

# The Facts about Electronic Cigarettes

## New Hampshire Division of Public Health Services

### Fact Sheet

#### What Are Electronic Cigarettes?

Electronic Cigarettes are battery powered devices, which heat a liquid that allow users to mimic smoking a cigarette. Most electronic cigarettes (e-cigarette, e-cig, e-hookah, e-pen, vape pen) look similar to cigarettes and often have a tip that lights up when the user inhales. Some e-cigs are disposable and come already filled with liquid nicotine (juice, e-juice), many people using refillable/rechargeable e-cigs purchase liquid nicotine separately and fill the devices themselves. Use of e-cigs and other similar products are often referred to as “vaping” rather than “smoking.”

Some e-cigs are shaped to look like their conventional tobacco counterparts (e.g. cigarettes, cigars, cigarillos, pipes, or hookahs); they also take the form of everyday items such as pens, USB memory sticks, and larger cylindrical or rectangular devices.

Figure 1. Image of electronic nicotine delivery device with traditional combustible tobacco cigarette.



#### Regulation

The Food and Drug Administration (FDA) **does not** regulate electronic cigarettes or liquid nicotine products. E-cigarette packaging does not contain health warnings because the FDA does not regulate them. The FDA is developing a strategy to regulate this class of products as

tobacco products. In August of 2013 the FDA announced it may ban online sales of e-cigarettes. “The FDA is concerned about the safety of these products and how they are marketed to the public.” Margaret A. Hamburg, M.D., FDA Commissioner.

Business owners have the authority to create a policy that prohibits the use of electronic cigarettes in their establishments.

#### Risks to Adults and Youth

The risks posed by electronic cigarettes are currently unknown. In 2009, the FDA released a study on e-cigarettes. The FDA’s Division of Pharmaceutical Analysis investigated the components of a small sample of cartridges from two e-cigarette brands. Test results of the sample of cartridges found them to contain nitrosamines (a known cancer-causing chemical), as well as other toxic chemicals, including diethylene glycol, which is found in antifreeze. Impurities found in tobacco were also detected, including: anabasine, myosmine, and  $\beta$ -nicotyrine, which are suspected of causing adverse health effects.<sup>i</sup> A 2011 German study examined secondhand emissions from several e-cigarette brands, finding that e-cigarettes users not only ingest, but also emit toxins and harmful ultrafine and fine particles, posing potential health risks to those nearby, like children.<sup>ii</sup>

Just a small amount of the liquid nicotine used in the electronic cigarettes can be fatal to adults and children; liquid nicotine can be absorbed directly into the skin from contact. There are currently no requirements for child safety caps or safety information when selling e-cigarette refills. Refills come in bright colors, appealing flavors (like gummy-bear and cake), and scents,

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making it more likely that children will put the liquid in their mouths.

Public health experts have expressed concern that e-cigarettes could increase nicotine addiction and tobacco use among youth. Current (use in the past 30 days) e-cigarette use among middle and high school students tripled from 2013 to 2014.<sup>iii</sup> Varying levels of nicotine in e-cigarette cartridges are also of significant concern to health experts. The liquid found in e-cigarette cartridges and refill samples has been found to contain up to 18mg or more of nicotine.<sup>iv</sup> User behavior may affect nicotine absorption – length of puffs, depth of inhalation and frequency of use are common factors.

In New Hampshire, the sale of e-cigarettes and liquid nicotine to individuals under the age of 18 is illegal (RSA 126-K:2). According to analysis of the *Health Styles* survey, the percentage of American adults who have used an e-cigarette at least once rose from 3.3% in 2010 to 8.5% in 2013. Current cigarette smokers who have ever used an e-cigarette increased from 9.8% in 2010 to 36.5% in 2013. Former cigarette smokers who have ever used an e-cigarette increased from 2.5% in 2010 to 9.6% in 2013. Current e-cigarette use increased from 1.0% in 2010 to 2.6% in 2013. Additionally, the percentage of adults who are aware of e-cigarettes nearly doubled, from 40.9% in 2010 to 79.7% in 2013.<sup>v</sup>

Health consequences of the use of e-cigarettes and the aerosol that they give off are unknown. There is currently no scientific evidence establishing the safety of e-cigarettes. No brand of e-cigarettes has been submitted to the FDA for evaluation of their safety.

