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Food Allergy in Restaurants Work Group Report

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Individuals with food allergy are at risk for accidental exposures, potentially resulting in allergic reactions that may cause significant morbidity and mortality. Dining out, including restaurants or take-out, account for a large proportion of severe reactions. Errors due to gaps in knowledge or miscommunication can easily occur on behalf of food-allergic individuals or restaurant staff, resulting in accidental exposures and allergic reactions. Improved legislation, training of restaurant staff, and practitioner-guided education are recommended to reinforce patient safety and prevent severe allergic reactions. This Work Group Report provides guidance with specific practices that practitioners may recommend, and that patients and restaurant staff may employ, for prevention and treatment of food-allergic reactions in restaurants. © 2019 American Academy of Allergy, Asthma & Immunology (J Allergy Clin Immunol Pract 2020;8:70-4)

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Food allergy is an increasing problem in the United States, with a significant daily toll on patients' and families' quality of life.[1] Accidental exposure to food allergens can lead to significant morbidity and mortality,[2-4] with exposures in restaurants or take-out accounting for a large proportion of severe reactions.[3-8] Because of concern for accidental exposure, many food-allergic individuals avoid dining out altogether.[9,10]

The key players in preventing food-allergic reactions in restaurants include practitioners, patients, the restaurant industry, and government through legislation. Practitioners are often requested to provide anticipatory guidance to their patients regarding food allergy management in public places. Patients and restaurant staff should be well informed of the risk factors that can lead to an accidental exposure, and specific methods that may be employed to reduce risk. On a broader level, improved legislation for food allergy training in the restaurant industry would provide consistency across restaurant practices. This Work Group Report aims to provide a comprehensive review and assessment of the literature in this area and a detailed overview of specific practices that practitioners may recommend, and that patients and restaurant staff may employ, for prevention of food-allergic reactions in restaurants.

PREVALENCE

The prevalence of food reactions occurring in restaurants depends on the population queried, and has been estimated from

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Abbreviations used
FARE- Food Allergy Research and Education
FDA- Food and Drug Administration

13.7% in a peanut and tree-nut specific registry to 34% in a survey completed by parents of a food-allergic child.[3-8,10,11] In the latter, 36% had 3 or more reactions in restaurants, and of total reactions, 70% were to peanut and 64% to tree nuts.

Fatal food reactions occurring in restaurants have been reported, as well. In a registry of fatal reactions to foods, 18 of 63 (28%) fatalities occurred in association with foods from restaurants or other food establishments, with the majority from peanut or tree nut exposure.[3,4] In the United Kingdom, 16 of 48 (33%) of food-provoked fatal anaphylactic reactions occurred after ingesting food from a restaurant, take-out, or catering.[12]

RISK FACTORS FOR FOOD-ALLERGIC REACTIONS IN RESTAURANTS

There are many potential errors that can occur in the process of ordering, preparing, and delivering a meal, ultimately resulting in an adverse reaction. Examples of errors include failure to disclose or communicate the allergy,[13] cross-contact, inconsistent or incomplete food labeling, and hidden or undeclared allergens in specialty menus or mixed dishes.[9,11,14,15] Although an error could occur in any type of restaurant, Asian restaurants have been cited as high risk in several studies,[11,16,17] as well as Italian restaurants,[16] seafood restaurants,[18] and bakeries and ice cream shops.[11] Chain or franchise restaurants may be more likely to provide consistent food allergy training to managers and staff than independently owned restaurants.[19,20] Most errors can be fundamentally attributed to gaps in knowledge or miscommunication.[19,20]

Although surveys of restaurant staff report that many have confidence in their ability to provide a safe meal to a food-allergic individual, this is discrepant with significant gaps on food allergy knowledge assessments.[16,17,21-23] For example, in a 2007 US survey that included 100 individuals in 100 various restaurant establishments, food allergy training was reported by 42%, with 72% of employees feeling "very" or "somewhat" comfortable for providing a safe meal, 70% for "guaranteeing" a safe meal, and 47% for managing a food allergy emergency. In terms of knowledge, however, 24% indicated that consuming a small amount of allergen would be safe, 35% believed that fryer heat would destroy allergens, 54% considered a buffet safe if kept "clean," and 25% thought that removing an allergen from a finished meal was safe.[22] A 2011 survey in the United Kingdom found similar gaps between self-perception and knowledge: 81% reported confidence in providing a safe meal to a food-allergic individual, yet 38% believed that drinking water during a reaction would dilute the allergen, 23% thought that consuming a small amount of allergen was safe, 21% reported that allergen removal from a finished meal was safe, 16% agreed that cooking food prevents it from causing allergy, and 12% were unaware that allergy could cause death.[16] Similar data revealing knowledge gaps have been reproduced in other UK and European surveys.[17,23] Unfortunately, there has not been much improvement in the United States over the last decade: a 2015 study questionnaire of 229 restaurant staff in a large city found that the majority of participants could only name 0 or 1 preventive measure, and few knew how to respond to anaphylaxis by administering epinephrine and calling 9-1-1.[21] Although a 2014 survey by the Centers for Disease Control's Environmental Health Specialists Network did show some improvement in restaurant staff knowledge of basic facts, 10% still believed that a person with a food allergy can safely consume a small amount of that allergen, and there was lower confidence in the restaurant's ability to properly respond to a food allergy emergency.[24,25]

