

# **Work-Related Asthma in the Cannabis Industry**

**Western Michigan Industrial Hygiene Meeting, 2/13/2025**

**Kenneth D. Rosenman, M.D.**  
**Professor of Medicine**  
**Michigan State University**  
**Rosenman@msu.edu**  
**[www.oem.msu.edu](http://www.oem.msu.edu)**

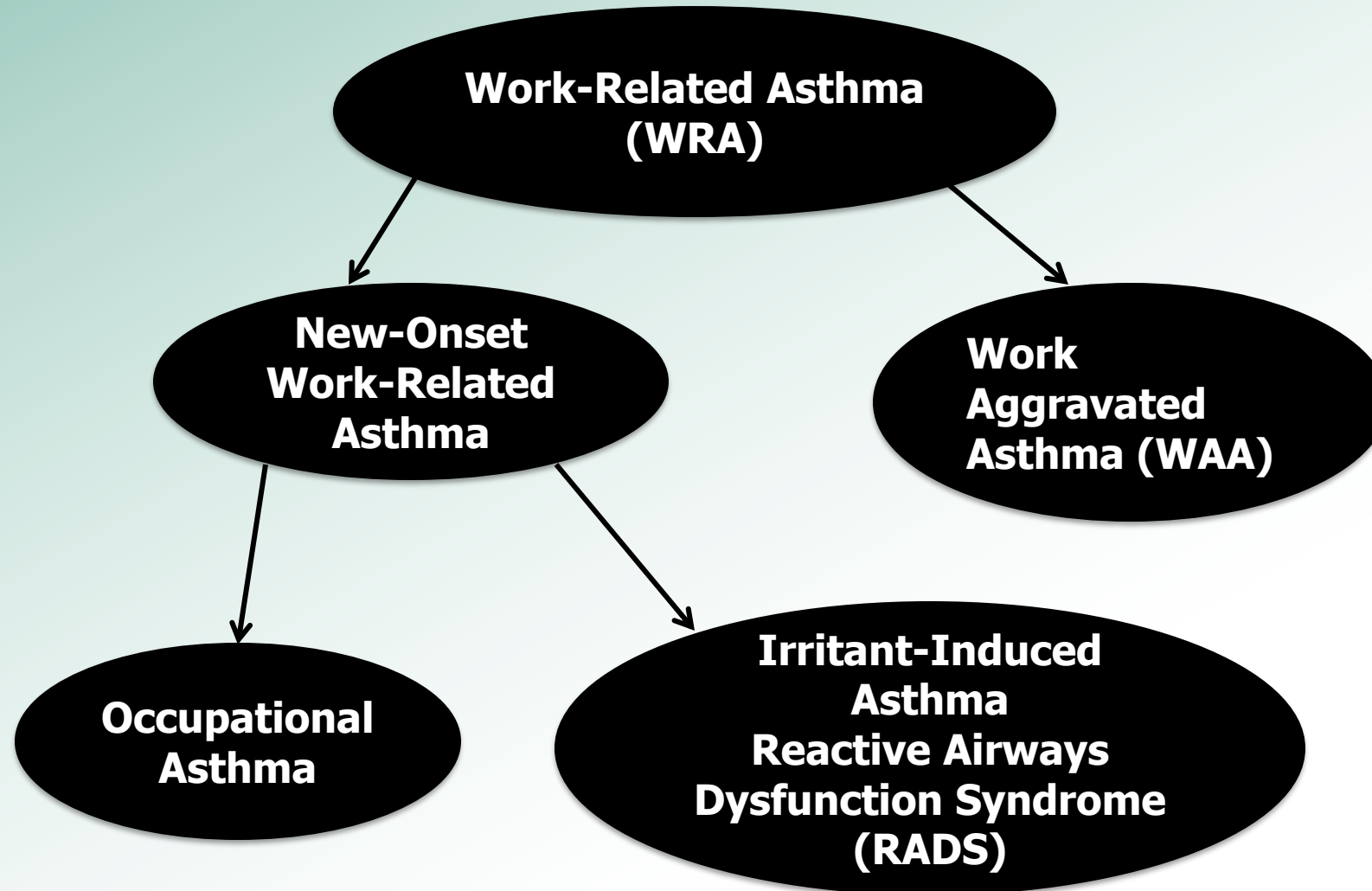


## OBJECTIVES

- Discuss the illnesses reported among workers in the cannabis industry
- Discuss the exposures associated with these illnesses
- Discuss preventive strategies



