Alberta Health Services

POLICY

TITLE

ANAPHYLAXIS MANAGEMENT: ADMINISTRATION OF INTRAMUSCULAR EPINEPHRINE

SCOPE Provincial	**DOCUMENT #** HCS-223
APPROVAL AUTHORITY Clinical Operations Executive Committee	**INITIAL EFFECTIVE DATE** December 1, 2018
SPONSOR Pharmacy Services	**REVISION EFFECTIVE DATE** Not applicable
PARENT DOCUMENT TITLE, TYPE AND NUMBER Not applicable	**SCHEDULED REVIEW DATE** December 1, 2021

NOTE: The first appearance of terms in bold in the body of this document (except titles) are defined terms – please refer to the Definitions section.

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OBJECTIVES

- To provide guidance on the rapid management of **patients** experiencing **anaphylaxis**.
- To provide clinical direction for **health care professionals** to administer intramuscular (IM) epinephrine, from a one (1) mg/mL concentration ampoule, with a patient-specific **order** from an **authorized prescriber** for the patient experiencing anaphylaxis.

PRINCIPLES

Anaphylaxis can be a life threatening situation and Alberta Health Services (AHS) is committed to a consistent approach for the management of patients experiencing anaphylaxis through the immediate administration of IM epinephrine.

APPLICABILITY

Compliance with this document is required by all Alberta Health Services employees, members of the medical and midwifery staffs, Students, Volunteers, and other persons acting on behalf of Alberta Health Services (including contracted service providers as necessary).

ELEMENTS

1. Points of Emphasis

1.1 This policy applies to health care professionals authorized by their regulatory college and who are competent to successfully perform the activities and skills in this policy after receiving appropriate clinical education. Annual completion of the AHS *Anaphylaxis Management: Administration of Intramuscular Epinephrine learning module* is required.

1.2 This policy is intended for the treatment of patients experiencing anaphylaxis in all **Alberta Health Services settings** with the exception of health care professionals providing:

a) Emergency Medical Services (EMS); EMS is governed by *Medical Control Protocols*;

b) Home Care services if their respective Zone Executive Leadership has chosen to use epinephrine auto-injectors for their Home Care clients.

c) Public Health services under the authority of the Medical Officer of Health.

d) Workplace Health and Safety (WHS) services under the authority of the Medical Officer of Health.

(i) Public Health services and WHS services are governed by the AHS *Standard on Management of Anaphylaxis Related to Public Health Services*.

1.3 This policy supports administration of IM epinephrine, from a one (1) mg/mL concentration ampoule, as soon as possible, as a first-line treatment for the patient experiencing anaphylaxis. **Epinephrine <u>shall not</u> be given IV as the first-line treatment for anaphylaxis.**

1.4 Epinephrine from a one (1) mg/mL concentration ampoule requires a patient-specific order from an authorized prescriber.

1.5 Anaphylaxis is characterized by sudden onset and rapid progression of symptoms. Severity of the episode is difficult to predict**. <u>Failure to administer epinephrine promptly can be life-threatening</u> – <u>death can occur within minutes</u>**. Rapid intervention is required.

1.6 Anaphylaxis kits for administration of epinephrine shall be provided to AHS settings that receive medications through AHS Pharmacy Services.

1.7 Refer to Appendix A: *Anaphylaxis Management: Administration of Epinephrine from a One (1) mg/mL Concentration Ampoule*.

1.8 If the patient cannot be transported to an Acute Care facility within 60 minutes after administration of epinephrine <u>and</u> is experiencing itching, flushing, hives, and/or nasal or eye symptoms, a single dose of IM diphenhydramine (e.g., Benadryl) may be considered. Refer to *Appendix B: Diphenhydramine (e.g., Benadryl).*

a) IM diphenhydramine may be administered with an order from an authorized prescriber or as per an applicable protocol.

2. Signs and Symptoms of Suspected Anaphylaxis

2.1 Anaphylaxis usually begins within a few minutes after exposure to the allergen and symptoms are usually evident within 15 minutes.

a) Failure to administer epinephrine promptly can be life-threatening.

