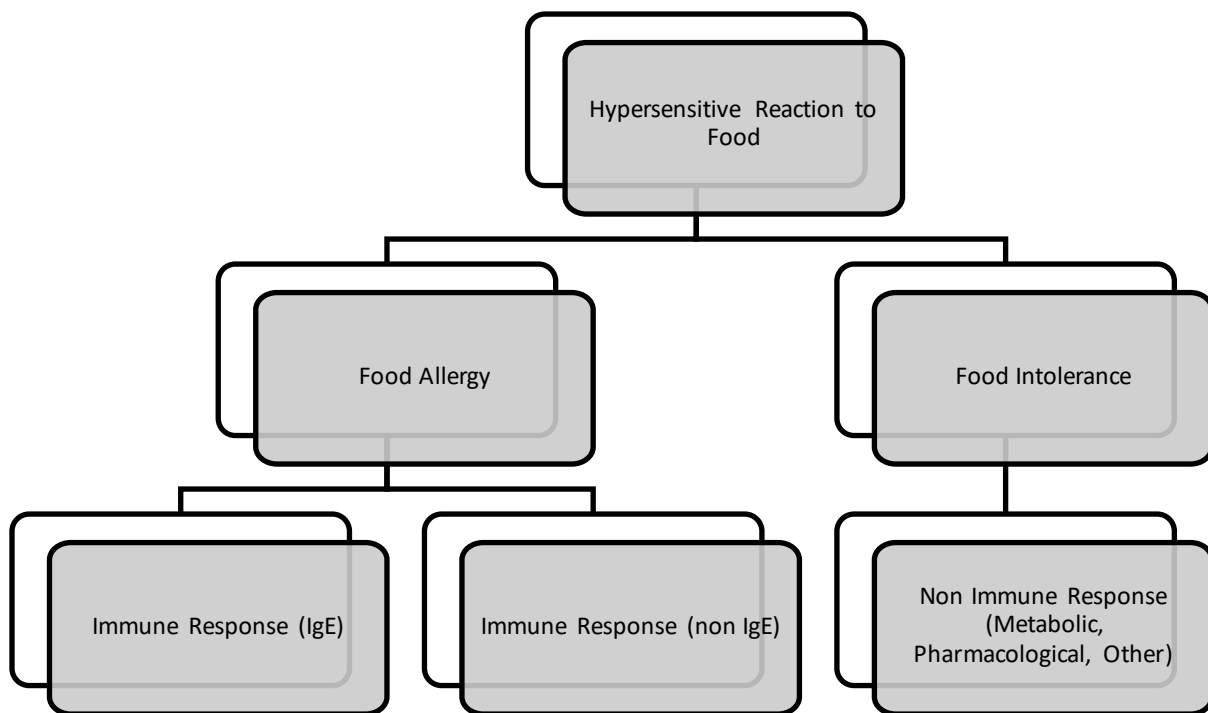
2.	Crustaceans and products thereof
3.	Eggs and products thereof
4.	Fish and products thereof
5.	Peanuts and products thereof
6.	Soybeans and products thereof
7.	Milk and products thereof (including lactose)
8.	Nuts – specifically almonds, hazelnuts, walnuts, cashews, pecan nuts, Brazil nuts, pistachio nuts, macadamia or Queensland nuts and product thereof
9.	Celery and products thereof
10.	Mustard and products thereof
11.	Sesame seeds and products thereof
12.	Sulphur dioxide and sulphites at concentrations of more than 10 mg/kg or 10 mg/litre in terms of the total SO ₂ which are to be calculated for products as proposed ready for consumption or as reconstituted according to the instructions of the manufacturers
13.	Lupin and products thereof
14.	Molluscs and products thereof

In Ireland the most common food allergies are eggs, fish, shellfish, lactose, milk, nuts, peanuts and wheat (coeliac) (*Safefood*, 2019). Examples of other food documented to cause food allergies in Ireland that are not listed in Annex II Regulation (EU) No 1169/2011 include kiwis, strawberries, mango, papaya and legumes such as beans and lentils (*Safefood*, 2019). They are not as common and do not carry the same legal requirements as the 14 products or substances outlined in Annex II Regulation (EU) No 1169/2011. Nevertheless, for any food packaging all ingredients in a product must be listed on the product (Regulation (EU) No. 1169/2011 of the European Parliament and of the Council, 2011). The FSAI enforces Regulation (EU) No. 1169/2011 through a service contract with Environmental Health Officers in the Health Service Executive (HSE) and the Environmental Health Officers only monitor the 14 allergens listed in Annex II Regulation (EU) No 1169/2011 (FSAI, 2018). In contrast to the allergens that must be declared in the EU, in the US 8 allergens must be declared – milk, eggs, fish, crustacean shellfish, tree nuts, peanuts, wheat, soybeans and the allergens that must be identified cause 90% of allergic reactions in the US (US Food and Drug Administration, 2020).

1.2 Food Allergen V's Food Intolerance

Hypersensitive reactions to food can be categorised into food allergies and food intolerances. A food allergy is a detrimental response of the immune system to a dietary protein (Waserman *et al.*, 2011) that occurs repeatedly when exposed to a given food (Abrams. *et al.*, 2016). Food intolerance is non- immune adverse response to a food, and it is important food intolerance is differentiated from a food allergy (Abrams *et al.*, 2016). Food allergy is sometimes confused with food intolerance by practitioners, patients and the public (Turnbull *et al.*, 2014). The potential outcome for a person suffering from a food allergy is different to a person suffering from food intolerance because the immune system is involved in a food allergy. Ortolani and Pastorello (2006) summarised that food allergy is an intolerance derived from an immunological mechanism and food intolerance is an intolerance derived from a non-immunological mechanism. The main difference between food allergy and food intolerance is the involvement of the immune system (Crowe, 2019) and the symptoms produced can vary. Symptoms and signs of food allergy and food intolerance can be similar and in some cases symptom's and signs are identical. Symptoms for food allergy usually occur immediately after ingesting the food and in some cases is life threatening. Symptoms for food intolerance occur over a longer period of time and is not life threatening (Safefood, 2019).

Figure 1: Hypersensitive Reaction to Food



(FSAI, 2015)

Food allergies can be further categorised by whether the immunological mechanism involves IgE antibodies (WHO, 2006). If IgE antibodies are involved a very small amount of food can trigger a significant reaction usually within 20 minutes of ingestion (IFAN, 2019). IgE mediated food allergies include milk, egg and peanuts (WHO, 2006). If no IgE antibodies are involved there may be no symptoms until 24hours after ingestion and a small dose may be tolerated but additional doses are not tolerated. Many non IgE mediated reactions are said to be T cell mediated (IFAN, 2019). Non-IgE mediated food allergies include coeliac disease (gluten) (WHO, 2006). There is no test to confirm non-IgE mediated food allergies, so it is harder to confirm non-IgE food allergies (NHS, 2019). Food allergies can also be mixed IgE mediated involving a mixture of both IgE and non IgE responses.

1.2.1 Food Intolerance

Food intolerance can be caused by many different foods. A reaction to intolerance takes hours to develop producing symptoms such as bloating, indigestion and cramps. An

intolerance is not life threatening and a larger amount of food must be eaten to prompt an intolerance reaction (HSE, 2011).

Symptoms of food intolerance develop over a longer period of time and include the following signs and symptoms:

- Upset digestion – diarrhoea, bloating, pain, nausea, vomiting
- Weight loss
- Lethargy
- Anaemia
- Migraine/ headaches
- Psychological effects – confusion, depression (*SafeFood*, 2019)
- Skin rashes and itching (NHS, 2019)

Food intolerance can sometimes be confused with other conditions that experience similar signs and symptoms, for example, disorders of the digestive system, chrons disease (*SafeFood*, 2019), irritable bowel syndrome, stress, anxiety, coeliac disease, inflammatory bowel disease, food allergy (NHS, 2019).

It is uncertain why people develop food intolerance. Examples of food intolerances include lactose intolerance that occurs because people are unable to digest the sugar lactose, a natural sugar found in dairy products or wheat intolerance because people are unable to digest wheat. Food additives, chemicals and contaminants can also cause food intolerances (NHS, 2019).

1.2.2 Food Allergen

A reaction to an allergen can happen in minutes producing specific symptoms such as swelling of the lips. In certain cases, symptoms can last for days or weeks (WHO, 2006). An allergic reaction can be life threatening because the immune system is involved. A small fragment of food can prompt an allergic reaction (HSE, 2011).

Symptoms of a food allergy include:

- Skin – itching, redness, swelling

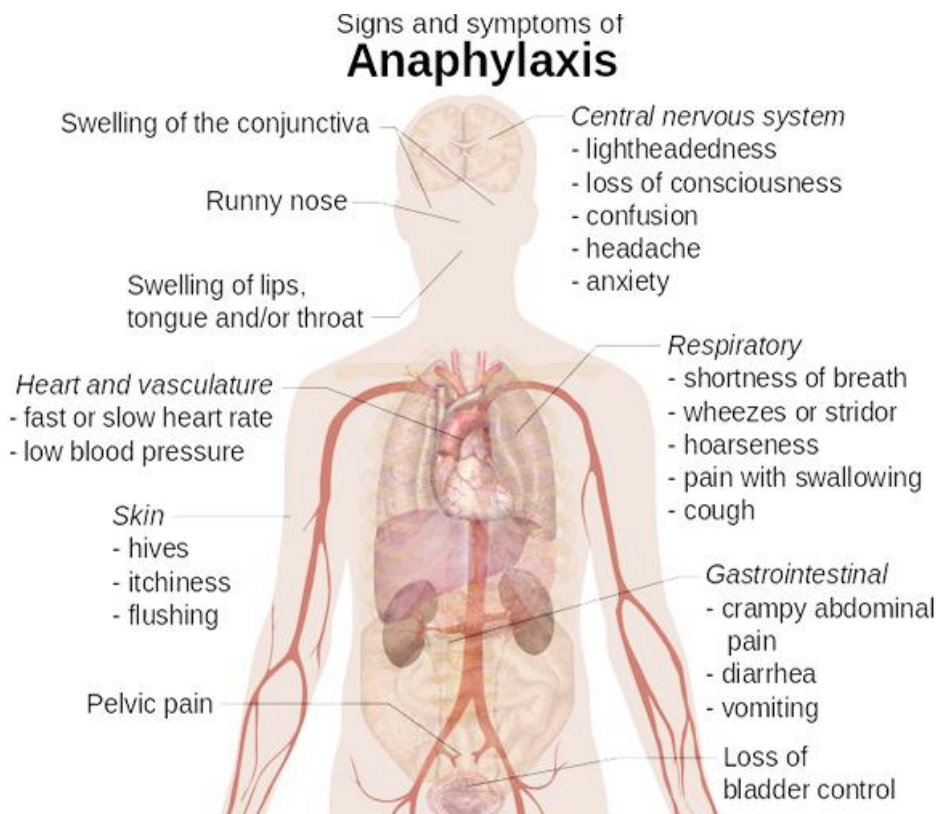
- Upset digestion - pain, nausea, vomiting, diarrhoea
- Itching and swelling of the mouth, nose, throat, eyes
- Asthma
- Chest pain, abnormal heart rhythm, breathing problems, low blood pressure
- Loss of consciousness (WHO, 2006)
- Anaphylactic shock

1.3 An Allergic Reaction

An allergic reaction occurs when the body mistakes the protein or molecule as a threat or danger to the body (Blander *et al.*, 2017). The immune system becomes sensitised to specific food antigens (usually proteins) and this results in food allergy development (FoodDrink Europe, 2013). During an allergic reaction the immune system reacts to the protein or molecule and produces antibodies. Chemicals such as histamine are released from cells in the body as a defence mechanism (SafeFood, 2012).

Exposure and/ or ingestion of the specific allergenic protein can lead to detrimental allergic reactions in the sensitised person including possible fatal anaphylaxis. Anaphylaxis is the reaction of the sensitised person to a foreign protein causing a generalised inflammatory immunologic reaction (FoodDrink Europe, 2013). Anaphylactic shock is acute and possibly life threatening and must be treated immediately. Anaphylaxis involves the release of mediators from mast cells, basophils and recruited inflammatory cells (WAO, 2019). The symptoms of anaphylactic shock are abrupt and worsen quickly and can lead to a coma or death if medical treatment is not received immediately. It is treated by adrenaline injection (SafeFood, 2012). Anaphylaxis is defined by a number of signs and symptoms that were outlined above and can be mild, moderate or severe. Anaphylaxis usually reaches its peak severity between 5 – 30 minutes after ingestion (WAO, 2019).

Figure 2: Signs and Symptoms of Anaphylaxis



(Moyle, 2017)

Treatment of Anaphylaxis in the community:

1. Call for medical assistance
2. The patient should be placed in a comfortable position – patients with breathing difficulties and airway problems may want to sit up to try regulate their breathing, patients with low blood pressure (circulation problem) should lie flat or without leg elevation because sitting or standing up could result in cardiac arrest, patients who are breathing and unconscious should be put in the recovery position
3. Ensure patient is breathing – if not perform mouth to mouth or preferably bag valve mask ventilation should be performed
4. Epinephrine (Adrenaline) 1:1,000 should be administered by intramuscular injection if required by the patient

Table 2: Epinephrine (Adrenaline) 1:1,000 doses

Age	Dose
0-5 years	0.15ml (150micrograms)
6-12 years	0.3ml (300 micrograms)
>12 years	0.5ml (500 micrograms)
Adult	0.5 – 0.6ml (500 – 600 micrograms)

Repeat every 5-10 minutes for up to 3 doses

5. If patient goes into cardiac arrest initiate CPR until medical assistance arrives

(HSE, 2019)

Types of allergic reactions include uniphasic and biphasic. Uniphasic reactions are quick and worsen rapidly and once treated symptoms go and do not come back. Biphasic reactions are mild or severe to begin, followed by no symptoms, followed by symptoms returning and increasing (Anaphylaxis Campaign, 2017). It is necessary to carry two adrenaline auto-injectors (NHS, 2019) especially for a biphasic allergic reaction.

1.4 Diagnosing and Treatment of a Food Allergy

There are different methods for diagnosing food allergies. It is important to get confirmation of a food allergy using an appropriate method and from a healthcare professional. Methods include:

Skin prick testing – Diluted food is place on the arm and the skin is pricked with a needle through the food to allow the food to enter the system. If an individual is allergic to that food, it will cause swelling and redness of the skin (HSE, 2011).

Blood test – After being exposed to a food a blood test can identify levels of igE in the body. High level of igE antibodies in blood after consuming a food indicates an individual is allergic to that food (HSE, 2011).

Exclusion diets and food diaries – Eliminating a certain food from the diet and monitoring if signs and symptoms have changed since eliminating the food. If after eliminating a food signs and symptoms disappear it is likely the individual is allergic to that food (HSE, 2011).

Blinded challenge testing – Sampling several foods with hidden allergens to see how an individual reacts. This test eliminates any psychological reactions to food (HSE, 2011).

1.4.1. Treatment of a Food Allergy

There is no cure for a food allergy. There is a desensitisation strategy that introduces very small doses of the food into the diet and increases this amount gradually. This increases the amount of food allergen a patient can consume before suffering an allergic reaction (Licari et al., 2019).

1.5 Psychological Effects of Food Allergy

People who suffer from food allergies may also suffer from psychological effects of food allergies. There are psychological effects for people who suffer from food allergies and their families because a severe reaction can be potentially life threatening. Psychological effects of food allergens for the people who suffer from the food allergy can be direct and indirect. Direct psychological effects include during an allergic reaction to a certain food the biological mediators can have adverse consequences on the central nervous system. Indirect psychological effects include coping with the food allergy and the fear of ingesting food containing the allergen (Kelsay, 2003).

Indirect psychological effects can also affect family members of the person suffering from a food allergy. A qualitative investigation was carried out by (Rouf, White and Evans, 2011) to investigate a mother's experience of having a young child that suffers from a severe food allergy. The study indicated that mothers of children who suffer from severe food allergies shared comparable concerns with mothers of children with other chronic illness. Examples of other chronic illnesses are cardiovascular disease, cancers, chronic respiratory diseases and diabetes (WHO, 2018). The study indicates that there is a lack of support for people who suffer from food allergies and their families especially parents bringing up young children with a food allergy. Support can reduce anxiety and help people affected by food allergies feel more in control.

People affected by a food allergy must adjust emotionally. All people affected by a food allergy and their families are living with risk. People are left feeling anxious because

suffering from a food allergy can be unpredictable. It is important to make lifestyle changes to manage the level of risk. Meal planning and preparation is crucial. Consideration is given to what to eat, where to eat and how to cope at events, parties and new schools. It is important to remain in control of the situation and for parents it is important to teach their children how to live with a food allergy. It is difficult for people affected by food allergens to trust people and caterers to prepare and serve safe allergen free meals. This can be very draining on families (Rouf *et al.*, 2011). Concerns for parents and families of children who suffer from food allergies include being defined by an allergen, ensuring their child is safe and feels socially included, adjustment issues when changes take place in their lives and strain on the relationship they have with their children and other family members (Rouf *et al.*, 2011).

Young children are at a high risk because they are learning about living with a food allergy and struggle to understand why they are not allowed a certain food, but their peers are allowed certain foods. Pre-school and primary school care need to ensure allergen control is in place because children are at a vulnerable age. On the Irish Food Allergy Network website, it is reported that in 2014 an Irish school was fined heavily for enforcing absurd arrangements for a child suffering from a food allergy. The school was fined based on discrimination towards the child. As stated earlier the greatest prevalence of food allergies is in children and a better food allergen management system needs to be developed for pre-schools and schools especially because of their lack of understanding of the seriousness of an allergic reaction.

Currently legislation covers people from liability if they offer to assist a person suffering a life-threatening allergic reaction to food. Emerging legislation will enable schools to better protect their students. Schools will be able to keep adrenaline autoinjectors on site in the school. Staff will receive the required training to be able to respond to severe allergic reactions in children and use autoinjectors if necessary (IFAN, 2016). A lot more places and premises should have adrenaline autoinjectors available in case of an emergency and provide the required training to their staff. This is a step in the right direction to ensure schools are equipped to deal with an allergen emergency and can follow the steps for the treatment of anaphylaxis in the community. It is important children are aware of allergens from a young age and to implement allergen management plans in schools and prevent food sharing and situations that could tempt children to eat a food they are not supposed to eat.

1.6 Controlling Food Allergens in Ireland

The European Commission has reported that 70% of severe allergic reactions occur away from the home when people eat out (IFAN, 2016) suggesting people are more at risk eating away from their home. Premises that produce food containing allergens are a high risk to people who suffer from a food allergy. 20% of allergic reactions occur at school or work away from the home (IFAN, 2016). This is worrying for people who suffer from food allergies and their families. Controls need to be in place to reduce the number of people who have an allergic reaction to food.

1.6.1 Legislation

Legislation has been developed to protect people who suffer from food allergies. Regulation (EU) No. 1169/2011 is for all food business operators at all stages of the food chain to ensure labelling of food products is accurate. Accurate labelling on food protects food allergy sufferers when they are in food premises or consuming food. The legislation outlines general principles, requirements and responsibilities when providing information about food and food labelling.

Legislation to be implemented by all food business operators in Ireland:

- European legislation - Regulation (EU) N0. 1169/2011 of the European Parliament and of the Council of 25 October 2011 on the provision of food information to consumers
- Irish legislation – European Union (Provision of Food Information to Consumers) Amendment) (No. 2) Regulations 2016 (S.I. No. 559 of 2016)
- Irish legislation - Health (Provision of Food Allergen Information to Consumers in respect of Non-Prepacked Food) Regulations 2014 (S.I. 489 of 2014)

(FSAI, 2019)

1.6.2 Guidance Notes

Guidance notes have been developed to assist food business operators to protect people who suffer from food allergies.

Guidance notes available to food business operators in Ireland:

- FSAI Guidance Note No.28 – Food Allergen Information for Non-prepacked foods in Ireland
- FSAI – Food Information on Prepacked Foods
- FSAI - Allergen Information for Non-Prepacked Foods
- FSAI - Food Hypersensitivity – food allergy and intolerance
- *Safefood* – Food Allergy & Intolerance Guidance for the Catering Industry

(FSAI, 2019)

1.6.3 FSAI Alerts

The FSAI alert system notifies the official agencies, food business operators and the general public of any food safety alerts. The official agencies and the food business operators must act on the alert immediately. Allergen food safety alerts are available on the FSAI alert system and the FSA alert system and can be accessed by the general public. This enables people who suffer from a food allergy to find out if a product has been recalled from the market because of breaches to food allergen legislation. People who suffer from food allergies and their families can subscribe to the allergen alert system to ensure they are notified of any recalls (FSAI, 2019).

