FRONTLINE CANCER: The medical truth about e-cigs and hookahs
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The number of Americans who puff cigarettes is steadily shrinking, from a high of 45 percent in the mid-1950s to just 18 percent of adults in 2012. It's a big reason why the overall cancer mortality rate is also in decline. That's the good news. The bad news is the rising popularity of two alternatives — electronic cigarettes and hookahs — both of which may be just as bad for users' health, and ultimately lead to smoking tobacco cigarettes.

—E-cigarettes are battery-powered devices that spritz nicotine-infused vapor into the mouth. Because they don't produce a toxic cloud of secondhand tobacco smoke, promoters claim they're safe, but the assertion is simply not true. Though not as polluting as conventional cigarettes, e-cigarette users, known colloquially as "vapers," exhale a mixture of volatile organic compounds, heavy metals, ultrafine particles and aerosolized nicotine. Research has shown that people sharing the same air space with vapers have measurable levels of nicotine in their bodies.

Hookahs pull burning tobacco smoke through a basin of water, often infusing it with seemingly benign flavors like strawberries, chocolate mint and Pina Colada. But even after it has passed through water, the smoke from a hookah contains high levels of carbon monoxide, metals and carcinogenic chemicals.

Hookahs deliver the same addictive nicotine dose as cigarettes — as well as the same carcinogenic toxicants from burning tobacco and other additives. Thus they can also be expected to increase the risk for the same diseases that afflict traditional smokers: cancer of the lungs, mouth, stomach and esophagus, reduced lung function and decreased fertility. Indeed, hookah smokers might be at greater risk. A typical one-hour hookah smoking session, which often occurs in a social setting, involves 200 puffs while the average cigarette lasts only 20 puffs. The volume of hookah smoke inhaled can be 180 times greater.

The marketing of e-cigarettes and hookahs is massive and alarming. E-cigarette sales in 2013 surpassed $1 billion. Advertising techniques used by the tobacco industry in the 1960s and '70s (before significant regulation) are being employed again, primarily targeting younger users.

Data from the 2012 National Youth Tobacco Survey shows e-cigarette use has risen among middle school students from 0.6 percent in 2011 to 1.1 percent last year. That might not seem like a particularly troublesome number, but these are kids between the ages of 10 and 14. Among high school students, e-cigarette consumption almost doubled, from 1.5 percent in 2011 to 2.8 percent in 2012. Hookah use has risen from 4.1 percent to 5.4 percent over the same time period.

All of this is in addition to the thousands of children who try regular tobacco. According to the American Lung Association, almost 3,900 children under the age of 18 experiment each day with their first cigarette. More than 950 will become daily smokers. Half will ultimately die from their habit.

Though public indoor cigarette smoking is banned throughout California, hookah use is permitted in designated lounges, which Wael Al-Delaimy, MD, PhD, professor and chief of the Division of Global Health in the UC San Diego Department of Family and Preventive Medicine, says likely furthers the false impression that hookah is a safer alternative to cigarettes.

The marketing machine is even bigger for e-cigarettes, according to John P. Pierce, PhD, professor in Department of Family and Preventive Medicine and director for population sciences at UC San Diego

Moores Cancer Center. "There is a huge push from the industry to have e-cigarettes exempted from the clean indoor air rules so that people can smoke them inside, including in schools," says Pierce.
Both Al-Delaimy and Pierce say that would be a mistake. "The argument is that e-cigarettes do not contain combusted tobacco product, which has hundreds of known carcinogens, but analyses of e-cigarettes show they do contain carcinogens, albeit less than cigarettes," Pierce said. "There is no known safe level of these carcinogens."

Rather than ease or erase constraints upon the public use of hookahs and e-cigarettes, many researchers and public health officials have urged the opposite. Al-Delaimy, who has extensively studied rising hookah use among California youth, thinks policymakers should consider banning hookah lounges, "thus eliminating the implication that hookah smoking is safer and more socially acceptable than cigarette smoking."

Pierce argues that e-cigarettes should be regulated. "Without clear evidence that those exposed to the exhalation from these products do not have an increased cancer risk and that young people exposed do not become more likely to become cigarette smokers, e-cigarettes should not be exempted from the clean indoor air rules."

In a letter to the U.S. Food and Drug Administration late last year, 40 Attorneys General urged the agency to issue proposed regulations addressing advertising, ingredients and sales of e-cigarettes to minors, something the FDA has long promised to do.

So far, that hasn't happened. In the meantime, cities like Carlsbad and Vista have approved their own bans of e-cigarettes to minors and others like the San Diego Board of Supervisors are considering similar actions.