Clinical Evaluation and Management of Patients With Suspected EVALI

A multistate outbreak of EVALI (e-cigarette, or vaping, product use associated lung injury) is causing concern and prompting federal investigations. As experts across the country look into EVALI, a working group has released interim guidance on the evaluation and management of patients affected.

### History

Ask about:
- Respiratory, gastrointestinal, and constitutional symptoms (e.g., cough, chest pain, shortness of breath, abdominal pain, nausea, vomiting, diarrhea, and fever) for patients who report a history of use of e-cigarette, or vaping, products.
- Recent use of e-cigarette, or vaping, products.
- Types of substances used (e.g., tetrahydrocannabinol [THC], cannabis, nicotine, modified products or the addition of substances not intended by the manufacturer); product source, specific product brand and name; duration and frequency of use, time of last use; product delivery system, and method of use.

### Physical Exam

Assess vital signs and oxygen saturation via pulse-oximetry.

### Laboratory Testing

Infectious disease evaluation might include respiratory viral panel including influenza testing during flu season, *Streptococcus pneumoniae*, *Legionella pneumophila*, *Mycoplasma pneumoniae*, endemic mycoses, and opportunistic infections.

For the initial laboratory evaluation:
- Consider complete blood count with differential, liver transaminases, and inflammatory markers
- Consider conducting urine toxicology testing, with informed consent, including testing for THC

### Imaging: Chest Radiograph

Consider chest computed tomography for evaluation of severe or worsening disease, complications, other illnesses, or when chest X-ray result does not correlate with clinical findings.

### Other Considerations

Further evaluation of patients meeting inpatient admission criteria might include:
- Consultation with pulmonary, critical care, medical toxicology, infectious disease, psychology, psychiatry, and addiction medicine specialists
- Additional testing with bronchoalveolar lavage or lung biopsy as clinically indicated, in consultation with pulmonary specialists

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Management of patients with suspected e-cigarette, or vaping, product use associated lung injury

Admission Criteria and Outpatient Management

• Strongly consider admitting patients with potential lung injury, especially if respiratory distress present, have comorbidities that compromise pulmonary reserve, or decreased (<95%) O₂ saturation
• Consider outpatient management for patients with suspected lung injury who have less severe injury on a case-by-case basis

Medical Treatment

• Consider initiation of corticosteroids
• Strongly consider early initiation of antimicrobial coverage for community-acquired pneumonia in accordance with established guidelines
• Consider influenza antivirals in accordance with established guidelines

Patients Not Admitted to Hospital

• Recommend follow-up within 24–48 hours to assess and manage possible worsening lung injury
• Outpatients should have normal oxygen saturation, reliable access to care and social support systems, and be instructed to promptly seek medical care if respiratory symptoms worsen
• Consider empiric use of antimicrobials and antivirals

Post-hospital Discharge Follow-up

• Schedule follow-up visit no later than 1–2 weeks after discharge that includes pulse-oximetry testing
• Consider additional follow-up testing including spirometry and diffusion capacity testing and consider repeat chest radiograph in 1–2 months
• Consider endocrinology consultation for patients treated with high-dose corticosteroids

Cessation Services and Preventive Care

• Strongly advise patients to discontinue use of e-cigarette, or vaping, products
• Provide education and cessation assistance for patients to aid nicotine addiction and treatment or referral for patients with marijuana-use-disorder
• Emphasize importance of routine influenza vaccination
• Consider pneumococcal vaccine

Referrals and Consultations

Online: NationwideChildrens.org
Phone: (614) 722-6200 or (877) 722-6220  |  Fax: (614) 722-4000
Physician Direct Connect Line for 24-hour urgent physician consultations: (614) 355-0221 or (877) 355-0221

For more information on all of our Pulmonary Medicine services, visit: NationwideChildrens.org/Pulmonary

Mailing address: Nationwide Children’s Hospital, 700 Children’s Drive Columbus, Ohio 43205