

TO: Vermont Health Care Providers
FROM: Mark Levine, MD, Commissioner of Health

E-cigarette or Vaping Associated Lung Injury (EVALI)

As of November 20, 2019, 2,290 cases of e-cigarette, or vaping, product use associated lung injury (EVALI) have been reported from 49 states (all except Alaska), the District of Columbia, and two U.S. territories (Puerto Rico and U.S. Virgin Islands). Forty-seven deaths have been confirmed in 25 states and the District of Columbia. The Vermont Department of Health issued health advisories on August 29 and September 16, 2019, and has continued to collaborate with CDC, FDA, and state and local health departments on this multistate outbreak. CDC updates the national case report once a week. For updates on the situation in Vermont:

www.healthvermont.gov/response/vaping-illness

EVALI remains a diagnosis of exclusion. No specific diagnostic test for EVALI exists, and medical management of possible EVALI cases should be based on clinical judgment. The specific cause or causes of EVALI are not yet known. Although vitamin E acetate has been detected in bronchoalveolar lavage fluid samples from EVALI patients, insufficient data exist to rule out the contributions of other chemicals potentially contributing to EVALI.

EVALI patients may present with signs and symptoms similar to that of influenza or other respiratory infections (e.g. respiratory symptoms: cough, shortness of breath, chest pain; gastrointestinal symptoms: abdominal pain, nausea, vomiting, and diarrhea; or constitutional symptoms: fever, chills, weight loss). Therefore, it may be difficult to distinguish between EVALI and respiratory infections. Alternatively, EVALI patients may have a concomitant respiratory infection.

Some patients with EVALI are at increased risk of severe outcomes (e.g. requiring endotracheal intubation and mechanical ventilation, longer duration of hospitalization), including older patients, those with a history of cardiac or pulmonary disease, or pregnant women.

REQUESTED ACTIONS

- **History:** When obtaining a history from patients with respiratory, gastrointestinal, or constitutional symptoms, ask about the use of e-cigarette, or vaping, products. If confirmed, ascertain the types of substances used (e.g. tetrahydrocannabinol (THC), nicotine) and where they were obtained.
- **Physical examination:** Fever, tachycardia, and tachypnea have been commonly observed among EVALI patients. Abnormalities of the chest and abdomen (including dyspnea and abdominal pain) have been noted on physical examination.

- **Testing:** When evaluating patients suspected to have EVALI, consider testing and imaging based on clinical findings.
 - Pulse oximetry: Hypoxemia has been commonly reported among EVALI patients.
 - Chest radiography: Consider for patients with a recent history of e-cigarette or vaping product use who have respiratory or gastrointestinal symptoms (especially those with dyspnea, chest pain, or decreased (<95%) oxygen saturation on room air).
 - Chest computed tomography: Consider if EVALI is in the differential diagnosis and the chest x-ray is normal. Note that radiographic abnormalities have not been present in all EVALI patients upon initial presentation.
 - Influenza testing: Strongly consider testing for influenza, especially during influenza season.

- **Management:**
 - Discontinuation of use of e-cigarette or vaping products: Advise patients of, and offer or connect them to, evidence-based interventions to discontinue such products. Resuming use of e-cigarette or vaping products has been associated with recurrence of symptoms, slowed recovery, and further lung injury.
 - Empiric treatment with antimicrobials, including antivirals, should be considered in accordance with established guidelines and local microbiology and resistance patterns.
 - Corticosteroids may be helpful in the treatment of EVALI patients. However, it may be advisable to withhold corticosteroids while evaluating patients for infectious etiologies that might worsen with corticosteroid treatment. Using corticosteroids for treating EVALI in the outpatient setting has not been well studied and should be considered with caution.
 - Immunizations: The importance of annual influenza vaccination for anyone age 6 months and older should be emphasized, including EVALI patients. In addition, pneumococcal immunization should be considered for patients with a history of EVALI according to current guidelines.

- **Outpatient management and follow-up:**
 - Not all patients with a history of e-cigarette or vaping product use who present for evaluation of respiratory, gastrointestinal, or other symptoms require hospitalization. EVALI patients can be managed on an outpatient basis if they have normal levels of oxygen in their blood, no respiratory distress, no other health conditions that might compromise lung capacity, reliable access to health care should their symptoms worsen, and strong social support systems.
 - Patients who have been hospitalized and discharged from hospital after treatment for EVALI should have follow-up visits at 1-2 weeks and 1-2 months after discharge. At follow-up visits, consider pulse oximetry, chest x-ray, spirometry, and diffusion capacity for carbon monoxide.

- The long-term effects and the risk of recurrence of EVALI are unknown.
- Patients with a history of EVALI should return as soon as possible if they develop new or worsening respiratory symptoms, with or without fever.

For assistance with clinical management of patients suspected of illness related to recreational, illicit, or other drugs, call the poison control center at 1-800-222-1222.

If you have any questions, please contact the HAN Coordinator at 802-859-5900 or vthan@vermont.gov

HAN Message Type Definitions

Health Alert: Conveys the highest level of importance; warrants immediate action or attention.

Health Advisory: Provides important information for a specific incident or situation may not require immediate action.

Health Update: Provides updated information regarding an incident or situation; unlikely to require immediate action.

Info Service Message: Provides general correspondence from VDH, which is not necessarily considered to be of an emergent nature.