PROTOCOL FOR THE MANAGEMENT OF IMMUNIZATION-RELATED ANAPHYLAXIS IN NON-HOSPITAL SETTINGS

Version 1.0

The Office of the Chief Medical Officer of Health
Communicable Disease Control Unit

Revised February 2011

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1.0 SCOPE

This guide is intended to help Public Health and non-Public Health immunization providers in the prevention, mitigation, assessment and management of suspected or confirmed anaphylactic reactions in Public Health clinics, medical offices or in similar non-hospital settings.

2.0 ANAPHYLAXIS

2.1 Description

Anaphylaxis is a severe allergic reaction to a foreign substance that occurs rapidly and may be fatal in some cases.

While anaphylaxis is extremely rare, every immunization carries an associated risk of producing an anaphylactic reaction. Based on Canadian surveillance data for vaccine adverse events from 1990 to 2005, the annual rate of anaphylaxis ranges from 0.11 to 0.31 cases per 100,000 doses of vaccine distributed in Canada.

Anaphylaxis often produces signs and symptoms within minutes of exposure to an offending stimulus. Most instances begin within 30 minutes after an injection of vaccine, but some reactions might develop later.

The clinical signs usually involve multiple body systems (cutaneous, respiratory, circulatory). The symptoms of anaphylaxis are varied and, in severe cases, may progress to shock and cardiovascular collapse, characterized by, among other things, an eventual loss of consciousness.

Fatalities during anaphylaxis usually result from delay in the administration of epinephrine and from severe respiratory complications, cardiovascular complications, or both.

It is important to recognize the first signs and symptoms of anaphylaxis quickly so that treatment can be administered without delay.

2.2 Clinical presentation

Urticaria and angioedema are the most common manifestations of anaphylaxis. Urticaria (hives) are raised, often itchy, wheals on the surface of the skin. Angioedema is a swelling similar to urticaria, but the swelling is beneath the skin rather than on the surface. The swellings, called welts, usually occur around the eyes and lips. They may also be found on the hands, feet, and neck and in the throat.

Features of early or mild anaphylaxis may include swelling and hives at the injection site, sneezing, nasal congestion, tearing, coughing and facial flushing. These symptoms

are generally associated with minimal dysfunction.
Features of moderate to severe anaphylaxis include obstructive swelling of the upper airway, hypotension and marked bronchospasm (constriction of the air passages of the lung by spasmodic contraction of the bronchial muscles).

Table 1: Frequency of occurrence of signs and symptoms of anaphylaxis	
Signs and symptoms	**Approximate frequency**
Cutaneous	**90%**
Generalized urticaria (hives)and/or angioedema (welts)	85 – 90%
Flushing	45 – 55%
Pruritus (itchiness) with or without rash	2 – 5%
Respiratory	**40 – 60 %**
Upper airway angioedema (stridor)	50 – 60%
Dyspnea (difficulty breathing), wheeze	45 – 50%
Rhinitis (nasal congestion)	15 – 20%
Dizziness, syncope (fainting), hypotension	**30 – 35%**
Abdominal	
Nausea, vomiting, diarrhea, cramping pain	25 – 30%
Miscellaneous	
Headache	5 – 8%
Substernal (chest) pain	4 – 6%
Seizure	1- 2%
From: The diagnosis and management of anaphylaxis: an updated parameter. (2005). Journal of Allergy and Clinical Immunology, 115, S483-523.	

2.3 Assessment

To assess adequately the nature of any post-immunization reaction that could be of an anaphylactic nature, it is important to assess comprehensively the various organ systems that may be implicated:

- Cardiac:
  - Level of consciousness (impairment might reflect hypoxia)
  - Pulse rate (assess for rapid, weak, irregular pulse).
  - Pallor or cyanosis around perioral area
  - Capillary refill time (if a compromise in perfusion is suspected)
  - Blood pressure, if required equipment is available
- Respiratory:
  - Hoarse cry/voice, stridor (a high-pitched noisy sound occurring during inhalation), cough, wheezing, shortness of breath or labored breathing, use of accessory muscles, etc.
  - Respiratory rate
- Cutaneous:
  - Injection site(s) redness, swelling or hives

    - Facial flushing, itching, hives or welts and their extent, angioedema, other rashes
- Gastrointestinal system:
    - nausea, vomiting, diarrhea, abdominal pain

Record full details of the assessment. The use of the "Worksheet for Assessment and Treatment of Anaphylaxis" is strongly encouraged to record observed signs and symptoms as well as evolution and treatments provided (See Section 10.0)

In general, the sooner the onset, the more rapidly evolving and severe the anaphylactic reaction.

