

## ANAPHYLAXIS

### Allergies

An allergy is the immune system's excessive reaction to a normally harmless substance, called an allergen. In susceptible individuals, exposure to an allergen results in the body creating IgE antibodies specific to that allergen. When the body is exposed to the allergen again, the IgE antibodies cause chemicals (e.g., histamine) to be released which results in signs such as hives, itching and swelling. Allergic reactions can vary from mild to life-threatening.

### Anaphylaxis

Anaphylaxis is a severe allergic reaction that can result in death due to airway obstruction or a severe drop in blood pressure. It is an extreme total body reaction.

The course of a life-threatening allergy can vary from person to person. It may be unpredictable and rapid in onset. Anaphylaxis can potentially occur when a person has experienced only minor allergic reactions previously. Others may show a general progression of increasingly severe allergic reactions that lead up to anaphylaxis. Another person may experience an anaphylactic reaction without any previous signs of an allergy.

### Allergens

A person can be allergic to any food. However, the following foods commonly cause anaphylaxis.

- Peanuts and tree nuts
- Fish and shellfish
- Milk
- Eggs
- Soy
- Wheat
- Sesame

Other allergens that can cause anaphylaxis include insect stings, medications and latex.

### Risk Reduction

Avoidance of allergens is the only way to prevent an anaphylactic reaction. The greatest risk of exposure to food allergens is in new situations or when normal daily routines are interrupted such as field trips, birthday parties and other special events. Young children are at greatest risk of accidental exposure, while deaths may occur among teenagers due to their increased independence, peer pressure and reluctance to carry an adrenaline auto-injector.

Although it can be difficult to achieve complete avoidance of an allergen, reducing the child's exposure to the allergen is possible. Schools and licensed child care facilities in Manitoba are required to have an anaphylaxis policy which includes risk reduction strategies. The most successful strategies enlist the support of the entire community (e.g., parents, children, community program).

### Signs of Anaphylaxis

After exposure to the allergen, any combination of the following signs may occur to signal the onset of anaphylaxis. Signs do not always occur in the same sequence, even in the same individual.

When remembering the signs of anaphylaxis, think F.A.S.T. (face, airway, stomach, total body). Watch for signs that occur suddenly and are obvious changes in appearance or behavior.

#### Face

- red watering eyes
- runny nose
- itchiness
- redness and swelling of face, lips and tongues
- hives

#### Airway

- throat tightness
- change of voice
- difficulty swallowing
- difficulty breathing
- coughing
- wheezing

#### Stomach

- severe vomiting
- severe diarrhea
- severe cramps

#### Total body

- swelling
- hives
- itchiness
- feeling of "sense of doom"
- change in behavior
- pale or bluish skin
- dizziness
- fainting
- loss of consciousness

An anaphylactic reaction most commonly begins within seconds or minutes of exposure to the allergen, with the majority of reactions occurring within thirty minutes. The time from the first signs to death can be as little as a few minutes, if epinephrine is not given. It is possible, but rare, for signs of anaphylaxis to occur up to four hours after exposure to the allergen. Even when signs have subsided after epinephrine is given, they can return as much as eight hours after exposure.

## Treatment of Anaphylaxis

Epinephrine is the drug used to treat anaphylaxis. It is a chemical that the body naturally produces and is responsible for the “adrenaline-rush” under stress. It is effective in treating anaphylaxis by constricting muscles around blood vessels to elevate blood pressure, relaxing airway muscles, reducing swelling, reducing the release of chemicals that cause anaphylaxis and stimulating the heart. Epinephrine is clear and colorless.

Epinephrine should be given immediately when signs of anaphylaxis are first seen. There is clear evidence that a delay in giving epinephrine increases the odds of the person dying from anaphylaxis.

There is no significant cause for concern if epinephrine is given to a child for whom it is prescribed and an anaphylactic reaction is not actually taking place. The life saving benefit of epinephrine in cases of suspected anaphylaxis outweighs any small risk of side effects.

Children are at higher risk for severe allergic reactions if they also have asthma. For children that are diagnosed with both anaphylaxis and asthma and there is uncertainty whether the person is experiencing an anaphylactic reaction or an asthma episode, epinephrine should always be used first.

Antihistamines are **not** recommended in the immediate treatment of anaphylaxis.

## Adrenaline Auto-injector

Adrenaline auto-injectors (e.g., EpiPen®, Twinject®, Allerject™) contain a spring-loaded, self injectable syringe with a concealed needle. They are stamped with an expiry date and should be replaced by the parent/guardian when expired. It is recommended that the child carry the adrenaline auto-injector at all times. If the child is not able to carry the adrenaline auto-injector, it should be worn by the adult responsible for the child or kept in an unlocked, safe and accessible location. It is the responsibility of community program personnel to be aware of the location of a child(ren)'s adrenaline auto-injector.

## DO NOT

- refrigerate or leave outdoors in the winter.
- use if epinephrine is discolored (i.e., brown).
- use it on a child that is NOT diagnosed with a life-threatening allergy.
- use another child's adrenaline auto-injector if the child's own adrenaline auto-injector is not available.

## How to Use Adrenaline Auto-injector

1. Secure the child's leg. The child should be lying down.  
*If the child is vomiting, place him/her on their side.  
If the child is having difficulty breathing, he/she should sit upright.*
2. Identify the injection area on the outer middle thigh.
3. Grasp the adrenaline auto-injector in your fist and remove the safety cap(s) by pulling it straight off. Do not bend or twist it off.
4. Firmly press the tip into the thigh at a 90° angle until you hear a click.
5. Hold in placed for a slow count of 5.
6. Store the used adrenaline injector safely and discard it following your program's policy for disposal of sharps or give to EMS personnel.

The Twinject® has a second dose which community program staff do NOT use as it is not a safety regulated needle.

## How to Respond to Anaphylactic Reaction

1. Inject the adrenaline auto-injector in the outer middle thigh as described above.
2. Activate 911/EMS.  
*This should be done simultaneously with injecting the adrenaline auto-injector by delegating the task to a responsible person.*
3. Notify the child's parent/guardian.
4. If signs of anaphylaxis persist or recur, give backup adrenaline auto-injector (if available) every 5 to 15 minutes.
5. Stay with the child until EMS personnel arrive.