LHAAC

LOCAL HEALTH AUTHORITIES ANALYTICAL COMMITTEE

COORDINATED SAMPLING PROJECT 28 -

Allergen Free Claims

Conducted January to February 2020 with Local Governments across Western Australia

Local Health Authorities Analytical Committee

Edith Cowan University

Building 19, 270 Joondalup Drive

JOONDALUP WA 6027

Acknowledgements

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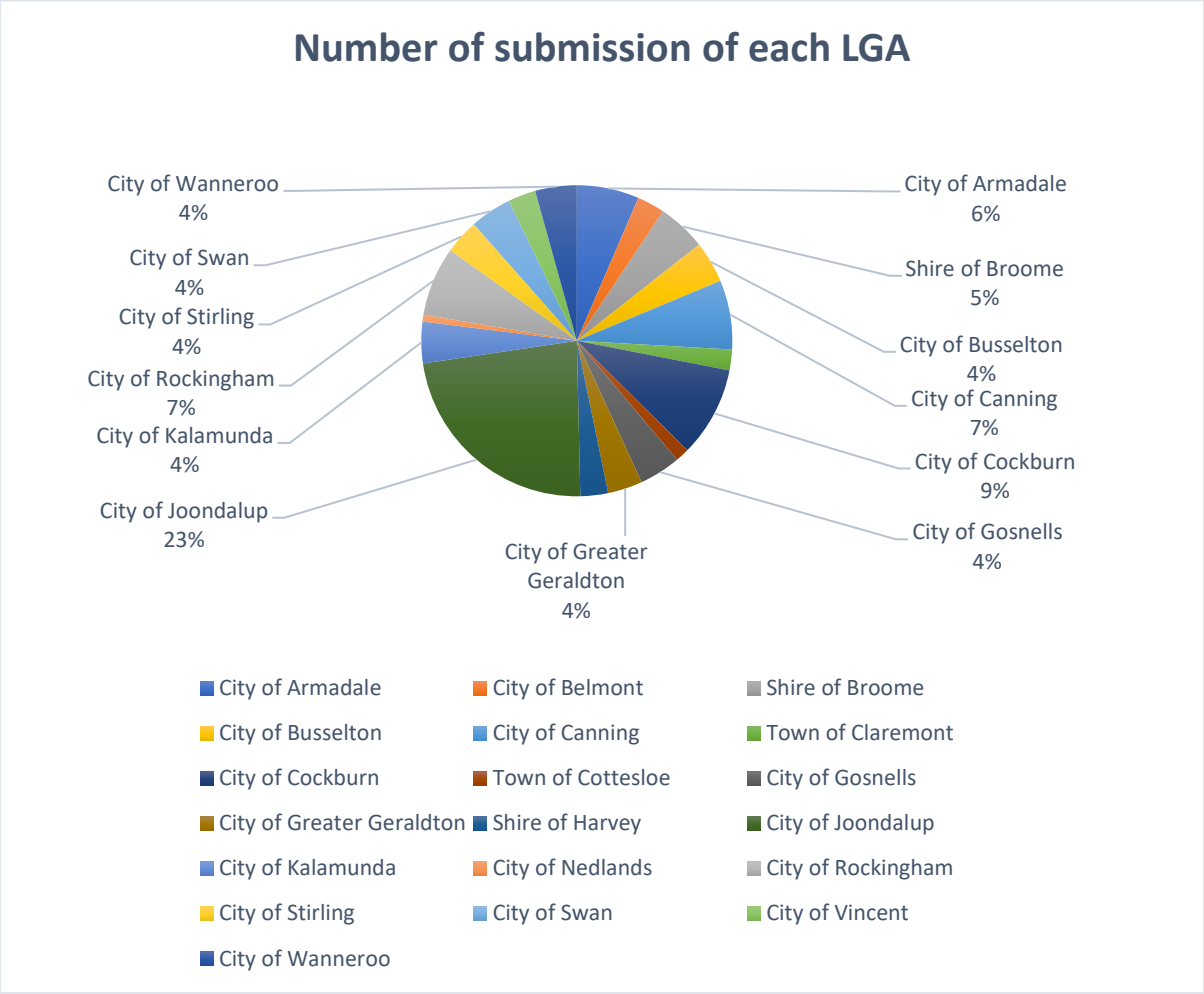

