MANAGEMENT OF FOOD ALLERGIES

Federal Bureau of Prisons

Clinical Guidance

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WHAT'S NEW IN THIS DOCUMENT?

Several updates have been made since the September 2012 version of this document, including the following:

- The order of the Appendices has been changed somewhat. Please see the *Table of Contents* on the next page.
- Pharmacologic management of anaphylactic food allergies should focus on the use of epinephrine, usually via an auto-injector that is on the inmate's person at all times. Epinephrine auto-injectors are processed as a pill-line item. Inmates will present the device at pill line at least once daily to verify that the seal is intact and has not been manipulated.
- The current *Appendix 3*, *Emergency Treatment of Anaphylaxis (Outpatient),* replaces the former *Appendix 5, Pharmacological Treatment of Anaphylaxis*. The table has been updated to include more specific information about repeating epinephrine injections, as well as revisions to the information about additional and optional therapies.
- Consultation with a Central Office Dietitian is emphasized when developing Special Diets for food allergies, including patient education and counseling services. For inmates at Medical Referral Centers (MRCs), a consultation should be placed to an MRC staff registered dietitian. For all other institutions, a dietitian consultation should be placed in BEMR and a Central Office registered dietitian should be contacted.
- The algorithms for patients *with* and *without* suspected food-induced anaphylaxis (see *Appendix 4* and *Appendix 5*) have been modified to highlight the need for referral to a Central Office Registered Dietitian for:
  - Individuals with multiple food allergies
  - Patients in special housing units
  - Patients on a Certified Diet
  - Institutions that offer the High Rise or Controlled Movement versions of the National Menu
- Fruit exchange options have been substantially expanded since 2012. This version of the guidance refers simply to "fruit," rather than enumerating all the options.
- Internal and external hyperlinks have been updated.
- The format of the document has been updated for improved readability.

TABLE OF CONTENTS

1. PURPOSE

The Federal Bureau of Prisons (BOP) Clinical Guidance for the *Management of Food Allergies* provide recommendations for the diagnosis and management of federal inmates with suspected food allergies.

2. FOOD ALLERGY OVERVIEW

FOOD ALLERGY VS. FOOD INTOLERANCE

Food allergy has no basic universally accepted definition. The National Institutes of Health (NIH) defines food allergy as "an adverse immune response that occurs *reproducibly* on exposure to a given food and is distinct from other adverse responses to food, such as food intolerance, pharmacologic reactions, and toxin-mediated reactions." However, in published articles on food allergy, definitions frequently vary, thereby confounding the recommendations on diagnosing and managing patients with food allergies. Nevertheless, the distinction between a **food allergy** with an allergic response and **food intolerance**, such as the inability to digest the sugar lactose, is clinically relevant.

➔ *See the General Definitions section in this guidance, as well as Appendix 1, Definitions of Specific Food-Induced Allergic Conditions.*

PREVALENCE OF FOOD ALLERGIES

The prevalence of food allergies is poorly defined, and estimates range from 0.2–3.5% in the general population. Estimates of peanut allergy prevalence range from 0.3–0.9%.

Although childhood food allergies tend to wane with aging, a subset of these patients will have food allergies that persist into adulthood. Furthermore, some adults develop allergies *de novo* from sensitization to food allergens encountered after childhood.

IGE-MEDIATED AND NON-IGE-MEDIATED FOOD ALLERGIC REACTIONS

The distinction between IgE-mediated reactions and non-IgE-mediated reactions to food allergens is clinically important.

- **IgE-mediated food allergic reactions** are rapid in onset, typically beginning within minutes to two hours from the time of ingestion. Presentations include circulatory collapse, dyspnea, wheezing, stridor, angioedema, oropharyngeal symptoms, and urticarial rash. The most common foods associated with anaphylaxis are peanuts, tree nuts, and crustacean shellfish; however, milk and eggs can also induce IgE-mediated allergic responses.
- **Non-IgE-mediated reactions** are much more subacute or chronic and are usually isolated to the gastrointestinal tract and/or skin.

DIAGNOSIS

➔ *There are no well-accepted criteria for diagnosing food allergies. However, certain diagnostics tests are NOT recommended for evaluating food allergies: intradermal allergen testing, total serum IgE quantification, and atopy patch testing.*

Skin prick tests and serum food-specific IgE assays are potentially valuable diagnostic tests for food allergies; however, neither one is superior to the other, and both are considered nonconfirmatory of a specific food allergy—thus limiting their diagnostic efficacy.

- **Skin prick testing** for a given food allergy is not very specific diagnostically, as patients with a positive test still have a 40% chance of being able to eat the food in question without difficulty.
- **Food-specific IgE assays** (commonly known as **RAST** tests) are sensitive tests diagnostically, but also are not very specific. If negative, the specific food allergy is unlikely. If positive, the patient still may not have a true food allergy. These tests are most useful for confirming the diagnosis of a suspected specific food allergy.

  ➔ ***In the BOP**, the primary role for RAST testing is to confirm allergy to milk, wheat, or baked egg in inmates with a history of anaphylaxis. IgE assays to a panel of potential antigens are usually not helpful or indicated—except possibly when ruling out claims of multiple food allergens—and should only be ordered in consultation with the Central Office Registered Dietitian.*

The gold standard for diagnosing a food allergy is a placebo-controlled oral food challenge. However, this testing requires specialized personnel, time, expense, and the risk of anaphylaxis, thereby limiting the use of this diagnostic test in the community, let alone within the correctional setting. **Therefore, in evaluating BOP inmates for food allergies, the focus should be on identifying inmates at risk for anaphylaxis:** providing them epinephrine, if indicated, and pursuing diagnostic testing on a very limited basis, primarily for those with questionable IgE-mediated food allergies. The vast majority of inmates with food allergies, those with non-IgE-mediated allergies, should be provided education on targeted food selection.

