



# World Allergy Week 2014

**ANAPHYLAXIS**  
**When allergies can be severe and fatal**

*Are you ready for anaphylaxis?*



# Welcome to World Allergy Week 2014



Lanny Rosenwasser, MD  
*President, World Allergy Organization*

The World Allergy Organization welcomes all of you to join us and all of the educators, healthcare practitioners, policymakers, parents, patients, advocates and medical professionals around the world to mark the fourth consecutive year of World Allergy Week by organizing and participating in activities that bring attention to the rising global prevalence of anaphylaxis.



Motohiro Ebisawa, MD, PhD  
*Chair, Communications Committee*

In keeping with the World Allergy Week tradition of bringing attention to a specific allergic disease each year, the World Allergy Organization has selected **Anaphylaxis – When Allergies Can Be Severe and Fatal**, emphasizing the great need for increased awareness, training, and resources that lead to improved safety and quality of life.



## World Allergy Week 2014 Chairpersons

Motohiro Ebisawa, MD and Paul Greenberger, MD

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**Anaphylaxis** is a hypersensitivity reaction to foreign substances such as foods, medications, and insect bites or stings. Anaphylaxis is a serious, life-threatening *generalized* or *systemic* hypersensitivity reaction and a serious allergic reaction that is rapid in onset and can be fatal. Symptoms may be throat swelling, itchy rash, and low blood pressure.

*Are you prepared for anaphylaxis?*



# Anaphylaxis is a global public health concern.

The rate of anaphylaxis occurrence seems to be increasing with geographic variations.

- Data on the prevalence of anaphylaxis in the general population is limited.
- However, the recent survey in the United States indicates that the prevalence of anaphylaxis in the general population is at least 1.6% and probably higher.<sup>1</sup>
- In contrast, a European study indicated that an estimated 0.3% (95% CI 0.1-0.5) of the population experience anaphylaxis at some point of time in their lives.<sup>2</sup>

The **WAO Anaphylaxis Guidelines** published by the World Allergy Organization in 2011 should be disseminated to physicians throughout the world to prevent tragedies by anaphylaxis death.<sup>3</sup>

The **WAO White Book on Allergy: Update 2013**, which addresses this issue for the public, patients and policy makers, should also be disseminated worldwide as an important educational and advocacy document.<sup>4</sup>

- 
1. Wood RA, Camargo CA, Lieberman P, Sampson HA. Anaphylaxis in America: The prevalence and characteristics of anaphylaxis in the United States. *Journal of Allergy and Clinical Immunology* 2014;**133**(2):461-467. [Access](#)
  2. Panesar SS, Javad S, de Silva D, Nwaru BI, Lickstein L et al. The epidemiology of anaphylaxis in Europe: a systemic review *Allergy* 2013;**68**(11):1353-1361. [Access](#)
  3. Simons FER, Arduzzo LRF, Bilo MB, El Gamal Y, Ledford D et al. World Allergy Organization Guidelines for the assessment and management of anaphylaxis *World Allergy Organization Journal* 2011; **4**:13-37. [Access](#)
  4. Pawankar R, Canonica GW, Holgate S, Lockey R, Blaiss M eds. *WAO White Book on Allergy*, Update 2013. World Allergy Organization, 2013. [Access](#)