# Work-Related Asthma



# What Percentage of Asthma is Work-Related?

## Consensus Statements American Thoracic Society

Am J Resp Crit Care Med 2003;167:787-797

Am J Resp Crit Care Med 2011;184:368-378

### New Onset Asthma

**21 studies - range 4-58%, 15% median**

### Work Aggravated Asthma

**12 studies - range 13-58%, 21.5% median**



## Legal Status

**Cannabis or marijuana refers to strains of cannabis that contain > than 0.3% tetrahydrocannabinol (THC). Hemp <0.3% THC - fiber, health food, bird feed, fishing bait and in cosmetics.**

- **Medical cannabis is legal in 38 states, & the District of Columbia, Guam, Puerto Rico, and the US Virgin Islands.**
- **Recreational cannabis is legal in 24 US states, & the District of Columbia, Guam, and the Northern Mariana Islands.**
- **Approximately 440,000 jobs in the legal cannabis industry**
  - **Michigan - 700 licensed growing facilities, 135 licensed processing facilities and over 305 licensed provisioning facilities. ~ 30,000 workers Michigan.**



## Occupational Illness Reporting Requirement in Michigan

### LEO – MIOSHA

Physician, hospital, clinic or employer having a ***known or suspected*** occupational disease ***or health condition aggravated*** by workplace exposures shall report within 10 days after discovery.

Misdemeanor punishable by a fine of not more than \$50.



## Irritants at a Marijuana Growing Facility

- Acid
- Fertilizer
- Pesticides (fungicides, herbicides, and insecticides)
- Isopropyl Alcohol
- Ozone



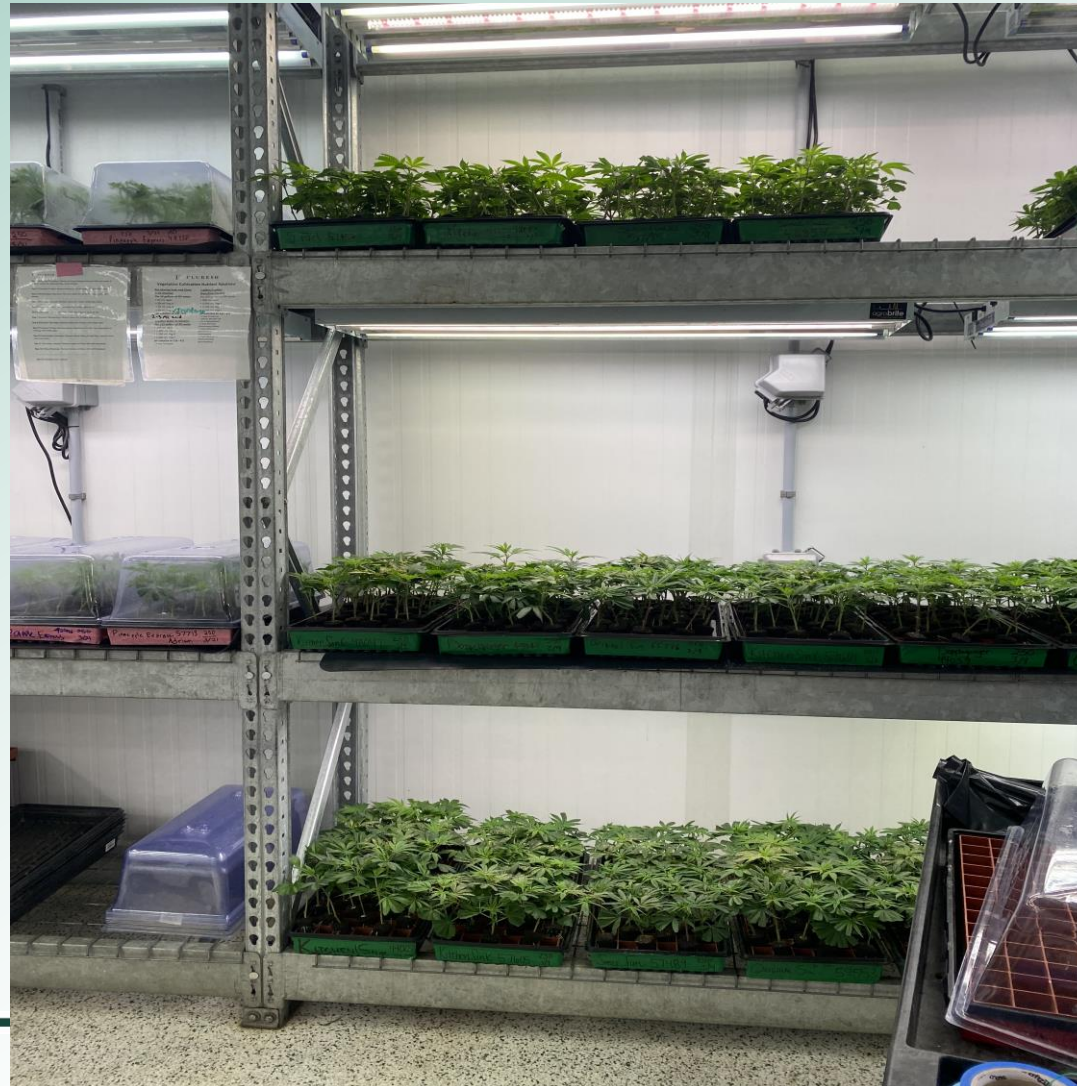
## Allergens at a Marijuana Growing Facility