2.2 Anaphylaxis is suspected and should be managed as such when the patient presents with **sudden onset and rapid progression of signs and symptoms** after exposure to a known allergen for that patient, after exposure to a likely allergen for that patient, or without a clear history of allergen exposure.

2.3 Anaphylaxis is suspected when the patient presents with **acute onset of illness**, with involvement of the skin and/or mucosa which may include generalized hives/red rash; flushed skin; itchiness; swollen face/lips/tongue/uvula; drooling, cyanosis/pale/grey, and **at least one** of the following:

a) Respiratory – airway compromise which may include stridor; wheeze; decreased air entry; increased respiratory rate; cough; increased work of breathing; shortness of breath; use of accessory muscles; hypoxemia; and/or,

b) cardiovascular compromise which may include sweating; tachycardia; cyanosis; poor capillary refill time; restlessness; hypotension; loss of consciousness.

2.4 **Or,** anaphylaxis is suspected when the patient had exposure to a **likely or known allergen** for that patient with involvement from **two or more** of the following:

a) Skin and/or mucosa which may include generalized hives/red rash; flushed skin; itchiness; swollen face/lips/tongue/uvula; cyanosis/pale/grey, drooling; and/or,

b) Respiratory – airway compromise which may include stridor; wheeze; decreased air entry; increased respiratory rate; cough; increased work of breathing; shortness of breath; use of accessory muscles; hypoxemia; and/or,

c) cardiovascular compromise which may include sweating; tachycardia; cyanosis; poor capillary refill time; restlessness; hypotension; loss of consciousness; and/or,

d) persistent gastrointestinal symptoms which may include nausea; vomiting; cramping abdominal pain; diarrhea.

(i) In rare circumstances, a person exposed to a known allergen may only experience hypotension.

2.5 Anaphylaxis must be distinguished from vasovagal syncope and anxiety, as these are more common and benign reactions. Refer to the AHS *Anaphylaxis Management: Administration of Intramuscular Epinephrine learning module* for further detail.

3. Rapid Patient Assessment

3.1 Identify the above signs and symptoms of suspected anaphylaxis by assessing the patient's:

a) Airway, breathing, and circulation;

b) skin signs;

c) gastrointestinal status; and,

d) mental and neurological status.

3.2 Determine the patient's history of exposure to suspected causative agent or allergen, if known, and time of exposure.

3.3 When anaphylaxis is suspected, seek immediate emergency assistance, as per practice setting. In the community, call 911/EMS.

4. Pharmacologic Treatment

4.1 IM epinephrine, from a one (1) mg/mL concentration ampoule, is the first-line treatment for anaphylaxis and shall be administered by an authorized health care professional immediately when anaphylaxis is suspected.

a) A patient-specific order from an authorized prescriber is required prior to, or at the same time as epinephrine is administered.

(i) In the rare circumstance when no one is able to assist in obtaining an order and when the administration of epinephrine is required as a life-saving intervention; and it is not possible to obtain an order at the same time or prior to the administration of epinephrine, the policy recommended dose(s) of epinephrine may be administered to the patient. Initiation of contact with the authorized prescriber, to obtain an order for the administered epinephrine dose(s), and provide an update on the patient's status shall occur as soon as reasonably practicable.

4.2 Dosing, administration, and monitoring:

a) Pediatric patients who weigh less than 30 kg (66 lbs):

(i) Promptly administer epinephrine 0.15 mg (0.15 mL), or as ordered by authorized prescriber, deep intramuscular (IM) to mid-anterior lateral thigh (vastus lateralis muscle).

(ii) Monitor for continued signs and symptoms of anaphylaxis and repeat epinephrine dose every five (5) minutes using a new anaphylaxis kit, to a maximum of three (3) doses, if the patient's condition does not improve.

b) Adult and pediatric patients who weigh 30 kg (66 lbs) or more:

(i) Promptly administer epinephrine 0.3 mg (0.3 mL), or as ordered by authorized prescriber, deep intramuscular (IM) to mid-anterior lateral thigh (vastus lateralis muscle).

