

Food Allergen Labeling and Purchasing Habits in the United States and Canada



Mary Jane Marchisotto, MBA^a, Laurie Harada, BA, BEd^b, Opal Kamdar, MD^c, Bridget M. Smith, PhD^{d,e}, Susan Waserman, MSc, MD, FRCPC^f, Scott Sicherer, MD^g, Katie Allen, MD^{h,i,j,k,l}, Antonella Muraro, MD, PhD^m, Steve Taylor, PhDⁿ, and Ruchi S. Gupta, MD, MPH^{c,e} McLean, Va; Toronto, Ontario, Canada; Chicago and Hines, Ill; Hamilton, Ontario, Canada; New York, NY; Melbourne, Australia; Manchester, UK; Padua, Italy; and Lincoln, Neb

What is already known about this topic? It is mandatory to label food products containing top allergens. Precautionary allergen labeling (PAL), such as “may contain,” is voluntarily placed by the food industry. The meaning of these labels can be confusing for consumers.

What does this article add to our knowledge? Almost half of consumers falsely believed that the law requires PAL. A third felt that PAL statements were based on amounts of an allergen present. Up to 40% of consumers with food allergy purchased products with PAL.

How does this study impact current management guidelines? Physicians can help inform patients and families about the laws and practices surrounding PAL and how to purchase products to limit unnecessary risk based on guesswork.

BACKGROUND: Mandatory labeling of products with top allergens has improved food safety for consumers. Precautionary allergen labeling (PAL), such as “may contain” or “manufactured on shared equipment,” are voluntarily placed by the food industry.

OBJECTIVE: To establish knowledge of PAL and its impact on purchasing habits by food-allergic consumers in North America.

METHODS: Food Allergy Research & Education and Food Allergy Canada surveyed consumers in the United States and Canada on purchasing habits of food products featuring different types of PAL. Associations between respondents’

purchasing behaviors and individual characteristics were estimated using multiple logistic regression.

RESULTS: Of 6684 participants, 84.3% (n = 5634) were caregivers of a food-allergic child and 22.4% had food allergy themselves. Seventy-one percent reported a history of experiencing a severe allergic reaction. Buying practices varied on the basis of PAL wording; 11% of respondents purchased food with “may contain” labeling, whereas 40% purchased food that used “manufactured in a facility that also processes.” Twenty-nine percent of respondents were unaware that the law requires labeling of priority food allergens. Forty-six percent were either

^aFood Allergy Research & Education, Inc, McLean, Va

^bFood Allergy Canada (formerly Anaphylaxis Canada), Toronto, Ontario, Canada

^cAnn & Robert H. Lurie Children’s Hospital of Chicago, Chicago, Ill

^dEdward J. Hines Jr VA Hospital, Spinal Cord Injury QUERI, Center for Management of Complex Chronic Care, Hines, Ill

^eNorthwestern University Feinberg School of Medicine, Chicago, Ill

^fDivision of Allergy and Clinical Immunology, McMaster University, Hamilton, Ontario, Canada

^gIcahn School of Medicine at Mount Sinai, New York, NY

^hCentre of Food and Allergy Research, Murdoch Children’s Research Institute, the Royal Children’s Hospital, Melbourne, Australia

ⁱDepartment of Allergy and Clinical Immunology, the Royal Children’s Hospital, Melbourne, Australia

^jDepartment of Gastroenterology and Clinical Nutrition, the Royal Children’s Hospital, Melbourne, Australia

^kDepartment of Paediatrics, the Royal Children’s Hospital, University of Melbourne, Melbourne, Australia

^lInstitute of Inflammation and Repair, University of Manchester, Manchester, UK

^mDepartment of Pediatrics, University of Padua, Padua, Italy

ⁿFood Allergy Research & Resource Program, University of Nebraska, Lincoln, Neb
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Corresponding author: Ruchi S. Gupta, MD, MPH, 750 N Lake Shore Dr, 6th Fl, Chicago, IL 60611. E-mail: r-gupta@northwestern.edu.

