

PUBLIC HEALTH

Understanding and addressing patients' use of tobacco

Larry Williams, DDS, MPH

To best understand the content of this column, let's define some terms that will be used. The tobacco products that are combustible (burned) include cigarettes, pipes, cigars, and hookahs. The tobacco products that are not combustible and not vaporized include fine-cut smokeless tobacco (dip), long-cut smokeless tobacco (chew), and finely ground smokeless tobacco (snus). The proper term for e-cigarettes, e-hookahs, e-pipes, or e-cigars is *electronic nicotine delivery systems* (ENDS).¹ To be clear, the US Food and Drug Administration (FDA) and the federal courts have both stated that ENDS are tobacco products.² A person who uses ENDS is called a *vaper*, and the cloud that is exhaled from ENDS is called the vapor. Some popular terms for ENDS are *vape pens* and *hookah pens*, and common brand names for these products are Blu (Imperial Brands), Njoy (Njoy, LLC), and Juul (Juul Labs).

Now let's look at some data:

- According to the US Centers for Disease Control and Prevention (CDC), in 2017, approximately 14% of US adults smoked, the lowest rate in many decades.³
- Among current ENDS users aged 18-24 years, 40.0% had never regularly smoked cigarettes.⁴
- In 2018, more than 3.6 million students in middle or high school had tried an e-cigarette in the past 30 days.⁴

You may think that the lower number of cigarette smokers is good news, but this is an illusion. In 2015, 29.8% of adult

ENDS users were former cigarette smokers, 58.8% were current smokers (using both), and 11.4% had never been regular cigarette smokers.⁴ Thus, there is no decrease in tobacco use; on the contrary, these numbers represent an explosion of tobacco use, especially among vulnerable "vaping" teens, who currently represent 1% of the population.

Types of tobacco products

To get a clear picture of the tobacco products that are out there, we need to review the products themselves. As already noted, those that are combustible include cigarettes, pipes, hookahs, and cigars. The typical pack of cigarettes contains 20 cigarettes. At one time, some cigarettes were referred to as *light* and *low tar*. The Federal Trade Commission banned these 2 terms because the claims were false advertising. The products that are neither combustible nor vaporized include dip, chew, and snus.

Here are some facts to consider about the dangers of various nonvaporized forms of tobacco:

- Smoking a hookah (water pipe) for 1 hour is the same as smoking several packs of cigarettes.⁵
- The use of dip (snuff) 8-10 times a day can introduce as much nicotine into the body as smoking 30-40 cigarettes.⁶
- Some premium cigars contain an amount of tobacco that is equal to an entire pack of cigarettes.⁶

Now let's look at the vaporized ENDS products. According to the CDC, ENDS come in many shapes and sizes; most

have a battery, heating element, and place to hold a liquid.¹ ENDS produce an aerosol by heating a liquid that usually contains nicotine, the addictive drug in cigarettes, cigars, and other tobacco products.⁷ The liquids also usually contain flavorings and other chemicals that help to create the aerosol.⁷ Users inhale this aerosol into their lungs. Bystanders can also breathe in this aerosol when the user exhales into the air.¹

Although some mistakenly believe ENDS to be a safe alternative to regular cigarettes, ENDS use raises some concerns of its own¹:

- A single pod of liquid nicotine for an ENDS product may be equal to the nicotine in an entire pack of cigarettes.⁸
- The exhaled vapor from the ENDS product contains chemicals such as formaldehyde, diacetyl, acrolein, and heavy metals from the battery.⁵

Oral effects

Let's look at some of the ways the various forms of tobacco affect the oral cavity:

- Recovery room stays are 20% longer for smokers than for nonsmokers.⁹
- Patients who smoked regularly before surgery had twice the risk of wound infections as nonsmokers.¹⁰
- Smoking retards wound healing, regardless of whether the wound is surgical or the result of trauma or burns.¹¹
- Smokeless tobacco causes increased gingival recession and decreases gingival blood flow.^{12,13}
- Electronic vaping products are now being tested, and some preliminary

data show that they cause gingival inflammation and the potential for delayed healing.¹⁴

- Studies show that certain ENDS products contain as much nicotine in 1 pod as a pack of cigarettes.⁸ Nicotine is a potent vasoconstrictor, which decreases the healing blood flow to the mouth as well as the body's response to disease and injury. This decrease in blood flow may mask gingival inflammation.