## Causes of anaphylaxis

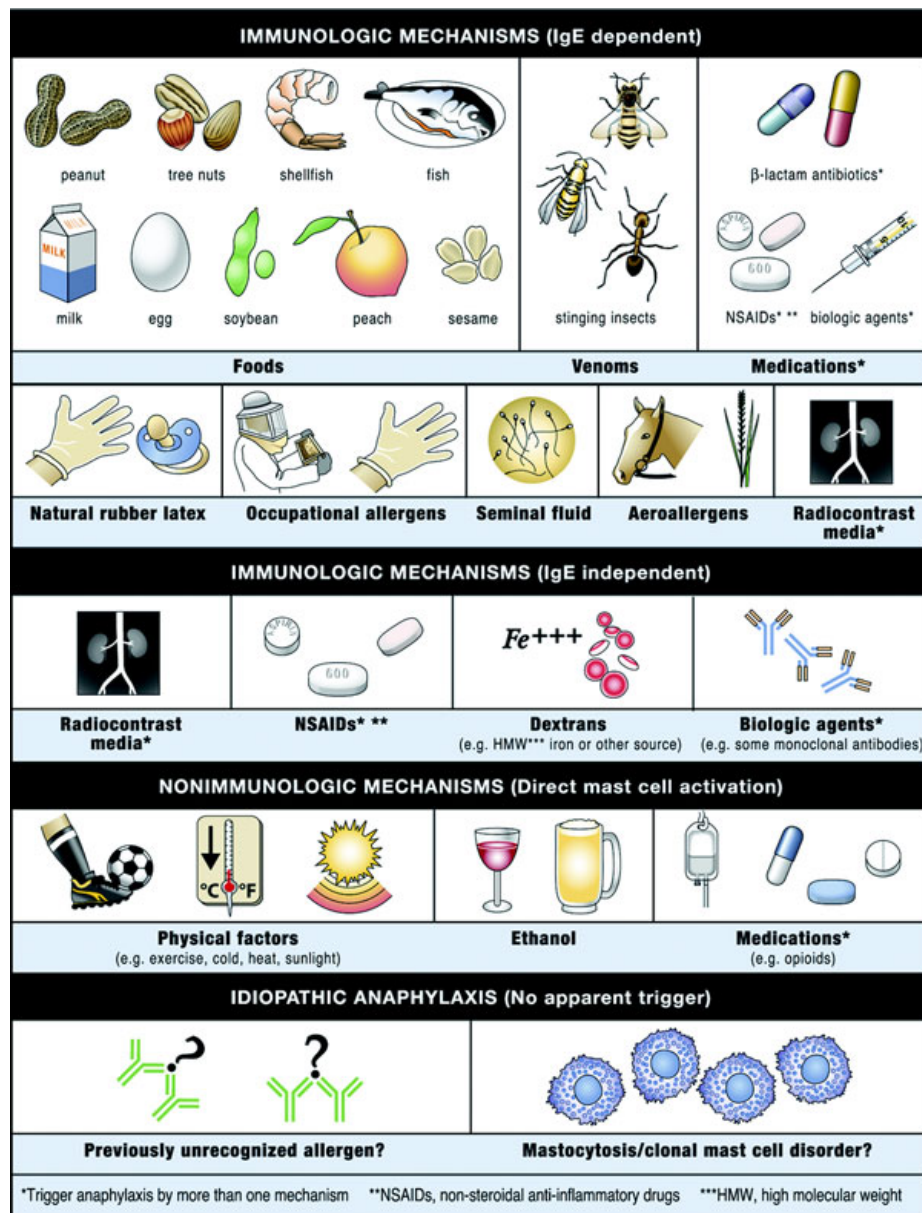
- The relative importance of specific anaphylaxis triggers in different age groups appears to be universal.
- Foods are the most common trigger in children, teens and young adults.
- Insect stings and medications are relatively common triggers in middle-aged and elderly adults.

## When anaphylaxis can become worse or fatal

*Potential associated factors that can cause more severe forms and fatal allergies include:*

- age
- physiologic state (such as pregnancy)
- concomitant diseases
  - poorly controlled asthma
  - cardiovascular disease
- concurrent use of medications
  - Beta-adrenergic blockers
  - ACE inhibitors
- amplifying co-factors
  - Exercise
  - non-steroidal anti-inflammatory drugs
  - Infections
  - emotional stress
  - peri-menstrual status

# Anaphylaxis mechanisms and triggers



**Figure 2, From the “WAO Guidelines for the Assessment & Management of Anaphylaxis”**

Simons FER et al. *World Allergy Organization Journal* 2011; 4:13–37  
<http://www.waojournal.org/content/4/2/13>

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Warning: The WAO Guidelines are intended for physician use only. All others, please contact your physician regarding preparation, treatment, and prevention of anaphylaxis.