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Abbreviations used

FARE- Food Allergy Research & Education

OR- Odds ratio

PAL- Precautionary allergen labeling

unsure or incorrectly believed that PAL is required by law. Thirty-seven percent of respondents thought PAL was based on the amount of allergen present. History of a severe allergic reaction decreased the odds of purchasing foods with PAL. **CONCLUSIONS:** Almost half of consumers falsely believed that PAL was required by law. Up to 40% surveyed consumers purchased products with PAL. Understanding of PAL is poor, and improved awareness and guidelines are needed to help food-allergic consumers purchase food safely. © 2016 American Academy of Allergy, Asthma & Immunology (J Allergy Clin Immunol Pract 2017;5:345-51)

Key words: Food allergy; Precautionary labeling; United States; Canada; Consumer knowledge

Food allergy is increasing in prevalence, affecting approximately 1% to 2% of adults and 8% of children.^{1,2} Almost 40% of children with food allergy have experienced at least 1 severe life-threatening reaction.¹ These reactions can result from exposure to small amounts of allergen; therefore, current management is allergen avoidance.³⁻⁷ Families with food allergy must practice constant vigilance to maintain an allergy-friendly environment. With limited treatment options and the potential risk of cross-contact (the unintended presence of allergens in foods) and accidental ingestion, food allergy significantly impacts quality of life in food-allergic children and their parents.^{4,8}

To help consumers with food allergen avoidance, the US Food Labeling and Consumer Protection Act was enacted in 2004, which mandated that “major allergens” be identified in plain language (eg, “milk” instead of “casein”) on food labeling if the food allergen was an intended ingredient.⁹ These foods include wheat, egg, milk, peanut, fish, crustaceans, soy, and tree nuts. Canadian regulation uses a similar system but also includes sesame, mollusks, and mustard.^{10,11} Food processing on shared equipment has led to the risk of cross-contact, which is the unintended presence of allergens in foods.⁴ As a result, manufacturers began to include precautionary allergen labeling (PAL), such as “may contain” or “manufactured in a facility,” to communicate this risk to consumers.¹¹ However, neither the United States nor Canada mandates the use of PAL on food labels and the use of PAL is currently entirely voluntary.^{11,12} Because of such variation, Health Canada recommends that manufacturers restrict their PAL to solely the phrase “may contain.”^{10,11}

The use of PAL in the food industry is very common.¹³⁻¹⁵ An audit performed in 99 US supermarkets found that more than 50% of chocolate candy or cookies had PAL, with more than 25 types of wordings.¹³ Such wording differences have the potential to cause confusion and anxiety in food-allergic individuals and their caretakers.¹⁶⁻¹⁸ Despite the ubiquity of PAL, its effects on consumer purchasing practices are poorly understood. Therefore, this study aimed to determine consumer understanding of and purchasing habits of parents of children with

food allergy and food-allergic adults in the United States and Canada. Results could better inform education and recommendations to consumers, policymakers, and the food industry to help protect food-allergic children and adults from accidental ingestion of allergens.

METHODS

Survey development and design

The global thresholds survey was developed by the US group Food Allergy Research & Education (FARE) for the US Food and Drug Administration to explore consumer opinions on allergen thresholds. The survey examined the influence of food labeling on purchasing habits, consumer knowledge of thresholds for PAL, and opinions on thresholds and food choices. The survey also collected information on food allergy prevalence, reaction severity, and diagnosis. A *severe reaction* was defined as anaphylaxis; difficulty breathing; a drop in blood pressure; swelling of the tongue, lips, face, or throat; loss of consciousness; or shock.

In the United States, the survey was offered in English, and in Canada in English and French. Survey Monkey was used to administer the [online survey](#) (Appendix, available in this article's Online Repository at www.jaci-inpractice.org).

Selection of subjects

Through FARE and Food Allergy Canada's membership lists and social media, individuals were invited to participate if (1) they had a food allergy; (2) someone in the family with whom they resided had a food allergy; or (3) they were a parent or caregiver of someone with a food allergy for whom they purchased food. The target population did not include institutional caregivers, such as daycare operators or school personnel. Data collection took place in each country for a 2-week period during the first quarter of 2013, yielding a total of 6684 respondents. Participant consent was implicit in completion of the [online survey](#) (Appendix, available in this article's Online Repository at www.jaci-inpractice.org). Institutional Review Board approval was obtained from Northwestern University.

