

INCIDENT SUMMARY

Incident type: Fatality
Weather conditions/Time of day: Sunny, 1:00 PM
Type of operation: Tree Marking and Cutting
Size of work crew: Two
Worksite inspection conducted: Yes
Competent safety monitoring on site: Yes
Safety and Health program in effect: Yes
Training and education for workers: First Aid/CPR
Occupation of deceased worker: Logger
Age/Sex of deceased worker: 58
Time on job: 20 Years
Time at task: 8 Hours
Time employed/classification (FT/PT/Temporary): FT
Language spoken: French
Union/Non-Union: Non-Union



Photo: USDA

BRIEF DESCRIPTION OF INCIDENT

A forester, working as part of a logging team to identify trees to be harvested, was stung numerous times by a swarm of bees. The unsuspecting forester inadvertently stepped on or near the bee's nest while marking a maple tree. This incident was not the first time the employee had been stung during his employment, but in this particular incident, the forester went into anaphylactic shock, which led to a fatal cardiac event. The concentration and type of insect venom can produce different side effects and allergic reactions for each individual exposure.

INCIDENT PREVENTION

According to the Centers for Disease Control and Prevention (CDC), in the years 2000-2017, a total of 1,109 US residents died as a result of bee, hornet and wasp stings.¹ According to the Bureau of Labor Statistics, 83 workers died from injuries due to insects, arachnids, and mites from 2003 to 2010.² The majority of fatalities involved bee stings. Fatalities are often due to anaphylactic shock, a serious allergic reaction to insect venom. Insect-related deaths are most common in farming, construction, and landscaping. Annual nonfatal work-related injuries and illnesses that led to days away from work ranged from 4,930 to 6,870 between 2008 and 2010.²

The following are important for prevention of insect stings:^{3,4}

- Wear light-colored, smooth-finished clothing covering as much of the body as possible.
 - Clothing that seals at the wrists and ankles prevents insects from entering under clothing.
- Avoid colognes, perfumes, and scented soaps, shampoos, and deodorants.
- Wear clean clothing and bathe daily since sweat may anger bees.
- Avoid flowering plants and discarded food.
- Remain calm and still if a single stinging insect is flying around.
 - Swatting at an insect may cause it to sting or release a chemical (pheromone) that attracts more insects. Crushing a bee may also result in pheromone release.
- If you are attacked by several stinging insects at once, run to get away from them. (They may release pheromones while attacking).
 - Go indoors.
 - A shaded area is better than an open area to get away from the insects.

- If you are able to physically move out of the area, do not attempt to jump into water. Some insects (particularly Africanized Honey Bees) are known to hover above the water, continuing to sting once you surface for air.
- If a bee comes inside your vehicle, stop the car slowly, and open all the windows.
- Workers with a history of severe allergic reactions to insect bites or stings should consider carrying an epinephrine auto injector (e.g. Epi-Pen™) and should wear a medical identification bracelet or necklace stating their allergy.

Worker training on exposure risk and prevention, insect identification and first aid is also important.

First aid for insect stings includes:^{3,4}

- Remove the stinger using gauze wiped over the area or by scraping with a fingernail or other straight-edged object such as a credit card. Do not squeeze the stinger or use tweezers as this may release more venom.
- Wash the site with soap and water or antiseptic towelettes.
- Remove rings and other tight fitting jewelry.
- Elevate the affected body area and apply ice or a cold compress to reduce swelling.
- Do not scratch the sting as this may increase swelling, itching, and risk of infection.
- Have someone stay with the worker to assist if they have an allergic reaction.
- Treatment for localized swelling and itching may include over-the-counter pain relievers, steroid creams, anesthetic sprays and/or oral antihistamines, if the individual is not allergic to these. However, antihistamines may cause drowsiness, which could create a safety concern for employees returning to work that day.

The website of the American Academy of Allergy, Asthma and Immunology (a professional organization for physicians and other healthcare providers who treat patients with allergies including from stinging insects) notes that most people develop pain, redness and swelling at the site of an insect sting.⁵ Much less commonly, some people experience anaphylaxis, which is a severe allergic reaction. According to the Mayo Clinic, people who have a severe allergic reaction to a bee sting have a 25% to 65% chance of anaphylaxis the next time they are stung.⁶ Symptoms and signs of anaphylaxis can include:

- Swelling of the face, throat or tongue
- Difficulty breathing
- Dizziness or fainting
- Stomach cramps
- Nausea or diarrhea
- Itchiness and hives over large areas of the body

Treatment for anaphylaxis involves properly administered epinephrine. Patients with a known history of this type of allergy carry auto-injectors with them for use if needed before they can get to an emergency room. Several states have passed laws allowing entities rather than individuals to have auto-injectable epinephrine in their first aid kits. For information by state, select “other entities” for non-school legislation and select the state at: www.auvi-q.com/public-access/state-laws.

