

---

**EMERGENCY  
GUIDELINES, POLICIES,  
PROCEDURES AND  
PROTOCOLS**

---

**THIS PAGE INTENTIONALLY LEFT BLANK**

**2011-2012 EMERGENCY CLINICAL REVIEW TEAM**

**Meshell McCloud, RN, MS, APRN, WHNP-BC**  
Deputy Chief Nurse, Office of Nursing  
Department of Public Health

**Patrick O'Neal, MD**  
Medical Consultant  
Office of Emergency Preparedness  
and Response

**Kelly H. Nadeau, RN, MN, CHEC III**  
Health Community Preparedness Director  
Office of Emergency Preparedness and  
Response

**Cheryl Wheeler, MSN, MS, FNP-BC**  
Nurse Manager, Whitfield County Health  
Department, District 1-2

**L. Wayne Pierce RPh**  
Pharmacy Services Coordinator  
DeKalb County Board of Health

**Penny Conner, BSN, RN**  
Immunization Nurse Consultant

**Jill Mabley, MD, FAAEM**  
Deputy State Medical Director  
Office of Emergency Preparedness and  
Response

**THIS PAGE INTENTIONALLY LEFT BLANK**

## TABLE OF CONTENTS

<b>EMERGENCY GUIDELINES, POLICIES, PROCEDURES and PROTOCOLS</b>	<b>12</b>
<b>Guidelines for Emergency Kits/Carts</b>	<b>12.1</b>
<b>Guidelines for ALTERED LEVEL OF CONSCIOUSNESS/Syncope     (Fainting)</b>	<b>12.4</b>
<b>Procedures for Allergic Reactions including Acute Anaphylaxis, in     Adults, Infants and Children</b>	<b>12.7</b>
<b>Allergic Reaction/Anaphylaxis Record</b>	<b>12.14</b>
Policy for Reviewing Emergency Protocols/Procedures	12.17
<b>Emergency Checklist</b>	<b>12.18</b>
Evaluation Tool for Practice Drill	12.19
<b>Shock/Hemorrhage</b>	<b>12.20</b>
<b>Recognizing Allergic Reaction including Acute Anaphylaxis, and     Use of Auto-Injectable Epinephrine By Public Health Nurses     Working in School Health Settings</b>	<b>12.23</b>

**THIS PAGE INTENTIONALLY LEFT BLANK**

## **GUIDELINES FOR EMERGENCY KITS/CARTS IN PUBLIC HEALTH CLINIC SITES**

### **A. GENERAL POLICY**

Local factors such as anticipated EMS response time, the availability of a physician and the ability of trained personnel to initiate an emergency procedure in the event of vasovagal syncope, and/or an acute anaphylaxis/allergic reaction will determine the need for supplies beyond the minimum and expanded protocol/procedure for some clinics. Emergency plans and procedures should be coordinated with the local Emergency Medical System (EMS).

All emergency drugs and supplies should be kept together in a secured kit or cart that is easily moveable and readily accessible/visible during clinic service hours. Inventory should be checked monthly with careful attention to medication expiration dates and the working condition of equipment.

### **B. DEFINITION OF EMERGENCY KIT/CART**

Emergency kits/carts are those drugs and supplies which may be required to meet the immediate therapeutic needs of clients and which are not available from other authorized sources in sufficient time to prevent risk or harm to clients. Medications may be provided for use by authorized health care personnel in emergency kits/carts, provided such kits/carts meet the following requirements:

#### **1. Storage**

Emergency kits/carts shall be stored in limited-access areas and sealed with a disposable plastic lock to prevent unauthorized access and to insure a proper environment for preservation of the medications in them.

#### **2. Labeling - Exterior**

The exterior of emergency kits/carts shall be labeled so as to clearly and unmistakably indicate that it is an emergency drug kit/cart and is for use in emergencies only.

#### **3. Labeling – Interior**

All medications contained in emergency kits/carts shall be labeled in accordance with the name of the medication, strength, quantity, and lot # and expiration date.

#### 4. Removal of Medications

Medications shall be removed from emergency kits/carts only pursuant to nurse protocol/procedure, by authorized clinic personnel or by a pharmacist.

#### 5. Inspections

Each emergency kit/cart shall be opened and its contents inspected by **RN/APRN/Pharmacist/MD** monthly with the exception of oxygen (every 6 months). The monthly inspection shall be documented on an Emergency Check-Off Log sheet which includes:

- a. the listing of all emergency supplies and equipment,
- b. the name of the medication(s), its strength, quantity, lot # and expiration date,
- c. the staff member's name who performed the inspection and
- d. the inspection date.

Upon completion of the inspection, the emergency kit/cart shall be resealed with the appropriate disposable plastic key.

#### 6. Minimum Medication(s)

- a. Epinephrine 1:1000, 1 ml (2 ampules)
- b. Diphenhydramine 50 mg/mL (2 ampules)
- c. Diphenhydramine elixir/solution 12.5 mg/5 mL (1 bottle)
- d. Diphenhydramine HCl 25 mg caps (1 bottle)
- e. Portable oxygen (generally administered **15 L/ min by non-rebreather mask in situations of chest pain or difficulty breathing or by nasal cannula at 2 L/ min if client has history of emphysema or chronic lung disease**).

#### 7. Minimum Supplies

- a. Blood pressure cuffs (adult and child)
- b. Stethoscope
- c. Flashlight/extra batteries
- d. Copy of emergency protocols/procedures
- e. Allergic Reaction/Acute Anaphylaxis Record
- f. Bag-valve-mask (AMBU) for resuscitation (**Infant/Child/Adult** )
- g. Copy of initialed current Monthly Checklist of Drugs and Supplies
- h. Nasal cannula for oxygen administration
- i. Needles and syringes
- j. Filter needles, 5 micron, for use when aspirating a medication from a glass ampule, to reduce contamination

## 8. Recommended Additional Supplies and Medications

(For use where additional protocol/procedures and trained personnel are available)

- a. IV needles/infusion sets
- b. IV fluids (normal saline is recommended)
- c. Gauze pads, tape
- d. Oral airways (Adult/Child/Infant)
- e. Pulse-oximeter
- f. Automated external defibrillator (AED)
- g. **Accucheck/strips**
- h. **Portable Suction**
- i. **Non-rebreather mask (Adult/Child/Infant)**
- j. **Epinephrine Auto-injector 0.15 mg (3 doses)**
- k. **Epinephrine Auto-injector 0.3 mg (3 doses)**
- l. **Dextrose 50**