3.0 PRE- AND POST-IMMUNIZATION ASSESSMENT

3.1 Pre-immunization

Before each immunization visit, each client should be questioned with regard to known allergies or past adverse reactions to a vaccine(s) or its components.

If a client reports having an anaphylactic reaction (or other, moderate to severe reaction that may be of allergic nature) to a previous dose (or component) of the vaccine to be administered during the visit, a recommendation from the physician providing the direct order or medical directive should be sought on how to proceed (if applicable). In the case of Public Health, the regional Medical Officer of Health (MOH) should be contacted on how to proceed. If the MOH is not available, the MOH on-call pager should be used to reach an available MOH. If no physician/MOH can be reached at that time, vaccination should be postponed until the situation can be discussed with an MOH.

3.2 Post-immunization

Advise recipients of any biological product (i.e., vaccine) to remain under supervision for at least 15 minutes after immunization, regardless of whether they have had the particular product previously. Thirty minutes is a safer duration when a client has had a prior allergic reaction to the biological product or a component of the biological product. Longer periods of observation (i.e. 30 minutes or more) are appropriate if localized reaction or minor systemic symptoms occur to monitor any progression.

Routine supervision should ensure that clients remain within a short distance of the vaccinator with the instruction that they ask someone to get the nurse for them immediately if they feel unwell.

When clients choose not to remain under supervision after immunization, they (or their parent/guardian) should be informed of the signs and symptoms of anaphylaxis and instructed to obtain immediate medical attention should symptoms occur.

The risk of fainting is the most common reason to keep clients under observation.

4.0 DIFFERENTIAL DIAGNOSIS OF ANAPHYLAXIS

Anaphylaxis must be distinguished from fainting (vasovagal syncope), anxiety and breath-holding spells, which are more common and benign reactions.

4.1 Vasovagal reaction

During a vasovagal reaction, the client suddenly becomes pale, feels dizzy and may lose consciousness and collapse. Fainting is sometimes accompanied by brief clonic seizure activity (i.e., rhythmic jerking of the limbs), but this generally requires no specific treatment or investigation. The client should be place in a recumbent position, turned on his/her side, with slight pronation. This will help prevent aspiration and keep the airway open while the client is unconscious, especially if seizure activity is present.

Recovery of consciousness occurs within a minute or two, but clients may remain pale, diaphoretic and mildly hypotensive for several more minutes. **If unconsciousness persists for more than two to three minutes, call 911/ambulance and proceed as per emergency treatment for anaphylaxis.** Unconsciousness may reflect hypoxia.

The lack of hives, a slow, steady pulse rate and cool pale skin distinguish a vasovagal episode from anaphylaxis.

Prior to immunization, ask the client about the history of fainting with previous immunizations.

To reduce the likelihood of fainting (and the possibility of injuries), consider the following measures to lower stress in those awaiting immunization:

- seat every client prior to immunization
- maintain a comfortably cool room temperature and, if possible, with plenty of fresh air
- avoid long line-ups in mass immunization clinics
- prepare vaccine(s) out of view of recipients
- provide privacy during vaccination
- if the client is anxious and pale but remains conscious: have him or her lie down with legs slightly elevated, reassure, and apply cold wet cloth to face.

If the client was lying down, have him or her sit for a few minutes before standing.

4.2 Anxiety/pain reaction

Clients experiencing an anxiety reaction may appear fearful, pale and diaphoretic and complain of lightheadedness, dizziness and numbness, as well as tingling of the face and extremities. Hyperventilation is usually evident.

If a client appears anxious, it may be helpful to have him or her re-breathe into a paper bag until symptoms subside. This technique must be used with caution and should be a last resort option to address anxiety-related hyperventilation since an anaphylactic reaction misdiagnosed as anxiety could worsen the associated hypoxia by the use of paper bag re-breathing.

4.3 Breath-holding spells

Breath-holding spells occur in some young children when they are upset, crying hard, and reacting to injection pain. With breath-holding, the child is suddenly silent, but obviously agitated. Facial flushing and perioral cyanosis deepens as breath-holding continues. Some spells end with resumption of crying, but others end with a brief period of unconsciousness during which breathing resumes. Occasionally, the breath-holding spell may be accompanied by brief clonic seizure activity. Similar spells may have been observed in other circumstances. No treatment is required beyond reassurance of the child and parents.