Lack of food allergy training in the restaurant industry can explain these knowledge gaps; in a 2014 survey, fewer than half of 277 restaurant managers (44.4%), 211 food workers (40.8%), and 156 servers (33.3%) reported receiving food allergy training.[25] Among those who reported receiving training, topics commonly included the major food allergens and what to do if a customer has a food allergy. Many restaurants had ingredient lists for some menu items, but few had separate equipment or areas designated for preparation of allergen-free food. About one-fourth of surveyed managers reported having no ingredient lists or recipes for menu items.[25]

Some studies have suggested that managers of chain or franchise restaurants are more likely to receive food allergy training than managers from independent restaurants.[19,20,26] However, whether other restaurant employees receive training is likely even less consistent.[19,20] Restaurant-identified barriers for providing adequate training for staff include time constraints,[27] a fast-paced working environment, a negative attitude among food preparers (ie, refusal to modify secret recipes or responsibility should rely solely on customer),[22,26] high cost of training, high labor-turnover rate, and lack of interest in implementing food allergy training.[20] In addition, multiple languages spoken among restaurant staff may contribute to miscommunication and difficulty in implementing food allergy training.

Food-allergic customers may have gaps in their understanding of food allergy, resulting in potential errors, as well. A survey of 125 registrants from the National Seafood Allergy Registry reported that it was common (61%) for people with a prior reaction to reorder seafood. Reasons given for doing so included that the allergy was not clearly diagnosed or attributed to a different category of seafood, and curiosity about persistence. Restaurants were rarely (19%) notified about reactions.[18] In fact, many food allergy reactions have occurred in restaurants because customers failed to inform restaurant staff about their food allergies,[18-20] believing that the foods they were eating were safe.[2] Another important reason why food-allergic individuals do not communicate their food allergies with restaurant service staff is that they wish to avoid potential social embarrassment.[9]

CURRENT LEGISLATION

Over the last decade, the United States federal government has passed several laws and regulations to protect individuals with food allergies. In 2004, the Food Allergen Labeling and Consumer Protection Act mandated that food manufacturers indicate any of the 8 major allergens on food labels. However, this Act does not apply to the restaurant industry. The restaurant industry is directly addressed by The Food Code, a summary of the US Food and Drug Administration's (FDA) best practices for the safety of food sold in food service and certain retail establishments.[28-30] The FDA Food Code has many different iterations (from 1995 through 2017), with food allergy provisions first addressed in 2009. The Food Code states that restaurants should have a person in charge

TABLE I. Summary of considerations for the restaurant industry to improve safety for food-allergic patrons

Communication	• Ask all patrons whether there are any food allergies to be aware of
	• Clear communication with patron and chef is of utmost importance
Knowledge	• Consider training on food allergy and emergency preparedness in the restaurant setting for all restaurant staff
	• Training would ideally be repeated and reinforced regularly
	• Understand that food-allergic reactions can occur through minimal cross-contact of allergen
	• Use effective cleaning methods to remove potential food allergens
	• Understand signs and symptoms of anaphylaxis, and how to respond
Safe practices	• Consider designating a special area in kitchen for preparing allergen-free meals
	• Consider a separate pickup area for allergen-free meals
	• Consider dedicated, color-coded equipment for allergen-free meals
	• Consider creating menus with clear ingredient lists and update accordingly
	• Consider computer technology to help filter menu depending on food item, or to create food allergy alerts

during all hours of operation who has knowledge about major food allergens, methods to prevent cross-contact of allergens, and symptoms of food allergy reactions. Furthermore, the person in charge should ensure that all employees are likewise trained in food safety issues, as related to their assigned duties, although there is no specific advice on how to ensure proper and effective training. Individual states must adopt the Food Code, and the status of adoption by state can vary. As of December 31, 2016, only 37 states have adopted either the 2009 or 2013 Food Code.[28,29,31] In terms of state-level legislation, as of August 25, 2017, only 6 states (Massachusetts, Maryland, Michigan, Rhode Island, Virginia, and most recently, Illinois) have additional legislation specifically addressing awareness and safety of food-allergic individuals in restaurants.[32-34]