## GUIDELINES FOR ALTERED LEVEL OF CONSCIOUSNESS/SYNCOPE (FAINTING)

<b>DEFINITION</b>	<p>Syncope (fainting) is a transient <b>loss of consciousness accompanied by loss of postural tone due to decreased blood supply to the brain. Syncope is commonly a benign vasovagal event; however, it may represent a serious medical event, particularly in the elderly. Typical vasovagal syncope occurs in a person in upright position with appropriate stimulus (e.g., fear or pain from blood draw or injection). By definition, vasovagal symptoms resolve when recumbent position restores blood flow to the brain. The main goal of evaluation of clients who faint, are dizzy or have altered LOC is to identify those who are at risk for or are experiencing acute medical emergencies such as volume depletion, cardiac, metabolic or neurologic event.</b></p>
<b>ETIOLOGY</b>	<p>Vasovagal syncope is usually due to emotional stress related to fear or pain (e.g., having blood drawn or an injection).</p>
<b>OBJECTIVE</b>	<ol style="list-style-type: none"><li>1. <b>Fall in blood pressure</b></li><li>2. <b>Dizziness.</b></li><li>3. <b>Nausea.</b></li><li>4. <b>Diminished vision.</b></li><li>5. Slow pulse.</li><li>6. Pallor, perspiration.</li><li>7. May progress to loss of <b>postural tone and</b> consciousness.</li></ol>
<b>ASSESSMENT</b>	<p><b>Loss of postural tone and consciousness, etiology to be determined</b></p>
<b>PLAN</b>	<ol style="list-style-type: none"><li>1. <b>Protect client from fall injury.</b> Position the client in the recumbent position <b>with legs elevated. Loosen tight clothing at the neck and waist. If the client does not immediately regain consciousness, call 911 for EMS support and consider lateral decubitus position to prevent aspiration or airway obstruction. Consider initiating oxygen.</b> If sitting, do not lower head by bending at waist (may further compromise venous return to heart).</li><li>2. Monitor blood pressure and pulse. <b>If these return to baseline normal for that client and the client regains consciousness and has no persistent complaints or abnormal signs/symptoms, observe the client for at least 20 minutes.</b></li></ol>

3. Do not give anything by mouth or allow the client to resume an upright position until feeling of weakness has passed.
4. **Client may leave the clinic (ideally accompanied) when able to take oral fluids and ambulate (unless- non-ambulatory as baseline), and has no complaints or symptoms.**
5. If client does not stabilize, call **911 for EMS transport to closest appropriate hospital Emergency Department.**
6. **Signs and symptoms of instability requiring hospital evaluation:**
  - a. **Persistent hypotension.**
  - b. **Cardiac arrhythmia (including bradycardia or tachycardia).**
  - c. **Persistent altered level of consciousness.**
  - d. **Persistent complaints (e.g., dizziness, chest pain, difficulty breathing, abdominal pain).**
  - e. **Any injury sustained during episode.**

#### **CLIENT EDUCATION/COUNSELING**

1. **Emphasize the importance of staying well hydrated.**
2. **Advise client to resume normal activity.**
3. **Advise client to call 911 for any chest or abdominal pain, difficulty breathing, dizziness or weakness or any recurrence of “fainting”.**

## REFERENCES

1. Morag, R. MD, FACEP; “Syncope”; eMedicine; October 22, 2010; <http://emedicine.medscape.com/article/811669-overview> (March 15, 2011)
2. Krohmer, Sahni, Schwartz, Wang: *Clinical Aspects of Prehospital Medicine*, Kendall-Hunt Publisher, 2009, Chapter 25, “Fainting/Syncope” p. 247.
3. Ma, Cline, Tintinalli, *Emergency Medicine: Just the Facts*, 2<sup>nd</sup> ed., McGraw-Hill, Companies, Inc. 2009, Chapter 24, “Syncope,” p. 97.
4. Serrano, L.A., *Accuracy and Quality of Clinical Decision Rules for Syncope in the Emergency Department: A Systematic Review and Meta-analysis*, *Annals of Emergency Medicine*; 56 (4):362, October 2010.
5. “Lexi-Drugs Online,” *Lexi-Comp Database*, Lexi-Comp, Inc., Hudson, Ohio (May 16, 2011).

## PROCEDURES FOR ALLERGIC REACTIONS, INCLUDING ACUTE ANAPHYLAXIS IN ADULTS, INFANTS AND CHILDREN

### DEFINITIONS

Allergic reactions that are potentially life-threatening (anaphylactic) reactions, after exposure to an antigen which has been injected, ingested or inhaled.

Reactions range from mild, self-limited symptoms to rapid death:

1. Mild to moderate allergic reactions involve signs and symptoms of the gastrointestinal tract and skin. Observing the client for rapid increase in severity of signs and symptoms is important, as the sequence of itching, cough, dyspnea and cardiopulmonary arrest can lead quickly to death.
2. Severe/anaphylactic reactions involve signs and symptoms of the respiratory and/or cardiovascular systems. These may initially appear minor (i.e., coughing, hoarseness, dizziness, mild wheeze) but any involvement of the respiratory tract or circulatory system has the potential to rapidly become severe. Death can occur within minutes. Therefore, prompt and effective treatment is mandatory if the client's life is to be saved.

### ETIOLOGY

Agents commonly associated with allergic reactions/anaphylaxis, include:

1. **Medications:**
  - a. **Over the counter, especially non-steroidal anti-inflammatory drugs.**
  - b. **Prescribed medication, especially antibiotics; may occur with vaccines.**
  - c. **Illicit or illegal drugs.**
  - d. **Herbal or home remedies.**
2. **Food:**
  - a. **Especially tree nuts, peanuts, shellfish and eggs.**
3. **Environmental:**
  - a. **Stings (e.g., bee, wasp, yellow jacket, hornet, fire ants).**
  - b. **Pollens, grass, molds, smoke, animal dander.**
  - c. **Iodinated contrast media.**

**SUBJECTIVE &  
OBJECTIVE**

**Allergic reaction may affect one or more organ systems:**

1. **Skin:**
  - a. Itching and hives or welts (localized or generalized).
  - b. Flushing or skin edema.
  - c. Tingling.
  - d. Itching.
2. **Gastrointestinal:**
  - a. Abdominal pain.
  - b. Nausea, vomiting.
  - c. Diarrhea.
3. **Cardiac:**
  - a. Dizziness or fainting (hypotension).
  - b. Palpitations.
  - c. Chest pain.
4. **Respiratory:**
  - a. Difficulty breathing.
  - b. Bronchospasm, wheezing.
  - c. Upper airway swelling (including lips and tongue).