# Patient factors that contribute to anaphylaxis

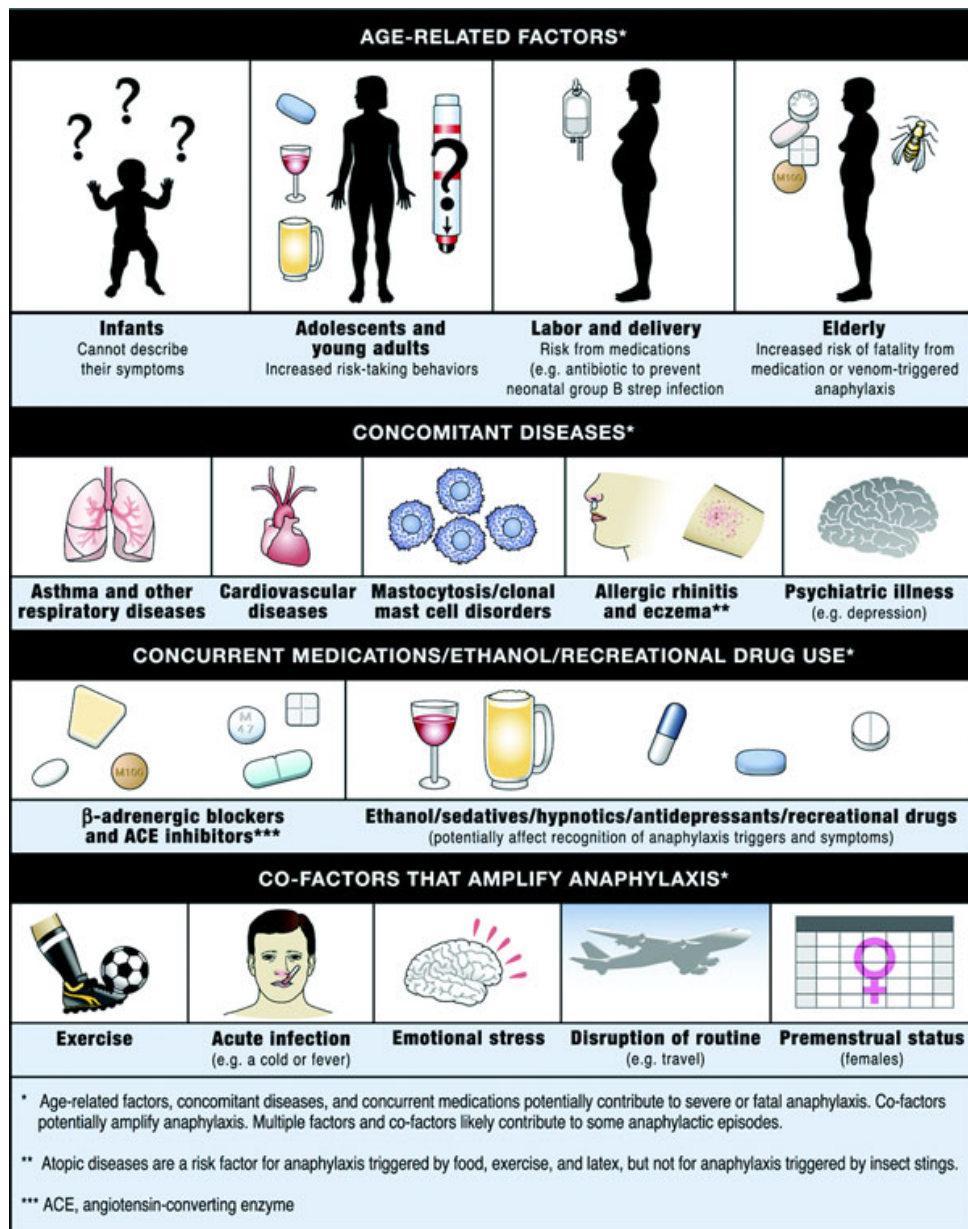


Figure 1, From the “WAO Guidelines for the Assessment & Management of Anaphylaxis”

Simons FER et al. *World Allergy Organization Journal* 2011; 4:13–37  
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# Symptoms and signs of anaphylaxis

## **Skin, subcutaneous tissue, and mucosa**

Flushing, itching, urticaria (hives), angioedema, morbilliform rash, pilor erection

Periorbital itching, erythema and edema, conjunctival erythema, tearing

Itching of lips, tongue, palate, and external auditory canals; and swelling of lips, tongue, and uvula

## **Respiratory**

Nasal itching, congestion, rhinorrhea, sneezing

Throat itching and tightness, dysphonia, hoarseness, stridor, dry staccato cough

Lower airways: increased respiratory rate, shortness of breath, chest tightness, deep cough, wheezing/bronchospasm, decreased peak expiratory flow

Cyanosis

Respiratory arrest

## **Gastrointestinal**

Abdominal pain, nausea, vomiting (stringy mucus), diarrhea, dysphagia

## **Cardiovascular system**

Chest pain

Tachycardia, bradycardia (less common), other arrhythmias, palpitations

Hypotension, feeling faint, urinary or fecal incontinence, shock

Cardiac arrest

Central nervous system

Aura of impending doom, uneasiness (in infants and children, sudden behavioral change, eg. irritability, cessation of play, clinging to parent); throbbing headache (pre-epinephrine), altered mental status, dizziness, confusion, tunnel vision

