

# Electronic Cigarettes

## What Are E-cigarettes?

Electronic cigarettes (e-cigarettes) are battery-operated devices that heat a liquid to produce an aerosol that users inhale. While using an e-cigarette is often called “vaping,” the devices produce an aerosol, not a vapor. Unlike vapor, the aerosol from an e-cigarette can contain tiny chemical particles from both the liquid solution and the device.<sup>1</sup> 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.<sup>2</sup>

## Current Generation of E-cigarettes

E-cigarettes that have a high-tech, sleek design have recently entered the market. JUUL has quickly established itself as a leading e-cigarette product. There are currently several “copycat” products on the market, including Suorin Drop, Eonsmoke, and myblu. These products also have a high-tech look and high nicotine delivery through the use of nicotine salts in e-liquids and pods.

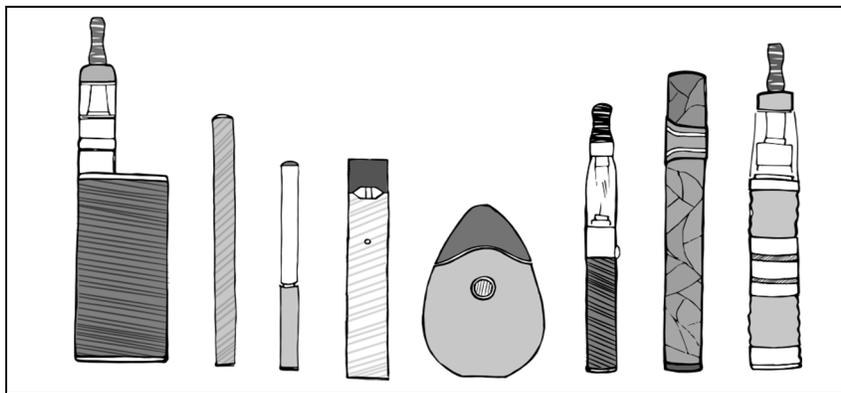


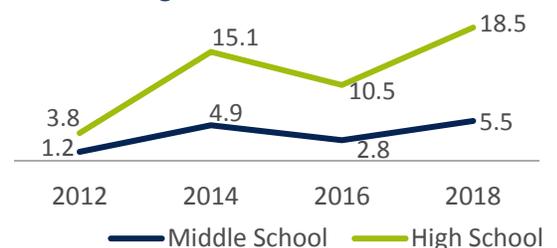
Image credit: Surgeon General’s E-cigarettes Advisory

## Rising Usage of E-cigarettes Among Youth

Use of e-cigarettes has increased dramatically in Indiana and the U.S. in recent years.<sup>3,4,5</sup>

- Nationwide, e-cigarette use nearly doubled among high school students between 2017 and 2018.<sup>4</sup>
- Similarly, in Indiana, e-cigarette use among middle school students increased from 2.8% to 5.5%, and increased from 10.5% to 18.5% among high school students.<sup>3</sup>
- E-cigarettes remain the most commonly used tobacco product among youth in Indiana and the U.S.<sup>3,4</sup>
- In 2018, e-cigarettes surpassed cigarettes as the most common first tobacco product tried among Hoosier middle and high school students.<sup>3</sup>
- The U.S. Surgeon General has concluded that e-cigarette use is strongly associated with use of other tobacco products among youth. One in five Hoosier youth who used e-cigarettes also smoked cigarettes in 2018.<sup>3</sup>

Percentage of Indiana youth who report current (past 30 day) use of e-cigarettes, 2012-2018<sup>3</sup>



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## Fast Facts:

- New e-cigarette brands such as JUUL and Suorin Drop have a high-tech look and high nicotine delivery through nicotine salts.
- Use of e-cigarettes has increased dramatically in Indiana and the U.S.<sup>3,5</sup>
- 3 out of 4 Indiana youth who use e-cigarettes report seeing tobacco ads in stores.<sup>3</sup>
- E-cigarettes are the most commonly used tobacco product among Hoosier youth.<sup>3</sup>

## E-cigarette Marketing and Flavors

- E-cigarette marketing is prevalent on social media and often includes tactics to increase the appeal of tobacco products to youth, including that resonate with youth such as rebellion and glamor.<sup>2,19</sup>
- In 2018, about three-fourths of Indiana youth who use e-cigarettes reported exposure to tobacco ads in stores.<sup>3</sup>
- Companies manufacture and sell e-cigarette pods and solutions in thousands of unique flavors, including candy and fruit flavors that may appeal to youth.
- 64.6% of high school e-cigarette users in Indiana used flavored e-cigarettes in 2018.<sup>3</sup>

## Harmful Effects of Nicotine

E-cigarette liquids and pods often contain nicotine. In 2015, about 99% of e-cigarettes sold from convenience stores and other retailers contained nicotine.<sup>6</sup> Exposure to nicotine raises several health concerns, including:

- **Addiction:** Nicotine is highly addictive.<sup>7</sup> There is also evidence that e-cigarette use results in symptoms of dependence on e-cigarettes.<sup>6</sup>
- **Impaired youth brain development:** Nicotine use can disrupt adolescent brain development, including parts of the brain that control attention, learning, and susceptibility to addiction.<sup>1,8,20</sup>
- **Impaired fetal development:** Nicotine use by pregnant women is toxic to fetuses and impairs fetal brain and lung development.<sup>1,14,20</sup>
- **Poisoning:** E-cigarette solutions can have very high concentrations of nicotine, which creates a risk of overdosing or poisoning.

## 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.<sup>2</sup> 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 adults<sup>2</sup>

## Resources for Tobacco and Nicotine Addiction

Given the rise in e-cigarette use among youth and the higher levels of nicotine available through e-cigarette brands such as JUUL, a new generation of young people addicted to nicotine. Tobacco users of any age who want to quit should contact a healthcare provider for assistance, and tobacco users 13 years and older can call the Indiana Tobacco Quitline at 1-800-QUIT-NOW or visit [www.QuitNowIndiana.com](http://www.QuitNowIndiana.com) for free evidence-based support, advice, and resources.

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## References

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- <sup>1</sup> Truth Initiative fact sheet on e-cigarettes, accessed 06/16/2019: <https://truthinitiative.org/research-resources/emerging-tobacco-products/e-cigarettes-facts-stats-and-regulations>
- <sup>2</sup> U.S. Department of Health and Human Services. *E-Cigarette Use among Youth and Young Adults: A Report of the Surgeon General – Executive Summary*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2016.
- <sup>3</sup> Indiana Youth Tobacco Survey, 2012-2018.
- <sup>4</sup> National Youth Tobacco Survey, 2017-2018.
- <sup>5</sup> Arrazola et al. Tobacco use among middle and high school students – United States, 2011-2014. *MMWR* 2015; 64(14): 381-385.
- <sup>6</sup> Marynak KL, Gammon DG, Rogers T, Coats EM, Singh T, King BA. Sales of nicotine-containing electronic cigarette products: United States, 2015. *American Journal of Public Health* 2017; doi: 10.2105/AJPH.2017.303660.
- <sup>7</sup> U.S. Department of Health and Human Services. *The Health Consequences of Smoking – 50 Years of Progress: A Report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2014.
- <sup>8</sup> England L, et al. Nicotine and the developing human: A neglected element of the e-cigarette debate. *Am J Prev Med*. 2015; 49(2): 286-293.