- **BLEACH**
- **MARIJUANA PLANT**
- **PERACETIC (PEROXYACETIC) ACID**
- **POWDERY MILDEW (MOLD – PENICILLIUM LESS OFTEN ALTERNARIA)**
- **TERPENES (CARENE AND MAYBE ALPHA -PINENE IN TURPENTINE  
BUT NOT LIMONENE)**





# Propagating Room



## Mother Plant Room





## Vegetation Room

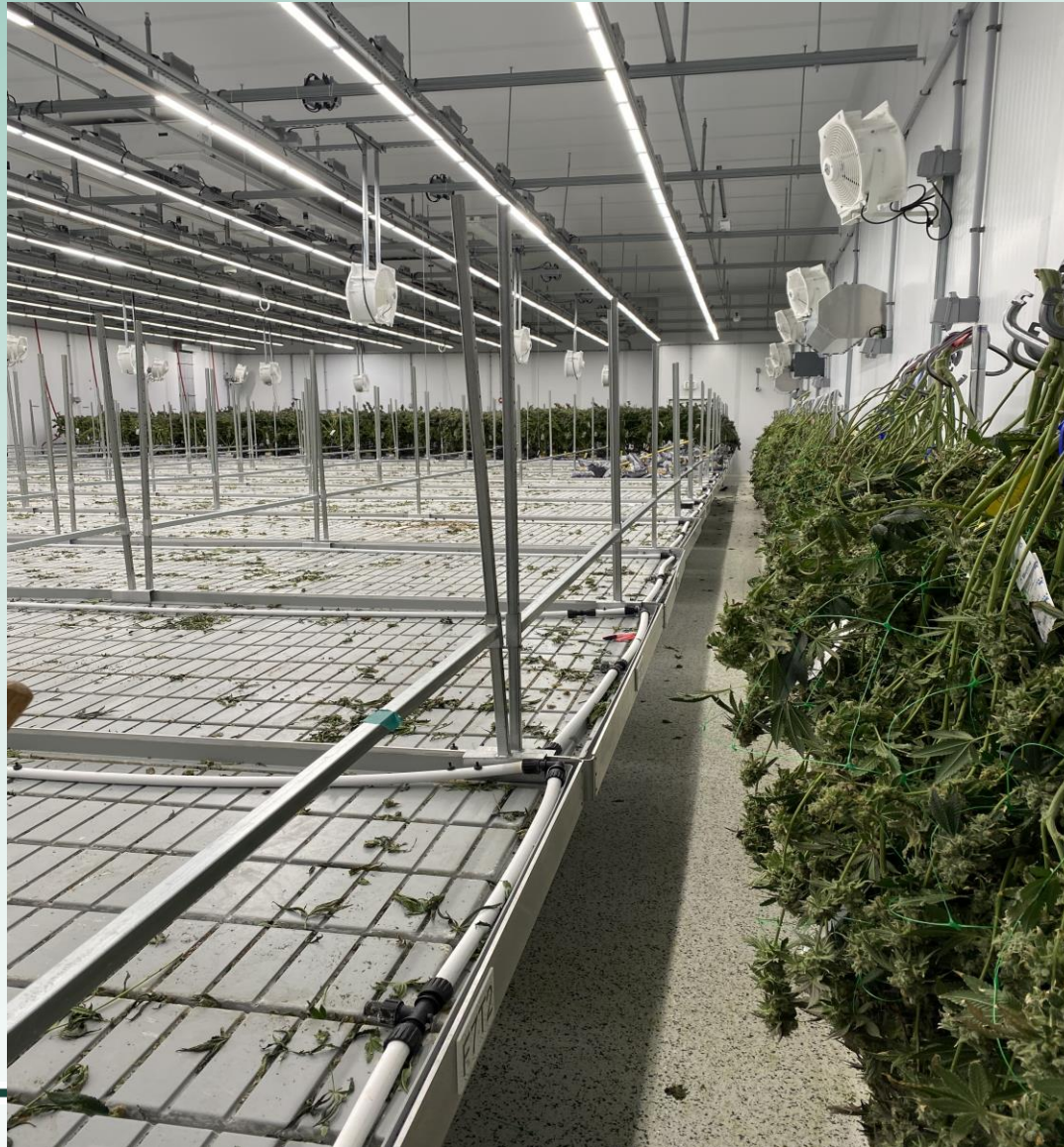


## Water Treatment Room





## Harvesting Room





## Drying Room





## Product in Storage Container



## Consumer Packaging





## **Four State Study, WRA Cases, Date of Legalization - 12/31/2023**

- **California legalized medical cannabis in 1996/recreational in 2016**
- **Massachusetts legalized medical cannabis in 2012/recreational in 2016**
- **Michigan legalized medical cannabis in 2008/recreational cannabis in 2018**
- **Washington legalized medical cannabis in 1998/recreational in 2012**



Classification of Work-Related Asthma Cases in the Cannabis Industry, Four States	# (%)
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Work-aggravated asthma (WRA) (Michigan -4)	12 (48)
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New onset asthma (NOA)

Occupational asthma (OA) (Michigan -1)	13 (52)
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Reactive airways dysfunction syndrome (RADS)	0 (-)
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Confirmed, but Insufficient data to classify	5
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Total

Includes Two Fatalities – California and Massachusetts – Both in their 20's, New Onset (OA)