1.7 Monitoring Food Allergens

The Environmental Health Officers work on behalf of the Health Service Executive (HSE) to monitor food allergens enforcement in Ireland on behalf of the FSAI. The service contract declares the HSE will carry out inspections, sampling and analysis of food and food ingredients to ensure compliance with relevant legislation including allergen legislation. The HSE also inspect and analyse food labelling to ensure it meets all requirements (HSE, 2017). The HSE will investigate allergen food safety alerts when required. The HSE will also examine food safety training records to ensure adequate training has been provided by the food business operator.

1.8 Food Safety Training Requirements for Food Handlers

It is a legal requirement for all food premises to supervise and instruct and/or train employees in food hygiene/ food safety and comply with the all general and specific food hygiene requirements of Regulation (EC) No. 852/2004. Regulation (EC) No. 852/2004 requires training in HACCP principles. Food safety training can be provided but there is no legal requirement for food safety training to include allergen management training. All food premises need to assess the training needs of their employees and manage their food safety training. Allergens are a growing food safety concern and have the potential to be life-threatening. Food premises should consider allergen management training (The National Hygiene Partnership, 2016).

Table 3: Guides to Food Safety Training Published by the FSAI

Level 1	Induction Food Safety Training Skills (2015) – Basic food safety skills that all food handlers and non-food handlers should demonstrate within the first month of employment
Level 2	Additional Food Safety Training Skills (2015) – Food safety skills that food handlers and non-food handlers should be able to demonstrate within 3-12 months of employment
Level 3	Food Safety Skills for Management (2016) – Food safety skills required by managers of food businesses

(The National Hygiene Partnership, 2016).

Allergen management is addressed in all levels of food safety training provided by the FSAI.

1.9 Healthcare in Ireland

The healthcare environment is a high-risk area because patients are vulnerable and suffering from all kinds of illnesses and disabilities. Patients range from young to old. The health service in Ireland is extremely busy and under pressure and deals with a high number of patients everyday with regular admissions and discharges.

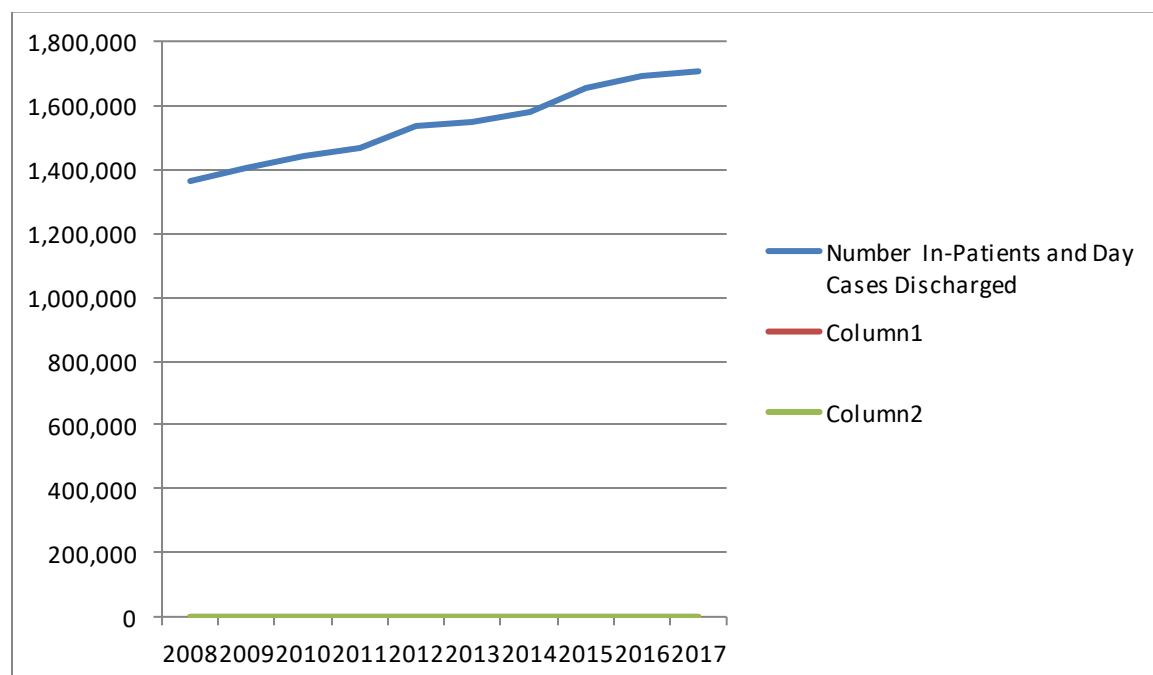
Healthcare services are provided by the HSE in Ireland. The type of healthcare provided in Ireland is acute and community healthcare services, older peoples services, children's services, disability services (HIQA, 2019) and mental health services. There are 1961 registered healthcare centres on the HIQA website. Ireland's population is growing and in April 2019 the population was estimated at 4,921,500 (CSO, 2019). The population is increasing therefore the number of people needing access to healthcare is increasing

1.9.1 Acute and Community Healthcare Services

Ireland's public acute hospitals provide a service for sick and injured people. The services provided include emergency, diagnosis, treatment and rehabilitation service. They provide in-patient and day case scheduled care, unscheduled emergency care, outpatient care and maternity care (HSE, 2019). There are 48 public acute hospitals listed on the HSE website and there are 7 hospital groups.

The following statistics indicate there is an increase in the number of people using healthcare services in Ireland.

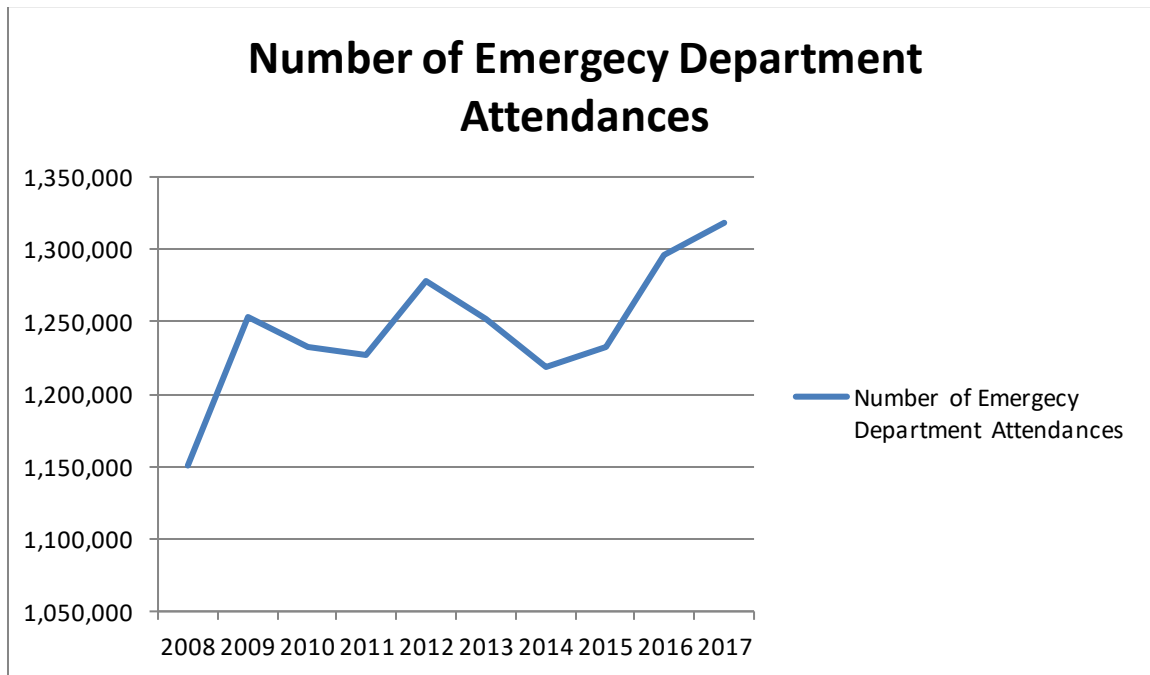
Figure 3: Total Number of In-Patients and Day Cases Discharged from 2008-2017



(Department of Health, 2018)

The total number of in-patient and day cases discharged from the hospital is increasing annually. This result indicates that hospital environments are getting busier every year with more in-patient and day cases being discharged annually. Every year 56% - 63% of discharges are day cases (Department of Health, 2018).

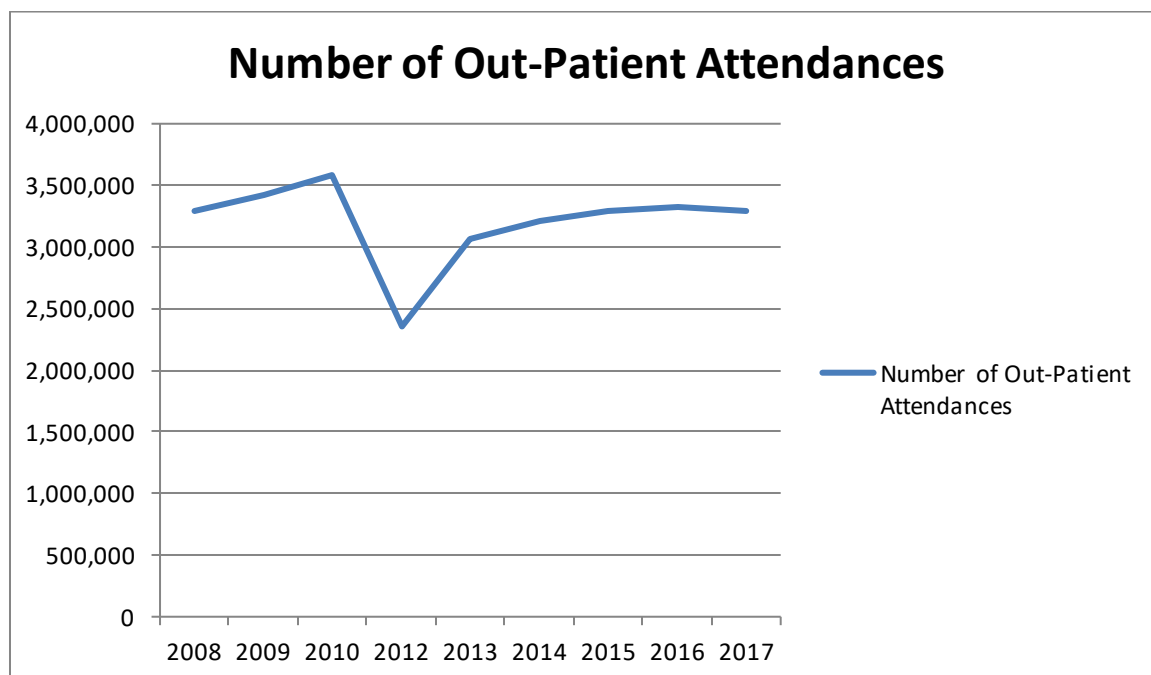
Figure 4: Total Number of Emergency Department Attendances from 2008-2017



(Department of Health, 2018)

The number of patients attending emergency department rooms has increased since 2008 and there is a major difference in emergency department visits from 2008 to 2017.

Figure 5: Number of Out-Patient Attendances from 2008-2017



(Department of Health, 2018)

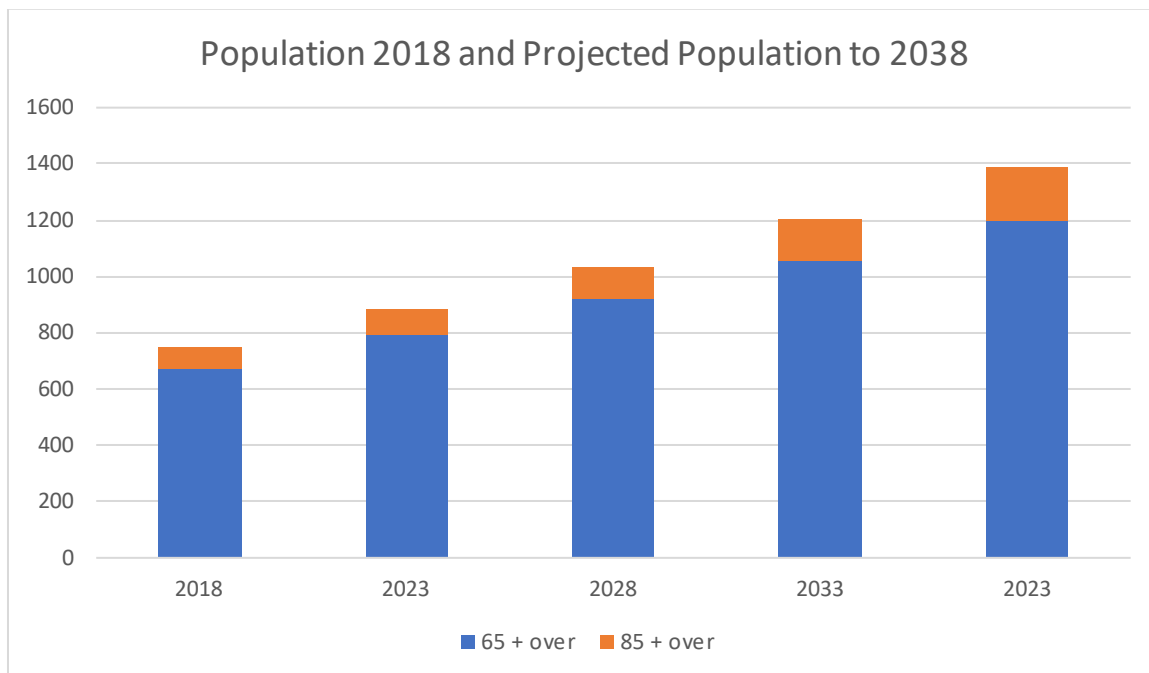
There is a different number of out-patient appointments recorded every year and this figure seems to increase and decrease every year, so the number of out-patient appointments expected per year is unpredictable.

From analysing the data sets it is clear there is an increase in the number of people using healthcare services and this will put pressure on healthcare employees.

1.9.2 Older Person Services

In Ireland there are 581 registered nursing homes (HIQA, 2019). The number of older person services needed is increasing and the life expectancy for older people is increasing. The average life expectancy for men is 78.4 years and the average life expectancy for women is 82.8 years (CSO, 2019). The Department of Health (2018) predicted there will be a 77.2% change in the 2018 population and 2038 projected population for persons age 65 and over and there will be 163.5% change in the 2018 population and 2038 projected population for persons age 85 and over.

Figure 6: 2018 Population and Population Prediction for persons 65years or over and persons 85years or over



(Department of Health, 2018)

These results indicate an increase in the number of people 65years of age and over and the number of people 85years of age and over. This means there will be an increase in the demand for older person services by 2038.

Older people are vulnerable, and some are suffering from chronic diseases. An especially challenging chronic disease in older people is Alzheimer's disease or other dementias. There are currently 35 million people living with Alzheimer's disease or other dementias and this is predicted to rise to 115 million people by 2050 (Age Action Ireland, 2014).

1.10 Catering in the Healthcare Environment

Ireland's public acute hospitals and nursing homes provide a catering service to their patients. A risk profile is carried out to determine how frequent a hospital kitchen producing meals for patients is inspected. The risk category for hospitals catering facilities is category 1: >65 which means the standard frequency of inspection is two planned inspections per year and the minimum frequency of inspection is two planned inspections per year. The elements and aspects inspected during an inspection include the pre-requisite programme structural and

operational, procedures based on HACCP principles, management procedures and any other relevant food legislation other than food hygiene (FSAI, 2011). Allergen management is covered under relevant food legislation other than food hygiene.

Healthcare settings that produce food must be treated like any other food producing premises. Food safety is especially important in the healthcare setting because residents are already unwell and immunocompromised. It is important that individuals with food allergies in healthcare settings are identified because if they eat food containing an allergen it may be life threatening to them. There needs to be an identification system in place that all healthcare staff is aware of. It is important that identification measures are in place to easily identify residents with food allergies. It is also important to implement control measures to control allergens at all stages of food production in the healthcare environment.

Managing allergen risk in a food service through:

- Policies and Procedures

The HSE have a procedure for developing policies, procedures, protocols and guidelines (HSE, 2009). An organisation-wide policy outlines what actions are required by relevant staff in certain situations within the healthcare environment. A policy document is a legally binding document and its purpose, definitions and responsibilities outlined in its content must be upheld and can be used to support an individual or the hospital in question during legal action if required (NHS, 2019). There is no organisation-wide policy provided to assist allergen management in the healthcare environment. There is no policy document to address allergen awareness in hospitals and the level of awareness required by each healthcare professional. It is important allergen awareness is considered where there are high risk vulnerable groups.

The most recent policy document released by the HSE in 2019 the HSE is 'Implementation Toolkit for the Food, Nutrition and Hydration Policy for Adult Patients in Acute Hospitals' because patients were not happy with meals in the hospital and felt malnourished. This document highlights the importance of identifying that the food, nutrition and dehydration needs of residents are different. Food, nutrition and hydration needs must be assessed on admission to hospital whether hospital visits are scheduled, unscheduled, emergency, maternity services, outpatient and diagnostic services. Patients must be advised on a diet plan to improve their health (HSE, 2019). Allergen identification is also important along with identifying food, nutrition and hydration needs.

A procedure is a written list of instructions that outlines the recommended and appropriate steps for a sequence of events (HSE, 2009). A procedure should outline the sequence of events from admission (planned or emergency) of a patient with a food allergy to discharge of a patient with a food allergy.

Policies and procedures should be easily accessed by all staff while they are carrying out their roles. Policies and procedures should be reviewed and updated regularly. Policies and procedures allow staff working in the healthcare environment on behalf of a service to implement the services approach to information governance and users of the service can be confident any instances of non-compliance will be dealt with appropriately (HIQA, 2012).

- Pre-requisite and HACCP Programs
- Managing People and Personal Hygiene – Training and Supervision
- Approved Suppliers List
- Design and Layout of Catering/ Food Facility
- Adequate Storage Facilities
- Hygiene and Correct Handling of Raw Materials
- Equipment Management and Cleaning
- Cooking/ Manufacturing Process and Control
- Providing Allergen Information to Consumers
- Mealtime Serving System
- Documentation
- Cleaning and Cleaning Verification

Cleaning and cleaning verification are important when cooking food for people who suffer from food allergy to avoid allergen cross-contact. There must be a documented and validated cleaning procedure in place and all staff must be competent to follow the procedure. Proper cleaning equipment is essential and must be supplied to ensure effective cleaning is carried out. It is important adequate time is spent cleaning the kitchen. To reduce allergen cross-contact equipment and preparation areas must be thoroughly cleaned. Appropriate cleaning procedures and validation must be implemented. Verify cleaning is being carried out and keep records of when cleaning was carried out (Food Drink Europe, 2013).

1.11 Restrictions on Food Containing Allergens in Healthcare Environments

There are no controls in place to monitor what food patients bring into the hospital or what food visitors bring into patients. There was no document available to restrict patients and visitors bringing in their own food containing allergens. There should be restrictions on food visitors can bring because bringing food containing allergens puts other patients who suffer from a food allergy at risk. The risk is a patient may accidentally eat the food containing the food allergen. Another risk is inhalation of the food particles from the food containing the allergen which is not as common but, in some cases, can trigger an allergic reaction (Ramirez *et al.*, 2009). The most common foods that can cause an allergic reaction to the very sensitised person is seafood (crustaceans more than bony fish), peanut, soy, hens' eggs, milk and wheat flour (Ramirez *et al.*, 2009). The most likely food product that could be brought into the hospital by patients or visitors are nuts.

1.12 Responsibilities of Patients with Food Allergies

Patients with food allergies can take steps to prepare for hospital visits if they are aware of their visit in advance and make it easier for a hospital to provide an efficient service. This can be done for in-patient care, day care cases and out-patient appointments.

Steps patients should take:

1. Communicate and highlight their allergy on admission to the hospital. Make the employees in the hospital aware of the allergy do not assume they know.
2. Contact the healthcare facility before admission and explain the food allergy, this gives the hospital time to accommodate allergy needs.
3. Ask questions to staff about any concerns about recipes, communication between staff, documentation, menus, ingredients, labelling, packaging and food preparation (Allergy and Anaphylaxis Australia, 2016).

1.13 Theories of Why Food Allergens are Increasing

There are many theories as to why food allergies are increasing in Ireland and around the world. Some of the theories are outlined below.