## **Other**

Metallic taste in the mouth

Cramps and bleeding due to uterine contractions in females

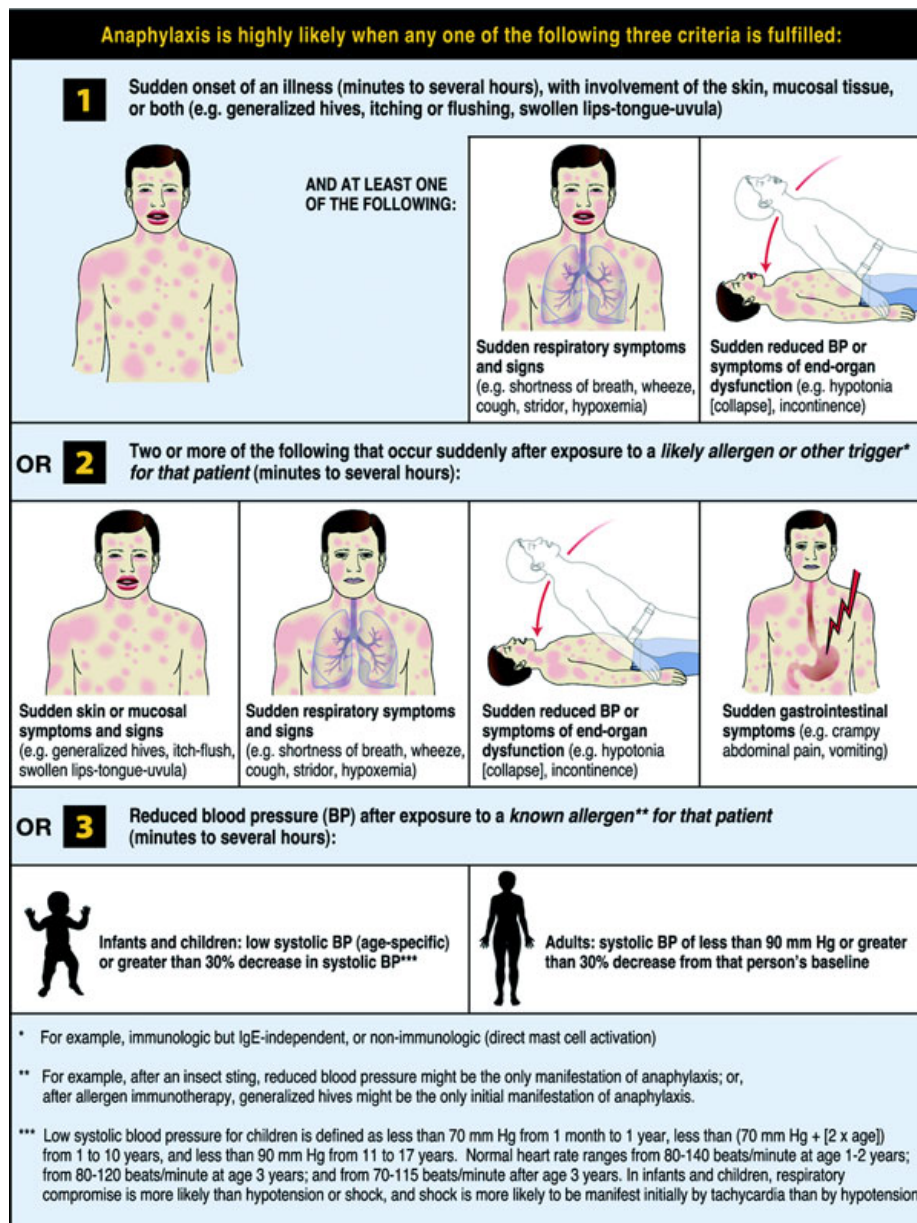
## **Table 2, From the “WAO Guidelines for the Assessment & Management of Anaphylaxis”**

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# Clinical criteria for the diagnosis of anaphylaxis



## Figure 3, From the “WAO Guidelines for the Assessment & Management of Anaphylaxis”

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<http://www.waojournal.org/content/4/2/13>

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Posters and laminated pocket cards available from WAO.

Access the order form at:

<http://www.worldallergy.org/UserFiles/file/PocketCardPosterOrderForm.pdf>

# Preparing for anaphylaxis involves having a written emergency protocol and rehearsing it regularly.

## Protocol:

1. Place the patient on the back (or in a position of comfort if there is respiratory distress and/or vomiting).
2. Elevate the lower extremities.
3. Administer adrenaline\*
4. Assess circulation, airway, breathing, and mental status, skin, and other visual indicators.

### Adrenaline

Intramuscularly administered-adrenaline (epinephrine) is life-saving for the treatment of anaphylaxis.

