

**NEWS RELEASE
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**Wilderness Medical Society issues new clinical practice guidelines on
anaphylaxis**

*Experts review the current literature on anaphylaxis and present their recommendations for
treatment in Wilderness & Environmental Medicine*

Philadelphia, March 15, 2022 – Access to standard medical care for anaphylaxis is likely to be limited or delayed in remote areas or wilderness settings. The [Wilderness Medical Society](#) (WMS) and [Wilderness & Environmental Medicine](#) announce the publication of [clinical practice guidelines on anaphylaxis](#). These evidence-based guidelines are intended to help outdoor-based programs, organizations, and individuals concerned with wilderness or field conditions to develop policies and procedures on anaphylaxis that are best suited to their missions and operating environments.

Anaphylaxis is an acute, potentially life-threatening allergic reaction that progresses to involve multiple organ systems in the body. Common triggers are foods (including nuts, milk, fish, shellfish, eggs, and certain fruits); medications (including certain antibiotics and non-steroidal anti-inflammatory drugs); and insect stings (particularly wasp and bee stings).



Caption: Common triggers for anaphylactic reaction include insect stings – particularly wasp and bee stings. Illustrated here: a social wasp (*Vespula germanica*) (Credit: Wikipedia Commons https://commons.wikimedia.org/wiki/File:Wasp_October_2007-7.jpg).

The primary prehospital or field treatment for anaphylaxis is administration of intramuscular epinephrine. “Since 2010, to help increase the availability of life-saving treatment, WMS has supported the position that nonmedical professionals whose duties include providing first aid or emergency medical care in the field should also be trained to administer epinephrine for anaphylaxis,”

explained lead author Flavio G. Gaudio, MD, Department of Emergency Medicine, New York Presbyterian—Weill Cornell Medicine, New York, NY, USA. “Examples of such professionals include expedition leaders, outdoor instructors or guides, park rangers, and camp directors.”

The authors reviewed the scientific literature for the best available evidence on the incidence, causes, pathophysiology, clinical manifestations, treatment, and prevention of anaphylaxis, emphasizing the field perspective. The guidelines also discuss original research on the incidence and top causes of anaphylaxis in outdoor education and recreation, based on the injury and illness databases of the National Outdoor Leadership School (NOLS) and Outward Bound – USA, two well-established schools leading wilderness courses and expeditions. Data indicate that anaphylaxis occurred in 0.01% to 0.03% of participants, respectively. Although the overall incidence of anaphylaxis is low, it has risen in recent decades – a 12-fold increase in anaphylaxis and a three-fold increase in non-anaphylactic allergic reactions in the NOLS database.

While the top causes of anaphylaxis were food allergies and insect stings, more than 20% were first-time reactions in people with no known allergy history.

General findings include:

- The primary prehospital or field treatment for anaphylaxis is intramuscular epinephrine. Both autoinjectors and manual syringes have been safely used to administer epinephrine in field conditions.
- Although they are widely available, over-the-counter metered-dose inhalers of epinephrine have not been found to be a practical or effective treatment for anaphylaxis.
- Antihistamines, corticosteroids, and inhaled beta agonists are supplemental anaphylaxis treatments that should not delay epinephrine administration. Antihistamines may help blunt the overall severity of anaphylaxis, and nonsedating formulations may be preferred in the field.
- Evidence of the benefit of corticosteroids is inconsistent, but empiric use is reasonable given the potential for benefit paired with a generally low side effect profile.
- Epinephrine may be given every 5 to 15 minutes to treat refractory anaphylaxis, along with the secondary treatments of antihistamines and corticosteroids, as well as inhaled beta agonists for patients with bronchospasm.
- The length of observation after treatment of anaphylaxis depends on the severity of the initial reaction and risk factors for a biphasic reaction.
- Before discharge from a medical center, patients should receive an epinephrine prescription and be advised to follow up for allergy testing and consideration of immunotherapy.
- Desensitization protocols for *Hymenoptera* venom (for example, from wasps, bees, and fire ants) and peanut sensitivity are available and should be considered for patients with prior anaphylactic reactions to these antigens.



Caption: How to use adrenaline (epinephrine) autoinjector, the primary prehospital or field treatment for anaphylaxis (Credit: ShareAlike 4.0 International (CC BY-SA 4.0) https://commons.wikimedia.org/wiki/File:Adrenalina_autoinjector8.JPG).

The guidelines also provide information on topics not generally considered in the controlled settings of hospitals or medical offices, for example, potency of epinephrine when stored and transported in field conditions and subject to temperature fluctuations; the extraction of additional epinephrine from autoinjectors after medication discharge (in extreme emergencies or life-saving circumstances, when no other source is available); and the use of expired epinephrine.

Formulations of intranasal and sublingual epinephrine are currently under development and may provide alternatives to needle-based devices in the future.

“The guidelines do not provide simple, how-to algorithms that apply to all settings, especially considering different patient characteristics, different training and resources available to each first responder or practitioner, and different topography or field conditions,” noted Dr. Gaudio. “However, given the breadth and scope of the guidelines, outdoor-based programs and organizations should find some information and recommendations useful to their particular operational needs. Finally, organizations that plan to carry epinephrine into the field must consult and follow both the relevant federal guidelines as well as state-specific laws.”

Notes for editors

The article is “Wilderness Medical Society Clinical Practice Guidelines on Anaphylaxis,” by Flavio G. Gaudio, MD; David E. Johnson, MD; Kelly DiLorenzo, MD; Arian Anderson, MD; Martin Musi, MD; Tod Schimelpfenig, MS, EMT; Drew Leemon, BS; Caroline Blair-Smith, BA; and Jay Lemery, MD (<https://doi.org/10.1016/j.wem.2021.11.009>). It appears in *Wilderness & Environmental Medicine*, volume 33, issue 1 (March 2022), published by [Elsevier](#).

The article is openly available at [https://www.wemjournal.org/article/S1080-6032\(21\)00212-X/fulltext](https://www.wemjournal.org/article/S1080-6032(21)00212-X/fulltext).

Full text of the article is also available to credentialed journalists upon request. Contact Theresa Monturano at +1 215 239 3711 or hmsmedia@elsevier.com to obtain copies. Journalists wishing to interview the authors should contact Flavio Gaudio, MD, via the Weill Cornell media relations team at +1 646 962 9564 or pr@med.cornell.edu.

About *Wilderness & Environmental Medicine*

Wilderness & Environmental Medicine (WEM), the official journal of the Wilderness Medical Society, is a peer-reviewed international journal focusing on health, human factors, and medical care in austere environments. It is devoted to original scientific and technical contributions related to environments defined by isolation, extreme natural environments, and limited access to medical help and equipment. Examples of topics covered include high altitude and climbing; hypothermia and cold-induced injuries; diving; drowning; hazardous plants, reptiles, insects, and marine animals; animal attacks; search and rescue. www.wemjournal.org

About the Wilderness Medical Society

Founded in 1983, the Wilderness Medical Society (WMS) is the world's leading organization devoted to wilderness medical challenges. Wilderness medicine topics include expedition and disaster medicine, dive medicine, search and rescue, altitude illness, cold- and heat-related illness, wilderness trauma, and wild animal attacks. WMS explores health risks and safety issues in extreme situations such as mountains, jungles, deserts, caves, marine environments, and space. For more information on the WMS, please visit us at www.wms.org.

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