



ORIGINAL ARTICLE

Precautionary allergen labelling following new labelling practice in Australia

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Aims: We aimed to assess the prevalence and types of precautionary labelling statements for common food allergens on the packages of products for which these allergens were not listed as an ingredient and to investigate the uptake of the Voluntary Incidental Trace Allergen Labelling, a new risk management tool developed in Australia to assist with declaring the possible presence of allergens in food products by manufacturers. We also aimed to examine changes in the prevalence of precautionary labelling for egg, peanuts and tree nuts over a 3-year period.

Methods: All packaged processed goods in a large supermarket in Melbourne, Australia, were examined for precautionary labelling between May and July 2011.

Results: In total, 1355 products were investigated. Overall, 882 products (65%) had a precautionary statement for one or more allergens. The most common allergens listed on precautionary statements were tree nuts (36.2%) and peanuts (34.1%), followed by sesame (27.5%) and egg (22.6%). Of those that had precautionary statements, 'May contain traces of . . .' was the most common type of precautionary label used on 392 products (29.0%). This was followed by 'May be present' on 172 products (12.7%).

Conclusions: The use of precautionary labelling for peanut, tree nuts and egg remained high. The uptake of the Voluntary Incidental Trace Allergen Labelling 'May be present' statement was low in comparison with other precautionary statements, but there has been an increase since 2009.

Key words: food allergy; precautionary labelling; Voluntary Incidental Trace Allergen Labelling (VITAL).

What is already known on this topic

- 1 Consumers with food allergies rely on accurate labelling of foods to avoid ingestion of allergies.
- 2 The use of shared processing facilities can result in cross-contamination.
- 3 The prevalence of precautionary statement such as 'May contain traces of' is only known for peanut, tree nut and egg.

What this paper adds

- 1 The uptake of the newly launched VITAL process is low.
- 2 Information about the current prevalence of precautionary food labelling in Australia where labelling of food allergens is mandatory.
- 3 The prevalence of labelling for peanut, tree nuts and egg products still remains very high, but it is plausible to suggest that a plateau may have been reached.

The prevalence of food allergy has been reported to be on the rise internationally. Recent studies have estimated that food allergy affects around 6% of young children and 3 to 4% of adults in the United States.^{1,2} Sampson reported that food reactions result in approximately 30 000 emergency room visits and 150 deaths each year in the United States alone.³ In Australia, the prevalence of challenge-proven food allergy to either

peanuts, raw egg or sesame in 12-month-old infants has been estimated to be as high as 10.4% (95% confidence interval, 9.3–11.5%).^{4,5}

Currently, there is no established cure for food allergy and the mainstay of management is complete avoidance of all foods that contain the causative allergen. In 2003, food labelling legislation was introduced in Australia and New Zealand followed by similar legislation introduced by the European Commission and the US Congress in 2003–2004.^{6–8} Current Australian legislation requires mandatory labelling of the most common allergenic foods; peanuts, tree nuts, milk, eggs, sesame, fish, crustaceans, soy and gluten as well as ingredients derived from those foods.⁶

Despite the best efforts of manufacturers, hidden allergens can occur in foods via cross-contamination from the use of shared equipment or facilities, packaging errors or issues related

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to the supply chain. This has prompted manufacturers to introduce precautionary labelling such as 'May contain' or 'Manufactured on shared equipment with'.⁹ In 2006, the UK Food Standards Agency reported to manufacturers that advisory labelling should only be used following a thorough risk assessment that has found that a real risk of allergen cross-contamination still exists.¹⁰ Because these statements are not mandatory, a variety of statements are used. Hefle *et al.* found that an increasing number of consumers with food allergy were ignoring advisory labelling advice, possibly due to an increase in their usage such that all types of labelling may develop familiarity and complacency regardless of their potential for conveying relevant information.¹¹ Further to this, Noimark *et al.* investigated the interpretation of advisory food labels by parents and also found that patients with nut allergy were risk-taking by either ignoring warning labels on foods or assuming that the degree of risk would depend on the wording of label warnings, such that more patients would avoid a product if labelled 'May contain nuts' compared with 'May contain traces of nuts'.¹² In addition, there are also different practices among the medical profession, particularly in Australia, about whether to advise patients with food allergies to avoid all foods with precautionary labels because complete avoidance can become impractical, particularly with the widespread prevalence of these statements.^{13–15}