(ii) Monitor for continued signs and symptoms of anaphylaxis and repeat epinephrine dose every five (5) minutes using a new anaphylaxis kit, to a maximum of three (3) doses, if the patient's condition does not improve.

c) If a second dose is required, use the patient's alternate thigh. If a third dose is required, use a different injection site on the first thigh used.

5. Non-pharmacologic Interventions

5.1 Stop the continued exposure to the suspected causative agent or allergen, if applicable.

5.2 Place the patient in a recumbent position (e.g., supine with lower extremities elevated) or in a position of comfort if unable to lie on their back due to respiratory distress, obesity, or pregnancy.

a) Death can occur within seconds if the patient suddenly sits, stands, or is placed in an upright position due to circulatory collapse. Keep the patient recumbent until their cardiovascular system has been stabilized.

5.3 Maintain airway and adequate ventilation.

5.4 Monitor oxygen saturation, if equipment available.

5.5 Administer oxygen as required and if available.

6. Post Treatment Monitoring, Notification, and Education/Follow-up

6.1 After administration of the epinephrine dose(s), the health care professional shall:

a) Continue to monitor the patient (include vital signs as able) until assistance arrives (e.g., EMS) or transfer occurs, as per your practice setting.

b) Notify the patient's **most responsible health practitioner** of the anaphylaxis incident and disposition of the patient as appropriate.

6.2 Once the patient is stable, provide education to the patient and family on the:

a) Potential for a biphasic anaphylactic reaction (a secondary reaction) which can occur usually two (2) to nine (9) hours after an asymptomatic period and the steps to take if it occurs (i.e., immediately call 911).

b) Importance of 24 hour observation.

7. Documentation

7.1 The health care professional shall document all interventions in the **health record** including but not limited to:

a) initial and ongoing assessments;

b) time of notification and arrival of additional assistance as per your practice setting or EMS;

c) authorized prescriber's order including time it was received;

d) name, dose, and time of medication(s) administered;

e) patient's response to intervention(s);

f) final disposition of the patient; and

g) patient education provided and the follow-up plan.

7.2 The most appropriate health care professional may submit a report in the Reporting and Learning System for Patient Safety (RLS), as per the AHS *Patient Safety* Policy Suite, for anaphylaxis and epinephrine clinical adverse events and close calls, including circumstances where administration of epinephrine was required prior to getting an order from the authorized prescriber.

DEFINITIONS

Alberta Health Services setting(s) means any environment where treatment/procedures and other health services are delivered by, on behalf of or in conjunction with, Alberta Health Services.

Anaphylaxis means a clinical syndrome, characterized by sudden onset and rapid progression of signs and symptoms which include at least one major manifestation: skin/mucosal, respiratory, or cardiovascular and at least one more manifestation from a different organ system.

Authorized prescriber means a health care professional who is permitted by Federal and Provincial legislation, their regulatory college, Alberta Health Services, and practice setting (where applicable) to prescribe medications.

Health care professional(s) means an individual who is a member of a regulated health discipline, as defined by the *Health Disciplines Act* (Alberta) or the *Health Professions Act* (Alberta), and who practises within scope or role.

Health record means the Alberta Health Services legal record of the patient's diagnostic, treatment and care information.

Most responsible health practitioner means the health practitioner who has responsibility and accountability for the specific treatment/procedure(s) provided to a patient and who is authorized by Alberta Health Services to perform the duties required to fulfill the delivery of such a treatment/procedure(s) within the scope of their practice.

Order means a direction given by a health care professional to carry out specific activity (ies) as part of the diagnostic and/or therapeutic care and treatment to the benefit of a patient. An order may be written (including handwritten and or electronic), verbal, by telephone or facsimile.

Patient means an adult or child who receives or has requested health care or services from Alberta Health Services and its health care providers or individuals authorized to act on behalf of Alberta Health Services. This term is inclusive of residents, clients and outpatients; for situations where AHS employees are seeking health services they would be considered a patient.