- It relieves the symptoms of anaphylaxis including preventing, and relieving, airway obstruction via Beta-2 adrenergic effects caused by mucosal edema and smooth muscle concentration.
- It prevents and relieves fall in blood pressure and shock.

## Prevention:

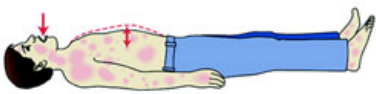

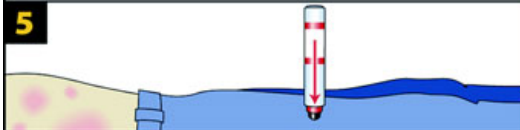
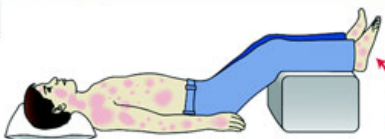
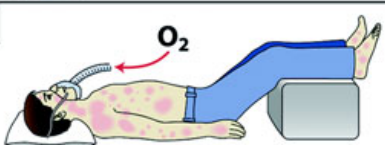
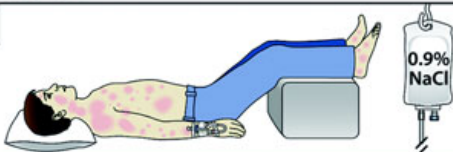
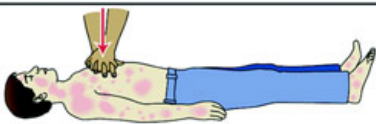
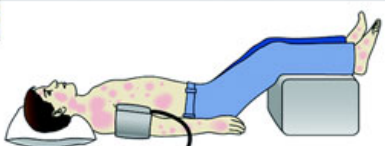
It is important to advise patients about the need to have as-advised regular follow-up visits with a physician, preferably an allergy/immunology specialist, to:

- confirm their specific trigger(s) of anaphylaxis)
- prevent recurrences by avoiding the specific trigger(s)
- have an emergency action plan and emergency medication on hand
- have support from the family members
- receive *immunomodulation*, where it is clinically approved and relevant

### Immunomodulation

Immunomodulation is Immunotherapy with Hymenoptera venoms or fire ant extracts which are effective therapies to reduce the risk of anaphylaxis.

# Basic management of anaphylaxis

<b>1</b>	Have a written emergency protocol for recognition and treatment of anaphylaxis and rehearse it regularly.
<b>2</b>	Remove exposure to the trigger if possible, eg. discontinue an intravenous diagnostic or therapeutic agent that seems to be triggering symptoms.
<b>3</b>	 <p>Assess the patient's circulation, airway, breathing, mental status, skin, and body weight (mass).</p>
<b>4</b>	 <p>Promptly and simultaneously, perform steps 4, 5 and 6.</p>
<b>5</b>	 <p>Inject epinephrine (adrenaline) intramuscularly in the mid-antrolateral aspect of the thigh, 0.01 mg/kg of a 1:1,000 (1 mg/mL) solution, maximum of 0.5 mg (adult) or 0.3 mg (child); record the time of the dose and repeat it in 5-15 minutes, if needed. Most patients respond to 1 or 2 doses.</p>
<b>6</b>	 <p>Place patient on the back or in a position of comfort if there is respiratory distress and/or vomiting; elevate the lower extremities; fatality can occur within seconds if patient stands or sits suddenly.</p>
<b>7</b>	 <p>When indicated, give high-flow supplemental oxygen (6-8 L/minute), by face mask or oropharyngeal airway.</p>
<b>8</b>	 <p>Establish intravenous access using needles or catheters with wide-bore cannulae (14 - 16 gauge). When indicated, give 1-2 litres of 0.9% (isotonic) saline rapidly (e.g. 5-10 mL/kg in the first 5-10 minutes to an adult; 10 mL/kg to a child).</p>
<b>9</b>	 <p>When indicated at any time, perform cardiopulmonary resuscitation with continuous chest compressions.</p>
<b>10</b>	 <p>In addition,</p> <p>At frequent, regular intervals, monitor patient's blood pressure, cardiac rate and function, respiratory status, and oxygenation (monitor continuously, if possible).</p>

