

# ANAPHYLAXIS

## Resource Information and Lesson Plan Grades 4-6

### 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** – when they **Support Allergic Friends Everywhere**

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 for people 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, a person who has experienced a reaction is advised to remain at the hospital under observation for at least 4 to 6 hours. Asthmatics with anaphylaxis are higher risk.

*Information adapted from Anaphylaxis Resource Manual, Copyright Anaphylaxis Network of Canada, 1999. Toronto*

# **Anaphylaxis Lessons Plan Grades 4 – 6**

## **Objectives:**

- Understand that some allergies are **life threatening** (anaphylaxis).
- Identify symptoms of a life-threatening allergic reaction.
- Identify causes of anaphylaxis
- Recognize an *EpiPen*<sup>®</sup> 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** (and **Support Allergic Friends Everywhere**)
- Explain what to do if a friend is having an allergic reaction.

## **Materials:**

- Attachment 1: Picture of *EpiPen*<sup>®</sup>
- 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 (anaphil-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 he or 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.

For example, people who eat a food to which they are “anaphylactic” or highly allergic to begin to feel funny. They only

have to eat a tiny bit of the food to have a severe reaction. They may get covered in itchy hives (bumps on the skin), or begin to wheeze (demonstrate the sound of wheezing), their eyes may begin to swell shut, they may get sick to their stomach, they may not be able to breath. They need help. If they don't get help they may die.

### **G. Is there medicine to help?**

Show picture of EpiPen<sup>®</sup>

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. (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<sup>®</sup> all the time.

## **2) Recognizing the need for Avoidance**

The only way to avoid a severe allergic reaction is to **not** 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 situation:**

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? (and **Support 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.*

**A) 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 because she 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<sup>®</sup> and call 911 and stay with the person until the ambulance arrives.)*

**5) Extending and Reinforcing Learning**

**\*Activity 1:** Make a poster listing the symptoms of an anaphylactic reaction. Include what to do if someone is having a reaction.

**\*Activity 2:** Make a poster for your classroom showing how to help keep your allergic friends safe.

**\*Activity 3:** 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, and 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? Share your experience with your class. Check the 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.

Information and some activities adapted from:

Anaphylaxis Resource Manual,  
Copyright Anaphylaxis Network of  
Canada, 1999. Toronto

\*Class Discussion Guide, Friends  
Helping Friends: Make It Your Goal!  
Funded by an educational grant from the  
Jaffe Family Foundation. Available  
from The Food Allergy & Anaphylaxis  
Network, Fairfax, VA.

**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 deflavoured 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

