



# E-Cigarette Use Among Youth and Young Adults

## A Report of the Surgeon General

### Fact Sheet

This Surgeon General's report comprehensively reviews the public health issue of e-cigarettes and their impact on U.S. youth and young adults. Studies highlighted in the report cover young adolescents (11-14 years of age); adolescents (15-17 years of age); and/or young adults (18-25 years of age). Scientific evidence contained in this report supports the following facts:

**E-cigarettes are a rapidly emerging and diversified product class. These devices typically deliver nicotine, flavorings, and other additives to users via an inhaled aerosol. These devices are referred to by a variety of names, including "e-cigs," "e-hookahs," "mods," "vape pens," "vapes," and "tank systems."**

- E-cigarettes are battery-powered devices that heat a liquid into an aerosol that the user inhales.
- The liquid usually has nicotine, which comes from tobacco; flavoring; and other additives.
- E-cigarette products can also be used as a delivery system for marijuana and other illicit drugs.

**E-cigarettes are now the most commonly used tobacco product among youth, surpassing conventional cigarettes in 2014. E-cigarette use is strongly associated with the use of other tobacco products among youth and young adults, including cigarettes and other burned tobacco products.**

- In 2015, more than 3 million youth in middle and high school, including about 1 of every 6 high school students, used e-cigarettes in the past month. More than a quarter of youth in middle and high school have tried e-cigarettes.
- Among high school students, e-cigarette use is higher among males, whites, and Hispanics than among females and African-Americans.
- There is a strong association between the use of e-cigarettes, cigarettes, and the use of other burned tobacco products by young people. In 2015, for example, nearly 6 of 10 high school cigarette smokers also used e-cigarettes.
- Research has found that youth who use a tobacco product, such as e-cigarettes, are more likely to go on to use other tobacco products like cigarettes.

**E-cigarette use among youth and young adults has become a public health concern. In 2014, current use of e-cigarettes by young adults 18-24 years of age surpassed that of adults 25 years of age and older.**

- Among young adults 18-24 years of age, e-cigarette use more than doubled from 2013 to 2014. As of 2014, more than one-third of young adults had tried e-cigarettes.
- The most recent data available show that the prevalence of past 30-day use of e-cigarettes was 13.6% among young adults (2014) and 16.0% among high school students (2015).
- The most recent data available show that the prevalence of past 30-day use of e-cigarettes is similar among middle school students (5.3%) and adults 25 years of age and older (5.7%).
- Among young adults, e-cigarette use is higher among males, whites and Hispanics, and those with less education.

**The use of products containing nicotine poses dangers to youth, pregnant women, and fetuses. The use of products containing nicotine in any form among youth, including in e-cigarettes, is unsafe.**

- Many e-cigarettes contain nicotine, which is highly addictive.
- The brain is the last organ in the human body to develop fully. Brain development continues until the early to mid-20s. Nicotine exposure during periods of significant brain development, such as adolescence, can disrupt the growth of brain circuits that control attention, learning, and susceptibility to addiction.
- The effects of nicotine exposure during youth and young adulthood can be long-lasting and can include lower impulse control and mood disorders.
- The nicotine in e-cigarettes and other tobacco products can prime young brains for addiction to other drugs, such as cocaine and methamphetamine.

- Nicotine can cross the placenta and affect fetal and postnatal development. Nicotine exposure during pregnancy can result in multiple adverse consequences, including sudden infant death syndrome (SIDS).
- Ingestion of e-cigarette liquids containing nicotine can cause acute toxicity and possible death if the contents of refill cartridges or bottles containing nicotine are consumed.

**E-cigarette aerosol is not harmless. It can contain harmful and potentially harmful constituents including nicotine. Nicotine exposure during adolescence can cause addiction and can harm the developing adolescent brain.**

- The constituents of e-cigarette liquids can include solvents, flavorants, and toxicants.
- The aerosol created by e-cigarettes can contain ingredients that are harmful and potentially harmful to the public's health, including: nicotine; ultrafine particles; flavorings such as diacetyl, a chemical linked to serious lung disease; volatile organic compounds such as benzene, which is found in car exhaust; and heavy metals, such as nickel, tin, and lead.

**E-cigarettes are marketed by promoting flavors and using a wide variety of media channels and approaches that have been used in the past for marketing conventional tobacco products to youth and young adults.**

- E-cigarettes are an estimated \$3.5 billion business in the United States. In 2014, e-cigarette manufacturers spent \$125 million advertising their products in the U.S.
- In 2014, more than 7 of 10 middle and high school students said they had seen e-cigarette advertising. Retail stores were the most frequent source of this advertising, followed by the internet, TV and movies, and magazines and newspapers.
- The 2012 Surgeon General's Report on tobacco use among youth and young adults found that tobacco product advertising causes young people to start using tobacco products. Much of today's e-cigarette advertising uses approaches and themes similar to those that were used to promote conventional tobacco products.
- E-cigarettes are available in a wide variety of flavors, including many that are especially appealing to youth. More than 85% of e-cigarette users ages 12-17 use flavored e-cigarettes, and flavors are the leading reason for youth use. More than 9 of 10 young adult e-cigarette users said they use e-cigarettes flavored to taste like menthol, alcohol, fruit, chocolate, or other sweets.

**Action can be taken at the national, state, local, tribal and territorial levels to address e-cigarette use among youth and young adults. Actions could include incorporating e-cigarettes into smokefree policies, preventing access to e-cigarettes by youth, price and tax policies, retail licensure, regulation of e-cigarette marketing likely to attract youth, and educational initiatives targeting youth and young adults.**

- The Food and Drug Administration (FDA) now regulates the manufacturing, importing, packaging, labeling, advertising, promotion, sale, and distribution of e-cigarettes.
  - In August 2016, FDA began enforcing a ban on vending machine sales unless in adult-only facilities and a ban on free samples and sales to minors.
- Parents, teachers, health care providers, and others who influence youth and young adults can advise and inform them of the dangers of nicotine; discourage youth tobacco use in any form, including e-cigarettes; and set a positive example by being tobacco-free themselves.

**Citation:** 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.

**Website:** [E-cigarettes.Surgeongeneral.gov](http://E-cigarettes.Surgeongeneral.gov)