

# Clinical update no. 559

## 20 May 2020

FOR HOW LONG SHOULD A PATIENT BE OBSERVED AFTER BEING GIVEN ADRENALINE FOR ANAPHYLAXIS?

WHAT IS THE ROLE OF MEDICATIONS OTHER THAN ADRENALINE?

*Emergency Care Institute*  
NEW SOUTH WALES

A useful site

<https://www.aci.health.nsw.gov.au/networks/eci/clinical/clinical-resources/clinical-tools/anaphylaxis>

It states: "patients should be observed for at least 4 hours after the last dose of adrenaline"; and "incidence of biphasic reactions is estimated to be 3-20%".

Some people like simple rules, but what is the basis of a 4 hour observation period?

As well, making the diagnosis is important. Anaphylaxis can be underdiagnosed.

Angioedema is not anaphylaxis and there is no benefit from adrenaline and other treatments used for anaphylaxis. It's a distinct condition.

A lack of benefit, and potential harm, from several interventions, notably antihistamines and steroids, has been reported for many years, however they are often given.

Ref: Grunau, B. et al. (2015) [Emergency Department Corticosteroid Use for Allergy or Anaphylaxis Is Not Associated With Decreased Relapses](#), *Annals of Emergency Medicine*. October 2015, Vol. 55, No. 4, pp. 381-389.

EMERGENCY MANAGEMENT OF ANAPHYLAXIS	
<b>1</b>	<p>Stop administration of causative agent (if relevant), assess reaction severity and treat accordingly</p> <p>Call for assistance</p> <p>Give adrenaline IM (lateral thigh) 0.01 mg/kg (maximum dose 0.5 mg)</p> <p>Set up IV access</p> <p>Lay patient flat (elevate legs if tolerated)</p> <p>Give high flow oxygen + airway/ventilation support if needed</p> <p>IF HYPOTENSIVE, ALSO:</p> <p>Set up additional wide-bore IV access (ie, 14G or 16G in adults) for normal saline infusion</p> <p>Give IV normal saline bolus 20 mL/kg over 1-2 min under pressure</p>
<b>2</b>	<p>If there is inadequate response, an immediate life-threatening situation, or deterioration:</p> <p>Start an IV adrenaline infusion, as per hospital guidelines/protocol</p> <p>OR</p> <p>Repeat IM adrenaline injection every 3-5 min, as needed</p>

Brown et al., MJA 2006; 185: 283-289

I'm not sure about elevating the legs, but otherwise outlines key interventions.



With rare exception, If you think its anaphylaxis, treat it as anaphylaxis, then analyze after the fact.

The Journal of Allergy and Clinical Immunology

SPECIAL SECTION: FOOD ALLERGY | VOLUME 127, ISSUE 3, P567-593 E22, MARCH 01, 2011

World Allergy Organization anaphylaxis guidelines: Summary

[https://www.jacionline.org/article/S0091-6749\(11\)00128-X/fulltext](https://www.jacionline.org/article/S0091-6749(11)00128-X/fulltext)

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

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

AND AT LEAST ONE OF THE FOLLOWING:

- Sudden respiratory symptoms and signs (e.g. shortness of breath, wheeze, cough, stridor, hypoxemia)
- Sudden reduced BP or symptoms of end-organ dysfunction (e.g. hypotonia [collapse], incontinence)

**OR 2** Two or more of the following that occur suddenly after exposure to a likely allergen or other trigger\* for that patient (minutes to several hours):

- Sudden skin or mucosal symptoms and signs (e.g. generalized hives, itch-flush, swollen lips-tongue-uvula)
- Sudden respiratory symptoms and signs (e.g. shortness of breath, wheeze, cough, stridor, hypoxemia)
- Sudden reduced BP or symptoms of end-organ dysfunction (e.g. hypotonia [collapse], incontinence)
- Sudden gastrointestinal symptoms (e.g. crampy abdominal pain, vomiting)

**OR 3** Reduced blood pressure (BP) after exposure to a known allergen\*\* for that patient (minutes to several hours):

- Infants and children: low systolic BP (age-specific) or greater than 30% decrease in systolic BP\*\*\*
- Adults: systolic BP of less than 90 mm Hg or greater than 30% decrease from that person's baseline

\* For example, immunologic but IgE-independent, or non-immunologic (direct mast cell activation)

\*\* For example, after an insect sting, reduced blood pressure might be the only manifestation of anaphylaxis; or, after allergen immunotherapy, generalized hives might be the only initial manifestation of anaphylaxis.

\*\*\* 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 x age]) from 1 to 10 years, and less than 90 mm Hg from 11 to 17 years. Normal heart rate ranges from 80-140 beats/minute at age 1-2 years; from 80-120 beats/minute at age 3 years; and from 70-115 beats/minute after age 3 years. In infants and children, respiratory compromise is more likely than hypotension or shock, and shock is more likely to be manifest initially by tachycardia than by hypotension.