## **Four Work-Related Illnesses Reported in Cannabis Facilities, 2021**

**A male in his 40s was working maintenance at a grow facility. He was grinding the trash which contained used jugs of herbicide and inhaled the fumes. He developed a cough and shortness of breath and went to the emergency department. Workers at the facility are now required to wear respirators when grinding the trash.**

**A female in her 20s was working at a cannabis dispensary and was cleaning with a rubbing alcohol-based disinfectant. She inhaled the fumes and developed throat irritation and shortness of breath and called PC. She recently had had COVID-19 and has had ongoing breathing issues.**

**A male in his 30s was working at a grow facility when he experienced a new onset seizure. He worked with bifenthrin and had been "exposed", but "not often". He experienced a seizure at work and sought medical care in the ED.**

**A male in his 30s was working at a grow facility when he filled a bucket with an insecticide. When he put the bucket down, the insecticide sloshed into his face. He developed ocular redness and blurry vision. He sought medical care in the ED.**



## **Six Work-Related Illnesses Reported in Cannabis Facilities, 2022**

**A male in his 20s was working at a grow facility when he walked into a room as it was being sprayed with a fungicide. He had no symptoms but called the PC for advice.**


**A female in her 20s was working at a grow facility had exposure to insecticide on her arm. She did not develop any signs or symptoms but called the PC for advice.**

**A male in his 20s was working as a cannabis technician at a grow facility when a co-worker dumped an undiluted disinfectant in the sink, which splashed on the technician's leg. He developed a painful burning sensation and blisters and sought medical care in the ED four days after the exposure.**

