Electronic Cigarettes

What are electronic cigarettes (e-cigarettes)?

Electronic cigarettes (e-cigarettes) are battery-operated devices that heat a liquid to produce an aerosol that users inhale. This aerosol typically contains nicotine, flavorings, and other additives. The term e-cigarette is often used to refer to a broad class of products also known as electronic nicotine delivery systems (ENDS), which also includes electronic cigars (e-cigars), electronic hookahs (e-hookahs), vapor (vape) pens, and other products.1

Use of e-cigarettes in Indiana and the U.S.

Use of e-cigarettes has increased dramatically in Indiana and the U.S. in recent years.2,3,4

- E-cigarettes were the most commonly used tobacco product among youth in Indiana and nationwide in 2014.1,2
- Between 2012 and 2014, current (past 30 day) e-cigarette use among Indiana youth increased approximately four-fold, from 1.3% to 5.2% among middle school students and from 3.9% to 15.6% among high school students.2
- Nationally, e-cigarette use tripled among middle and high school students between 2013 and 2014.4
- In 2015, 4.6% of Indiana adults reported current use of e-cigarettes.3

Health concerns about e-cigarettes

Harmful aerosol constituents and secondhand aerosol

- E-cigarette aerosols have been shown to contain nicotine, heavy metals, and cancer-causing agents.5,6
- E-cigarette aerosols also have high concentrations of ultrafine particles, which may exacerbate respiratory conditions and constrict arteries.7,8

Harmful effects of nicotine

- **Addiction:** Nicotine is highly addictive.9
- **Impaired youth brain development:** Nicotine use can disrupt adolescent brain development, including parts of the brain that control attention, learning, and susceptibility to addiction.1,10,14
- **Impaired fetal development:** Nicotine use by pregnant women is toxic to fetuses and impairs fetal brain and lung development.1,9,10,14
- **Poisoning:** E-cigarette solutions can have very high concentrations of nicotine, which creates a risk of overdosing or poisoning. Nationwide, monthly calls to poison control centers for e-cigarette exposure increased from one per month in September 2010 to 215 per month in February 2014. Over half of these calls were for children ages five and under.11
- In 2015, about 99% of e-cigarettes sold from convenience stores and other retailers (excluding specialty tobacco shops, “vape shops”, and online sales) contained nicotine.12
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Dual use of e-cigarettes and conventional cigarettes

E-cigarettes are often promoted as safer alternatives to cigarettes or smoking cessation aids, however, e-cigarettes are not FDA-approved quit aids.14 Many adults and youth who use e-cigarettes also use conventional cigarettes.

**Dual use among adults**

- Rather than quitting cigarettes completely, many e-cigarette users continue to smoke conventional cigarettes.13,14
- Smokers who use e-cigarettes to cut back on cigarettes but do not quit completely remain at increased risk for disease and death due to smoking.14
- Nearly 71% of Indiana adults and nearly 77% of U.S. adults who use e-cigarettes also report current cigarette use.3,14

**Dual use among youth**

The U.S. Surgeon General has concluded that e-cigarette use is strongly associated with use of other tobacco products among youth, including cigarettes and other combustible tobacco products such as cigars.1 In 2014, 75% of middle school e-cigarette users and 84% of high school e-cigarette users in Indiana reported ever trying a conventional cigarette. Additionally, 38% of middle school and 50% of high school e-cigarette users in Indiana also reported concurrent (past 30 day) use of conventional cigarettes.1

**Flavors, marketing, and youth appeal**

- Companies currently manufacture and sell e-cigarette solutions in over 7,000 unique flavors, including candy or fruit flavors that may appeal to youth.15
- E-cigarette marketing often involves tactics previously shown to increase the appeal of tobacco products among youth, including celebrity endorsements, sports and music sponsorships, and themes that resonate with youth, such as rebellion and glamor.1,14
- Nationwide, about 7 in 10 youth were exposed to e-cigarette ads in 2014.16

**Secondhand Aerosol**

The U.S. Surgeon General has stated that e-cigarette aerosol is not harmless “water vapor” and may contain harmful chemicals.1 In 2015, nearly 1 in 4 (24.2%) youth nationwide reported being exposed to secondhand e-cigarette aerosol in an indoor or outdoor place.17

**Public health response to e-cigarettes**

Given concerns about the health impact of e-cigarettes, the U.S. Surgeon General has concluded that precautionary strategies to protect youth and young adults from adverse effects related to e-cigarettes are justified.1 These include strategies modeled after evidence-based tobacco control practices such as:

- Incorporating e-cigarettes into smoke free policies, such as tobacco-free school grounds policies
- Preventing youth access to e-cigarettes
- Regulation of e-cigarette marketing that is likely to attract youth and young adults
- Educational initiatives targeting youth and young adults1

**Resources for tobacco cessation**

E-cigarettes are not FDA-approved cessation aids. Other methods, however, such as counseling and FDA-approved medications, have been shown to help tobacco users quit successfully.18 Tobacco users who want to quit should contact a healthcare provider for assistance and call the Indiana Tobacco Quitline at 1-800-QUIT-NOW or visit www.QuitNowIndiana.com for evidence-based support, advice, and resources.


3 Indiana Adult Tobacco Survey, 2015.


5 U.S. Food and Drug Administration. Summary of Results: Laboratory Analysis of Electronic Cigarettes Conducted by the FDA. Available at [http://www.fda.gov/NewsEvents/PublicHealthFocus/ucm173146.htm](http://www.fda.gov/NewsEvents/PublicHealthFocus/ucm173146.htm).


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