**Appendix 1: National Institute of Allergy and Infectious Diseases (NIAID) criteria**

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| **Anaphylaxis is highly likely when any one of the following 3 criteria are fulfilled:**  1. Acute onset of an illness (minutes to several hours) with involvement of the skin, mucosal tissue, or both (eg, generalized hives, pruritus or flushing, swollen lips-tongue-uvula)  *AND AT LEAST ONE OF THE FOLLOWING*   1. Respiratory compromise (eg, dyspnea, wheeze-bronchospasm, stridor, reduced PEF, hypoxemia) 2. Reduced BP or associated symptoms of end-organ dysfunction (eg, hypotonia [collapse], syncope, incontinence)   2. Two or more of the following that occur rapidly after exposure *to a likely allergen for that patient* (minutes to several hours):  a. Involvement of the skin-mucosal tissue (eg, generalized hives, itch-flush, swollen lips-tongue-uvula)  b. Respiratory compromise (eg, dyspnea, wheeze-bronchospasm, stridor, reduced PEF, hypoxemia)  c. Reduced BP or associated symptoms (eg, hypotonia [collapse], syncope, incontinence)  d. Persistent gastrointestinal symptoms (eg, crampy abdominal pain, vomiting)  3. Reduced BP after exposure to *known allergen for that patient* (minutes to several hours):   1. Infants and children: low systolic BP (age specific) or greater than 30% decrease in systolic BP\* 2. Adults: systolic BP of less than 90 mm Hg or greater than 30% decrease from that person’s baseline   *PEF*, Peak expiratory flow; *BP*, blood pressure.  \*Low systolic blood pressure for children is defined as less than 70 mm Hg from 1 month to 1 year, less than (70 mm Hg [2 age]) from 1 to 10 years, and less than 90 mm Hg from 11 to 17 years. |

**Appendix 2: Pediatric Allergic Reaction Management:** A Survey on the Practice Patterns of Canadian Emergency Medicine Physicians

We ask that you complete the following survey. It consists of four vignettes and complementary questions for a total of 25 items. It should take approximately 10 minutes to complete.

1. **A previously well 10 month-old-boy presents to the ER with cough and hives. He was well this morning until eating some egg, approximately 30 minutes ago. He has tried egg only a couple of times before today, however this is the first time he’s had these symptoms.  
   His vitals on arrival are temperature 36.7C, saturation 99%, heart rate 100, respiratory rate 20 and blood pressure 85/60mmHg. The complete physical exam is notable only for hives and chest wheeze.**
   1. **Is this anaphylaxis?** 
      1. Definitely yes
      2. Probably yes
      3. Probably no
      4. Definitely no
   2. **Which treatments would you administer?  
      (Select as many as applicable)**
      1. Epinephrine
      2. Antihistamines
         1. IF selected, branch out options: cetirizine, ranitidine, dimenhydrinate
      3. Corticosteroids
         1. IF selected, branch out options: prednisone, prednisolone, methylprednisone, hydrocortisone, dexamethasone
      4. Salbutamol (Ventolin)
      5. Intravenous fluids
      6. Other: [free text box]
      7. None
   3. **What is the best course of action upon discharge for this patient?**
      1. Follow-up with family doctor
      2. Referral to paediatrician
      3. Referral to Allergy and Immunology
      4. No follow up required, return to ER as needed
   4. **Should this patient be prescribed an epinephrine auto-injector at discharge?**
      1. Yes
      2. No
2. **A 7 year-old-girl is brought into the ER after being stung by a wasp at daycamp. She has mild eczema, has no known allergies and is otherwise well.**

**The triage nurse comes to get you because she looks unwell with intense, crampy abdominal pain. Vital signs are as follows: temperature 37.0C, saturation 100%, heart rate 110, respiratory rate 15 and blood pressure 100/65mmHg. The complete physical exam is notable for skin with generalized flushing, her chest is clear, and her abdomen is normal, with no tenderness on palpation.**