**ASSESSMENT**

Allergic reaction: **By definition, involvement of two or more organ systems OR presence of respiratory compromise or shock indicate a severe allergic reaction (anaphylaxis). Most severe reactions occur soon after exposure. The faster a reaction develops, the more severe it is likely to be.**

**PLAN**

**THERAPEUTIC**

1. **Cutaneous symptoms only (mild)**  
**Step 1** Diphenhydramine PO or IM:  
**Note: Children younger than 2 years of age should receive diphenhydramine only after consulting with a physician.**

Diphenhydramine PO:

**Pediatric:**

**2 to 5 years: 6.25 mg every 4-6 hours;  
maximum: 37.5 mg/day.**

**6 to 11 years: 12.5-25mg every 4-6  
hours; maximum: 150 mg/day.**

**12 years or older: 25-50 mg every 4-6 hours; maximum: 300 mg/day.**

**Adults: 25-50mg every 6-8 hours.**

**OR**

Diphenhydramine IM:

<b>Diphenhydramine IM Dosing</b> (The standard dose is 1 mg/kg body weight, up to 100 mg) <b>May repeat dose every 6 – 8 hours; Adult not to exceed 400 mg/day. Child not to exceed 300 mg/day.</b>	
Weight lbs (kg)	Diphenhydramine Dose (Injection: 50 mg/mL)
24-37 (11-17)	15 mg / 0.3 mL
37-51 (17-23)	20 mg / 0.4 mL
51-77 (23-35)	30 mg / 0.6 mL
77-99 (35-45)	40 mg / 0.8 mL
>99 (>45)	50 to 100 mg / 1 – 2 mL

- Step 2 Complete Allergic Reaction Record.
- Step 3 Observe for 60 minutes.
- Step 4 If any respiratory or circulatory signs develop, proceed to 2. below (Severe Reactions).
- Step 5 If, after 60 minutes, the client's symptoms are still limited to the skin and the client is comfortable, then:
  - a. **Advise adult** client to take diphenhydramine **orally every 6 to 8 hours if symptoms persist**. Advise that if anytime the client experiences dizziness, difficulty breathing or chest pain to call 911.
  - b. **Advise parent to give pediatric client diphenhydramine orally every 4 - 6 hours, if symptoms persist. Advise that if anytime the child experiences dizziness, difficulty breathing or chest pain to call 911.**
  - c. Inform the client that he/she has an apparent allergy to the causative agent and advise that this information should be provided to all

- healthcare givers in the future.
- d. If the causative agent was a medication being dispensed for additional use at home, then this plan should **be** reconsidered and an alternative medication should be used that is in a different chemical family **that** is not regarded as having “cross-reactivity” with the causative agent.

**2. Severe Reactions (anaphylaxis) Reactions involving more than one organ system or causing difficulty breathing or hypotension/shock are by definition severe and may progress rapidly to death. Early recognition and early treatment with epinephrine are essential in preventing this outcome.**

- Step 1      Call for HELP
- a. Have someone call EMS/911 and/or the physician.
  - b. Do not leave the client unattended!
  - c. Assure open airway; begin CPR if indicated.
  - d. Assign one person to keep the anaphylaxis record and be the timekeeper.
  - e. **Administer epinephrine:**

**NOTE: Administer into thigh (more effective at achieving peak blood levels than into deltoid area).**

<b>Epinephrine IM Dosing</b>	
(Dosing by body weight is preferred; the standard dose is 0.01 mg/kg body weight, up to 0.5 mg.)	
Weight lbs (kg)	Epinephrine IM Dose (1mg/ml=1:1,000 wt/volume)
<9 (<4)	Weigh baby and calculate appropriate dose
9-15 (4-7)	0.06 mg/0.06 mL
15-24 (7-11)	0.10 mg/0.10 mL
24-31 (11-14)	0.12 mg/0.12 mL
31-37 (14-17)	0.16 mg/0.16 mL
37-42 (17-19)	0.18 mg/0.18 mL
42-51 (19-23)	0.20 mg/0.20 mL
51-77 (23-35)	0.30 mg/0.30 mL
77-99 (35-45)	0.40 mg/0.40 mL
>99 (>45)	0.50 mg/0.50 mL

May repeat every 15-20 minutes PRN for a total of 3 doses  
(≤1.5 mL [1.5 mg] total)

**OR**

**If at least 33lbs (15kg)**

<b>EpiPen (Epinephrine Auto Injection) may repeat using an additional EpiPen every 15-20 minutes as needed for a total of 3 doses</b>			
Weight lbs (kg)	Product	Dose	Auto Injection
33-66lbs (15-29kg)	EpiPen Jr	0.15 mg	Delivers 0.15 mg per injection
66lbs (30kg) or greater	EpiPen	0.3 mg	Delivers 0.3mg per injection

**OR**

**If at least 33lbs (15kg)**

<b>Adrenaclick™ (Epinephrine Auto Injection) may repeat using an additional Adrenaclick™ every 15-20 minutes as needed for a total of 3 doses</b>			
Weight lbs (kg)	Product	Dose	Auto Injection
33-66lbs (15-29kg)	Adrenaclick™ 0.15mg	0.15 mg	Delivers 0.15 mg per injection
66lbs (30kg) or greater	Adrenaclick™ 0.3mg	0.3 mg	Delivers 0.3mg per injection

**OR**

**If at least 33lbs (15kg)**

<b>Twinject (Epinephrine Auto Injection) may repeat using the same device after partial disassembly every 15-20 minutes as needed for a total of 3 doses</b>			
Weight lbs (kg)	Product	Dose	Auto Injection
33-66lbs (15-29kg)	Twinject 0.15 mg/0.15 mL	0.15 mg	Delivers 0.15 mg per injection
66lbs (30kg) or greater	Twinject 0.3mg/0.3 mL	0.3 mg	Delivers 0.3mg per injection

- f. **Apply oxygen at 15 L/minute by non-rebreather mask.**
- Step 2 Place client in supine position, legs elevated, **if tolerated.**
- Step 3 Begin monitoring Vital Signs with BP every 5 minutes.
- Step 4 Any client who has received epinephrine must be transported by EMS to closest appropriate hospital emergency department; copy of anaphylaxis record must go with client to hospital.