Data analysis

Demographic characteristics, purchasing practices, and respondents' understanding of labeling laws were summarized using frequencies. To assess respondents' knowledge of current laws surrounding food allergy labeling, we created a composite knowledge score on the basis of questions that were correctly answered. Questions are presented in the [Appendix](#), available in this article's Online Repository at www.jaci-inpractice.org. To examine differences between respondents in the United States and Canada, chi-square tests were used. Multiple logistic regression models were used to examine adjusted associations between outcomes and respondent characteristics, including history of severe reaction, location, duration of allergy, whether or not the respondent was a parent, whether the respondent had a food allergy, whether or not they had a peanut allergy, having more than 1 household member with a food allergy, and whether there was an association with the knowledge score. Outcomes included whether the respondent purchased processed food, food that may contain allergens, food that is manufactured in a facility that also processes allergens, food that is manufactured on shared equipment, food manufactured in a facility that also uses allergens, food that contains allergen, or food that is allergen free. Separate models were estimated for each outcome. We also performed McNemar test to test differences between the

TABLE I. Characteristics of respondents

Variable	Frequency, % (n)			Significance
	All respondents (United States and Canada) (N = 6684)	United States (N = 5507, 82.4%)	Canada (N = 1177, 17.6%)	
Allergic individual				
Self	22.4% (1494)	20.5% (1128)	31.1% (366)	.000
Child	84.3% (5634)	85.7% (4721)	77.6% (913)	.000
Spouse/domestic partner	1.4% (93)	0.6% (35)	4.9% (58)	.000
Relative	2.8% (186)	1.1% (59)	10.8% (127)	.000
Other	3.9% (296)	3.9% (216)	3.6% (42)	.567
No. of adults with FA in household				
0	63.2% (4224)	66.0% (3637)	49.9% (587)	
1	29.5% (1974)	27.1% (1490)	41.1% (484)	
2	6.3% (424)	6.1% (335)	7.6% (89)	
3+	0.9% (62)	0.9% (45)	1.4% (17)*	.000
No. of children with FA in household				
0	14.0% (935)	11.2% (619)	26.9% (316)	
1	67.5% (4514)	68.5% (3773)	63.0% (741)	
2	16.3% (1090)	17.7% (976)	9.7% (114)	
3	1.8% (123)	2.1% (117)	0.5% (6)	
4	0.3% (22)	0.4% (22)	0% (0)*	.000
Food allergens				
Peanuts	78.6% (5251)	79.2 (4362)	75.5% (889)*	.005
Tree nuts	67.7% (4528)	68.7% (3785)	63.1% (743)*	.000
Milk	33.9% (2263)	36.2% (1995)	22.8% (268)*	.000
Eggs	35.7% (2384)	37.9% (2087)	25.2% (297)*	.000
Fish	11.4% (764)	11.3% (624)	11.9% (140)	.581
Shellfish/crustacean	22.7% (1518)	23.6% (1301)	18.4% (217)	.000
Soy	16.2% (1084)	17.0% (935)	12.7% (149)*	.000
Wheat	15.1% (1007)	16.4% (904)	8.8% (103)*	.000
Other	40.5% (2705)	42.3% (2329)	32.0% (376)*	.000
Who diagnosed				
Allergist	88.8% (5935)	88.2% (4858)	91.5% (1077)*	.001
Family physician	12.9% (860)	10.9% (602)	21.9% (258)*	.000
Pediatrician	30.6% (2046)	34.1% (1881)	14.0% (165)*	.000
Emergency physician	18.4% (1227)	18.3% (1006)	18.8% (221)	.682
Dermatologist	0.2% (16)	0.2% (10)	0.5% (6)†	.036
Self-diagnosis	15.6% (1050)	16.3% (897)	13.0% (153)*	.005
Parent	0.2% (12)	0.2% (12)	0	.109
Gastroenterologist	1.0% (64)	1.1% (59)	0.4% (5)†	.039
Other MD	0.3% (21)	0.3% (16)	0.4% (5)	.455
Alternative practitioner	0.7% (44)	0.5% (26)	1.5% (18)*	.000
Nutritionist/dietician	0.2% (15)	0.3% (15)	0	.073
Reaction	0.8% (50)	0.8% (46)	0.3% (4)	.073
Tests	0.4% (27)	0.4% (24)	0.3% (3)	.374
Other	0.5% (30)	0.4% (22)	0.7% (8)	.192
Allergic reaction				
No	3.0% (204)	2.7% (148)	4.8% (56)	
Yes	97.0% (6480)	97.3% (5359)	95.2% (1121)	.000
Severe allergic reaction				
No	29.1% (1947)	29.7% (1635)	26.5% (312)	
Yes	70.9% (4737)	70.3% (3872)	73.5% (865)†	.029
Duration of food allergy (y)				
<1	6.4% (426)	6.8% (376)	4.2% (50)	
1-3	21.4% (1430)	22.8% (1256)	14.8% (174)	
4-9	39.6% (2654)	40.7% (2242)	34.2% (402)	
10+	32.7% (2184)	29.7% (1633)	46.8% (551)*	.000

