



# E-CIGARETTES AND THEIR USE IN THE U.S. AND KANSAS

Issue brief #1 in a series of three on e-cigarettes

Many recent reports have shown that the use of electronic cigarettes, commonly known as e-cigarettes, has risen sharply among both adults and youth in the United States. The long-term health effects of e-cigarette use are not known, and regulation at the local, state and federal levels is lagging. This brief is the first in a series of three discussing the public health issues related to e-cigarettes in Kansas: (1) *E-Cigarettes and Their Use in the U.S. and Kansas*; (2) *Health Effects of E-Cigarettes*; and, (3) *E-Cigarette Policy, Regulation and Marketing*.

E-cigarettes are often designed to look like traditional cigarettes, but their size and shape can vary widely. Some models are disposable after a single use, while others can be reused with the insertion of a new e-liquid cartridge.

E-liquid typically contains nicotine and other chemical flavorings as well as additives such as glycerin or propylene glycol, which help the vaporization process. E-cigarettes and e-liquids are available in numerous flavors, ranging from imitations of a traditional cigarette to sweeter varieties such as fruit or candy flavors.

## Electronic Cigarette Components

Electronic cigarettes—also known as electronic nicotine delivery systems (ENDS) or personal vaporizers—are battery-powered devices used to inhale vapor that typically contain nicotine. Using an e-cigarette is also referred to as “vaping.”

## The History of E-Cigarettes and Vaping

E-cigarettes were developed in China in 2003, and by 2014, nearly 500 brands existed worldwide. In the United States, they are sold in convenience and grocery stores, bars, gas stations, vaping shops and online. Sales have

According to a 2014 National Youth Tobacco Survey, approximately **2 million high school students** are current users of e-cigarettes (at least once in the past 30 days).



### KEY POINTS

- E-cigarettes are battery-powered devices used to inhale vapor—normally containing nicotine—and they are sold in many different styles, colors and flavors.
- The number of teens who have ever tried e-cigarettes has risen significantly across the U.S. between 2011 and 2014. However, Kansas data has not shown a similar increase for teens.
- Current tobacco smokers are most likely to have tried or currently use e-cigarettes.
- The number of adults who have tried e-cigarettes has risen significantly in Kansas: 14.3 percent in 2013, up from 8.6 percent in 2012. E-cigarette users are more likely to be younger and less educated than non-users.

## What are e-cigarettes?

E-cigarettes are battery-powered devices used to inhale vapor. They are sometimes designed to look like traditional cigarettes but can also be brightly colored or shaped like other devices, such as USB drives.



**Cartridge** filled with fluid, commonly known as e-liquid, e-juice or liquid nicotine.

**Battery** which is either activated by inhaling or manually.

**E-cigarette vapor** is created by heating a fluid mixture commonly called e-liquid, containing three major parts:

- A **vaporizer**, often propylene glycol or glycerin;
- **Nicotine** in various concentrations, though some e-cigarettes are nicotine-free; and,
- **Flavoring**, which can range from vanilla bean to cotton candy.



**Atomizer** which heats the e-liquid to create vapor.



grown significantly, with the CDC reporting that between 2012 and 2013, disposable (single use) e-cigarette sales grew about 320 percent. The U.S. vaping industry is estimated to hit \$10 billion in sales by 2017.

Many major e-cigarette brands have been purchased or created by large tobacco companies, such as Lorillard (blu), Reynolds America (VUSE) and Altria (MarkTen), and are being marketed as a glamorous and safer alternative to traditional smoking.

E-cigarettes are often marketed as a “healthy” alternative to smoking, and a recent review of 59 e-cigarette websites found that over 90 percent claim their products are “healthier,” “cleaner,” and “cheaper” than traditional cigarettes. In response to the boom in e-cigarette popularity, several health-related organizations, including the American College of Physicians, American Academy of Pediatrics, and the American Heart Association, have called for increased regulation, discouragement of use among youth, and/or increased funding for research on the safety or health effects of e-cigarette use.