* 1. **Is this anaphylaxis?** 
     1. Definitely yes
     2. Probably yes
     3. Probably no
     4. Definitely no
  2. **Which treatments would you administer?  
     (Select as many as applicable)**
     1. Epinephrine
     2. Antihistamines
        1. IF selected, branch out options: cetirizine, ranitidine, dimenhydrinate
     3. Corticosteroids
        1. IF selected, branch out options: prednisone, prednisolone, methylprednisone, hydrocortisone, dexamethasone
     4. Salbutamol (Ventolin)
     5. Intravenous fluids
     6. Other: [free text box]
     7. None
  3. **What is the best course of action upon discharge for this patient?**
     1. Follow-up with family doctor
     2. Referral to paediatrician
     3. Referral to Allergy and Immunology
     4. No follow up required, return to ER as needed
  4. **Should this patient be prescribed an epinephrine auto-injector at discharge?**
     1. Yes

No

1. **A previously well 6-month-old is brought into the ER with profuse vomiting and diarrhea. He was in his usual state of health until being fed cereal at noon. Within one hour of finishing, he started vomiting repeatedly. This is the third time that he has tried oat cereal, the spitting and regurgitation that he had before has now progressed to forceful vomiting. At the last visit to the Emergency Department for this, he required intravenous fluids for the treatment of dehydration.**

**On arrival, his vitals are as follows: temperature 36.2, saturation 99%, heart rate 130, respiratory rate 30, blood pressure 75/45mmHg. The physical exam is unremarkable save for an infant with ongoing intermittent non-bilious and non-bloody vomiting. The chest is clear and abdomen benign on exam.**

* 1. **Is this anaphylaxis?** 
     1. Definitely yes
     2. Probably yes
     3. Probably no
     4. Definitely no
  2. **Which treatments would you administer?  
     (Select as many as applicable)**
     1. Epinephrine
     2. Antihistamines
        1. IF selected, branch out options: cetirizine, ranitidine, dimenhydrinate
     3. Corticosteroids
        1. IF selected, branch out options: prednisone, prednisolone, methylprednisone, hydrocortisone, dexamethasone
     4. Salbutamol (Ventolin)
     5. Intravenous fluids
     6. Other: [free text box]
     7. None
  3. **What is the best course of action upon discharge for this patient?**
     1. Follow-up with family doctor
     2. Referral to paediatrician
     3. Referral to Allergy and Immunology
     4. No follow up required, return to ER as needed
  4. **Should this patient be prescribed an epinephrine auto-injector at discharge?**
     1. Yes
     2. No

1. **A previously well 14 year-old-boy is brought in by ambulance from a school bake-sale for a presumed allergic reaction. He has a peanut allergy for which he carries an epinephrine auto-injector. One hour ago, he ate an unlabeled cookie at the sale, felt a throat tightening and generally unwell. He alerted his teacher, they administered epinephrine in his thigh and called an ambulance.**

**He arrives in the emergency department looking pale and tired with the following vital signs: temperature 36.5, saturation 100%, heart rate 100, respiratory rate 22 and blood pressure of 80/55mmHg. On exam, he is pale but without rash, the chest is clear on auscultation and the remainder of the exam is unremarkable.**

* 1. **Is this anaphylaxis?** 
     1. Definitely yes
     2. Probably yes
     3. Probably no
     4. Definitely no
  2. **Which treatments would you administer?  
     (Select as many as applicable)**
     1. Epinephrine
     2. Antihistamines
        1. IF selected, branch out options: cetirizine, ranitidine, dimenhydrinate
     3. Corticosteroids
        1. IF selected, branch out options: prednisone, prednisolone, methylprednisone, hydrocortisone, dexamethasone
     4. Salbutamol (Ventolin)
     5. Intravenous fluids
     6. Other: [free text box]
     7. None
  3. **What is the best course of action upon discharge for this patient?**
     1. Follow-up with family doctor
     2. Referral to paediatrician
     3. Referral to Allergy and Immunology
     4. No follow up required, return to ER as needed
  4. **Should this patient be prescribed an epinephrine auto-injector at discharge?**
     1. Yes
     2. No