### CLIENT EDUCATION/COUNSELING

1. When a client is given an agent (e.g., antibiotic or vaccine) capable of inducing anaphylaxis, he/she should be advised or encouraged to remain in the clinic for at least 30 minutes.
2. **Inform client that he/she has an apparent allergy to the causative agent and advise that this information should be provided to all healthcare givers in the future.**
3. **Advise the client to call 911 if any difficulty breathing, dizziness or chest pain occurs.**
4. **Advise the adult client that cutaneous symptoms may be treated with diphenhydramine every 6 - 8 hours. Advise the pediatric client that cutaneous symptoms may be treated with diphenhydramine every 4 – 6 hours. Persistent or worsening symptoms should be evaluated by the client's primary care provider.**

### REFERRAL

1. Immediately refer clients with wheezing, laryngeal edema, hypotension, shock or cardiovascular collapse **to ER via EMS.**
2. Refer to primary care provider for further evaluation those clients with itching, redness welts/hives.

### **FOLLOW-UP**

1. Place an allergy label on the front cover of the client's medical record.
2. Educate the client/caretaker about medical alert bracelets for anaphylactic reactions.
3. If the allergic reaction is immunization-induced, complete a vaccine adverse event record (VAERS).

**ALLERGIC REACTION / ANAPHYLAXIS RECORD – page 1**

District/Clinic Site \_\_\_\_\_ Date \_\_\_\_\_

Client Demographic Information:

Name: \_\_\_\_\_

DOB \_\_\_\_/\_\_\_\_/\_\_\_\_ AGE \_\_\_\_\_ months / years

Estimated/Actual Weight (please circle one) Infant / Child / Adult \_\_\_\_\_ lbs/kg

Event which preceded reaction:

- \_\_\_\_\_ Immunization
- \_\_\_\_\_ Medication administered
- \_\_\_\_\_ Biologicals administered
- \_\_\_\_\_ Other: (please explain) \_\_\_\_\_

TIME OF REACTION: \_\_\_\_\_ AM / PM

TIME EMS CALLED: \_\_\_\_\_ AM / PM

Signs and Symptoms: (please check)

- |   |   |
|---|---|
| _____ Apprehension  | _____ Choking sensation                     |
| _____ Flushing and/or skin edema                          | _____ Coughing/ <b>hoarseness</b> /wheezing |
| _____ Palpitations  | _____ Difficulty breathing                  |
| _____ Numbness and tingling                               | _____ Nausea and vomiting                   |
| _____ Itching   | _____ Severe hypotension                    |
| _____ Localized or generalized urticaria<br>(rash, welts) | _____ Vasomotor collapse                    |
|   | _____ Loss of consciousness                 |

Other (e.g., dizziness): \_\_\_\_\_

OTHER OBSERVATIONS / COMMENTS: \_\_\_\_\_

SIGNATURE OF RN/APRN: \_\_\_\_\_

DISPOSITION: \_\_\_\_\_

REVIEWER: \_\_\_\_\_

**NOTE:** Send copies of both pages of this record with client referred to a physician's office or hospital

**ALLERGIC REACTION / ANAPHYLAXIS RECORD – page 2**

1. Call for HELP.  
**Assign timekeeper/recorder.**  
**TIME EMS CALLED:** \_\_\_\_\_ **AM/PM**  
**TIME EMS ARRIVED:** \_\_\_\_\_ **AM/PM**  
**TIME EMS DEPARTED TO HOSPITAL:** \_\_\_\_\_ **AM/PM**  
**Hospital's Name:** \_\_\_\_\_  
**Client's status when transported to hospital:** \_\_\_\_\_

2. Assure AIRWAY.  
 Check VITAL SIGNS q 5 minutes.  
 CPR if necessary.

Client Name: \_\_\_\_\_

Client Weight: \_\_\_\_\_

DOB: \_\_\_\_\_

VITAL SIGNS (monitor every 5 minutes)

Time	B/P	Pulse	Resp
_____	____/____	_____	_____
_____	____/____	_____	_____
_____	____/____	_____	_____
_____	____/____	_____	_____
_____	____/____	_____	_____
_____	____/____	_____	_____
_____	____/____	_____	_____

CPR Indicated: \_\_\_\_\_ YES \_\_\_\_\_ NO

TIME CPR started: \_\_\_\_\_ AM / PM

TIME CPR ended: \_\_\_\_\_ AM / PM

**Oral** Diphenhydramine  
 12.5 mg/5 mL (Elixir/Solution)  
 OR 25 mg, 50 mg (Capsules)

TIME	ORAL DOSE
_____	_____
_____	_____

**IM** Diphenhydramine 50 mg/mL vial

TIME	IM DOSE
_____	_____

Epinephrine 1:1000 w/v ampule

TIME	DOSE	ROUTE
_____	_____	IM
_____	_____	IM
_____	_____	IM

**EpiPen® Auto-Injector**  
**TIME Administered:** \_\_\_\_\_ **AM/PM**  
**TIME Administered:** \_\_\_\_\_ **AM/PM**  
**TIME Administered:** \_\_\_\_\_ **AM/PM**

**EpiPen® Junior Auto-Injector**  
**TIME Administered:** \_\_\_\_\_ **AM/PM**  
**TIME Administered:** \_\_\_\_\_ **AM/PM**  
**TIME Administered:** \_\_\_\_\_ **AM/PM**

**Twinject 0.15 mg/0.15 mL** \_\_\_\_\_ **AM/PM**  
**Twinject 0.15 mg/0.15 mL** \_\_\_\_\_ **AM/PM**  
**Twinject 0.15 mg/0.15 mL** \_\_\_\_\_ **AM/PM**

**Twinject 0.3 mg/0.3 mL** \_\_\_\_\_ **AM/PM**  
**Twinject 0.3 mg/0.3 mL** \_\_\_\_\_ **AM/PM**  
**Twinject 0.3 mg/0.3 mL** \_\_\_\_\_ **AM/PM**

**AdrenaClick™ 0.15 mg** \_\_\_\_\_ **AM/PM**  
**AdrenaClick™ 0.15 mg** \_\_\_\_\_ **AM/PM**  
**AdrenaClick™ 0.15 mg** \_\_\_\_\_ **AM/PM**

**AdrenaClick™ 0.3 mg** \_\_\_\_\_ **AM/PM**  
**AdrenaClick™ 0.3 mg** \_\_\_\_\_ **AM/PM**  
**AdrenaClick™ 0.3 mg** \_\_\_\_\_ **AM/PM**

## REFERENCES

1. Ludwig Fleisher, *Textbook of Pediatric Emergency Medicine*, 6<sup>th</sup> ed., 2010, Chapter 82, "Asthma and Allergic Emergencies,"
2. *Guidelines for the Diagnosis and Management of Food Allergy in the United States: Report of the NIAID-Sponsored Expert Panel*, Journal of Allergy Clinical Immunology, Vol. 126, 2010, pp. 1105-18.  
([http://www.jacionline.org/article/S0091-6749\(10\)01566-6/fulltext](http://www.jacionline.org/article/S0091-6749(10)01566-6/fulltext))
3. Choo, KLJ, "Glucocorticoids for the Treatment of Anaphylaxis: Cochrane Systematic Review" Allergy Vol. 65 No. 10, October 2010, p 1205.
4. Krohmer, Sahni, Schwartz, Wang: *Clinical Aspects of Prehospital Medicine*, Kendall-Hunt Publisher, 2009, Chapter 21, "Allergies, Stings," p. 205. (Current)
5. The diagnosis and management of anaphylaxis: an updated practice parameter. Journal of Allergy Clinical Immunology 2005 Mar; 115(3 Suppl):S483-523.
6. "Lexi-Drugs Online," *Lexi-Comp Database*, Lexi-Comp, Inc., Hudson, Ohio (June 15, 2011).