## E-Cigarette Use in the United States

### Youth

The National Youth Tobacco Survey conducted annually by the CDC shows a marked increase in “current” (defined as at least once in the past 30 days) e-cigarette use among both high school and middle school students (*Figure 1*, page 3). Current use among high school students increased from 1.5 percent in 2011 to 4.5 percent in 2013, then tripled to 13.4 percent in 2014. For middle school students across the same period, current use increased from 0.6 percent in 2011 to 1.1 percent in 2013, then more than tripled to 3.9 percent in 2014. These percentages equate to approximately 2 million high school and 450,000 middle school students nationwide.

Among high school students in the U.S., males and females were equally likely to be current e-cigarette users. However, black/non-Hispanic students were less likely than white/non-Hispanic or Hispanic students of any race to be current users.

## Who uses e-cigarettes in Kansas?

Kansas adults who have ever tried e-cigarettes are more likely to:

- Be male
- Be young (age 18-34)
- Be single (divorced/separated, or never married)
- Be current smokers
- Not hold an undergraduate degree
- Not be retired
- Have experienced 14+ "not good" mental health days in the past month
- Be disabled
- Be uninsured



### Adults

According to national surveys, the percentage of U.S. adults who are current e-cigarette users rose from 0.8 percent in 2011 to 6.8 percent in 2013. (Note: 2014 data for adults is not yet available.)

Adults reporting more frequent use of e-cigarettes were more likely to be male, to not hold an undergraduate or graduate degree, and to identify as lesbian, gay or bisexual.

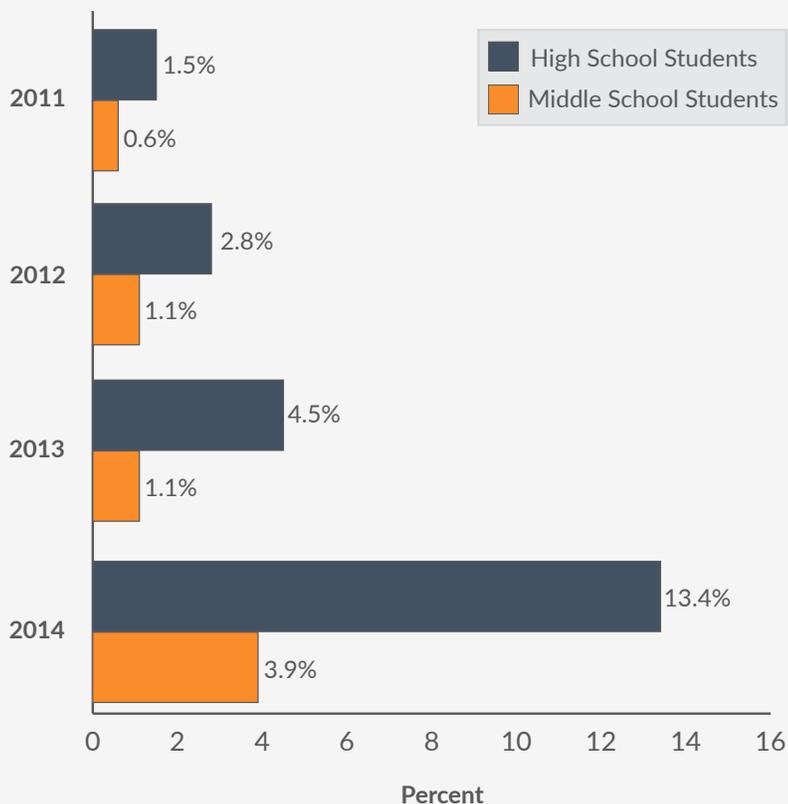
### E-Cigarette Use in Kansas

#### Youth

According to the latest data available from the Kansas Youth Tobacco Survey (2011–2012), 5.9 percent of high school students had ever tried e-cigarettes, and 1.8 percent were current users. More recent data (2013–2014) available for middle school students showed that 2.2 percent of middle schoolers had ever tried e-cigarettes and 0.9 percent were current users.