Voluntary Incidental Trace Allergen Labelling (VITAL) is a new risk management tool developed in Australia for use by the Australian food industry to assist with declaring the possible presence of allergens in their products.⁹ The Allergen Bureau (developed by the Australian Food and Grocery Council) oversees the development and implementation of VITAL. The VITAL procedure encourages manufacturers to undergo a more intensive investigation of the possible presence of allergens prior to their release to consumers. It also incorporates a new precautionary statement: 'May be present'. The benefits of this risk assessment tool are that it allows the examination of possible sources of allergen cross-contamination from raw material and the processing environment. In addition, it also allows evaluation of the possible amount of cross-contamination which is referred to as an interactive action level grid. The VITAL grid incorporates a twofold action grid: if the level of cross-contamination is equal to or above the action level, then VITAL 'May be present' statement is used as a precautionary statement to replace all statements; if it is below the action level concentration, then no precautionary labelling is required. The VITAL grid has attracted international interest, and certain international manufacturers have now implemented the use of this risk assessment tool. However, a limitation of the VITAL process is that there is no material on products that alerts the consumer that the products that bear the VITAL statement have been assessed by the VITAL process.⁹

We have published the only previous study to investigate the extent of precautionary labelling use in Australia. This was conducted in 2008.¹³ However, this study investigated the prevalence of precautionary labelling for only three common food allergens (peanuts, tree nuts and egg) and did not assess the uptake of the newly launched VITAL process. In the current study, we aimed to extend this research by examining the prevalence and types of precautionary labelling for all food allergens

for which labelling is mandatory (peanuts, tree nuts, egg, milk, sesame, crustaceans, fish, wheat and soy). We also included lupin, which is not one of the mandatory labelled food allergens, as there is an increase in its use as an added ingredient by European manufacturers and data on the prevalence of lupin are not yet available in Australia.¹⁶ We also aimed to assess the uptake of VITAL by manufacturers. Finally, we aimed to examine changes in the prevalence of precautionary labelling for three major food allergens – egg, peanuts, tree nuts – over a 3-year period that correlates with the introduction of the VITAL system.

Methods

Selection of products for examination

A large supermarket in metropolitan Melbourne (in the suburb of Moonee Ponds) was contacted and permission was obtained to investigate the use of precautionary labelling on supermarket products. The following categories of products were examined: sweet biscuits; breakfast cereals; savoury biscuits; noodles/rice/Asian foods; pasta/pasta sauce/soups/canned meals; prepared meals (including Indian meals, Mexican foods and side dishes); dinner bases (including batters and stocks); cake mixes (including cupcakes, cakes, muffins, cookies and pancakes); bakery products (including bread and breadcrumbs); baby food; confectionery (including chewing gum), chocolate bars or blocks and desserts.

All variations of products within their specific categories were examined with the exception of breakfast cereals and confectionery (due to the large number of similar products). For these categories, only the original flavour per brand was selected for examination. Single-ingredient foods, such as flour, sugar, fruit and vegetables were excluded (these products do not contain precautionary labelling) as were refrigerated processed foods.

The research was undertaken during the months of May through to July 2011.

Prevalence of precautionary labelling

We investigated the prevalence of precautionary labelling for peanuts, tree nuts (of any kind), eggs, milk, sesame, crustaceans, fish, wheat, soy and lupin on packaged processed goods within each of the categories described earlier. Whether or not the product contained any of the allergens listed earlier, it was still examined for precautionary labelling for any of the earlier listed allergens.

Types of precautionary labelling

A preliminary investigation of precautionary labels revealed that there were a number of possible statements; therefore, categories of similar statements were created as follows:

- May contain traces of (*or* may contain)
- Made on the same equipment (*or* manufactured on shared equipment with products containing . . . *or* processed on equipment that makes products containing . . .)
- Made in the same factory (*or* manufactured in a facility that also processes . . . *or* made in the same premises as . . . *or* produced in a plant which manufactures products containing . . .)