**POLICY FOR REVIEWING EMERGENCY PROTOCOLS/  
PROCEDURES IN PUBLIC HEALTH CLINIC SITES**

A review of emergency protocol/procedures shall be completed at least once annually at each clinic site. The Nursing Supervisor shall arrange for the annual review and completion of the attached checklist.

Staff member(s) listed below participated in training updates for all age ranges and performed in a mock emergency drill on \_\_\_\_\_.  
(Date)

District Health Director:

Printed Name \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

District Public Health Nursing and Clinical Director:

Printed Name \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

Name(s) of Staff Member(s)

---

---

---

---

---

---

## EMERGENCY CHECKLIST FOR PUBLIC HEALTH CLINIC SITES

### PURPOSE

To assure that each site is equipped and prepared to handle emergencies that may occur. The Nursing Supervisor and District Public Health Nursing & Clinical Director will assure that this checklist is completed annually for each site and that follow-up occurs for any inadequacies/incomplete areas.

#	EMERGENCY ITEM	Complete/ Adequate	Incomplete/ Inadequate	Comments
1.	Emergency numbers posted on each phone			
2.	Exits clear			
3.	Hallways clear			
4.	Staff able to describe action to take in case of emergency			
5.	Staff demonstrates use of anaphylaxis equipment			
6.	Emergency <b>kit/cart</b> stored in secured area except during clinic hours			
7.	Emergency <b>kit/cart</b> stocked according to district protocol for anaphylaxis			
8.	All staff trained in emergency procedures and certified in CPR (every 2 years)			
9.	Practice emergency drill(s) conducted and documented at least annually. <b>NOTE:</b> Drills should include age-group variations (i.e., adults, infants and children.)			

County \_\_\_\_\_

Nursing Supervisor: Printed Name \_\_\_\_\_

Signature \_\_\_\_\_

Date of Review: \_\_\_\_\_

Date Corrected: \_\_\_\_\_

District Public Health Nursing  
& Clinical Director: Printed Name \_\_\_\_\_

Signature \_\_\_\_\_

### EVALUATION TOOL FOR PRACTICE DRILL

	<u>Yes</u>	<u>No</u>
<b>A. <u>Response Team</u></b>		
1. Team effort utilized and well-coordinated.	_____	_____
2. Response team timely.	_____	_____
3. Client assessment complete.	_____	_____
4. Code Blue* called.	_____	_____
5. Emergency Medical Services/ Physician notified.	_____	_____
6. Emotional support provided to significant others, if applicable.	_____	_____
<b>B. <u>Client Outcome</u></b>		
1. Level of consciousness assessed.	_____	_____
2. Vital signs monitored.	_____	_____
3. Appropriate drugs given.	_____	_____
4. CPR instituted, if applicable.	_____	_____
5. EMS/physician responded.	_____	_____
6. Documentation complete.	_____	_____

**C. Recommendations/Comments:**  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Site \_\_\_\_\_ Date \_\_\_\_\_

Evaluator: Printed Name \_\_\_\_\_

Signature \_\_\_\_\_

*\*Though Code Blue is not specified in the anaphylaxis protocol/procedures,  
it should be used to signal the emergency.*

## STANDARD NURSE PROTOCOL FOR SHOCK/ HEMORRHAGE

<b>DEFINITION</b>	Shock is a critical condition brought on by a sudden drop in blood flow (and thus oxygen delivery) through the body. Shock that is unrecognized and untreated can lead to permanent organ damage or death.
<b>ETIOLOGY</b>	Shock may result from blood loss, dehydration, allergic reaction, infection, pulmonary embolism, or myocardial infarction/heart failure. Common causes of shock in females with reproductive capacity include 1) ruptured ectopic pregnancy, 2) pulmonary embolism (especially smokers on birth control pills), 3) ruptured ovarian cyst, 4) placental abruption, 5) severe, chronic untreated dysfunctional bleeding, and 6) severe PID.
<b>SUBJECTIVE</b>	Symptoms: dizziness, nausea, weakness, sweating, agitation and/or confusion
<b>OBJECTIVE</b>	<ol style="list-style-type: none"><li>1. <b>Cardiac:</b> rapid weak pulse; low blood pressure;</li><li>2. <b>Skin:</b> pale or ashen; cool; sweaty;</li><li>3. <b>Neuro:</b> altered level of consciousness (agitated, confused, or somnolent)</li></ol>
<b>ASSESSMENT</b>	Shock, etiology to be determined, requiring urgent evaluation and treatment
<b>PROCEDURE</b>	<ol style="list-style-type: none"><li>1. <b>Call 911</b> or your local emergency number.</li><li>2. If <b>client</b> is unresponsive, not breathing and/or has no pulse, begin <b>CPR</b>.</li><li>3. <b>Stop visible bleeding</b> by applying direct pressure to bleeding site.</li><li>4. Administer oxygen at 15L/ minute by non-rebreather mask, if available. <b>If only nasal cannula is available, administer oxygen at 4 to 6 L/ minute.</b></li><li>5. Monitor with pulse-oximeter, if available</li><li>6. <b>Have the person lie down</b> on his or her back with feet higher than the head, if the <b>client</b> can tolerate this position (some <b>clients</b> with respiratory distress cannot tolerate supine position). If the person has sustained trauma, consider C-spine immobilization.</li><li>7. <b>Keep the person warm and comfortable.</b> Loosen belt and tightly fitted clothing and cover the person with a blanket. Even if the person complains of thirst, give nothing by mouth.</li></ol>

8. **Turn the person on his or her side** to prevent choking if the person vomits or bleeds from the mouth.
9. **Client** should be transported by EMS to closest appropriate hospital emergency department.

