

Occupational Allergies and Asthma in the Cannabis Cultivation and Production Industry

DESCRIPTION OF INCIDENT

A 27-year-old flower technician, who made “pre-rolls” (ground cannabis cigarettes) in an indoor cannabis cultivation and processing facility, experienced a severe asthma exacerbation at work that resulted in cardiac arrest.

FINDINGS

The employee had started her employment with the facility counting final products, a position in which she did not directly handle cannabis. Her co-workers reported that she was coughing when she transferred to the flower technician position. She then developed additional work-related symptoms including, runny nose, shortness of breath, and wheezing.

Approximately 5.5 months after starting employment in the facility and 5 weeks after beginning work as a flower technician, she required ambulance transport from work to the emergency department for worsening shortness of breath with wheezing. Her breathing improved with treatment *en route*. Per the emergency department record, she was told that she may have been developing asthma. She told the healthcare provider that she had been experiencing a cough and runny nose for more than a month and thought that she might be allergic to something at work. However, she was returned to work as a flower technician without any work restrictions.

Her employer tried to keep her farther away from the grinder and allowed her to voluntarily use her own respirator (N95 filtering facepiece). Two months later she experienced a severe asthma exacerbation at work. This resulted in cardiac arrest with brain injury from lack of oxygen and care was withdrawn. Her illness progressed rapidly with little evidence of severe

asthma preceding her death. During the subsequent OSHA inspection, interviews with her co-workers found that four of the ten flower technicians also had evidence of work-related allergy and/or asthma.



Photo: Adobe Stock

LUNG HAZARDS IN THE CANNABIS INDUSTRY^{7,8}

- **Allergens:** cannabis plant; fungi including mold; pollen
- **Irritant/inflammatory agents:** volatile organic compounds (VOCs); endotoxins; terpenes; pesticides; cleaning agents; disinfectants; ozone
- **Agents that are both allergens and irritants:** [organic dust](#); bacteria

WORK-RELATED ALLERGIES

Symptoms and signs can include any of the following that occur primarily on workdays or become worse at work:

Upper airway

- Irritation of the eyes, nose and/or throat
- Congestion in the nose
- Sneezing

Asthma

- Cough
- Shortness of breath
- Chest tightness
- Wheezing

Skin Conditions

- Itchiness, rash, and/or hives

Symptoms can start in workers who have never had them before or worsen with work exposures in employees who have pre-existing allergies and/or asthma. Occupational allergy symptoms have wide individual variation reflecting involvement of the immune system. Workers who experience any of the above symptoms and/or signs should tell their employer and healthcare provider as soon as possible. Reducing or completely stopping exposure as soon as work-related allergies are detected is important to prevent the symptoms from getting worse and reduce the risk of symptoms continuing even after the exposure terminates.

Work-Related Allergies in the Cannabis Industry

This Fatal Facts focuses on the first known occupational asthma fatality in the expanding cannabis industry. Employees are at increased risk due to the magnitude of exposure to cannabis dust as well as limited awareness regarding this hazard. Work-related allergies and asthma have been reported in other publications. In data from four U.S. state-based surveillance systems, thirty work-related asthma cases, including a second fatality, were identified among workers exposed to cannabis.¹ Disabling asthma has also been reported. An earlier, more detailed review of the Washington State cases in the preceding publication reported that an employee in the legalized cannabis industry had severe persistent work-exacerbated asthma and had not returned to work after five years.² In a study of current cannabis workers, 71% reported allergic and/or respiratory symptoms.³ Although not in the cannabis cultivation and production industry, anaphylaxis has been reported in a police detective who had work-related cannabis contact.⁴

Prevention^{5,6}

To reduce the incidence of occupational allergies and asthma in this industry, a multifaceted approach is recommended.

- Conduct medical screening and surveillance
 - Workers experiencing any work-related allergy and/or asthma symptoms noted above should be seen promptly by a healthcare provider with expertise in occupational allergy and asthma
 - Jobs with exposure to known allergens, such as cannabis, should have written surveillance programs that periodically assess employees for allergy signs and symptoms and perform medical tests as recommended by an [appropriate occupational health professional](#) with expertise in occupational allergy
 - Identify jobs causing symptoms in employees so that exposures can be assessed and controlled
- Assess hazards in jobs that cause symptoms in workers to identify the causative agents involved^{5,7}
- [Implement exposure control with engineering controls, administrative controls including work practices, and personal protective equipment \(PPE\) as applicable](#)^{5,7}
- Provide medical management
 - For example, complete cessation of exposure with applicable benefits, rather than exposure reduction and/or respirator use, may be appropriate for workers with occupational allergies
- Worker training and education should cover
 - Identified job hazards
 - Use of engineering controls, such as local exhaust ventilation, at point of operation
 - Work practices that minimize exposures such as HEPA vacuuming rather than dry sweeping
 - Proper use/care of PPE
 - Signs and symptoms of occupational allergy and the need for prompt employer notification and medical evaluation if symptoms occur
 - [Procedures for employees to notify their employer](#) about potential signs and symptoms of occupational allergy

Additionally, employers may also collaborate with academia on preventive efforts and risk factors for occupational allergy in this emerging industry. In particular, information that may support development of diagnostic tests for cannabis sensitization would be useful for future preventive efforts.