1. **What is your preferred route of epinephrine administration for the treatment of anaphylaxis in a hemodynamically stable child?**
   1. Intravenous
   2. Intramuscular
   3. Subcutaneous
2. **What is the correct dose of epinephrine for anaphylaxis?**
   * 1. Epinephrine (1 mg/mL= 1:1000) 0.01mg/kg
     2. Epinephrine (1 mg/mL= 1:1000) 0.1mg/kg
     3. Epinephrine (0.1 mg/mL= 1:10000) 0.01mg/kg
     4. Epinephrine (0.1 mg/mL= 1:10000) 0.1mg/kg
3. **How long would you observe a patient that had received a total of *one* dose of epinephrine for an anaphylactic reaction, as measured from the onset of the reaction?**
   * 1. <2 hours
     2. >/= 2 to 4 hours
     3. >/= 4 to 6 hours
     4. >/= 6 to 8 hours
     5. >8 hours
     6. Admit
     7. Other: [free text box]
4. **How long would you observe a patient that had received a total of *two* doses of epinephrine for an anaphylactic reaction, as measured from the onset of the reaction?**
   * 1. <2 hours
     2. >/= 2 to 4 hours
     3. >/= 4 to 6 hours
     4. >/= 6 to 8 hours
     5. >8 hours
     6. Admit
     7. Other: [free text box]

Please answer the following questions regarding survey respondent demographics

1. **Which of the following represents your most accurate practice setting?**
   1. Tertiary care Paediatric Center ER
   2. Adult tertiary care center hospital ER
   3. Community hospital ER
   4. Office
   5. Other: [free text box]
2. **Which part of Canada do you practice in?**
   1. Alberta
   2. British Columbia
   3. Manitoba
   4. New Brunswick
   5. Northwest Territories
   6. Nova Scotia
   7. Nunavut
   8. Ontario
   9. Prince Edward Island
   10. Quebec
   11. Saskatchewan
   12. Yukon
3. **How many years have you been in practice?**
   1. Currently still in-training
   2. 0-5 years
   3. 6-10 years
   4. 11-15 years
   5. 16-20 years
   6. >/= 21 years
4. **Which of the following represents your highest level of training?**
   1. Paediatric Emergency Medicine (PEM) Fellowship
   2. FRCPC Paediatrics
   3. FRCPC Emergency Medicine
   4. CCFP Emergency Medicine
   5. Other: [free text box]

**Additional questions for site representatives of the PERC network:**

1. **Please estimate the annual number of visits at your emergency department:**
   1. <30,000
   2. 30,000-49,999
   3. 50,000-70,000
   4. >70,000
2. **Please indicate which of the following are available for use in the Emergency Department (ED) in which you practice:**(Select all that apply)
   1. Anaphylaxis Action Plans[[1]](#footnote-1)
   2. Pre-printed order sets for anaphylaxis management in the emergency department[[2]](#footnote-2)
   3. A standard Epinephrine auto-injector discharge prescriptions
3. **Which of the following teaching resources are made available in your department for patients and their families?**
   1. Information sheets on anaphylaxis
   2. Informative videos with auto-injector demonstrations
   3. A traniner epinephrine auto-injector devices (with no needle)
   4. Online resources information sheets
4. **What is the most common follow-up for patients after a visit for anaphylaxis?**
   1. Follow-up with family doctor
   2. Referral to paediatrician
   3. Referral to Allergy and Immunology
   4. No follow up required, return to ER as needed

1. Anaphylaxis Action Plan is meant to refer to the document that delineates a series of steps to be taken according to future symptomatology and conventionally has pictograms with descriptions of symptoms. It also doubles as a prescription with multiple copies given to parents for distribution to the pharmacy, school / caregivers and a copy at home for future reference. [↑](#footnote-ref-1)
2. Pre-printed order sets typically have orders with regards to frequency of monitoring, medications which may be used with their corresponding dose and route [↑](#footnote-ref-2)