## REFERENCES

1. "Hypovolemic Shock"; Kolecki, P; updated March 11, 2010; <http://emedicine.medscape.com/article/760145-overview>
2. "Shock"; National Library of Medicine, National Institute of Health; updated March 29, 2011. <http://www.nlm.nih.gov/medlineplus/shock.html>
3. "Shock"; American College of Emergency Physicians; <http://www.emergencycareforyou.org/EmergencyManual/WhatToDoInMedicalEmergency/Default.aspx?id=270>
4. "Shock"; National Library of Medicine, National Institute of Health; updated January 10, 2010. <http://www.nlm.nih.gov/medlineplus/ency/article/000039.htm>

# **STANDARD NURSE PROTOCOL FOR PUBLIC HEALTH NURSES WORKING IN SCHOOL HEALTH SETTINGS**

**STANDARD NURSE PROTOCOL FOR  
RECOGNIZING ALLERGIC REACTIONS, INCLUDING ACUTE ANAPHYLAXIS, AND  
USE OF AUTO-INJECTABLE EPINEPHRINE BY PUBLIC HEALTH NURSES WORKING IN  
SCHOOL HEALTH SETTINGS**

**DEFINITION** “Anaphylaxis is a serious allergic reaction that is rapid in onset and may cause death.”<sup>1</sup> Allergic reactions after exposure to an antigen which has been applied topically, injected, ingested or inhaled can range from mild, self-limited symptoms to rapid death.

1. Mild allergic reactions typically involve the skin (rash, itching).
2. Severe/anaphylactic reactions involve multiple organ systems, including skin, respiratory, GI, and cardiac. These may initially appear minor (e.g., coughing, hoarseness, dizziness, mild wheeze, nausea) but any involvement of the respiratory tract or circulatory system has the potential to rapidly become severe. Death can occur within minutes. Therefore, prompt and effective lifesaving treatment is mandatory.

**ETIOLOGY** Any agent capable of producing a sudden degranulation of mast cells or basophils can induce anaphylaxis. Agents commonly associated with allergic reactions/anaphylaxis include:

1. Medications: over the counter, illicit, illegal or prescribed.
2. Food: especially tree nuts, peanuts, shellfish, or eggs.
3. Environmental: stings, pollen, iodinated remedies.

Anaphylaxis can also be exercise induced or idiopathic. Idiopathic anaphylaxis has no identified cause.

**SUBJECTIVE and OBJECTIVE** Allergic reaction may affect one or more organ systems:

1. Skin: hives, itching, swelling, redness
2. Gastrointestinal: nausea, vomiting, diarrhea
3. Cardiac: palpitations, dizzy, chest pain
4. Respiratory: wheezing, difficulty breathing, airway/tongue/lips swelling, cough

**ASSESSMENT** Acute Anaphylaxis, suspected based on clinical presentation and history. Involvement of two or more organ systems OR presence of respiratory difficulty or shock indicate a severe allergic reaction (anaphylaxis). See Table 1. Most severe reactions occur soon after exposure. The faster a reaction develops, the more severe it is likely to be.

**TABLE I. Clinical criteria for diagnosing anaphylaxis<sup>1</sup>**

---

**Anaphylaxis is highly likely when any one of the following 3 criteria is fulfilled:**

---

- 1. Acute onset of an illness (minutes to several hours) with involvement of the skin, mucosal tissue, or both (e.g., generalized hives, pruritus or flushing, swollen lips-tongue-uvula)  
AND AT LEAST ONE OF THE FOLLOWING**
  - a. Respiratory compromise (e.g., dyspnea, wheeze-bronchospasm, stridor, reduced peak expiratory flow, hypoxemia)**
  - b. Reduced BP or associated symptoms of end-organ dysfunction (e.g., hypotonia [collapse], syncope, incontinence)**
  
- 2. Two or more of the following that occur rapidly after exposure to a likely allergen for that client (minutes to several hours):**
  - a. Involvement of the skin-mucosal tissue (e.g., generalized hives, itch-flush, swollen lips-tongue-uvula)**
  - b. Respiratory compromise (e.g., dyspnea, wheeze-bronchospasm, stridor, reduced peak expiratory flow, hypoxemia)**
  - c. Reduced BP or associated symptoms (e.g., hypotonia [collapse], syncope, incontinence)**
  - d. Persistent gastrointestinal symptoms (e.g., crampy abdominal pain, vomiting)**
  
- 3. Reduced BP after exposure to known allergen for that client (minutes to several hours):**
  - a. Children: low systolic BP (age specific) or greater than 30% decrease in systolic BP\***
  - b. Adults: systolic BP of less than 90 mm Hg or greater than 30% decrease from that person's baseline**

**\*Low systolic blood pressure for children is defined as less than (70 mm Hg + [2 x age]) from 1 to 10 years, and less than 90 mm Hg from 11 to 17 years.**

---

**<sup>1</sup>Sampson HA, Munoz-Furlong A, Campbell RL, et al: Second symposium on the definition of anaphylaxis: a summary report-Second National Institute of Allergy and Infectious Diseases/Food Allergy and Anaphylaxis Network Symposium. *J Allergy Clin Immunol* 117:391, 2006.**

## PLAN

### THERAPEUTIC

**NOTE:** Schools may receive and store prescription auto-injectable epinephrine onsite on behalf of a student who is not able to self-administer the medication because of age or any other reason if the parent or guardian provides [O.C.G.A. § 20-2-776(g)]:

1. A written statement from a physician detailing the name of the medication, method, amount, time schedules by which the medication shall be given must be on file [O.C.G.A § 20-2-776(g)(1)]
2. A written statement from the parent or guardian providing release for the school nurse or other designated school personnel to consult with the physician regarding any questions that may arise with regard to the medication, and releasing the school system and its employees and agents from civil liability. The written statement shall be provided at least annually and more frequently if the medication, dosage, frequency of the administration or reason for administration changes. [O.C.G.A. § 20-2-776(g)(2)]

#### Severe reaction (Anaphylaxis)

Reactions involving more than one organ system or causing difficulty breathing or hypotension/shock are by definition severe and may progress rapidly to death. Early recognition and early treatment with epinephrine are essential in emergent treatment if needed.