Executive Summary

This Coordinated Sampling Project (CSP) involved the analysis of food sold throughout Western Australia (WA) for the presence of allergens and looked specifically at food products from across WA that had either made allergen free claims or did not have allergens listed – but were suspected of containing them. This CSP focused on food allergens including milk, eggs, peanuts, sesame seeds and soy which require a declaration of their presence in food, as specified by Standard 1.2.3 of the Australia New Zealand Food Standards Code (FSC).[1]

The latest mandatory declarations from ANZFSC include sulphites, gluten, peanuts, tree nuts, milk, egg, sesame seed, fish, soybean, crustacea, mollusk and lupin.[2] Their presence must be declared on the label of packaged food or if the food is unpackaged, the information must be provided in the display in connection with the food or provided to the consumer upon request. It is important that consumers in WA can rely on the accuracy of the allergen declarations associated with food in order to make safe and informed purchasing decisions.

The Local Health Authorities Analytical Committee (LHAAC) worked with Western Australian Local Government Authorities (LGA) to execute this project. Western Australian Environmental Health Officers, from 19 LGAs submitted samples for assessment to Agrifood Technology (AT) or Eurofins ı Analytical Reference Laboratory (EARL*), the two appointed analysts to LHAAC, from January through to February 2020. At the end of the sampling period, 139 samples were submitted to the laboratory for analysis and a total of 234 allergen tests were conducted with numerous samples tested for multiple allergens. Test results indicated that approximately 91% (n = 213) of the analysed products were accurate in regard to allergen free claims or 'did not have allergens listed – but were suspected of containing them'. Approximately 9% (n = 21) of the food products analysed had test results indicating the presence of soy (n = 2), gluten (n = 7), milk (n=6), egg (n=5), and sesame (n = 1) which were found to be inaccurate when compared against allergen free claims or did not have allergens listed – but were suspected of containing them. The reports from the analyst detailing the results were assessed by the LGA's involved and, in some cases, further action was taken as deemed appropriate by each LGA.

* (ARL were taken over by Eurofin on 6 November 2020).

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Abbreviations

ARL	Analytical Reference Laboratory (now Eurofins l ARL)
AT	Agrifood Technology
ANZ	Australia and New Zealand
CSP	Coordinated Sampling Project
EHO	Environmental Health Officer
FSANZ	Food Standards Australia and New Zealand
FSC	Food Standards Code
LGA	Local Government Authorities
LHAAC	Local Health Authorities Analytical Committee
NATA	National Association of Testing Authorities
NCGS	Non-Celiac Gluten Sensitivity
WA	Western Australia

1.0 Introduction

1.1 Food allergy and food intolerance

A food allergy occurs when a person's immune system reacts to allergens that are harmless to other people.[2] Allergic reactions can range in severity between different people.[3] Symptoms of a mild immune reaction can include hives, vomiting or abdominal pain.[3] Severe allergic reaction can cause swelling of the throat or tongue, wheezing, dizziness or breathing complications.[3] In extreme cases, allergic reaction can cause anaphylaxis which can possibly result in death. It is estimated that ten people die per year from anaphylactic reactions in Australia.[4]

The prevalence of food allergy appears to be increasing in numerous countries around the world, including in Australia.[3] In Australia, approximately 2% of adults, 5% of children (up to five years) and 10% of infants have food allergies.[2] The consumer has the right to access accurate information regarding the contents of their purchased food. A person may also wish to avoid certain food due to religious, cultural or ethical beliefs.[3]

Furthermore, consumers may need to avoid food types due to the risk of poor health effects in those affected by food allergies, food intolerances or coeliac disease. Food intolerance is an adverse reaction to foods which occurs in a small proportion of the population.[6] It may include rashes and swelling of the skin, asthma, bloating, irritable bowel syndrome and migraines.[6] In contrast with food allergy, this type of bodily response does not involve the immune system.[3]

1.2 Allergen free claim

Allergen free claims are intended for consumers with food allergy. A food allergy occurs when a person's immune system reacts to allergens that are harmless to other people.[5] In Australia and New Zealand, most food allergies are caused by peanuts, tree nuts, milk, eggs, sesame seeds, fish and shellfish, soy, lupin and wheat (Table 1).[1] These must be declared whenever they are present in food as ingredients (or as components of food additives or processing aids), however small the amount present.[4] Products with a free from claim must

not have any ingredients or derivatives of that allergen formulated directly into the product.[4]