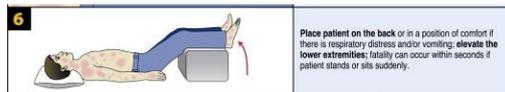
[https://marlin-prod.literatumonline.com/cms/attachment/763d1be0-e50f-49fd-bc44-297a282c9ef7/gr3\\_lrq.jpg](https://marlin-prod.literatumonline.com/cms/attachment/763d1be0-e50f-49fd-bc44-297a282c9ef7/gr3_lrq.jpg)

Diagnosis is not completely straightforward, but is highly if 1 of the these criteria are met after exposure to a likely or known allergen.

Onset is not always immediate after exposure.

1. Skin &/or mucosal tissue involvement + at least 1 of respiratory symptoms/signs; hypotension/end organ dysfunction.
2. 2 or more of skin mucosal involvement; respiratory; reduced BP; GI symptoms.
3. Reduced BP

Apparently they like to elevate the legs too.



Practice parameter

**Anaphylaxis—a 2020 practice parameter update, systematic review, and Grading of Recommendations, Assessment, Development and Evaluation (GRADE) analysis** [Check for updates](#)

J ALLERGY CLIN IMMUNOL  
APRIL 2020

<https://www.sciencedirect.com/science/article/pii/S0091674920301056?via%3Dihub>

This review addresses biphasic reactions, and the role of antihistamines and steroids.

### Topic area 1. Identification and mitigation of risk factors for biphasic anaphylaxis

### Topic area 2. Evaluation of the use of supplemental glucocorticoids and/or antihistamine premedication for the prevention of anaphylaxis

**Recommendation 1.** We suggest that a clinician incorporate severity of anaphylaxis presentation and/or the administration of >1 dose of epinephrine for the treatment of initial anaphylaxis as a guide to determining a patient's risk for developing biphasic anaphylaxis. Conditional recommendation. Certainty rating of evidence: very low.

Prompt and adequate treatment of anaphylaxis appears central to reducing biphasic anaphylaxis risk. It is important to educate all patients regarding biphasic reaction as well as avoiding known triggers.

**Recommendation 2.** We suggest extended clinical observation in a setting capable of managing anaphylaxis (to detect a biphasic reaction) for patients with resolved severe anaphylaxis and/or those who need >1 dose of epinephrine. Conditional recommendation. Certainty rating of evidence: very low.

Also consider extended observation if an unknown anaphylaxis trigger and children with a drug trigger. Number needed to observe 41 (18-195) if a severe reactions; and 13 (7-27) if given multiple adrenaline doses.

Evidence is lacking as to how long to observe. If no severe risk features then 1hr after symptom resolution may be reasonable.

For all scenarios, underlying CV disease and use of beta-blockers increases risk.

If at higher risk then 6 hours or longer may be appropriate. Resolution of symptoms is required prior to discharge for all patients.

**Recommendation.** We suggest against administering glucocorticoids or antihistamines as an intervention to prevent biphasic anaphylaxis. Conditional recommendation. Certainty rating of evidence: very low.

However, antihistamines may treat urticaria and itching as symptomatic management. Steroids appear to *increase* risk for biphasic anaphylaxis in children, although severity is a confounding variable.

**Recommendation.** We suggest in favor of administering glucocorticoids and/or antihistamines to prevent anaphylaxis or infusion-related reactions when indicated for specific agents in chemotherapy protocols. Conditional recommendation. Certainty rating of evidence: very low.

**Recommendation.** We suggest against routinely administering glucocorticoids and/or antihistamines to prevent anaphylaxis in patients with prior radiocontrast HSRs when readministration of a low- or iso-osmolar, nonionic RCM agent is required. Conditional recommendation. Certainty rating of evidence: very low.

HSR Hypersensitivity reaction; RCM Radiocontrast media

There is no benefit of premedication to prevent anaphylaxis to contrast media. There may be benefit in preventing delayed reactions. However due to the poor available evidence it is reasonable to consider premedication in high risk patients even though there is no evidence to support its use.

**Recommendation.** We suggest the administration of glucocorticoids and/or antihistamines as an intervention to prevent anaphylaxis in patients undergoing aeroallergen rush immunotherapy (RIT). Conditional recommendation. Certainty rating of evidence: very low.

Patient education, provision of an "epipen" and referral is required for all patients.

Finally, there is no evidence base for a 4 hour observation period. Someone made it up. "... Evidence is lacking to clearly define the optimal duration of observation..."; if no severe risk features then discharge 1hr from symptom resolution is reasonable".

These updates are a review of current literature at the time of writing. They do not replace local treatment protocols and policy. Treating doctors are individually responsible for following standard of care.