Within the BOP, a diagnosis of a food allergy should NOT be confirmed and documented as a patient's health problem unless:

1. The food allergy was previously diagnosed by an outside medical provider and documented in the patient's medical records.
2. The patient was diagnosed while in BOP custody, using standards indicated in this guidance, including:
   - A thorough assessment has been conducted with the use of *Appendix 6*, *BOP Food Allergy Questionnaire,* and the patient has been identified as having a history of reproducible food allergy-related symptoms upon exposure to an identified allergen.
   - The specific food allergen has been positively confirmed with RAST testing, as outlined in *Appendix 4*, *Algorithm for Patients with Suspected Food-Induced Anaphylaxis*, or *Appendix 5*, *Algorithm for Patients Without History of Suspected Food-Induced Anaphylaxis*.

TREATMENT

Elimination diets are the mainstay of therapy for patients with food allergies, although the effectiveness of this strategy is poorly studied. Immunotherapy for food allergies is unproven and not recommended. Pharmacologic management of anaphylactic food allergies should focus on the use of epinephrine, usually via an auto-injector that is on the inmate's person at all times.

3. FOOD ALLERGY ASSESSMENT

MEDICAL HISTORY

The medical history should focus on:

- Any past history of food allergy evaluations.
- Anaphylactic episodes (including emergency room visits, hospitalizations, and prescriptions for hand-carried epinephrine).
- History of poor outcomes from anaphylaxis therapy related to the use of beta-blocker or ACE inhibitor therapy.
- History of asthma (particularly poorly controlled) or coronary artery disease.
- The timing and descriptions of symptoms relative to ingestion of specific foods, e.g., wheezing, voice change related to laryngeal edema, urticaria, or rashes.
- The association of allergic symptoms with exercise or other complementary factors such as the use of aspirin, nonsteroidal anti-inflammatory drugs (NSAIDs), or alcohol.
- A history of asthma, dysphagia, or eosinophilic esophagitis.
- A personal or family history of atopic dermatitis.

➔ *Clinicians should familiarize themselves with Appendix 1, which outlines the wide range of specific food-induced allergic conditions that may be diagnostically relevant. Key questions for evaluating food allergies are outlined in Appendix 6, BOP Food Allergy Questionnaire.*

PHYSICAL EXAM

The physical exam should include:

- Vital signs
- Pulse oximetry
- Weight measurement
- Auscultation of the lungs, HEENT, CV
- Thorough examination of the skin for signs of atopic dermatitis

Other examinations should be conducted to evaluate for other co-morbidities that are indicated by the patient's medical history.

ASSESSMENT

An assessment should be made as to whether or not anaphylactic food allergy is a concern, based on the inmate's medical history of IgE-mediated allergic episodes and the specific offending food allergens.

➔ *See the diagnostic criteria and related information outlined in Appendix 2, Diagnostic Criteria for Anaphylaxis.*

4. EVALUATION AND MANAGEMENT OF POTENTIAL ANAPHYLACTIC FOOD ALLERGIES

Inmates with suspected anaphylactic food allergies should be evaluated and managed in accordance with the stepwise approach outlined in *Appendix 4*, *Algorithm for Patients with Suspected Food-Induced Anaphylaxis*.

Inmates who have bona fide medical history of anaphylactic food allergies (e.g., history of hospitalization or EpiPen™ prescriptions) should be:

- Prescribed an epinephrine auto-injector to be carried by the inmate at all times. Epinephrine auto-injectors are processed as a pill-line item. Inmates will present the device at pill line at least once daily to verify that the seal is intact and has not been manipulated. (See the BOP National Formulary, Part 1.)
- Given a copy of the *Inmate Factsheet: An Overview of Food Allergies*, which offers information on potential anaphylactic symptoms and the use of self-administered epinephrine.
- Provided appropriate information on food selections, such as that in the *Inmate Fact Sheet: Food Avoidance and Self-Selection from the BOP National Menu*.
- Given information on reading food labels, as available at the Food Allergy Research & Education (FARE) website.
  - General information on "How to Read Food Labels": *https://www.foodallergy.org/life-with-food-allergies/living-well-everyday/how-to-read-food-labels*.
  - Printable handout, "Tips for Avoiding Your Allergen": *https://www.foodallergy.org/sites/default/files/migrated-files/file/tips-avoid-allergen.pdf*.

➔ *Inmate Factsheets are available in Appendix 7. Guidance for health care providers on the prevention and treatment of anaphylaxis is outlined in Appendix 3, Emergency Treatment of Anaphylaxis (Outpatient).*

5. EVALUATION & MANAGEMENT OF POTENTIAL NON-ANAPHYLACTIC FOOD ALLERGIES

Inmates with suspected non-IgE-mediated food allergies should be evaluated and managed in accordance with the stepwise approach shown in *Appendix 5*, *Algorithm for Patients Without History of Suspected Food-Induced Anaphylaxis.* The algorithm outlines how patients with suspected food allergies must be managed for various allergens: fruit, baked egg, wheat, milk, another individual food, or multiple foods.

Clinicians should also be aware of the potential association of certain diseases and syndromes with non-IgE-mediated food allergies, as outlined in *Appendix 1*, *Definitions of Specific Food-Induced Allergic Conditions*. Inmates diagnosed with lactose intolerance should be given a copy of the *Inmate Fact Sheet: Lactose Intolerance*, available in *Appendix 7*.

6. DIET ORDERS

MEDICAL DIET ORDERS/SELF-SELECTION

Diet orders for food allergies are to be offered only when medically necessary—and not for food intolerance or preference. In all cases when a diet order is being considered, the first option should be the inmate's simple avoidance of the item, with guidance provided by the *Inmate Fact Sheet: Food Avoidance and Self-Selection from the BOP National Menu*, available in *Appendix 7*.

For all individual food allergies except fruit, baked egg, wheat, or milk, the inmate may simply avoid the item or self-select the no-flesh option or heart-healthy alternative option. In accordance with the BOP *Guidelines for Medical Diets*, medical diets that will be provided through self-selection may be ordered by any mid-level practitioner (MLP), clinical director (CD), staff physician, staff psychiatrist, or staff dentist.