FA, Food allergy; MD, doctor of medicine.

* $P < .01$.

† $P < .05$.

TABLE II. Respondents' purchasing practices based on food labeling

Variable	Frequency, % (n)			Significance
	All respondents (United States and Canada)	United States	Canada	
Purchase processed food				
Yes	95.9% (6391)	96.0% (5287)	95.6% (1104)	
No	4.1% (271)	4.0% (220)	4.4% (51)	.511
Purchase product with the following label:				
“May contain allergen”				
Never	87.7% (5574)	89.9% (4730)	77.2% (844)	
Sometimes	11.3% (716)	9.4% (492)	20.5% (224)	
Always	1.0% (63)	0.7% (37)	2.4% (26)*	.000
“Manufactured in a facility that also processes allergen”				
Never	59.7% (3795)	58.9% (3098)	63.5% (697)	
Sometimes	34.2% (2174)	35.0% (1841)	30.4% (333)	
Always	6.1% (389)	6.1% (322)	6.1% (67)	.011
“Manufactured on shared equipment with products containing allergen”				
Never	83.3% (5301)	83.0% (4375)	84.7% (926)	
Sometimes	14.2% (904)	14.5% (762)	13.0% (142)	
Always	2.5% (160)	2.6% (135)	2.3% (25)	0.376
“Good manufacturing practices used to segregate ingredients in a facility that also processes allergens”				
Never	25.2% (1596)	23.8% (1259)	32.2% (347)	
Sometimes	41.2% (2611)	42.0% (2209)	37.5% (402)	
Always	33.6% (2124)	34.2% (1800)	30.2% (324)*	.000

* $P < .01$.**TABLE III.** Respondents' understanding of labeling laws

Variable	Frequency, % (n)			Significance
	All respondents (United States and Canada)	United States	Canada	
Food source names of major allergens required by law				
True	71.1% (4522)	70.7% (3740)	72.7% (782)	
False	17.2% (1092)	17.6% (929)	15.2% (163)	
Don't know	11.8% (749)	11.7% (618)	12.2% (131)	.187
Advisory label required by law				
True	28.8% (1831)	25.6% (1355)	44.1% (476)	
False	54.4% (3460)	57.9% (3061)	37.0% (399)	
Don't know	16.9% (1075)	16.5% (871)	18.9% (204)*	.000
Advisory label not based on amounts				
True	63.3% (4024)	63.3% (3345)	63.3% (679)	
False	8.5% (539)	8.3% (441)	9.1% (98)	
Don't know	28.2% (1746)	28.4% (1501)	27.5% (295)	.633

* $P < .01$.

outcomes. All analyses were performed in Stata 13 (StataCorp LP, College Station, Texas, 2013).

RESULTS

Data were analyzed for 6684 respondents, with 5507 (82.4%) from the United States and 1177 (17.6%) from Canada.

Demographic characteristics

Demographic characteristics of respondents are presented in Table I. Most respondents (84.3%) were caregivers of a child

with food allergy. Individuals with food allergy themselves comprised 22.4%.

In both countries, the top food allergens reported were peanut (United States, 79.2%; Canada, 75.5%). This was followed by tree nuts (United States, 68.7%; Canada, 63.1%), egg (United States, 37.9%; Canada, 25.2%), milk (United States, 36.2%; Canada, 22.8%), shellfish/crustaceans (United States, 23.6%; Canada, 18.4%), and soy (United States, 17%; Canada, 12.7%).

