

AT A GLANCE

Management of Anaphylaxis Following Immunization in the Community

1st Revision: September 2022

Introduction

This document is intended as a resource for immunizers in a community setting (e.g. schools, public health clinics, pharmacies). It is to be used in addition to—and does not replace—immunization policy or other directives provided by the immunization site. This document applies to management of anaphylaxis following all vaccines with specific information related to COVID-19 vaccine where indicated.

Anaphylaxis is a rare but potentially life-threatening allergic reaction to foreign antigens that is treatable with rapid recognition and appropriate management. It has been shown to be causally associated with vaccines with a frequency of approximately 1.3 episodes per million doses of vaccine administered.¹ Although most vaccine providers will never see a case of anaphylaxis, they should be able to identify the signs and symptoms of anaphylaxis and be prepared to act quickly.

COVID-19 vaccine and anaphylaxis

Anaphylaxis following COVID-19 vaccines is being closely monitored. Post-marketing surveillance of COVID-19 vaccines² has described reports of anaphylaxis; however, the frequency remains very rare.^{3,4} Information on COVID-19 vaccine safety and reports of adverse events following COVID-19 vaccines in Ontario can be found at: <https://www.publichealthontario.ca/en/diseases-and-conditions/infectious-diseases/respiratory-diseases/novel-coronavirus/vaccines>

Pre-vaccination Screening

Prevention of anaphylaxis is critically important and includes pre-vaccination screening to identify a history of anaphylaxis and possible allergy to any component of the vaccine or its container. For more information related to pre-screening for COVID-19 vaccine, please see the Ontario [Ministry of Health's COVID-19 Vaccine Screening Form](#).⁵

Post-vaccination Observation

Most occurrences of anaphylaxis to a vaccine begin within 30 minutes after administration.⁴ Therefore, vaccine recipients are instructed to wait at least 15 minutes after receiving vaccine before leaving the immunization clinic. Longer waiting times of up to 30 minutes may be recommended for some individuals with a history of allergic reactions and/or anaphylaxis.^{1,4} Further information regarding post-vaccination observation following receipt of COVID-19 vaccine can be found in the [Canadian Immunization Guide chapter on COVID-19 vaccines](#).⁴

Recognizing Anaphylaxis

Clinical features of anaphylaxis include the sudden onset and rapid progression of signs and symptoms over several minutes, and involvement of two or more body systems.¹ While specific signs and symptoms are highly variable, the most frequently involved systems are skin (80- 90% of anaphylaxis cases), respiratory (up to 70% of cases), and cardiovascular and gastrointestinal (each up to 45% of cases).¹ Up to 15% of cases may also exhibit central nervous system changes such as uneasiness, altered mental status, dizziness, or confusion.¹ Severe anaphylaxis can include upper airway swelling causing obstruction, bronchospasm and hypotension.¹

It is important to distinguish anaphylaxis from anxiety-related reactions including fainting (vasovagal syncope), hyperventilation, and breath-holding as quickly as possible to prevent delay of appropriate treatment (i.e., epinephrine).

Table 1: Key distinguishing features of anaphylaxis and vasovagal syncope⁶

Clinical features	Anaphylaxis	Vasovagal syncope
Onset from time of immunization	Within minutes up to 4 hours after injection; most within 2 hours	During or within minutes of injection
Skin	Urticaria, angioedema, pruritus, erythema	Generalized pallor, cold clammy skin
Respiratory	Cough, wheeze, stridor, respiratory distress, rhinorrhea, sneezing	Normal respiration – may be shallow but not laboured
Cardiac	Tachycardia	Bradycardia
Neurologic	Sense of severe anxiety and distress; loss of consciousness – no improvement once supine or in head down position	Sense of light-headedness; loss of consciousness – improves once supine or in head down position; may be transient jerking of the limbs and eye-rolling

Source: National Advisory Committee on Immunization; Public Health Agency of Canada. Part 2 - Vaccine safety: anaphylaxis and other acute reactions following vaccination. In: Canadian immunization guide [Internet]. Evergreen ed. Ottawa, ON: Government of Canada; 2016 [modified 2020 Dec 02; cited 2021 Mar 14]. Table 1: Key distinguishing features of anaphylaxis and vasovagal syncope. Reproduction is a copy of the version available from: <https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-2-vaccine-safety/page-4-early-vaccine-reactions-including-anaphylaxis.html#t1>. Adapted with permission from: Immunisation Section, South Australian Department for Health and Wellbeing.

Management of Anaphylaxis Following Immunization

Epinephrine is the first-line treatment recommended for management of anaphylaxis:

- Epinephrine is the only medication that reduces hospitalization and death and should be administered as soon as anaphylaxis is recognized to prevent the progression to life-threatening symptoms.¹
- There is no absolute contraindication to epinephrine for the treatment of anaphylaxis.¹ Failure to administer epinephrine promptly may result in greater risk to the client with anaphylaxis than using epinephrine improperly.¹
- Epinephrine should be promptly administered intramuscularly (IM) in the mid-anterolateral aspect of the thigh (*vastus lateralis*) because of its large blood supply.^{1,7,8} The deltoid muscle is not as effective in absorbing epinephrine.^{1,7}
- Epinephrine prevents and relieves upper airway swelling, hypotension, and shock.¹
- Dosing and timing: 0.01 mg/kg of body weight, to a maximum total dose of 0.5 mg per dose, given by the intramuscular route.^{1,8} Dosing should be repeated every 5 min if the symptoms persist (most patients improve in 1-2 doses) until the case is transferred to emergency care.¹

Antihistamines are no longer indicated as adjunctive treatment in the management of anaphylaxis in a community setting:⁷

- Antihistamines, such as diphenhydramine hydrochloride (i.e., Benadryl), are not indicated in the initial treatment in the emergency management of anaphylaxis because they have no effect on respiratory or cardiovascular symptoms, and as such, have little clinical importance in the management life-threatening anaphylaxis.¹
- Administration of antihistamines may delay prompt intramuscular injection of epinephrine.⁸
- Diphenhydramine hydrochloride is no longer listed as a recommended item to be kept in an anaphylaxis management kit for immunizers.¹

References

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