The use of e-cigarettes by teens has raised concerns among public health advocates that introducing teens to nicotine at a young age may fuel addictions to other tobacco products—in effect, creating a new generation of smokers. Research has consistently shown that tobacco use habits are almost exclusively formed by age 26, and more than 80 percent of smokers begin by their eighteenth birthday. Recent evidence has found that teens who try e-cigarettes are more likely to

**Figure 1. Current E-Cigarette Use has Increased Significantly Among Middle and High School Students in the United States**  
Percent of high school and middle school students in the U.S. who used electronic cigarettes at least once in the past 30 days, 2011–2014



Source: KHI analysis of data from the National Youth Tobacco Survey, United States, 2011–2014.

try other tobacco products such as cigarettes, hookah or cigars. One recent study even suggests that high school students have also begun to use vaping devices for other substances, such as marijuana.

## Adults

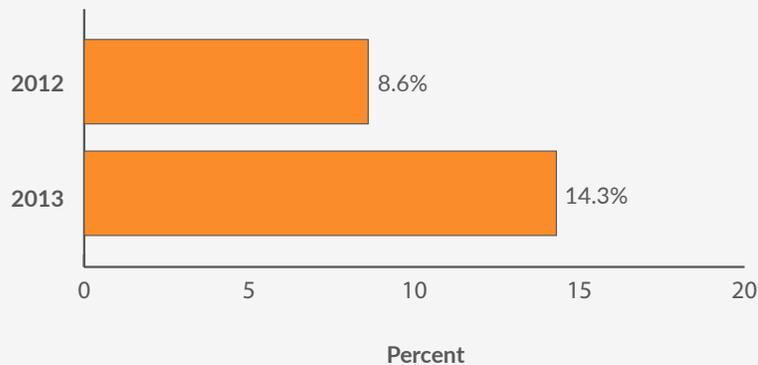
Results of the Kansas Behavioral Risk Factor Surveillance System (BRFSS) and the Kansas Adult Tobacco Survey (ATS) show that e-cigarette use is increasing for adults in Kansas, mirroring national trends.

In the two years of data collected at the state level on adult e-cigarette use, the percentage of adults who have ever tried electronic cigarettes grew to 14.3 percent in 2013 from 8.6 percent in 2012 (Figure 2).

In 2013, Kansas adults who had ever tried e-cigarettes were more likely to be young males, divorced/separated or have never married and are less likely to hold an undergraduate degree. The data also showed that adults who have ever tried e-cigarettes were more likely to report that their mental health status was not good for 14 days or more in the past 30 days. Additionally, disabled and uninsured Kansas adults were more likely to have ever tried e-cigarettes.

According to the latest available data (2012–2013), 3.4 percent of Kansas

Figure 2. More Kansas Adults are Trying E-Cigarettes  
Percent of Kansas Adults Who Have Ever Tried E-Cigarettes, 2012–2013



Source: KHI analysis of data from the Kansas Behavioral Risk Factor Surveillance System, 2012–2013.

adults are current users of e-cigarettes. Kansas adults who currently smoke traditional tobacco are significantly more likely to have ever tried e-cigarettes (51.5 percent of current smokers compared to just 5.4 percent of non-smokers). Likewise, current e-cigarette use is much higher among adult smokers in Kansas, with 14.0 percent of current smokers also currently using e-cigarettes, compared to 2.1 percent of former smokers and 0.5 percent of never-smokers.

## Conclusion

Future Kansas data may start to reflect the significant national increase in use of e-cigarettes by teens, as reported by the CDC for 2014. It will be important for Kansas policymakers, public health officials, health policy experts, and other stakeholders to monitor emerging data on how e-cigarette use continues to change over time, particularly use by high school and middle school students.

Stay tuned for the next installment on e-cigarettes: **Health Effects of E-Cigarettes**. To view the entire series, visit our website at [khi.org](http://khi.org).

### ABOUT THE ISSUE BRIEF

This brief is based on work done by Andrea Hinton and Linda Sheppard, J.D. This publication is available online at [khi.org/policy/article/E-cigSeries1](http://khi.org/policy/article/E-cigSeries1).

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