Table 1 Prevalence of labelling for each allergen among 1355 products examined†

	Contained allergen	Precautionary statement	No statement
Peanut	46 (3.4%)	463 (34.1%)	846 (62.4%)
Tree nuts	57 (4.2%)	491 (36.2%)	807 (59.5%)
Egg	165 (12.1%)	293 (21.6%)	897 (66.1%)
Milk	612 (45.1%)	174 (12.8%)	569 (42.0%)
Sesame	83 (6.1%)	373 (27.5%)	899 (66.3%)
Crustacean	12 (0.8%)	85 (6.2%)	1258 (93.0%)
Fish	27 (2.0%)	59 (4.3%)	1269 (93.7%)
Wheat	887 (66.5%)	44 (3.2%)	424 (31.2%)
Soy	662 (48.1%)	106 (7.8%)	587 (43.3%)
Lupin	0 (0.0%)	3 (0.2%)	1352 (99.8%)

†If products contained both forms of labelling (listed on main ingredient list and had precautionary statement for the same allergen), these data were entered into both categories.

- Made on the same production line (*or* manufactured on a line that processes . . .)
- May be present (statement recommended in the VITAL process)
- Allergen free (manufactured in a tree nut-, peanut- and sesame-free site, *or* each batch is tested to ensure that there are no traces of peanuts and tree nuts, *or* peanut, egg and milk free, *or* free from wheat, gluten, dairy, lactose, eggs and nuts).

Analysis of data

Results were entered into a data sheet and percentages were calculated.

Results

In total, 1355 products were investigated. Overall, 882 products (65%) had a precautionary statement for one or more allergens. The most common allergens listed on precautionary statements were tree nuts (36.2%) and peanuts (34.1%), followed by sesame (27.5%) and egg (22.6%) (Table 1).

The prevalence of precautionary statements varied between different food types (Table 2). The most common allergen declared on precautionary labels also varied between foods. For example, tree nuts were the most common allergens listed in precautionary labelling on breakfast cereals (81.3%), cake mixes (74.1%), sweet biscuits (84.6%), chocolate products (60.4%) and confectionery (31.2%), while bakery products and savoury biscuits were most likely to carry labelling for sesame (73.3% and 86.0% respectively). Milk was the most common allergen listed in precautionary labelling on noodles/rice/Asian foods (47.2%) and baby foods (7.4%). Egg was the most common listed allergen for pasta/pasta sauce/soups/canned meals (30.0%), while peanuts were the most common listed allergen on dinner bases/stocks (61.6%).

Overall, among the 1355 products examined, 'May contain traces of . . .' was the most common type of precautionary label, used on 392 (29.0%) products, followed by 'May be present' on 172 (12.7%) products (Table 3). Among the 882 products with

any precautionary labelling, only 19.5% had the 'May be present' statement recommended for use in the VITAL process (Table 3).

Confectionary has in the past been reported to be the highest risk of contamination. Among 101 products that we examined, the 'May be present' statement was seen in 15 (15%) of products followed by 'May contain traces of . . .' on 13 (13%) products.

Discussion

This is the first study to investigate uptake of the 'May be present' statement recommended by the newly developed Australian manufacturing tool VITAL. We found that the uptake of VITAL was low, with only 19.5% of products with precautionary labelling containing the 'May be present' statement. This is surprising as a survey by Food Standards Australia New Zealand⁶ found that this statement was likely to be effective in causing allergic consumers to avoid potentially dangerous foods. Even without any prior knowledge that the 'May be present' statement indicated that a product had been through the VITAL process, 60% of surveyed consumers stated that they would always avoid a product featuring this type of label.¹⁷ However, in 2009, the Australia Allergen Bureau surveyed a sample of 340 supermarket products and found that only 7% of these products used the VITAL process.¹⁸ Currently, there is no information to consumers that food products that have undergone the VITAL process have better measures in place to provide consumers with more accurate labelling. Perhaps if consumers were educated to this fact, then possibly manufacturers may be more willing to use the VITAL process as the only source of precautionary labelling for their food products.