CONSIDERATIONS FOR THE RESTAURANT INDUSTRY

There are many restaurant staff involved in food preparation and service, and an error resulting in a food-allergic reaction can occur at any point in the process. Therefore, although managers should be well trained on food allergy and emergency preparedness, this instruction would ideally extend to all restaurant personnel. Errors are less likely to occur if changes are standardized to affect the daily process of food preparation, rather than only when a food-allergic individual is present. The National Academy of Sciences Committee on Food Allergy recommends that food industry leaders incorporate guidance and resources for food allergy training into existing food safety and customer service training.[35]

Restaurant training on preventing a food-allergic reaction could focus on several key points. Understanding how cross-contact of allergen occurs and methods for avoiding cross-contact would be important concepts to review. Cross-contact can easily occur through the reuse of cooking equipment, and contamination by garnishing bars, hands, and gloves. To minimize cross-contact, certain areas in the kitchen could be designated for preparing allergen-free meals. A separate pickup area for allergen-free meals may prevent problems such as delivering the wrong dish, adding inappropriate garnishes, or cross-contact through unclean hands, reused trays, or splashed food. In kitchens with adequate space, restaurant management might consider investing in dedicated equipment for allergenic ingredients, which are color coded for quick identification. In addition, using a specific fryer for only 1 type of food might prevent cross-contact from residual protein in the oil.

Another important concept to address during training would be the implementation of effective cleaning and sanitizing methods consistent with the Food Code. Personnel could be trained on conventional cleaning methods in the area where the allergen-free dish will be prepared.[11,25] For example, after handling allergenic ingredients, personnel should ideally change gloves or wash hands with liquid soap, bar soap, or commercial wipes; water alone or antibacterial hand sanitizer is inadequate for allergen removal.[36]

As miscommunication is a common source of error, it would be helpful to review with restaurant personnel a clear process for communicating the person's food allergy from the server to the food preparer. Ideally, communicating the allergy to the chef should occur directly from the server or the manager. Again, such changes are likely more effective when made to the daily process, rather than only when a concern for food allergy arises. For example, servers might routinely ask whether there are any food allergies that the chef should be aware of. Making such a question standard practice creates the opportunity for food-allergic individuals to communicate without embarrassment and ensures a clear line of communication. Menus could also include a statement encouraging customers to notify servers about their food allergies. Furthermore, menus might specify all ingredients in listed foods, including "specials," and would ideally be kept accurate and up-to-date. In restaurants where the menu changes frequently, an alternative might be to have a designated section of staple dishes with listed ingredients that are always available. Other ways of augmenting and standardizing communication of the allergy could be explored as well, such as investing in a computer system for entering orders that allows alerts to be entered, or specific filtering of the menu depending on food item.

Frequent training may be needed to reinforce concepts including identifying anaphylaxis and an emergency preparedness plan, especially given the increasing number of food allergic customers, and the high employee turnover in the restaurant industry.[20] Accessibility of training is also important to ensure success: a pilot evaluation of a 1-hour off-site training event for restaurant staff was found to be helpful, but had poor attendance.[37] Online courses are another option for restaurant staff with varying schedules. The Servsafe Allergens Online Course, designed by the Food Allergy

TABLE II. Summary of considerations for counseling food-allergic patrons on dining safely in restaurants

Communication	• Consider notifying the restaurant in advance of the food allergy
	• Involving the manager in the order may be helpful
	• Consider requesting that the table surface is cleaned with soap and water or commercial wipes
	• Consider providing written instructions about allergy for restaurant staff, such as a "chef card" or "allergy card" (www.foodallergy.org)
	• Communicate with restaurant staff that trace amounts of allergen can cause a reaction
	• Notify co-diners of food allergy
Knowledge	• Nut-allergic patients should understand that certain food establishments more commonly serve nuts, such as Asian restaurants, bakeries, and ice cream shops
	• Seafood-allergic patients should consider avoiding or take extra care when obtaining food from seafood restaurants
	• Cross-contact is common in buffets where effective cleaning is difficult
	• Simple dishes with clearly identified ingredients are safer than dishes with mixed ingredients
	• Allergic ingredients may not always be visible
	• If a mistake is made, patients should attempt to keep the dish at the table until a new dish without allergen is delivered
	• When possible, patients should avoid sharing plates with other co-diners
Preparedness	• Patients should consider dining at off-peak hours
	• Developing a written Anaphylaxis Emergency Care Plan is helpful for patients in times of emergency
	• Two epinephrine autoinjectors should be prescribed in case anaphylaxis occurs

Research and Education (FARE) and the National Restaurant Association, is one available method for educating restaurant staff about food allergies.[38] Visual methods for reinforcing information, such as posters with educational information for restaurant staff, may also be considered. Table I provides a summary of considerations for the restaurant industry to improve safety for patrons with food allergies.

