

WATCHDOG REPORTS | GASPING FOR ACTION | WATCHDOG UPDATE

Cases tie e-cigarettes to lung injuries, pneumonia



Two recent cases are among the first to highlight severe lung injuries physicians say are related to the use of e-cigarettes and other vaping devices. Credit: Associated Press

By *Raquel Rutledge* of the *Journal Sentinel*

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A 31-year-old West Virginia woman with no prior lung disease contracted what doctors say is a rare form of pneumonia after inhaling vapor from electronic cigarettes.

The woman had been vaping for about three months before being admitted to a hospital this year with a chronic cough. Soon after, she went into respiratory failure and was put on a ventilator, according to the doctors who treated her.

In Vermont, a 60-year-old man suffered an acute lung injury and was diagnosed with hypersensitivity pneumonitis last year after vaping "red hot cinnamon" flavored e-cigarettes.

The two cases are among the first to surface highlighting severe lung injuries that physicians say are related to the use of e-cigarettes and other vaping devices.

"We are all very curious about this," said Frank Drescher, the doctor who treated the man at the White River Junction VA Hospital in Vermont. "I am certain this is an underreported diagnosis."

A [Milwaukee Journal Sentinel investigation last month found high levels](#) of diacetyl and a second chemical known to cause permanent and sometimes fatal lung disease in locally made e-liquids and exposed inadequate testing that results in manufacturers claiming their products are diacetyl-free when sometimes they are not. There are no requirements that manufacturers test e-liquids, nor are there any standards to meet.

Known for its links to injuries and deaths of microwave popcorn workers, diacetyl destroys the lungs' tiniest airways, leading to scar tissue buildup that blocks airflow. An earlier [Journal Sentinel investigation](#) found potentially dangerous levels of the chemical in coffee roasting facilities and exposed cases of lung disease in commercial coffee roasters and grinders.

Drescher and his colleague, Graham Atkins, who was also involved with the Vermont case, said they believe diacetyl may have played a role in their patient's illness. They said the man first came to the hospital with weakness, chills and a cough. He was treated with antibiotics and went home three days later feeling normal.

He returned a month later with the same symptoms, this time with a fever. A CT scan showed an injury to the lungs that appeared to be related to a chemical exposure. When doctors asked the man what he

had been doing, he said he had been vaping strongly flavored e-cigarettes — on both occasions before his illness.

Doctors diagnosed him with a severe allergic reaction called hypersensitivity pneumonitis — more commonly known as "farmers' lung."

The disease was prevalent among farmers in Wisconsin in the 1970s and '80s. It is often triggered by inhalation of dust with fungus spores from moldy hay, bird droppings or other decomposing organic compounds. It's treatable when caught early but can cause permanent scarring and damage if exposures continue over time.

"Inhaling chemicals of different sorts can cause all kind of lung diseases," Drescher said, noting the lungs are a delicate organ with a strong immune response.

The man stopped vaping and recovered within several days. A follow-up three months later showed normal pulmonary functioning.

The case was [documented in the journal CHEST](#) last week.

Lipoid Pneumonia

A flavor called Hawaiian Blast made by Maryland-based MaddCatt was the likely culprit that sickened the woman in West Virginia, according to doctors at West Virginia University Health Sciences Center.

In an interview, the doctors said the woman had started vaping the flavor — described as a "tropical fruity mix with a touch of creaminess" — a few months earlier in an effort to quit smoking conventional cigarettes.

She arrived at the hospital and was quickly transported to the intensive care unit, her lungs failing. Her symptoms were similar to those of hypersensitivity pneumonitis: shortness of breath, cough, weight loss and labored breathing.

But after seeing stains on her photo imaging indicating she had inhaled something fatty or oil-based, they diagnosed her with lipoid pneumonia. She remained on a ventilator for several days.

"We can't say with absolute certainty that her illness was from the e-cigarettes, but it sure seems causal," said John E. Parker, a pulmonary critical care physician who helped treat the woman. The woman recovered within about a week and was sent home with supplemental oxygen. She stopped vaping. Tests three months later showed normal pulmonary functioning.

Parker said he was aware of just one previously documented case of lipoid pneumonia related to e-cigarettes. In 2012, a 42-year-old woman was diagnosed with the illness after seven months of using e-cigarettes. Doctors suspected the vegetable glycerin in the e-liquid was to blame.

"We don't know if this is the tip of the iceberg," Parker said. "Maybe it's going to be toxic to lots of people or maybe there is going to be a host factor that leads to individual people getting these diseases."

Parker, an expert on diacetyl who studied cases of occupational exposure to the chemical in microwave popcorn workers in the early 2000s, said he couldn't be sure what role diacetyl might have played in his patient's case. A study of more than 150 sweet-flavored e-liquids last year found nearly 70% contained diacetyl.

"It always takes a broad public health approach with epidemiologists, toxicologists, pulmonologists and industrial hygienists to really tease out the (causal) agent," he said.

Parker said he and the other doctors involved in the case plan to have their case study published in a trade journal in the coming months.

Meanwhile, users of e-cigarettes nationwide who suffer adverse reactions have been seeking help from the American Association of Poison Control Centers and have been filing reports with the U.S. Food

and Drug Administration, which has been gathering data on the issue over the last several years.

A 66-year-old female reported suffering a seizure in February 2014 within minutes of vaping an e-cigarette, according to FDA records. She was treated at a hospital and an MRI confirmed she had had a seizure. A woman in Missouri went to the emergency room in January 2014 after having an allergic reaction following inhalation of a flavor called Great Balls of Fire. Other reports show concerns from women whose husbands are chain vaping and from those who complain of headaches and dizziness from exposure to people vaping in public places.

To Report Problems

To report an adverse reaction to e-cigarettes:

- Go to www.safetyreporting.hhs.gov/
- Call (800) FDA-1088



About Raquel Rutledge

Raquel Rutledge is an investigative reporter. Her work has been recognized with numerous national awards, including a 2010 Pulitzer Prize for exposing rampant fraud in Wisconsin's child-care subsidy program.

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