4.4 Allergic reaction

Allergic reactions constitute a spectrum, the extreme end of which is anaphylaxis, but milder forms may involve both the dermatologic/mucosal (e.g., urticaria, pruritus, rhinitis) and/or the respiratory systems (e.g., sneezing, rhinorrhea, etc.). Anaphylaxis is set apart from simple allergic reactions by the simultaneous involvement of the cardiovascular system and loss of intravascular volume as well as respiratory obstruction.

4.5 Injection-site reactions

A mild local reaction resolving by itself within a few minutes does not require special observation.

If swelling and hives occur at the injection site(s):

- Keep the client under **direct observation** for at least 30 minutes to ensure the reaction remains localized
- Observe for any deterioration in condition
- If hives or swelling disappears, or there is no evidence of any progression to other parts of the body or any other symptoms within the 30-minute observation period, no further observation is necessary. Release the client from observation.
- **If any other symptoms arise,** even if considered mild (e.g., sneezing, nasal congestion, tearing, coughing, facial flushing) or if there is evidence of any

- progression of the hives or swelling to other parts of the body, **administer epinephrine.**
- There is little risk to the precautionary use of epinephrine, whereas delay in its administration (when required) may result in difficulty to treat anaphylaxis and eventual death
- Apply ice for comfort.

The following table provides a comparison of the key features of anaphylaxis, vasovagal reactions and anxiety reactions:

	ANAPHYLAXIS	VASOVAGAL	ANXIETY
DEFINITION	An acute systemic and potentially fatal allergic reaction to a foreign substance. IgE-mediated antibody induces histamine release from tissue mast cells.	A temporary unconsciousness caused by diminished blood supply to the brain due to painful stimuli or emotional reaction.	A protective physiological state recognized as fear, apprehension, or worry.
ONSET	Usually slower, most instances begin within 30 minutes after immunization.	Sudden, occurs before, during, or shortly after immunization; recovery occurs within one to two minutes	Sudden, occurs before, during, or shortly after immunization; recovery occurs within one to two minutes
SKIN	- warm, clammy and flushed - pruritus and urticaria (>90% of cases) - progressive, painless swelling (face, mouth and tongue)	- pale - excessive perspiration - cold, clammy	- pale - excessive perspiration - cold, clammy
BREATHING	- sneezing, coughing, wheezing, labored breathing - upper airway swelling (hoarseness and/or difficulty swallowing) possibly causing airway obstruction	- normal or shallow, irregular, labored	- rapid and shallow (hyperventilation)
PULSE	- rapid, weak, irregular	- slow, steady	- rapid
BLOOD PRESSURE	- hypotension which may progress to shock and collapse	- decreased systolic and diastolic	- normal or elevated systolic
SYMPTOMS and BEHAVIOURS	- uneasiness, restlessness, agitation - not all signs/symptoms will be exhibited in each person; usually one body system predominates.	- fearfulness - light-headedness - dizziness - numbness, weakness - sometimes accompanied by brief clonic seizure activity	- fearfulness - light-headedness, dizziness - numbness, weakness - tingling around lips and spasm in the hands and feet - hyperventilation
GASTRO-INTESTINAL	- nausea and vomiting - abdominal pain, diarrhea	- nausea	- nausea
OTHER SYMPTOMS	- loss of consciousness - progression of injection site reaction beyond hives and swelling	- Loss of consciousness is possible; of short duration (one to two minutes)	- loss of consciousness in severe cases; of short duration

5.0 EMERGENCY TREATMENT OF ANAPHYLAXIS

1. Call for assistance. Call 911 / ambulance. Do not leave the client under any circumstances.
2. Position the client in the recumbent position and elevate legs, as tolerated symptomatically. This slows progression of circulatory compromise, if present, by preventing orthostatic hypotension and helping to divert effective circulation from the periphery to the head, heart and kidneys.

3. Administer aqueous epinephrine (1:1,000) **IM** or **SC** into an unimmunized limb **immediately.**

Dose: 0.01ml/kg to maximum of 0.5ml OR:	
AGE	**EPINEPHRINE**
2 – 6 months	0.07 ml
7 – 12 months	0.10 ml
13 months – 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

The most important step in the management of anaphylaxis is the immediate administration of aqueous epinephrine 1:1,000. **Failure to use epinephrine promptly is more dangerous than its improper use. There is no contraindication to epinephrine administration in anaphylaxis.**

IM injection of epinephrine into the thigh is the preferred route for administration.

