



# COMMONWEALTH of VIRGINIA

## Department of Health

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### Electronic Nicotine Delivery System Use – Children and Teenagers

April 17, 2015

Dear Colleague:

Thank you for being a key partner in our collective effort to ensure the health and well-being of children in Virginia. Regardless of clinical specialty, we each have an opportunity to impact children's health. Yesterday, the U.S. Centers for Disease Control and Prevention (CDC) and the U.S. Food and Drug Administration's (FDA) Center for Tobacco Products released a report in the [April 17, 2015, Morbidity and Mortality Weekly Report \(MMWR\)](#) highlighting data that indicated a tripling of e-cigarette use among middle and high school students from 2013 to 2014. This correspondence is an effort to bring to your attention the possible dangers of electronic nicotine delivery systems (ENDS) including electronic cigarettes (e-cigarettes), vapor pens, and similar products. Much of the information in this letter focuses on ENDS use in children and teenagers but is relevant for adults as well. I am hopeful that this information will assist you in your daily efforts to provide relevant information to your patients.

The information below provides additional information on:

- [Prevalence of e-cigarette product use](#)
- [Health implications of ENDS use](#)
- [Possible poisoning dangers](#)

#### Prevalence of ENDS

[The journal \*Nicotine & Tobacco Research\* published a study](#) on middle and high school students who have never smoked cigarettes but have used e-cigarettes. Researchers from the CDC, FDA and Georgia State University found that during 2011-2013, the number of youth in the U.S. who had never smoked but who used e-cigarettes increased threefold, from 79,000 to more than 263,000. The study showed that 43.9 % of those who had never smoked but used e-cigarettes had an intention to smoke conventional cigarettes compared with 21.5% of those who had never smoked and had not used e-cigarettes. The 2013 Virginia Youth Survey indicates that 1.1% of middle school students and 9.5% of high school students recently tried using tobacco from a hookah or waterpipe, dissolvable tobacco products or electronic cigarettes.

## **Health Implications of ENDS Use**

No state or federal agency currently regulates the manufacturing of ENDS. Cigarettes, cigarette tobacco, roll-your-own tobacco and smokeless tobacco are currently subject to FDA's tobacco control authority. FDA is finalizing the rule to bring additional tobacco products such as e-cigarettes, hookahs and some or all cigars under that same authority. E-cigarette emissions are not harmless water vapor; the emissions can contain nicotine and other chemicals such as formaldehyde, propylene glycol, acetaldehyde, acrolein and tobacco-specific nitrosamines. As such, we recommend that children be protected from exposure to the emissions from e-cigarettes and all consumers of such products cautioned that they may be exposed to varying levels of nicotine or other chemicals and contaminants in these products.

Please also advise pregnant women to avoid using ENDS products. Nicotine negatively affects fetal development, specifically the central nervous and circulatory systems. We encourage you to discuss with your pregnant clients the potential consequences related to exposure to nicotine, in conventional or e-cigarettes, including:

- Miscarriage
- Low birth weight, which creates significant health challenges for their babies
- Negative impact to the unborn baby's blood flow, heart rate and breathing
- Sudden Infant Death Syndrome

The cumulative health impact on individuals of any age using multiple nicotine delivery products, such as traditional cigarettes and e-cigarettes, are unknown.

## **Poisoning Dangers**

It is illegal for a minor to purchase or possess any tobacco product, nicotine vapor products or alternative nicotine products, and it is illegal to sell or distribute those products to minors (Virginia Code §18.2-371.2). The liquid used in vapor products, also known as e-liquid, comes in a variety of flavors that may be enticing to children, such as cherry, chocolate, gummy bear and bubblegum. Approximately 7,764 different flavors are available through e-cigarette websites and can be purchased in non-specialty stores, including gas stations and convenience stores.

**Acute nicotine toxicity is a health concern for children and adults.** Most of the e-liquid on the market contains nicotine; concentrations in packages can vary significantly. The nicotine level in most e-liquids ranges between 1.8% and 2.4% but can be as high as 10% in each vial. The estimated lethal dosage of nicotine is between 1 and 13 milligrams per kilogram of bodyweight. One teaspoon of an e-liquid with a nicotine concentration of 1.8 % could be fatal for a 200-pound person. For a child, exposure to even a small amount of e-liquid could be life threatening.

Nicotine exposure can occur through ingestion, inhalation or absorption through the skin or eyes. Children exposed to nicotine can experience vomiting, tachycardia, respiratory failure, ataxia, seizures, gastrointestinal disturbance, and death.

The CDC identified an increase in calls to poison control centers due to e-cigarette exposures nationally. E-cigarette exposure includes exposure to the device or to the nicotine liquid. From 2010-2014, most states experienced a 50% increase in calls regarding e-cigarette/e-liquid exposures to children less than six years old. Virginia Poison Control data between 2011 and 2014 also showed an increase in the number of similar calls. During that time, there were 132 calls related to liquid nicotine and e-cigarette exposures, and 48 % of those calls were due to exposures among children under the age of six.

Please help spread the message to call the poison control center immediately at 1-800-222-1222 when exposure to an ENDS product or liquid nicotine is suspected.

Current smokers often report using ENDS to help quit smoking. However, e-cigarettes and similar ENDS have not been adequately tested as tobacco cessation devices. VDH recommends FDA-approved nicotine replacement therapy products, which contain controlled doses of nicotine, to support tobacco cessation efforts.

Cessation support for traditional tobacco use as well as for ENDS is available free of charge through Quit Now Virginia. [Quit Now Virginia](#) is a toll-free tobacco cessation phone counseling service that is provided to Virginia residents aged 13 and older 24 hours a day, seven days a week. Callers may receive one-on-one cessation counseling, information and self-help materials. Quit Now Virginia can be contacted at 1-800-QUIT-NOW (1-800-784-8669).

Again, thank you for your help with this emerging health threat. I also appreciate your continued efforts to communicate to your patients the serious health consequences of all tobacco use and for your collaborative work to promote and protect the health of all people in Virginia with a special focus on our children.

Sincerely,

Marissa J. Levine, MD, MPH, FAAFP  
State Health Commissioner

A pdf version of this letter is available on the VDH [Resources for Health Care Professionals](#) web page.