- 1) Call EMS/911.
- 2) Do not leave the client unattended.
- 3) Assure open airway; begin CPR if indicated.
- 4) Assign one person to keep the anaphylaxis record and be the timekeeper.
- 5) Administer epinephrine according to the label of the dispensed epinephrine for those students who are not able to self-administer medication based on age or any other reasons.
- 6) Refer to Correct Method of Administering Auto-Injectable Epinephrine below:

- a. **Epinephrine dose may be repeated in 5 to 15 minute intervals (up to 3 doses) for client with no clinical improvement or deterioration of status, especially respiratory symptoms.**
- 7) **Place client in supine position with legs elevated, if tolerated (precluded for client with emesis and some clients with respiratory distress may not be able to tolerate this position).**
- 8) **Monitor vital signs (pulse, respiration and BP) every 5 minutes.**
- 9) **Apply and monitor pulse oximetry, if available.**
- 10) **Terminate exposure to the causative agent, if it can be identified**
  - a. **If insect stinger is present, immediate removal is more important than the method of removal. “Although conventional teaching suggested scraping the stinger out to avoid squeezing remaining venom from the retained venom gland into the tissues, involuntary muscle contraction of the gland continues after evisceration, and the venom contents are quickly exhausted.” Tintinalli, et al.**

**DISPOSITION**      **Every client treated with epinephrine must be transported by EMS to the closest appropriate hospital emergency department. Copy of Anaphylaxis Record is sent with client to hospital.**

## **CORRECT METHOD OF ADMINISTERING AUTO-INJECTABLE EPINEPHRINE**

**Directions for use: Different brands of this medication have different directions for preparing the injector. (Three brands of epinephrine auto-injector are currently available.) All are designed to inject through clothing.**

**Injection must be to the lateral thigh (do not inject to buttock, deltoid, or IV). Hold the device against the thigh for 10 seconds for drug delivery. Massage the site to enhance absorption.**

**Client must be transported by EMS to closest appropriate hospital emergency department.**

**Contraindications: no contraindications in life-threatening allergic reaction**

**Side effects: increased heart rate and blood pressure. (There are rare cases of stroke and heart attack resulting from epinephrine injection in clients with underlying cardiovascular disease. In clients known to have heart disease, the potential benefit of preventing death from anaphylaxis must be weighed against the potential risk of causing a stroke or heart attack.)**

Table 2

<b>KEY DIFFERENCES BETWEEN EPINEPHRINE AUTO-INJECTOR DEVICES<sup>2</sup></b>				
Auto-Injector Device	Appearance	Preparation for Administration	Administration	Dose Verification
EpiPen/EpiPen Jr (0.3 and 0.15 mg epinephrine) Auto-Injectors	One-step, flip-top carrying case with a blue safety release cap and orange tip at the other end	<ul style="list-style-type: none"> <li>• Flip open yellow top of the EpiPen or the green top of the EpiPen Jr and slide out pen</li> <li>• Grasp unit with orange tip pointing downward</li> <li>• Form fist around the unit (tip down) and with other hand pull off blue safety release (do not remove until ready to use)</li> </ul>	<ul style="list-style-type: none"> <li>• Hold orange tip near outer thigh</li> <li>• Swing and firmly push orange tip against outer thigh until it clicks</li> <li>• Hold firmly against thigh for ~10 seconds to deliver drug</li> <li>• Remove from thigh and massage injection area for 10 seconds</li> </ul>	<ul style="list-style-type: none"> <li>• Audible click signals that drug is being delivered</li> <li>• After use, window on side of pen is obscured, indicating drug was dispensed</li> <li>• Orange needle cover automatically extends, indicating needle was used</li> <li>• Used device will no longer fit back into the external carrying case</li> </ul>
Adrenaclick and Epinephrine Injection, USP Auto-Injector, 0.15 mg and 0.3 mg	Contained in a pull-apart cylindrical case with 2 gray caps on either end (labeled #1 and #2)	<ul style="list-style-type: none"> <li>• Pull apart cylindrical carrying case</li> <li>• Slide out the pen</li> <li>• Remove gray cap #1 – a red tip will be exposed</li> <li>• Remove gray cap #2</li> </ul>	<ul style="list-style-type: none"> <li>• Put red tip against middle of outer side of thigh</li> <li>• Press red injector tip hard against the thigh until needle enters skin</li> <li>• Hold it in place for 10 seconds to deliver the drug</li> </ul>	If needle is exposed, dose was received
Twinject (either 0.15 mg (0.15 mL) or 0.3 mg (0.3 mL) each are available for use by injection)	Contained in a pull-apart cylindrical case with 2 green caps (labeled #1 and #2)	<ul style="list-style-type: none"> <li>• Pull apart cylindrical carrying case</li> <li>• Slide out the pen</li> <li>• Remove green cap #1 - a red tip will be exposed</li> <li>• Removed green cap #2</li> </ul>	<ul style="list-style-type: none"> <li>• Put red tip against middle of outer side of thigh</li> <li>• Press red injector tip hard against the thigh until needle enters skin</li> <li>• Hold in for 10 seconds to deliver the drug</li> </ul>	If needle is exposed, dose was received

<sup>2</sup> Brice Labruzzo Mohundro, et al., "Important Considerations When Dispensing Epinephrine Auto-Injector Devices," *Pharmacy Times*, September 23, 2010,

**ANAPHYLAXIS RECORD – page 1**

School/Site \_\_\_\_\_ Date \_\_\_\_\_

**Client Demographic Information:**

Name: \_\_\_\_\_

DOB \_\_\_\_/\_\_\_\_/\_\_\_\_ AGE \_\_\_\_\_ months / years

Estimated/Actual Weight (please circle one) Infant / Child / Adolescent \_\_\_\_ lbs/kg

**Event which preceded reaction:**

- \_\_\_\_\_ Food ingested
- \_\_\_\_\_ Medication administered
- \_\_\_\_\_ Environmental exposure
- \_\_\_\_\_ Other: (please explain)

TIME OF REACTION: \_\_\_\_\_ AM / PM

TIME EMS CALLED: \_\_\_\_\_ AM / PM

**Signs and Symptoms: (please check)**

- |  |                                    |
|--|------------------------------------|
| _____ Apprehension                                     | _____ Choking sensation            |
| _____ Flushing and/or skin edema                       | _____ Coughing/hoarseness/wheezing |
| _____ Palpitations                                     | _____ Difficulty breathing         |
| _____ Numbness and/or tingling                         | _____ Nausea and/or vomiting       |
| _____ Itching  | _____ Severe hypotension           |
| _____ Localized or generalized urticaria (rash, welts) | _____ Vasomotor collapse           |
|  | _____ Loss of consciousness        |

