

# Visual representation of National Institute of Allergy and Infectious Disease and Food Allergy and Anaphylaxis Network criteria for anaphylaxis

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**Abstract** We present a user-friendly visual representation of The National Institute of Allergy and Infectious Disease and the Food Allergy and Anaphylaxis Network criteria so as to enhance recognition of anaphylaxis and active teaching and learning.

**Keywords** Anaphylaxis · Criteria for diagnosis

Anaphylaxis is a potentially fatal acute systemic allergic reaction. It is becoming increasingly common. [1, 2] Multiple studies have shown that anaphylaxis is both under-recognized and under-treated. [3–5]

Anaphylaxis is known to have varied presentations involving different organ systems. There are no universally accepted criteria for diagnosis of anaphylaxis. Lack of standardized diagnostic criteria has hampered diagnosis and management of anaphylaxis. The National Institute of Allergy and Infectious Disease and the Food Allergy and

Anaphylaxis Network (NIAID/FAAN) organized an international symposium in 2005 at which new diagnostic criteria for anaphylaxis were proposed. Although not prospectively validated, these criteria provide physicians with a rapid and simplified means of making the diagnosis.

Traditionally, the term ‘anaphylaxis’ referred to life-threatening manifestations of allergic reactions, such as respiratory distress or shock (anaphylactic shock) as manifested by hypotension or signs of hypoperfusion of critical organs. However, there is now a growing consensus that anaphylaxis is a systemic allergic reaction that typically involves more than one organ system but rarely can present with cardiovascular compromise as the only symptom. Therefore, the new criteria will capture broader presentations, encompassing less severe manifestations.

The importance of recognition and diagnosis of mild presentations of anaphylaxis (for example, rash and vomiting after an allergen exposure) is underscored by a study by Pumphrey. [6] In this study of 139 fatalities due to anaphylaxis, 78% of deaths attributed to food allergy, and 82% of deaths attributed to venom allergy occurred in patients with no previous history of severe allergic reactions. These fatalities might have been prevented if the previous less severe presentations had been recognized and patients had been provided with self-injectable epinephrine and appropriate follow-up referrals.

Table 1 shows the NIAID/FAAN criteria. [7] Patients are likely to have anaphylaxis if any one of the three criteria is present. It was believed that the criteria would “capture more than 95% of cases of anaphylaxis”. [7]

We present a user-friendly visual representation (Fig. 1) of the NIAID/FAAN criteria so as to enhance, not only recognition of anaphylaxis, but also active teaching and learning of these criteria among health-care providers. Increased recognition and diagnosis of anaphylaxis will

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**Table 1** National Institute of Allergy and Infectious Disease and Food Allergy and Anaphylaxis Network criteria for anaphylaxis

Anaphylaxis is likely when any one of these three criteria is fulfilled:

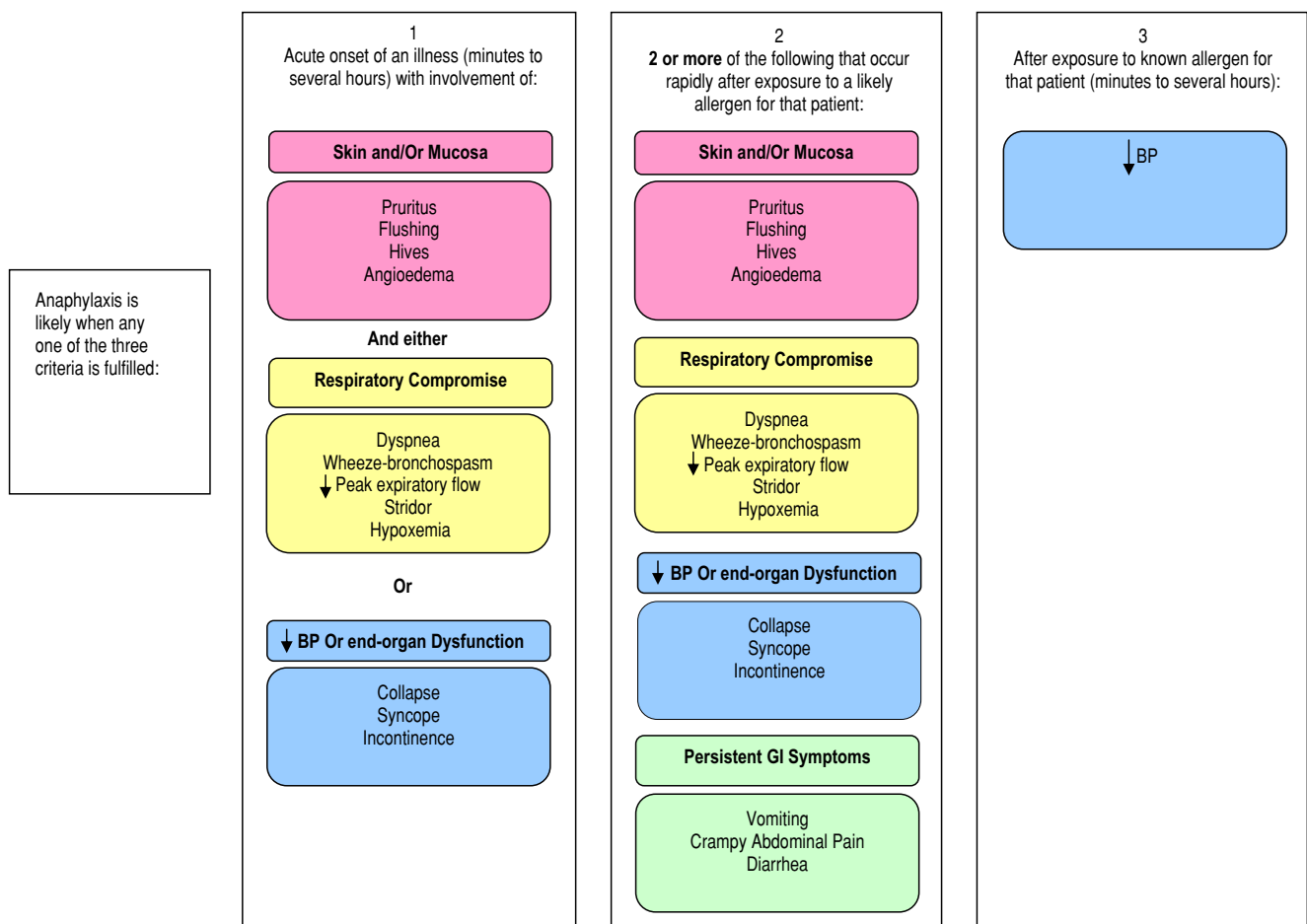
1. Acute onset of illness (minutes to several hours) with involvement of the skin, mucosal tissue, or both (e.g., generalized hives, pruritus or flushing, swollen lips, tongue, or uvula)

and at least one of the following:

- (a) Respiratory compromise (e.g., dyspnea, wheeze or bronchospasm, stridor, reduced peak expiratory flow, hypoxemia)
  - (b) Reduced blood pressure 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 patient (minutes to several hours):
- (a) Involvement of the skin or mucosal tissue (e.g., generalized hives, itch or flush, swollen lips, tongue, or uvula)
  - (b) Respiratory compromise (e.g., dyspnea, wheeze or bronchospasm, stridor, reduced peak expiratory flow, hypoxemia)
  - (c) Reduced blood pressure or associated symptoms (e.g., hypotonia [collapse], syncope, incontinence)
  - (d) Persistent gastrointestinal tract symptoms (e.g., crampy abdominal pain, vomiting)
3. Reduced blood pressure after exposure to known allergen for that patient (minutes to several hours):
- (a) Infants and children: low systolic blood pressure (age specific) or >30% decrease in systolic blood pressure<sup>a</sup>
  - (b) Adults: systolic blood pressure <90 mmHg or >30% decrease from that person's baseline

<sup>a</sup> Low systolic blood pressure for children is defined as <70 mmHg from 1 month to 1 year, <(70 mmHg + [2 × age]) from 1 to 10 years, and <90 mmHg from 11 to 17 years.

Modified from Sampson et al. [7]



**Fig. 1** Visual representation of the National Institute of Allergy and Infectious Disease and Food Allergy and Anaphylaxis Network criteria for anaphylaxis

hopefully lead to improved management and better outcomes in patients suffering from anaphylaxis.

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