

ANAPHYLAXIS

Resource Information and Lesson Plan Grades 7-9

Anaphylaxis Canada

Anaphylaxis Canada is dedicated to enabling its members to live safely with life-threatening allergies by sharing information, providing support and advocating for the needs of individuals and families living with anaphylaxis.

Our objective in providing this lesson plan is twofold:

1. To raise awareness in classrooms and among friends about anaphylaxis.
2. To impart the concept that students can participate in making their school **SAFE** – **S**afe for **A**llergic **F**riends **E**verywhere

What follows is some background information on anaphylaxis followed by a lesson plan for your grade 4 – 6 classroom.

What is Anaphylaxis?

The term “anaphylaxis” (anna-fill-axis) is used to describe a life threatening, generalized (involving multiple systems) allergic reaction.

Allergic reactions happen when the immune system overreacts to normally harmless protein substances such as pollen, dust mites, food, insect stings, latex, and drugs.

The immune system produces antibodies in response to foreign substances in an effort to protect the body from harm. In individuals with a tendency to develop allergic immune responses, an abnormal antibody response produces specific IgE that recognizes specific protein antigen. Specific IgE is the lock; protein antigen is the key. The result is allergy.

In an allergic reaction, one out of five possible organ systems – skin, airways, heart and blood vessels, central nervous system, or gastrointestinal – is involved.

In an anaphylactic reaction, more than one target organ system is involved. Without appropriate treatment (the administration of epinephrine) anaphylaxis can lead rapidly to unconsciousness and death.

What are some of the symptoms of an anaphylactic reaction?

People with anaphylaxis are exquisitely sensitive and generally react immediately to an *allergen*. Two or more symptoms often occur at the same time. Symptoms are often severe. When exposed to an allergen, a person may experience any of the following symptoms:

- Tingling, itchiness or metallic taste in mouth
- Watering of eyes and nose, sneezing
- Hives, redness, generalized flushing, rash, itching
- Swelling – eyes, ears, lips, tongue, face and skin
- Itchiness or tightness in throat, choking, tightness in chest
- Wheezing, hoarseness, hacking cough
- Nausea, vomiting, stomach pain and/or diarrhea
- Dizziness, unsteadiness, drowsiness, feeling of impending doom
- Fall in blood pressure
- Loss of consciousness
- Coma and death

What foods are most likely to cause an anaphylactic reaction?

Although a person could be allergic to any food, 90 percent of

all food related anaphylactic reactions are caused by: peanuts, tree nuts, milk, eggs, soy, fish and shellfish. In addition, insect stings, latex, medication and exercise can cause an anaphylactic reaction.

Is there a cure for food allergy?

Anaphylaxis is generally a life-long condition to those with peanut, tree nut, fish, and shellfish allergies. Milk and egg allergies can be outgrown and should be reassessed. Insect stings can be treated by desensitization.

Is there medicine that can control a reaction?

Yes. Epinephrine (adrenaline) is recognized as the drug of choice and all efforts should be directed toward its immediate use. After injection, the student should be transported to the hospital, even if symptoms have disappeared. As the reaction can return, you are advised to remain at the hospital under observation for 4 to 6 hours. Asthmatics with anaphylaxis are higher risk.

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Anaphylaxis Lessons Plan Grades 7 – 9

Objectives:

- Understand that some allergies are **life threatening** (anaphylaxis).
- Identify symptoms of a life-threatening allergic reaction.
- Identify causes of anaphylaxis
- Recognize an *EpiPen*[®] and understand why and how to use one.
- Recognize the need for avoidance and some of the rules an allergic person must follow to avoid an allergic reaction.
- Show how we can help keep our allergic friends **SAFE** (Safe for Allergic Friends Everywhere)
- Explain what to do if a friend is having an allergic reaction.

Materials:

- Attachment 1: Picture of *EpiPen*[®]
- Attachment 2: Lists of Ingredients to Avoid

Procedure:

Explain that today we are going to learn about a very severe form of allergy called **Anaphylaxis** (Anaphil-axis). Ask students to repeat the word “anaphylaxis” out loud.

