FDA Approaches to Food Allergens

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The slides presented here represent the most current thinking on issues related to food allergy by the Center for Food Safety and Applied Nutrition, FDA. These slides are intended for use among FDA staff in order to communicate information on the epidemiology of food allergy, recalls of FDA regulated food products due to undeclared allergens, and the Food Allergen Labeling and Consumer Protection Act (FALCPA). Slides from this template should be deleted as necessary in order to provide a presentation fitting the information and time constraints required of a particular presentation. These slides should not be altered or changed unless first discussed with CFSAN/FDA.

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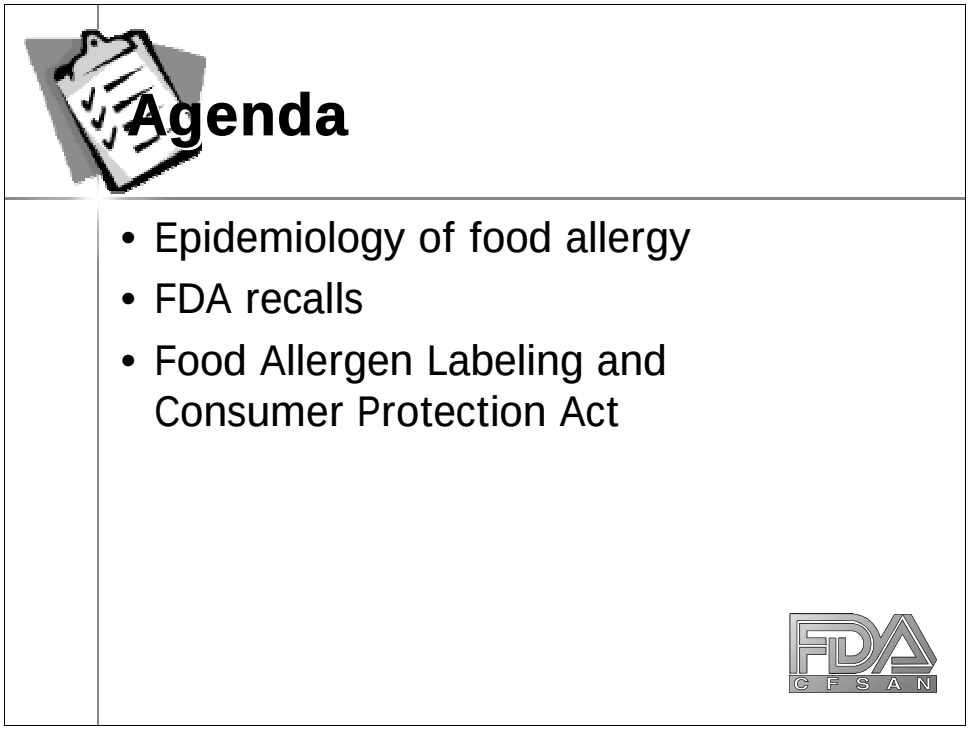


The information presented here includes:

1. Epidemiology of food allergy, including prevalence rates for US adults and children
2. Recalls due to undeclared allergens between 1999 and 2002, including type of product recalled, type of allergen involved, reason that contributed to recall and the entity that first discovered the problem with the product.
3. Food Allergen Labeling and Consumer Protection Act (FALCPA), including the new labeling requirements, types of ingredients included under FALCPA, information to be reported to Congress and an update on the latest activities related to CFSAN's implementation of FALCPA

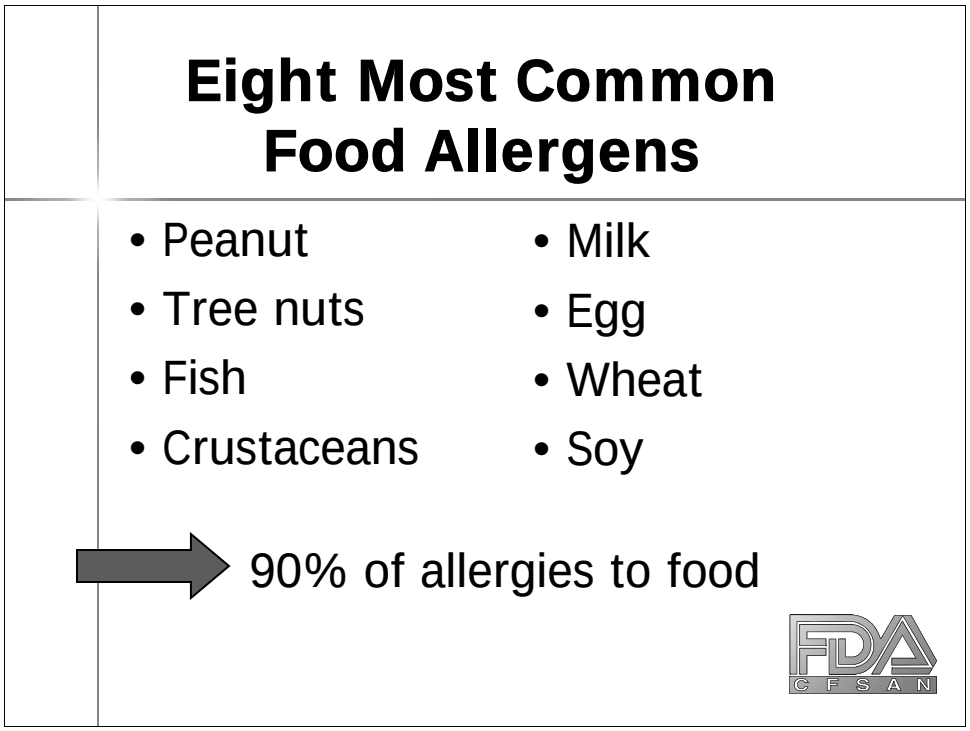
Food Allergy

- An IgE-mediated immunologic reaction to a food
- No cure – avoidance of allergenic food
- Factors – genetics, age of initial exposure, dose and frequency of exposure, development of immunologic tolerance

•Food allergy is an IgE-mediated immunologic response to protein in a food.

