Severe Pulmonary Disease Among People that Use E-Cigarette Products

The Centers for Disease Control and Prevention (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.1

As of September 6, 2019, 450 possible cases of severe pulmonary disease associated with the use of electronic cigarette (e-cigarette) products (e.g., devices, liquids, refill pods, and cartridges) had been reported to CDC by 33 state health departments.1 There have been five deaths confirmed in Oregon, California, Illinois, Indiana and Minnesota.1 E-cigarettes are devices that produce an aerosol by heating a liquid containing various chemicals, including nicotine, flavorings, and other additives (e.g., propellants, solvents, and oils). Users inhale the aerosol, including any additives, into their lungs. Aerosols produced by e-cigarettes can contain harmful or potentially harmful substances, including heavy metals such as lead, volatile organic compounds, ultrafine particles, cancer-causing chemicals, or other agents such as chemicals used for cleaning the device.2 E-cigarettes also can be used to deliver tetrahydrocannabinol (THC), the principal psychoactive component of cannabis, or other drugs; for example, “dabbing” involves superheating substances that contain high concentrations of THC and other plant compounds (e.g., cannabidiol) with the intent of inhaling the aerosol. E-cigarette users could potentially add other substances to the devices.2

All patients have a reported history of e-cigarette product use, and no consistent evidence of an infectious etiology has been discovered. Therefore, the suspected cause is a chemical exposure. The type, extent, and severity of any chemical-related illness might depend on multiple factors including the chemical to which the user was exposed; chemical changes associated with heating, dose, frequency, and duration of exposure; product delivery methods; and behaviors and medical conditions of the user.2 The specific behaviors and exposures of identified patients have varied. Most have reported a history of using e-cigarette products containing cannabinoids such as THC, some have reported the use of e-cigarette products containing only nicotine, and others have reported using both.2 No consistent e-cigarette product, substance, or additive has been identified in all cases, nor has any one product or substance been conclusively linked to pulmonary disease in patients.2

The Oregon Public Health Division (PHD), along with public health authorities, are investigating a recent death of an individual who had severe respiratory illness following the use an e-cigarette or vaping device containing cannabis purchased from
a cannabis dispensary. PHD officials say the individual’s symptoms were consistent with those of more than 200 similar cases in a national cluster of respiratory illness, mostly affecting teenagers and young adults, in at least 25 states.

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.

**Reporting Potential Cases to the Oregon Health Authority Public Health Division**

PHD investigators and local public health authorities are urging clinicians to be on alert for signs of severe respiratory illness among patients who recently used vaping products, including e-cigarettes, and report any cases. Clinicians can contact the on-call epidemiologist at the state PHD at 971-673-1111.

Before the new illness reports, OHA and Local Public Health Departments in Oregon were already concerned about the health risks of vaping products. A recent report by OHA details the health risks for the products, including nicotine addiction, exposure to toxic chemicals known to cause cancer and increases in blood pressure.

Individuals who have recently used vaping products such as e-cigarettes and are having difficulty breathing should seek medical attention immediately. If you or someone you know is ready to quit using tobacco, including vaping products such as e-cigarettes, free help is available from the following resources:

- 800-QUIT-NOW (800-784-8669), quitnow.net.
- Español: 855-DEJELO-YA (855-335-35692), quitnow.net/oregonsp
- www.thisisquitting.com (quit resource for youth).

E-cigarette products should never be used by youths, young adults, pregnant women, or by adults who do not currently use tobacco products. Adult smokers who are attempting to quit should use evidence-based smoking cessation treatments, including counseling and FDA-approved medications.

For more information about OHA’s investigation, visit healthoregon.org/acd

Interim Guidance from CDC, visit https://www.cdc.gov/mmwr/volumes/68/wr/mm6836e2.htm?s_cid=mm6836e2_w#suggestedcitation

**2019-2020 Flu Season**

Influenza viruses typically circulate widely in the United States throughout the year, but most commonly from late fall through early spring. Most persons who contract influenza recover without serious complications. However, influenza can result in
serious illness, hospitalization, and death, particularly among older adults, very young children, pregnant women, and persons with certain chronic medical conditions. Influenza illness also is an important cause of missed work and school.\textsuperscript{3}