Blood transfusions and organ donations can increase the number of people suffering from a food allergen. It was reported by (Erick, 2003) that a 60-year-old man received an organ donation from a 15-year-old boy who had fatally died because of a peanut allergy. The 60-year-old man who received the organ donation developed an allergic reaction to peanuts after the transplant. This study raised concerns about organ donations and blood transfusions. Donors are becoming more health conscious and following healthy diet advice and therefore are increasing their nut and fish intake, two major food allergens. According to Erick (2003) it is important to investigate if not eating the 14 declared allergens for a certain amount of time before donating would help prevent the spread of food allergens. On the Irish Blood Transfusion website it states 'you can give blood if you have mild allergy to a food as long as you are fit and healthy on the day' and 'you cannot give blood if you have ever had anaphylaxis or if you carry adrenaline/ epinephrine for self-administration'. A person with a food allergy (medical condition) can become an organ donor and the Citizens Information website for Ireland states healthcare personnel will decide at the time of a person's death if their organs can be donated. Other cases have been reported where food allergens have been transferred via organ donation and blood transfusion. It is reported by (Geggel, 2015) that a boy in Canada started showing food allergies to fish and nuts after receiving a blood transfusion. The boy eventually over time started to introduce nuts and fish back into his diet and this was successful in his case because the boy's body did not produce the antibodies against nuts and fish. Nierenberg (2018) described another case where a 68-year-old woman received a lung transplant from a 22-year-old male who suffered from a peanut allergy. After eating a peanut butter and jelly sandwich the woman suffered an allergic reaction. It was also declared in this report that the doctors were unsure if the woman would have a nut allergy for life and tests would remain on-going to test her tolerance to nuts in the future (Nierenberg, 2018).

The hygiene hypothesis is suggested to increase the number of children suffering from a food allergen. The hygiene hypothesis was first introduced in 1989 (Scudellari, 2017). Gupta *et al.*, (2016) carried out a study to examine this theory and considered hygiene factors such as numbers of family members, the use of antibiotics, history of infections, access to pets, type

of childcare received and maternal-child factors. The study examined children aged between 0 and 21 and concluded there was evidence to back the hygiene hypothesis theory but outlined the result may be biased and additional studies are required to back this theory (Gupta *et al.*, 2016). In contrast to this study, Dyer *et al.*, (2015) carried out a similar study along with the authors from the Gupta *et al.*, (2016) study on the link between microbial exposures and a food allergy. This study concluded there was no significant evidence to suggest a link between microbiological exposure and a food allergy but for some of the authors to carry out a similar study one year later they must have had some doubt about the conclusion of the study. The immunological reasoning for this is the reduction of infections linked with a western lifestyle and a considerable reduction in type 1 responses (Haspeslagh *et al.*, 2018).

Haspeslagh *et al.*, (2018) believe that due to the Western lifestyle there is a loss of necessary microbial stimulation and this could result in hypersensitive barrier tissues and the detected rise in type 2 allergic disease. The development of a tolerance to an allergen is reliant on microbial colonisation and immunostimulatory signals during early life and is passed on from mother to baby. The study states ‘these environmental cues are sensed and integrated by barrier epithelial cells of the lungs and perhaps the skin, which in turn instruct dendritic cells to regulate or impede adaptive T cell responses. Recent reports also indicate immunoregulatory macrophages as powerful suppressors of allergy by the microbiome’ (Haspeslagh *et al.*, 2018).

Eggesbø *et al.*, (2003) carried out a study to determine if caesarean section increased a child’s likelihood of developing a food allergy. They reported from their results that caesarean section might delay the colonisation of the new-born child’s intestine therefore leading to the development of a food allergy in a child. Mitselou *et al.*, (2018) also carried out a nationwide cohort study in Sweden to examine this theory. 1,086,378 children born between 2001 and 2012 were used for the study. The conclusion from this study was caesarean delivery was linked with increased risk of food allergy and very preterm birth decreased risk of food allergy.

There is a theory the rise of food allergies is because of the increased use of antibiotics. Use of antibiotics has increased in recent years along with an increase in the number of people suffering from food allergies. Hirsch and Pollak (2017) carried out a study of patients born between 2001 and 2011 in Pennsylvania. The study found a strong link between antibiotic

orders and diagnosis of food allergies. There is a difference in the microbiota of children who have been diagnosed with a food allergy and children who do not suffer from a food allergy. Disruptions in the microbiome have been linked to the use of antibiotics in children.

Microflora is bacteria and other microorganisms that live inside the intestines (National Cancer Institute, 2019). The microbiome refers to organisms that live on or in another organism and can account for 90% of the cells in humans (Pascal *et al.*, 2018). There may be a link between microbiome and the increase in people suffering from food allergies. The microbiome can be influenced by environmental and dietary factors. Pascal *et al.*, (2018) contended microbiome have a complicated role in development of food allergies. However, the authors also stated this field of study is new and predict key finding sin the future in this area (Pascal *et al.*, 2018).

1.14 Recent Advances in Allergen Control

Over the past few years, especially since the legislation was introduced, there has been an increase on the emphasis put on allergen control. Recent advances in allergen control are outlined below.

Legislation outlines the requirements for allergen management for all food premises and food operators. Guidance notes provide guidance and advice to food premises and food business operators on food allergen management.

In July 2015 the FSAI released a leaflet ‘Allergen Information for Non-prepacked food’ for food premises. This leaflet outlines the legal requirements of the food business operator and ensures the food business operator complies with national legislation. In 2019 the FSAI released the same leaflet in Chinese. There are numerous Chinese restaurants all around Ireland. This is a big step for the FSAI in making their documents more accessible to food business operators in Ireland. This is an important step taken by the FSAI to ensure allergen information is clear and in a language that can be understood by all. It is the food business operator’s duty to ensure all their staff understand the legal requirements and comply with legislation.

Chapter 2 – Methodology

2.0 Methodology

The methodology section describes the data collection and analysis methods used to carry out the study. A desk study into the literature available around food allergies and intolerances is conducted to identify why it is necessary to carry out an examination of allergen awareness and associated practices in the healthcare environment.

Hospitals in the Leinster area were contacted to ask if they would participate in the study. The background of the study was outlined to the hospitals. The study population was individuals who worked within the healthcare environment and are in contact with patient's food and may be in contact with patient's food at mealtimes. This included nurse managers, nurses, healthcare assistants, multitask attendants, catering staff and agency staff if working on the day of the survey. 140 individuals completed this survey between September 2019 and November 2019.

A survey of sixteen questions was compiled to gather healthcare professional's information on allergen awareness and associated practices. This is a quantitative study. The questions on the survey were multiple choice and the person taking the survey had to tick the box, seven questions asked for further detail if possible.

The survey was hardcopy version. The surveys were printed because it is easier to get healthcare professionals to carry out the survey on the day of the visit to the hospitals. The surveys were distributed to healthcare staff and collected within the same day.

Fourteen different hospitals (public acute hospitals, older person services/ nursing home and private hospital) participated in the study. A large sample size will have more representative data. The original desired sample size was 300 healthcare professionals but due to several healthcare professionals being too busy to complete the survey, 140 was the final sample size.

The survey was designed to obtain information from healthcare professionals on allergen training (and if so the type of allergen training), allergen knowledge, documentation, awareness of allergens in food dishes and how allergen information is given to patients, and their level of contact with patient's food. The survey was designed to obtain information from catering professionals and healthcare professionals working in the catering environment on allergen training, allergen knowledge, documentation, awareness of allergens in food dishes and how allergen information is given to patients and identify how allergens are controlled in hospital kitchens (recipes, menus, ordering, storage, labelling, separate equipment and

controls during preparation, cooking and serving). Please see the survey distributed to hospitals in Annex I.

To validate the survey, it was given to the focus group and the project supervisor to ensure the questions asked on the questionnaire were suitable and successfully going to gather the required information. The focus group and project supervisor assisted with eliminating, adding and changing questions on the survey. It is also important to ensure there is no bias and the focus group and project supervisor gave their opinion on the questions on the survey to ensure the questions are not leading or guiding the people taking the survey to answer the questions a certain way. This enabled the person carrying out the study to cut out any questions that were weak, confusing or did not provide the required information.

Changes were made to the survey to ensure the required information was being obtained by the survey. It was decided that question fifteen and sixteen on the survey will only be carried out by healthcare professionals working in the catering department. Question one to fourteen on the survey is for all healthcare professionals – nurse managers, nurses, healthcare assistants, multitask attendants and agency staff to identify their allergen awareness. Question sixteen and fifteen on the survey will be for catering staff to identify their allergen awareness and the associated practices within the kitchen. The survey was validated, and the final survey was written up on word and distributed.

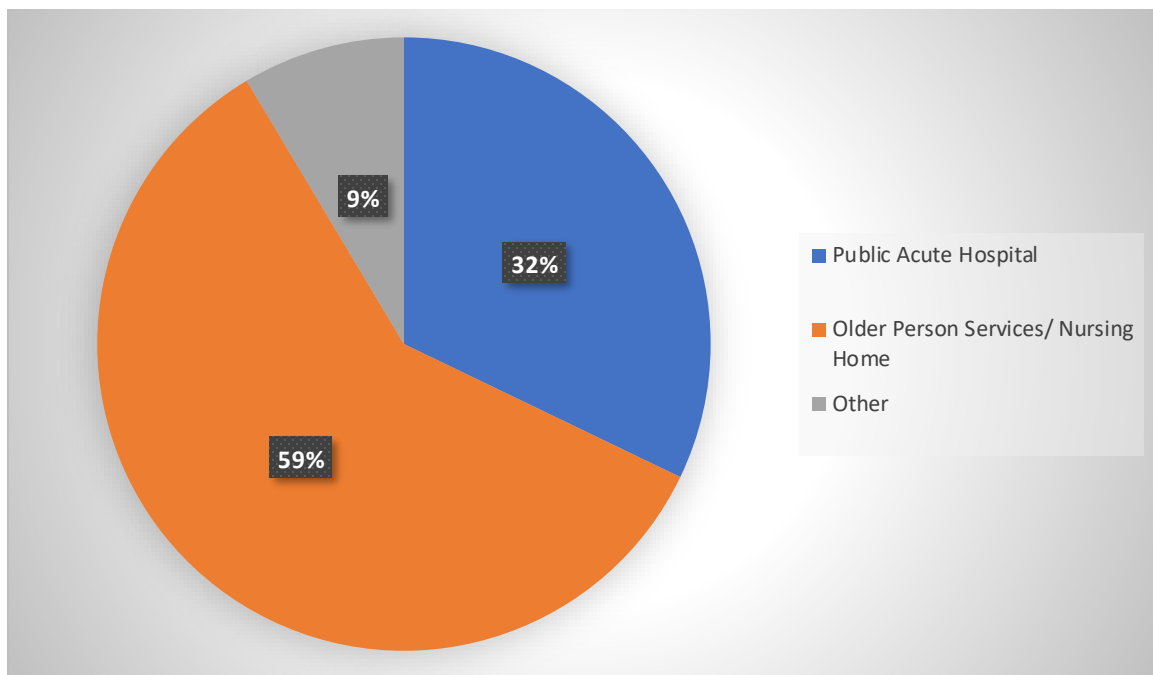
The information from the survey was analysed and the information was used to create data sets and statistically analyse these. Several statistical procedures were used. Overall percentages were calculated for each question. Pie charts and bar charts were used to visually represent the data findings. The information from the data sets gives an indication of allergen awareness and associated practices within the healthcare environment. The information from the data sets will also help when writing the discussion, conclusion and recommendations.

Chapter 3 - Results

3.0 Results

Q1. Are you working in a public acute hospital or older person services/ nursing home?

Figure 7: Percentage of individuals who reported to be working in a public acute hospital or older person services/ nursing home following a survey conducted between September 2019 and November 2019 (n=140)



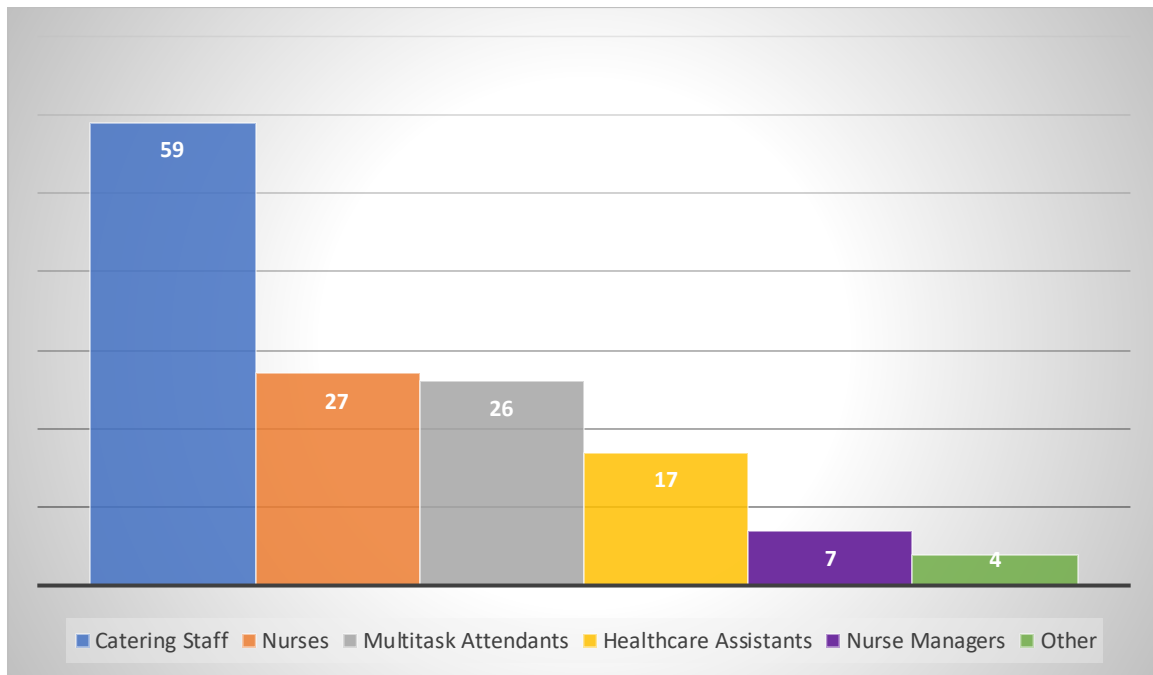
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140 individuals completed the survey. 59% (n=83) reported to be working in older person services/ nursing home. 32% (n=45) worked in public acute hospitals. 9% (n=12) worked in other.

¹ Other is a private hospital

Q2. What healthcare profession are you?

Figure 8: Percentage of individuals who reported to be working in each healthcare profession



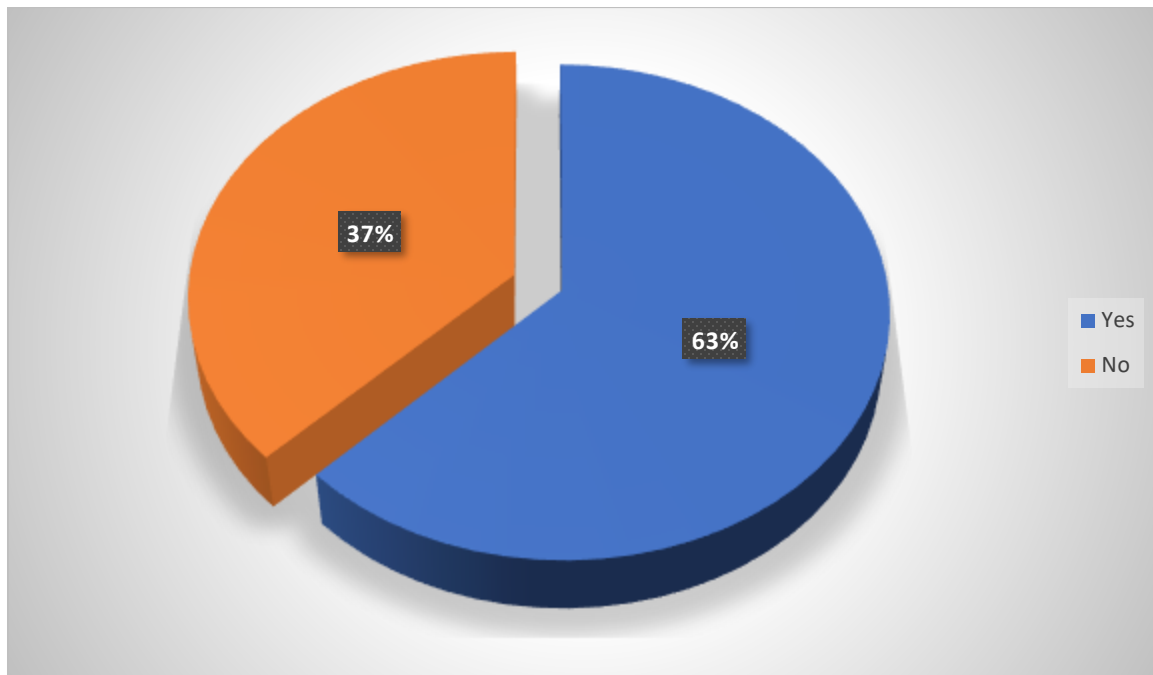
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A variation of healthcare professionals participated in the survey. 42% (n=59) catering staff reported to participate in the survey. 19% (n=27) nurses reported to participate in the survey. 19% (n=26) multitask attendants reported to participate in the survey. 12% (n=17) healthcare assistants reported to participate in the survey. 5% (n=7) nurse managers reported to participate in the survey. 3% (n=4) other staff working in the healthcare environment reported to participate in the survey.

² Other individuals surveyed is a doctor, speech and language therapist and two hospital porters.

Q3. Have you ever received food allergen training?

Figure 9: Percentage of individuals who reported to receive food allergen training



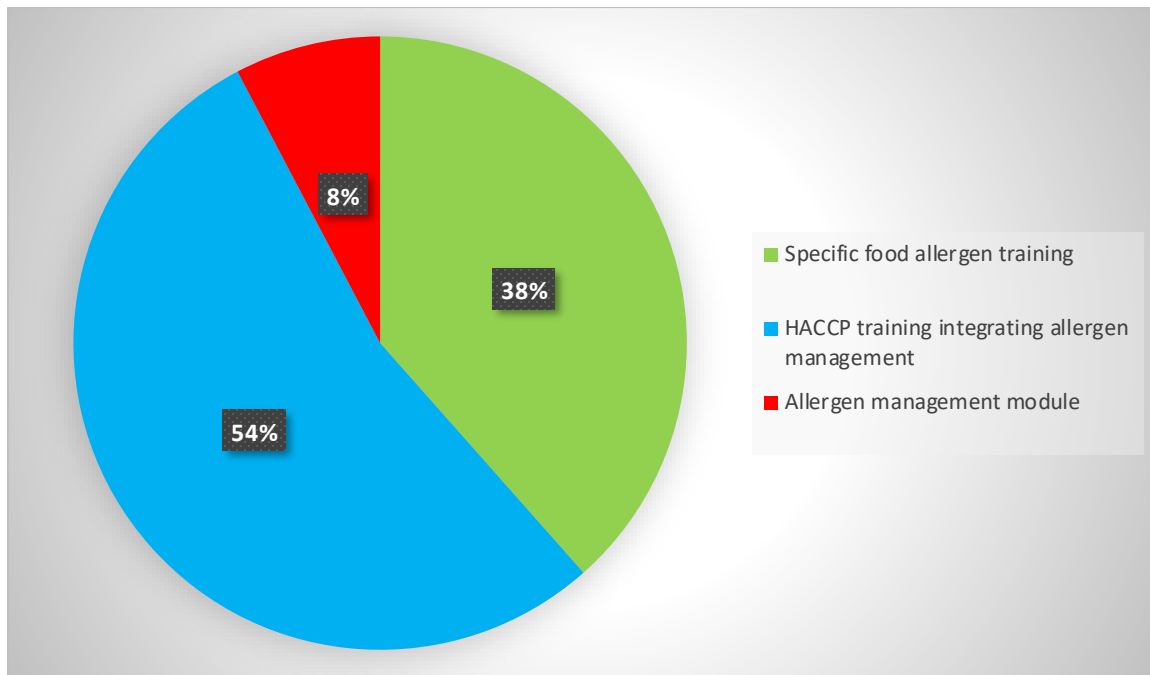
³

63% (n=87) surveyed have not received food allergen training. 37% (n=52) surveyed have received food allergen training.

³ N=1 did not answer.

Q3b. What kind of food allergen training was received?

