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To: Wisconsin Healthcare Providers, Infection Preventionists, Local Health Departments, and Tribal Health Agencies

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Severe Pulmonary Disease Among Adolescents who Reported Vaping

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During July 2019, 8 cases of severe pulmonary disease among adolescents were reported to the Wisconsin Department of Health Services (DHS). Patients resided in the counties of Milwaukee, Waukesha, and Winnebago and presented with respiratory symptoms including cough, shortness of breath, and fatigue. Symptoms worsened over a period of days or weeks before admission to the hospital. Other symptoms reported by some patients included fever, anorexia, pleuritic chest pain, nausea, and diarrhea. Chest radiographs showed bilateral opacities, typically in the lower lobes, and CT imaging of the chest showed diffuse ground-glass opacities, often with subpleural sparing. Evaluation for infectious etiologies was negative in all patients. Some patients had progressive respiratory compromise requiring endotracheal intubation but subsequently improved with systemic steroids.

DHS is currently investigating the possible cause of these illnesses. All patients reported vaping in the weeks and months prior to hospital admission. The names and types of products used remain unknown, and patient interviews are ongoing. Clinicians are encouraged to remain alert for potential cases among persons presenting with progressive respiratory symptoms who report a history of inhalation drug use, particularly vaping.

Clinicians who become aware of cases similar to those described above are encouraged to report them to their local public health officer. DHS is actively tracking cases, and clinician assistance is appreciated to determine the scope and cause of this disease cluster. For questions, please contact Megan Elderbrook in the Bureau of Environmental and Occupational Health at 608-266-1120 during business hours.

Outbreak of Severe Pulmonary Disease Associated with Using E-cigarette Products

Related Pages

Investigation Notice

Posted August 30, 2019 at 5:15pm ET

CDC, U.S. Food and Drug Administration (FDA), state and local health departments, and other clinical and public health partners are investigating a multistate outbreak of severe pulmonary disease associated with e-cigarette product (devices, liquids, refill pods, and/or cartridges) use. This investigation is ongoing and has not identified a cause, but all reported cases have a history of using e-cigarette products.

E-cigarettes are devices that deliver an aerosol to the user by heating a liquid that usually contains nicotine, flavorings, and other chemicals. E-cigarettes can also be used to deliver marijuana or other substances.

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Latest Outbreak Information

- As of August 27, 2019, 215 possible cases of severe pulmonary disease associated with the use of electronic cigarette, or e-cigarette, products, have been reported by 25 states and additional pulmonary illnesses are under investigation.
- These are preliminary case counts based on initial reports. A new standardized case definition was released by CDC on August 25, 2019. Additional reports of pulmonary illness are being investigated by states to determine whether those illnesses are related to e-cigarette product use. These numbers are likely to change over time.
- The available evidence does not currently suggest that an infectious disease is the cause of the illnesses.
- The investigation has not identified any specific substance or e-cigarette product that is linked to all cases. Many patients report using e-cigarette products with liquids that contain cannabinoid products, such as tetrahydrocannabinol (THC).
- These investigations are ongoing. CDC will provide updates when more information is available.

At A Glance

- Possible Cases: 215
- States: 25
- Deaths: 1

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Recommendations for the Public

While this investigation is ongoing, if you are concerned about these specific health risks, consider not using e-cigarette products.

If you do use e-cigarette products and you experience symptoms like those reported in this outbreak, seek medical care promptly. CDC and the FDA will continue to alert the public throughout this investigation.

Regardless of the ongoing investigation:

- Youth and young adults should not use e-cigarette products.
- Women who are pregnant should not use e-cigarette products.
- Adults who do not currently use tobacco products should not start using e-cigarette products.
- If you do use e-cigarette products, you should not buy these products off the street (for example, e-cigarette products with THC or other cannabinoids).
- You should not modify e-cigarette products or add any substances to these products that are not intended by the manufacturer.
- Adult smokers who are attempting to quit should use evidence-based treatments, including counseling and FDA-approved medications. If you need help quitting tobacco products, including e-cigarettes, contact your doctor or other medical provider.

If you are concerned about your health after using an e-cigarette product, you can also call your local poison control center at 1-800-222-1222.

CDC and FDA encourage the public to submit detailed reports of any unexpected health or product issues related to tobacco or e-cigarette products to the FDA via the online Safety Reporting Portal.

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Symptoms of Severe Pulmonary Disease Reported by Some Patients in This Outbreak

- Patients in this investigation have reported symptoms such as:
 - cough, shortness of breath, or chest pain
 - nausea, vomiting, or diarrhea
 - fatigue, fever, or weight loss
- Some patients have reported that their symptoms developed over a few days, while others have reported that their symptoms developed over several weeks. A pulmonary infection

does not appear to be causing the symptoms, which have generally not improved with antibiotic treatment alone.

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Investigation Details

August 30, 2019

CDC, several states, and federal partners are investigating a multistate outbreak of severe pulmonary disease associated with using e-cigarette products. The investigation is ongoing and has not identified a cause, but all reported cases have indicated use of e-cigarette products.

Based on reports from several states, patients have experienced respiratory symptoms (cough, shortness of breath, or chest pain), and some have also experienced gastrointestinal symptoms (nausea, vomiting, or diarrhea) or non-specific symptoms (fatigue, fever, or weight loss). Some patients have reported that their symptoms developed over a few days, while others have reported that their symptoms developed over several weeks. Some patients have reported gastrointestinal symptoms began before respiratory symptoms. Fever, elevated heart rate, and elevated white blood cell count have been reported, even though no infectious disease has been identified. Many patients sought medical care in ambulatory settings, sometimes over several visits, before they were admitted to the hospital.

Many patients have required medical treatment with supplemental oxygen. Some required assisted ventilation. Some patients have been treated with corticosteroids with demonstrated improvement. Evidence does not suggest an infectious disease is the cause of the severe pulmonary disease. Antibiotic therapy alone has not consistently been associated with clinical improvement.

Investigation of the Outbreak

CDC, FDA, state and local health departments, and other clinical and public health partners are investigating a multistate outbreak of severe pulmonary disease associated with e-cigarette product (devices, liquids, refill pods, and/or cartridges) use. This ongoing investigation seeks to identify the exposures, demographic, clinical, and laboratory features and behaviors of patients. All patients have reported e-cigarette product use. Some patients have reported using e-cigarettes containing cannabinoid products, such as THC. To date, the investigation has not identified any single substance or e-cigarette product that has been consistently associated with illness.

State health departments are working with FDA to enable collection of e-cigarette product specimens for testing at the U.S. FDA Forensic Chemistry Center.