SPECIAL DIET ORDERS

A Special Diet should not be considered for allergic avoidance, unless:

- The food allergy is reported for fruit.
- The individual has a confirmed diagnosis of allergy to baked egg, wheat, or milk, or a confirmed diagnosis of multiple-food allergies.

In accordance with the Program Statement PS6031.01, Patient Care:

- Special Diets will be prescribed *only* by the CD or by a staff physician, staff psychiatrist, or staff dentist.
- MLPs at Medical Referral Centers (MRCs) may prescribe a Special Diet, but it must be countersigned by the primary physician.

All Medical and Special Diets related to food allergies must be:

- Documented in the patient's medical record.
- Furnished in writing via e-mail to the Food Service Administrator (FSA).
- Rewritten annually or more often if indicated.

7. DIETITIAN REFERRAL

For individuals at Medical Referral Centers (MRCs), if a Special Diet for a food allergy is ordered, a consultation should be placed to an MRC staff registered dietitian. For all other institutions, if a Special Diet for a food allergy is ordered, a dietitian consultation should be placed in BEMR and a Central Office registered dietitian should be contacted.

The registered dietitian will work with the institution FSA to ensure that appropriate precautions are taken with regard to elimination of causative foods, preparation of meals, and (if needed) appropriate dietary substitutions to the National Menu to maintain nutritional adequacy.

8. NUTRITION EDUCATION

If indicated, nutrition education will be provided to assist patients in their ability to:

- Define the allergen-free nutrition prescription.
- List common foods that contain the allergen.
- List foods that are allowed in the allergen-free prescribed diet.
- List nutrient-dense alternative foods that do not contain allergens.
- Read a food label and be able to identify hidden sources of allergens.
- Understand the risk involved in packaged foods with precautionary labeling.
- Identify problem-solving avoidance skills.
- Describe symptoms of a food-induced allergic reaction, and what should be done during a reaction.

➔ *A standardized patient handout on reading food labels and understanding hidden sources of major food allergens is available at: https://www.foodallergy.org/sites/default/files/migrated-files/file/tips-avoid-allergen.pdf.*

If local medical staff would like assistance in providing patients with nutrition education or in counseling patients with diagnosed food allergies, a dietitian consultation should be placed in BEMR, and a Central Office Registered Dietitian can be contacted for assistance. Guidelines for follow-up nutrition monitoring and evaluation of adherence to diet and avoidance will be provided as needed per the discretion of the referring provider.

9. SATELLITE FEEDING

If inmates in satellite service areas are not provided the opportunity to select a tray without identified or diagnosed allergens, the FSA should work with a Central Office registered dietitian to develop procedures that ensure that inmates with Medical and Special Diet orders receive the proper diet.

10. WORK AND HOUSING DETAIL

Consideration should be given on a case-by-case basis to providing alternative food-handling accommodations on work assignments for inmates with food allergies. Consideration of housing detail should also be given on a case-by-case basis to reduce the potential for inadvertent exposure to the food allergen.

GENERAL DEFINITIONS

FOOD ALLERGENS are specific components of food, or ingredients within food, that are recognized by allergen-specific immune cells and elicit specific immunologic reactions, resulting in characteristic symptoms.

FOOD ALLERGY is an adverse health effect arising from a specific immune response that occurs reproducibly on exposure to a given food.

➔ *See also Appendix 1, Definitions of Specific Food-Induced Allergic Conditions.*

FOOD INTOLERANCE occurs with foods or food components that elicit reproducible adverse reactions, but do not have established or likely immunologic mechanisms.

LACTOSE INTOLERANCE is the onset of gastrointestinal symptoms (diarrhea, abdominal pain, flatulence, and/or bloating) following a blinded, single-dose challenge of ingested lactose by an individual with lactose malabsorption, which is not observed when the person ingests an indistinguishable placebo.

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APPENDIX 1: DEFINITIONS OF SPECIFIC FOOD-INDUCED ALLERGIC CONDITIONS

A number of specific clinical syndromes that may occur as a result of food allergy are defined below.

Source: Guidelines for the Diagnosis and Management of Food Allergy in the United States: Report of the NIAID-Sponsored Expert Panel. (See *References* section for full citation.)

FOOD-INDUCED ANAPHYLAXIS

Food-induced anaphylaxis is a serious allergic reaction that is rapid in onset and may cause death. Typically, IgE-mediated food-induced anaphylaxis is believed to involve systemic mediator release from sensitized mast cells and basophils. In some cases, such as food-dependent, exercise-induced anaphylaxis, the ability to induce reactions depends on the temporal association between food consumption and exercise, usually within two hours.

GASTROINTESTINAL FOOD ALLERGIES

Gastrointestinal food allergies include a spectrum of disorders that result from adverse immunologic responses to dietary antigens. Although significant overlap may exist between these conditions, several specific syndromes have been defined as follows:

Immediate GI hypersensitivity refers to an IgE-mediated food allergy in which upper GI symptoms may occur within minutes, and lower GI symptoms may occur either immediately or with a delay of up to several hours. This is commonly seen as a manifestation of anaphylaxis. Among the GI conditions, acute, immediate vomiting is the most common reaction and the one that is best documented as immunologic and IgE mediated.

Eosinophilic esophagitis (EoE) involves localized eosinophilic inflammation of the esophagus. In some patients, avoidance of specific foods will result in normalization of histopathology. Although EoE is commonly associated with the presence of food-specific IgE, the precise causal role of the food allergy in its etiology is not well defined. Both IgE- and non-IgE-mediated mechanisms appear to be involved. In adults, EoE most often presents with dysphagia and esophageal food impactions.