The logging standard requires employers to provide first aid kits {1910.266(d)(2)}, first aid training for all employees {1910.266(i)(7)}, and a reliable employee communication and accountability system {1910.266(d)(6)}. The standard’s list of the minimal required first aid kit items does not include an epinephrine auto-injector. {1910.266 App. A}. There are challenges to storing epinephrine in a first aid kit. The recommended storage temperature ranges from 68 to 77°F with excursions permitted to 59 to 86°F.^{7,8} Other challenges include the need for additional first aid training required to administer epinephrine via an auto-injector and the need for periodic replacement when the medication expires.

Workers have the right to:

- Working conditions that do not pose a risk of serious harm.
- Receive information and training (in a language and vocabulary the worker understands) about workplace hazards, methods to prevent them, and the OSHA standards that apply to their workplace.
- Review records of work-related injuries and illnesses.
- File a complaint asking OSHA to inspect their workplace if they believe there is a serious hazard or that their employer is not following OSHA's rules. OSHA will keep all identities confidential.
- Exercise their rights under the law without retaliation, including reporting an injury or raising health and safety concerns with their employer or OSHA. If a worker has been retaliated against for using their rights, they must file a complaint with OSHA as soon as possible, but no later than 30 days.

For additional information, see www.osha.gov/workers.

Under the Occupational Safety and Health Act of 1970, employers are responsible for providing safe and healthful workplaces for their employees. OSHA's role is to help ensure these conditions for America's workers by setting and enforcing standards, and providing training, education and assistance. For more information, visit www.osha.gov.

OSHA Standards and Regulations: www.osha.gov/laws-regs

OSHA Publications: www.osha.gov/publications

OSHA-Approved State Plans: www.osha.gov/stateplans

No Cost On-Site Consultation Services: www.osha.gov/consultation

Training Resources: www.osha.gov/training

Compliance Assistance Services: www.osha.gov/complianceassistance/cas

References

1. QuickStats: Number of Deaths from Hornet, Wasp, and Bee Stings, Among Males and Females — National Vital Statistics System, United States, 2000–2017. MMWR Morb Mortal Wkly Rep 2019;68:649. DOI: [dx.doi.org/10.15585/mmwr.mm6829a5](https://doi.org/10.15585/mmwr.mm6829a5)
2. Steve Pegula and Andrew Kato. Fatal injuries and nonfatal occupational injuries and illnesses involving insects, arachnids, and mites. Beyond the Numbers. Office of Compensation and Working Conditions, U.S. Bureau of Labor Statistics. 2014;17:1-13.
3. National Institute for Occupational Safety and Health. Insects and Scorpions - Bees, Wasps, and Hornets. Available at: www.cdc.gov/niosh/topics/insects/beeswasphornets.html (accessed on 4/21/2021).
4. Bob Beckley. Insect Stings and Bites: Basic Information About Bees, Wasps, and Ants. Safety and Health Tech Tips. US Department of Agriculture Forest Service. July 2008.
5. American Academy of Allergy, Asthma and Immunology. Stinging Insect Allergy. Available at: www.aaaai.org/conditions-and-treatments/allergies/stinging-insect-allergy (accessed on 4/22/2021).
6. Mayo Clinic. Bee sting. Available at: www.mayoclinic.org/diseases-conditions/bee-stings/symptoms-causes/syc-20353869 (accessed on 5/17/2021).
7. Patient Information for AUVI-Q® (epinephrine injection) Auto-Injector. Available at: dailymed.nlm.nih.gov/dailymed/fda/fdaDrugXsl.cfm?setid=6180fb40-7fca-4602-b3da-ce62b8cd2470&type=display#JB200 (accessed on 4/21/2021).
8. EPIPEN- epinephrine injection. Mylan Specialty L.P. Section 16 How Supplied/Storage and Handling. Available at: dailymed.nlm.nih.gov/dailymed/fda/fdaDrugXsl.cfm?type=display&setid=7560c201-9246-487c-a13b-6295db04274a#section-13 (accessed on 4/22/2021).

Note: The described case was selected to increase awareness of the risk discussed and prevent similar fatalities. The incident prevention recommendations do not necessarily reflect the outcome of any legal aspects of this case. OSHA encourages your company or organization to duplicate and share this information.

This Fatal Facts is not an OSHA standard or regulation and it creates no new legal obligations. The recommendations contained herein are advisory in nature and are intended to assist employers in providing safe and healthful workplaces. The Occupational Safety and Health Act of 1970 (OSH Act) requires employers to comply with safety and health standards promulgated by OSHA or by an OSHA-approved state plan. The requirements of OSHA approved state plans can be reviewed by selecting the state's website at: www.osha.gov/stateplans. The OSH Act's General Duty Clause, Section 5(a)(1), requires employers to provide employees with a workplace free from recognized hazards likely to cause death or serious physical harm.

For assistance, contact us. We can help. It's confidential.