Figure 10: Type of food allergen training reported to be received by individuals



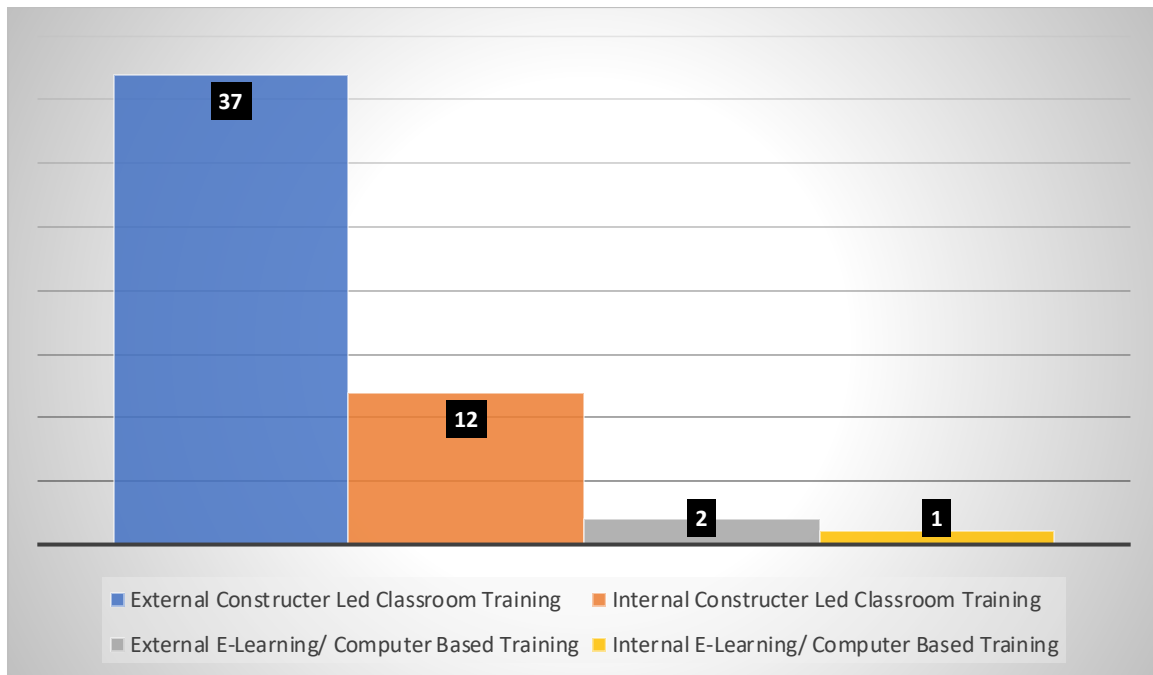
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54% (n=21) surveyed reported they received allergen training integrated in their HACCP training. 38% (n=15) reported they received specific food allergen training. All 15 individuals were working in the same hospital. 8% (n=3) are qualified chefs and covered allergen management modules.

⁴ N=13 who reported they had received food allergen training did not answer.

Q3c. How was food allergen training delivered?

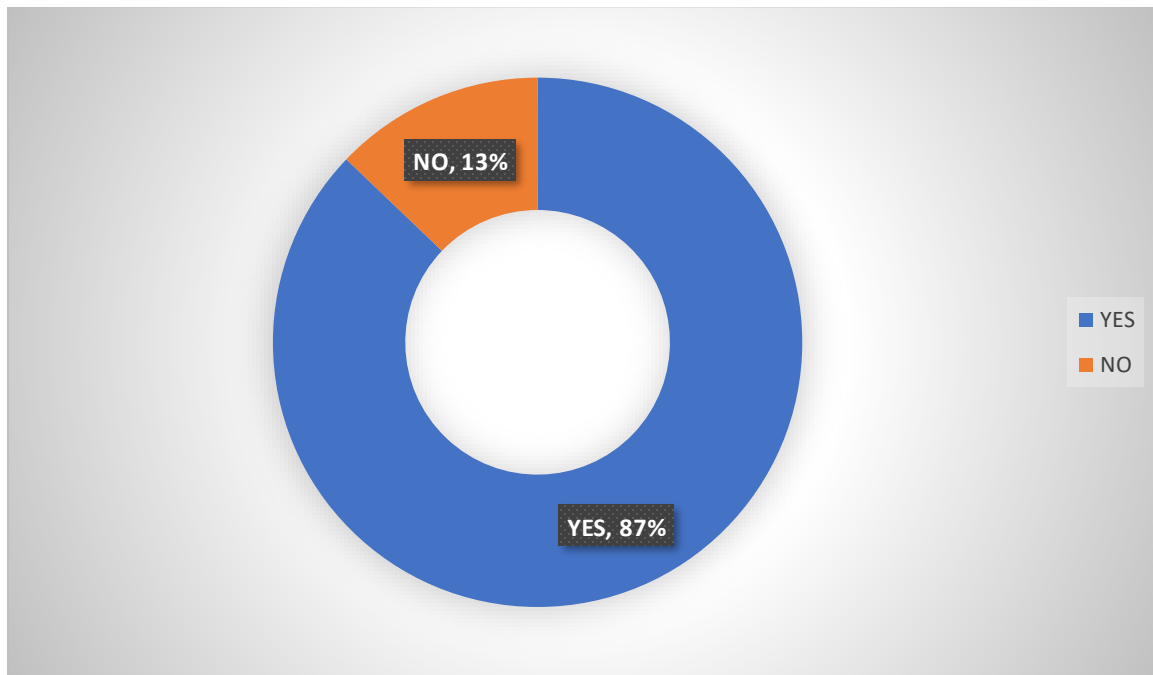
Figure 11: How individuals reported food allergen training was delivered



71% (n=37) reported to receive external constructor led classroom training 23% (n=12) reported to receive internal constructor led classroom training. 4% (n=2) reported to receive external e-learning/ computer-based training. 2% (n=1) reported to receive internal e-learning/ computer-based training.

Q4. Are you aware of the difference between food allergy and food intolerance?

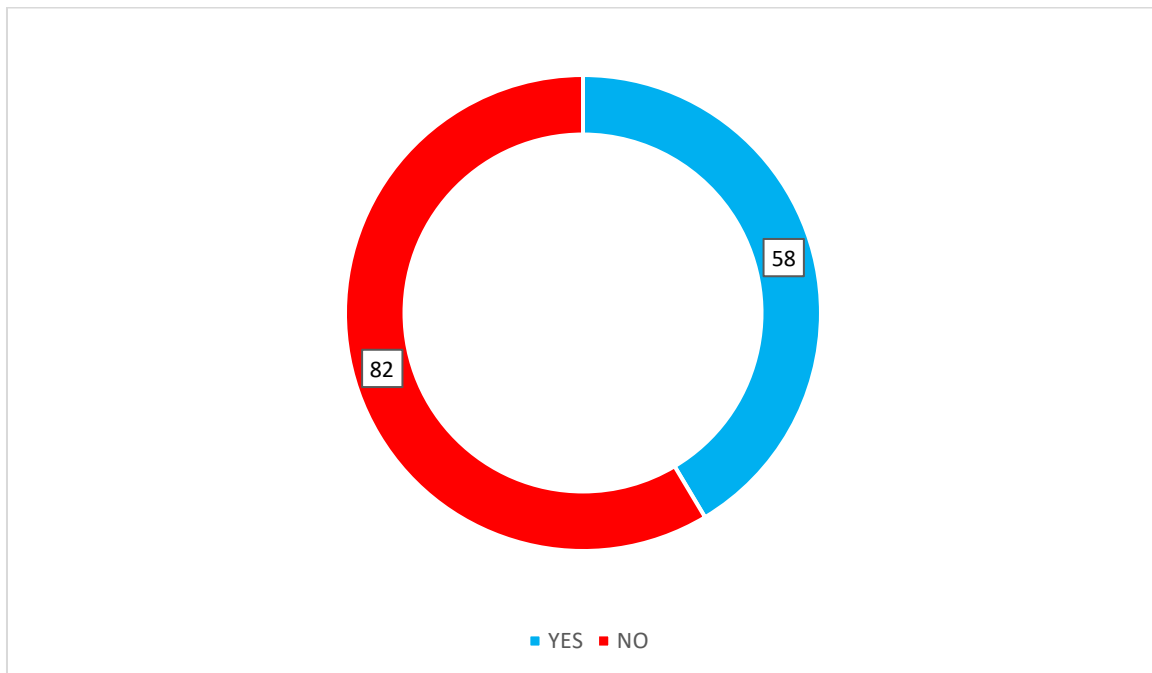
Figure 12: Percentage of individuals surveyed reporting to be aware of the difference between food allergy and food intolerance



87% (n=122) surveyed reported that they are aware of the difference between a food allergy and food intolerance. 13% (n=18) surveyed reported that they are not aware of the difference between a food allergy and food intolerance.

Q5. Are you aware of how many food allergens must be declared on the menu to patients?

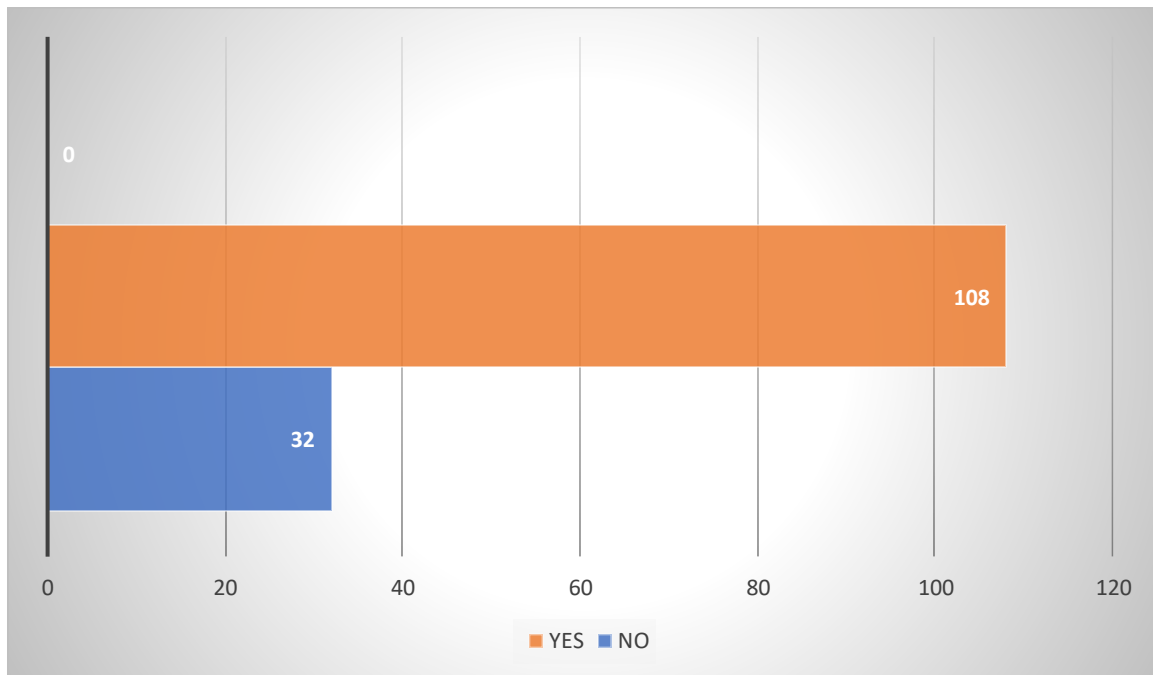
Figure 13: Percentage of individuals surveyed reporting to be aware of how many food allergens must be declared on the menu to patients



59% (n=82) surveyed reported that they are not aware of how many allergens must be declared on the menu to patients. 41% (n=58) reported that they are aware that 14 allergens must be declared on the menu to patients.

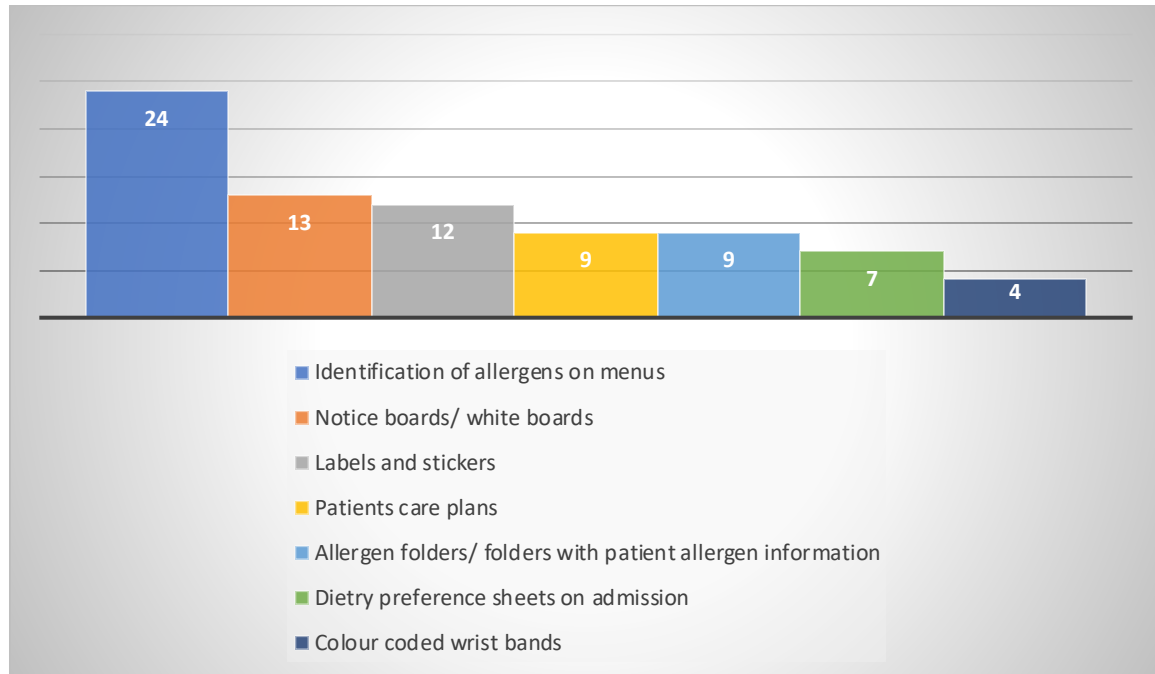
Q6. Is there an ‘identification system’ (or equivalent) in place for patients with food allergy/ food intolerance?

Figure 14: Percentage of individuals surveyed reporting to be aware of an ‘identification system’ (or equivalent) in place for patients with food allergy/ food intolerance



77% (n=108) surveyed reported to have an ‘identification system’ (or equivalent) in place for patients with food allergy/ food intolerance. 23% (n=32) surveyed reported to not have an ‘identification system’ (or equivalent) in place for patients with food allergy/ food intolerance.

Figure 15: Type of ‘identification systems’ (or equivalent) reported by individuals surveyed to be in place for patients with food allergy/ food intolerance



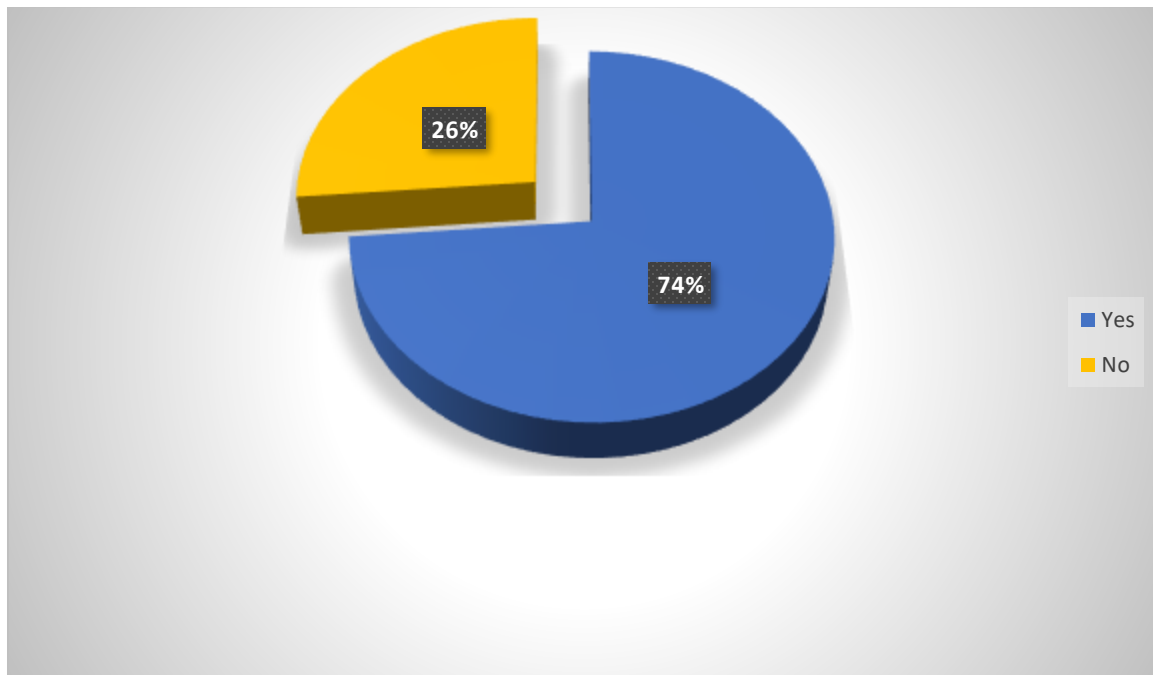
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31% (n=24) reported that identification of allergens on menus is the identification system used. 17% (n=13) reported that notice boards and white boards is the identification system used. 15% (n=12) reported that labels and stickers is the identification system used. 12% (n=9) reported that patient care plans are the identification system used. 12% (n=9) reported that allergen folders and folders with patient allergen information is the identification system used. 9% (n=7) reported that dietary preference sheets on admission is the identification system used. 5% (n=4) reported that the identification system used is colour coded wrist bands.

⁵ N=70 reported the type of ‘identification system’ in their workplace. N=38 who answered that there was an ‘identification system’ did not give an example of the type of ‘identification system’.

Q6b. Is the ‘identification system’ (or equivalent) viewed by all staff members?

Figure 16: Percentage of individuals who reported they view the ‘identification system’ (or equivalent)



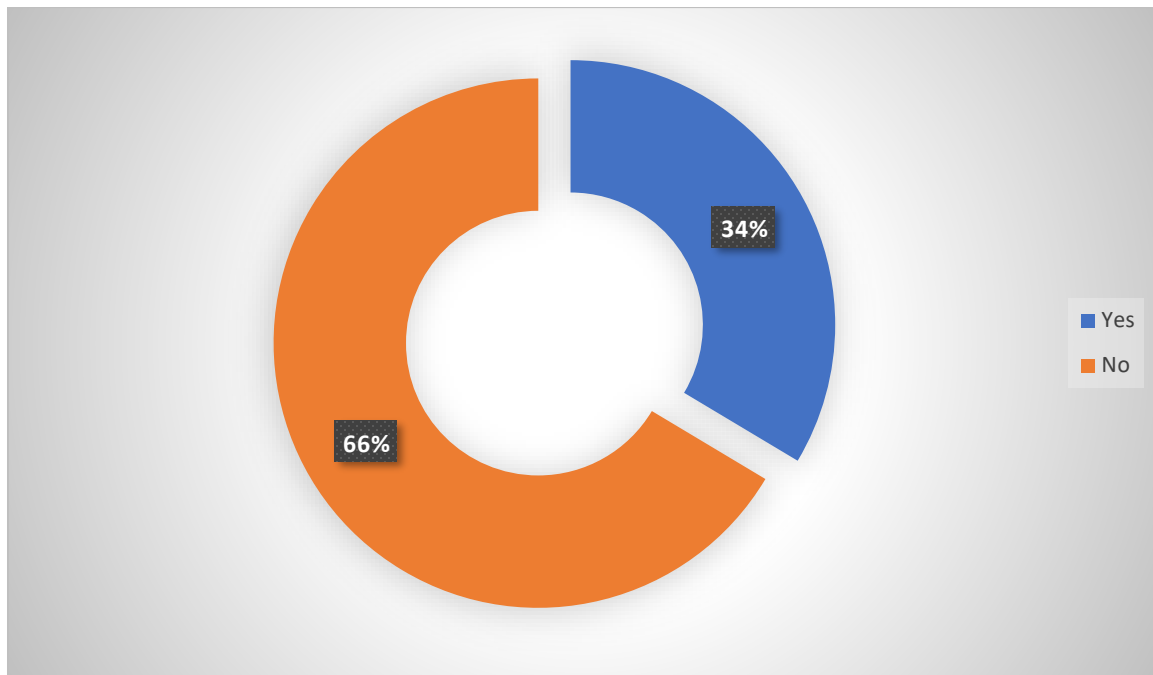
⁶

74% (n=98) reported that they viewed the ‘identification system’ (or equivalent). 26% (n=35) reported that they did not view the ‘identification system’ (or equivalent).

⁶ N=7 did not answer.

Q6c. Is the 'identification system' or equivalent signed by all staff members?