## Figure 4, From the “WAO Guidelines for the Assessment & Management of Anaphylaxis”

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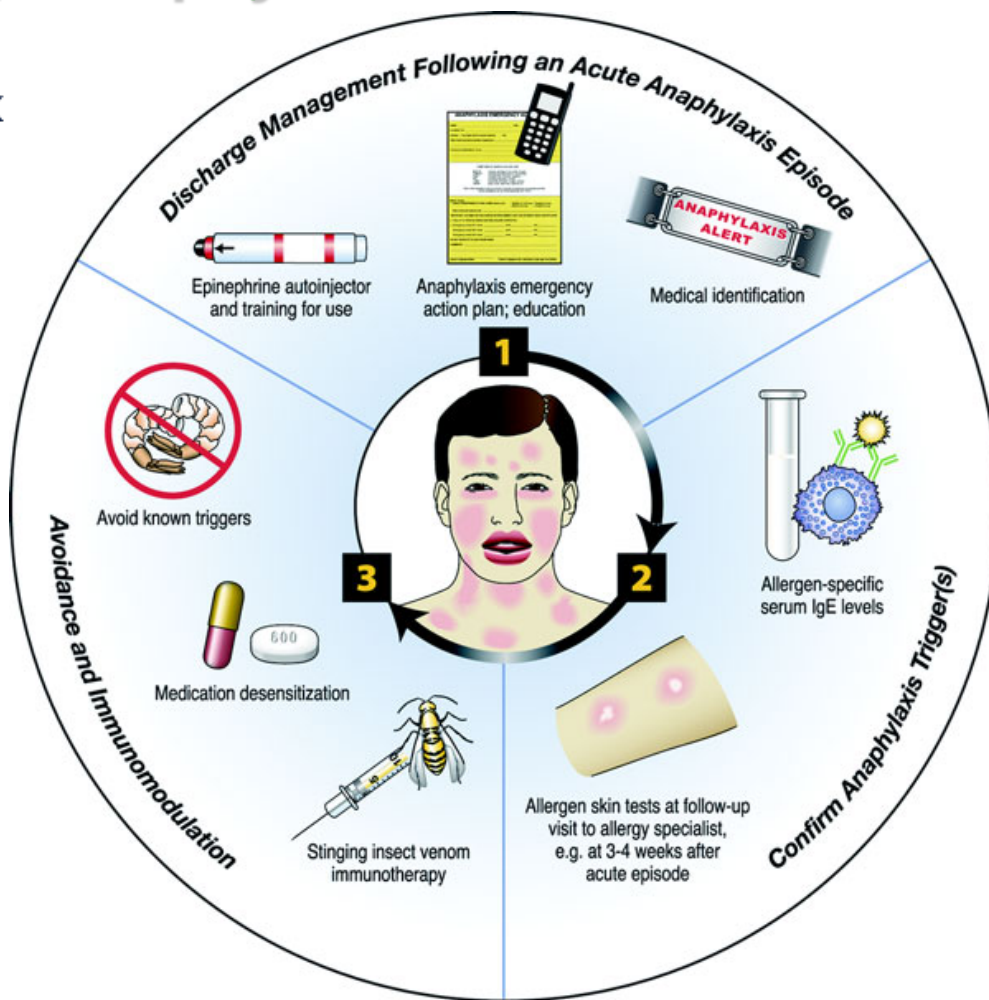
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# Discharge management and prevention of future anaphylaxis recurrences in the community



**Figure 5, From the “WAO Guidelines for the Assessment & Management of Anaphylaxis”**

Simons FER et al. *World Allergy Organization Journal* 2011; 4:13–37  
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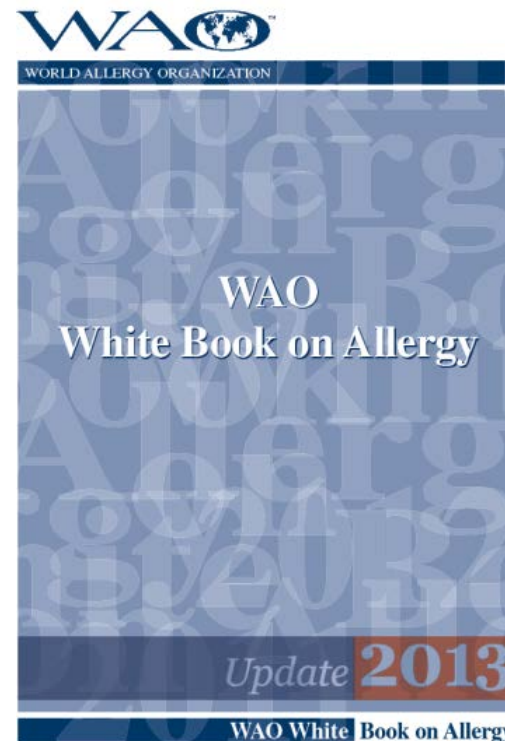
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# The WAO White Book on Allergy Update 2013