We also investigated the proportion of products with any precautionary labelling and found that overall, 65% of products contained one or more precautionary statements to one of the nine most common allergens investigated and 63.2% for labelling restricted to peanut, tree nut or egg. The prevalence of labelling for peanut, tree nuts and egg in our current study was similar to the prevalence observed in our previous study 3 years

Table 2 The prevalence of precautionary labelling on packaged processed foods at a large supermarket in Melbourne, May–July 2011†

Category of food	Peanuts	Tree nuts	Egg	Milk	Sesame	Crustacean	Fish	Wheat	Soy	Lupin
<i>n</i> (%)										
Breakfast cereals (<i>n</i> = 70)	21 (31.0)	46 (81.3)	0 (0.0)	18 (27.5)	12 (17.0)	0 (0.0)	0 (0.0)	1 (2.0)	14 (25.0)	0 (0.0)
Sweet biscuits (<i>n</i> = 121)	85 (71.4)	99 (84.6)	58 (76.3)	13 (59.1)	86 (71.1)	0 (0.0)	0 (0.0)	1 (33.3)	6 (33.3)	0 (0.0)
Savoury biscuits (<i>n</i> = 126)	54 (43.0)	55 (43.6)	56 (44.8)	37 (41.5)	92 (86.0)	9 (7.1)	0 (0.0)	4 (8.5)	18 (30.0)	0 (0.0)
Asian food/noodles/rice (<i>n</i> = 100)	31 (32.2)	19 (19.0)	34 (37.3)	35 (47.2)	37 (40.6)	32 (33.6)	23 (25.0)	3 (11.1)	4 (10.2)	0 (0.0)
Pasta/pasta sauce/soups/canned meals (<i>n</i> = 189)	40 (21.2)	18 (9.8)	51 (30.0)	3 (12.2)	23 (12.1)	25 (13.2)	24 (12.9)	3 (3.6)	24 (16.2)	3 (1.6)
Indian/Mexican food/side dishes (<i>n</i> = 107)	52 (54.7)	22 (21.3)	6 (5.6)	3 (3.6)	13 (13.4)	16 (15.4)	9 (8.9)	17 (22.0)	13 (16.8)	0 (0.0)
Dinner bases/batters/stock (<i>n</i> = 36)	22 (61.1)	2 (5.5)	5 (14.7)	4 (13.7)	2 (6.8)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Bakery/bread/breadcrumbs (<i>n</i> = 162)	72 (45.5)	74 (46.8)	42 (35.0)	37 (38.5)	104 (73.3)	3 (2.0)	3 (2.0)	1 (16.6)	12 (35.2)	0 (0.0)
Cake mixes (cookies/pancakes/muffins) (<i>n</i> = 89)	6 (6.7)	63 (74.1)	24 (32.8)	10 (66.6)	0 (0.0)	0 (0.0)	0 (0.0)	1 (1.1)	2 (7.7)	0 (0.0)
Baby foods (<i>n</i> = 143)	4 (2.9)	4 (2.9)	2 (1.4)	6 (7.4)	4 (2.9)	0 (0.0)	0 (0.0)	1 (0.9)	5 (4.6)	0 (0.0)
Confectionery and chewing gum (<i>n</i> = 101)	27 (29.0)	30 (31.2)	0 (0.0)	4 (6.7)	0 (0.0)	0 (0.0)	0 (0.0)	4 (11.1)	2 (3.4)	0 (0.0)
Chocolate bars/blocks and desserts (<i>n</i> = 111)	49 (47.1)	58 (60.4)	15 (17.2)	3 (10.7)	0 (0.0)	0 (0.0)	0 (0.0)	8 (14.8)	6 (13.3)	0 (0.0)

†The denominators used to calculate percentages were the number of products within each category of food that did not have the allergen of interest listed as an ingredient.

Table 3 Prevalence of different types of precautionary labelling among the 1355 products examined

Categories	<i>n</i> (%)
No statement	473 (35.0)
May contain traces of	392 (29.0)
May be present (statement used in VITAL process)	172 (12.7)
Made on the same production line	164 (12.1)
Made in the same factory	99 (7.3)
Allergen free	44 (3.2)
Made on the same equipment	11 (0.8)
Total with any precautionary statements:	882 (65.0)
Type of precautionary labelling (among 882 products with any labelling)	
Categories	<i>n</i> (%)
VITAL ('May be present')	172 (19.5)
Any other statements	710 (80.5)

VITAL, Voluntary Incidental Trace Allergen Labelling.

ago.¹³ However, while the prevalence of precautionary labelling for these allergens still remains very high, it may be plausible to suggest that a plateau has been reached. While precautionary labelling for milk and sesame was common, fewer than 10% of products had labelling for crustaceans, fish, wheat or soy. Very few products had lupin either listed in the ingredient list or listed on a precautionary statement.