•There is no cure for food allergy. A food allergic individual must avoid the offending food by vigilant reading of and reliance on ingredient statements on food packages.

•Several factors are believed to contribute to food allergy in an individual, including genetics, age of initial exposure, dose and frequency of exposure, and development of immunologic tolerance.



•There are hundreds of foods to which some persons are sensitive.

•However, eight foods account for 90% of allergies to food in the U.S. These are commonly referred to as the eight most common food allergens: peanut, tree nuts, fin fish, crustacean shellfish (e.g., shrimp, lobster, crab), cow's milk, egg, wheat, and soy.

Epidemiology - Children

Allergen	Age	Prevalence
All	< 3 years	6%
Milk	Young	2.5%
Egg	Young	1.3%
Peanut	< 5 years	0.8%
Peanut	< 18 years	0.8%
Tree nuts	< 5 years	0.1%
Tree nuts	< 18 years	0.2%
Fish	< 5 years	0%
Fish	< 18 years	0.2%
Shellfish	< 5 years	0.1%
Shellfish	< 18 years	0.5%

•The prevalence of food allergy in children 3 years of age and younger has been estimated as 6.0%.

•Allergy to milk and egg are most common among children with prevalence rates of 2.5% and 1.3% respectively.

•The prevalence of peanut allergy in young children is estimated to be the same as in older children. This is due to the fact that peanut allergy is seldom outgrown and often is carried into adulthood.

•Prevalence to fish and shellfish allergies is low among young children; generally speaking, exposure to these foods usually occurs later in childhood and in the next slide we will see how the prevalence to these foods is much greater among adults.

Epidemiology - Adults

Allergen	Age	Prevalence
All	> 18 years	4%
Milk	> 18 years	0.3%
Egg	> 18 years	0.2%
Peanut	> 18 years	0.6%
Tree nuts	> 18 years	0.5%
Fish	> 18 years	0.5%
Shellfish	> 18 years	2.5%

Sources: Sampson HA. Update on food allergy. JACI 2004; 113(5):805-819.
Sicherer SH et al. Prevalence of peanut and tree nut allergy in the US determined by means of a random digit dial telephone survey: A 5-year follow-up study. JACI 2003; 112(6):1203-1207.
Sicherer SH et al. Prevalence of seafood allergy in the US determined by a random telephone survey. JACI 2004; 114(1):159-165.

•The prevalence of food allergy among adults is estimated to be about 4%. A recent study found that fish and shellfish* (including crustacean shellfish and molluscan shellfish) allergies among adults is greater than was previously thought. Therefore the overall prevalence of food allergy among adults was revised to be about 4% from 1.5%.

***** Shellfish: a broad term that refers to all aquatic animals that have a shell. This includes both crustaceans and mollusks.

Crustacean shellfish: shrimp, crayfish, lobster, and crabs

Mulluscan shellfish: oysters, clams, mussels, scallops, abalone, conch, snails, squid and octopus

Clinical Manifestations

- Gastrointestinal
  - Vomiting, colic, diarrhea, tingling/swelling of mouth and lips
- Respiratory
  - Cough, asthma, tightness in throat, trouble breathing, rhinitis
- Cutaneous
  - Atopic dermatitis, swelling of the skin, hives

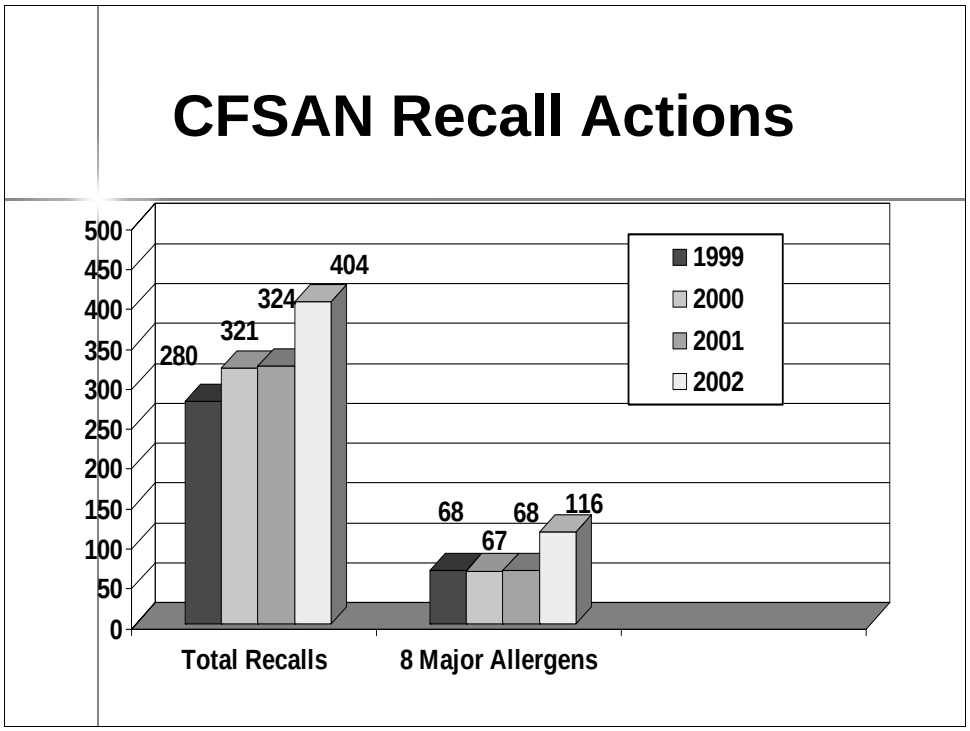
Adverse responses to food can include gastrointestinal, respiratory, and cutaneous reactions. Itching of the mouth and lips, hives on the body, tightness of the throat and difficulty breathing are just some of the responses that can occur.