Figure 17: Percentage of individuals who reported they sign the identification system



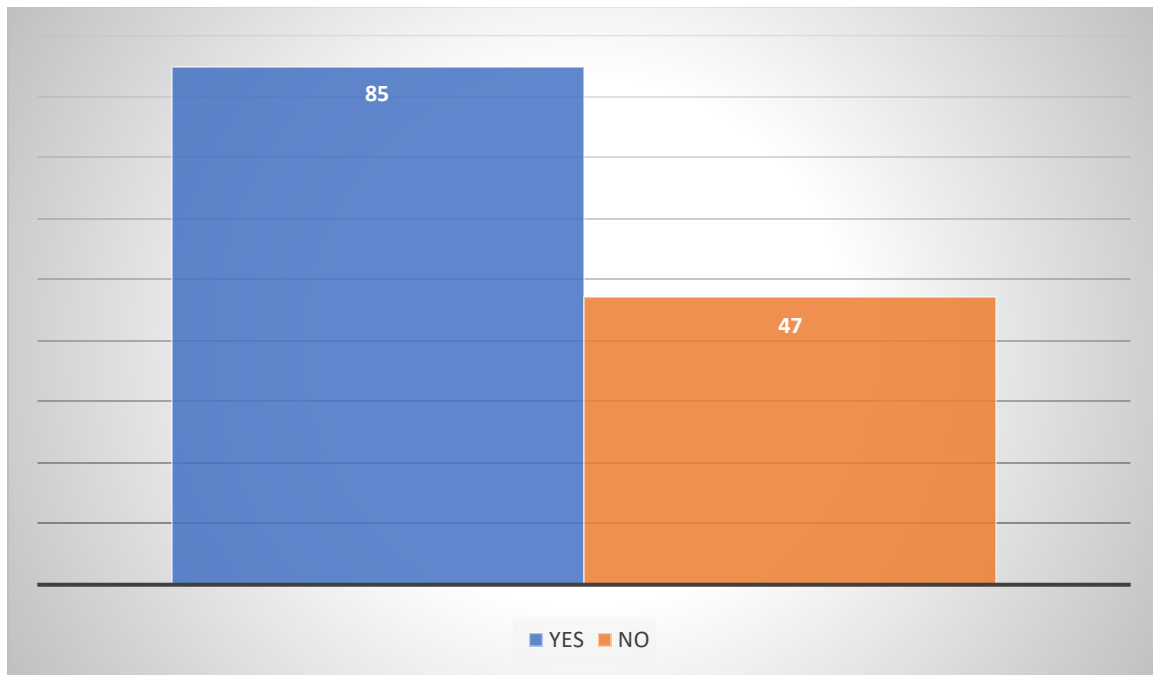
⁷

64% (n=89) surveyed do not sign the 'identification system' (or equivalent). 32% (n=45) surveyed sign the 'identification system' (or equivalent).

⁷ N=6 did not answer.

Q6d. Do you believe the ‘identification system’ (or equivalent) used is sufficient?

Figure 18: Percentage of individuals who reported to believe the ‘identification system’ (or equivalent) used is sufficient



⁸

64% (n=85) surveyed believe the ‘identification system’ (or equivalent) is sufficient. 36% (n=47) surveyed believe the ‘identification system’ (or equivalent) is not sufficient.

⁸ N= 8 did not answer

Table 4: Reasons individuals surveyed reported that the ‘identification system’ (or equivalent) is not sufficient

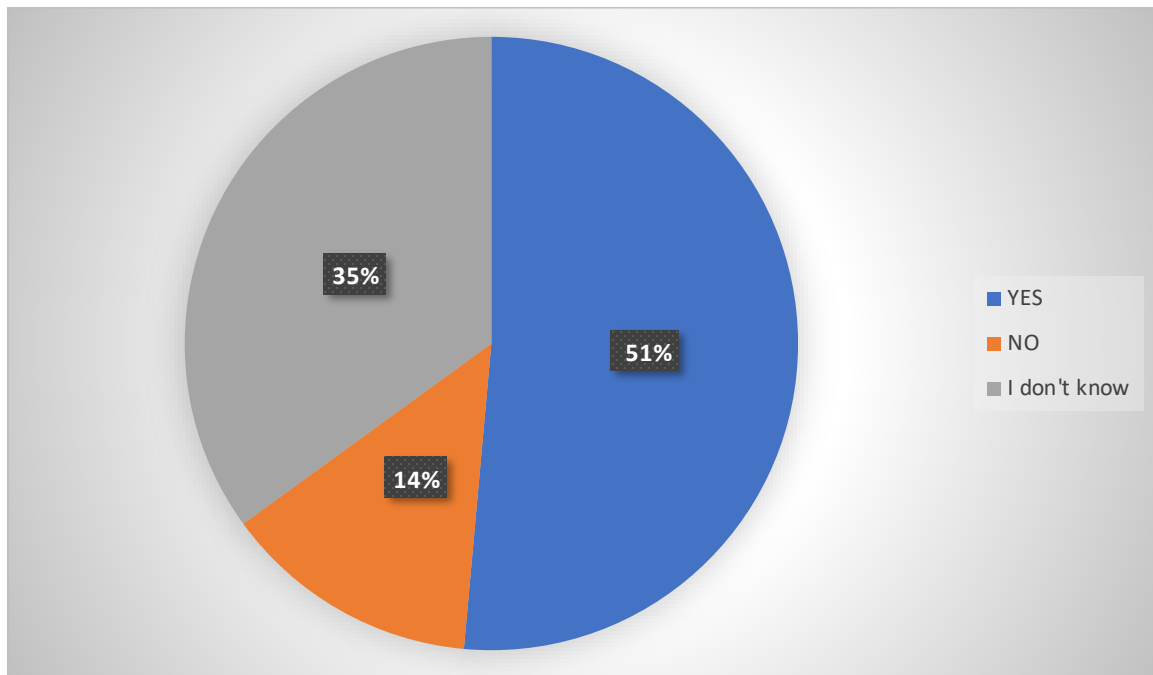
Reasons	Number of responses
Must go looking for the information because it does not give immediate awareness to a person’s allergen/ It is not seen visually by staff	N=6
Slow to update the ‘identification system’ (or equivalent) and it is not always updated or reviewed	N=3
Patients can get wrong meals	N=1
Aware of less than 14 allergens	N=1
Follow through from the kitchen is very poor on to the wards	N=1
Not displayed enough/ should be more easily accessible	N=1
Patients allergen information is filed away in a folder	N=1
Information can be forgotten to be transferred on the sheets taking meal orders for patients i.e. fish allergy today, not tomorrow	N=1
There is no ‘identification system’ or equivalent	N=1

9

⁹ N=16 answered. N=31 did not answer that reported the ‘identification system’ (or equivalent) was not sufficient.

Q7. Is there a hospital policy available for managing patients with food allergy/ food intolerance?

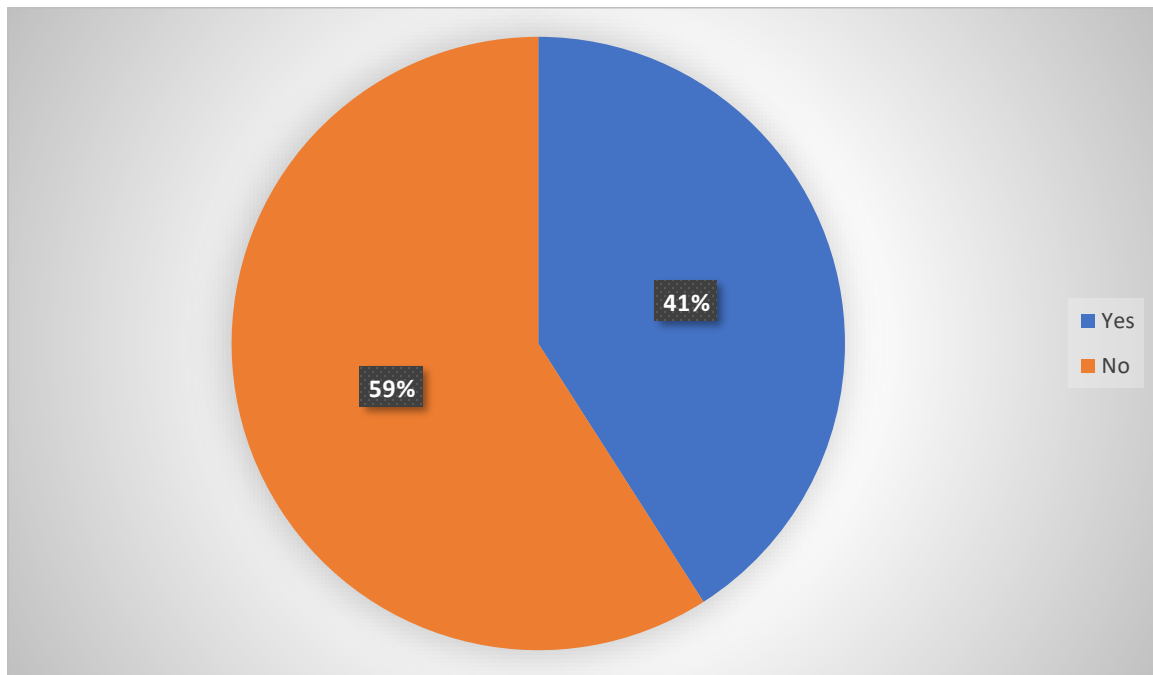
Figure 19: Percentage of individuals reporting there is a hospital policy available for managing patients with food allergy/ food intolerance



51% (n=72) surveyed are aware of a hospital policy available at their workplace for dealing with patients with food allergy/ food intolerance. 35% (n=49) surveyed are unsure if there is a hospital policy available at their workplace for dealing with patients with food allergy/ food intolerance. 14% (n=19) surveyed believe there is no hospital policy at their workplace for dealing with patients with food allergy/ food intolerance.

Q7b. If yes, have you read the hospital policy for managing patients with food allergy/ food intolerance?

Figure 20: Percentage of individuals reporting to have read the hospital policy for managing patients with food allergy/ food intolerance



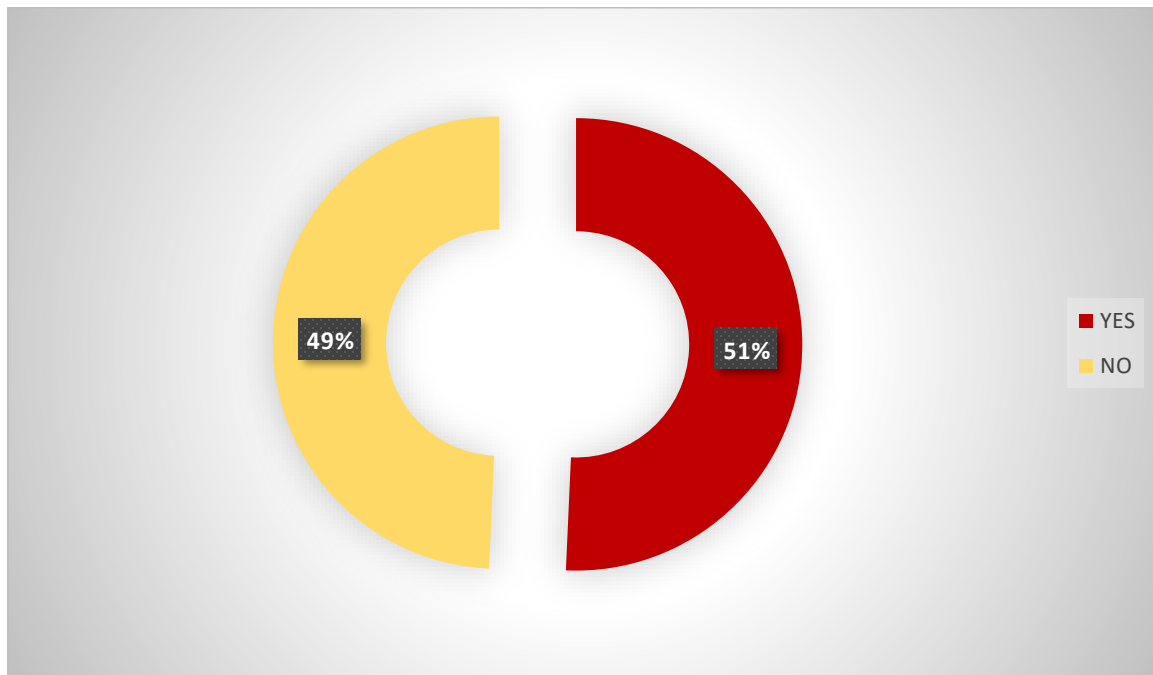
10

41% (n=52) reported to have read the hospital policy for managing patients with food allergy/ food intolerance. 59% (n=75) reported to have not read the hospital policy for managing patients with food allergy/ food intolerance.

¹⁰ N=13 did not answer.

Q8. Are you aware of what food allergens are in each dish produced by the hospital kitchen?

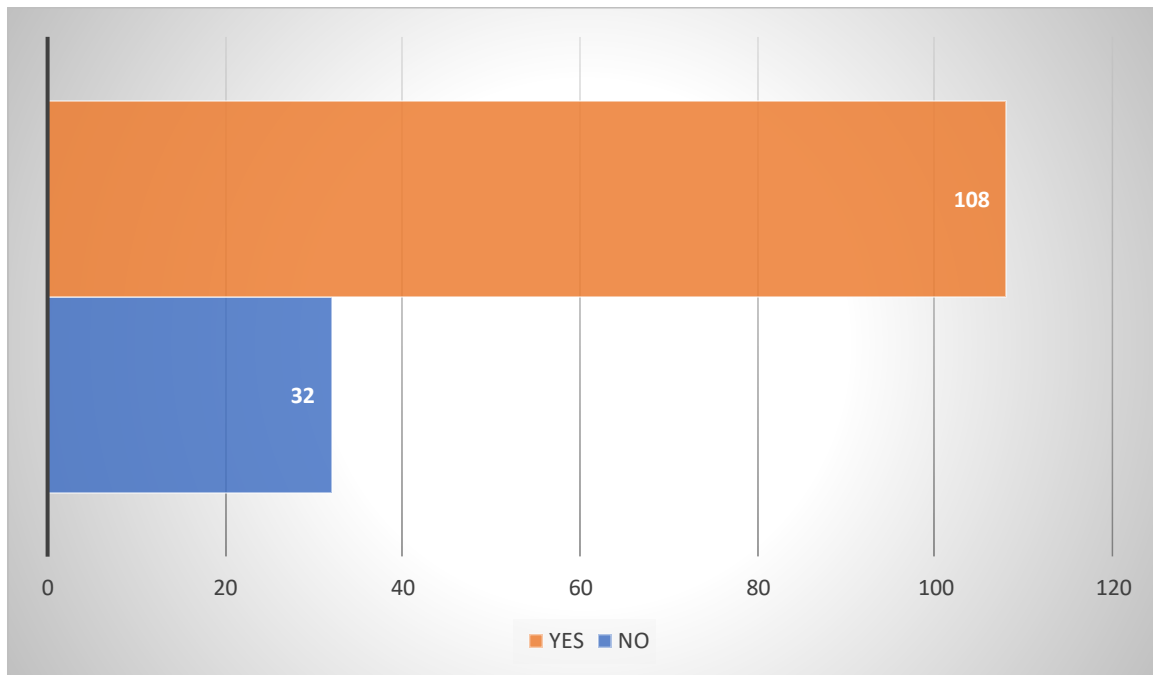
Figure 21: Percentage of individuals reporting to be aware of what food allergens are in each dish produced by the hospital kitchen



51% (n=71) surveyed are aware of what food allergens are in each dish produced by the hospital. 49% (n=69) surveyed are not aware of what food allergens are in each dish produced by the hospital.

Q9. Are you involved in delivering food to patients, dishing out food for patients and/or feeding patients?

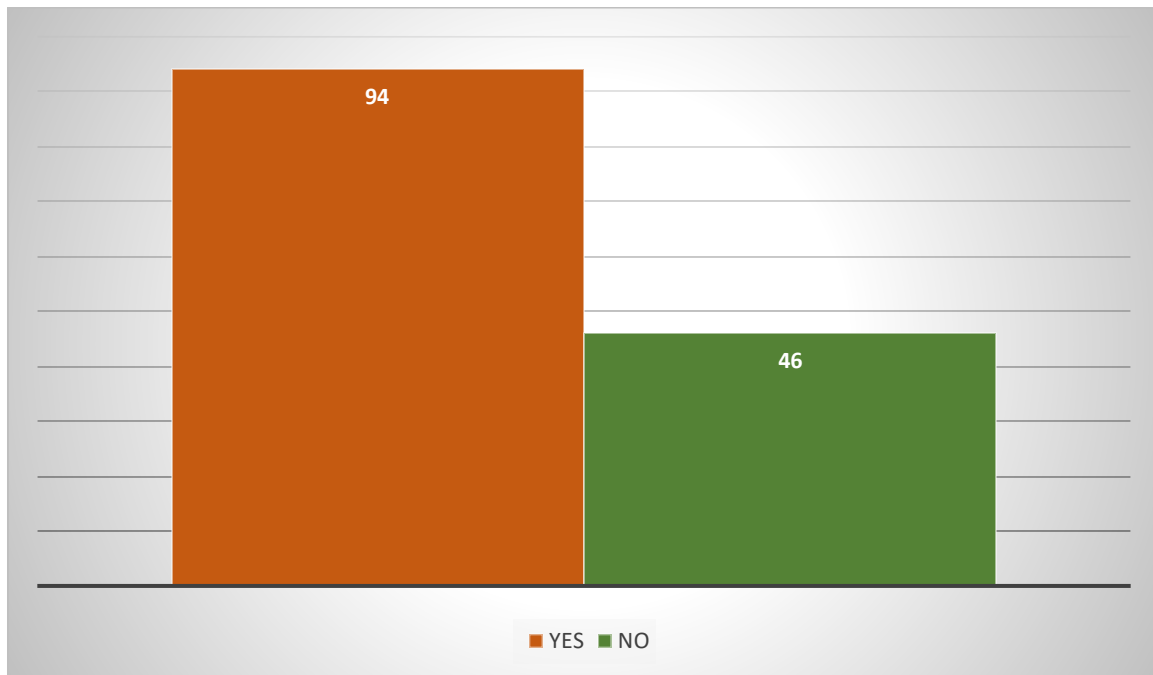
Figure 22: Percentage of individuals reporting to be involved in delivering food to patients, dishing out food for patients and/or feeding patients



77% (n=108) surveyed reported that they are involved in delivering food to patients, dishing out food for patients and/or feeding patients. 23% (n=32) surveyed reported that they are not involved in delivering food to patients, dishing out food for patients and/or feeding patients.

Q10. Can allergen information for food produced in the hospital be easily accessed by patients?

Figure 23: Percentage of individuals reporting allergen information for food produced in the hospital can be easily accessed by patients



67% (n=94) surveyed reported yes allergen information for food produced in the hospital can be easily accessed by patients.33% (n=46) surveyed reported no allergen information for food produced in the hospital cannot be easily accessed by patients.

Table 5: How individuals surveyed report allergen information for food produced in the hospital can be easily accessed by patients

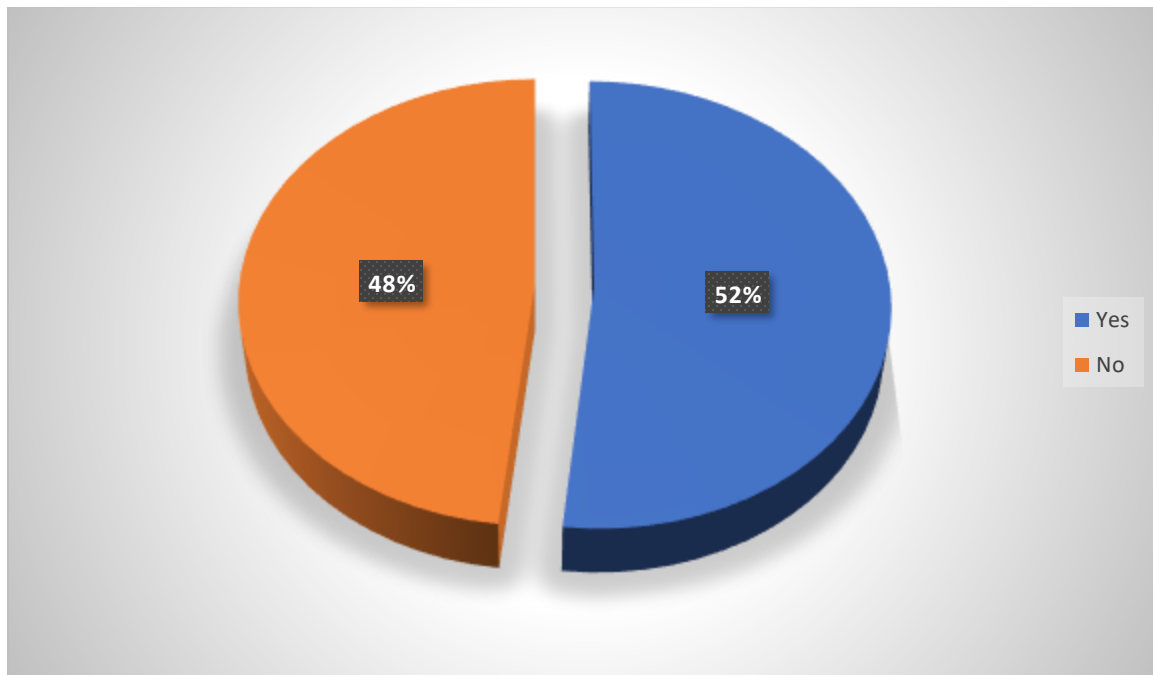
How allergen information is accessed by patients	Number of responses
Asking members of staff	N=26
Menus	N=20
Access to allergen information folder/ food allergen manual	N=13
Whiteboard/ display menus on ward and in dining areas updated with menu and allergens daily	N=12
Patient allergen query form	N=3
Allergen information leaflet	N=1

11

¹¹N=58 answered how patients are provided with allergen information. Some individuals giving more than one example. N=36 who reported allergen information for food produced in the hospital can be easily accessed by patients did not answer how they were provided with that allergen information.