Food allergy was most commonly diagnosed by an allergist (United States, 88.2%; Canada, 91.5%). In the United States, pediatricians accounted for approximately a third (34.1%) of

TABLE IV. Adjusted association between respondent characteristics and purchasing practices

Variable	Severe reaction vs no severe reaction history	Canada vs US	Duration of food allergy >10 y vs <10 y	Parent of child vs other	Self vs other	Peanut vs other	More than 1 person in household with FA vs other	Knowledge score
Purchase processed food								
Yes	0.68 (0.50-0.93)*	1.079 (0.78-1.51)	2.73 (1.72-4.84)†	2.56 (1.81-3.62)†	0.45 (0.32-0.63)†	1.53 (1.16-2.02)†	0.61 (0.46-0.81)†	1.15 (1.01-1.32)†
"May contain allergen"								
Sometimes/always vs. Never	0.43 (0.71-0.99)*	2.37 (1.99-2.81)†	1.16 (0.81-1.65)	0.73 (0.57-0.94)*	1.66 (1.33-2.07)†	0.66 (0.55-0.79)†	1.245 (1.045-1.489)*	0.87 (0.81-0.95)†
"Manufactured in a facility that also processes allergen"								
Sometimes/always	0.80 (0.71-0.90)†	0.72 (0.62-0.82)†	1.34 (1.074-1.69)*	1.11 (0.92-1.34)	1.36 (1.16-1.60)†	0.52 (0.46-0.60)†	1.2 (1.12-1.42)†	0.87 (0.82-0.92)
"Manufactured on shared equipment with products containing allergen"								
Sometimes/always	0.77 (0.67-0.90)†	0.79 (0.66-0.95)*	1.27 (0.95-1.71)	0.91 (0.73-1.14)	1.33 (1.09-1.63)†	0.48 (0.41-0.56)†	1.25 (1.08-1.45)†	0.87 (0.81-0.94)†

FA, Food allergy.

* $P < .05$.

† $P < .01$.

food allergy diagnoses compared with 14% in Canada. In Canada, a greater proportion of diagnoses were made by family practitioners: 21.9% versus 10.9% in the United States. Eighteen percent of respondents had food allergy diagnosed by an emergency physician with no significant variation between countries. Self-diagnosis represented a large proportion in both groups but was higher in the United States with 16.2% versus 13.0% in Canada ($P < .01$). Alternative practitioners in Canada made 1.5% of diagnoses compared with 0.5% in the United States.

Seventy-one percent of respondents reported a history of severe allergic reaction with similar rates in both countries (United States, 70.3%; Canada, 73.5%).

Purchasing practices

Purchasing practices are summarized in Table II. Overall, between 10.1% and 41.1% of respondents reported buying foods that used PAL in the United States, depending on the particular PAL used, and between 15.3% and 36.5% reported buying foods with PAL in Canada. Respondents were even more likely to buy foods that used "good manufacturing practices used to segregate ingredients in a facility that also processes allergen," with 74.8% of respondents reporting they would buy such products. Respondents were least likely to buy foods that used "may contain allergen" labeling (12.3%). Other PAL affected purchasing in varying amounts; 40.3% reported buying foods that used "manufactured in a facility that also processes allergen" and 16.7% reported buying foods that used "manufactured on shared equipment with products containing allergen."

Understanding of labeling laws

Understanding of labeling laws is presented in Table III. Twenty-nine percent of respondents did not know that names of major allergens were legally required to be reported on labels. An additional 28.8% of respondents incorrectly believed that PAL is required by law, and 16.9% admitted that they did not know. More than a third (37%) of respondents thought advisory labels were based on the amount of allergen present. A knowledge score was created on the basis of which of the questions were answered correctly. Table IV shows that those who sometimes or always bought PAL-containing products were associated with lower knowledge scores.