Clinical Manifestations

- Anaphylaxis
  - Systemic reaction; generalized shock
  - Not rare: 29,000 ER visits per year
    150-200 deaths per year
    * Trace amounts of allergenic protein can trigger a reaction

The most severe type of reaction that can occur is anaphylaxis. It is estimated that 29,000 ER visits per year and 150-200 deaths per year occur due to food allergy. These are likely underestimates however since coding of hospital visits and death are not consistent and not always coded for food allergy. CFSAN is currently working with physicians and other health care professionals to improve coding of food allergy.

Even trace amounts of allergenic protein in a food can trigger a reaction in some food allergic individuals. Ingesting a small amount of the offending food can trigger any of these reactions.



•A recall is a firm's voluntary removal or correction of a marketed product that FDA considers to be in violation of the laws it administers. Recalls do not include a market withdrawal or a stock recovery.

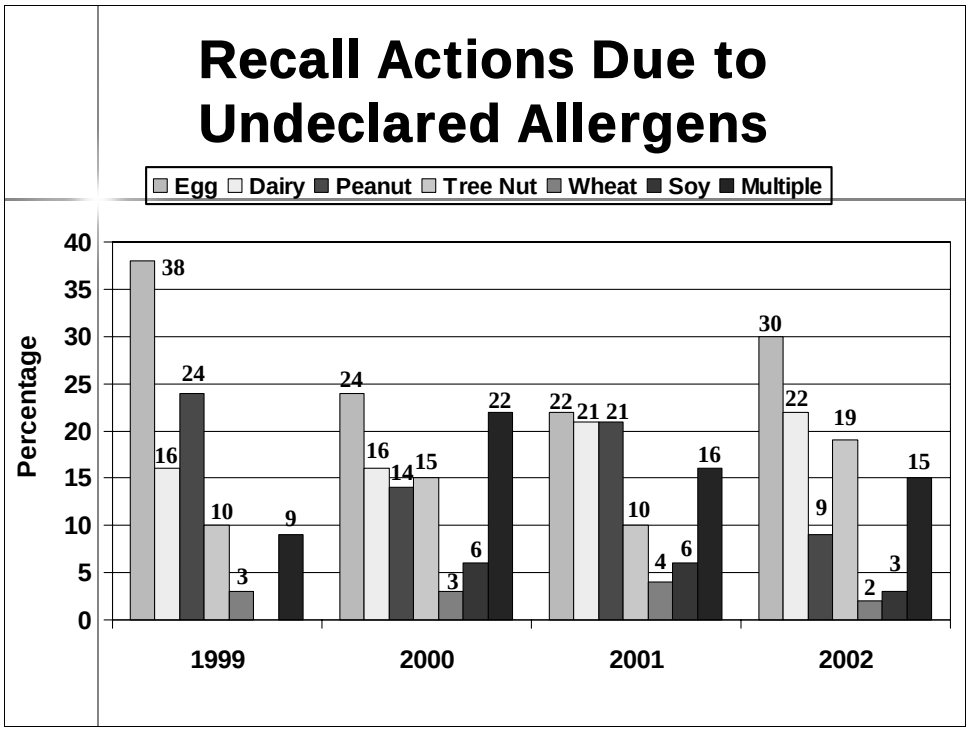
•Recall actions* of FDA-regulated food products for any reason have increased steadily between 1999 and 2002.

•Recall actions due to undeclared allergens (8 most common allergens only), remained steady between 1999 and 2001. In 2002, recall actions nearly doubled, rising from 68 to 116.

•Possible reasons for this increase could be increased awareness of food allergy among consumers and manufacturers and increased attention from FDA inspectors to issues related to food allergy in manufacturing plants.

*Definitions

Recall action: the regulatory events surrounding a recall involving one or more products from a single firm. One recall action, therefore, may involve one or more different products being recalled from a single firm. Some data in this presentation are by recall action and some by recalled product.



Looking at recall actions by type of allergen*, recalls due to undeclared egg had the greatest percentage of recalls each year.

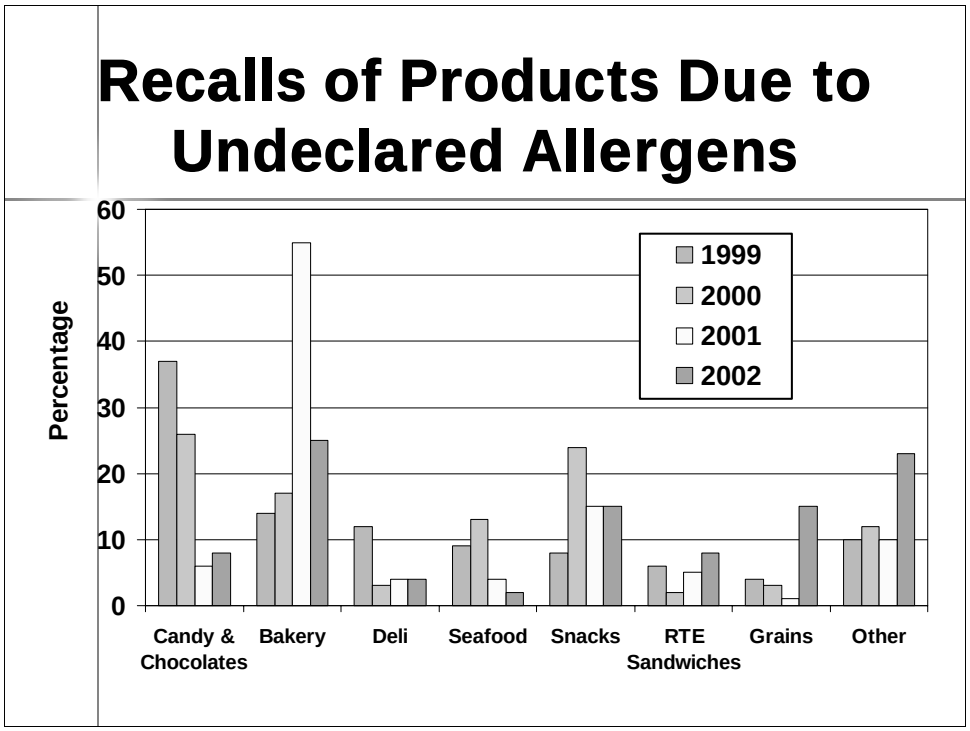
In addition:

•Recalls due to undeclared milk/dairy increased from 16% in 1999 to 22% in 2002

•Recalls due to undeclared peanut decreased from 24% in 1999 to 9% in 2002. This reduction may be due to manufacturers becoming more aware of the severity of peanut allergy. More awareness by manufacturers could be leading to greater efforts to reduce or eliminate cross-contact between peanut and non-peanut containing products.

•No recalls between 1999 and 2002 were due solely to undeclared fish or crustacean shellfish. However, some of the recalls due to multiple types of allergens did include fish and crustacean shellfish ingredients.

* Multiple: recalls due to multiple types of undeclared allergenic ingredients (for example, undeclared egg and crab).

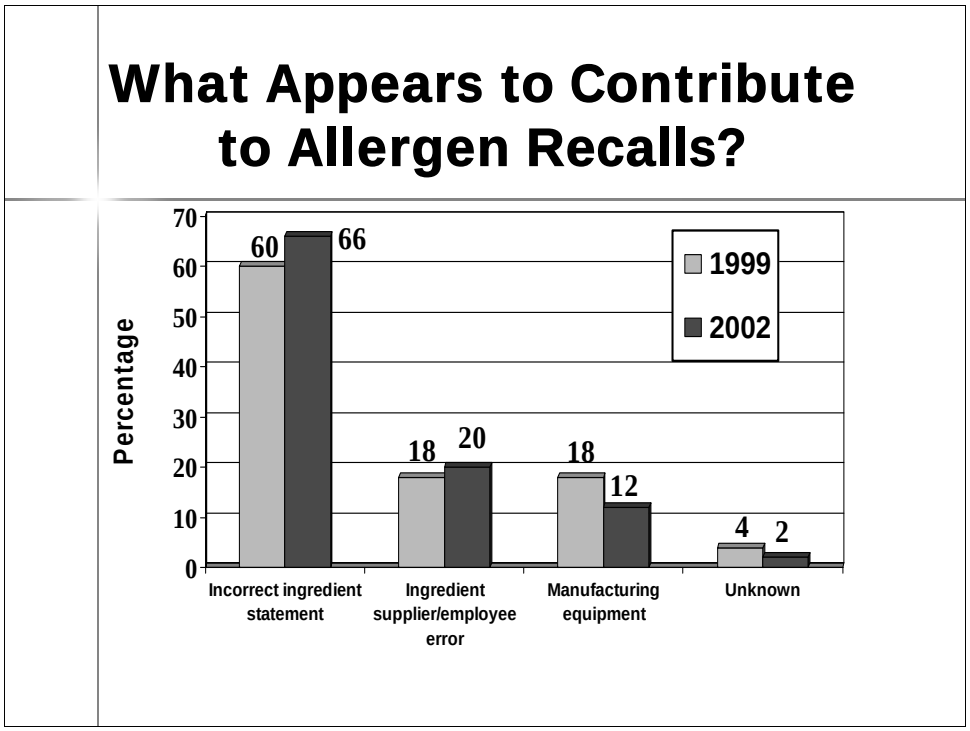


In order to understand the foods involved in recalls due to undeclared allergens, FDA categorized the recalls by type of product/industry.

•Candy & chocolates and bakery products had the most recalls due to undeclared allergens between 1999 and 2002. This is not surprising since these products typically include many of the eight most common allergens as ingredients.

