



E-cigarettes

WHAT ARE E-CIGARETTES?

Electronic cigarettes, also called electronic nicotine delivery systems (ENDS), are designed to mimic the size, shape, and use of a conventional cigarette. A battery powers a heater, or atomizer, that vaporizes a solution usually containing nicotine and flavor additives suspended in propylene glycol or glycerin. Many e-cigarettes are rechargeable and users purchase replacement cartridges or refill vials.



KEY POINTS:

- More than 400 e-cigarette brands are available for sale in the U.S.¹
- There have been no national prevalence studies. The Tobacco Vapor Electronic Cigarette Association claims there are 4 million users in the U.S. and an estimated \$1 billion in sales annually.²
- E-cigarette awareness among U.S. adults increased from 16.9% in 2009 to 32.2% in 2010 and ever use quadrupled.³
- The U.S. Food and Drug Administration (FDA) has the authority to regulate e-cigarettes as tobacco products, but has not yet done so.¹
- E-cigarettes may undermine current prevention and cessation efforts by normalizing the action of ‘smoking’ or ‘vaping’, triggering relapse and encouraging initiation.
- FDA has not approved e-cigarettes as cessation devices. There are other proven safe and effective methods to quit smoking.¹

WHAT ARE THE RISKS?

There are limited independent published studies on the safety and risks of e-cigarettes. Some studies have indicated that:

- Quality control and labeling of nicotine levels is inaccurate, including detectable nicotine levels in “no nicotine” labeled e-cigarettes.¹
- Exhaled vapor is a mixture of water, propylene glycol and low levels of nicotine, tobacco specific nitrosamines, and other impurities.⁴ In one study, vapor did slightly increase particulate matter levels in indoor air.⁵
- Metal and silicate particles have been found in cartomizer fluid and aerosol.¹²
- One study showed increased short-term airway resistance after use of an e-cigarette.⁶
- Some e-cigarette users refill their own cartridges. Exposure to dangerous concentrations of nicotine through skin contact, inhalation, or ingestion is a possible risk.⁷



- E-cigarette marketing emphasizes:
 - Variety of attractive flavors
 - Odorless, smokeless
 - Social acceptance
 - Cost savings
 - Technological innovation
 - Freedom to use anywhere ⁸



- E-cigarettes are widely marketed on the internet, in television commercials, in magazine advertisements, and with celebrity endorsements.
- Prices range from under \$10 to \$100 and up.
- Not covered by health warning requirements and TV/radio commercial bans of cigarettes, cigars, and smokeless tobacco products.⁹
- Disposable e-cigarettes, rechargeable kits, and refill cartridges are widely available for purchase on the internet, at mall kiosks, in convenience stores, and in some retail stores and tobacco shops.
- U.S. tobacco companies are developing or purchasing e-cigarette brands - RJ Reynolds' VUSE, Altria's NuMark and Green Smoke, Lorillard's Blu, Swisher Sweets' e-swisher.¹⁰

OPPORTUNITIES FOR ACTION ¹¹

- **EXPAND EXISTING SMOKE-FREE AIR LAWS TO INCLUDE E-CIGARETTES.** The U.S. Department of Transportation, Air Force, State of New Jersey, and King County of Washington State are among jurisdictions that have enacted rules restricting public use of e-cigarettes.
- **INCLUDE E-CIGARETTES IN YOUTH ACCESS RESTRICTIONS.** The States of California, New York, and others have banned the sale of e-cigarettes to minors. Other options to limit access are e-cigarette provisions in retail licenses and the enactment of full sales bans, as in the case of Australia, China, and Brazil.
- **REGULATE MARKETING OF E-CIGARETTES.** Local governments have an interest in protecting consumers from false and misleading claims about products for sale, including e-cigarettes. Enforcing existing advertising protections may reduce marketing exposure.

1 U.S. Food and Drug Administration. (n.d.). Electronic cigarettes. Accessed November 14, 2012, from www.fda.gov/newsevents/publichealthfocus/ucm172906.htm.

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4 U.S. Food and Drug Administration. (2009). Summary of results: Laboratory analysis of electronic cigarettes conducted by FDA. Accessed November 14, 2012, from www.fda.gov/newsevents/publichealthfocus/ucm173146.htm.

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6 Vardavas, CI, Anagnostopoulos, N, et. al. (2012). Short-term pulmonary effects of using an electronic cigarette: Impact on respiratory flow resistance, impedance, and exhaled nitric oxide. CHEST, 141(6), 1400-1406.

7 Yamin, CK, Bitton, A, et. al. (2010). E-cigarettes: A rapidly growing internet phenomenon. Ann Intern Med, 153, 607-609.

8 Blu Cigs. Accessed November 14, 2012, from www.blucigs.com.

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10 Felberbaum, M. (April 25, 2013). Marlboro maker Altria to jump into e-cigarettes. CNSnews.com. Accessed June 5, 2013, from <http://cnsnews.com/news/article/marlboro-maker-altria-jump-e-cigarettes>.

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12 Williams, M., Villarreal, A., Bozhilov, K., Talbot, P. (2013). Metal and silicate particles including nanoparticles are present in electronic cigarette cartomizer fluid and aerosol. PLOS one. 8(3)e57987.