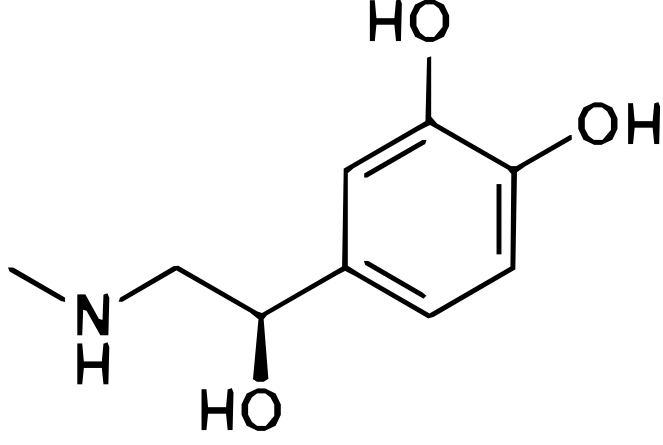


- Canadian Pharmacists Association. (2020, April 9). *EpiPen / EpiPen Jr*. [CPS]. Retrieved June 10, 2024, from <https://www.myrxtx.ca>
- Fanshawe College School of Nursing. (n.d.). Case study - anaphylaxis. <https://www.fanshaweonline.ca/d2l/e/content/1524410/viewContent/15265061/View>
- Feist, H. (2020). Emergency nursing. In M. El-Husseini & J. Osuji (Eds.), *Brunner & Suddarth's Canadian textbook of medical-surgical nursing* (Fourth Canadian edition, pp. 2338–2379). Wolters Kluwer.
- Food Allergy Canada. (n.d.). *Sabrina's law*. Retrieved June 10, 2024, from <https://foodallergycanada.ca/sabrinas-law/>
- Bill 3, Sabrina's Law, 2005 (2006, January 1). <https://www.ola.org/en/legislative-business/bills/parliament-38/session-1/bill-3>
- Makic, M. B. F., Martinez-Kratz, M. R., Ackley, B. J., & Ladwig, G. B. (2023). *Ackley and Ladwig's nursing diagnosis handbook: An evidence-based guide to planning care* (Thirteenth edition). Elsevier.
- Pfizer Canada. (n.d.). *How to use EpiPen*. Retrieved June 12, 2024, from <https://www.epipen.ca/how-to-use-epipen>
- Power-Kean, K. (2020). Assessment and management of patients with allergic disorders. In M. El-Husseini & J. Osuji (Eds.), *Brunner & Suddarth's Canadian textbook of medical-surgical nursing* (Fourth Canadian edition, pp. 1571–1597). Wolters Kluwer.



June 12, 2024

Shawn Nock and Susan Wu

Anaphylaxis in Children

What is Anaphylaxis

“An anaphylactic reaction is an acute systemic hypersensitivity reaction that occurs seconds or minutes after exposure to certain foreign substances.” (Feist, 2020, p. 2358)

With mild allergies, the body mobilizes *local* responses to control the spread of an allergen. Histamine is released near the area of exposure, triggering an inflammatory response. The local area may swell as blood vessels dilate. The vessels also become more permeable, allowing fluid to leak into surrounding tissues. This reaction is intended to be protective. Histamine signals neutrophils and other phagocytes to an area to dispose of the allergen.

In anaphylaxis, the body is over-sensitive to an allergen. As a result, the reaction is not local but regional or systemic. Instead of local vessels swelling, large areas of vessels dilate and become leaky.(Power-Kean, 2020)

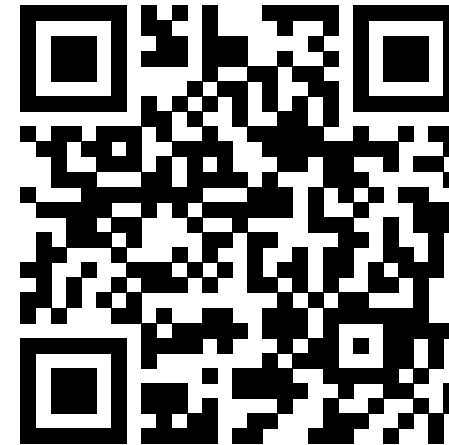
If enough of the vasculature is affected, blood pressure will plummet as the blood pools in the enlarged vessels rather than being returned to the heart. This pooling causes insufficient perfusion of bodily tissues, a form of distributive shock called anaphylactic shock. Histamine release can also cause bronchospasm and respiratory distress (Power-Kean, 2020). Anaphylaxis is a life-threatening condition that must be treated immediately.