But first, I want to ask: (*list responses to the following questions on the board.*)

Do any of you suffer from allergies?

What are you allergic to? (*Some responses may be foods, grass, weeds, dust, insects, mold*)

What happens to you when you have an allergic reaction? (*Some responses may be sneezing, runny nose, stuffed-up nose, itchy hives, itchy eyes*)

1) Building Awareness:

Review the following information with students to build a base of understanding about Anaphylaxis.

A) What is an allergy?

You have just listed a number of things people are allergic to and a number of different kinds of allergic reactions.

These reactions occur when the body’s immune system mistakenly attacks harmless proteins. For example, when the **food** allergic person eats something to which they are allergic, antibodies alert cells in the body to pour out chemicals, such as histamines.

These chemicals cause the sneezing, swelling, itching, and other symptoms of an allergic reaction.

B) Here are some symptoms of food allergy

- Hives
- Tingling in the mouth
- Swelling of the tongue and throat
- Difficulty breathing
- Asthma
- Abdominal cramps
- Vomiting
- Diarrhea
- And eczema (an itchy skin rash)

C) What is Anaphylaxis (anna-phil-axis)?

Anaphylaxis is a **sudden, severe allergic reaction** that involves several of the symptoms already listed, but may also include:

- Difficulty breathing
- Drop in blood pressure
- Loss of consciousness
- In some cases a person can die in a matter of minutes.

D) When do symptoms occur?

Typically, symptoms begin to occur within minutes after the allergic person has eaten the food to which she is allergic. However, sometimes symptoms occur up to two hours later.

E) Causes of Anaphylaxis:

The most common causes of anaphylaxis are the following:

Foods: Any food can cause a reaction, but, 90% of all food allergic reactions are caused by eight foods: Peanuts, tree nuts, milk, eggs, wheat, soy, fish, shellfish.

Drugs: The most common drugs to cause an anaphylactic reaction are antibiotics, penicillin, and A.S.A.

Insect Stings: The most common bugs to cause an anaphylactic reaction are Yellow Jackets, fire ants, and hornets and bumble bees.

Latex: Latex can cause an anaphylactic reaction. Most balloons are made from latex. The surgical gloves used by your dentist or doctor may be made from latex.

F. How much of the allergen does it take to cause a reaction?

It takes only a tiny amount of the allergen to cause an **anaphylactic** reaction. People who are anaphylactic are exquisitely sensitive to their allergen. A trace of peanut butter in a butter dish is enough to cause an anaphylactic reaction. Upon

ingestion the allergic person may almost immediately begin to get covered in itchy hives (bumps on the skin), or begin to wheeze (demonstrate the sound of wheezing), her eyes may begin to swell shut, she may get sick to her stomach, and she may not be able to breath.

A person having an anaphylactic reaction needs help. Without help they may die.

G. Is there medicine to help?

Show picture of EpiPen[®]

Luckily there is medicine that can help. If a friend is having an anaphylactic reaction they need medicine called “**epinephrine**” right away.

The medicine is given with a needle in the outer thigh using an EpiPen[®]. (Show location) The needle hurts a bit, but it prevents the allergic person from getting dangerously sick.

It is important to call 911 for an ambulance to take the person to the hospital right away. A doctor needs to make sure the person is all right.

People who are “anaphylactic” (have a life-threatening allergy) must carry an EpiPen[®] all the time.

2) Recognizing the need for Avoidance

The only way to avoid a severe food induced allergic reaction is **not** to eat the foods to which you are allergic. This can be a challenge.

A) Discuss the following situations as a large group or break into smaller groups and have students report back.

i)* A person can have an anaphylactic reaction if a knife used to spread peanut butter is not cleaned before it is dipped into the jam jar. The peanut butter protein is left in the jam and that small amount of protein is enough to cause an anaphylactic (life-threatening) reaction. This is called cross-contamination.

Make a list of other ways cross-contamination could occur.

(A knife used to cut an egg sandwich could cross-contaminate a meat sandwich; a cake pan used for chocolate nut brownies could cross-contaminate a plain white cake baked in the same pan; an ice cream scoop could cross contaminate a vanilla ice cream cone if the same scoop is used to serve ice cream containing nuts.)

ii) The following list of ingredients appears on a cookie package. You are anaphylactic to eggs? Would you eat these cookies? Why?