Q11. Are there any restrictions on the foodstuff's visitors can bring into patients?

Figure 24: Percentage of individuals reporting any restrictions on the foodstuff's visitors can bring into patients



¹²

52% (n=71) surveyed reported that there are restrictions on the foodstuff's visitors can bring into patients. 48% (n=66) surveyed reported that there are not any restrictions on the foodstuff's visitors can bring into patients.

¹² N=3 did not answer.

Table 6: Example of restrictions on foodstuff's visitors can bring into patients

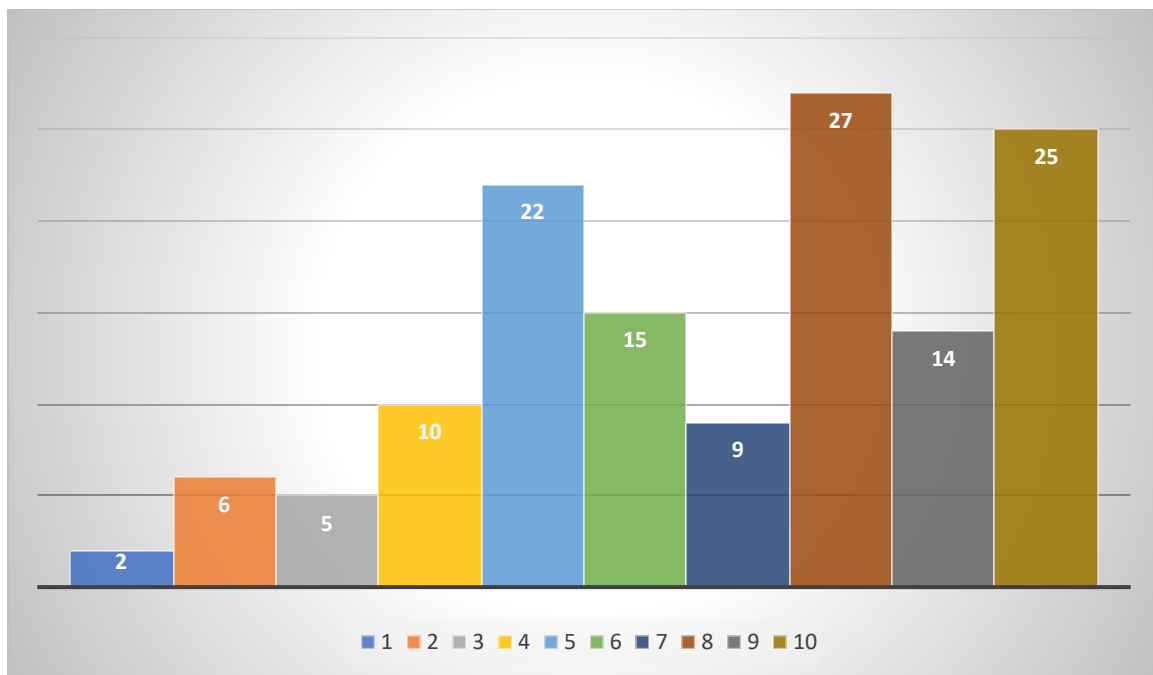
Restrictions	Number of responses
No food – Kitchen accept no responsibility for food brought into patients	20
No food that needs to be stored, cooked or reheated	12
Visitors advised not to bring in food to patients	8
Food brought into patients is stored in a separate labelled container	5
Food must be checked with staff	3
No food that is unsuitable for patients swallow recommendations	2
No restrictions on food with allergens	1

¹³

¹³ N=59 answers. N=12 did not answer who previously reported that there are restrictions on foodstuffs visitors can bring into patients.

Q12. Can you rank out of 10 how effective you believe systems currently in place to control food allergens are? (1 being the systems in place are very ineffective and 10 being the systems in place are very effective)

Figure 25: Percentage of individuals surveyed who ranked out of 10 how effective they believe the systems currently in place to control food allergens are



14

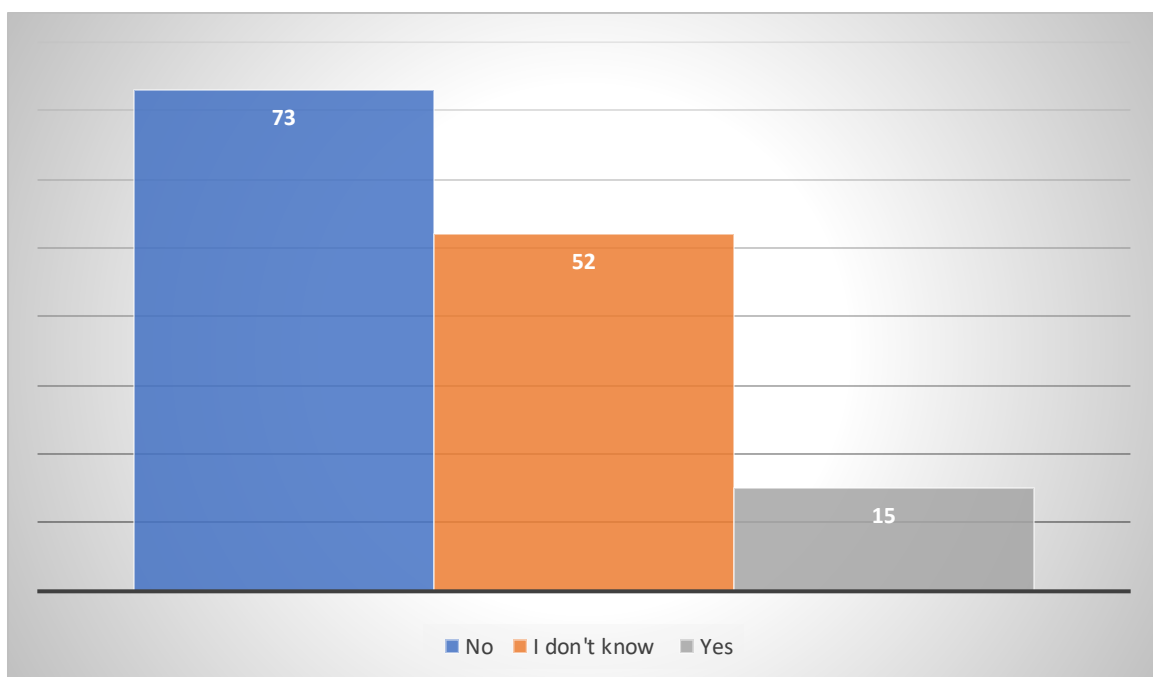
1% (n=2) surveyed ranked the systems currently in place to control food allergens as 1/10.
 5% (n=6) surveyed ranked the systems currently in place to control food allergens as 2/10.
 4% (n=5) surveyed ranked the systems currently in place to control food allergens as 3/10.
 7% (n=10) surveyed ranked the systems currently in place to control food allergens as 4/10.
 16% (n=22) surveyed ranked the systems currently in place to control food allergens as 5/10.
 11% (n=15) surveyed ranked the systems currently in place to control food allergens as 6/10.
 7% (n=9) surveyed ranked the systems currently in place to control food allergens as 7/10.
 20% (n=27) surveyed ranked the systems currently in place to control food allergens as 8/10.
 10% (n=14) surveyed ranked the systems currently in place to control food allergens as 9/10.

¹⁴ N=5 did not answer.

19% (n=25) surveyed ranked the systems currently in place to control food allergens as 10/10. The average ranking figure is 6.84/10.

Q13. Has there ever been an incident of an adverse reaction to food consumed on the premises in the past due to a failure in communicating allergen information or cross-contamination?

Figure 26: Percentage of individuals surveyed reporting an incident of an adverse reaction to food consumed on the premises in the past due to a failure in communicating allergen information or cross-contamination



52% (n=73) surveyed reported that there has not been an adverse reaction to food consumed on the premises in the past due to a failure in communicating allergen information or cross-contamination. 37% (n=52) surveyed reported that they did not know if there has been an adverse reaction to food consumed on the premises in the past due to a failure in communicating allergen information or cross-contamination. 11% (N=15) surveyed reported that there has been an adverse reaction to food consumed on the premises in the past due to a failure in communicating allergen information or cross-contamination.

Table 7: Examples of incidents from individuals who reported that there has been an incident of an adverse reaction to food consumed on the premises in the past

Example of Incident	Number of Responses
Allergic reaction to spices in food	N=3
An old lady allergic to egg and was given eggs by a staff member	N=1
Meat given to a patient intolerant to meat even though it was outlined in the patients care plan	N=1
A patient received dairy even though they were allergic to dairy	N=1
Sausages given to a coeliac man	N=1
White bread given to a coeliac woman	N=1
Coeliac bread toasted in wrong bread toaster for a very sensitive coeliac patient	N=1
Patient had an allergic reaction to food she was allergic to and had to be transferred to an acute hospital	N=1
Tuna sandwich was given to a patient with a fish allergy	N=1

15

¹⁵ N=5 surveyed who reported that there has been an incident of an adverse reaction to food consumed on the premises in the past did not answer.

Q14. Are there improvements in allergen management in a hospital setting that you could suggest?

Table 8: Improvements in allergen management in a hospital setting that individuals surveyed have suggested

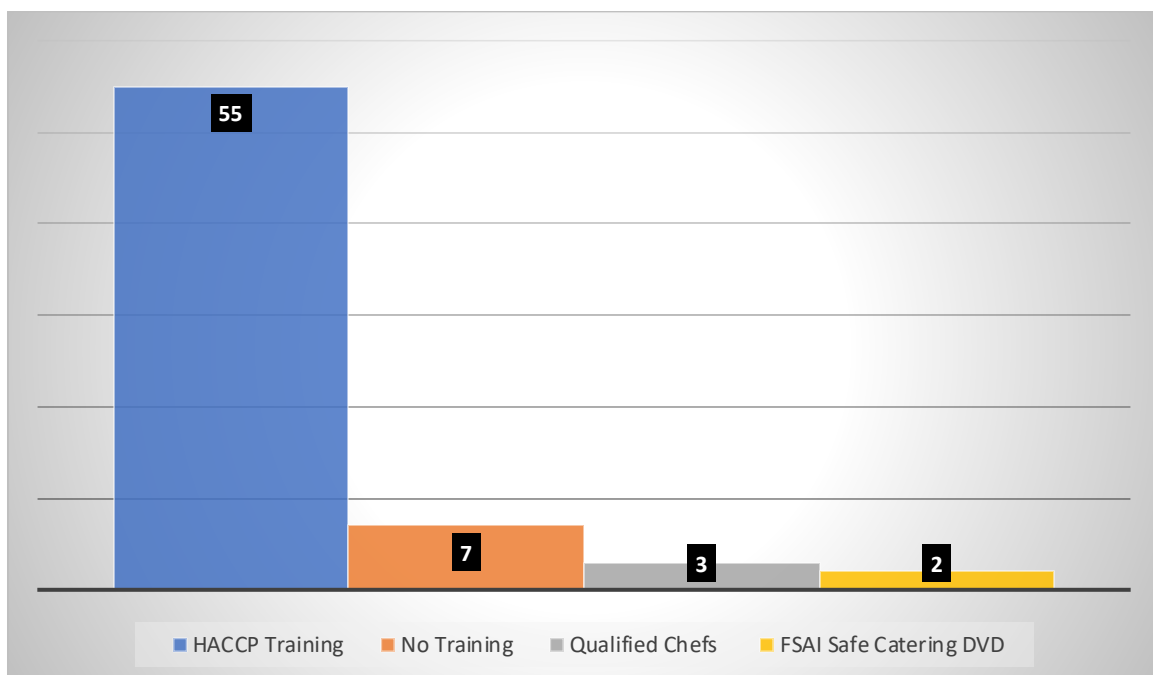
Improvements in Allergen Management Suggested	Number of Responses
Additional and continuous education/ refresher training for new staff/ agency staff	N=18
Signage over beds	N=5
Better communication among staff	N=3
A policy document that is available to everyone	N=3
Awareness of cross-contamination e.g. colour coding system	N=2
Clearer labelling of food to highlight allergens/ intolerances	N=2
Make allergen and intolerance information easy for patients and staff to understand	N=2
Greater knowledge of recipes and allergenic ingredients used during the cooking process	N=1
Better identification system for patients	N=1
Guidelines need to be developed and available to follow	N=1
More posters in dining areas to raise awareness	N=1
Easier access to information	N=1
Provide all patients with a menu and provide different menus to patients with a food allergy or food intolerance	N=1

Menucards with detailed food allergens and intolerances available for each dish produced in the hospital setting	N=1
Display on wall in kitchens and ward kitchens outlining patients with food allergies and intolerances	N=1
Standardise menus	N=1

Q15 and Q16 on the survey is only completed by members of staff working in the catering department

Q15. What is your level of food safety training?

Figure 27: Level of food safety training of individuals surveyed reported to have received



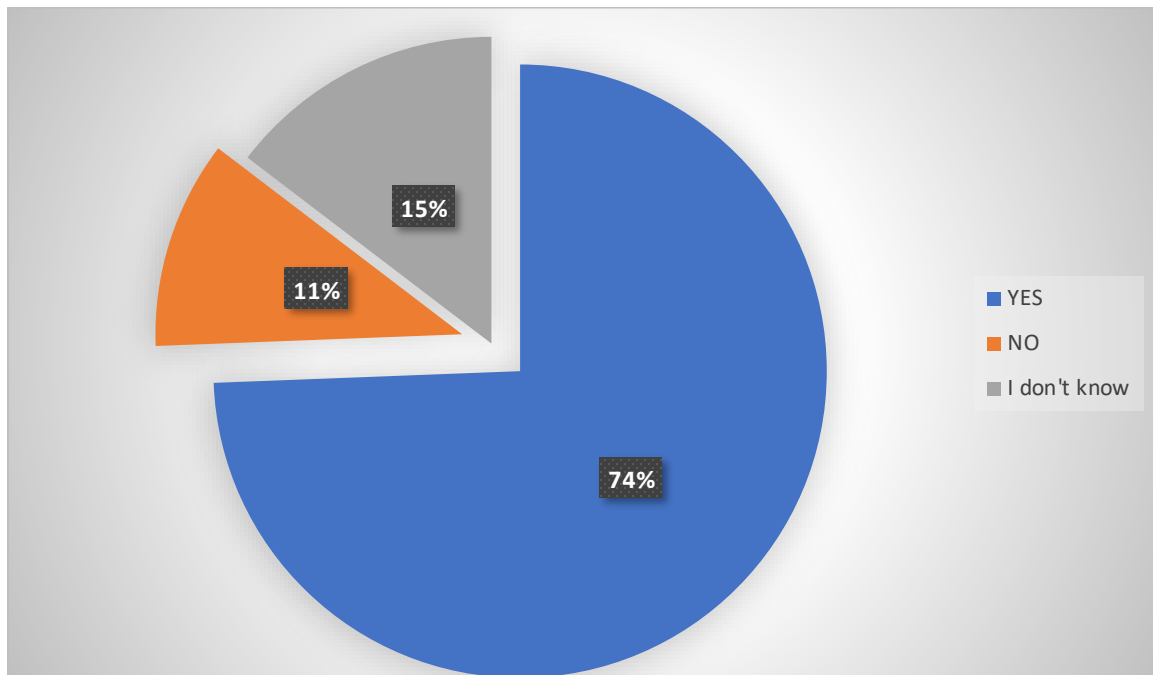
¹⁶

82% (n=55) surveyed reported to have completed HACCP training. 11% (n=7) surveyed reported to have received no training. 4% (n=3) surveyed are qualified chefs. 3% (n=2) surveyed reported to received training from watching the safe catering DVD.

¹⁶ N=15 did not answer.

Q16. Are there specific allergen controls in place in the kitchen for cooking food for persons with a food allergy?

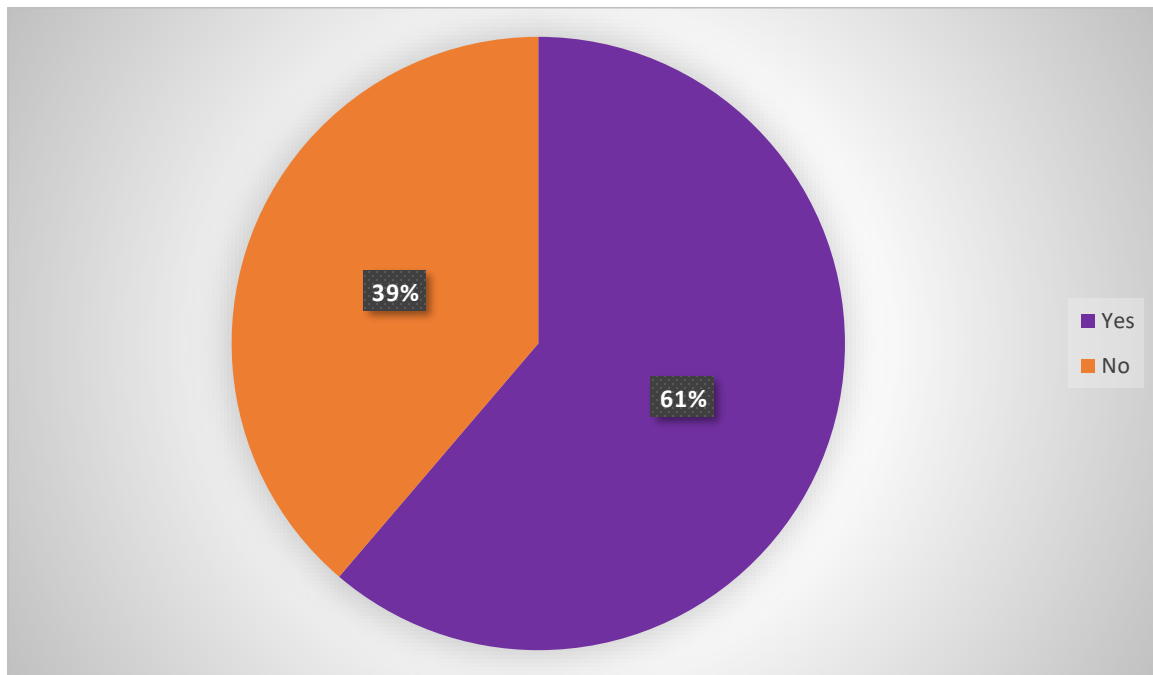
Figure 28: Percentage of individuals surveyed reporting there are specific allergen controls in place in the kitchen for cooking food for persons with a food allergy



74% (n=61) surveyed reported that there are specific controls in place in the kitchen for cooking food for persons with a food allergy. 11% (n=9) surveyed reported that there are not specific controls in place in the kitchen for cooking food for persons with a food allergy. 15% (n=12) surveyed answered that they did not know if there were specific controls in place in the kitchen for cooking for persons with a food allergy.

Q16a. Are all recipes standardised in the hospital i.e. the exact same ingredients used every time?

