PRIMARY CARE PRACTICE GUIDELINES	**Practice Guideline:** *Emergency Management of Anaphylaxis in the Primary Care Setting*	**Guideline Number** *PCPG4*
	Approved By: *Program Mgmt Team - March 31, 2008* *Community Mgmt Team - May 5, 2008*	**Pages:** 1 of 6
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1. **PRACTICE OUTCOME**

To identify anaphylaxis in the primary care setting and provide an evidence informed emergency response utilizing the most current provincial and federal practice guidelines.

2. DEFINITIONS

Anaphylaxis is a potentially life-threatening allergic reaction to foreign protein antigens such as food and bee stings. It is a rare complication of immunization but should be anticipated with every vaccination. Pre-vaccination screening should include questions about possible allergy to any component of the product(s) being considered in order to identify this contraindication. As avoidance is not always possible, every primary care provider should be familiar with the symptoms of anaphylaxis and be ready to initiate management and administer appropriate medications.

Anaphylaxis is defined by:

1) Itchy, urticarial rash (hives) (in over 90% of cases);
2) Progressive, painless swelling (angioedema) about the face and mouth, which may be preceded by itchiness, tearing, nasal congestion or facial flushing;
3) Respiratory symptoms, including sneezing, coughing, wheezing, labored breathing and upper airway swelling (indicated by hoarseness and/or difficulty swallowing) possibly causing airway obstruction;
4) Hypotension, which generally develops later in the reaction and can progress to cause shock and collapse.

Gastrointestinal symptoms like nausea, vomiting and diarrhea may occur with anaphylaxis.

3. GUIDELINES

3.1. Assessment

3.1.1. Distinguish anaphylaxis from fainting, anxiety & breath holding spells:

NON ANAPHYLAXIS REACTIONS (usually immediate reactions)		
Condition	**Symptoms**	**Treatment**
Fainting	• Pale, loses consciousness, collapses to ground • May be accompanied by brief, clonic seizure activity (rhythmic jerking of limbs) • Recovery of consciousness usually occurs within 1-2 minutes but may remain pale, diaphoretic, mildly hypotensive	• Place in recumbent position • Reassurance • Monitor vital signs
Anxiety	• Fearful, pale, diaphoretic • C/O lightheadness, dizziness, numbness, tingling of face & extremities • Hyperventilation	• Reassurance • Rebreathing using paper bag
Breath-holding	• Occurs in young children who are upset & crying hard • Suddenly silent but obviously agitated • Facial flushing, perioral cyanosis • Spells end with resumption of crying but may be brief period of unconsciousness during which time, breathing resumes	• Reassurance to parent & child

3.1.2. Anaphylaxis usually develops over several minutes and usually involves at least 2 body systems (affecting the skin, respiration, circulation). Unconsciousness is RARELY the sole manifestation of anaphylaxis. It occurs only as a late event in severe cases.

Anaphylaxis symptoms develop over several minutes and may include:

- Itchy, urticarial rash (hives) (in over 90% of cases)
- Progressive, painless swelling (angioedema) about the face and mouth, which may be preceded by itchiness, tearing, nasal congestion or facial flushing
- Respiratory symptoms, including sneezing, coughing, wheezing, labored breathing & upper airway swelling (indicated by hoarseness &/or difficulty swallowing) possibly causing airway obstruction
- Hypotension, which generally develops later in the reaction & can progress to cause shock & collapse.
- Nausea, vomiting & diarrhea may occur

3.2. **Intervention**

3.2.1. The following steps describe the management of anaphylaxis. Steps 1 to 4 are meant to be done rapidly or simultaneously**. The priority is prompt administration of epinephrine**, which should not be delayed if earlier steps cannot quickly be completed.

3.2.2. **Epinephrine (Adrenalin) 1:1000 aqueous solution – first and most important drug to give.**

- Administer 0.01 mL/kg (Maximum dosage .5 mL per injection) intramuscularly (IM) into un-immunized limb. Injecting epinephrine close or into the same site as the immunizing agent is contraindicated as it dilates the blood vessels and may speed absorption of vaccine. Administering into a large muscle, such as the vastus lateralis (thigh) muscle, achieves a more rapid and higher concentration of epinephrine into the blood stream compared to other sites. If accessing the thigh muscle is problematic and the person is older than 12 months of age, epinephrine can be administered in the deltoid muscle. If all limbs have been used for immunizations, epinephrine must still be administered intramuscularly. Epinephrine can be administered into a muscle close to the site where the immunization agent was administered providing there is a minimum distance of 2.5 cm (or 1 inch) is maintained between the injection sites of the immunization agent and the epinephrine drug.
- For correct dosing see ***Section 5.2: Dosing Guide for Epinephrine***

3.2.3. Activate 911 and emergency response

- Refer to the General Emergency Response Guidelines for Primary Care

3.2.4. **Place the client in a recumbent position**, elevating the feet if possible.

3.2.5. **Establish an oral airway** if necessary.

3.2.6. **Oxygen** should be given to clients with cyanosis, dyspnea or any other severe reaction. Monitor with pulse oximetry if available.

3.2.7. **Diphenhydramine hydrochloride (Benadryl) can be given as a secondary drug** to treat symptoms such as pruritus, erythema and urticaria. Administer diphenhydramine hydrochloride (maximum of 50 mg) ONCE intramuscularly (IM) at

a site other than the inoculation. (Correct dosing see Treatment Guidelines for Anaphylaxis attached). **Never give diphenhydramine hydrochloride alone or before epinephrine.** For correct dosing see ***Section 5.3: Dosing Guide for Diphenhyramine Hypochloride***

3.2.8. **Monitor vital signs** and reassess the situation frequently, to guide medication use.