DO NOT inject epinephrine into the same muscle mass (e.g., thigh) as the vaccine was administered (this may increase blood flow locally, thereby increasing absorption of the agent).

If both thighs were used for immunization:
- give epinephrine **IM** into deltoid if client is > 12 months old
- give epinephrine **SC** into upper outer triceps area of the arm(s) if the client is < 12 months old

If both thighs and both arms were used for IM immunizations, give epinephrine **SC** into upper outer triceps area of the arm(s) or into the fatty area of the anterolateral thigh.

Injection of epinephrine can be made through clothing, if necessary.

Note: An epinephrine self-injector (Epipen or Twinject) can also be used in the situation when the immunization-provider is not present and if the layperson who administers the

self-injector is knowledgeable about proper use. The regular preparations contain 0.3mL of epinephrine 1:1,000 and can be used for individuals older than six.

If a client or his or her parent/guardian refuses the administration of epinephrine when it is indicated, inform them of the risk and immediately call 911 or an ambulance to arrange for transfer to an acute-care facility. The administration of diphenhydramine hydrochloride (Benadryl) is not appropriate in this situation. Diphenhydramine hydrochloride is considered second-line therapy to epinephrine and should never be administered alone in the treatment of anaphylaxis.

4. As an adjunct to epinephrine, a dose of diphenhydramine hydrochloride (Benadryl) can be given to treat symptoms such as pruritus, erythema and urticaria.
Oral treatment (1-2 mg/kg) is preferred for conscious clients who are not seriously ill, because Benadryl is painful when given IM.

If oral treatment is not possible, give 50 mg/mL IM (maximum of 50 mg or 1mL) **once** preferably at a different site to that in which epinephrine was given. If necessary, use same thigh as the one in which epinephrine was given. This product can also be given into same muscle mass as vaccine was given.

Benadryl can be given at any time interval, either after the initial or repeat doses of epinephrine. ***Remember: never give diphenhydramine alone or before epinephrine.***

AGE	Diphenhydramine hydrochloride – IM injection
< 2 years	0.25 ml
2 – 4 years	0.50 ml
5 – 11 years	0.50-1.00ml
≥ 12	1.00ml

***This medication has a high safety margin, making precise dosing less important.**

5. After administration of epinephrine and diphenhydramine, monitor and document vital signs (pulse, respiration, level of consciousness and blood pressure (if possible)) and reassess the client frequently until transport to the hospital.

- If the client experiences respiratory difficulty: elevate head and chest slightly.
- If airway is impaired: improve position by using head tilt, chin lift, or jaw thrust.
  If vomiting is likely: turn the client to side-lying position.

Table 2: Pulse and respiratory rates		
Age	**Heart (pulse) rate per minute, upper limit**	**Respiratory rate per minute, upper limit**
0-1 mo	180	60
2-12 mo	160	50
12-24 mo	140	40
2-6 y	120	30
6-12 y	110	20
>12 y (adult)	100	20
From: Emergency Medicine: A comprehensive study guide. 6th edition. (2004). McGraw Hill.		

6. Repeat dosing of epinephrine: If major symptoms (i.e., breathing difficulties, level of consciousness, etc.) do not improve or worsen after the first dose, additional doses of epinephrine are warranted.

   - Repeat epinephrine twice at five-minute intervals, as needed (maximum: three doses)

   - Alternate right and left thigh or arm sites for repeat doses of epinephrine (to maximize absorption of epinephrine).

6.0 CLIENT TRANSPORT

Transfer the client to a hospital as quickly as possible once the first aid procedures were performed. Because 20 per cent of anaphylaxis episodes follow a biphasic course with recurrence of the reaction after a two- to nine-hour asymptomatic period, hospitalization or a long period of observation is recommended for monitoring.

7.0 RECORDS AND REPORTING

Document the administration of epinephrine and diphenhydramine hydrochloride. The “Worksheet for Assessment and Treatment of Anaphylaxis” (Section 10.0) can be used as an interim record for data collection before entry of the information into the Client Service Delivery System (CSDS – Public Health IT system). **Do not** send this form to the provincial Communicable Disease Control Unit (CDC Unit). Report the case of anaphylaxis under the CSDS “Adverse Events Tab.” Record the signs and symptoms in the comments field.

The use of the worksheet by all immunizers is **strongly encouraged** since it facilitates complete assessment and documentation of signs, symptoms and care provided. This

will also facilitate Adverse Event Following Immunization (AEFI) reporting and the assessment of follow-up evaluations as required.

