E-cigarette: Unstandardized, under-regulated, understudied – safety unknown

BY MEAGAN RAEK

The recent outbreak of lung injury and death associated with e-cigarettes and vaping has led to a renewed scrutiny of electronic nicotine delivery systems (ENDS). While the Centers for Disease Control and Prevention (CDC) and the U.S. Food and Drug Administration (FDA) are leading an investigation into e-cigarette, or vaping, associated lung injury (EVALI), available data on the short- and long-term health effects of ENDS are limited, says Ernest Hawk, M.D., division head and vice president of Cancer Prevention & Population Sciences.

Hawk recently reviewed the research to-date in Cancer Research. Here, he shares the current state of ENDS and what the public should know about the dangers of e-cigarettes and vaping.

Q: What's the bottom-line, take-home message on e-cigarettes and vaping?

A: E-cigarettes, or ENDS, are unstandardized, under-regulated and understudied. Their long-term health and cancer risks are currently unknown. Based on the current evidence, e-cigarettes should not be considered a safe alternative to traditional tobacco products, including combustible cigarettes, and should not be considered an effective smoking cessation method. E-cigarettes have the potential to addict a new generation of non-smokers and should not be used by anyone who doesn't currently smoke.

Q: Why do you conclude that e-cigarettes aren't actually safer than traditional tobacco products?

A: E-cigarettes are an extremely heterogeneous group of products. There are several different types and brands of e-cigarette devices and e-liquids currently on the market that differ in important ways that may impact the user. Because they are largely unregulated, and because they have evolved so rapidly, there's no way to know exactly what is in each of these products or if the product labels accurately reflect contents. However, we do know that many e-cigarettes contain many of the same toxic substances, including known carcinogens, that are found in combusted tobacco products. We also know that e-liquids commonly contain propylene glycol and vegetable glycerin, substances that are typically used in food additives and considered safe when ingested, or eaten. However, we don't know if these substances are safe to inhale and breathe into the lungs in either the short- or long-term.

The 1,604 EVALI cases and 34 deaths (as of Oct. 22, 2019) highlight the fact that we still don't fully understand the health consequences of the many, varied e-cigarettes and vaping devices that are currently marketed.

Q: As a cancer center, why is MD Anderson concerned about e-cigarettes and vaping?

A: Tobacco use accounts for up to 30% of all cancer-related deaths and 20% of all deaths in the United States. While tobacco use has declined in the U.S., e-cigarette use has increased at alarming rates, particularly among young people. More than 3.6 million middle and high school students used e-cigarettes in 2018 – an increase of 1.5 million from the year before. E-cigarettes are considered a tobacco product because they contain nicotine, an addictive derivative of tobacco. Some studies suggest that young people who use e-cigarettes may go on to use traditional tobacco products, threatening 50 years of progress in tobacco control and cancer prevention. And aside from concerns that e-cigarettes will lead to traditional tobacco use, early data suggest that e-cigarettes may actually pose their own health concerns, and possibly even cancer risks.

Q: What research is needed to answer some of the current unknowns about e-cigarettes and vaping?

A: E-cigarettes are difficult to study because they're largely unregulated. Standardizing the manufacturing and labeling of the products will help future research into the short- and long-term health consequences of their use. Defined research needs to be done on each product or class of products to determine their short- and long-term health consequences. It is astonishing that we know so little about these products that have been marketed so widely, but that's the current situation. Although often promoted as cessation aids, there is currently little to no evidence to suggest that e-cigarettes can help smokers quit tobacco. MD Anderson is currently studying smoking behavior and e-cigarettes to determine if current smokers can successfully switch to e-cigarettes or if they're more likely to become dual users who continue to use both products.
Q: What advice do you have for people looking for a proven method to quit smoking or vaping?

A: E-cigarettes are currently not approved by the FDA for smoking cessation. The best way to quit smoking is by engaging in an accredited tobacco cessation program that includes a combination of FDA-approved medications, including nicotine replacement therapy, and cessation counseling. Our experts have shown a very high quit rate of nearly 50% using these methods in MD Anderson’s Tobacco Treatment Program. Talk to a health care provider to create a quit plan that’s right for you.

MD Anderson has several studies available for those who want to quit. Anyone can call the National Quitline toll-free at 1-800-QUIT-NOW to be connected to local resources for developing a quit plan.

I know of no established, evidence-based program available to assist in cessation for individuals who vape, although several of the foundational principles applied in tobacco cessation (e.g., motivational interviewing, addiction counseling) may very well help those who vape to quit. At the moment, this is a very important and active area of clinical investigation.

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