By comparison, the survey by Pieretti *et al.* of over 20 000 food products from several supermarket in the United States showed that the overall prevalence of food products that had precautionary allergen labelling was 17%.¹⁹ In a study from 10 European countries of over 300 biscuits, the overall prevalence of food products that had precautionary allergen labelling was 50%.²⁰

The key strengths of this study are the large number of food products examined and the detailed assessment of precautionary labelling for both the allergen/s listed and the type of precautionary statement used. This study was conducted at a large supermarket in an area of Melbourne with a population size of approximately 12 000 individuals, where 47% were couple families with children.²¹ Although the selection of a single supermarket for this assessment may be considered a methodological limitation, we chose this as there are two main supermarket chains (a duopoly), which accounts for approximately 85% of supermarkets in Australia. Further, our assessment of food label was not restricted to a single brand but all brands were examined with an equal proportion of food brands assessed. In addition, this method allows direct comparison with the findings of our previous study which used similar methodology.¹³

The use of precautionary labelling may not reflect the true allergen content of foods. Ford *et al.* found detectable residues of allergenic food in only 5.3% of advisory-labelled products.¹⁵ However, similar studies have found contamination rates of up to 75%²⁰ for hazelnut in chocolate products and 60% of products bearing milk²²-advisory statements. Further to this, Barnett

et al. conducted a qualitative survey in which the researchers investigated the perception of patients with nut allergy regarding precautionary labelling. The author reported that the majority of participants felt that precautionary labelling was neither credible nor desirable.²³

Food allergy has reached epidemic proportions⁵ and buying food products with confidence can be a daunting task for patients with food allergy. The high number of products that contain precautionary statements, as seen within our study, continues to restrict food choices for the allergic consumer. Currently, there is debate among the scientific community regarding the level of cross-contamination in food products that will result in an adverse reaction such as anaphylaxis. Recently, Roder *et al.* investigated cross-contamination of hazelnut protein in manufacturing equipment and found that if manufacturers used hot water to clean their equipment, it would reduce the allergen content to a level at or below 1 mg of hazelnut protein per kg. The author hypothesised that this level of contamination, would not induce a severe allergic reaction in the majority of allergic individuals.²⁴ We urgently require a consensus among the scientific community regarding threshold levels so that we can establish safe allergen threshold levels below which reactions are not provoked and develop a more informative, safe and less ambiguous system that will aid consumers in making food choices rather than restrict them.