Associations

Adjusted logistic regression models are presented in Table IV. McNemar tests were performed to determine whether the outcomes were significantly different; they were all significant at a .01 level. Odds of purchasing foods with PAL relative to foods without PAL were significantly lower among participants with a history of severe reaction (odds ratio [OR], 0.69; $P < .05$) and were significantly higher among participants with peanut allergy (OR, 1.59; $P < .01$). Food-allergic respondents reported more often buying PAL-containing foods for themselves compared with respondents who were caregivers of food-allergic individuals. Parents of children with food allergy had lower odds of buying foods that used "may contain allergen" labeling than did other respondents (OR, 0.69; $P < .01$), but being a parent did not affect the purchase of products that used other PAL types. Respondents with food allergy themselves had higher odds of buying foods containing all types of PAL compared with other respondents (OR, 1.56; $P < .01$).

Respondents had lower odds of purchasing foods with any type of PAL if there was more than 1 food-allergic individual in the household (OR, 0.6; $P < .01$). They had higher odds of purchasing foods that used “manufactured in a facility that also processes allergen” if they had been diagnosed with food allergy for more than 10 years (OR, 1.30; $P < .01$).

Compared with Americans, Canadians had higher odds of buying foods that used “may contain allergen” and had lower odds of buying products that used other forms of PAL (OR, 2.42; $P < .01$).

DISCUSSION

This study found that many misconceptions exist around PAL, resulting in mixed purchasing practices among food-allergic adults and caregivers. Almost half of allergic individuals or parents of allergic children in both the United States and Canada believe that these labels are required by law, with up to 40% purchasing food with PAL. In addition, more than a third of consumers feel that different labels indicate differing amounts of allergen. Some differences in purchasing habits were seen by country. Most consumers reported a severe allergic reaction, which made them less likely to purchase foods containing PAL.

Most studies have shown that there is no correlation between the amount of allergen actually present in a product and the PAL used.^{19,20} Our results show that differences in purchasing habits correlate with the phrase used, suggesting that PAL wording affects respondents’ perception of risk. Although in North America PAL statements are not based on the amount of allergen present, a third of consumers reported sometimes making decisions on purchasing thinking that the labels might indicate amount.^{11,12} The Voluntary Incidental Trace Allergen Labeling (VITAL) 2.0 study has attempted to establish reference doses in the United States, Europe, and Australia for common allergenic foods to guide manufacturers with labeling practices.²¹ Although the establishment of threshold doses is valuable, its implementation may be limited by the variety of PAL terms and the lack of consistency in labeling practices among different countries.^{11,22} Canada encourages manufacturers to limit PAL to the specific wording “may contain” to decrease consumer confusion. Ideally, a global framework to regulate PAL messaging on the basis of specific threshold doses of allergen is needed to provide consumers with a realistic assessment of risk.

This study found several factors that were associated with increased purchasing of products with PAL. First, we found that respondents were more likely to take risks and buy PAL items for themselves rather than for their children with food allergy. Having multiple household members with food allergy also increased the purchase of products with PAL. Interestingly, Canadians were more likely to purchase items stating “may contain,” even though this is the label Canada encourages manufacturers to use.¹⁰ This may be in part because of confusion surrounding what the mandatory versus voluntary laws are and what PAL statements truly mean. This finding may also represent a form of warning fatigue, and be part of an overall trend toward ignoring PAL altogether.¹⁹ In previous studies, consumers have identified reasons for ignoring PAL, including factors such as previous reaction to a food, lack of food-allergic reaction experience after exposure, and product cost or discounts.²³ Such factors may supersede implied risk identified by PAL. In addition, some consumers feel that PAL is so common

that it is unavoidable, thus defeating its purpose.²⁴ Without regulation, PAL statements have the potential to cause confusion and anxiety, but also lead to misinformed decisions and increased risk taking in those with food allergies and their caregivers.

There is a need for standardization of PAL to help consumers make informed food choices. Such a framework would unburden patients and caregivers in having to evaluate risk. However, until this is in place, it is critical that the physicians counsel families with food allergy on PAL. With the increase in misconceptions and variation in PAL purchasing, physicians should stress the importance of reading labels, emphasizing that manufacturers are required to label what the food contains but PAL is not required by law in both the United States and Canada and is not determined by the amount of allergen present. The presence of a PAL statement indicates that the food product has potentially come into contact with an allergen, but it is unknown whether the amount of allergen in that product is capable of inducing a reaction. By providing such anticipatory guidance, physicians can help patients and their families better understand their food choices so that they can make better-informed health decisions regarding the management of their food allergy.