#### Manufacturing

Most devices are manufactured in China and imported into the United States (US). Two major tobacco companies, Altria and Reynolds American, have entered the e-cigarette market as well. Electronic cigarettes are available online and in retail outlets including gas stations and malls.

Battery voltage and unit circuitry differences can result in considerable variability in the products' ability to heat the solution to an aerosol and, consequently, may affect delivery of nicotine and other constituents, and may contribute to the formation of toxic emissions.

In addition to manufacturer differences, some users modify products at home to alter delivery of nicotine and/or other drugs.

#### Marketing

The marketing of e-cigarettes is growing. E-cigarettes are marketed by their manufacturers as "safer" and more convenient forms of satisfying nicotine addiction and the smoking habit. During 2011-2012 alone, e-cigarette makers almost tripled their annual advertising expenditures, from \$6.4 million to \$18.3 million. E-cigarettes are heavily marketed on television, the most commonly viewed media platform. Conventional cigarette advertising has been banned from television since 1971.<sup>vi</sup> At least one New Hampshire company is advertising e-cigarette products, including their own line of New Hampshire-made liquid nicotine.

#### Can Electronic Cigarettes Help a Person Quit?

Because these products are not regulated and many are produced outside the US, there is no oversight of manufacturers' claims or independent resellers' claims regarding ingredient type and content, nicotine content, safety, or possible use as a smoking cessation aid. No manufacturer has submitted a request

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to the FDA for their product to be marketed and sold as a cessation or quit aid.

No scientific evidence currently exists to support claims that e-cigarettes can be an effective smoking cessation tool. The New Hampshire Department of Health and Human Services (DHHS) does not support the use of e-cigarettes for quitting smoking. DHHS recommends that smokers who are thinking about quitting take advantage of proven quit resources including nicotine replacement therapy (like the patch) in combination with individual, group, or telephone quit counseling.

Visit [www.TryToStopNH.org](http://www.TryToStopNH.org) or call 1-800-QUIT-NOW (784-8669) for free quit coaching and support.



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Tobacco Prevention and Control Program  
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<http://www.dhhs.nh.gov> 1-800-852-3345 ext. 6891

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<sup>iv</sup> Center for Public Health and Tobacco Policy Fact Sheet. <http://www.tobaccopolicycenter.org/documents/CPHTP%20e-cig%20fact%20sheet%20%28final%29.pdf> [Accessed 12 October 2015].

<sup>v</sup> Brian A. King, Roshni Patel, Kimberly Nguyen, and Shanta R. Dube. "Trends in Awareness and Use of Electronic Cigarettes among U.S. Adults, 2010-2013." *Nicotine & Tobacco Research*. First published online September 19, 2014, doi:10.1093/ntr/ntu191 [Accessed 12 October 2015].

<sup>vi</sup> Brian A. King, Roshni Patel, Kimberly Nguyen, and Shanta R. Dube. "Trends in Awareness and Use of Electronic Cigarettes among U.S. Adults, 2010-2013." *Nicotine & Tobacco Research*. First published online September 19, 2014, doi:10.1093/ntr/ntu191 [Accessed 12 October 2015].

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<sup>i</sup> Summary of Results: Laboratory Analysis of Electronic Cigarettes Conducted by the US Food and Drug Administration. <http://www.fda.gov/NewsEvents/PublicHealthFocus/ucm173146.htm>. [Accessed 12 October 2015].

<sup>ii</sup> Center for Public health Policy, E-Cigarette Fact Sheet. [http://www.tobaccopolicycenter.org/documents/CPHTP%20e-cig%20fact%20sheet%20\(final\).pdf](http://www.tobaccopolicycenter.org/documents/CPHTP%20e-cig%20fact%20sheet%20(final).pdf) [Accessed 12 October 2015].

<sup>iii</sup> Centers for Disease Control and Prevention and the U.S. Food and Drug Administration's Center for Tobacco Products, Morbidity and Mortality Weekly Report. <http://www.cdc.gov/media/releases/2015/p0416-e-cigarette-use.html> [Accessed 12 October 2015].