Icing sugar, enriched wheat flour, vegetable oil shortening, artificial flavor and color, soya lecithin, salt, sodium bicarbonate, may contain peanuts, tree nuts, eggs, dairy and/or soy.

(No, even though these cookies do not contain eggs, the ingredients may have come in contact with eggs. Just a trace of egg protein could cause an anaphylactic reaction.)

iii) You are allergic to peanuts and nuts. You are at a birthday party and you are offered a piece of bakery-made birthday cake. Lots of candies have been used to decorate the cake. Should you eat the cake? Why?

(No, the pans that the cake was baked in may contain traces of nuts. You do not know the ingredients in the cake. You do not know the ingredients in the candies or if the packaging had a “may contain” warning on it.)

iv)* You are anaphylactic to fish. You are out with your family at a restaurant for dinner. You learn that the French fries are cooked in the same oil used to cook fish.

Should you eat the French fries? Why?

(No, because the protein from the fish could contaminate the French fries and could cause an anaphylactic reaction. People with food allergies must always enquire about how food is prepared and what ingredients are used.)

B) People with food allergies must be careful about what they eat.

Ask: Can you think of some rules people with **food** allergies must follow to avoid an anaphylactic reaction?

Answers should include:

- Food allergic people eat only food brought from home*
- Food allergic people must read labels on everything they eat*
- Products containing the “allergen” must not be eaten*
- Products with “may contain” warnings on the label must not be eaten)*
- Always carry an EpiPen®*

3) How to be a helpful friend.

There are some things we can do to help our food-allergic friends avoid the foods to which they are allergic.

A) Discuss the following situations:

i)* Jill is a new student in your class and she tells you she is allergic to peanuts. Think of ways you and your friends can help Jill avoid peanuts. How can you create a SAFE classroom? (Safe for Allergic Friends Everywhere)

Answers should include:

- Never tempt a food allergic classmate to “try a bite.” Don’t share your food with an allergic person. The allergic person must eat only food brought from home.*
- Never share straws or drinks*
- Be careful not to spill or splash your food near someone with food allergies*
- Avoid bringing peanut butter/peanuts/nuts to school*
- Wash your hands after you eat*
- Remind the allergic person to wash hands*
- Never tease someone with food allergies. They didn’t choose to be allergic.*
- Know the symptoms of an allergic reaction, and what you can do to help if someone is having a reaction.*

ii) You are planning your birthday party. Your best friend is anaphylactic to eggs and milk. What could you do to help your friend avoid her allergen at the party?

Answers could include: Talk to your friend about her allergy so that you know what is safe. Ask about the foods that are safe/unsafe. Maybe ask your friend to help plan the food for the party. Advise your friend about what will be served so that she can decide if she needs to bring her own food. Remind your friend to bring her EpiPen[®]. Know what to do if your friend has a reaction.

iii) One of your friends is anaphylactic to peanuts and nuts. You have planned to go to the mall for lunch and shopping. How can you help your friend avoid her allergen and stay safe?

Answers could include: Ask your friend which restaurants are safe and then choose a place to eat. Decide to eat at home before you go to the mall. Avoid eating chocolate bars/ ice cream etc. containing peanuts or nuts while you are with your friend on your outing. Wash your hands before and after eating. Remind your friend to take her EpiPen[®]. Know what to do if your friend has a reaction.

person until the ambulance arrives.)

B) People with “anaphylaxis” are just like everybody else except that they have to carefully avoid their allergen.

Ask: What should you do if you notice a few kids teasing your food allergic friend about her food allergy?

*(Answers should include: telling the kids to stop, explaining that food allergies are serious and dangerous, or telling an adult)**

4) Know what to do in an Emergency

Ask: What should you do if you see that a friend is not feeling well and has eaten something to which she is allergic? Perhaps she is sick to her stomach, is getting hives, and/or is starting to have trouble breathing. *(Refer to list of symptoms)*

(Answer should include: Get help. Find a teacher or other adult right away or call 911. Tell them your friend is allergic to food and may be having an allergic reaction. Ask them to come right away.)

