



TITLE

ANAPHYLAXIS MANAGEMENT: ADMINISTRATION OF INTRAMUSCULAR EPINEPHRINE

SCOPE

Provincial

DOCUMENT #

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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 suspected **anaphylaxis**.
- To provide clinical direction for **health care professionals** authorized to administer intramuscular (IM) epinephrine, from a one (1) milligram per millilitre (mg/mL) concentration ampoule, with a patient-specific **order** from an **authorized prescriber** to patients experiencing suspected 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 suspected 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 is not intended to provide direction for Registered Nurses (RNs) acting as their own prescriber of epinephrine for suspected anaphylaxis. Refer to the AHS *Anaphylaxis Management: Registered Nurse (RN) Prescribing and*

Administering Intramuscular Epinephrine Clinical Support Tool (CST) Protocol for direction when RNs act as their own prescriber of epinephrine when anaphylaxis is suspected.

- 1.2 This Policy is intended for the treatment of patients experiencing suspected anaphylaxis in all **Alberta Health Services settings** where epinephrine is available, with the exception of Emergency Medical Services (EMS), which is governed by the *EMS Medical Control Protocols*.
- a) In practice settings where epinephrine is not available and anaphylaxis is suspected, the health care professional shall:
- (i) seek immediate emergency assistance, as per practice setting;
 - (ii) stop exposure to the suspected allergen, if applicable; and
 - (iii) provide non-pharmacological interventions (refer to Section 4.2 d) below) until an alternate **health care provider** arrives with epinephrine.
- b) AHS does not expect a health care professional to administer epinephrine for the treatment of suspected anaphylaxis in situations not considered part of their day-to-day work responsibilities.
- (i) In an **emergency situation**, if a health care professional suspects a person is experiencing anaphylaxis, AHS supports that health care professional (if authorized by their regulatory college and competent to perform the activities and skills in this Policy, and if epinephrine is available) to use critical thinking and clinical judgement to decide if administering epinephrine, as outlined in this Policy, is in the best interest of that person.
- 1.3 This Policy applies to health care professionals authorized by their regulatory college, who are competent to successfully perform the activities and skills outlined in this document after receiving clinical education. This includes annual completion of the *AHS Anaphylaxis Management: Administration of Intramuscular Epinephrine Learning Module*.
- 1.4 Administration of IM epinephrine from a one (1) mg/mL concentration ampoule should occur as soon as possible, as it is the first-line treatment for suspected anaphylaxis. Refer to Section 4.2 c) below for epinephrine dosing recommendations based on the patient's weight, or age, if weight cannot be confirmed.
- a) Epinephrine from a one (1) mg/mL concentration ampoule requires a patient-specific order from an authorized prescriber
- 1.5 Epinephrine shall not be given intravenous (IV) as the first-line treatment for anaphylaxis.

- 1.6 Anaphylaxis is characterized by sudden onset and rapid progression of symptoms (refer to Section 2.3 below). Severity of the episode is difficult to predict.
- a) Failure to administer epinephrine promptly can be life-threatening – death can occur within minutes. Rapid intervention is required.
- 1.7 There is no absolute contraindication for the use of epinephrine when a patient is experiencing suspected, life-threatening anaphylaxis.
- 1.8 Anaphylaxis kits for administration of epinephrine shall be provided to AHS settings that receive medications through AHS Pharmacy Services.
- 1.9 A single dose of an antihistamine may be considered with an order from an authorized prescriber or as per an applicable protocol if:
- a) transport to an Acute Care facility cannot occur within 60 minutes after administration of epinephrine; AND
- b) the patient is experiencing itching, flushing, hives, and/or nasal or eye symptoms.

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.
- 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:
- a) without a clear history or an unknown history of allergen exposure;
- b) after exposure to a likely allergen for that patient; or
- c) after exposure to a known allergen for that patient.

- 2.3 Anaphylaxis is suspected when the patient presents with one (1) of the three (3) following criteria, identified in Figure 1 below.

Figure 1 – Criteria for Suspected Anaphylaxis

| Suspected Anaphylaxis Criteria | System | Symptoms may include |
|--|--------------------|---|
| 1. After <u>unknown exposure</u> – presenting with acute onset of illness, with: <ul style="list-style-type: none"> • skin and/or mucosa involvement, plus • at least one (1) symptom from either of the listed respiratory-airway or cardiovascular systems. | Skin and/or mucosa | Flushed skin, generalized hives, itchiness, swollen face/lips/ tongue and/or uvula. |
| | Respiratory–airway | Accessory muscle use, cough, decreased air entry, drooling/difficulty swallowing, grunting, hypoxemia, increased respiratory rate, increased work of breathing, nasal flaring, shortness of breath, sneezing, stridor, vocal changes, wheeze. |
| | Cardiovascular | Cyanosis/pale/grey, dizziness, headache, hypotension, loss of consciousness, poor capillary refill time, restlessness/irritability, sweating, tachycardia, throbbing or ringing ears, weakness. |
| 2. After <u>exposure to a likely or known allergen</u> for that patient, with: <ul style="list-style-type: none"> • at least one (1) symptom from two (2) or more of the listed systems. | Skin and/or mucosa | Flushed skin, generalized hives, itchiness, swollen face/lips/ tongue and/or uvula. |
| | Respiratory–airway | Accessory muscle use, cough, decreased air entry, drooling/difficulty swallowing, grunting, hypoxemia, increased respiratory rate, increased work of breathing, nasal flaring, shortness of breath, sneezing, stridor, vocal changes, wheeze. |
| | Cardiovascular | Cyanosis/pale/grey, dizziness, headache, hypotension, loss of consciousness, poor capillary refill time, restlessness/irritability, sweating, tachycardia, throbbing or ringing ears, weakness. |
| | Gastrointestinal | Cramping abdominal pain, diarrhea, incontinence, nausea, vomiting. |
| 3. After <u>exposure to a known allergen</u> for that patient, with: <ul style="list-style-type: none"> • only hypotension. • This may occur in rare circumstances. | Cardiovascular | Hypotension |