In Australia and New Zealand, 'lactose free' and 'gluten free' are nutrition content claims, the conditions of which are set out in Standard 1.2.7 of the ANZFSC.[5] However, criteria for allergen free claims such as 'dairy free' or 'peanut free' are not included in the FSC.[5] Free claims instead fall under the Australian Competition and Consumer Commission and the New Zealand Commerce Commission consumer laws and relevant State-Territory agencies which prohibit misleading and deceptive conduct.[5] These organisations can view free claims as to literally mean zero or no trace. [5]

Table 1. Allergen Labelling [3]

1.3 Coeliac disease

Coeliac disease is not an allergy or intolerance but an auto-immune disease where gluten causes inflammation and damage to the lining of the small intestine. [7] Damage is caused by white blood cells and not by antibodies. [7] The damage adversely affects the ability of the small intestine to absorb nutrients which may result in fatigue, bloating, cramps and diarrhea. If left untreated, the disease-related malnutrition can lead to chronic poor health.[7] Gluten is a protein found in wheat, oats, barley and rye. [7] Wheat flour and gluten are commonly used in foodstuffs to improve product texture, moisture retention and flavour. [7] Gluten can be found in a variety of products including pasta, bread, chips and others. Coeliac Australia reports that approximately 1 in 70 Australians are affected by coeliac disease with many in the population unaware they may be suffering from the condition. [7] The main risk management strategy for people with coeliac disease is to avoid foods containing gluten.[5]

1.4 Food allergy prevalence

Prevalence of food allergy appears to be on the increase. A 2013 report published by the Australian Society of Clinical Immunology and Allergy (ASCIA) estimated that food induced anaphylaxis doubled in the last ten years.[8] Approximately 10% of infants under the age of one have an immediate food allergy which drops to 4-8% under five years and then to 2% of adults.[8] Different ethnic groups appear to have different allergy prevalence and sensitisation.[8]

2.0 Methodology

Sampling instructions were supplied to WA LGAs. Both metropolitan and non-metropolitan LGAs were encouraged to participate in this CSP if suitable products were available in their locality. The sampling instructions provided LGAs with a guide to determine the optimal number of samples to be collected, based on the population size of each LGA (Table 1). Ultimately, the number of samples that were collected was determined by each LGA in consideration of their own sampling allowance and other activity planned or anticipated for the financial year.

Table 1. The number of samples suggested to be collected by participating LGAs

LGA Population	Suggested Number of Samples to be Collected
≤ 2000	1
2001 – 10,000	3
10,001 – 50,000	5
> 50,0000	10 (maximum)

The sampling instructions also included a schedule to ensure that a variety of product categories were included for analysis. Each of these categories were allocated to one lead LGA (a major user of the LHAAC sampling scheme) and multiple smaller LGAs (Appendix B). The products to be sampled were selected at the discretion of each participating LGA.

Food products from across WA that had either made allergen free claims or did not have allergens listed - but were suspected of containing them - were submitted to either AT or EARL, the two appointed analysts to the LHAAC, between January and February 2020. The minimum sample size for submission to the analysts was 200 grams or 200 millilitres. Each laboratory conducted their analysis of the samples utilising either qPCR or the ELISA kits.

The labels of all samples were examined for compliance with the FSC. This included food identification; warning statements, advisory statements, and declarations; statement of

ingredients; date markings of food for sale; nutrition, health, and related claims; nutrition information requirements; and legibility requirements.

Upon completion, LGAs were requested to review the results. Recommended follow-up actions were provided to each LGA within the sampling instructions, which directed EHOs to

1. Inform the retail outlet in writing that the relevant product indicated non-compliance with the FSC.
2. When the importer is based in WA, write to the importer and the Local Government Authority in which the importer is located.
3. In situations where the product is not imported directly into WA, the details of the non-compliance should be sent to the Department of Health who may pass the information to the correct enforcement agency in the State or Territory in which the importer is located under the Home Jurisdiction Rule. A copy of the sample submission sheet and the results of analysis should be submitted to the Department of Health Food Unit with a description and details of the non-compliance.
4. Enforcement action can be initiated by a Local Government if the agency is not satisfied with the actions taken by the producer, retailer and/or importer for a product that does not comply with the FSC.