CONSIDERATIONS FOR PRACITITIONERS

Practitioners should ideally provide guidance to food-allergic patients about dining out as part of routine education. A summary of strategies that a practitioner could discuss with their patients is shown in Table II. Patients with newly diagnosed food allergy may not be aware of the risks associated with dining at restaurants, or how to properly advocate for themselves. For younger patients, parents will oversee the responsibility of communicating the food allergy. However, this responsibility should be gradually transferred to the child at an appropriate age, so that the child may gain confidence and accuracy in discussing the food allergy.

First, patients should consider calling the restaurant in advance, to alert them of their food allergy, and to see if the staff and chef would be comfortable serving them. Patients should be educated that certain types of restaurants, such as Asian restaurants, bakeries, and ice cream shops have been shown to be higher risk, especially for those with nut allergies.[11]

Once at the restaurant, patients should ideally communicate clearly to restaurant staff regarding their food allergies. Also, although verbal communication is important, errors can occur when passing along the message between staff. Therefore, it could be helpful to carry written instructions, such as an "allergy card" or "chef card" that the server can bring directly to the chef. FARE provides a free template for a "chef card" in multiple languages, as well as other educational materials such as information about dining at restaurants while traveling abroad, on their website, www.foodallergy.org. When possible, patients should request that the manager or supervisor be involved in their order. Patients can further help decrease a potential error by educating restaurant staff that even trace amounts of the food allergen can trigger a reaction and that cross-contact of equipment must be avoided. Patients should consider requesting that their table surface is well cleaned with soap and water, or commercial wipes. For younger patients, high chairs could also be wiped clean.

Practitioners may counsel patients that the allergenic ingredient may not always be clearly visible. Although oral exposure to the allergen is of primary concern for a severe reaction, patients should be cautious of cross-contact and inhalational triggers, as well (eg, steam from a seafood soup for a patient with a seafood allergy). Therefore, when ordering food, the patient should consider choosing simple dishes, without sauces or multiple mixed ingredients, and be aware of foods that their co-diners at the table are eating. Ingredients listed on the menu are not always accurate or up-to-date. It would be prudent to avoid buffets, and for peanut or tree nut allergic patients, baked desserts and ice creams have been shown to be riskier food items. Once food arrives to the table, patients should consider verifying with the server again that the food allergy was communicated to the chef. If an obvious mistake has been made, it would be better for patients to keep the dish at the table until a newly prepared one arrives, so that staff do not simply scrape off the allergen and re-serve the same plate. Other safe practices to consider include dining out at off-peak restaurant hours, so there is less chance of errors with busy wait staff, and not sharing plates with other patrons.

Furthermore, being prepared in the case of an accidental ingestion of allergen is of utmost importance. Practitioners should strongly encourage patients to carry 2 epinephrine autoinjectors, and reinforce that this emergency medication is best carried with them at all times. Practitioners should educate patients on how to manage allergic reactions and indications for treatment, which can be formulated into an Anaphylaxis Emergency Care Plan. Patients can follow the Anaphylaxis Emergency Care Plan to appropriately treat anaphylaxis with the epinephrine autoinjector, even if the source of the allergen is unclear.

FUTURE DIRECTIONS

Food-allergic individuals must exercise caution when dining at restaurants, for errors can easily occur, resulting in an adverse

reaction. To improve their safety and experience, patients should learn to advocate for themselves, and food allergy training would ideally occur on a consistent basis for restaurant employees. Improved legislation at the federal and state level that incorporates food allergy training, such as a food safety certification program, and requires reporting of allergic reactions to local boards of health, would result in increased awareness of the problem, and a safer environment.[35] Patients should ideally alert restaurant management if a reaction has occurred, so that the problem is brought to their attention, and corrective measures are considered. Future research might explore where errors are most likely to occur in the food ordering and delivery process, and whether implementation of certain systems, such as computer based for restaurant staff communication, and training based to increase knowledge, might decrease the incidence of food allergy reactions.

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