Limitations of the study should be noted. All data were self-reported, which is subject to bias. Generalizability of these results to the broader North American context is also a concern because electronic survey respondents were recruited through consumer groups such as FARE and Food Allergy Canada and tend to be more educated and affluent than the general population. Both countries fielded the survey for only 2 weeks and in the United States fielded the survey only in English and in Canada only in French and English. In addition, the definition of “severe reaction” within the survey question included swelling of the lips alone or mild tongue swelling. Further breakdown of symptoms was limited by survey wording and thus the history of a severe reaction may have been overestimated.

CONCLUSIONS

Our data show that many misconceptions around PAL exist, thus influencing purchasing practices of consumers with food allergy in the United States and Canada. These misconceptions along with individual consumer characteristics such as severity and duration of food allergy, self or caregiver and type of food allergy, impact purchasing behavior. Consumer knowledge of laws surrounding PAL vary greatly. Canada has moved toward decreasing confusion surrounding PAL by recommending that manufacturers restrict wording to “may contain” labeling. However, it is unclear how this will translate to consumer behavior. Consumers need some understanding of risk when purchasing foods with PAL to limit making their own risk assessment on the basis of personal history and guesswork. Studies are currently underway to develop thresholds for individuals with food allergy and also for PAL.²¹ Until such measures are in place, physicians can help inform patients and their families about the laws and practices surrounding PAL and how best to purchase products for themselves or their child with food allergy.

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APPENDIX

GLOBAL SURVEY – CONSUMER PERSPECTIVE OF ALLERGEN THRESHOLDS

Dear survey participant,

Our organisation is a member of the Patient Organisation Committee of the European Academy of Allergy and Clinical Immunology (EAACI). EAACI is an association of clinicians, researchers and allied health professionals, dedicated to improving the health of people affected by allergic diseases.

We are seeking comments from the public on the emerging topic of food allergen threshold levels (i.e. the lowest amount of an allergen that causes an allergic reaction). We would also like to know more about community knowledge and opinion on this topic and appreciate your taking the time to tell us a bit more about your current approach to managing food allergies when it comes to selecting foods, your knowledge of thresholds, and related matters.

This survey is designed for people with food allergies, the family members with whom they reside, and caregivers who purchase food for people with food allergies (such as babysitters and extended family members). This survey is not designed for institutional caregivers, such as day care operators or school personnel.

While the information that you provide will remain anonymous, we may include aggregate data and quotes in presentations, reports, and other publications. Information from this survey will be useful when we discuss food labeling and allergen threshold levels with others such as the food industry, food scientists, clinicians and researchers, government regulators, and patient groups.

The survey should take about 7 to 10 minutes to complete and there will be an opportunity to offer comments at the end. Thank you for your time and participation.

About Yourself

I:

- ☐ Have food allergy(ies)
- ☐ Have a child with food allergy(ies)
- ☐ Have a partner/spouse with food allergy(ies)
- ☐ Have a relative with food allergy(ies)
- ☐ Care for someone who has food allergy(ies)

General Questions

This first set of questions is designed to learn more about your family and the history of food allergies in your family.

1. How many adults in your household have food allergies?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4

2. How many children (i.e. up to 18 yrs) in your household have food allergies?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ 5

3. Please select the foods you/your family member are allergic to. Check all that apply.

- ☐ Peanut
- ☐ Tree nuts/Nuts (eg. hazelnut, walnut, pine nut, almond, pistachio)
- ☐ Milk
- ☐ Eggs
- ☐ Fish
- ☐ Crustacean (e.g. lobster, crab, etc.)
- ☐ Shellfish (e.g. oysters, mollusks, etc.)
- ☐ Sesame
- ☐ Soy
- ☐ Wheat
- ☐ Mustard
- ☐ Celery
- ☐ Lupins
- ☐ Other (please specify): _____

4. The food allergy/ies in your family were diagnosed by (check all that apply):

Allergist/Family Physician/Pediatrician/Emergency Physician/
Dermatologist/Self-diagnosis/Other (specify): _____

5. How long ago was the diagnosis of the food allergy? If more than one family member is food allergic, how long ago was the first diagnosis of food allergy?

