Executive Summary

Anaphylaxis is a serious allergic reaction that is rapid in onset and may cause death.[1] While fatalities are rare, anaphylaxis must **always** be considered a medical emergency requiring immediate treatment.

Signs and symptoms of a severe allergic reaction can occur within minutes of exposure to an allergen (a substance capable of causing an allergic reaction). In rarer cases, the time frame can vary up to several hours after exposure. The most common allergens include certain foods and insect stings. Less common causes include medications, latex, and exercise.

Symptoms of anaphylaxis generally include one or more of these four body systems: skin, respiratory, gastrointestinal and/or cardiovascular. Breathing difficulties and low blood pressure are the most dangerous symptoms and both can lead to death if untreated. Anaphylaxis is an unpredictable condition as signs and symptoms can vary from one person to the next and from one episode to another in the same person.

Epinephrine is the first line treatment for anaphylaxis. This life-saving medication helps to reverse the symptoms of a severe allergic reaction by opening the airways, improving blood pressure, and increasing the heart rate. It is recommended that epinephrine be given at the start of a known or suspected anaphylactic reaction. In normally healthy individuals, epinephrine will not cause harm if given unnecessarily. There are currently two epinephrine auto-injectors available in North America: EpiPen® and Twinject®.

There are six key recommendations in the emergency management of anaphylaxis, including:

1. Epinephrine is the first line medication which should be used for the emergency management of a person having a potentially life-threatening allergic reaction.

2. Antihistamines and asthma medications must not be used as first line treatment for an anaphylactic reaction.

3. All individuals receiving emergency epinephrine must be transported to hospital immediately (ideally by ambulance) for evaluation and observation.

4. Additional epinephrine must be available during transport to hospital. A second dose of epinephrine may be administered within 5 to 15 minutes after the first dose is given **IF** symptoms have not improved.[2,3]

5. Individuals with anaphylaxis who are feeling faint or dizzy because of impending shock should lie down unless they are vomiting or experiencing severe respiratory distress.[4]

6. No person should be expected to be fully responsible for self-administration of an epinephrine auto-injector.

Individuals at risk of anaphylaxis are advised to carry an epinephrine auto-injector at all times when age appropriate. Additionally, they should wear medical identification, such as a MedicAlert® bracelet, which clearly identifies their allergy. Regular practice with an auto-injector trainer allows the allergic person and others to become familiar with the administration technique. In the school setting, this applies to all staff who are in regular contact with the student at risk.

Research is underway to better understand anaphylaxis. At present, the severity of reactions cannot be predicted. Therefore, it is not possible to identify which patients are most at risk for severe allergic reactions. Until there is a cure, avoidance of the allergen(s) is the only way to prevent an anaphylactic reaction. Measures can be taken to reduce, but not completely eliminate, the risk of exposure. In the school setting, this requires the cooperation of the school community, including students at risk, their parents or guardians, and school staff. This idea of sharing the responsibility of anaphylaxis management applies to other settings as well.

Anaphylaxis emergency plans can help to create safer environments for allergic individuals. School anaphylaxis plans help to reduce the risk of exposure to allergens and prepare school communities for an emergency situation. These plans should be reviewed and updated on a regular basis. Despite best efforts, however, anaphylactic reactions do occur. In the event of a life-threatening allergic reaction, it is critical for individuals to respond quickly and appropriately as indicated by the following emergency steps:

1. **Give epinephrine auto-injector** (e.g. EpiPen® or Twinject®) at the first sign of a known or suspected anaphylactic reaction.

2. **Call 9-1-1** or local emergency medical services. Tell them someone is having a life-threatening allergic reaction.

3. **Give a second dose** of epinephrine in 5 to 15 minutes **IF** the reaction continues or worsens.

4. **Go to the nearest hospital immediately (ideally by ambulance)**, even if symptoms are mild or have stopped. The reaction could worsen or come back, even after proper treatment. Stay in the hospital for an appropriate period of observation as decided by the emergency department physician (generally about 4 hours).

5. **Call emergency contact person (e.g. parent, guardian).**

Upon discharge from the hospital, an epinephrine auto-injector prescription should be obtained and immediately filled. A follow up appointment is recommended with the patient's physician, including referral to an allergist.