Eosinophilic gastroenteritis (EG) also is both IgE- and non- IgE-mediated and is commonly linked to food allergy. EG describes a constellation of symptoms that vary depending on the portion of the GI tract involved and a pathologic infiltration of the GI tract by eosinophils, which may be localized or widespread. EoE is a common manifestation of EG.

Oral allergy syndrome (OAS), also referred to as pollen-associated food allergy syndrome, is a form of localized IgE mediated allergy, usually to raw fruits or vegetables, with symptoms confined to the lips, mouth, and throat. OAS most commonly affects patients who are allergic to certain pollens. Symptoms include itching of the lips, tongue, roof of the mouth, and throat—with or without swelling, and/or tingling of the lips, tongue, roof of the mouth, and throat, or anaphylaxis. Isolated oral allergy syndrome (not systemic or GI symptoms) is the most common presentation and in >95% of patients is not associated with the later development of anaphylactic reactions. Patients should generally not be given epinephrine auto-injectors.

A number of specific clinical syndromes that may occur as a result of food allergy are defined below.

Source: Guidelines for the Diagnosis and Management of Food Allergy in the United States: Report of the NIAID-Sponsored Expert Panel. (See *References* section for full citation.)

CUTANEOUS REACTIONS

Cutaneous reactions to foods are some of the most common presentations of food allergy and include IgE-mediated (urticaria, angioedema, flushing, pruritus), cell-mediated (contact dermatitis, dermatitis herpetiformis), and mixed IgE- and cell-mediated (atopic dermatitis) reactions, as follows:

Acute urticaria is a common manifestation of IgE-mediated food allergy, although food allergy is not the most common cause of acute urticaria and is rarely a cause of chronic urticaria. Lesions develop rapidly after ingesting the problem food and appear as polymorphic, round, or irregular-shaped pruritic wheals, ranging in size from a few millimeters to several centimeters.

Angioedema most often occurs in combination with urticaria and, if food-induced, is typically IgE-mediated. It is characterized by nonpitting, nonpruritic, well-defined edematous swelling that involves subcutaneous tissues (for example, face, hands, buttocks, and genitals), abdominal organs, or the upper airway.

- *When the upper airway is involved, laryngeal angioedema is a medical emergency requiring prompt assessment. Both acute angioedema and urticaria are common features of anaphylaxis.*

Atopic dermatitis (AD), also known as atopic eczema, is linked to a complex interaction between skin barrier dysfunction and environmental factors such as irritants, microbes, and allergens. Null mutations of the skin barrier protein filaggrin may increase the risk for transcutaneous allergen sensitization and the development of food allergy in subjects with AD. Although the Expert Panel does not mean to imply that AD results from food allergy, the role of food allergy in the pathogenesis and severity of this condition remains controversial. In some sensitized patients, particularly infants and young children, food allergens can induce urticarial lesions, itching, and eczematous flares, all of which may aggravate AD.

Allergic contact dermatitis (ACD) is a form of eczema caused by cell-mediated allergic reactions to chemical haptens that are additives to foods or occur naturally in foods, such as mango. Clinical features include marked pruritus, erythema, papules, vesicles, and edema. Contact urticaria can be either immunologic (IgE-mediated reactions to proteins) or non-immunologic (caused by direct histamine release).

RESPIRATORY MANIFESTATIONS

Respiratory manifestations of IgE-mediated food allergies occur frequently during systemic allergic reactions and are an important indicator of severe anaphylaxis. However, food allergy is an uncommon cause of isolated respiratory symptoms, namely those of rhinitis and asthma.

APPENDIX 2: DIAGNOSTIC CRITERIA FOR ANAPHYLAXIS

DIAGNOSIS

The presence of <u>any</u> <u>one</u> of these criteria, occurring over minutes to two hours after exposure, indicates that anaphylaxis is highly likely:

1. Acute onset of an illness involving skin, mucosal tissue, or both (i.e., generalized hives, pruritus or flushing, swollen lips-tongue-uvula), ***and*** at least one of the following:

- Respiratory compromise (i.e., dyspnea, wheeze-bronchospasm, stridor, reduced peak expiratory flow rate, hypoxemia).
- Reduced blood pressure (BP) or associated symptoms of end-organ dysfunction (i.e., hypotonia [circulatory collapse], syncope, incontinence).

OR

2. ***Two or more*** of the following that occur rapidly after exposure to a likely allergen for that patient:

- Involvement of the skin-mucosal tissue (i.e., generalized hives, itch-flush, swollen lips-tongue-uvula).
- Respiratory compromise (i.e., dyspnea, wheeze, bronchospasm, stridor, reduced peak expiratory flow rate, hypoxemia).
- Reduced BP or associated symptoms of end-organ dysfunction (i.e., hypotonia, syncope, incontinence).
- Persistent GI symptoms (i.e., crampy abdominal pain, vomiting).

OR

3. Reduced BP after exposure to a known allergen for that patient. In adults, this is defined as:

- a systolic BP of less than 90 mm Hg.

or

- > 30% decrease from that person's baseline.

SIGNS AND SYMPTOMS OF ANAPHYLAXIS

Usually, anaphylaxis involves more than one organ system, which helps distinguish it from other acute reactions such as asthma exacerbations, respiratory symptoms, urticaria/angioedema, or GI symptoms. In general, the signs and symptoms for anaphylaxis are the same for food-induced anaphylaxis and include:

- **Cutaneous symptoms:** Occur in the majority of patients, and include flushing, pruritus, urticaria, and angioedema. However, 10–20% of cases have no cutaneous manifestations.
- **Respiratory symptoms:** Occur in up to 70% of cases, and include nasal congestion and rhinorrhea, throat pruritus and laryngeal edema, stridor, choking, voice change related to laryngeal edema, wheezing, coughing, and dyspnea.
- **GI symptoms:** Occur in up to 40% of cases, and include cramping, abdominal pain, nausea, emesis, and diarrhea.
- **Cardiovascular symptoms:** Occur in up to 35% of cases, and include dizziness, tachycardia, hypotension, and hypotonia.
- **Other symptoms:** May include anxiety, mental confusion, lethargy, and seizures.