Epinephrine

Epinephrine (epi) is the treatment for anaphylaxis. It is a potent vasoconstrictor that increases blood pressure and reduces vascular permeability (Canadian Pharmacists Association [CPA], 2020). It counteracts vasodilation and edema caused by anaphylaxis.

More information

The answers to the case study questions, digital/printable copies of this pamphlet, and more resources are available on the accompanying website:



<https://nurse.win/anaphylaxis-pamphlet/>

Example

Jessica is a 5-year-old girl entering Kindergarten at London Public School. Before the beginning of the school year, Jessica's mother approached the teacher to inform her that Jessica has a severe dairy allergy and must carry her EpiPen autoinjector with her at all times in case she has an anaphylactic reaction. The teacher is concerned because she has never had a student with a severe allergy before. She states that she knows very little about what symptoms to look for and what to do if Jessica has a reaction.

(Fanshawe College School of Nursing, n.d., p. 1)

Nursing Diagnosis (Makic et al., 2023)

Deficient Knowledge r/t signs and treatment of anaphylaxis

- Questions**
- 1 What education does Jessica's teacher need?
 - 2 Who else should be involved in the conversation?
 - 3 What should the teacher do if Jessica has a reaction?
 - 4 Jessica's teacher says she plans to store Jessica's EpiPen® in a locked cabinet in the classroom to keep it safe. Is this appropriate?

- Mild**
- Tingling
 - Sensation of warmth
 - Nasal congestion
 - Itching, sneezing, tearing of the eyes
 - Periorbital swelling

- Moderate**
- Flushing
 - Anxiety
 - Bronchospasm, dyspnea, Cough

- Severe (AKA Anaphylactic Shock)**
- Rapid onset and progression
 - Respiratory distress
 - Cyanosis
 - Hypotension
 - Dysphagia, vomiting, diarrhea
 - Seizure, cardiac arrest, death

From Power-Kean (2020)

Faster onset of symptoms is associated with a more severe reaction (Feist, 2020). If symptoms begin soon after exposure, administer Epinephrine immediately.

EpiPens® are epinephrine autoinjectors. Compared to traditional epinephrine injections, they are faster and require less skill (Power-Kean, 2020).

EpiPen®	0.3 mg	Adults and Children \geq 30 kg
EpiPen Jr.®	0.15 mg	Children \geq 15 kg < 30 kg

(CPA, 2020)

Considerations

- There are no absolute contraindications. If a person is having a life-threatening reaction, they should be given epinephrine (CPA, 2020)
- Medical attention is **always required** after anaphylaxis. The client must be transported to ED for monitoring, even if symptoms appear to resolve (Power-Kean, 2020)
- Hold an uncooperative person's leg securely to prevent needle breakage or incomplete administration of the drug.

Instructions (Pfizer Canada, n.d.)

- 1 Orient the EpiPen® with the orange tip pointing downward. Think "Orange to the thigh. Blue to the sky"
- 2 Remove the blue cap by pulling straight upward
- 3 Aim the device halfway between the hip and knee on the anterolateral aspect of the leg (vastus lateralis).
- 4 Do not remove clothing. Press the autoinjector firmly into the thigh at a 90° angle to the skin.
- 5 Maintain pressure for at least 3 seconds.
- 6 Repeat the procedure with a new device in 5-15 minutes if symptoms continue. (CPA, 2020)

Sabrina Shannon was a high school student who died as a result of an anaphylactic reaction at school. It is thought that she ingested milk proteins from a contaminated pair of cafeteria tongs used to serve poutine before serving her french fries (Food Allergy Canada, n.d.).

This tragedy was the catalyst for an Ontario legislative bill which bears her name. Levac (2006) mandates that every school board create and maintain an anaphylaxis policy which includes:

- Strategies to reduce exposure to common allergens
- A plan to communicate information about life-threatening allergies to parents, staff, and students
- Regular training about anaphylaxis for all employees in direct contact with children.
- A requirement that all principals create an individual plan for each student with a life-threatening allergy, including instructions from a doctor/nurse, a copy of current prescriptions, a plan for storing life-saving medications, and a plan for reducing exposure risks.