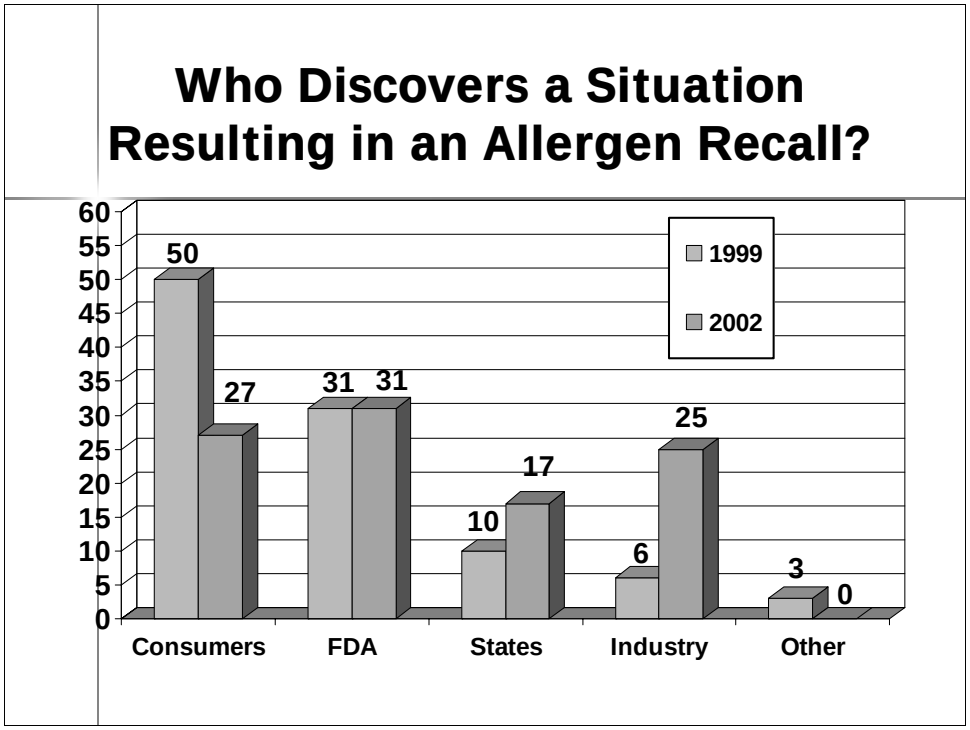
•Bakery products experienced a particularly large number of recalls in 2001; this was due to one recall action at a firm with many types of products. Therefore this apparently large increase is not indicative of the bakery industry overall. However, there was still a steady increase between 1999 and 2002 in recalls of bakery products.

•Difficult to make any conclusions from this slide; more years of data need to be looked at to see a trend.



Recalls due to undeclared allergens can be better understood when the reason for the recall is known. When reviewing the recalls, 3 major reasons for recall were most common:

1. Incorrect ingredient statements: Ingredient statement omissions and errors (defined as ingredient statements or labels that contained an incorrect list of ingredients). Examples of such omissions and errors included situations where the presence of the allergen was simply omitted from the ingredient list or where an ingredient statement translated from another language failed to list the allergen.
2. Ingredient supplier/employee error: Errors by ingredient suppliers or manufacturing firm employees. Examples here included (1) instances in which packaging for a non-allergen containing product was used to package a product containing allergens and (2) one in which a supplier provided the wrong ingredients for a product and failed to alert the manufacturer of the presence of an allergen.
3. Manufacturing equipment: manufacturing equipment cross-contact from one run to the next. An example of such a recalled product that occurred during the period reviewed involved yogurt-covered raisins that unintentionally came into contact with yogurt-covered peanuts as a result of a failure to adequately clean the manufacturing equipment used to produce the two different products.



In 1999 consumers first discovered a problem with a product in 50% of recalls due to undeclared allergens. However, by 2002 only 27% of the recalls due to undeclared allergens were first discovered by consumers.

•This decrease was balanced by an increase from 6% to 25% of such problems being first discovered by industry. This shift from consumer to industry is beneficial from a public health standpoint – products with problems due to undeclared allergens are being caught before the product reaches the consumer. This helps decrease the number of potential adverse reactions that could occur. As the food industry becomes more aware of food allergens, problems are able to be caught earlier.

•Inspections by FDA have been helpful in discovering products with undeclared allergens. In addition, state inspections have increasingly found products with undeclared allergens.

Food Allergen Labeling and Consumer Protection Act

- Public Law 108-282
- Signed by President Bush: 8/2/2004
- Labeling requirement effective: 1/01/2006
- Amends the Federal Food, Drug, and Cosmetic Act
- Requires label to disclose certain allergenic ingredients

In response to the public health implications of individuals with food allergies, Congress enacted the Food Allergen Labeling and Consumer Protection Act (FALCPA) into law in August, 2004.

•FALCPA requires labels of packaged food products to disclose certain allergenic ingredients.

•This labeling requirement applies to foods that are labeled on or after January 1, 2006.

Major Food Allergens Included in FALPCA

- Milk
- Egg
- Wheat
- Fish (e.g., bass, flounder, cod)
- Crustacean shellfish (e.g., crab, shrimp)
- Soybeans
- Peanuts
- Tree Nuts (e.g., almonds, pecans, walnuts)

The eight most common food allergens are included in FALCPA. They are referred to in the law as “major allergens.”

In addition, FALCPA requires that the ingredient statement specify the species of fish or crustacean shellfish, and the type of tree nut used in or as an ingredient.

Ingredients Subject to Law

- Eight major food allergens
- A food ingredient that contains protein derived from a major food allergen
- Includes incidental additives, flavors
- Exceptions:
  - Any highly refined oil derived from a major food allergen
  - Food ingredient exempt from labeling under a petition or notification process specified in law

FALCPA applies to the following ingredients:

- The eight most common food allergens
- A food ingredient that contains protein derived from any of the eight major food allergens
- Incidental additives
- Processing aids
- Flavors and colors

FALCPA outlines a few exemptions from the law.

1. Any highly refined oil derived from a major food allergen, including any ingredient derived from a highly refined oil.
2. Food ingredients deemed exempt from labeling under a petition or notification process that is specified in the law. Guidance for filing a petition or notification is currently being developed.

Two Ways to Label Products Containing Major Food Allergens

1. Within the statement of ingredients:

   the common or usual name of the major food allergen immediately followed parenthetically by the name of the food source

Examples:

...whey (milk)

...natural flavors (peanut,almond)

The law outlines 2 ways to label the products. A food's label must adhere to one of the two approaches and cannot be a combination of the two.

1. Within the statement of ingredients, the food allergen source can be listed in parentheses immediately after the common or usual name for the ingredient.