3.0 Results

By the end of the sampling period, 19 Local Government Authorities (LGA) had submitted a total of 139 samples spanning across 9 product categories to the laboratories for analysis (Figure 1.). The distribution of submissions indicated that 39.6% (*n* = 55) of samples were snacks and confectionery, which included baker's confectionery; 28.1% (*n* = 39) were over the counter and RTE meals; 10.8% (*n* = 15) were cereal products, which included breads, rices, noodles and pastas; 5.0% (*n* = 7) were meat, seafood and deli items; 4.3% (*n* = 6) were vegan substitutes, which included dairy and meat alternatives; 3.6% (*n* = 5) were beverages; 3.6% (*n* = 5) were dairy products; 3.6% (*n* = 5) were herbs and spices; and 1.4% (*n* = 2) of samples were classified as miscellaneous items as they did not easily fit into a product category in their own right.

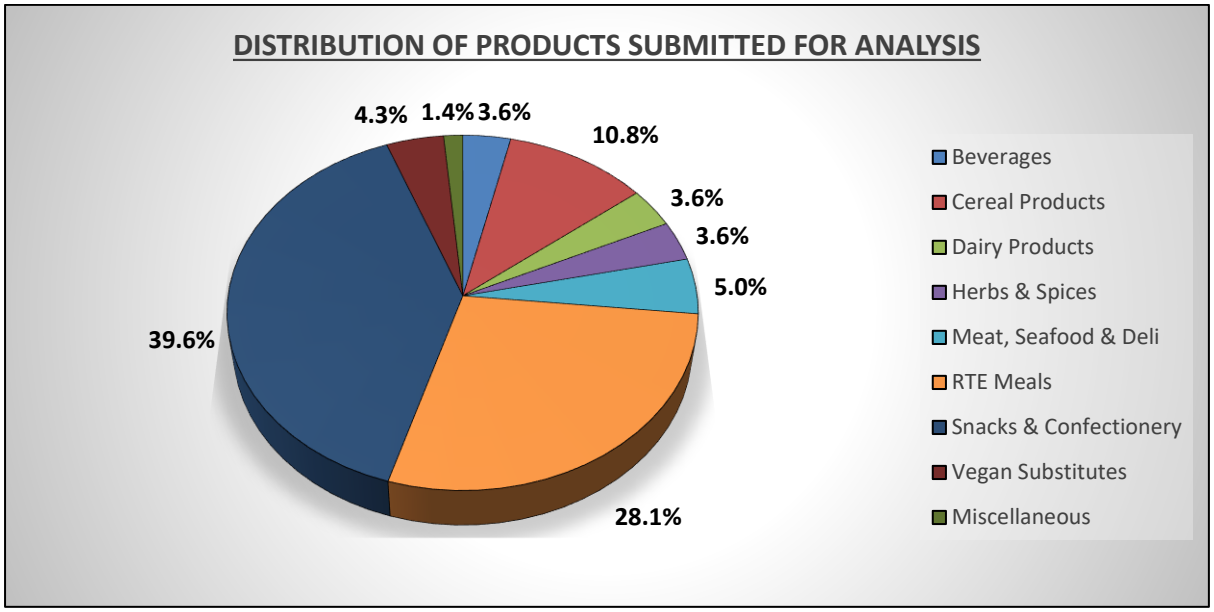

Figure 1.

A total of 234 allergen tests were carried out across the 139 samples, with 59 samples analysed for the presence of two or more allergens. Of the 234 tests, approximately 33.8% (*n* = 79) were analysed for the presence of gluten; 24.8% (*n* = 58) for milk; 9.8% (*n* = 23) for soy; 9.4% (*n* = 22) for egg; 7.7% (*n* = 18) for peanuts; 4.3% (*n* = 10) for almonds; 3.4% (*n* = 8) for cashews; 3.4% (*n* = 8) for hazelnuts; 2.6% (*n* = 6) for sesame; and 0.8% (*n* = 2) for fish.

