

Jan K. Carney: The myths and facts about e-cigarettes Mar. 7, 2016

Editor's note: This commentary is by Jan K. Carney, MD, MPH, who is professor of medicine and associate dean for public health at the University of Vermont College of Medicine. She is also on the board of directors of the American Heart Association of Vermont.

The Vermont Legislature is currently considering H.171, An Act Relating to Restriction on the Use of Electronic Cigarettes. Many Vermonters are wondering why a bill like this is necessary and believe that e-cigarettes help people quit smoking and only release harmless water vapor. Unfortunately, myths about electronic cigarettes like these are widespread, unsupported by science, and distract us from the public health impact of skyrocketing use in children and adults.

Here are the facts: E-cigarettes can look like cigarettes, cigars or pipes. They use batteries to heat and deliver vaporized nicotine that has flavoring (including bubble gum, cherry and cotton candy) and other chemicals. Using e-cigarettes is called "vaping," not smoking, although, from a distance, it's hard to tell the difference. E-cigarettes are perceived as "safer" than cigarettes, but we don't have enough evidence to support that claim.

Nicotine is highly addictive. According to the CDC's Office on Smoking and Health, U.S. adolescent e-cigarette use has tripled in a single year, and almost 2.5 million middle and high school students used them in the past month. Recent research shows e-cigarette use in middle and high school students is associated with intention to smoke conventional cigarettes, and a recent study in JAMA showed that high school students who used e-cigs were actually more likely to use other tobacco products in the next year. In Vermont, 30 percent of our high school students have already tried e-cigarettes.

By supporting H.171, the Vermont Legislature can help continue Vermont's commitment to strong clean indoor air laws, protect children's health, support adults' decisions to quit smoking, and help preserve Vermont's years of progress in tobacco prevention.

Adults believe e-cigarettes will help them quit smoking. Scientific studies are inconclusive, and claims that e-cigarettes are effective in cessation have been questioned by experts. E-cigarettes are not FDA-approved quit smoking aids. Even more worrisome is that most adult e-cigarette users (about 77 percent) continue to practice something called "dual use" – using e-cigarettes AND smoking cigarettes – this means that cigarette-related health risks remain. Smoking just one to four cigarettes per day doubles the risk of dying from heart disease, and even reducing cigarette smoking by half still means a much higher risk for early death.

Vapor from e-cigarettes is not harmless water vapor. An American Heart Association scientific review raises many questions; studies show e-cigarette vapor may contain nicotine, heavy metals and ultrafine particles, lung irritants, and potential cancer-causing substances: formaldehyde, acetaldehyde, acrolein, and polycyclic aromatic hydrocarbons. Recent reviews further highlight that what we don't know about e-cigarettes may hurt us. And, in 2015, the NEJM reported the "Hidden formaldehyde in e-cigarette aerosols." Propylene glycol (used to create the vapor in "vaping") when heated, produced formaldehyde-releasing agents. Formaldehyde is a known carcinogen, this study suggesting cancer risks may actually be far higher for long-term vaping than

smoking.

H.171 takes steps to protect our health. The bill will reduce exposure to secondhand e-cigarette vapor and associated nicotine, fine particles, irritants and carcinogens in indoor spaces. It helps keep highly-addictive nicotine-laden products out of our children's hands. The bill preserves our policies that promote not smoking in public places, schools, and workplaces and are highly effective in reducing exposure to secondhand smoke (or vapor) and improving health by promoting cessation. UVM's tobacco-free policy includes e-cigarettes, as we learned that 25 percent of freshman undergraduates used e-cigarettes, a rate nearly three times higher than upperclassmen. Despite perceptions and anecdotes, e-cigarettes are not FDA approved as safe and effective for smoking cessation. This bill may actually help dual users to quit smoking altogether, dramatically reducing their health risks.

News from Public Health England in 2015 claimed that "E-cigarettes were 95% less harmful than tobacco," yet, no scientific studies were used or mentioned. Even the study authors state that "a limitation of this study is the lack of hard evidence for the harms of most products on most of the criteria." A Scientific American author calls widespread e-cigarette promotion a "smoke screen" and aptly concludes e-cigarette safety is "far hazier." Scientists and public health experts agree, including CDC and the American Heart Association.

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