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References

- 1 Sicherer SH, Munoz-Furlong A, Sampson HA. Prevalence of peanut and tree nut allergy in the United States determined by means of a random digit dial telephone survey: a 5-year follow-up study. *J. Allergy Clin. Immunol.* 2003; **112**: 1203–7.
- 2 Sicherer SH, Sampson HA. 9. Food allergy. *J. Allergy Clin. Immunol.* 2006; **117** (2 Suppl. Mini-Primer): S470–5.
- 3 Sampson HA. Anaphylaxis and emergency treatment. *Pediatrics* 2003; **111** (Suppl. 3): 1601–8.
- 4 Osborne NJ, Koplin JJ, Martin PE *et al.* Prevalence of challenge-proven IgE-mediated food allergy using population-based sampling and predetermined challenge criteria in infants. *J. Allergy Clin. Immunol.* 2011; **127**: 668–76.e2.
- 5 Prescott S, Allen KJ. Food allergy: riding the second wave of the allergy epidemic. *Pediatr. Allergy Immunol.* 2011; **22**: 155–60.
- 6 FSANZ. The Australian New Zealand Food Standards Code. 2002. Available from: <http://www.foodstandards.gov.au/foodstandards/foodstandardscode.cfm> [accessed 6 March 2013].
- 7 EU. European Commission. Directive 2003/89/EC of the European Parliament and of the Council of 10 November 2003 amending Directive 2000/13/EC as regards induction of the ingredients present in foodstuffs. *Off. J. Eur. Commun.* 2003; **L308**: 15–18.
- 8 Congress US. Food Allergen Labeling and Consumer Protection Act of 2004. 2004. Available from: <http://www.fda.gov/Food/Labeling/Nutrition/FoodAllergensLabeling/GuidanceComplianceRegulatoryInformation/ucm106187.htm> [accessed 6 March 2013].
- 9 Allergen B. VITAL Q & A for Consumers. 2009. Available from: <http://www.allergenbureau.net/vital/vital-qaas> [accessed 6 March 2013].
- 10 Food Standards Agency. What to consider when labelling food. SLS Print Ltd; 2006. Available from: <http://www.food.gov.uk/multimedia/pdfs/publication/allergyjamjar0109.pdf> [accessed 6 March 2013].
- 11 Hefle SL, Furlong TJ, Niemann L, Lemon-Mule H, Sicherer S, Taylor SL. Consumer attitudes and risks associated with packaged foods having advisory labeling regarding the presence of peanuts. *J. Allergy Clin. Immunol.* 2007; **120**: 171–6.
- 12 Noimark L, Gardner J, Warner JO. Parents' attitudes when purchasing products for children with nut allergy: a UK perspective. *Pediatr. Allergy Immunol.* 2009; **20**: 500–4.
- 13 Koplin J, Osborne J, Allen J. Prevalence of allergen avoidance advisory statements on packaged processed foods in a supermarket. *Med. J. Aust.* 2010; **193**: 426–7.
- 14 Vierk KA, Koehler KM, Fein SB, Street DA. Prevalence of self-reported food allergy in American adults and use of food labels. *J. Allergy Clin. Immunol.* 2007; **119**: 1504–10.
- 15 Ford LS, Taylor SL, Pacenza R, Niemann LM, Lambrecht DM, Sicherer SH. Food allergen advisory labeling and product contamination with egg, milk, and peanut. *J. Allergy Clin. Immunol.* 2010; **126**: 384–5.
- 16 Campbell CP, Yates DH. Lupin allergy: a hidden killer at home, a menace at work; occupational disease due to lupin allergy. *Clin. Exp. Allergy* 2010; **40**: 1467–72.
- 17 Food Standards Australia New Zealand. Consumer Study on Food Allergen Labelling: Follow-on Survey 2008–09 Evaluation Report Series No. 20 FSANZ 2009. Canberra 2009. Available from: <http://www.foodstandards.gov.au/scienceandeducation/publications/evaluationreportseries/consumerstudyonfooda4610.cfm> [accessed 6 March 2013].
- 18 Allergen Bureau. Allergen Bureau Labelling Review Survey 2009. 2009 [4/10/11]. Available from: <http://www.allergenbureau.net/downloads/vital/Labelling-Review-Survey-2009.pdf> [accessed 6 March 2013].
- 19 Pieretti MM, Chung D, Pacenza R, Slotkin T, Sicherer SH. Audit of manufactured products: use of allergen advisory labels and identification of labeling ambiguities. *J. Allergy Clin. Immunol.* 2009; **124**: 337–41.
- 20 Pele M, Brohée M, Anklam E, Hengel AJV. Peanut and hazelnut traces in cookies and chocolates: relationship between analytical results and declaration of food allergens on product labels. *Food Addit. Contam.* 2007; **24**: 1334–44.
- 21 Statistics ABo. 2006 Census QuickStats: Moonee Ponds. 2006. Available from: <http://www.abs.gov.au/ausstats/abs@nrf/lookup/LGA25060Main+Features12006-2010> [accessed 6 March 2013].
- 22 Crotty MP, Taylor SL. Risks associated with foods having advisory milk labeling. *J. Allergy Clin. Immunol.* 2010; **125**: 935–7.
- 23 Barnett J, Muncer K, Leftwich J *et al.* Using 'may contain' labelling to inform food choice: a qualitative study of nut allergic consumers. *BMC Public Health* 2011; **11**: 734–43.
- 24 Roder M, Baltruweit I, Gruyters H *et al.* Allergen sanitation in the food industry: a systematic industrial scale approach to reduce hazelnut cross-contamination of cookies. *J. Food Prot.* 2010; **73**: 1671–9.