<1 year, 1-3 years, 4-9 years, 10+ years

6. Has anyone in your household ever experienced an allergic reaction to a food? (For the purposes of this question, please do not consider a positive skin test alone, without a reaction from the food, to be an allergic reaction.) [Yes/No]

7. Has anyone in your household ever experienced a severe food allergy reaction, such as anaphylaxis; difficulty breathing; a drop in blood pressure; swelling of the tongue, lips, face or throat; loss of consciousness; or shock? [Yes/No]

Questions about Food Selection

The second set of questions is designed to assess your decision making regarding the purchase of food, particularly food that is generally for purchase in a grocery store.

8. Do you purchase pre-assembled or processed food, such as crackers, cookies, mixes, breads, frozen entrees, canned goods, candy, waffles, cereals, etc.? [Yes/no]

9. How often would you purchase a product (intended for your family member who has food allergies) if the food label contained the phrases below. Please note that the word "Allergen" should be understood as the specific allergen(s) your family member with food allergies is allergic to.

a. "Contains <i>Allergen</i> "	☐ Never	☐ Sometimes	☐ Always
b. "Contains <i>Allergen</i> Ingredients"	☐ Never	☐ Sometimes	☐ Always
c. "May Contain <i>Allergen</i> "	☐ Never	☐ Sometimes	☐ Always
d. "May Contain Traces of <i>Allergen</i> "	☐ Never	☐ Sometimes	☐ Always
e. "Manufactured in a Facility that Also Processes <i>Allergen</i> "	☐ Never	☐ Sometimes	☐ Always
f. "Manufactured in a Facility that Also Uses <i>Allergen</i> "	☐ Never	☐ Sometimes	☐ Always
g. "Manufactured on the Same Equipment as Products Containing <i>Allergen</i> "	☐ Never	☐ Sometimes	☐ Always
h. "Manufactured on Shared Equipment with Products Containing <i>Allergen</i> "	☐ Never	☐ Sometimes	☐ Always
i. "Manufactured on a Line that Processes Products Containing <i>Allergen</i> "	☐ Never	☐ Sometimes	☐ Always
j. "Packaged in a Facility that Also Packages Products Containing <i>Allergen</i> "	☐ Never	☐ Sometimes	☐ Always
k. "Free From <i>Allergen</i> "	☐ Never	☐ Sometimes	☐ Always
l. " <i>Allergen</i> Free"	☐ Never	☐ Sometimes	☐ Always
m. "Good Manufacturing Practices Used to Segregate Ingredients in a Facility that also Processes <i>Allergen</i> "	☐ Never	☐ Sometimes	☐ Always
n. "Not suitable for <i>Allergen</i> (e.g. nut) allergy sufferers"	☐ Never	☐ Sometimes	☐ Always
o. "Certified for the absence of <i>Allergen</i> "	☐ Never	☐ Sometimes	☐ Always

Questions about Thresholds

The last group of questions is designed to assess your knowledge about food allergy thresholds and food labeling.

10. How knowledgeable do you think you are about allergen thresholds? [Multiple choice: Not knowledgeable; somewhat knowledgeable; very knowledgeable; expert]
11. Based on what you know about thresholds, how do you feel about them? [Essay with character limit]
12. Please answer the following questions to the best of your knowledge:
 - a. Current law requires that food labels identify the food source names of all major food allergens used to make the food. True/False/I don't know
 - b. Advisory labeling such as "may contain soy" or "this product is produced on equipment shared with tree nut products" is mandated by law. True/False/I don't know
 - c. Advisory labeling is not based on specific amounts of the allergen present in the foods True/False/I don't know
 - d. Scientific thresholds exist to determine how much food would cause an allergic reaction True/False/I don't know
13. Would you purchase a food that contains the allergen(s) you are avoiding if you could be assured that the amount of that allergen present in the food is not capable of triggering an allergic reaction? Yes/No/I don't know
14. Would you purchase a food that that contains the allergen(s) you are avoiding if you could be assured that the amount of that allergen present in the food is only capable of triggering a mild allergic reaction, such as tingly lips or an itchy throat? Yes/No/I don't know
15. Thank you for providing your feedback. Please include any additional comments below. [Essay. Character limit.]