Figure 29: Percentage of individuals surveyed reporting recipes in the hospital are standardised



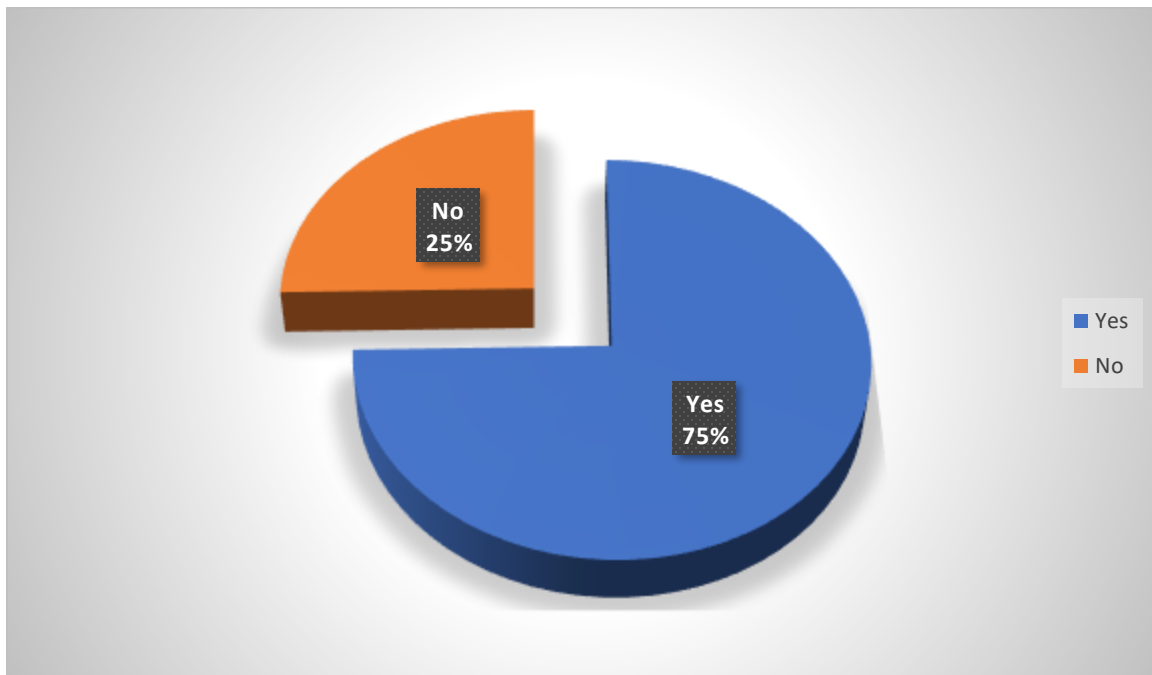
17

61% (n=49) surveyed reported all recipes are standardised in the hospital. 39% (n=31) surveyed reported all recipes are not standardised in the hospital.

¹⁷ N=2 did not answer.

Q16b. Do you check labelling of food when delivered to identify allergens in the ingredients?

Figure 30: Percentage of individuals surveyed report that they check labelling of food when delivered to identify allergens in the ingredients



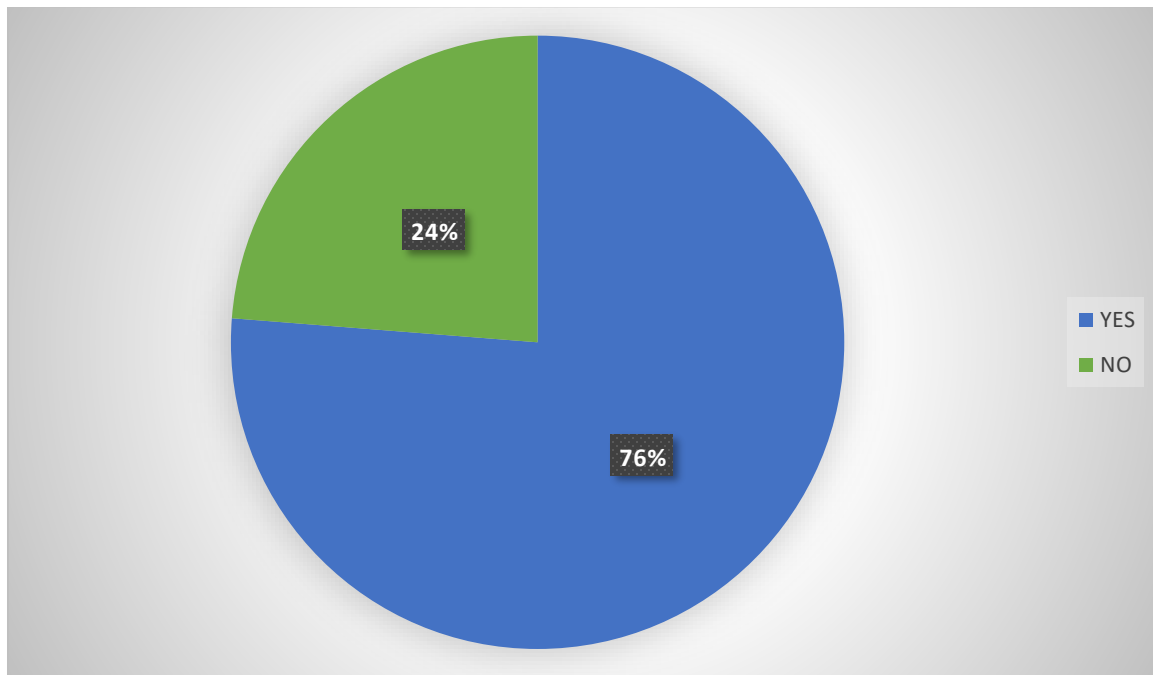
18

75% (n=59) report that they check labelling of food when delivered to identify allergens in the ingredients. 25% (n=20) report that they do not check labelling of food when delivered to identify allergens in the ingredients.

¹⁸ N=3 did not answer.

Q16c. Are there separate storage areas or segregation for food containing allergens?

Figure 31: Percentage of individuals surveyed that report there are separate storage areas or segregation for food containing allergens



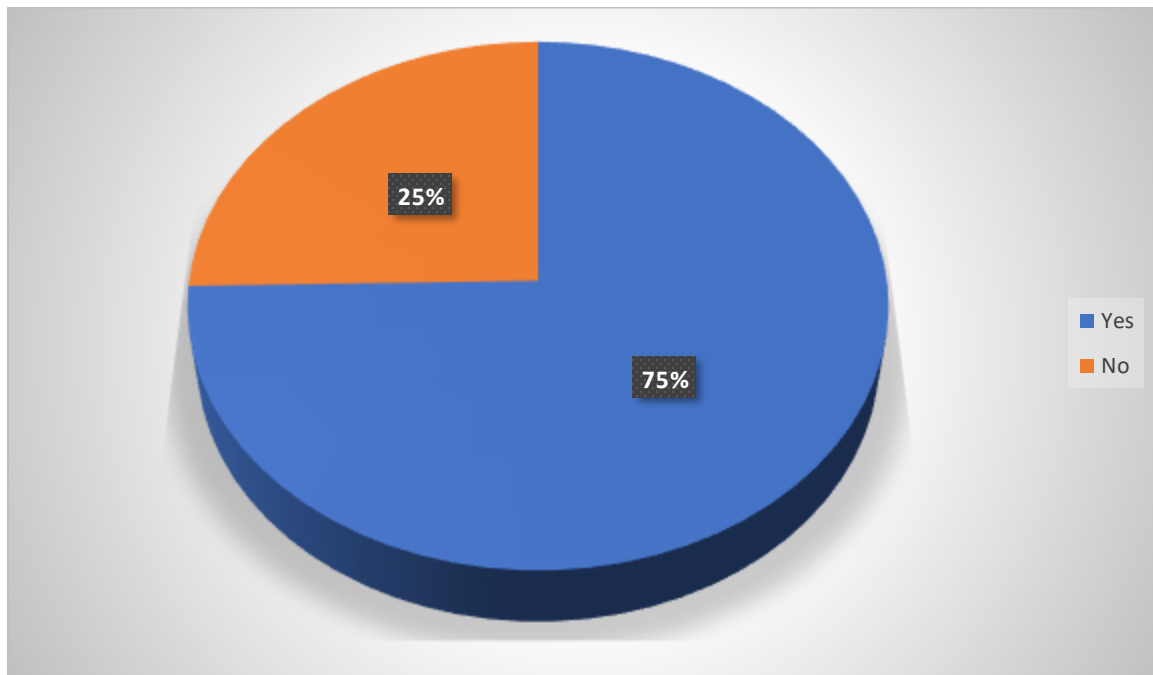
19

76% (n=61) surveyed report that there are separate storage areas or segregation for food containing allergens. 24% (n=19) surveyed report that there are not separate storage areas or segregation for food containing allergens.

¹⁹ N=2 did not answer.

Q16d. Are there separate preparation areas for preparing food for people with food allergy?

Figure 32: Percentage of individuals surveyed that report there are separate preparation areas for preparing food for people with food allergy



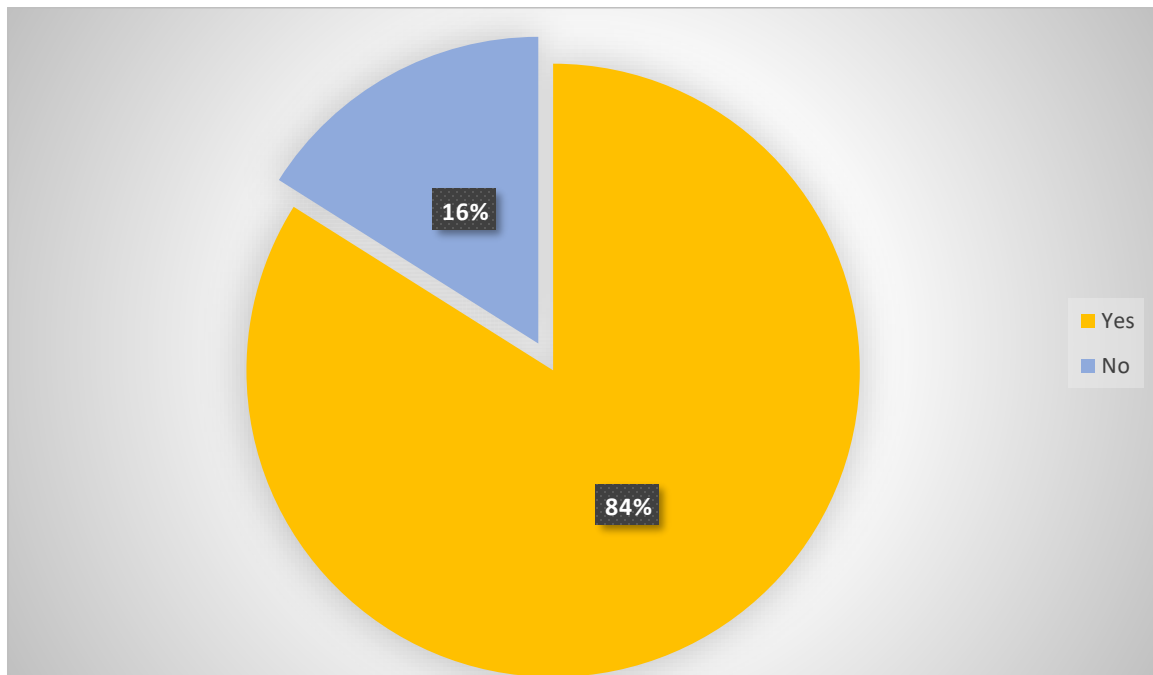
20

75% (n=59) surveyed report that there are separate preparation areas for preparing food for people with food allergies. 25% (n=20) surveyed report that there are no separate preparation areas for preparing food for people with food allergies.

²⁰ N=3 did not answer.

Q16e. Is there separate equipment for preparing/ cooking food for people with food allergy?

Figure 33: Percentage of individuals surveyed that report there is separate equipment for preparing/ cooking food for people with food allergies



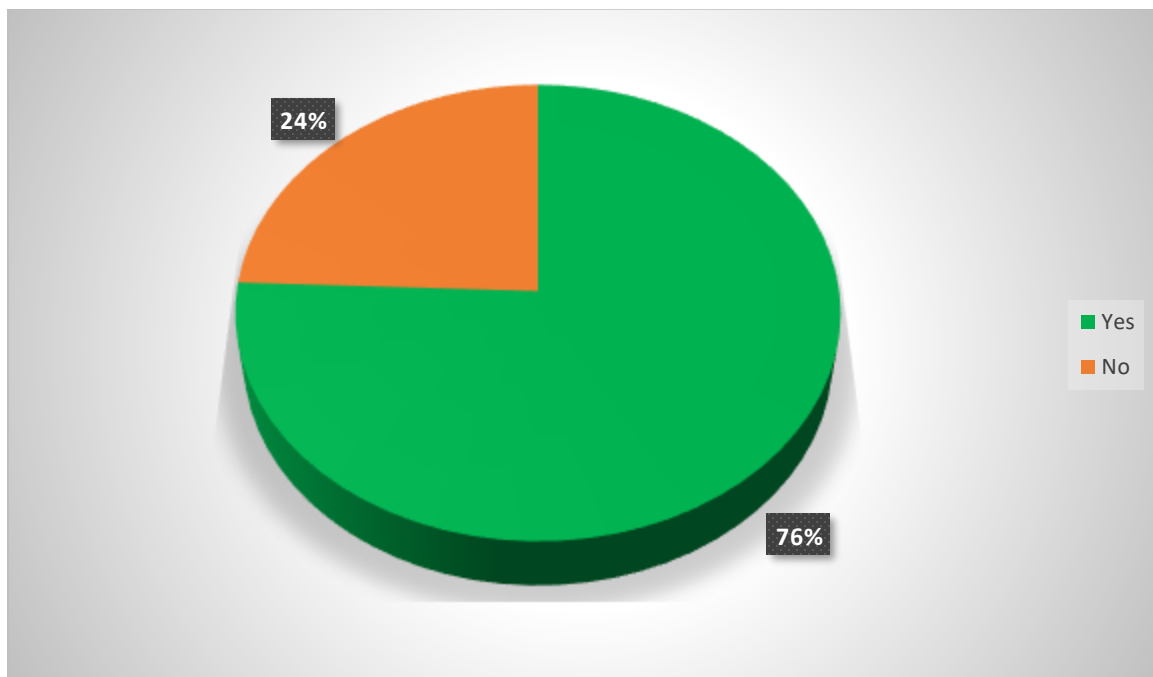
21

84% (n=68) surveyed report that there is separate equipment for preparing/ cooking food for people with food allergies. 16% (n=13) surveyed report that there is no separate equipment for preparing/ cooking food for people with food allergies.

²¹ N=1 did not answer.

Q16f. Is there a specific cleaning procedure and cleaning verification system in place for cleaning equipment, worktops, etc. for people with food allergy?

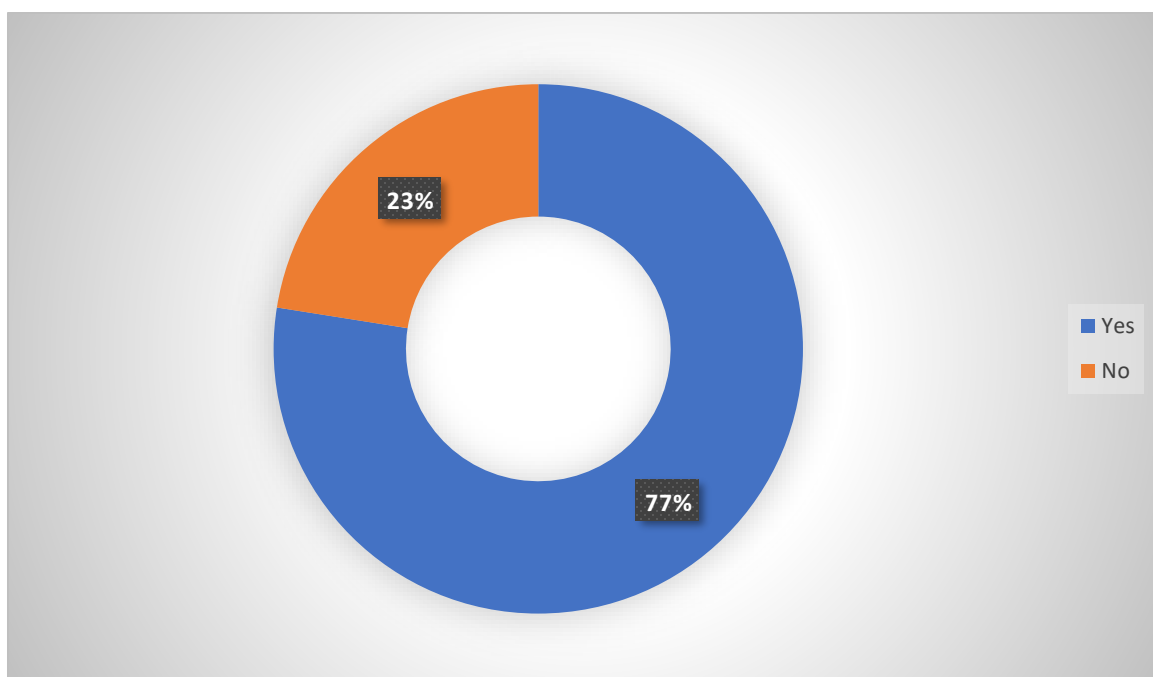
Figure 34: Percentage of individuals surveyed that report there is a specific cleaning procedure and cleaning verification system in place for cleaning equipment, worktops, etc. for people with food allergy



76% (n=62) surveyed report that there is a specific cleaning procedure and cleaning verification system in place for cleaning equipment, worktops, etc. for people with food allergy. 24% (n=20) surveyed report that there is not a specific cleaning procedure and cleaning verification system in place for cleaning equipment, worktops, etc. for people with food allergy.

Q16g. Is there documentation, stickers (or equivalent) to highlight food for people with food allergies/ food intolerances when the food leaves the kitchen to be given to the patient?

Figure 35: Percentage of individuals surveyed that report there is documentation, stickers (or equivalent) to highlight food for people with food allergies/ food intolerances when the food leaves the kitchen to be given to the patient



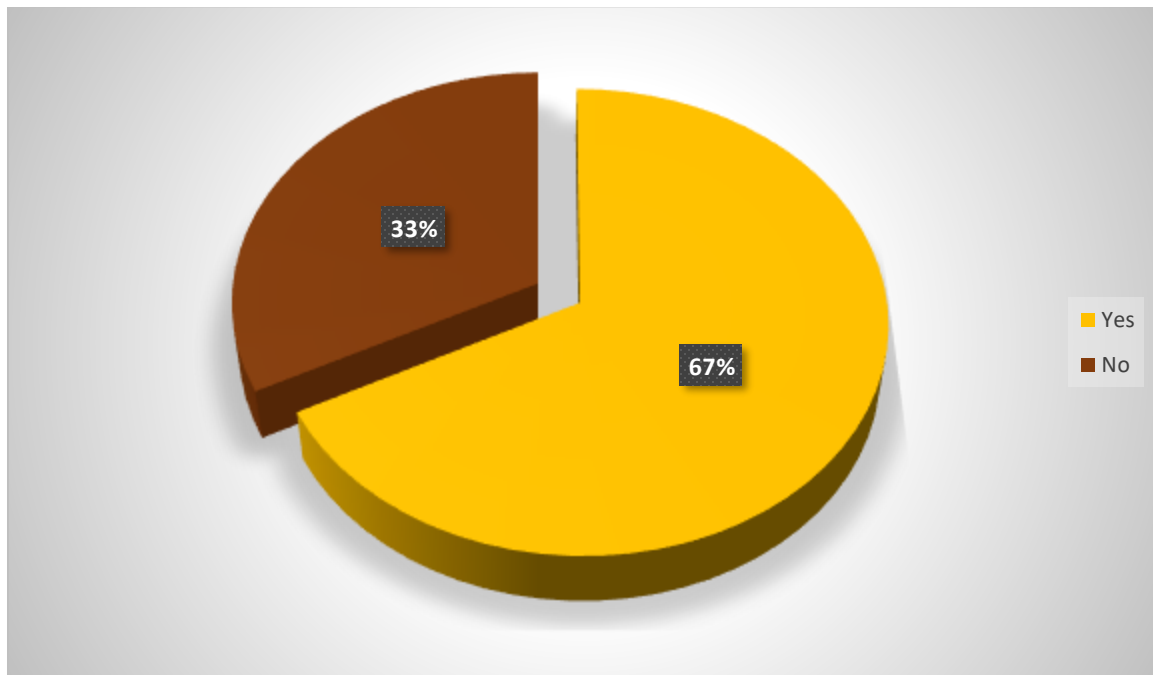
22

77% (n=62) surveyed report that there is documentation, stickers (or equivalent) to highlight food for people with food allergies/ food intolerances when the food leaves the kitchen to be given to the patient. 23% (n=18) surveyed report that there is not documentation, stickers (or equivalent) to highlight food for people with food allergies/ food intolerances when the food leaves the kitchen to be given to the patient.