**2019-2020 Flu Season Vaccine**

There are many different flu viruses and they are constantly changing. The composition of U.S. flu vaccines is reviewed annually and updated as needed to match circulating flu viruses. Flu vaccines protect against the three or four viruses (depending on the vaccine) that research suggests will be most common. For 2019-2020, trivalent (three-component) vaccines are recommended to contain:\textsuperscript{3,4}

- A/Brisbane/02/2018 (H1N1)pdm09-like virus (updated)
- A/Kansas/14/2017 (H3N2)-like virus (updated)
- B/Colorado/06/2017-like (Victoria lineage) virus

Quadrivalent (four-component) vaccines, which protect against a second lineage of B viruses, are recommended to contain:\textsuperscript{3,4}

- the three recommended viruses above, plus B/Phuket/3073/2013-like (Yamagata lineage) virus.

Flu vaccines are updated to better match circulating viruses. The A(H1N1)pdm09 vaccine component was updated from an A/Michigan/45/2015 (H1N1)pdm09-like virus to an A/Brisbane/02/2018 (H1N1)pdm09-like virus.\textsuperscript{4} The A(H3N2) vaccine component was updated from an A/Singapore/INFIMH-16-0019/2016 A(H3N2)-like virus to an A/Kansas/14/2017 (H3N2)-like virus.\textsuperscript{4} Both B/Victoria and B/Yamagata virus components from the 2018-2019 flu vaccine remain the same for the 2019-2020 flu vaccine.\textsuperscript{4}

**Vaccine Recommendations**\textsuperscript{3}

Routine annual influenza vaccination is recommended for all persons aged ≥6 months who do not have contraindications. A licensed, recommended, and age-appropriate vaccine should be used. Inactivated influenza vaccines (IIVs), recombinant influenza vaccine (RIV), and live attenuated influenza vaccine (LAIV) are expected to be available for the 2019–20 season. Standard-dose, unadjuvanted, inactivated influenza vaccines will be available in quadrivalent formulations (IIV4s). High-dose (HD-IIV3) and adjuvanted (aIIV3) inactivated influenza vaccines will be available in trivalent formulations. Recombinant (RIV4) and live attenuated influenza vaccine (LAIV4) will be available in quadrivalent formulations.

The age indication for Afluria Quadrivalent has been expanded from ≥5 years to ≥6 months.\textsuperscript{2} The dose volume for Afluria Quadrivalent is 0.25 mL for children aged 6 through 35 months and 0.5 mL for all persons aged ≥36 months (≥3 years).\textsuperscript{2} The dose volume for Fluzone Quadrivalent for children aged 6 through 35 months, which was previously 0.25 mL, is now either 0.25 mL or 0.5 mL. The dose volume for Fluzone Quadrivalent is 0.5 mL for all persons aged ≥36 months (≥3 years).

**Timing of Vaccination**\textsuperscript{3}

Balancing considerations regarding the unpredictability of timing of onset of the influenza season and concerns that vaccine-induced immunity might wane over the course of a season, it is recommended that vaccination should be offered by the end of October. Children aged 6 months through 8 years who require 2 doses should receive their first dose as soon as possible after the vaccine becomes available to
allow the second dose (which must be administered ≥4 weeks later) to be received by the end of October.

Vaccination efforts should continue throughout the season because the duration of the influenza season varies, and influenza activity might not occur in certain communities until February or March. Providers should offer influenza vaccine routinely, and organized vaccination campaigns should continue throughout the influenza season, including after influenza activity has begun in the community. Although vaccination by the end of October is recommended, vaccine administered in December or later, even if influenza activity has already begun, might be beneficial in the majority of influenza seasons.

**Formulations of Influenza Vaccine**

The 2018–19 ACIP has recommendations regarding the use of seasonal influenza vaccines and provides recommendations and guidance for vaccine providers regarding the use of influenza vaccines for the 2019–20 season. Various formulations of influenza vaccines are available (Table 1). Contraindications and precautions to the use of influenza vaccines are summarized (Table 2).

For more information:
- Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2019 – 20 Influenza Season
- Frequently Asked Flu Questions: 2019 –2020 Influenza Season

"The mission of Jackson County Health and Human Services is to plan, coordinate and provide public services that protect and promote the health and well-being of county residents."