(The adult emergency response must be to administer an EpiPen[®] and call 911 and stay with the

5) Extending and Reinforcing Learning

Activity 1*: Pretend you have a food allergy for a day. You must read the label for every food you eat. If someone else has prepared food you will have to ask about the ingredients used. Choose peanuts, tree nuts, egg, milk, or soybean.

At the end of the day think about whether you were able to avoid all foods containing your allergen. Were you surprised about some of the foods you were unable to eat. What was the hardest part? Write about it and/or share your experience with your class.

Check Attachment 2 for lists of some of the ingredients you must avoid. **These are only partial lists for each allergen.** Complete lists can be obtained from Anaphylaxis Canada.

Activity 2: Choose peanut, tree nut, milk, egg, or soybean allergy. Using the ingredient lists attached check foods at home in your cupboards and fridge. Make a list of foods you are unable to eat.

List those you are able to eat.
(*Note: People with food anaphylaxis should always call food manufacturers directly to verify labeling and manufacturing procedures.*)

Activity 3: Complete the attached Anaphylaxis Review.
(Attachment 3)

Activity 4*: Make a poster listing the symptoms of an anaphylactic reaction. Include what to do if someone is having a reaction.

Activity 5*: Make a poster for your classroom showing how to help keep an allergic friend safe.

Information and some activities adapted from:

Anaphylaxis Resource Manual,
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**Class Discussion Guide, Friends Helping Friends: Make It Your Goal!*
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Attachment 2
Partial Lists of Ingredients to
Avoid

Peanut Allergen

Avoid foods containing peanuts and the following:

Ground nuts
Peanut flour
Cold pressed peanut oil
Mandelonas
Mixed nuts
Peanut butter
Nu-nuts (peanuts that been de flavoured and re flavoured with other nuts like pecan or walnut)
Sweet lupine flour
Hydrolyzed plant protein

Egg Allergen

Avoid all foods containing egg and derivatives such as:

Dried egg
Eggnog
Egg solids
Egg white
Egg mayonnaise
Meringues
Soufflés

Tree Nut Allergen

Avoid foods containing nuts to which you are allergic. Here is a list of nuts.

Almonds
Brazil nuts
Cashews
Chestnuts
Filberts/hazelnuts
Hickory nuts
Macadamia nuts
Pecans
Pine nuts, pinon, pignolias
Pistachios
Shea nuts
Walnuts

Also avoid: mixed nuts, nut butters, nut oils, nut paste, chocolate nut spreads, mandelonas, marzipan, nu-nuts, nut meats any of these ingredients:

Milk Allergen

Avoid all foods containing milk and milk derivatives such as:

Butter
Butter fat
Butter oil
Buttermilk
Caseinates, (ammonium, calcium, magnesium, potassium, sodium)
Cheese
Cheese curds
Condensed milk
Cottage cheese
Cream
Cream cheese
Creamed soups
Dairy based infant formula
Dry milk
Hydrolyzed casein
Ice cream
Malted milk
Milk custards and puddings
Milk protein

Skim milk
Sour cream
Whey protein
Whole milk
Yogurt.

Soybean Allergen

Avoid all foods containing soy and soy derivatives such as:

Shoyu sauce
Soy(a) loaf
Soy analog
Soy flour
Soy grits
Soy milk
Soy nuts
Soy sauce
Soy spreads
Soy sprouts
Soy based infant formula

Adapted from Suggestions for Eating Safely. Anaphylaxis Network of Canada, 2000, Toronto

ANAPHYLAXIS REVIEW

1. List the symptoms of an anaphylactic reaction?
2. How is anaphylaxis different from other allergies?
3. List the most common causes of an anaphylactic reaction?
4. What should you do if you think someone is having an anaphylactic reaction?
5. List 4 ways you can help a friend avoid the foods to which they are allergic.
6. Imagine you are anaphylactic to peanuts and nuts. List 4 rules you must follow to avoid your allergen and keep safe.