## Section 2.5. Anaphylaxis- Key Statements

*Richard F. Lockey, Stephen F. Kemp, Philip L. Lieberman, Aziz Sheikh*

- Epinephrine (adrenaline) at appropriate doses, injected intramuscularly into the mid-anterior lateral thigh, is the drug of choice to treat anaphylaxis.
- Anaphylaxis includes both allergic and non-allergic etiologies.
- The term “anaphylactoid” is outdated.
- The variability and severity of anaphylaxis is somewhat dependent on the route by which the allergen or inciting agent is delivered, e.g., parenteral versus oral administration; the former is commonly associated with more severe reactions.



### **WAO White Book on Allergy Update**

**2013** Editors: R Pawankar, GW

Canonica, S Holgate, R Lockey, M Blaiss

[http://www.worldallergy.org/definingthespecialty/white\\_book.php](http://www.worldallergy.org/definingthespecialty/white_book.php)





# To learn more about anaphylaxis

**World Allergy Organization**

*Resources*

<http://www.worldallergy.org/anaphylaxis>

[www.worldallergyweek.org](http://www.worldallergyweek.org)

*Patient Advocacy:*

## **Allergy and Anaphylaxis Australia**

*Fact Sheets, Allergen Specifics*

<http://www.allergyfacts.org.au/living-with-the-risk/allergen-specifics>

*School Resources*

<http://www.allergyfacts.org.au/caring-for-those-at-risk/school-resources>

## **Anaphylaxis Campaign**

*Fact Sheets*

<http://www.anaphylaxis.org.uk/what-is-anaphylaxis/our-factsheets>

## **Anaphylaxis Canada**

*Helpful Info*

[http://www.anaphylaxis.ca/en/resources/helpful\\_info.html](http://www.anaphylaxis.ca/en/resources/helpful_info.html)

## **Anaphylaxis Ireland**

*Informational leaflets*

[http://www.anaphylaxisireland.ie/?page\\_id=124](http://www.anaphylaxisireland.ie/?page_id=124)

## **Food Allergy Research & Education (FARE)**

*Resources*

<http://www.foodallergy.org/resources-for>



A World Federation of Allergy, Asthma  
& Clinical Immunology Societies



## About the World Allergy Organization

The World Allergy Organization is an international alliance of 95 regional and national allergy, asthma and immunology societies. Through collaboration with its Member Societies WAO provides a wide range of educational and outreach programs, symposia and lectureships to allergists/immunologists around the world and conducts initiatives related to clinical practice, service provision, and physical training in order to better understand and address the challenges facing allergists/immunologists worldwide.

[www.worldallergy.org](http://www.worldallergy.org)

### Upcoming World Allergy Organization Meetings:



# Member Societies of the World Allergy Organization

## ASIA AND PACIFIC

[Allergy & Immunology Society of Sri Lanka](#)  
[Allergy and Clinical Immunology Society \(Singapore\)](#)  
[Allergy and Immunology Society of Thailand](#)  
[Asia Pacific Association of Allergy, Asthma, and Clinical Immunology](#)  
[Asia Pacific Association of Pediatric Allergy, Respiriology and Immunology](#)  
[Australasian Society of Clinical Immunology and Allergy](#)  
Azerbaijan Society for Asthma, Allergy and Clinical Immunology  
Bangladesh Society of Allergy and Immunology  
Chinese Society of Allergology  
[Hong Kong Institute of Allergy](#)  
[Indian Academy of Allergy](#)  
Indian College of Allergy, Asthma and Clinical Immunology  
Indonesian Society of Allergy and Immunology  
[Japanese Society of Allergology](#)  
[Korean Academy of Asthma, Allergy and Clinical Immunology](#)  
[Malaysian Society of Allergy and Immunology](#)  
[Mongolian Society of Allergology](#)  
Taiwan Academy of Pediatric Allergy Asthma Immunology  
Vietnam Association of Allergy, Asthma and Clinical Immunology

## LATIN AMERICA

[Argentine Association of Allergy and Immunology](#)  
[Argentine Society of Allergy and Immunology](#)  
[Brazilian Society of Allergy and Immunology](#)  
[Chilean Society of Allergy and Immunology](#)  
Colombian Allergy, Asthma and Immunology Association  
[Cuban Society of Allergology](#)  
[Ecuadorian Society of Allergy, Asthma, and Immunology](#)  
Guatemalan Allergy, Asthma, and Clinical Immunology Society  
Honduran Society of Allergy and Clincial Immunology