Upon analysis, approximately 91.0% (*n* = 213) of tests did not indicate the presence of an undeclared allergen (Figure 2.). All testing for the detection of undeclared peanuts, hazelnuts,

almonds, cashews, and fish returned negative results. Conversely, approximately 9.0% (*n* = 21) of all tests returned a positive indication for the presence of an undeclared allergen. Of the 21 tests indicating the presence of an undeclared allergen, 7 were detected with gluten, 6 with milk, 5 with egg, 2 with soy and 1 with sesame.

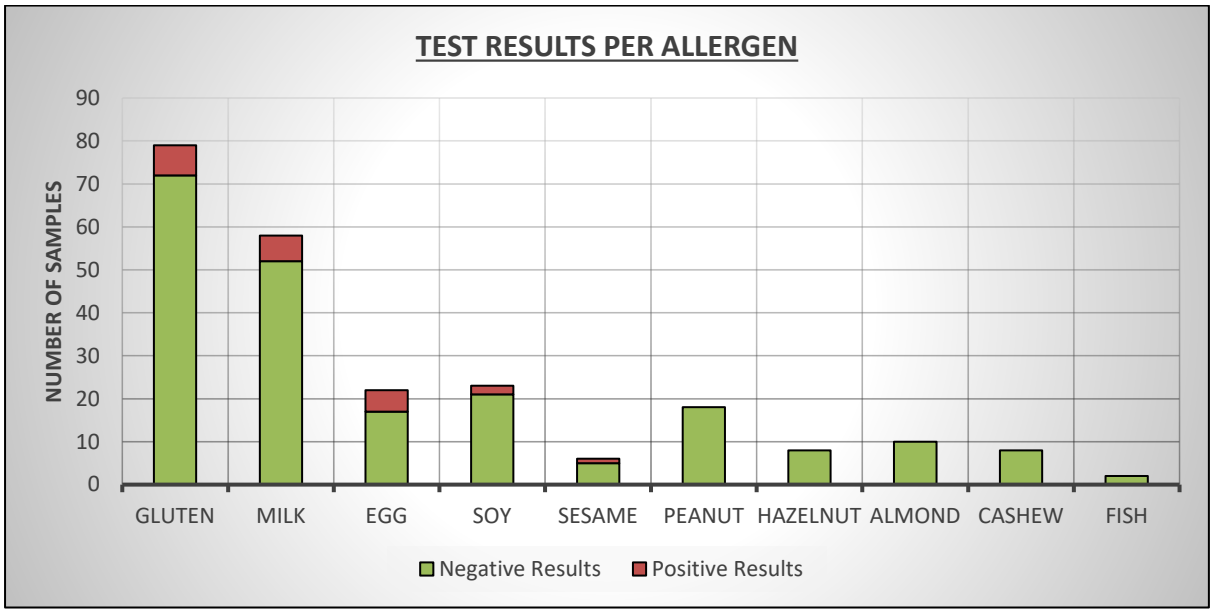

Figure 2.

Of the positive results, 42.9% (*n* = 9) were attributed to snacks and confectionery; 28.6% (*n* = 6) to RTE meals; 19.0% (*n* = 4) to cereal products; 4.8% (*n* = 1) to meat, seafood and deli items; and 4.8% (*n* = 1) to vegan substitutes.