TIME COURSE

The time course of an anaphylactic reaction may be uniphasic, biphasic, or protracted, defined as follows:

- **A uniphasic reaction** occurs immediately after exposure and resolves—with or without treatment—within the first minutes to hours, and then does not recur during that anaphylactic episode.
- **A biphasic reaction** includes a recurrence of symptoms that develops after apparent resolution of the initial reaction. Biphasic reactions have been reported to occur in 1%–20% of anaphylaxis episodes, and typically occur about 8 hours after the first reaction, although recurrences have been reported up to 72 hours later.
- **A protracted reaction** is any anaphylaxis episode that lasts for hours or days following the initial reaction.

FATAL ANAPHYLAXIS

Fatalities associated with food-induced anaphylaxis are most commonly associated with peanut or tree nut ingestion. Such fatalities are associated with delayed use of epinephrine or a lack of proper dosing. The highest risk groups for fatal anaphylaxis associated with food ingestion are:

- Adolescents and young adults.
- Individuals with known food allergy and a prior history of anaphylaxis.
- Individuals with asthma, especially those with poor control (although fatal reactions may occur even in individuals with mild asthma).
- Individuals with a history of poor outcomes from anaphylaxis treatment related to the use of beta-blocker or ACE inhibitor therapy, or individuals with a history of coronary heart disease.

APPENDIX 3: EMERGENCY TREATMENT OF ANAPHYLAXIS (OUTPATIENT)

NOTE: Preferred route is listed first in **bold**. *Italicized* route can be used if preferred route is unavailable. (IV = intravenous, IM= intramuscular, SQ = subcutaneous).

STEP 1. TAKE IMMEDIATE STEPS

Initial management should begin with the following concurrent steps:

- Eliminate additional allergen exposure.
- Administer epinephrine 0.3mg via auto-injector in the anterolateral thigh. If auto-injector is unavailable, can use 1:1000 solution (**IM** or *SQ*) at 0.01mg/kg per dose (max 0.5mg/kg per dose).
- Assess airway, breathing, circulation, and mental status. Implement basic life support if indicated.
- Arrange for transport to the nearest emergency facility; attempts to summon help should NOT delay use of epinephrine.

STEP 2. QUICKLY FOLLOWED BY …

The initial actions should be QUICKLY followed by these additional steps (may be performed concurrently):

- Place the patient in a recumbent position (if tolerated).
- Provide supplemental oxygen up to 15 L/min by facemask.
- Administer **IV** fluid with normal saline (volume resuscitation).
- Consider administration of the following additional and optional therapies:
  - Bronchodilator – Albuterol nebulizer solution, as needed for bronchospasm
  - H_1 antihistamine – Diphenhydramine 25–50mg **IV** or *IM*, especially for severe itching or urticaria

STEP 3. REASSESS AND REPEAT EPINEPHRINE IF NECESSARY

- **Reassess symptoms, vital signs, cardiorespiratory status, and oxygenation FREQUENTLY.**
- **Repeat epinephrine** 0.3mg **IM** or *SQ* via auto-injector ***OR***
  1:1000 solution **IM** or *SQ* at 0.01mg/kg per dose (max 0.5mg per dose):
  - **Every 5–15 minutes until respiratory and cardiovascular status is stable.**
  - **MAXIMUM: 3 doses.**

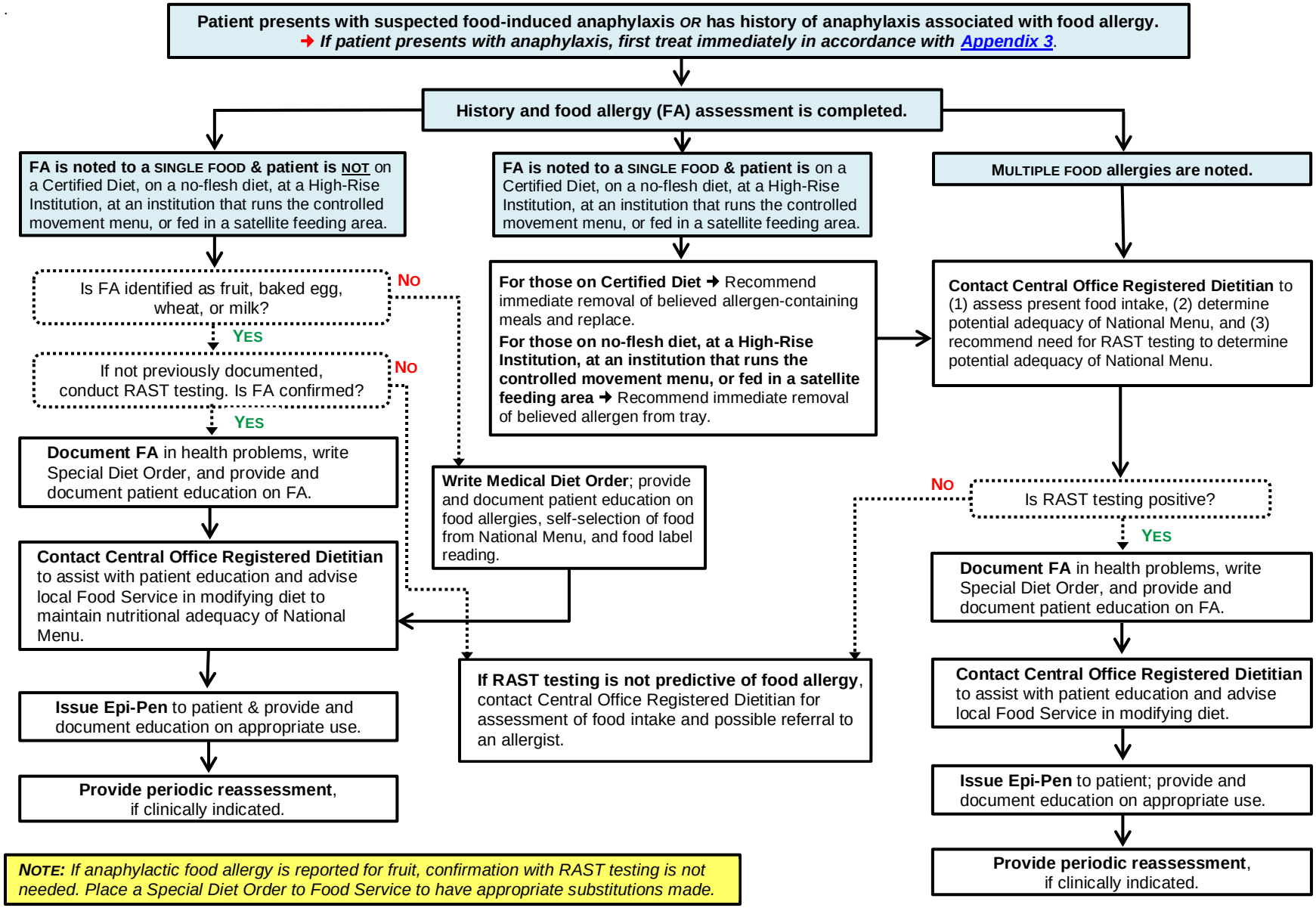
PHARMACOLOGICAL MANAGEMENT OF FOOD ALLERGY ANAPHYLAXIS IN THE CORRECTIONAL SETTING