3.2.9. **Epinephrine dosing can be repeated twice at 10-15 minute intervals** if necessary, for a total of three doses, again avoiding the limb in which the vaccination was given. A different limb is preferred for each dose to maximize drug absorption.

3.2.10. **Transport to an emergency department.** Since 20% of anaphylaxis episodes follow a biphasic course with recurrence of the reaction after a 2-9 hour asymptomatic period, hospitalization or a long period of observation is recommended for monitoring. For all but the mildest cases of anaphylaxis, patients should be hospitalized overnight or monitored for at least 12 hours.

3.2.11. **Document the event** and ensure the patient's current and future records are clearly marked with a history of a suspected anaphylactic shock following immunization(s).

3.3. **Post-Event Follow Up**

3.3.1. **Prevention of Anaphylaxis and/or Reactions to Immunization:**

- Every vaccine provider should be competent and able to initiate management and treatment of anaphylaxis and respond to reactions after immunization.
- Pre-vaccination screening including questions about possible allergy to any component of the products(s) being considered to identify contraindications.
- Vaccine recipients should be kept under supervision for at least 15 minutes post immunization; 30 minutes is a safer interval when there is a specific concern about possible vaccine allergy.
- Create a "low stress" environment for immunization such as short waiting times, comfortable room temperature, preparation of vaccines out of view of patients & privacy during the procedure.
- To reduce injuries during fainting spells, it is best to immunize clients while seated.

4. EQUIPMENT / SUPPLIES REQUIRED

- Quick Reference Guides - Emergency Response Steps and Dosing Guides
- Sphygmomanometer
- Stethoscope
- 3 – 1 cc syringes with safety engineered needles with 25G (Select needle length appropriate to patient size and body mass: 3x1"; 3x 5/8"; 3 x 1.5")
- 2 x 1mL ampoules of epinephrine (1:1000 aqueous solution) (Check expiry date monthly and replace once expired, as per Medication Storage and Handling Guideline)
- 1 x 1 mL vial of diphenhydramine hydrochloride (50 mg/mL)
- 5 alcohol swabs (optional)
- One (1) pocket mask
- Oxygen
- Pulse oximeter (optional)

5. RES0URCES / QUICK REFERENCE SHEET

5.1. Quick Reference Guide for Emergency Response (**see Section 3.2 for more detailed information**):

STEP	INSTRUCTIONS
1	**Epinephrine (Adrenalin) 1:1000 aqueous solution – first and most important drug to give.** ▪ Administer 0.01 mL/kg (Maximum dosage .5 mL per injection) intramuscularly (IM) into un-immunized limb. ▪ For correct dosing see ***Section 5.1: Dosing Guide for Epinephrine***
2	**Activate 911 and emergency response**
3	**Place the client in a recumbent position**, elevating the feet if possible.
4	**Establish an oral airway** if necessary.
5	**Oxygen** should be given to clients with cyanosis, dyspnea or any other severe reaction. Monitor with pulse oximetry if available.
6	**Diphenhydramine hydrochloride (Benadryl) can be given as a secondary drug** to treat symptoms such as pruritus, erythema and urticaria. ▪ Administer diphenhydramine hydrochloride (maximum of 50 mg) ONCE intramuscularly (IM) at a site other than the inoculation. ▪ **Never give diphenhydramine hydrochloride alone or before epinephrine.** ▪ For correct dosing see ***Section 5.2: Dosing Guide for Diphenhyramine Hypochloride***
7	**Monitor vital signs** and reassess the situation frequently, to guide medication use.
8	**Epinephrine dosing can be repeated twice at 10-15 minute intervals** if necessary, for a total of three doses.
9	**Transport to an emergency department.**
10	**Document the event**

5.2. Dosing Guide for Epinephrine:

Treatment Guidelines for Anaphylaxis **Appropriate Dose of Epinephrine (1:1000) According to Age**	
AGE	**DOSE**
2 to 6 months	0.07 ml
6-12 months	0.07-0.10 ml
12-18 months	0.10-0.15 ml
18 months to 4 years	0.15 ml
5 years	0.20 ml
6-9 years	0.30 ml
10-13 years	0.40 ml
>=14 years	0.50 ml
EPINEPHRINE CAN BE REPEATED AT 10-15 MINUTE INTERVALS TO A MAXIMUM OF 3 DOSES.	

5.3. Dosing Guide for Diphenhydramine Hypochloride (Benadryl):

Treatment Guidelines for Anaphylaxis Appropriate Dose of Diphenhydramine Hydrochloride	
Age	**Injected (50 mg/ml)**
<2 years	0.25 ml
2-4 years	0.50 ml
5 – 11 years	0.50-1.00 ml
>= 12 years	1.00 ml
DO NOT REPEAT	

6. SOURCES/REFERENCES

6.1. National Advisory Committee on Immunization. (2006). Canadian Immunization Guide (7th edition). Public Health Agency of Canada: Ottawa, Canada. http://publications.gc.ca

6.2. Manitoba Health. (Revised November 2007). Protocol for Management of Suspected Anaphylactic Shock. http://www.gov.mb.ca/health/publichealth/cdc/protocol/anaphylactic.pdf

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