

GUEST EDITORIAL

Smoking is Out; Vaping is In. The Rise of E-Cigarettes among U.S. Youth

The landscape of nicotine addiction in the US is changing, particularly among youth. Tobacco control efforts, including policies regulating the marketing, sale, use, price, packaging, and disposal of tobacco products, have been successful in reducing the prevalence of cigarette use. Today, rates of cigarette use among adults are less than half what they were in 1965.¹ But, as recent studies have shown, while traditional cigarette use has also declined among young people, electronic cigarette (e-cigarette) use has sharply increased. Although researchers disagree on the net risk that e-cigarettes pose to the health of populations, there is general agreement that using e-cigarettes, or vaping, is detrimental to the health of minors. It is imperative that population health professionals learn about this emerging trend and take steps to prevent use of e-cigarettes among young people.

E-cigarettes are typically made of plastic and often resemble a cigarette, but can also look like pens, "light sabers," flash drives, or pipes and come in a variety of colors that appeal to young people. E-cigarettes deliver nicotine, flavorings, and other substances to the user in the form of an aerosol without combustion of tobacco. Unlike cigarettes, e-cigarettes contain a battery-operated heating element, a cartridge that may or may not contain nicotine, and an atomizer that, when heated, converts the contents of the cartridge into a vapor that is inhaled.²

E-cigarettes have been available for purchase in the US since 2007, and vaping has grown rapidly in popularity since their introduction to the market.³ Recent studies have shown that use of e-cigarettes among adults increased from 1.0% in 2010 to 2.6% in 2013.⁴ Among young people in the US, the

increases were even greater. Results from the 2014 National Youth Tobacco Survey showed that e-cigarettes replaced cigarettes for the first time as the most commonly used tobacco product among middle and high school students, with 3.9% and 13.4% reporting e-cigarette use, respectively.⁵ The exponential uptick in youth use of e-cigarettes has likely resulted from the industry's use of television, radio, and internet advertising that depicts glamorous celebrities puffing on e-cigarettes, a marketing tactic that was banned for cigarettes in 1970. Additionally, e-cigarette cartridges come in hundreds of different flavors, some of which are particularly appealing to young people, such as gummy bears or cotton candy.

Researchers are still working to comprehensively quantify the risks of e-cigarette use on public health. While studies have shown that the vapor inhaled while smoking e-cigarettes contains many of the same carcinogens identified in traditional tobacco smoke, concentrations of cancer-causing and other harmful chemicals are much lower in e-cigarettes.⁶ Additionally, while the empirical evidence is lacking,⁷ advocates claim that e-cigarettes are being used successfully for cessation purposes; however, e-cigarettes are not an FDA approved smoking cessation method. The major concerns about e-cigarette use among young people are 1) the damaging effects of nicotine exposure on the developing adolescent brain, 2) the high likelihood that youth use of nicotine will develop into a lifetime of nicotine addiction, and 3) that e-cigarette users will switch to traditional cigarettes to feed their addiction. In fact, a recently published longitudinal study showed that teen e-cigarette users had significantly

higher odds of initiating traditional cigarette smoking compared to non-users.⁸

As with conventional tobacco products, e-cigarettes require action at the local, state, and federal levels to prevent youth use and exposure. At least 44 states and 1 territory currently prohibit sales of e-cigarettes to minors.⁹ In addition to restricting access to minors, states have begun to add e-cigarettes to smoke-free policies and explore excise taxes.¹⁰ A critical component of the federal policy solution will be the adoption of FDA's proposed regulations on the sale and distribution of e-cigarettes.¹¹ Although the proposed rule is extensive and will be more comprehensive than any state or local policy, as proposed, it does not include flavoring or marketing restrictions, which are often designed to appeal to minors.¹² The development of nationwide regulations by the FDA will provide guidance to state and local governments on how to proceed. The current policy arena is a heterogeneous blend of different policy interventions that have not yet been analyzed for best practices.

As an academic medical center, Thomas Jefferson University (TJU) has a responsibility to respond appropriately to the challenge of youth e-cigarette smoking. The inclusion of e-cigarettes under both the TJU Tobacco-Free Environment and Nicotine-Free Hiring policies does well to encourage those on campus to refrain from smoking traditional and novel sources of nicotine addiction such as the e-cigarette.¹³ While screening patients for tobacco use, TJU clinicians, especially those focusing on adolescent health, should specifically assess patient use of e-cigarettes. If patients use e-cigarettes or other nicotine products, clinicians should follow the 5 A's of

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evidence-based treatment: ask, advise, assess, assist, and arrange.¹⁴ Clinicians should ask patients about their interest and willingness to quit, and history of use of approved cessation products. If patients smoke cigarettes, they should be encouraged to seek cessation counseling, and use FDA-approved nicotine replacement therapies such as varenicline and bupropion. If patients have not been successful using (or refuse to use) FDA-approved cessation therapies and would

like to use e-cigarettes to try to help them quit, clinicians should advise patients of the lack of studies showing the effectiveness of e-cigarettes for cessation purposes, but encourage the attempt. The most important thing is for them to quit smoking traditional cigarettes as soon as possible. Finally, it is important to advise patients to set a quit-date for use of e-cigarettes to discourage prolonged use and possible negative effects of secondhand exposure to e-cigarette vapor.¹⁵

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