Medication	*Adult Dose*	*Comments*
FIRST-LINE AGENT (LIFE-SAVING)		
Epinephrine auto-injector ***OR…*** epinephrine 1:1000	0.3mg **IM** or *SQ* ***OR…*** 0.01mg/kg **IM** or *SQ*, up to 0.5mg per dose	**PRIMARY THERAPY. GIVE ASAP.** Can repeat dose every 5–15 minutes up to three injections.
SECOND-LINE AGENT (LIFE-SAVING)		
Albuterol	2.5mg via nebulizer, every 20 minutes for 3 doses	For bronchospasm resistant to IM epinephrine.
ADJUNCTIVE AGENT – NOT to be used as initial or sole treatment because it iss NOT LIFE-SAVING.		
Diphenhydramine	25–50mg **IV** or *IM* once	Consider for relieving itching and urticaria.

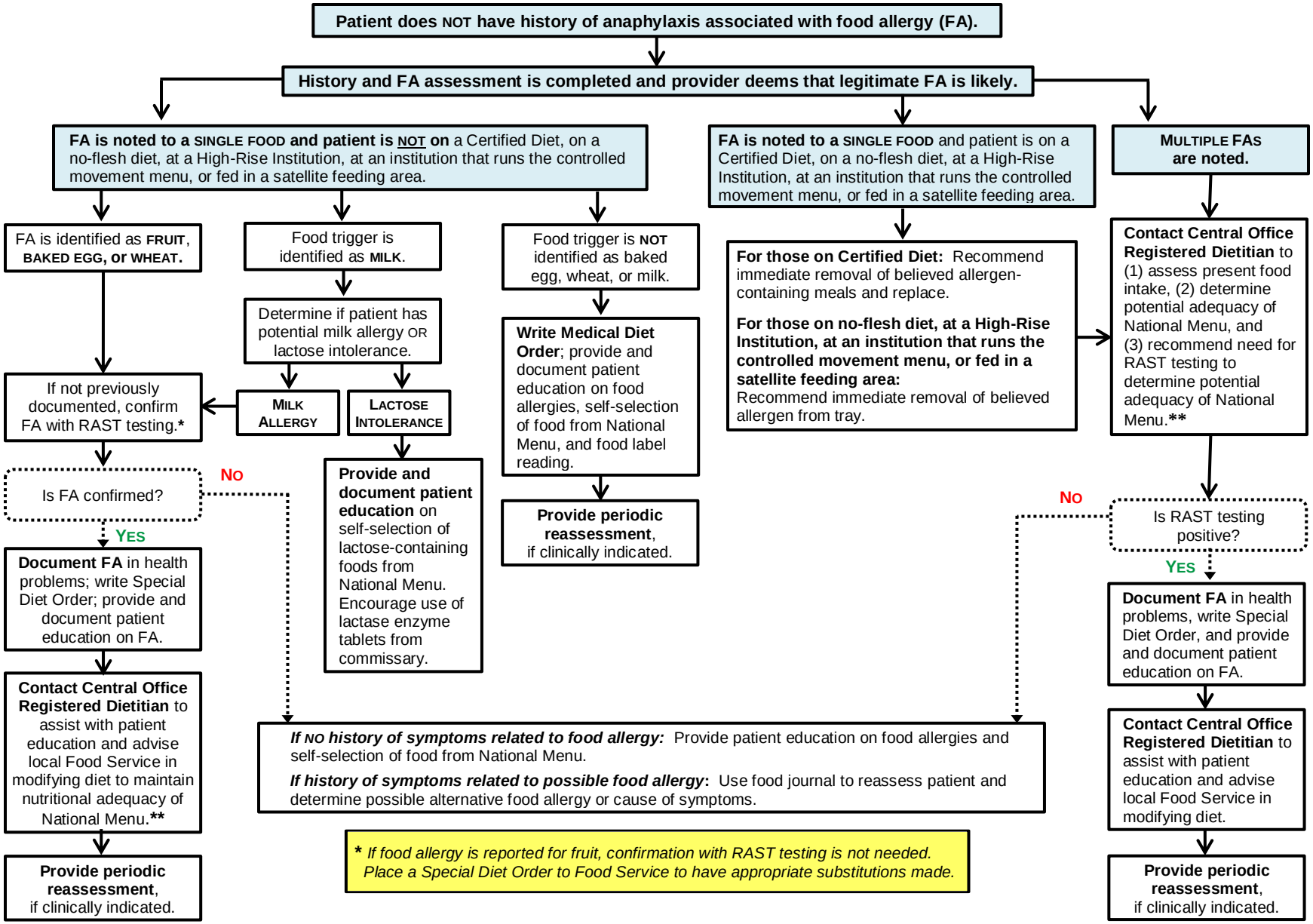
★ IMPORTANT NOTES ★

- **PROMPT ASSESSMENT AND TREATMENT ARE CRITICAL. Failure to respond promptly can result in rapid decline and death within 30–60 minutes.**
- **EPINEPHRINE IM or SQ injection is the first-line treatment in ALL cases of anaphylaxis.** All other drugs have a delayed onset of action.
  - ➜ When there is suboptimal response to the initial dose of epinephrine, or if symptoms progress, **repeated epinephrine dosing remains first-line therapy over adjunctive treatments.**
  - ➜ **Anaphylaxis may not respond to epinephrine in patients taking a beta blocker. Glucagon injection may reverse beta blockade and allow the epinephrine to work.**
- **FOLLOW-UP:** Inmates will likely return from the emergency facility with orders for an H_1 antihistamine (e.g., diphenhydramine), an H_2 antihistamine (e.g., ranitidine), and a corticosteroid (e.g., prednisone) to be used for up to 3 days. These medications should be continued, or substituted with formulary equivalents, to prevent a biphasic or protracted reaction.
- **ONGOING:** Inmates who have had severe or anaphylactic allergic reactions to food should have all allergies documented in BEMR, carry at least one epinephrine auto-injector with them at all times, and be provided with education including, at a minimum, the *Inmate Factsheet: An Overview of Food Allergies* (see *Appendix 7*). Procedures for allowing the inmate to carry an epinephrine auto-injector should be coordinated locally. Refer to epinephrine auto-injector guidance in the BOP National Formulary (Part 1).

APPENDIX 4: ALGORITHM FOR PATIENTS WITH SUSPECTED FOOD-INDUCED ANAPHYLAXIS



APPENDIX 5: ALGORITHM FOR PATIENTS WITHOUT HISTORY OF SUSPECTED FOOD-INDUCED ANAPHYLAXIS



APPENDIX 6: BOP FOOD ALLERGY QUESTIONNAIRE

PATIENT:	PATIENT NUMBER:

This 2-page questionnaire is a guide for information gathering purposes:

- **All relevant information should be written in a BEMR clinical encounter note.**
- **All diagnoses should be entered on the patient's problem list.**