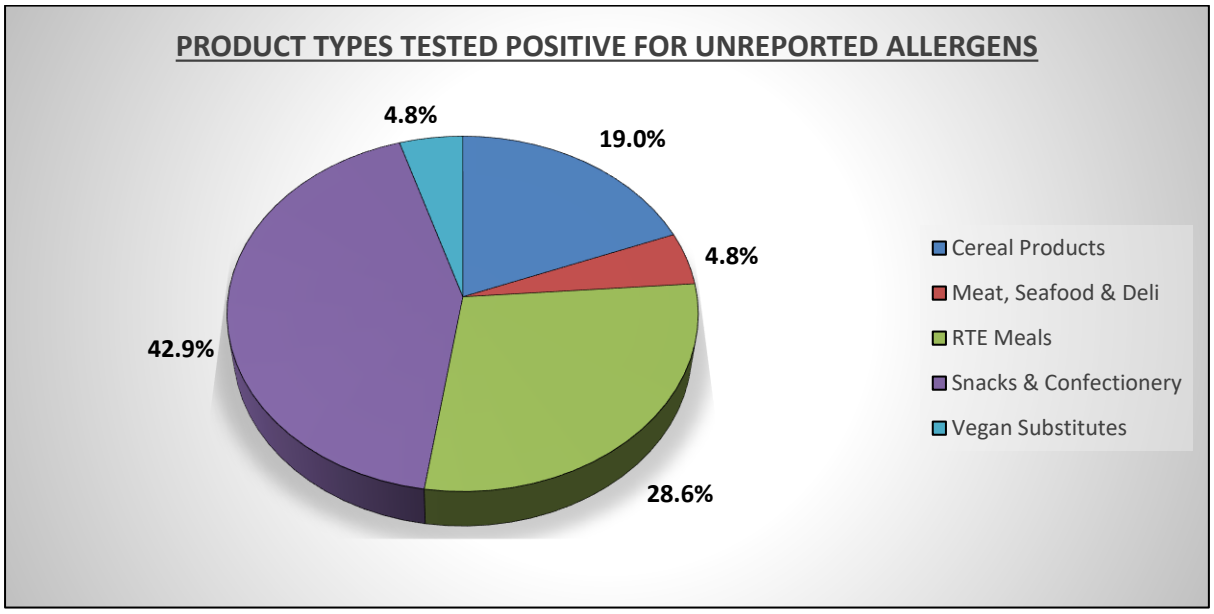

Figure 3.

4.0 Discussion

4.1 Food allergens

Australian consumers have the right to have access to food that is accurately labelled. Inaccurate labelling poses a risk to the health of consumers who suffer from food allergies, food intolerance or coeliac disease. A recent (2018) survey by the University of Melbourne identified that 864 Allergy & Anaphylaxis Australia members found that over nine months, 58 (6.7%) suffered from an anaphylactic reaction after consuming packaged food which did not list the suspected allergen as an ingredient.[9] Consumers should also be able to rely on accurate information on the content of their food in order to avoid certain foods due to cultural, ethical or religious reasons, for example devout Hindus do not eat eggs.

Thirty-seven percent of all Australian food recalls in 2008 – 2017 were due to undeclared allergens, with milk being the most common type, followed by peanuts.[6] There was a total of 230 recalls of Australian food in this period due to the undeclared presence of allergens.[6] Three of the five allergens detected in this CSP are in the top five most common allergen related recalls.[6] The NSW Food Authority (2018) suggest that one reason food recalls are likely increasing in Australia is a result of an increase in allergy awareness.[6]

4.2 Peanuts and tree nuts and their products

Despite its name, a peanut is not a nut. It is part of the legume family, which also includes peas, beans, lentils, soybean and lupin. [4] People with a peanut allergy can also have an allergy to tree nuts and vice versa. [4]

Sometimes peanuts are stored near tree nuts, may come into contact with tree nuts on the production line, or be processed with tree nuts, and cross-contamination may occur. For peanut-allergic people, the safest practice is to avoid all types of tree nuts. [8] People with tree nut allergies should avoid peanuts for the same reason. [8] Commercially prepared foods should also be avoided unless a business can confidently confirm there is no peanut or tree nut protein present in the food for sale. [10]

A total of 18 samples were tested for peanuts and 26 samples were tested for tree nuts including almond, hazelnut and cashew. No Peanut and tree nut were detected in any sample tested.

4.3 Egg products

Egg protein has the lowest amount needed to cause an allergic reaction compared with other food allergens. [4] Most people who are allergic to chicken eggs are also allergic to similar proteins found in other bird eggs, such as duck eggs, and should not consume any type of egg. [4]

A total of 22 samples were tested for egg and 5 samples presented a positive result.

4.4 Milk and milk products

Milk and milk products are contained in a variety of foods and are sometimes used as an ingredient in some non-dairy based products (for example, coconut milk powder). [8] Some people have an intolerance to milk, but they are not allergic. [8] It is important to distinguish between people who have lactose intolerance and those who have a milk protein allergy. [8]

Lactose is the naturally occurring sugar present in milk; it is present in dairy products in different amounts. [4] A person who is lactose-intolerant is unable to break down lactose because they lack the presence of the lactase enzyme in their small intestine. [4] The symptoms of lactose intolerance may be similar to a milk allergy but do not cause anaphylaxis. [4]

A total of 58 samples were tested for milk and 6 samples presented a positive result.

