

September 13, 2019

Georgia Department of Public Health Urges Clinicians to Report Possible Cases of Unexplained Vaping-Associated Pulmonary Illness

Summary

- As of September 11, 2019, 380 cases (including 6 deaths) of severe pulmonary disease requiring hospitalization and respiratory support among previously healthy children and adults have been reported across 36 states and 1 U.S. territory.
- Three confirmed cases have been reported in Georgia, while several others are currently under investigation by state and local health officials.
- A common exposure reported among these patients is that they have been vaping (i.e., use of e-cigarette or other related devices to aerosolize substances for inhalation) nicotine and/or tetrahydrocannabinol (THC)-containing products. At this time, no infectious cause has been identified.
- Clinicians who see or have recently seen cases similar to those described above should report them to Georgia Poison Center (GPC) at 1-800-282-5846.

Background

Based on reports from several states (as well as cases in Georgia), 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 constitutional symptoms (fatigue, fever, or weight loss). Symptoms typically develop over a period of days but sometimes can manifest over several weeks. Gastrointestinal symptoms sometimes preceded respiratory symptoms. Fever, tachycardia, and elevated white blood cell count have been reported in the absence of an identifiable infectious disease. Many patients have sought initial care in ambulatory settings, some with several visits, before hospital admission.

Radiologic findings have varied and are not present in all patients upon initial presentation. Bilateral pulmonary infiltrates and diffuse ground-glass opacities have been reported. Many patients required supplemental oxygen, some required assisted ventilation and oxygenation, and some were intubated. Some patients have been treated with systemic corticosteroids with demonstrated improvement. Antimicrobial therapy alone has not consistently been associated with clinical improvement. Assessment for infectious etiologies has been completed without an identified infectious cause. A cluster of several patients from North Carolina have been diagnosed with lipoid pneumonia based on clinical presentation and detection of lipids within bronchoalveolar lavage samples stained specifically to detect oil.

All patients have reported using e-cigarette products or other vaping devices and the symptom onset has ranged from a few days to several weeks after vaping. To date, no single substance or vaping device has been consistently associated with illness. DPH is facilitating collecting product specimens from confirmed or probable case-patients for testing at the U.S. FDA Forensic Chemistry Center.

Recommendations for Clinicians

1. Report cases of severe pulmonary disease of unclear etiology and a history of vaping/e-cigarette product use within the past 90 days to the Georgia Poison Center (GPC) at 1-800-282-5846.
2. Ask all patients who report vaping/e-cigarette product use within the last 90 days about signs and symptoms of pulmonary illness.
3. If vaping history is suspected as a possible etiology of a patient's severe pulmonary disease, obtain detailed history regarding:
 - a. Substance(s) used: nicotine, cannabinoids (e.g., marijuana, THC, THC concentrates, CBD, CBD oil, synthetic cannabinoids [e.g., K2 or spice], hash oil, Dank vapes), flavors, or other substances
 - b. Substance source(s): commercially available liquids (i.e., bottles, cartridges, or pods), homemade liquids, and re-use of old cartridges or pods with homemade or commercially bought liquids
 - c. Device(s) used: manufacturer; brand name; product name; model; serial number of the product, device, or e-liquid; if the device can be customized by the user; and any product modifications by the user (e.g., exposure of the atomizer or heating coil)
 - d. Where the product(s) were purchased
 - e. Method of substance use: aerosolization, dabbing, or dripping
 - f. Other potential cases: sharing e-cigarette products (devices, liquids, refill pods, or cartridges) with others
4. Determine if any remaining product, including devices and liquids, are available for testing by FDA. Collection and testing can be coordinated with the local health department or DPH Epidemiology.
5. Consider all possible causes of illness among patients reporting respiratory and gastrointestinal symptoms with a history of vaping. Evaluate and treat for other possible causes of illness (e.g., infectious, rheumatologic, neoplastic) as clinically indicated. Consider consultation with specialists (pulmonary, infectious disease, critical care, medical toxicology) as appropriate.
6. Clinical improvement of patients with severe pulmonary disease associated with vaping has been reported with the use of corticosteroids, however, the optimal treatment regimen and duration, as well as the long-term effects of this lung injury, are uncertain. The decision to use corticosteroids should be made on a case-by-case basis based on risks and benefits and the likelihood of other etiologies.
7. Lipoid pneumonia associated with inhalation of lipids in aerosols generated by e-cigarettes and other vaping devices has been reported in some case patients based on the detection of lipid-laden alveolar macrophages obtained by bronchoalveolar lavage (BAL) and lipid staining (e.g., oil red O). The decision about whether to perform a BAL should be based on individual clinical circumstances.
8. Lung biopsies have been performed on some patients. If a lung biopsy is obtained, lipid staining may be considered during pathologic examination, and is best performed on fresh tissue. Routine pathology tissue processing (including formalin-fixation and paraffin-embedding) can remove lipids. Conducting routine tissue processing and histopathologic evaluation is still important. Consider consultation with specialists in pulmonary medicine and pathology to help inform any evaluation plan.
9. Patients who have received treatment for severe pulmonary disease related to vaping should undergo follow-up evaluation as clinically indicated to monitor pulmonary function.

For More Information

- CDC's most recent health alert, which includes more detail on the types of devices/products in question: <https://emergency.cdc.gov/han/han00421.asp>
- For latest CDC updates on the national outbreak: https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html
- MMWR on Vaping-Associated Lipoid Pneumonia Cases in North Carolina: https://www.cdc.gov/mmwr/volumes/68/wr/mm6836e1.htm?s_cid=mm6836e1_e&deliveryName=USCDC_921-DM8485
- Information on electronic cigarettes and similar devices: https://www.cdc.gov/tobacco/basic_information/e-cigarettes/index.htm
- For assistance with management of patients suspected of illness related to recreational, illicit, or other drugs: Call GPC at 1-800-282-5846.

Clinicians who become aware of cases similar to those described above should report them to GPC at 1-800-282-5846.