



Potential Consequences of E-Cigarette Use: Is Youth Health Going Up in Smoke?

Summary

A new analysis of survey data from nearly 130,000 middle-school and high-school students raises serious questions about the widespread belief that e-cigarettes help reduce the number of teenagers who smoke tobacco.

Two economists at CNA, Elizabeth Clelan and Justin Ladner, compared National Youth Tobacco Survey data from the years before the arrival of e-cigarettes to surveys from more recent years. E-cigarette users were two-and-a-half times more likely to be smoking or chewing tobacco than the researchers' statistical model had predicted, raising the possibility that e-cigarettes are a gateway to smoking for young people.

Clelan says that the results were so surprising, "we thought at first that they couldn't possibly be right." But further analysis by the CNA researchers found that not only were vapers more likely to smoke than expected, they also smoked a significantly greater number of cigarettes per day than fellow smokers who had never tried e-cigarettes.

The economists first looked at smoking habits in the years before e-cigarettes were introduced, in order to estimate the probability that a given adolescent would smoke based on his or her grade, sex, ethnic group and whether family members smoked. They then compared these predictions to actual tobacco use by students since e-cigarettes burst onto the scene.

So, for example, they could predict that a 17-year-old white girl from a household of non-smokers had about a 13 percent chance of becoming a cigarette smoker. When they looked at that group of girls in surveys since 2011, among those girls who had never tried vaping, only 7 percent had smoked tobacco in the past 30 days. That was a mild surprise, but not shocking, since teen smoking was on an accelerating downward trend until very recently.

When they processed the survey data for those 17-year-old girls who had vaped, however, a stunning 43 percent were tobacco smokers. "If e-cigarettes are a substitute for smoking, we would expect the exact opposite," says Ladner. "We would expect to see even more of the vapers *not* smoking."

The CNA report aggregates the predictions and results for every sub-group—age, sex, ethnicity, etc.—to reach the conclusion that there is a very strong correlation between vaping and tobacco use among all teens. The very low rate of cigarette use among those who have never tried vaping raises the possibility that in the absence of e-cigarettes, smoking by schoolchildren might be falling more dramatically. In fact, last year marked the first time in a decade that cigarette smoking among high-school students did not decline, according to the National Youth Tobacco Survey.

"One potential implication is that e-cigarettes could be a gateway drug for the use of tobacco," says Ladner, though this evidence alone cannot prove it. Given that two million high-school students and another 450,000 middle-school pupils are now vaping, the CNA economists say that their results highlight the urgent need for more research on the question of whether e-cigarettes are priming a new generation of cigarette addicts.