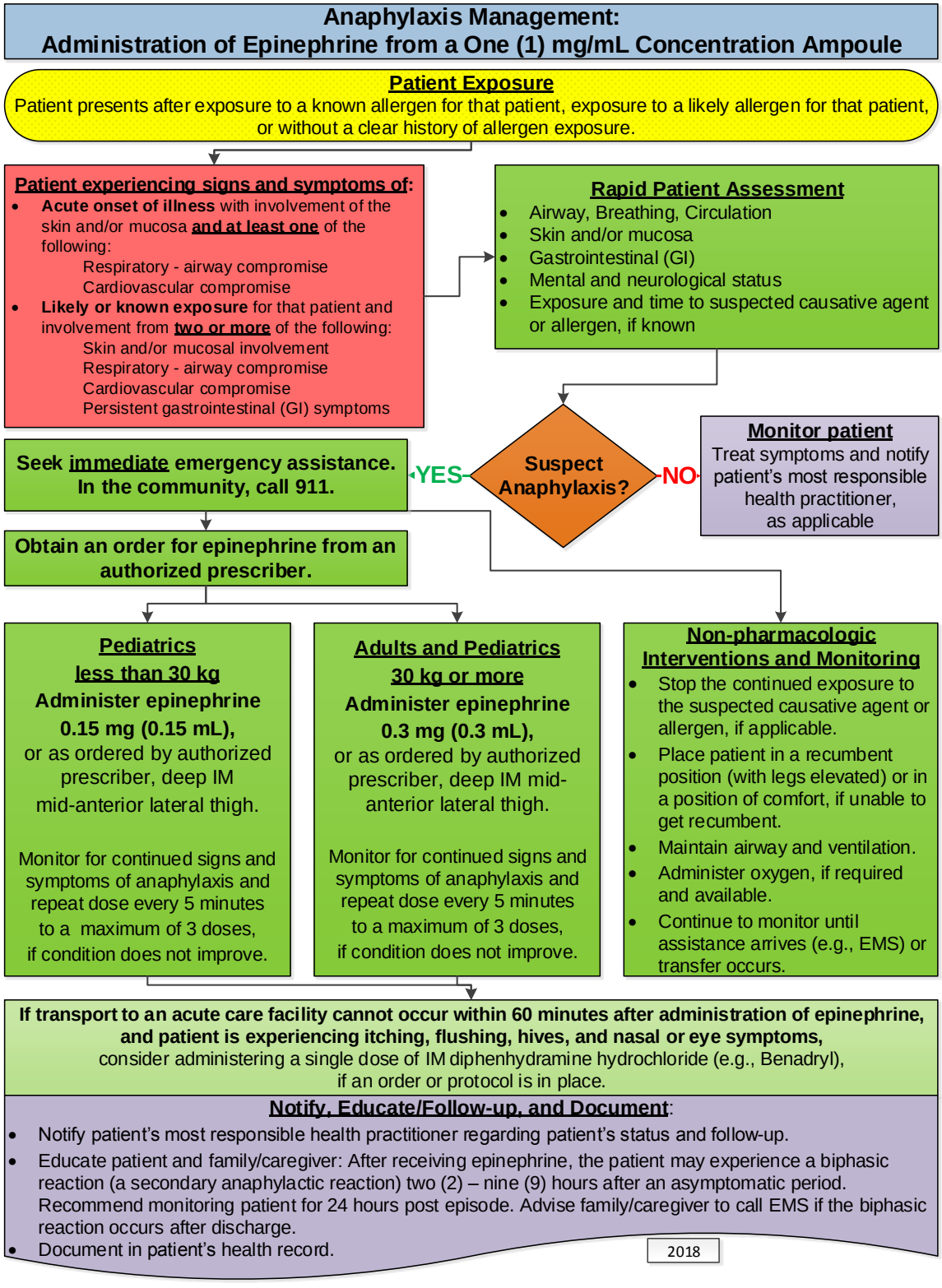
REFERENCES

- Appendix A: *Anaphylaxis Management: Administration of Epinephrine from a One (1) mg/mL Concentration Ampoule*
- Appendix B: *Diphenhydramine (e.g., Benadryl)*
- Alberta Health Services Governance Documents:
  - *Clinical Documentation* Directive (#1173)
  - *Individually Identifying Information* Policy (#1174)
  - *Standard on the Management of Anaphylaxis Related to Public Health Services* (#12.100)