- **All medication allergies should be entered into the BEMR allergy section.**

WHAT TRIGGERS ALLERGIES OR ANAPHYLAXIS?			
☐ Eggs (V15.03)	☐ Milk (V15.02)	☐ Peanuts (V15.01)	☐ Soy (V15.05)
☐ Fish (V15.04)	☐ Nuts from trees (V15.05)	☐ Shellfish (V15.04)	☐ Wheat (V15.05)
Other (please list):			

Do you have Celiac Disease (adverse food reaction to wheat, oats, barley, and rye)? (579.0)	☐ Yes	☐ No
Do you have Oral Allergy Syndrome (mouth itching after eating foods such as raw fruit and vegetables)? (692.5)	☐ Yes	☐ No
Do you react if the food is ingested (eaten)?	☐ Yes	☐ No
Do you react if you just touch the food?	☐ Yes	☐ No
Do you react if the food is just close to you?	☐ Yes	☐ No
HISTORY AND ASSESSMENT DATA		
Do you know what kinds of foods you cannot eat?	☐ Yes	☐ No
If so, please list:		
Have you been diagnosed with a food allergy by a health care provider?	☐ Yes	☐ No
How were you diagnosed with allergies before?		
At what age were you first diagnosed with allergies/anaphylaxis?		
When was the last time that you had a reaction (approximate date)?		
Do you recognize any *early* warning signs that indicate an allergic reaction?	☐ Yes	☐ No
If so, please describe:		
How soon do symptoms occur after exposure to a particular food?		
Can the food ever be eaten without these symptoms occurring?	☐ Yes	☐ No
Have other factors ever been involved, such as exercise, alcohol, or use of aspirin or NSAIDs?	☐ Yes	☐ No
If so, please describe:		
Have the symptoms been present at times other than after exposure to the food?	☐ Yes	☐ No
If so, please describe:		
Have you ever been issued an EpiPen?	☐ Yes	☐ No
Have you been treated for a major reaction in the emergency room?	☐ Yes	☐ No
If so, what was the approximate date and the hospital:		
Is there a history of poor outcomes from anaphylaxis treatment related to beta-blocker or ACE inhibitor therapy?	☐ Yes	☐ No
If so, please describe:		
Is there a history of asthma (particularly, poorly controlled) or coronary artery disease?	☐ Yes	☐ No
If so, please describe:		

PATIENT:		**PATIENT NUMBER:**
WHAT SYMPTOMS HAVE YOU HAD BECAUSE OF FOOD ALLERGY EXPOSURE?		
☐ Tightness of throat and/or chest	☐ Swelling of eyes, lips, tongue, throat, or neck	☐ Anxiety
☐ Wheezing/difficulty breathing	☐ Flushing	☐ Irritability
☐ Coughing or sneezing	☐ Blue or gray discoloration of lips or fingernails	☐ Dizziness
☐ All over tingling or itching	☐ Nausea, vomiting, stomach cramping, or diarrhea	☐ Fainting
☐ All over rash or hives	☐ Sudden mood change	☐ Voice change
☐ Other:		
What medication(s) are used to treat your reaction symptoms? (See *Appendix 4* or *Appendix 5*.)		