- 2.4 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 and the AHS *Is this Anaphylaxis, Syncope, or Anxiety?* Infographic.

3. Rapid Patient Assessment

- 3.1 Identify the signs and symptoms of suspected anaphylaxis (refer to Section 2.3 above) by assessing the patient's:
- airway, breathing, and circulation;
 - skin and/or mucosa;

- c) gastrointestinal status; and
- d) mental and neurological status.

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

4. Interventions

4.1 Administration of IM epinephrine, from a one (1) mg/mL concentration ampoule, should occur as soon as possible as it is the first-line treatment for suspected anaphylaxis.

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

(i) In the rare circumstance when:

- no one is able to assist in obtaining an order;
- 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. Initiating contact with the authorized prescriber to obtain an order for the administered epinephrine dose(s) and providing an update on the patient's status shall occur as soon as reasonably practicable.

4.2 Some of the following interventions may be accomplished concurrently, especially if another health care provider is available to assist.

- a) Seek immediate emergency assistance, as per practice setting. In the community, call 911/EMS.
- b) Stop the continued exposure to the suspected allergen, if applicable.
- c) Pharmacological Treatment - dosing, administration (as per the AHS *Medication Administration Policy*), and monitoring:
 - (i) Pediatric patients who weigh less than 30 kilograms (kg) (or if weight cannot be confirmed and the patient is less than eight [8] years old):

- 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).
 - 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.
- (ii) Adult and pediatric patients who weigh 30 kg or more (or if weight cannot be confirmed and the patient is eight [8] years and older):
- 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).
 - 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.
- (iii) If a second dose of epinephrine is required, use the patient's other thigh (in the vastus lateralis muscle). If a third dose of epinephrine is required, use a different injection site (in the vastus lateralis muscle) on the first thigh used.
- (iv) If a patient experiences anaphylaxis after administration of IM medications/immunizations and each thigh has been used, administer epinephrine in a different injection site (in the vastus lateralis muscle), on one of the thighs. If more than one (1) dose of epinephrine is required, alternate thighs.
- d) Non-pharmacological Interventions
- (i) Place the patient in a supine position with lower extremities elevated; if the patient is unable to lie supine with lower extremities elevated (e.g., due to respiratory distress, obesity, pregnancy, or age), place the patient in a position of comfort.
- Death can occur within seconds, due to circulatory collapse, if the patient suddenly sits, stands, or is placed in an upright position. Keep the patient in a supine position with the lower extremities elevated until their cardiovascular system has been stabilized.
- (ii) Maintain airway and adequate ventilation.
- (iii) Monitor oxygen saturation, if equipment is available.

- (iv) Administer oxygen as required and if available.

5. Post-treatment Monitoring/Assessment, Notification, and Education/Follow-up

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

- a) continue to monitor/assess the patient (refer to Section 3.1 above), including vital signs, at a minimum of every five (5) minutes until the patient is showing no new or continued signs and symptoms of anaphylaxis (refer to Section 2.3 above), assistance arrives (e.g., EMS), and/or care is transferred, as per practice setting; and
- b) notify the patient's **most responsible health practitioner (MRHP)**, if not aware, of the anaphylaxis incident, the disposition of the patient, and for further prescribing decisions, if applicable.

5.2 Once the patient is showing no new or continued signs and symptoms of anaphylaxis (refer to Section 2.3 above), the health care professional shall:

- a) monitor/assess the patient, as per practice setting standards, or as ordered by the MRHP, while observing for the potential of a **biphasic anaphylactic reaction**; and
- b) provide education to the patient and/or **family** on the:
 - (i) importance of observing and assessing for up to 72 hours, due to the potential for a biphasic anaphylactic reaction; and
 - (ii) steps to take if a biphasic anaphylactic reaction occurs (i.e., immediately call 911).

