E-Cigarette, or Vaping, Product Use–associated Lung Injury: A Response to Perez and Crotty Alexander

To the Editor:

We read with great interest the report by Perez and Crotty Alexander highlighting the harmful effects of electronic nicotine delivery systems (ENDS) (1). The use of ENDS among youth continues to escalate, and e-cigarette, or vaping, product use–associated lung injury (EVALI), became an epidemic in the summer of 2019. As a response to these related public health crises, the U.S. Food and Drug Administration has banned all flavors of e-cigarette cartridges, or pods, except menthol and tobacco (2, 3). Although there are many different substances and product sources being investigated, the Centers for Disease Control and Prevention reported that 82% of hospitalized patients with EVALI were using tetrahydrocannabinol (THC)-containing products and the common compound detected in product samples, and in the bronchoalveolar lavage fluid in most of them, was vitamin E acetate; it was not found in bronchoalveolar lavage fluid in the comparison group (4). Vitamin E acetate is used as an additive in THC-containing products, probably as a diluent or for its longer shelf life. It is found in many foods and usually does not cause harm when ingested as a vitamin supplement. When inhaled, its effect on the respiratory endothelial cells can cause airway hyperresponsiveness and lung inflammation (5). The use of THC-containing products from informal sources such as friends, family, or in-person or online sellers has been related to vaping-associated lung injury. Among the half of patients with EVALI who reported using THC-containing products, and for whom there is information on source, 78% had bought their vaping products from a "friend of a friend" or some illegal source. Some of them reported that the color of the vaping substance did not look the same compared with previous use, raising the possibility that after-market additives, rather than nicotine or THC products themselves, are the culprit in EVALI. Unlike the older generation of nicotine e-cigarette devices that can only use manufacturer cartridges, newer devices are more customizable, with tank or mod vaping systems requiring liquids manually filled by users to their specific tastes. These devices easily allow the use of liquids or cartridges that are bought on the street, including black market THC liquids with unknown and potentially unsafe additives. The Centers for Disease Control and Prevention recommends not to modify or add any elements to an e-cigarette or vaping product that are not intended by the manufacturer, including products purchased through retail establishments (6). However, modern tank vaping systems make it easy to do so. The current restriction by the U.S. Food and Drug Administration won't apply to newer generation tank vaping systems and THC-vaping products (which are mainly regulated by states that have legalized marijuana) (3, 7). There is still a significant chance for contamination of vaping liquids by illegal THC products.

We agree with Perez and Crotty Alexander (1) that, although the ban on flavored nicotine e-cigarette cartridges is a good start in preventing adolescents from getting exposed, menthol should be included. It is one of the most popular flavors among youth, and increases the risk for regular tobacco use and subsequent cigarette smoking (8). The flavoring ban should be extended to all ENDS and other tobacco products. Safety regulations should be developed for vaping devices. Comprehensive and timely actions are needed to overcome the epidemic of ENDS use and its consequences.

Author disclosures are available with the text of this letter at www.atsjournals.org.

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