4.5 Soy and soy products

Soybeans are part of the legume family, which also includes peas, beans, lentils, peanuts and lupin. [8]

Most people who are allergic to soy are able to safely consume fully refined soybean oils as well as soy lecithin (322), commonly used as a food additive for its emulsifying properties. [4]

'Gourmet oils', which may be made using methods of cold-pressing, expeller or extrusion should be avoided. [4] 'Gourmet oils' are not highly refined and can have a similar protein content to soybean flour, making them unsuitable for people with a soy allergy. [10]

A total of 23 samples were tested for soy and 2 samples presented a positive result.

4.6 Sesame seeds and sesame products

Sesame seeds are found in many processed food products. [4] Baked goods (especially products that are not packaged), such as bread, have a higher risk of sesame seed cross-contamination because the seeds can be difficult to control and can remain on equipment, such as containers, if not careful. [4]

A total of 6 samples were tested for sesame and 1 sample presented a positive result.

4.7 Fish, crustacea and their products

Allergy specialists differentiate fish from crustaceans (sometimes referred to as shellfish), and the Code also separates these allergens. [4] The major groups of fish and crustacea that can trigger allergic reactions include: [4]

Type	**Examples**
Scaly or finned fish	Salmon, cod, mackerel, sardines, herring, anchovies, tuna, trout, haddock, John Dory
Crustaceans	Prawns, shrimps, lobster, crab, crayfish, yabbies, marron
Mollusks	Scallops, abalone, clams, oysters, mussels
Cephalopods	Octopus, cuttlefish, squid, calamari
Gastropods	Sea slugs, snails

A total of 2 samples were tested for fish and all samples recorded negative results.

4.8 Cereals containing gluten

An estimated one in 70 Australians are affected by coeliac disease. [4] One of the proteins present in wheat, barley, oats and rye is called gluten.[9] Coeliac disease is a condition where the lining of the small intestine is damaged by an immunological reaction as a result of exposure to gluten.[9] In contrast, people with a wheat allergy may react to components of wheat which are different from gluten and therefore may tolerate other grains that contain gluten such as rye and oats.[9]

The same symptoms that occur after eating gluten -such as bloating, stomach pain and diarrhea - can also be classified into two different gastrointestinal diseases.[9] Celiac disease and gluten intolerance, or non-celiac gluten sensitivity (NCGS).[9]

Celiac disease is an autoimmune disorder, whereas gluten intolerance is a sensitivity.[9] However, NCGS does not typically have a full negative impact on overall health like celiac disease can (Details refers to figure 4).[9]

Both celiac disease and NCGS are treated by not eating gluten.[9] Someone with celiac disease must avoid gluten completely for their entire life, while someone with NCGS may see symptom improvement by simply reducing gluten and carbohydrate intake.[9] However, the only treatment for coeliac disease is a strict, life-long gluten-free diet.[11]

Gluten-free is defined in the Australia New Zealand Food Standards Code as having no detectable gluten (using current testing methods). [2] This means that businesses that produce gluten-free products must take all necessary precautions to avoid cross-contamination during all stages of food preparation and serving, including thoroughly checking ingredient labels regularly for the presence of gluten sources and ensuring ingredients have not changed. [10]

A total of 79 samples were tested for gluten and 7 samples presented a positive result.

Figure 4. Celiac Disease vs. Gluten Intolerance [9]

5.0 Conclusion

The only current prevention of food allergy reaction is to avoid the consumption of allergens. This relies on consumer awareness, assisted greatly by accurate and clear declarations of allergens in the ingredient list and unambiguous precautionary allergen labelling to inform consumers regarding the presence, or possible presence of allergens.

CSP 28 looked specifically at 'allergen free claim or did not have allergens listed – but were suspected of containing them' in relation to food. The results indicated that approximately 91% (n = 213) of the analysed products were accurate to 'allergen free claims or did not have allergens listed – but were suspected of containing them'. Approximately 9% (n = 21) of the food products analysed had test results indicating the presence of soy (n = 2), gluten (n = 7), milk (n=6), egg (n=5), and sesame (n = 1) which were found to be inaccurate when compared against 'allergen free claims or did not have allergens listed – but were suspected of containing them'.