VERSION HISTORY

Date	Action Taken

APPENDIX A


Anaphylaxis Management:
Administration of Epinephrine from a One (1) mg/mL Concentration Ampoule
Patient Exposure
Patient presents after exposure to a known allergen for that patient, exposure to a likely allergen for that patient, or without a clear history of allergen exposure.
Patient experiencing signs and symptoms of:
Acute onset of illness with involvement of the skin and/or mucosa and at least one of the following:
Respiratory - airway compromise
Cardiovascular compromise
Likely or known exposure for that patient and involvement from two or more of the following:
Skin and/or mucosal involvement
Respiratory - airway compromise
Cardiovascular compromise
Persistent gastrointestinal (GI) symptoms
Rapid Patient Assessment
Airway, Breathing, Circulation
Skin and/or mucosa
Gastrointestinal (GI)
Mental and neurological status
Exposure and time to suspected causative agent or allergen, if known
Suspect Anaphylaxis?
YES
NO
Seek immediate emergency assistance.
In the community, call 911.
Monitor patient
Treat symptoms and notify patient's most responsible health practitioner, as applicable
Obtain an order for epinephrine from an authorized prescriber.
Pediatrics
less than 30 kg
Administer epinephrine
0.15 mg (0.15 mL),
or as ordered by authorized prescriber, deep IM mid-anterior lateral thigh.
Monitor for continued signs and symptoms of anaphylaxis and repeat dose every 5 minutes to a maximum of 3 doses, if condition does not improve.
Adults and Pediatrics
30 kg or more
Administer epinephrine
0.3 mg (0.3 mL),
or as ordered by authorized prescriber, deep IM mid-anterior lateral thigh.
Monitor for continued signs and symptoms of anaphylaxis and repeat dose every 5 minutes to a maximum of 3 doses, if condition does not improve.
Non-pharmacologic Interventions and Monitoring
Stop the continued exposure to the suspected causative agent or allergen, if applicable.
Place patient in a recumbent position (with legs elevated) or in a position of comfort, if unable to get recumbent.
Maintain airway and ventilation.
Administer oxygen, if required and available.
Continue to monitor until assistance arrives (e.g., EMS) or transfer occurs.
If transport to an acute care facility cannot occur within 60 minutes after administration of epinephrine, and patient is experiencing itching, flushing, hives, and nasal or eye symptoms,
consider administering a single dose of IM diphenhydramine hydrochloride (e.g., Benadryl), if an order or protocol is in place.
Notify, Educate/Follow-up, and Document:
Notify patient's most responsible health practitioner regarding patient's status and follow-up.
Educate patient and family/caregiver: After receiving epinephrine, the patient may experience a biphasic reaction (a secondary anaphylactic reaction) two (2) – nine (9) hours after an asymptomatic period. Recommend monitoring patient for 24 hours post episode. Advise family/caregiver to call EMS if the biphasic reaction occurs after discharge.
Document in patient's health record.
2018

APPENDIX B

Diphenhydramine (e.g., Benadryl)

Diphenhydramine is not a life-saving intervention and will not reverse the signs and symptoms of anaphylaxis nor prevent or delay a biphasic anaphylactic reaction following the treatment of anaphylaxis with epinephrine.

Administration of IM epinephrine is the first-line treatment for anaphylaxis.

A single dose of IM diphenhydramine may be considered, if the patient:

- **cannot be transferred to an acute care facility within 60 minutes**; **and**,
- **has itching**, **flushing**, **hives**, **and/or nasal and eye symptoms**;
  OR,
- as directed and ordered by an authorized prescriber.

Note: IM Diphenhydramine may be administered with an order from an authorized prescriber or as per an applicable protocol

Diphenhydramine Dosing Information:

Weight Based Dosing (Concentration 50 mg/mL)

Administer 1 mg/kg/dose to a maximum dose of 50 mg IM

Note: Diphenhydramine is generally not recommended for infants under 12 months of age, and should be used with caution between 12-23 months because it may cause drowsiness or paradoxical excitement.