Systemic effects

Cancer, cardiovascular disease, and pulmonary disease are well-known systemic effects of smoked tobacco. To date, the systemic effects of vaping are largely unknown. However, here are some preliminary findings:

- Teenagers have reported experiencing burning in their mouths, which may be a result of irritation from vaping.¹⁵
- One study found that diacetyl was in 75% of flavored ENDS products. This chemical, along with acrolein, another chemical in ENDS liquids, has been shown to have the potential to cause severe respiratory disease ("popcorn lung").¹⁶
- In a recent study, individuals who used ENDS reported having seizures, which are potentially caused by an overdose of nicotine.¹⁷

What can dentists do?

Dentists need to ask patients about use of all forms of tobacco-related products, including ENDS. Unfortunately, most oral health questionnaires only ask patients if they smoke. This question is becoming obsolete as the level of smoking in the United States has dropped to its lowest level in decades. Cigarette smoking is being replaced by multiple forms of noncombustible tobacco products, such as ENDS. Patients should be asked about all forms of tobacco use, including smokeless tobacco (dip, chew) and vapes, vaporizers, vape pens, hookah pens, e-cigarettes, and e-pipes.

As dentists, we should attend continuing education programs to learn more about this topic. Many organizations, such as the Academy of General Dentistry, American Dental Association, and FDA, offer online information as well as in-person programs. Other sources of

Box. Talking points for addressing a patient's tobacco habit.

- Do you use any form of tobacco, including vaping?
- As your oral healthcare provider, I need to inform you that quitting tobacco use is the most important decision you can make for your overall health. It also will greatly improve your oral health.
- What is keeping you from quitting?
- What would help you decide to quit?
- Have you tried to quit before?
- What worked or didn't work for you?
- Would you like me to provide a list of resources to help you with your decision?

information for dentists include the CDC and American Lung Association.^{18,19}

How do we address tobacco use with our patients? Here are some questions you might ask yourself:

- As a dentist, do I address tobacco use or not?
- If I address tobacco use, will I treat or refer?
- If I decide not to address tobacco use, what can happen?
- Do I need special training to help someone quit?
- Is the patient receptive to my cessation message?

If you decide to ask patients about tobacco use, what can you say? Some starting points for conversation are provided in the Box.

State quitlines usually are able to offer help for patients. Many states have a referral program that allows you to fax a tobacco use cessation referral for your patient to the quitline. In some cases, the medications (such as nicotine patch and gum) are free, and experts provide proactive services. You also may be able to refer patients to the local health department or community-based cessation programs.

Many organizations, including the Academy of General Dentistry (agd.org), American Dental Association (ada.org), and University of Wisconsin Center for Tobacco Research and Intervention (ctri.wisc.edu), offer great information about tobacco use cessation that you can share with your patients. In addition, the US Department of Veterans Affairs (VA) and the Department of Defense offer tobacco use cessation support to veterans and current members of the military (Quit Vet: 1-855-784-8838; YouCanQuit2: ycq2.org). In fact, the VA has just announced that VA healthcare facilities will ban all forms

of tobacco, including e-cigarettes and vaping, from their grounds by October 2019, noting that "... there is growing evidence that smoking and exposure to secondhand and thirdhand smoke creates significant medical risks and risks to safety and direct patient care that are inconsistent with medical requirements and limitations."²⁰

Conclusion

Society's understanding of and attitudes toward tobacco use are changing, and as healthcare professionals we can encourage that change. The bottom line is that we need to ask our patients about tobacco use and be ready to answer any questions they may have. We also need to be prepared to explain that tobacco use is detrimental to oral health. A big unknown pertains to the use of vaping and ENDS. Dentists need to monitor news sources and science postings for information regarding this new form of tobacco use.

Author information

Dr Williams is an associate professor, Midwestern University College of Dental Medicine-Illinois, Downers Grove.

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