For example: If 'whey' is an ingredient '(milk)' can be listed immediately following 'whey'

Two Ways to Label Products Containing Major Food Allergens

2. Separate statement:

   the word ‘Contains’ followed by the name of the food source from which the major food allergen is derived, printed immediately after or adjacent to the list of ingredients

   Example:

   Contains: egg, milk, and soy

The 2nd option is to provide a separate statement immediately following or adjacent to the ingredient statement. The separate statement must start with the word ‘Contains’ with a capital letter ‘C.’

Not Required When:

- a major food allergen's common or usual name already identifies its food source
  - Whole wheat flour, buttermilk, peanut butter
- the name of the major food allergen appears elsewhere in the ingredient list

The 2 labeling options are not required when:

1. A major food allergen's common or usual name already identifies its food source. For example, if peanut butter is already listed as an ingredient then including "peanut" in parentheses after the ingredient is not required.
2. Additionally, if the name of the major food allergen appears elsewhere in the ingredient statement it does not need to be listed again. For example if 'casein' and 'non-fat dried milk' are both ingredients in the product, then '(milk)' would not have to be placed in parentheses after 'casein' since its allergen (milk) is already identified by the declaration of 'non-fat dried milk.'

Exemption Processes

- Two ways a food ingredient containing protein from a “major food allergen” may be exempt from the labeling requirement
  - Petition process & notification process
- Result: the ingredient is not subject to labeling requirements of 403(w)
- All must be posted to a public site (http://www.cfsan.fda.gov/~dms/falnoti.html)

Any person may request that the Secretary of Health and Human Services exempt a food ingredient from FALCPA’s allergen labeling requirements.

FALCPA provides two different processes for a person to request that a food ingredient be exempt: a petition process and a notification process.

If FDA grants the petition or does not object to the notification, the ingredient in question is not subject to the labeling requirements of 403(w).

All petitions and all notifications (and the responses or objections to them) must be posted to a public site (FDA’s website at http://www.cfsan.fda.gov/~dms/falnoti.html) within 14 days of submission/issue.

The petition process and the notification process differ in three important ways: the process itself (petition vs. notification), the legal standard for exemption, and the timetable.

Exemption Standard -- Petition Process

- Petitioner must provide scientific evidence (including an analytical method) that demonstrates that the ingredient "does not cause an allergic response that poses a risk to human health"

In the petition process, a petitioner must provide scientific evidence (including the analytical method used to produce the evidence) that demonstrates that such food ingredient, as derived by the method specified in the petition, **does not cause an allergic response that poses a risk to human health**.

FDA has 180 days to deny the petition, a period that may be extended by mutual agreement between the petitioner and FDA. Even if FDA does not act within the 180 day period, the petition is deemed denied and the ingredient is not exempt from the labeling requirements. The petitioner may subsequently sue FDA.

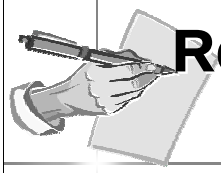
Exemption Standard – Notification Process

- Notification must contain scientific evidence (including an analytical method) that demonstrates the ingredient "does not contain allergenic protein" OR
- Notification may rely on an FDA determination under the food additive approval process

In the notification process, the notifier must include scientific evidence (including the analytical method used) that demonstrates that the food ingredient (as derived by the method specified in the notification) **does not contain allergenic protein.**

Alternatively, the notification may rely on an FDA determination made in the food additive approval process under section 409 that the ingredient does not cause a an allergic response that poses a risk to human health.

FDA has 90 days to object to a notification. Absent an objection, the ingredient is exempt from the labeling requirements of 403(w).



Report on Food Allergens
Due February 2006

- Ways in which foods are unintentionally contaminated during manufacturing and processing
- Ways in which foods produced on dedicated lines are unintentionally contaminated
- Estimates how common these practices are, with breakdowns by food type
- Can GMPs reduce/eliminate cross contact

FALCPA also requires FDA to develop a report in response to questions from Congress. This report is due February 1, 2006. Currently CFSAN has several work groups addressing a variety of food allergen topics related to the inquiries from Congress. Specifically, Congress wants to know about:

•Cross-contact, including the ways foods are unintentionally contaminated during manufacturing and the ways in which foods produced on dedicated lines are unintentionally contaminated

•How common products are unintentionally contaminated by food type

•Whether good manufacturing practices can reduce or eliminate cross contact

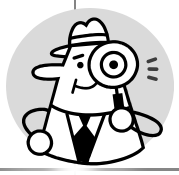
Report on Food Allergens
Due February 2006

- Describe types of advisory labeling ("may contain" labeling)
- Manufacturing conditions of foods associated with advisory labeling
- Extent to which advisory labeling is used
- Describe how food allergic consumers would like cross-contact information communicated on labels
- Inspections conducted, violations, recalls

While FALCPA does not address "may contain" labeling (advisory labeling), Congress has several questions related to the issue:

- A description of the different types of advisory labeling and the manufacturing conditions associated with the use of advisory labeling
- The extent to which advisory labeling is being used
- A description of how food allergic consumers would best like cross-contact information communicated to them on labels

In addition Congress has asked about the number of inspections conducted for food allergens, the types of violations found, and recalls conducted.



Inspections Relating to Food Allergens

- Evaluate whether firms are complying with practices to reduce or eliminate cross-contact
- Ensure that major food allergens are properly labeled

FALCPA also specifies that inspections relating to food allergens be conducted. These inspections will be done during a regular inspection; it is not anticipated that additional inspections specifically for food allergens will be conducted. Inspections should assess whether firms are complying with practices to reduce or eliminate cross contact and should ensure that products are properly labeled.

Gluten Labeling

- Within 2 years – issue proposed rule to define and permit the use of the term “gluten free”
- Within 4 years – issue final rule on “gluten free” labeling

FDA is also working on issuing a proposed rule and final rule on the use of the term “gluten free.”

