

Electronic Cigarettes

What are electronic cigarettes (e-cigarettes)?

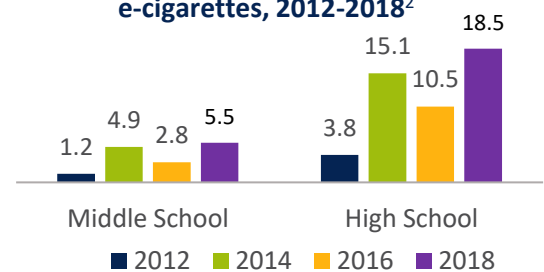
Electronic cigarettes (e-cigarettes) are battery-operated devices that heat a liquid to produce an aerosol that users inhale. This aerosol typically contains nicotine, flavorings, and other additives. The term e-cigarette is often used to refer to a broad class of products also known as electronic nicotine 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 United States

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

- Nationwide, e-cigarette use nearly doubled among high school students between 2016 and 2018.⁴ In Indiana, e-cigarette use nearly doubled among middle school and high school students between 2016 and 2018.²
- The use of e-cigarettes remain the most commonly used tobacco product among Hoosier youth.²
- In 2018, 5.5% of middle school students and 18.5% of high school students reported current e-cigarette use.²
- In 2018, 6.7% of Indiana adults were current e-cigarette users.⁵

Percentage of Indiana youth who report current (past 30 day) use of e-cigarettes, 2012-2018²



Fast Facts:

- The U.S. Surgeon General has stated that e-cigarette aerosol is NOT harmless “water vapor.”¹
- In addition to nicotine, most e-cigarettes contain other potentially toxic substances.⁶
- There is substantial evidence that e-cigarette use increases the risk of combustible cigarette use among youth and young adults.⁶
- E-cigarettes are the most commonly used tobacco product among Hoosier youth.²
- E-cigarettes are NOT FDA-approved cessation aids.²⁰
- Most adult e-cigarette users also use combustible tobacco (such as cigarettes or cigars).^{19,20}

E-cigarette Aerosol

- E-cigarette aerosol is not harmless “water vapor.”¹
- In addition to nicotine, most e-cigarettes contain other potentially toxic substances.⁶
- E-cigarette aerosols have been shown to contain heavy metals and cancer-causing agents.^{6,7,8}
- E-cigarette aerosols have high concentrations of ultrafine particles, which may exacerbate respiratory conditions and constrict arteries.^{9,10}

Secondhand Aerosol

- The National Academies of Sciences, Engineering, and Medicine have reported that there is conclusive evidence that e-cigarette use indoors increases airborne concentrations of nicotine and particulate matter from secondhand aerosol.⁶
- In 2015, nearly 1 in 4 youth nationwide (24.2%) reported being exposed to secondhand e-cigarette aerosol in an indoor or outdoor place.¹¹

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Harmful Effects of Nicotine

Liquids for e-cigarettes and other ENDS often contain nicotine. 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 Additionally, nicotine intake among experienced adult e-cigarette users can be similar to levels of nicotine intake from regular cigarettes.⁶ Exposure to nicotine from e-cigarettes raises several health concerns, including:

- **Addiction:** Nicotine is highly addictive.¹³ There is also substantial evidence that e-cigarette use results in symptoms of dependence on e-cigarettes.⁶
- **Impaired youth brain development:** Nicotine use can disrupt adolescent brain development, including parts of the brain that control attention, learning, and susceptibility to addiction.^{1,14,20}
- **Impaired fetal development:** Nicotine use by pregnant women is toxic to fetuses and impairs fetal brain and lung development.^{1,14,20}
- **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.¹⁵

Other Potential Health Effects of E-cigarettes

While the long-term health effects of e-cigarettes are still unknown, evidence suggests that e-cigarette use may potentially have harmful impacts on health.

- Research suggests that e-cigarette aerosol may have the potential to harm the body’s cells and tissues.⁶
- Exposure to nicotine from e-cigarettes may lead to increased heart rate and diastolic blood pressure.⁶
- E-cigarette devices may explode and cause burns or other injuries, particularly when the batteries are of poor quality, when the devices are stored improperly, or when the devices are modified by users.⁶

Youth Use of E-cigarettes and Combustible Tobacco

- E-cigarettes are the most commonly used tobacco product among youth in Indiana and nationwide.^{2,16}
- According to the National Academies of Sciences, Engineering, and Medicine, there is substantial evidence that e-cigarette use increases the risk of using regular combustible cigarettes among youth and young adults.⁶

Flavors, Marketing, and Youth Appeal

- Companies manufacture and sell e-cigarette solutions in over 7,000 unique flavors, including candy or fruit flavors that may appeal to youth.¹⁷
- In 2018, 65% of high school e-cigarette users in Indiana used flavored e-cigarettes.²
- E-cigarette marketing often involves tactics to increase the appeal of tobacco products to youth, including celebrity endorsements, sports and music sponsorships, and themes that resonate with youth, such as rebellion and glamor.^{1,20}
- Nationwide, about 7 in 10 youth were exposed to e-cigarette ads in 2014.¹⁸ In 2016, about two-thirds of Indiana high school students (67%) reported exposure to e-cigarette ads or media depictions of e-cigarette use.²

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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.²⁰ Many adults and youth who use e-cigarettes also use conventional cigarettes. This is known as “dual use.”

Dual Use among Adults

- Rather than quitting cigarettes completely, many e-cigarette users continue to smoke conventional cigarettes.^{19,20}
- 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.²⁰
- Nearly 5 in 10 Hoosier adults who use e-cigarettes (48%) also currently smoke cigarettes.⁵

Prevalence of current smoking among current e-cigarette users, Indiana youth and adults, 2018^{2,5}



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 2018, more than 1 in 5 high school e-cigarette users in Indiana (22%) also smoked cigarettes, and more than 1 in 3 (35%) used any combustible tobacco.²

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.²¹ 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.

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