²² N=2 did not answer.

Q16h. Is there signage in place in the kitchen to highlight allergen controls?

Figure 36: Percentage of individuals surveyed that report there is signage in place in the kitchen to highlight allergen controls



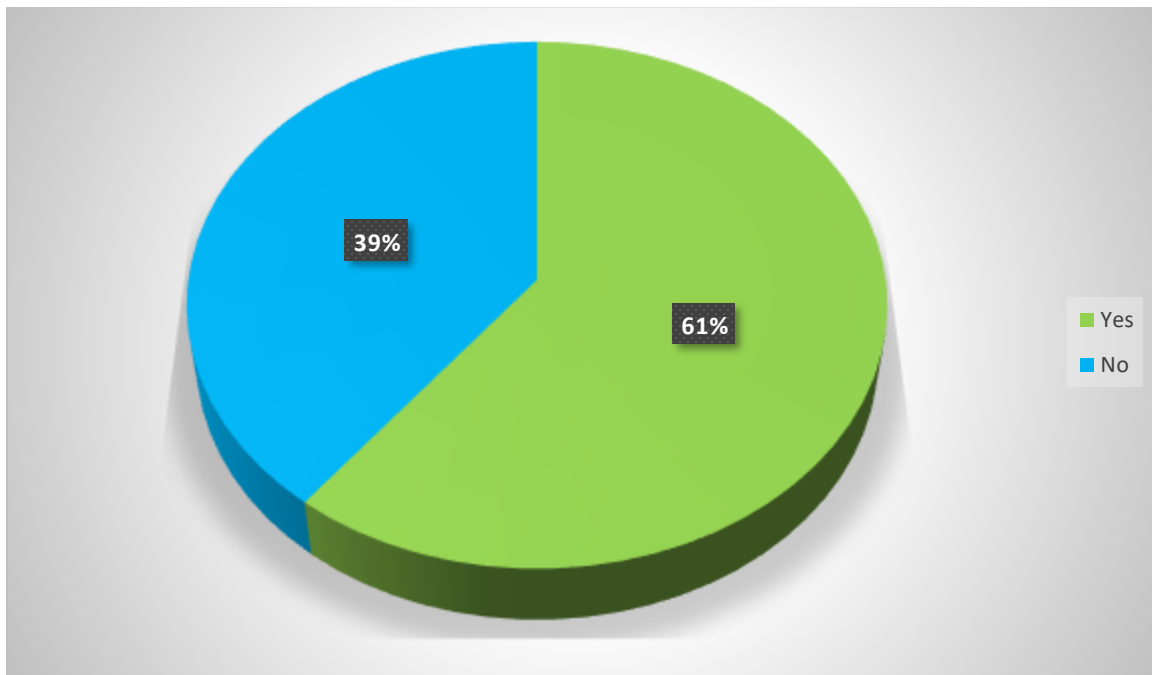
23

67% (n=54) surveyed report that there is signage in place in the kitchen to highlight allergen controls. 33% (n=26) surveyed report that there is no signage in place in the kitchen to highlight allergen controls.

²³ N=2 did not answer.

Q16i. Are there other controls in place in the kitchen?

Figure 37: Percentage of individuals surveyed that report there are other controls in place in the kitchen



24

61% (n=43) surveyed report that there are other controls in place in the kitchen. 39% (n=28) surveyed report that there are no other controls in place in the kitchen.

²⁴ N=11 did not answer.

Table 9: Other controls implemented in the kitchen to control food allergens

Other Controls	Number of Responses
Separate allergen boxes for patient's food	13
Zoning	12
Separate work areas for preparing allergenic foods/ designated areas	4
Colour coded knives and boards	2
Labelling/ stickers	2
9-piece allergen kit ²⁵	2
HACCP plan	1

²⁵ A 9-piece allergen kit is a box containing 9 pieces of equipment that can be rolled out and used to prepare food for patients with highly sensitive food allergies.

Chapter 4 - Discussion

4.0 Results Discussion

Individuals working in different healthcare professions across Leinster were surveyed on their food allergy and food intolerance awareness. It was reported training was received by some healthcare professionals but 63% (n=87) of individuals surveyed reported to have not received food allergen training. It is the employer's responsibility to assess the training needs of their employees (NHP, 2016) and it is recommended food allergen training is provided to employees. It is good to see some level of food allergen training reported among some healthcare professionals. A study carried out by the FSAI in 2019 suggested 69% of Irish food businesses view the availability of skilled workers as a serious concern (FSAI, 2019). This is a worrying percentage because it is recommended to have trained and skilled employees working with food. Allergen training in hospitals and other healthcare environments is important because the literature indicates that a significant number of allergic reactions occur in community services (Padua et al., 2018). There are many food allergen training courses available across Ireland. Training is helping individuals learn how to do something, giving individuals information and explaining to individuals what is acceptable and what is unacceptable (HSE, 2012). A study carried out in 2019 measured teacher's allergen knowledge, attitudes and beliefs before and after a food allergy education training and it was concluded a 1-hour education session improved knowledge and attitudes in personnel at the schools (Canon et al., 2019).

77% (n=108) of individuals reported that they are involved in delivering food to patients, dishing out food for patients and/ or feeding patients. To deliver food to patients, dish out food for patients or feed patient's allergen training is recommended to ensure healthcare professionals are aware of food allergies and food intolerances and have the knowledge and training to protect already immunocompromised patients. It is up to the employer or manager to decide if food allergen training is required (NHP, 2016). A study in France concluded it is necessary to provide both food allergy training and mandatory food hygiene training or to incorporate food allergen training into generic courses on food hygiene (Lefevre et al., 2019).

It is recommended food allergen training should be provided to all healthcare professionals and it is evident there is a gap in previous training provided to them. 11% (n=7) of individuals working in the catering department that directly handle patient's food reported to have had no food allergen training. It is a legal requirement to supervise and instruct and/ or train employees in food hygiene and food safety (Regulation (EC) No 852/2004). Employers must assess the training needs of their employees and following the results from this study it should

be considered that all healthcare professionals should be provided with food allergen management training (NHP, 2016). Eighteen individuals suggest additional and continuous education for employees will improve allergen management. This suggests healthcare professionals are interested in carrying out allergen management training and improving their knowledge.

59% (n=82) individuals surveyed reported that they are not aware of how many allergens must be declared on the menu. This identifies a gap in allergen training and awareness of Regulation (EU) No 1169/2011 which outlines the 14 allergens that must be declared on all menus in the EU. 59% of individuals were not able to provide accurate allergen information to patients because they did not know basic food allergen information. The 14 food allergens must be declared at point of presentation, sale and supply in the Republic of Ireland i.e. therefore on the menu in writing for patients. Ideally employees should have an awareness of the menu and the 14 food allergens that must be declared, or at least be able to refer allergen questions to a designated person. In 2018, the FSAI carried out a survey that suggested 43% of adults were unaware food businesses including hospitals must provide individuals with accurate written allergen information on menus (FSAI, 2018).

23% (n=32) reported there is no ‘identification system’ or equivalent in place for patients with food allergy/ food intolerance. 26% (n=35) said they did not view an ‘identification system’. This indicates poor communication between employees. Throughout the healthcare industry, failure to correctly identify patients can cause several issues including medication errors, testing errors, etc. (WHO, 2007). The type of ‘identification systems’ outlined by individuals in the open question included labels and stickers, menus, notice boards/ white boards, care plans, dietary preference sheets and allergen folders. The main issue reported with the ‘identification system’ is healthcare professionals must go looking for the information because it does not give immediate awareness to a person with a food allergy. It was also reported the ‘identification system’ is slow to update. An ‘identification system’ that would show immediate awareness to a patient is a colour coded wrist band or signage over beds. Four individuals report using colour coded wrist bands as an identification system. Five individuals suggest signage over beds as an improvement in allergen management in the healthcare environment. In 2007 the World Health Organisation outlined an example of a patient identification system. A patient identification should be designed for all healthcare settings.

Table 10: Example of Patient Identification System

1. Policy	Emphasise the in the policy that healthcare providers have primary responsibility for checking/ verifying a patient's identity. Patients should be involved in and educated on the identification system. Healthcare professionals should also be educated on the identification system.
2. Admission	Upon admission and prior to the administration of care, use at least two identifiers to identify a patient's identity. The patients room number should not be used here.
3. Patient Identifiers	Standardise the approach to patient identification within the healthcare system. E.g. Use white ID bands for standard information such as name and date of birth, use red ID band for patients with a food allergy, etc. Develop and organisational protocol for identifying patients and for situations where patients may have the same name. Use other non-verbal identification approaches such as biometrics, for comatose patients.
4. Intervention	Even if the patient is familiar to the health care provider still check the details of the patient.
5. Patient	Involve patients in the identification system

(WHO, 2007).

35% (n=49) were unsure if there is a hospital policy available for managing patients with food allergy/ food intolerance and 14% (n=19) report there is no hospital policy available for managing patients with food allergy/ food intolerance. 51% (n=72) report there is a hospital policy for managing patients with food allergy/ food intolerance. However, 59% (n=75) report to have not read the hospital policy. There is a knowledge gap here because an organisation wide policy would outline what actions are required by staff in relevant situations within

the healthcare environment. It is recommended a procedure should be in place when admitting patients with food allergies. Policies and procedures allow healthcare professionals to implement the services approach to information governance and patients can have faith that any non-compliance with policies and procedures will be dealt with appropriately (HIQA, 2012). Three individuals reported in the open question that a policy document which is available to all healthcare professionals would improve allergen management in a hospital setting. The National Health Service (NHS) within the UK have a policy to provide guidance on storage, handling and cooking of food to prevent serving foods containing allergens to patients. The policy also aims to make staff aware of food and drink on site containing the 14 allergens (NHS, 2018).

49% (n=69) individuals surveyed, almost half, report they are not aware of what food allergens are in each dish produced by the hospital. 39% (n=31) individuals working in the catering department reported recipes in the hospital are not standardised. It is a surprising result because the same ingredients should be used each time a dish is cooked. Standardised recipes or eliminating using ingredients containing allergens from dishes can greatly reduce the risk to patients suffering from food allergies. It is best practice to standardise recipes in the healthcare environment and this also makes it easier for healthcare employees to provide accurate food allergen information to patients (BDA, 2014). Standardising recipes ensure the same ingredients and same brand of ingredient from reputable suppliers is used each time the dish is produced (BDA, 2014).

48% (n=66) of individuals surveyed report there are no restrictions on food visitors can bring into patients. When individuals who reported there are restrictions on foodstuffs were asked for examples, they did not give examples relating to food allergens. There are no restrictions on allergenic food. There is a risk of accidentally eating food containing an allergen or in severe cases a risk of inhaling allergenic food particles (Ramirez et al., 2009). It is recommended the hospital monitors their patients with food allergies and makes restrictions on certain food if required.

11% (n=15) surveyed reported there has been an incident of an adverse reaction to food consumed on the premises in the past due to a failure in communicating allergen information or cross-contamination. 37% (n=52) individuals surveyed were unsure if there had been an adverse reaction to food consumed on the premises in the past due to a failure in communi-

cating allergen information or cross-contamination. This highlights a lack of open communication surrounding allergen awareness. The reports suggest incidents were not discussed and highlighted to all healthcare professionals to prevent incidents reoccurring. Examples of incidents were given, and an interesting find was there were 3 individuals who reported an allergic reaction to spices in food. Spices do not have to be declared on the menu. All other examples were related to the 14 allergens that must be declared.

Improvements in allergen management were suggested by healthcare professionals in the open question and included additional and continuous education, signage over beds, improved communication and a policy document.

It is evident that specific allergen controls in the kitchen are not implemented by all employees. 25% (n=20) of individuals report they do not check labelling of food when delivered to identify allergens in the ingredients. 24% (n=19) of individuals report that there are not separate storage areas or segregation for food containing allergens. 25% (n=20) of individuals report that there are no separate preparation areas for preparing food for people with food allergies. 16% (n=13) of individuals surveyed report that there is no separate equipment for preparing/ cooking food for people with food allergies. 24% (n=20) of individuals report that there is not a specific cleaning procedure and cleaning verification system in place for cleaning equipment, worktops, etc. for people with food allergy. 23% (n=18) of individuals report there is no documentation, stickers (or equivalent) to highlight food for people with food allergies/ food intolerances when the food leaves the kitchen to be given to the patient. 33% (n=26) of individuals report that there is no signage in place in the kitchen to highlight allergen controls. The results indicate a breakdown of the allergen management system because not all employees are implementing controls. It is important all employees implement controls to ensure they are effective.

The 9-piece allergen kit was an interesting control implemented in one of the hospital kitchens. The 9-piece allergen kit was a box located on the wall. The 9-piece allergen kit is taken down off the wall, opened and rolled out when required to prepare food for patient with a food allergy, it contains a preparation mat and equipment only used for preparing food for patients who have food allergies. The mat and equipment is then cleaned and put back in the box for when another meal has to be prepared for a patient with a food allergy.

Chapter 5 - Conclusion

5.0 Conclusion

The aim of this study was to examine allergen awareness and associated practices in the healthcare environment. The study was carried out to identify areas that need to be addressed to improve allergen awareness and associated practices in the healthcare environment. The main objectives of this study were to identify shortcomings on awareness of allergens in the hospital environment, identify if there is a lack of knowledge among healthcare workers on allergens, identify if training of healthcare staff on allergen awareness is being conducted and if it is adequate, identify if an allergen documentation system is in place for residents who have an allergen and if a better system could be implemented, identify allergens in food dishes and identify how allergen information about food dishes is available to residents, identify how allergens are controlled in the healthcare setting (recipes, menus, ordering, storage, labelling, separate equipment, and controls during preparation, cooking and serving). It was found that improvements are required for many areas to improve allergen awareness and associated practices. It is important allergen training is provided and a hospital policy is introduced to improve allergen awareness and associated practices.

There is a lack of awareness among several healthcare professionals in the healthcare environment. There is food allergen training required for healthcare professionals as well as catering staff because they are also involved in delivering food to patients, dishing out food for patients and/or feeding patients. Food allergen training for all healthcare professionals can further prevent an incident occurring.

There needs to be an improvement to the identification systems for identifying individuals with food allergies on arrival. There needs to be an identified system for identifying a patient with a food allergy. Immediate awareness needs to be given to all healthcare professionals of a patient with a food allergy.

Recipes in the hospital need to be standardised. Standardising recipes and eliminating using the declared food allergens can help healthcare professionals to learn what meals contain what food allergens. This food allergen control is very important.

There are no restrictions on allergenic food in the hospitals. Visitors and patients can bring in food and snacks.

Improvements to control measures in the kitchen. It was reported there are control measures in place but not all healthcare professionals are aware of the control measures. All catering staff must be training on the control measures in the kitchen for controlling food allergens.

In conclusion, following the examination of allergen awareness and associated practices among healthcare professionals it is evident there are improvements needed in some areas. There is knowledge among some healthcare professionals but there is no knowledge among others, and this is not acceptable. There needs to be more awareness of allergens and associated practices among staff. Managers and the HSE need to provide food allergen training. All hospitals should also implement the same food allergen policies, procedures and controls across the country. Food allergens can be life-threatening if not handled correctly and it is necessary to educate healthcare professionals.

Chapter 6 - Recommenda- tions

6.0 Recommendations for future study

- If this study was completed again a larger sample size would be recommended. A larger sample size would provide more information and more reliable data.
- If this study was completed again it would be a good idea to carry the study out nationally. This would highlight any areas where awareness of food allergens and associated practices is high or low. It would allow areas where awareness is low to improve allergen awareness and associated practices in that area.
- If further research was completed it would be interesting to carry out the same survey on the individuals who participated in this survey after providing food allergen training, introducing an identification system, introducing policies and procedures for patients with food allergens and implementing control measures. It would be interesting to see the difference in results and improvement to allergen awareness and associated practices.

6.1 Recommendations for Healthcare Environments

- It is recommended to introduce national policy and procedures around patients with food allergens to better equip healthcare professionals manage patients with food allergens.
- An identification system should be in place to identify patients with a food allergy.
- Food allergen training should be provided to all healthcare professionals and refresher training.
- Recipes in all healthcare facilities should be standardised.
- Control measures should be implemented in the kitchen to avoid cross-contamination.
- Restrictions on food that is brought into patients should also be put in place.

All recommendations should be applied to all healthcare facilities across Ireland.

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Appendices

Appendix 1 – Survey handed out to Healthcare Professionals

1. Are you working in a public acute hospital or older person services/ nursing home?

Public Acute Hospital ☐

Older Person Services/ Nursing Home ☐

Other ☐

2. What healthcare profession are you?

Nurse Manager ☐

Nurse ☐

Healthcare Assistant ☐

Multitask Attendant ☐

Catering Staff ☐

Other ☐

3. Have you ever received food allergen training?

Yes ☐

No ☐

If yes, explain what kind of food allergen training was received?

How was food allergen training delivered?

Internal Constructor Led Classroom Training ☐

Internal E-learning/ Computer Based Training ☐

External Constructor Led Classroom Training ☐

External E-learning/ Computer Based Training ☐

4. Are you aware of the difference between food allergy and food intolerance?

Yes ☐

No ☐

5. Are you aware of how many food allergens must be declared on the menu to patients?

Yes ☐

No ☐

How many? _____

6. Is there an 'identification system' (or equivalent) in place for patients with food allergy / food intolerance?

Yes ☐

No ☐

Is the 'identification system' (or equivalent) viewed by all staff members?

Yes ☐

No ☐

Is the 'identification system' (or equivalent) signed by all staff members?

Yes ☐

No ☐

Can you describe the 'identification system' (or equivalent) used?

Do you believe the ‘identification system’ (or equivalent) used is sufficient?

Yes ☐

No ☐

If not, please indicate why?

7. Is there a hospital policy available for managing patients with food allergy/ food intolerance?

Yes ☐

No ☐

I don't know ☐

If yes, have you read the hospital policy for managing patients with food allergy/ food intolerance?

Yes ☐

No ☐

8. Are you aware of what food allergens are in each dish produced by the hospital kitchen?

Yes ☐

No ☐

9. Are you involved in delivering food to patients, dishing out food for patients and/ or feeding patients?

Yes ☐

No ☐

10. Can allergen information for food produced in the hospital be easily accessed by patients?

Yes ☐

No ☐

How are patients provided with allergen information?

11. Are there any restrictions on the foodstuff's visitors can bring in to patients?

Yes ☐

No ☐

If yes, what are the restrictions?

12. Can you rank out of 10 how effective you believe systems currently in place to control food allergens are? (*1 being the systems currently in place are very ineffective and 10 being the systems in place are very effective*)

1 2 3 4 5 6 7 8 9 10

13. Has there ever been an incident of an adverse reaction to food consumed on the premises in the past due to a failure in communicating allergen information or cross-contamination?

Yes ☐

No ☐

I don't know ☐

If yes, could you describe the incident?

14. Are there improvements in allergen management in a hospital setting that you could suggest?

(This part of the Survey is to be completed by Catering Staff, Multitask Attendants and any other member of staff that also work in the Catering Department)

15. What is your level of Food Safety Training?

Level 1 ☐

Level 2 ☐

Level 3 ☐

Other ☐

Please Explain Other _____

16. Are there specific allergen controls in place in the kitchen for cooking food for persons with food allergy?

Yes ☐

No ☐

I don't know ☐

Are the following allergen controls implemented?

- a. Are all recipes standardised in the hospital i.e. the exact same ingredients used every time? Yes ☐ No ☐
- b. Do you check labelling of food when delivered to identify allergens in the ingredients? Yes ☐ No ☐
- c. Are there separate storage areas or segregation for food containing allergens? Yes ☐ No ☐
- d. Are there separate preparation areas for preparing food for people with food allergy? Yes ☐ No ☐
- e. Is there separate equipment for preparing/ cooking food for people with food allergy? Yes ☐ No ☐

- f. Is there a specific cleaning procedure and cleaning verification system in place for cleaning equipment, worktops, etc. for people with food allergy? Yes ☐
No ☐
- g. Is there documentation, stickers (or equivalent) to highlight food for people with food allergens/ food intolerances when the food leaves the kitchen to be given to the patient? Yes ☐ No ☐
- h. Is there signage in place in the kitchen to highlight allergen controls? Yes ☐
No ☐
- i. Are there other controls in place in the kitchen? Yes ☐ No ☐

What other controls are implemented in the kitchen to control food allergens?

Thank you for taking the time to complete this Survey to Examine Allergen Awareness and Associated Practices in a Healthcare Environment