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The Allure of Juul and Other E-cigarettes

Dentists need to be proactive in addressing the oral and overall health effects of electronic cigarettes, especially among teenage patients

By Elizabeth Newman

When it comes to cigarette smoking in the United States, there is good news: Americans are smoking less. According to data from a recent survey by the Centers for Disease Control and Prevention (CDC): “Overall, cigarette smoking among U.S. adults (aged ≥ 18 years) declined from 20.9 percent in 2005 to 15.5 percent in 2016.”¹ While that news is encouraging, the rate at which electronic cigarettes have appeared in the marketplace — and are being purchased by teens and young adults — is alarming. The National Institute on Drug Abuse reports, “E-cigarettes are now the most commonly used form of tobacco among youth in the United States. Their easy availability, alluring advertisements, various e-liquid flavors and the belief that they’re safer than cigarettes have helped make them appealing to this age group.”²

Though use of e-cigarettes isn’t new, the oral and overall health effects are still not completely known. E-cigarette use also is easier for teens and young adults to conceal, making it difficult for parents, dentists and other healthcare providers to spot.

The Draw of Juul

One of the most popular e-cigarettes today — possibly due to its small form factor — is Juul. Even though Juul’s founders purport that they are trying to help current tobacco smokers cut back or stop smoking completely,³ teens are drawn to the Juul and begin an e-cigarette habit.

“Despite the manufacturer’s claims, Juul is ideally designed to attract young people,” said Scott Tomar, DMD, MPH, DrPH, professor and interim chair at the University of Florida College of Dentistry in Gainesville. “It incorporates a sleek, clean design, plugs into a USB port, and features an array of hip and fruity flavors, including creme brulee, mango and ‘cool cucumber.’ There are no bulky chargers or tanks, so it easily slides into your pocket, just like the ubiquitous iPhone.”

Kathleen Mullaney, DDS, FAGD, a general dentist in Alexandria, Virginia, agrees.

“The Juul is slick. And, because it looks like a USB flash drive and is small, it’s easy to conceal,” said Mullaney. “You can charge it on a laptop, so kids can take it into school, making it easy to hide from both teachers and parents.”

The Health Risks of E-cigarettes

There is no extensive research available on e-cigarettes due to their newness to the marketplace, so dentists and other health care providers aren’t entirely sure of their long-term effects.

One thing that researchers are certain of, however, is the addictive power of the nicotine contained in these products.

“The Juul is highly addictive due to its high nicotine content. One cartridge — which is about 200 puffs — has as much nicotine as a pack of cigarettes,” said Michael Firouzian, DDS, FAGD, of Columbus, Ohio. And the effects of nicotine on a developing brain can be severe.

“To me, one of the biggest concerns with products like Juul is that we already have pretty compelling evidence that nicotine exposure to the developing human brain produces lifelong alterations in its structure and function,” said Tomar. Nicotine exposure, especially for young people, is not nearly as innocuous as many people may assume.”

Mullaney agrees.

“The health risks, especially for kids and teens who have developing brains, present the most cause for concern,” she said. “Their brains will be changed, making them ‘nicotine hungry,’ and it’s very hard to shake that addiction.”

The National Institutes of Health’s (NIH) review of early research found that “e-cigarette use may serve as an introductory product for preteens and teens who then go on to use other tobacco products, including cigarettes, which are known to cause disease and premature death.”² The NIH noted that high school students who used e-cigarettes in the last month were “about seven times more likely to report that they smoked cigarettes when asked approximately six months later, as compared to students who said they didn’t use e-cigarettes. Notably, the reverse was not true — students who said they smoked cigarettes were no more likely to report use of e-cigarettes when asked approximately six months later.”²

And since vaping products contain nicotine, like real cigarettes, they carry similar risks for the adolescent brain and body. A 2016 report of the Surgeon General on e-cigarette use among youth and young adults explains the risks: “Compared with older adults, the brain of youth and young adults is more vulnerable to the negative consequences of nicotine exposure. The effects include addiction, priming for use of other addictive substances, reduced impulse control, deficits in attention and cognition and mood disorders.”⁴

While still somewhat unknown, early studies suggest the oral health effects of vaping are significant.

A 2016 study of the oral effects of e-cigarette use found that when non-smoker gum tissue was exposed to e-cigarette vapors, the burning vapors caused cells to release inflammatory proteins, which causes stress within cells, resulting in damage that can lead to oral diseases.⁵

The study also found that the flavorings in e-cigarettes impact the amount of damage caused in the gum tissue, citing menthol as

a flavor that can cause more damage.⁵ In addition, Mullaney says that dentists should look out for “dry mouth, coughing and extra phlegm in the throat. Because nicotine is a stimulant, we’re also seeing more patients who grind their teeth.”

While these initial studies are uncovering significant effects that dentists and other health care professionals can discuss with patients, it’s important to remember that, because this trend is relatively new, more studies are needed.

“One caveat that dentists and the public should always remember is that absence of evidence of a health effect is not at all equivalent to absence of an effect,” said Tomar. “We are trying to play catch-up with this epidemic of e-cigarette use, but we do not yet have the science.”

Talking with Teens and Parents

When it comes to talking to teen dental patients about vaping, dentists and parents should be proactive about warning of the dangers. Mullaney, who has teenage daughters of her own, advises, “It’s tricky because kids usually aren’t going to admit that they’re using e-cigarettes because they are underage, and they think we’re going to tell their parents. It’s best to get ahead of it and be proactive when having these conversations with patients. Ask teen patients, ‘Hey have you heard of Juuling?’ They may not say they have, but you can warn them about the consequences, especially the fact that the nicotine will cause long-term addiction.”

She suggests parents also stress the highly addictive nature of e-cigarettes to their teens and the fact that they contain nicotine and other carcinogens even though they don’t look like conventional cigarettes. According to the National Institute on Drug Abuse, when asked what they think is in e-cigarettes, 66 percent of teens responded “just flavoring,” almost 14 percent “don’t know,” 13 percent answered “nicotine,” almost 6 percent said “marijuana,” and 1 percent answered “other.”⁶

Mullaney encourages adults to be proactive: “Parents need to realize that these e-cigarette companies are marketing aggressively to kids — though the companies won’t admit that — so talk to them about it and ask them what they’re seeing.” ♦

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