Other (e.g., dizziness): \_\_\_\_\_

OTHER OBSERVATIONS / COMMENTS: \_\_\_\_\_

SIGNATURE OF RN/APRN: \_\_\_\_\_

DISPOSITION: \_\_\_\_\_

REVIEWER: \_\_\_\_\_

***NOTE: Send copies of both pages of this record with client referred to hospital***

**ALLERGIC REACTION / ANAPHYLAXIS RECORD – page 2**

4. Call for HELP.

**Assign timekeeper/recorder.**

**TIME EMS CALLED:** \_\_\_\_\_ **AM/PM**

**TIME EMS ARRIVED:** \_\_\_\_\_ **AM/PM**

**TIME EMS DEPARTED TO HOSPITAL:** \_\_\_\_\_ **AM/PM**

**Hospital's Name:** \_\_\_\_\_

**Client's status when transported to hospital:** \_\_\_\_\_

2. Assure AIRWAY.  
Check VITAL SIGNS q 5 minutes.  
CPR if necessary.

Client Name: \_\_\_\_\_

Client Weight: \_\_\_\_\_

DOB: \_\_\_\_\_

VITAL SIGNS (monitor every 5 minutes)

Time	B/P	Pulse	Resp
_____	____/____	_____	____
_____	____/____	_____	____
_____	____/____	_____	____
_____	____/____	_____	____
_____	____/____	_____	____
_____	____/____	_____	____

CPR Indicated: \_\_\_\_\_ YES \_\_\_\_\_ NO

TIME CPR started: \_\_\_\_\_ AM / PM

TIME CPR ended: \_\_\_\_\_ AM / PM

**EpiPen® Auto-Injector**

**TIME Administered:** \_\_\_\_\_ **AM/PM**

**TIME Administered:** \_\_\_\_\_ **AM/PM**

**TIME Administered:** \_\_\_\_\_ **AM/PM**

**EpiPen® Junior Auto-Injector**

**TIME Administered:** \_\_\_\_\_ **AM/PM**

**TIME Administered:** \_\_\_\_\_ **AM/PM**

**TIME Administered:** \_\_\_\_\_ **AM/PM**

**Twinject 0.15 mg/0.15 mL** \_\_\_\_\_ **AM/PM**

**Twinject 0.15 mg/0.15 mL** \_\_\_\_\_ **AM/PM**

**Twinject 0.15 mg/0.15 mL** \_\_\_\_\_ **AM/PM**

**Twinject 0.3 mg/0.3 mL** \_\_\_\_\_ **AM/PM**

**Twinject 0.3 mg/0.3 mL** \_\_\_\_\_ **AM/PM**

**Twinject 0.3 mg/0.3 mL** \_\_\_\_\_ **AM/PM**

**Adrenaclick™ 0.15 mg** \_\_\_\_\_ **AM/PM**

**Adrenaclick™ 0.15 mg** \_\_\_\_\_ **AM/PM**

**Adrenaclick™ 0.15 mg** \_\_\_\_\_ **AM/PM**

**Adrenaclick™ 0.3 mg** \_\_\_\_\_ **AM/PM**

**Adrenaclick™ 0.3 mg** \_\_\_\_\_ **AM/PM**

**Adrenaclick™ 0.3 mg** \_\_\_\_\_ **AM/PM**

### **CLIENT EDUCATION/COUNSELING**

- 3. Advise client to contact their primary care physician for follow-up after discharge from the hospital/emergency room.**

### **REFERRAL**

- 2. Immediately refer clients with suspected acute anaphylaxis to ER via EMS.**

### **FOLLOW-UP**

- 2. Document and prominently display known allergies in client's record.**
- 2. Educate the client/caretaker about medical alert bracelets for anaphylactic reactions as appropriate.**
- 4. Develop a written individualized client care plan as per organizational policy.**

## REFERENCES

1. Gary Fleisher, et al., (eds.), *Textbook of Pediatric Emergency Medicine*, 6<sup>th</sup> ed., Lippincott Williams & Wilkins, 2010, Chapter 82, “Asthma and Allergic Emergencies”.
2. “Guidelines for the Diagnosis and Management of Food Allergy in the United States: Report of the NIAID-Sponsored Expert Panel,” *Journal of Allergy Clinical Immunology*, Vol. 126, No. 6, December 2010, pp. 1105-18.
3. KLJ Choo, “Glucocorticoids for the Treatment of Anaphylaxis: Cochrane Systematic Review,” *Allergy*, Vol. 65, No. 10, October 2010, p 1205.
4. John Krohmer, et al., *Clinical Aspects of Prehospital Medicine*, Kendall-Hunt Publisher, 2009, Chapter 21, “Allergies, Stings,” p. 205. (Current)
5. Philip Lieberman, et al., “The diagnosis and management of anaphylaxis: an updated practice parameter,” *Journal of Allergy Clinical Immunology*, Vol. 115, No. 3, March 2005, pp. S483-523.
6. Brice Labruzzo Mohundro, et al., “Important Considerations When Dispensing Epinephrine Auto-Injector Devices,” *Pharmacy Times*, September 23, 2010, <<http://www.pharmacytimes.com/p2p/P2PEpinephrine-0910>> (July 28, 2011).
7. Hugh Sampson, et al., “Second symposium on the definition and management of anaphylaxis: Summary report – Second National Institute of Allergy and Infectious Disease/Food Allergy and Anaphylaxis Network symposium,” *Journal of Clinical Immunology*, Vol. 117, February 2006, pp. 391-397. (Current)
8. William W. Hay et al., *Current Pediatric Diagnosis and Treatment*, 20<sup>th</sup> ed., McGraw-Hill, United States of America, 2011, <<http://www.accessmedicine.com.medlib-proxy.mercer.edu/content.aspx?aID=6589316>>, accessed on July 28, 2011.
9. Judith Tintinalli, et al., *Tintinalli’s Emergency Medicine: A Comprehensive Study Guide*, 7<sup>th</sup> ed., McGraw-Hill, United States of America, 2011, <<http://www.accessmedicine.com.medlib-proxy.mercer.edu/content.aspx?aID=6358201>>, accessed on July 28, 2011.
10. Judith Tintinalli, et al., *Tintinalli’s Emergency Medicine: A Comprehensive Study Guide*, 7<sup>th</sup> ed., McGraw-Hill, United States of America, 2011, <<http://www.accessmedicine.com.medlib-proxy.mercer.edu/content.aspx?aID=6379117>>, accessed on July 28, 2011.
11. Shionogi, Inc., “Twinject auto-injector,” *Twinject auto-injector*, <<http://www.twinject.com/>> (August 4, 2011).

**THIS PAGE INTENTIONALLY LEFT BLANK**