**A female in her 40s was working as cultivation technician in the grow room where Zeritol (Hydrogen Peroxide, Peroxyacetic Acid, Acetic Acid) was sprayed. She developed chest tightness, shortness of breath, and wheezing. OA case in the four-state paper.**

**A male in his 20s was working at a grow facility was splashed in his eye when he was mixing fertilizers. He developed eye discomfort and sought medical care in the ED the next day where he was diagnosed with chemical conjunctivitis.**

**A male in his 20s with childhood asthma that never resolved was working at a grow facility. His job was a bud tender, tending to the cannabis plants. He was exposed to heat, humidity and cannabis dust, which exacerbated his asthma. WAA case in the four-state paper.**



# **Eight Work-Related Illnesses Reported in Cannabis Facilities, 2023**

**A female in her 50s was exposed to ozone during her 8-hour shifts at a grow facility and had breathing symptoms. She consulted with PC for advice.**

**A female in her 50s with a history of seasonal asthma and allergies was working at a grow facility where she was exposed to ozone. She experienced an exacerbation of her pre-existing asthma, with worsening shortness of breath and chest pain. When the elevated ozone levels occurred, the facility would send everyone home. WAA case in the four-state paper.**

**A male in his 20s with childhood asthma and allergies was working at a grow facility as a flower room manager, in charge of the cannabis plants. He was exposed to a disinfectant that was improperly dispensed by a humidifier in in the grow room rather than directly applied to the plants. No personal protection equipment was worn. WAA case in the four-state paper.**

**A male in his 20s with childhood asthma worked at a grow facility. As part of his job, he worked outside for prolonged periods. Exposure to the cold caused a severe asthma attack. He used his inhaler 4-5 times before EMS arrived. WAA case in the four-state paper.**

**Two females in their 20s experienced symptoms at a grow facility from exposure to chlorine gas generated when a co-worker improperly mixed bleach with another cleaning agent. One had throat irritation and the other had chest tightness. One worked in chemical and integrated pest management and the other in fertigation.**

**A male in his 20s was sprayed with a carbamate fungicide. He had no symptoms but consulted with PC for advice.**

**A female in her 20s got clonex rooting gel (indole-3-butyric acid) on her skin. She had no symptoms but consulted with PC for advice.**





# Nine Work-Related Illnesses Reported in Cannabis Facilities, 2024

**A male in his 20s developed new-onset work-related asthma from exposure to cannabis dust at a grow facility. He sought treatment in the ED. OA case not in the four-state paper.**

**A male in his 60s had skin exposure to Zerotel (Hydrogen Peroxide, Peroxyacetic Acid, Acetic Acid). His skin blanched. He contacted PC for advice.**

**A male in his 20s had a skin burn from exposure to Zerotel. He contacted PC for advice.**

**A male in his 50s experienced blurred vision and a burn to the nose after a butane explosion. Butane was being used to extract wax from cannabis. He was treated in an ED.**

**A female in her 30s developed irritation of her mouth and throat, and a headache. She was exposed to cannabis dust, gum arabic and terpene water in the packaging department at a cannabis facility. She contacted PC for advice.**

**A female in her 50s experienced skin irritation after she was splashed with hot honey used for THC extraction. She contacted PC for advice.**

**A male in his 30s experienced eye irritation when THC oil was sprayed in his eyes while extracting the oil. He contacted PC for advice.**

**A male in his 30s experienced dizziness and nausea from exposure to CO2, at the grow facility where he worked. He contacted PC for advice.**

**A male in his 50s experienced severe shortness of breath and a cough from mixing powdered plant food. He contacted PC for advice.**



## Allergy Testing (IgE) to *Cannabis sativa*

- Workers
- People living around hemp fields
- Recreational users

Cross react with tomatoes (IgE)

Also contact dermatitis to plant (patch testing)



## Summary

- Marijuana Grow Industry Includes Potential Exposure to Multiple Substances that Can Cause or Aggravate Asthma

Marijuana plant (also during drying process – terpenes off gas)

Disinfectants

Irritants

Mold

- Medical Screening not required  
Periodic respiratory symptom questionnaire  
Spirometry

Quarterly Newsletter

<https://oem.msu.edu/index.php/newsletters>

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