Currently, this is the only regulation being planned with regards to FALCPA. FDA intends to issue guidance for other aspects of the law.

FDA hosted a public meeting on gluten free labeling of foods on August 19, 2005. A transcript of this public meeting is posted on the CFSAN website under Food Allergens.

Data on Food-Related Allergic Responses

- CDC in consultation with FDA to collect and publish national data on:
  - Prevalence of food allergies
  - Incidence of clinically significant/serious adverse events
  - Use of different modes of treatment for and prevention of allergic responses to foods

FALCPA also requests FDA to work with CDC to collect data on the prevalence of food allergies, the incidence of serious adverse reactions and the use of different treatments for the prevention of allergic responses to food.

Additional Items

- Evaluate current research – NIH panel of experts to review current efforts and recommend/coordinate research
- Food establishments – provide guidelines for allergen-free foods via the Food Code

Finally, in accordance with FALCPA, NIH is to convene a panel of experts to review, recommend and coordinate research efforts for food allergy. In addition, FDA is to work with states in providing guidelines for allergen-free foods in food establishments. This is to be accomplished through the Conference for Food Protection and the model Food Code.

The latest edition of the model Food Code has been updated with a definition of a food allergen and a provision specifying that a person in charge of a food establishment have an understanding of food allergens and the associated symptoms.

Allergen Thresholds

Situation:

It is possible for foods to have residual levels of allergenic proteins.

Scientific Question:

Can we define a level below which there will not be an allergic response?

Regulatory Result: (e.g., threshold exists)

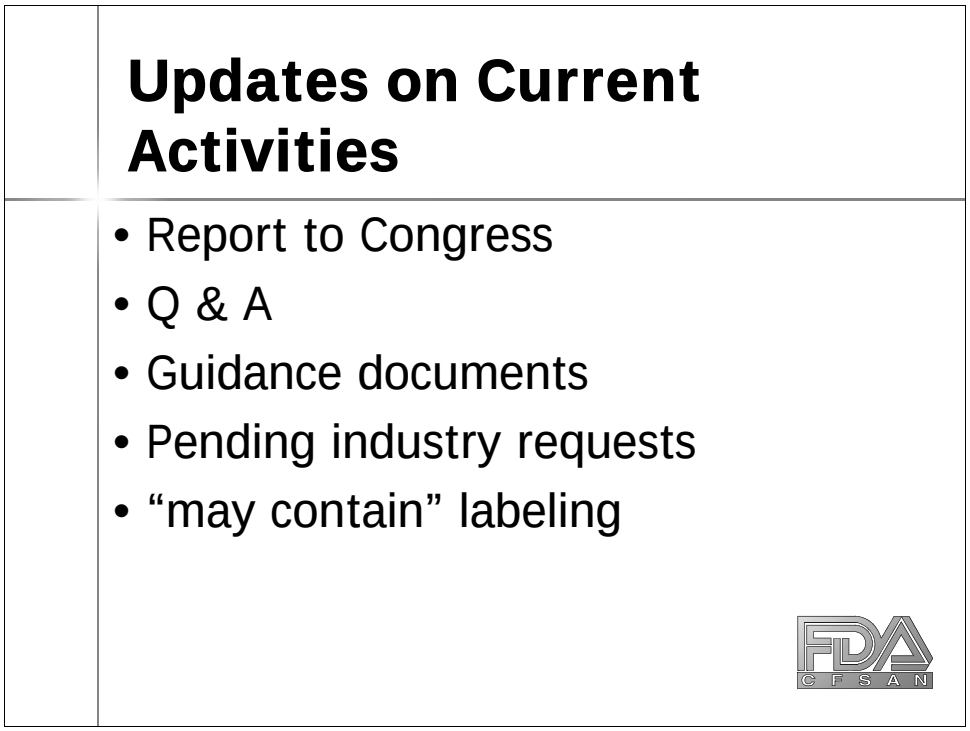
Food could be exempted from labeling

Right now CFSAN has a working group dedicated to the issue of allergen thresholds and this group has reviewed the existing science.

Recently, FDA issued a draft report on approaches to establishing thresholds and held a Food Advisory Committee meeting on thresholds in July, 2005. This report is currently on the CFSAN website and the report is also being revised to include input from the Food Advisory Committee and public comments.

FDA is aware of the possibility that foods may have residual levels of allergenic proteins present. FDA's scientific question is "Can we define a level below which there will not be an allergic response?" Currently there are no clear threshold levels; oral food challenge study protocols remain under scrutiny and scientific opinions on thresholds are not unified. As clinical studies and data on the minimal eliciting dose for the various food allergens become available approaches to establishing thresholds will be re-evaluated.

While FALCPA does not require FDA to establish thresholds, thresholds may be useful to the agency in evaluating requests for exemption of a food ingredient from FALCPA labeling.



Updates on current food allergen activities:

1. Report to Congress: CFSAN is currently drafting the report to Congress, which is due February 1, 2006. Data from inspections, recalls and consumer studies are contributing to the report.
2. A Question and Answers document on food allergens has recently been posted to the CFSAN website. This document addresses FDA’s current thinking on food allergy topics.
3. Guidance documents: FDA is aware that there are several issues in FALCPA that are not self evident (for example, the petition and notification process). FDA is currently drafting guidance to address these issues.
4. CFSAN is also reviewing pending industry requests regarding soy lecithin, fish gelatin and certain infant formulas.
5. “May contain” labeling is not addressed in FALCPA outside of the inquiry from Congress. FDA maintains that “may contain” labeling is voluntary and should not be used in lieu of good manufacturing practices. In addition, “may contain” labeling must be truthful and not misleading.