A detailed record of the incident using the New Brunswick AEFI reporting form should be completed by the immunization-provider and submitted to the local Public Health office (or, in the case of Public Health immunizers, directly to the MOH) for review and recommendations on future vaccinations. Record the MOH recommendations (i.e., contraindications, precautions, vaccination in controlled setting, etc.) in the client's personal and electronic immunization record. Also, ensure the MOH recommendations are shared with the client.

8.0 MAINTENANCE OF EPINEPHRINE AND OTHER EMERGENCY SUPPLIES

Check epinephrine vials and other emergency supplies prior to each immunization clinic or at least once a month and replace if outdated.

Protect epinephrine and diphenhydramine hydrochloride from light and open vial(s) only when ready to use.

Do not pre-load a syringe with epinephrine in anticipation of a reaction. Epinephrine rapidly deteriorates and loses potency when exposed to oxygen.

Suggested anaphylaxis kit contents:

- A copy of this guideline and "Worksheet for Assessment and Treatment of Anaphylaxis"
- 3 x 1 mL ampoules of epinephrine 1:1,000 aqueous solution (within expiration time frame)
- 1 x 1 mL vials of diphenhydramine hydrochloride 50mg/ml (within expiration time frame)
- 1 vial of diphenhydramine hydrochloride, pills or oral solutions optional (within expiration time frame)
- 3 - 1 cc syringes and needles (25 – 27 gauge, 1" needle)
- 1 - 1cc syringe and needle (25 – 27 gauge, 1 ½" needle)
- 2 - 3 cc syringes and needles (25 – 27 gauge, 1" and 1 ½" needles)
- 2 – 1cc syringes and needles (25 – 27 gauge, 5/8") for SC route
- extra needles
- A pocket mask with one-way valve
- Bag valve mask ("Ambu bag") (optional)
- alcohol swabs
- pens/paper
- sphygmomanometer (optional)
- stethoscope (optional)

- Up-to-date contact info for an Immunization Coordinator, the regional MOH as well as the MOH on-call pager.

8.1 Aqueous epinephrine (adrenaline)

Action of epinephrine:

- Counteracts the histamine-induced vasodilation
- Increases heart rate and cardiac contractility to increase oxygenated blood flow to vital organs
- Acts on smooth muscles of bronchial tree thereby reducing bronchospasm
- Suppresses body's immune response (slows down histamine cascade).

Composition

Each 1mL dose of aqueous epinephrine 1:1,000 contains:

- 1 mg of epinephrine hydrochloride dissolved in a isotonic sodium chloride solution

Supply

1mL ampoule of clear liquid

Storage

- Keep in the manufacturer’s box at room temperature of 15° to 30°C
- Avoid exposure to light
- Do not refrigerate
- Do not freeze
- Do not administer this product if it has a pinkish or darker than slightly yellow colour or contain a precipitate
- Do not use after expiration date

Indications

Severe immediate hypersensitivity reaction to immunizing products

Contraindication

There is no contraindication in the event of anaphylaxis.

Precautions

In case of complication related to the first dose of epinephrine (e.g., cardiac arrhythmia, angina, hypertension), do not repeat the dose unless the benefits outweigh the risks.

Clients taking beta-blockers may have a reduced response to epinephrine. However, the anaphylaxis management protocol should be applied without modification. The appropriate treatment will be administered at the hospital.

Adverse reactions following administration of epinephrine

Excessive doses of epinephrine may cause palpitations, tachycardia and sudden increase of blood pressure, nausea, vomiting and headache. More serious reactions are more likely to occur in clients in poor health. Although unpleasant, such effects are transient. Cardiac dysrhythmias may occur in older adults, but they are rare in otherwise healthy children.

9.0 MAINTENANCE OF IMMUNIZATION COMPETENCIES

All healthcare professionals involved in immunization should be able to demonstrate competence, understanding, clinical skills and current evidence-based knowledge on anaphylaxis recognition and management. Competency in anaphylaxis management is an individual professional responsibility and is guided by professional practice standards, employer policy(s) and evidence-based research.

It is strongly recommended by the Office of the Chief Medical Officer of Health that all healthcare professionals who immunize, undertake specific immunization training as outlined in the Public Health Agency of Canada Immunization Competencies for healthcare professionals (dated November 2008) before administering vaccines and biological products. This program is intended to help healthcare professionals to fulfill their roles as vaccine-providers and to ensure safe and competent immunization practice.

It is also recommended that all vaccine-providers maintain their competencies and ongoing education regarding current anaphylaxis treatment practices through refresher courses each year.