Based on the finding of 9% positive result for all allergen tests, it suggests food manufacturers still have room for further improvement. LGA EHOs have to remain vigilant, as do consumers, on this allergen issue, as the food reaction can be serious or fatal. More reliable labelling is certainly needed on some food products.

This report is intended to update LGA's and the public on the work LHAAC is undertaking in concert with LGAs to ensure the continued quality and safety of food sold in West Australia. The participating LGAs were informed of test results that indicated the presence of an undeclared allergen samples in this CSP and a number of follow up actions were suggested to participating LGAs (see Section 2.0).

Future Coordinated Sampling Projects will continue to focus on further improving the quality and safety of both domestically produced and imported foods to WA.

6.0 References

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Appendix A

Raw Data

For further questions or inquiries about raw data, contact LHAAC Coordinator, Trevor Chapman:

Local Health Authorities Analytical Committee

Edith Cowan University

Building 19, 270 Joondalup Drive

JOONDALUP WA 6027

Phone: (08) 6304 2104

Email: t.chapman@ecu.edu.au

Appendix B

PRODUCT GROUP TO TEST	LGA'S INVITED TO COLLECT SAMPLES	
	LEAD LGA	SUPPORTING LGAs
FRUIT & VEGETABLE PRODUCTS	City of Gosnells	Bassendean, Bayswater, Belmont, Beverley, Boddington, Boyup Brook, Bridgetown-Greenbushes, Brookton, Broome, Broomehill-Tambellup, Bruce Rock, Bunbury, Chittering, Claremont, and Collie.
MEAT, SEAFOOD & DELI PRODUCTS	City of Stirling	Dalwallinu, Dandaragan, Dardanup, Denmark, Derby-West Kimberley, Donnybrook-Balingup, Dowerin, Dumbleyung, Dundas, East Fremantle, East Pilbara, Esperance, Exmouth, Fremantle, Gingin, Gnowangerup, and Goomalling.
DRIED & TINNED PRODUCTS	City of Joondalup	Albany, Armadale, Ashburton, Augusta-Margaret River, Irwin, Jerramungup, Kalamunda, Kalgoorlie-Boulder, Katanning, Kellerberrin, Kent, Kojonup, Kondinin, Koorda, and Kulin.
CEREAL PRODUCTS (incl. Noodles, Pasta and Rice)	City of Wanneroo	Busselton, Cambridge, Capel, Carnamah, Carnarvon, Greater Geraldton, Karratha, Mundaring, Murchison, Murray, Nannup, Narembeen, Narrogin (s), Nedlands, Ngaanyatjarraku, Northam, and Northampton.
DAIRY & CHEESE PRODUCTS	City of Swan	Canning, Chapman-Valley, Peppermint Grove, Perenjori, Pingelly, Plantagenet, Quairading, Ravensthorpe, Sandstone, Serpentine-Jarrahdale, South Perth, Wiluna, Wongan-Ballidu, Woodanilling, Wyalkatchem, Wyndham-East Kim, and Yalgoo.

SAUCES, MARINADES & BEVERAGES	City of Melville	Meekatharra, Menzies, Mosman Park, Mt Magnet, Mt Marshall, Mukinbudin, Subiaco, Victoria Park, Victoria Plains, Vincent, Wagin, Wandering, Waroona, West Arthur, Westonia, Wickepin, and Williams.
SNACKS & CONFECTIONARY (Biscuits, Crisps, Snack Bars etc.)	City of Cockburn	Coolgardie, Coorow, Corrigin, Cottesloe, Merredin, Upper Gascoyne, Halls Creek, Harvey, Kwinana, Lake Grace, Laverton, Leonora, Manjimup, Mingenew, Moora, Morawa, and Tammin.
MISCELLANEOUS (Oils, Soups etc.)	City of Rockingham	Cranbrook, Cuballing, Cue, Cunderdin, Mandurah, Nungarin, Perth, Port Hedland, Shark Bay, Three Springs, Toodyay, Trayning, Yilgarn, and York.
READY TO EAT MEALS	All LGAs	ALL LGAs CAN SUBMIT