HAVE YOU BEEN DIAGNOSED WITH ANY OF THE FOLLOWING?		
☐ Asthma (493.90)	☐ Latex allergy (V15.07)	☐ Medication allergies
☐ Rhinitis (472.0)	☐ Eczema (692.9)	☐ Urticaria/angioedema (due to food – 708.0)
If you have asthma, how often do you need a rescue medicine (albuterol)?		
Have you been hospitalized for asthma?	☐Yes	☐No

OTHER		
Name of the regular physician prior to incarceration who can give an overall history of the patient's food allergies and past treatment plans:		
Name of any allergy specialist that the patient has seen about food allergies:		

DISPOSITION		
Food allergy suspected?	☐ Yes	☐ No
Food elimination diet recommended?	☐ Yes	☐ No
Allergen-specific serum IgE testing indicated? (See *Appendix 4* or *Appendix 5*.)	☐ Yes	☐ No

APPENDIX 7: INMATE HANDOUTS

Attached are three handouts for inmates:

- **Inmate Fact Sheet: An Overview of Food Allergies**
- **Inmate Fact Sheet: Lactose Intolerance**
- **Inmate Fact Sheet: Food Avoidance and Self-Selection from the BOP National Menu**

Note: Inmates can also be given a copy of the printable handout, "**Tips for Avoiding Your Allergen**," available at the Food Allergy Research & Education (FARE) website at: *https://www.foodallergy.org/sites/default/files/migrated-files/file/tips-avoid-allergen.pdf*. The two-page handout offers guidance on reading food labels to identify foods containing milk, egg, peanuts, tree nuts, wheat, soy, fish, and shellfish.

INMATE FACTSHEET: AN OVERVIEW OF FOOD ALLERGIES

What is a food allergy?

A food allergy to a certain food is when a person's immune system responds as if the food is a harmful substance. The response may be mild or, in rare cases, it may be a life-threatening reaction called "anaphylaxis." An allergic reaction to food is most likely to take place within 5 minutes to 1 hour after eating or touching the food.

What are the most common foods that adults are allergic to?

Peanuts, tree nuts (e.g., almonds, cashews), fish, and shellfish (e.g., oysters, crab)

What are the symptoms of a food allergy?

Mild symptoms include:

- Hives
- Itching in your mouth
- Swelling of the lips and tongue
- Vomiting, diarrhea, or abdominal cramps and pain
- Red, swollen skin or worsening of eczema
- Itchy, watery, or swollen eyes
- Runny nose and/or sneezing

Severe, life-threatening symptoms include:

- Swelling of the throat or trouble breathing
- Drop in blood pressure
- Wheezing or difficulty breathing
- Feeling dizzy or passing out

Can food allergy reactions be prevented?

Yes! Reactions can be prevented by completely avoiding any foods you are allergic to. Talk to your Primary Care Provider or Registered Dietitian about:

- How to read food labels to see if there are ingredients you are allergic to
- How to avoid the foods you are allergic to when they are offered by the Food Service or available in the commissary
- When and how to get help for an allergic reaction, whether it is mild or severe
- Whether you might need to carry an epinephrine auto-injector at all times

What should you do for a severe allergic reaction?

The best treatment for a severe allergic reaction is a medicine called epinephrine. If you feel you are having a severe allergic reaction to food, **immediately** let the nearest staff member know you need medical assistance. If you carry an epinephrine auto-injector, use it immediately.

INMATE FACTSHEET: LACTOSE INTOLERANCE

What is lactose intolerance?

Lactose intolerance means that a person's body cannot produce enough of the enzyme that helps digest the lactose found in dairy products. Lactose intolerance can affect anyone, but is most common in Native Americans, Asians, African Americans, and older individuals.

Which foods contain lactose?

Dairy products such as milk, yogurt, ice cream, cheese, cream, and butter all contain lactose. If you are highly sensitive to lactose, you will also need to be aware of other foods that are made with dairy products—such as some baked goods, for example.

What are the symptoms of lactose intolerance?

Any or all of the following symptoms can occur after eating dairy products:

- Cramps or stomach pain
- Gas
- Bloated feeling
- Diarrhea
- Vomiting

How is lactose intolerance treated?

There are two ways to treat lactose intolerance. (1) One approach is to eat only small, tolerable amounts of foods that contain lactose, and not on an empty stomach, i.e., eat them together with other foods. (2) The other is to use an over-the-counter enzyme supplement that you can purchase from the commissary (Lactaid™, Dairy Ease™, etc.). If you decide to use this supplement, you must take it right before each meal or snack that contains dairy products.

Which common foods on the BOP menu or in the commissary contain lactose?

High in Lactose	***Medium***	***Low in Lactose***
• Milk – whole, 2%, and skim • Ice cream	• Cottage cheese • Sherbet	• Butter • Processed cheese • Mozzarella cheese • Cheddar cheese

INMATE FACTSHEET: FOOD AVOIDANCE AND SELF-SELECTION FROM THE BOP NATIONAL MENU

Prevention

The best way to prevent an allergic reaction to food is to know which foods cause the signs and symptoms—and avoid them!

Self-Selection

In all cases of food allergy, the first option is to simply avoid the item through self-selection from the BOP National Menu. If an item, even an entrée, is on the National Menu only once or twice in any given week, you may decline the item or self-select the no-flesh option or the heart-healthy option, if appropriate. Your health care provider and Food Service Administrator can help to educate you to choose the items you need to meet your prescribed diet from the items available on the menu.

Only the individuals with allergies to wheat, egg, milk, or fruits will have specific menu substitutions made for them, since these items are offered so often on the menu that avoiding them creates a nutritional risk.

Satellite Meal Service

In satellite service areas, it is unlikely that you will have the opportunity to select specific options from the National Menu. In these situations, let staff know of your allergy. The food service administrator will develop procedures so that your diet order is processed properly, including items that you would normally self-select in a cafeteria setting.

Commissary Food Items

Always read food labels to make sure that they do not contain an ingredient you are allergic to. Even if you think you know what is in a food—check the label! Ingredients sometimes change. Food labels are required to clearly list whether they contain any common food allergens, including: milk, eggs, peanuts, tree nuts, fish, shellfish, soy, and wheat.