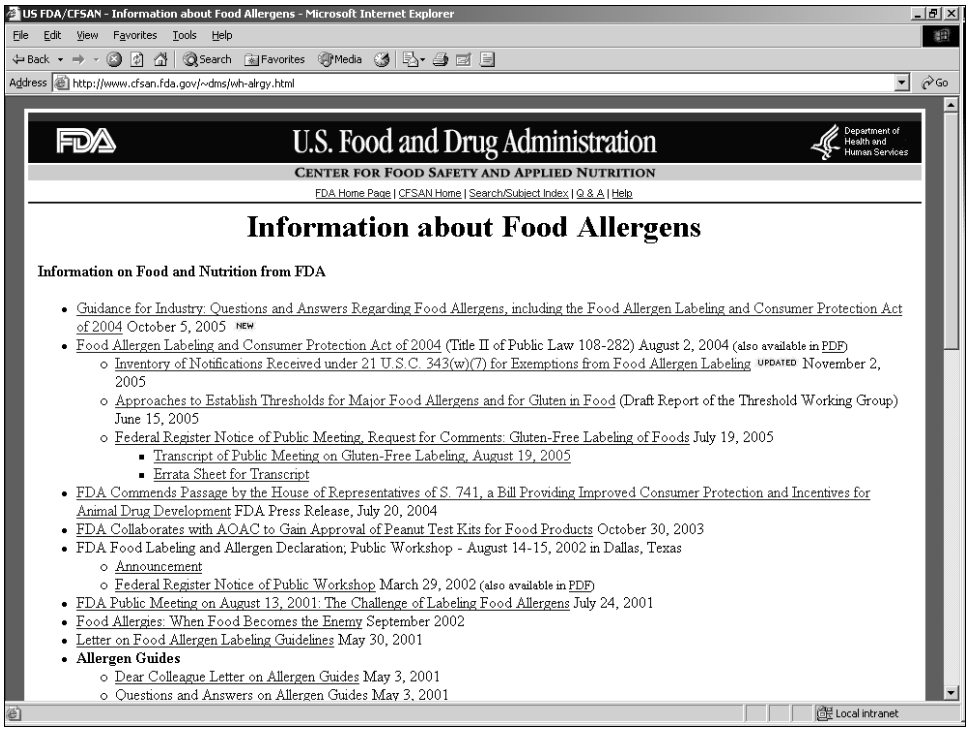
The Future for Food Allergens

- Allergic reactions will continue to be an FDA concern
- Expect more evaluations of analytical methods
- Continue to explore the issue of threshold
- Continue consumer and industry outreach
- Increase awareness of allergens at the retail and the restaurant levels

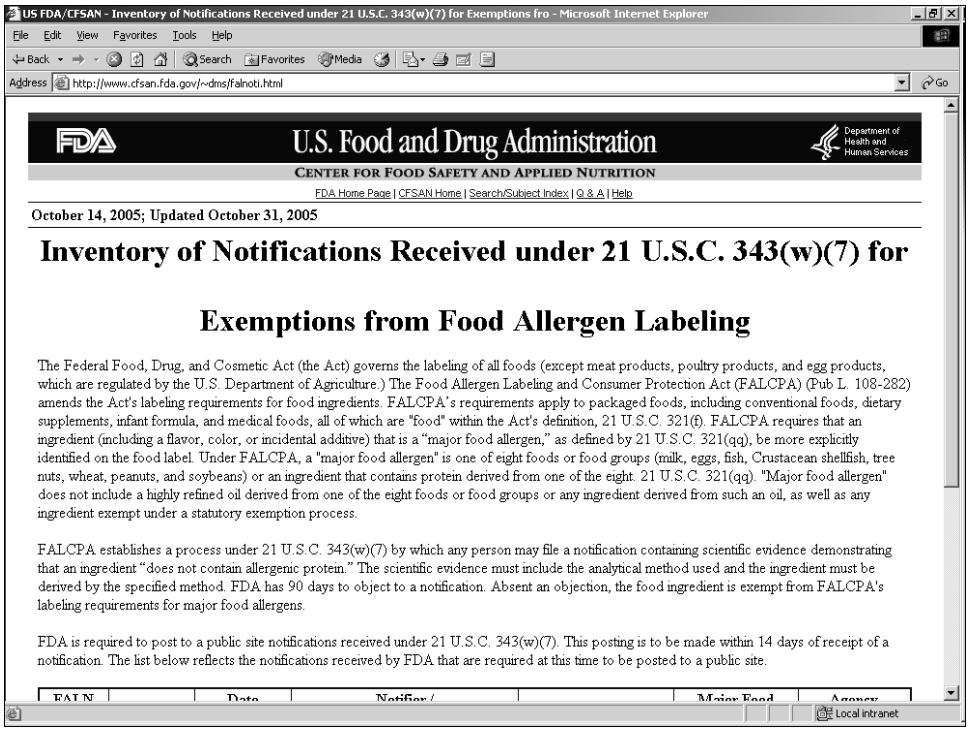
Food allergens and allergic reactions will continue to be an FDA concern. CFSAN anticipates evaluations on egg, milk, and wheat analytical test kits and other methods in the future.

The issue of thresholds for allergens will continue to be explored and scientifically assessed by CFSAN.

Finally, FDA plans on continuing outreach and education efforts to consumers, industry and retail establishments.



The information mentioned in this presentation may be found at the www.cfsan.fda.gov.



You will also be able to view a listing of notifications and petitions received by FDA for exemption from food allergen labeling.

http://www.cfsan.fda.gov/~dms/falnoti.html

Please keep checking the website as information will continue to be updated and posted.

Thank you.