6. Documentation

6.1 The health care professional shall document all interventions in the patient's **health record**, and/or provide a verbal report to others taking over care (e.g., EMS), and document according to practice setting standards, including but not limited to the following:

- a) facts of the **clinical adverse event (CAE)**, if applicable;
- b) initial assessment, including the presenting signs and symptoms;
- c) time of notification and arrival of additional assistance as per practice setting;
- d) authorized prescriber's order of epinephrine, as per the AHS *Medication Orders Policy and Procedure*, including time it was received, if there was no existing order;

- e) dose, concentration, route, site, and time of epinephrine dose(s) administered, as per the AHS *Medication Administration Policy*;
- f) non-pharmacological interventions, as applicable;
- g) ongoing assessments and patient's response to intervention(s);
- h) patient's final disposition;
- i) patient education provided, if applicable; and
- j) follow-up plan, if known.

6.2 Documenting CAEs and **close calls**:

- a) For anaphylaxis and epinephrine CAEs and close calls, 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 and Procedures*.
- b) Anaphylaxis after immunization is considered an **adverse event following immunization (AEFI)** and shall be reported as soon as possible to the AEFI provincial team, as per the *Immunization Regulation* under the *Public Health Act (Alberta)*.

DEFINITIONS

Adverse event following immunization (AEFI) means an unfavourable health occurrence experience by a patient that:

- Follows immunization;
- Cannot be attributed to a pre-existing condition; and
- Meets one or more of the following as determined by a health practitioner:
 - A life-threatening health occurrence that requires hospitalization or urgent medical attention.
 - The health occurrence is unusual or unexpected that:
 - Has not previously been identified; or
 - Has been previously identified but has increased frequency.
 - The health occurrence cannot be explained by the patient's medical history, recent disease or illness or consumption of medication.

Alberta Health Services setting 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 serious allergic reaction that has a rapid onset and can cause death.

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.

Biphasic anaphylactic reaction means a secondary anaphylactic reaction (i.e., a reoccurrence of anaphylaxis). It usually occurs two (2) to nine (9) hours after, but can be up to 72 hours after, the first anaphylactic reaction, where the patient has received the appropriate initial treatment, becomes asymptomatic, and then becomes symptomatic again, in spite of no further exposure to an allergen.

Clinical adverse event means an event that reasonably could or does result in an unintended injury or complications arising from health care management, with outcomes that may range from (but are not limited to) death or disability to dissatisfaction with health care management, or require a change in patient care.

Clinical Support Tool (CST) means an evidence-informed tool used by the practice setting to guide decisions related to prescribing and ordering of diagnostic tests, and ordering medical radiography. The clinical support tool may be in the form of a protocol, algorithm, or clinical practice guideline (CARNA, 2019).

Close call means an event that has potential for harm and is intercepted or corrected prior to reaching the patient.

Emergency situation means a circumstance which requires immediate health care that is necessary to preserve life, to prevent serious physical or mental harm, or to alleviate severe pain.

Family means one or more individuals identified by the patient as an important support, and who the patient wishes to be included in any encounters with the health care system, including but not limited to, family members, legal guardians, friends, and informal caregivers.

Health care professional 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 practices within scope or role.

Health care provider means any person who provides goods or services to a patient, inclusive of health care professionals, staff, students, volunteers and other persons acting on behalf of or in conjunction with Alberta Health Services.

Health record means the collection of all records documenting individually identifying health information in relation to a single person.

Most responsible health practitioner (MRHP) means the health practitioner who has responsibility and accountability for the specific treatment/procedure(s) provided to a patient and who is authorized by AHS 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 regulated 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.

REFERENCES

- Alberta Health Services Governance Documents:
 - *Anaphylaxis Management: Registered Nurse (RN) Prescribing and Administering Intramuscular Epinephrine Clinical Support Tool Protocol (#HCS-223-01)*
 - *Clinical Documentation Directive (#1173)*
 - *Disclosure of Harm Procedure (#PS-95-01)*
 - *Immediate Management of Clinical Adverse Events Procedure (#PS-95-02)*
 - *Medication Administration Policy (#HCS-244)*
 - *Medication Orders Policy (#PS-93)*
 - *Medication Orders Procedure (#PS-93-01)*
 - *Ongoing Management of Clinical Adverse Events Procedure (#PS-95-03)*
 - *Patient Safety Alerts and Safer Practice Notices Procedure (#PS-95-05)*
 - *Patient Safety Learning Summary Procedure (#PS-95-06)*
 - *Recognizing and Responding to Hazards, Close Calls and Clinical Adverse Events Policy (#PS-95)*
 - *Reporting of Clinical Adverse Events, Close Calls and Hazards Procedure (#PS-95-04)*
 - *Standard for Reporting and Follow-Up of Adverse Events Following Immunization (#11.100)*
- Alberta Health Services Resources:
 - *Anaphylaxis Management: Administration of Intramuscular Epinephrine Learning Module*
 - *Is it Anaphylaxis, Syncope, or Anxiety? Infographic*
 - *Reporting and Learning System for Patient Safety (RLS)*
- Non-Alberta Health Services Documents:
 - *Immunization Regulation (Alberta)*
 - *Protecting Canadians from Unsafe Drugs Act (Vanessa's Law) (Canada)*
 - *Public Health Act (Alberta)*
 - *Registered Nurse Prescribing Schedule 1 Drugs and Ordering Diagnostic Tests: Requirements and Standards (CARNA)*

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