## AFRICA AND MIDDLE EAST

Allergy Society of Kenya  
[Allergy Society of South Africa](#)  
[Egyptian Society of Allergy and Clinical Immunology](#)  
[Egyptian Society of Pediatric Allergy and Immunology](#)  
[Iranian Society of Asthma and Allergy](#)  
[Israel Association of Allergy and Clinical Immunology](#)  
[Jordanian Society for Allergy and Clinical Immunology](#)  
[Kuwait Society of Allergy & Clinical Immunology](#)  
Lebanese Society of Allergy and Immunology  
[Moroccan Society of Allergology and Clinical Immunology](#)  
[National Association for Private Algerian Allergists](#)  
Serbian Association of Allergologists and Clinical Immunologists  
Tunisian Society of Respiratory Diseases and Allergology  
[Turkish National Society of Allergy and Clinical Immunology](#)  
Zimbabwe Allergy Society

[Latin American Society of Allergy and Immunology](#)  
[Mexican College of Allergy and Clinical Immunology \(CMICA\)](#)  
[Mexican College of Pediatricians Specialized in Allergy and Clinical Immunology](#)  
Panamanian Association of Allergology and Clinical Immunology  
[Paraguayan Society of Allergy, Asthma, and Immunology](#)  
Peruvian Society of Allergy and Immunology  
[Philippine Society of Allergy, Asthma and Immunology](#)  
Uruguayan Society of Allergology  
[Venezuelan Society of Allergy, Asthma and Immunology](#)

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# Member Societies of the World Allergy Organization

## EUROPE

Albanian Society of Allergology and Clinical Immunology

Armenian Association of Immunology and Allergy

[Austrian Society of Allergology and Immunology](#)

Belarus Association of Allergology & Clinical Immunology

[Belgian Society of Allergy and Clinical Immunology](#)

[British Society of Allergy and Clinical Immunology](#)

Bulgarian National Society of Allergology

Commonwealth of Independent States Society of Allergology and Immunology

Croatian Society of Allergology and Clinical Immunology

[Czech Society of Allergology and Clinical Immunology](#)

[Danish Society for Allergology](#)

[Dutch Society of Allergology](#)

[European Academy of Allergy and Clinical Immunology \(EAACI\)](#)

[Finnish Society of Allergology and Clinical Immunology](#)

[French Society of Allergology and Clinical Immunology](#)

Georgian Association of Allergology and Clinical Immunology

[German Society for Allergology and Clinical Immunology](#)

[Hellenic Society of Allergology and Clinical Immunology](#)

[Hungarian Society of Allergology and Clinical Immunology](#)

Icelandic Society of Allergy and Clinical Immunology

[Italian Association of Territorial and Hospital Allergists](#)

[Italian Society of Allergology and Clinical Immunology](#)

[Latvian Association of Allergists](#)

Moldavian Society of Allergology & Immunology

[Norwegian Society of Allergology and Immunopathology](#)

[Polish Society of Allergology](#)

[Portuguese Society of Allergology and Clinical Immunology](#)

[Romanian Society of Allergology and Clinical Immunology](#)

[Russian Association of Allergology and Clinical Immunology](#)

[Slovenian Association for Allergology & Clinical Immunology](#)

[Spanish Society of Allergology and Clinical Immunology](#)

[Swedish Association for Allergology](#)

[Swiss Society of Allergology and Immunology](#)

Ukrainian Allergists Association

Ukrainian Association of Allergologists and Clinical Immunologists

## AFFILIATE ORGANIZATIONS

[British Society for Immunology](#)

[Global Allergy and Asthma European Network \(GA2LEN\)](#)

[International Association of Asthmology \(INTERASMA\)](#)

[International Primary Care Respiratory Group \(IPCRG\)](#)

Southern European Allergy Societies (SEAS)

## NORTH AMERICA

[American Academy of Allergy, Asthma and Immunology](#)

[American College of Allergy, Asthma and Immunology](#)

[Canadian Society of Allergy and Clinical Immunology](#)



# How are you raising awareness of anaphylaxis?

Tell us about your activities for World Allergy Week 2014.

Email: [info@worldallergy.org](mailto:info@worldallergy.org)

Facebook: [facebook.com/worldallergy.org](https://facebook.com/worldallergy.org)

Twitter: [@worldallergy](https://twitter.com/worldallergy)

#WorldAllergyWeek

[www.worldallergyweek.org](http://www.worldallergyweek.org)

"This program is supported by an independent educational grant from Mylan Specialty and Kaleo"