10.0 WORKSHEET FOR ASSESSMENT AND TREATMENT OF ANAPHYLAXIS

This form is strongly encouraged to be used to document each suspected case of anaphylaxis following administration of vaccine(s).

Client information

Client name:_____ Birth date: _____ Medicare N:_____ _____
Surname/Given Name *dd/mm/yyyy*

Parent/Guardian: _____ Gender: ☐ Male ☐ Female Telephone: (____)_____

Vaccine Information

Vaccine(s) administered	Dose	Route	Site	Lot number

Date of vaccination: _____ Approximate time of administration: _____
dd/mm/yyyy

Vaccine administered by: Contact information:

Client History

Asthmatic under regular medical treatment:	□ Unknown	□ No	□ Yes (give details of severity/medications)
Eczema:	□ Unknown	□ No	□ Yes
History of allergies to any vaccine component(s):	□ Unknown	□ No	□ Yes *(*give details of components/reaction)
History of allergies in immediate family:	□ Unknown	□ No	□ Yes *(*list and give details)
History of anaphylaxis in client:	□ Unknown	□ No	□ Yes *(*give details of reaction)
History of anaphylaxis in family:	□ Unknown	□ No	□ Yes *(*give details of reaction/relationship)
Prior severe reactions to any vaccines:	□ Unknown	□ No	□ Yes *(*give details of reaction/vaccine(s))
Current medications:	□ Unknown	□ No	□ Yes *(*list)
Recent or concurrent infections:	□ Unknown	□ No	□ Yes *(*give details of infection)
Recent or concurrent relevant non-infectious illness or medical condition(s):	□ Unknown	□ No	□ Yes (give details of illness/condition)

Additional details:

Client's past immunization history:

Assessment and care provided

Initial vital signs (if recorded):

BP: _____ Pulse: _____ Resp.: _____ Temp: _____

When were vital signs taken in relation to the time of the reaction and treatment?

_____

Indicate approximate time of onset of symptoms: _____

Indicate all signs and symptoms exhibited by the client:

Dermatologic or mucosal (*check all that apply*):

□ Generalized erythema □ Red and itchy eyes

□ Angioedema: □ generalized or □ localized

□ Urticaria (hives): □ generalized or □ localized at injection site

□ Generalized pruritus: □ with skin rash or □ without skin rash

□ Tingling or prickle sensation: □ generalized or □ around the mouth or limbs

Cardiovascular (*check all that apply*):

□ Measured hypotension □ dizziness □ syncope

□ Reduced peripheral circulation (at least 2 of the following):

□ Tachycardia □ Capillary refill time >3 seconds without hypotension □ Decreased level of consciousness

□ Uncompensated shock (at least 3 of the following):

□ Tachycardia □ Capillary refill time >3 seconds

□ Reduced central pulse volume □ Decreased level of consciousness

Respiratory (*check all that apply):*

□ Bilateral wheeze (bronchospasm) □ Persistent dry cough □ Stridor □ Hoarse voice □ Sensation of throat closure

□ Sneezing, rhinorrhea □ rapid respiratory rate □ Upper airway swelling (lip, tongue, throat, uvula, larynx)

□ Difficulty breathing (without wheeze or stridor)

□ Respiratory distress (at least 2 of the following):

□ Tachypnoea □ Increased use of accessory respiratory muscles

□ Cyanosis □ Grunting

Gastrointestinal (*check all that apply*): □ Diarrhea □ Nausea □ Abdominal pain □ Vomiting

Other (please specify): _____

Medication administration

Pulse_____ Resp_____ **Epinephrine #1** Time: Lot#	Dose:	Route	Site:	Signature of provider:
Pulse_____ Resp_____ **Epinephrine #2** Time: Lot#	Dose:	Route:	Site:	Signature of provider:
Pulse_____ Resp_____ **Epinephrine #3** Time: Lot#	Dose:	Route:	Site:	Signature of provider:
Pulse_____ Resp_____ **Diphenhydramine hydrochloride** Time: Lot #	Dose:	Route:	Site:	Signature of provider:

Attended by paramedics: □ N □ Y Transfer to hospital: □ N □ Y

Time of transfer to hospital/release to paramedics:_____

Released to care of family: □ N □ Y Time of release to family : _____

Released to care of GP: □N □ Y Time of release to GP: _____

****Please ensure a copy of any additional assessment and care notes are attached to this document.**

Name(s) of recorder(s): _____ Signature(s): _____

_____ _____

Date: _____

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