APPLICABLE OSHA STANDARDS AND RESOURCES

- The OSH Act [General Duty Clause](#), Section 5(a)(1), requires employers to provide its employees with a workplace free from recognized hazards that are causing or likely to cause death or serious physical harm
- 29 CFR 1910.132 – Personal Protective Equipment [osha.gov/laws-regs/regulations/standardnumber/1910/1910.132](#) and [osha.gov/personal-protective-equipment](#)
- 29 CFR 1910.134 – Respiratory Protection [osha.gov/laws-regs/regulations/standardnumber/1910/1910.134](#) and [osha.gov/respiratory-protection](#)
- 29 CFR 1910.1200 – Hazard Communication [osha.gov/laws-regs/regulations/standardnumber/1910/1910.1200](#) and [osha.gov/hazcom](#)
- 29 CFR 1904 – Recordkeeping and Reporting Occupational Injuries and Illnesses [osha.gov/laws-regs/regulations/standardnumber/1904](#) and [osha.gov/recordkeeping](#)

There are 22 OSHA-approved [State Plans](#) covering both private sector and state and local government workers and seven State Plans covering only state and local government workers. State Plans are required to have standards and enforcement programs that are at least as effective as OSHA's and may have different or more stringent requirements.

ADDITIONAL INFORMATION FOR WORKERS AND HEALTHCARE PROVIDERS

- [NIOSH - About Work-related Asthma](#)
- [OSHA Safety and Health Topics - Occupational Asthma](#)
- [OSHA FactSheet on Work-Related Asthma](#)

ADDITIONAL INFORMATION FOR HEALTHCARE PROVIDERS

- Weaver VM, Hua JT, Fitzsimmons KM, et al. Fatal Occupational Asthma in Cannabis Production — Massachusetts, 2022. Available at [www.cdc.gov/mmwr/volumes/72/wr/mm7246a2.htm?s_cid=mm7246a2_w](#)
- Sack C, Simpson C, Pacheco K. The emerging spectrum of respiratory diseases in the U.S. cannabis industry. Available at [www.ncbi.nlm.nih.gov/pmc/articles/PMC10449032/pdf/nihms-1923988.pdf](#)

ADDITIONAL PREVENTION INFORMATION FOR EMPLOYERS

- BOX. Measures for protecting cannabis industry employees from occupational hazards — United States, 2023 available at [www.cdc.gov/mmwr/volumes/72/wr/mm7246a2.htm?s_cid=mm7246a2_w](#)
- [OSHA Denver Region. Local Emphasis Program for Cannabis Industries. CPL 24-04 \(EP\). July, 2024](#)
- OSHA On-Site consultation Program: [osha.gov/consultation](#)

KNOW YOUR RIGHTS

Workers have the right to:

- Safe working conditions.
- Training and information about workplace hazards, how to prevent them, and the OSHA standards that apply to their workplace.
- Review records of work-related injuries and illnesses.
- File a complaint with OSHA if they believe their workplace is unsafe or their employer is not following OSHA's rules.
- Report an injury or speak up about health and safety concerns without retaliation. If a worker has been retaliated against, they must file a complaint with OSHA as soon as possible, but no later than 30 days.

For additional information, see [osha.gov/workers](#).

OSHA Standards and Regulations:

[osha.gov/laws-regs](#)

OSHA Publications: [osha.gov/publications](#)

OSHA-Approved State Plans:

[osha.gov/stateplans](#)

No Cost On-Site Consultation Services:

[osha.gov/consultation](#)

Training Resources: [osha.gov/training](#)

Compliance Assistance Services:

[osha.gov/employers](#)

REFERENCES

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- 2 Reeb-Whitaker C, LaSee CR, Bonauto DK. Surveillance of work-related asthma including the emergence of a cannabis-associated case series in Washington State. *J Asthma*. 2022 Aug;59(8):1537-1547. doi: 10.1080/02770903.2021.1955379. Epub 2021 Aug 16. PMID: 34288786.
- 3 Sack C, Ghodsian N, Jansen K, Silvey B, Simpson CD. Allergic and Respiratory Symptoms in Employees of Indoor Cannabis Grow Facilities. *Ann Work Expo Health*. 2020 Aug 6;64(7):754-764. doi: 10.1093/annweh/wxaa050. PMID: 32459852; PMCID: PMC7407609.
- 4 Engler DB, Malick AA, Saraf SK, Dargel LA. Severe marijuana allergy controlled with omalizumab. *J Allergy Clin Immunol*. 2013;131(2);AB215.
- 5 Weaver VM, Hua JT, Fitzsimmons KM, Laing JR, Farah W, Hart A, Braegger TJ, Reid M, Weissman DN. Fatal Occupational Asthma in Cannabis Production - Massachusetts, 2022. *MMWR Morb Mortal Wkly Rep*. 2023 Nov 17;72(46):1257-1261. doi: 10.15585/mmwr.mm7246a2. PMID: 37971937; PMCID: PMC10684356.
- 6 NIOSH [2022]. Evaluation of potential hazards during harvesting and trimming cannabis at an indoor cultivation facility. By Grant MP, Wiegand DM, Green BJ, Lemons AR. Cincinnati, OH: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, Health Hazard Evaluation Report 2019-0152-3381, <https://www.cdc.gov/niosh/hhe/reports/pdfs/2019-0152-3381.pdf>.
- 7 Couch JR, Grimes GR, Green BJ, Wiegand DM, King B, Methner MM. Review of NIOSH Cannabis-Related Health Hazard Evaluations and Research. *Ann Work Expo Health*. 2020 Aug 6;64(7):693-704. doi: 10.1093/annweh/wxaa013. PMID: 32053725; PMCID: PMC7416426.
- 8 Sack C, Simpson C, Pacheco K. The Emerging Spectrum of Respiratory Diseases in the U.S. Cannabis Industry. *Semin Respir Crit Care Med*. 2023 Jun;44(3):405-414. doi: 10.1055/s-0043-1766116. Epub 2023 Apr 4. PMID: 37015286; PMCID: PMC10449032.

Note: The described case was selected as an example of improper work practices that likely contributed to a workplace fatality. 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: [osha.gov/stateplans](https://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.



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