

## OBSERVATIONS



## YANKEE DOODLING

## Teenagers, smoking, and vaping

Does it matter what young people smoke?

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Front page headlines across the United States on 17 April screamed the news that electronic cigarettes were becoming the smoke of choice among teenagers. In 2014, for the first time, more young people “vaped” e-cigarettes than smoked conventional tobacco cigarettes.<sup>1</sup>

Is this true? Is it news? If so, is it bad news or good?

The data come from a reliable source, the annual US National Youth Tobacco Survey, which is administered in schools to around 20 000 middle and high school students every year and has a very respectable response rate of 70% to 75%. Cluster sampling and weighting are used to obtain a nationally representative sample of students who attend public and private schools in grades 6-12. The only hitch is that they changed the way they asked about e-cigarettes in the 2014 survey (more about this below).

As reported by analysts from the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA), the data look dramatic indeed.<sup>2</sup> The key survey question asked about use of tobacco products and e-cigarettes in the previous 30 days. As the television news shows and the papers reported, there were significant increases in e-cigarette use among teenagers, accompanied by significant decreases in cigarette use. In 2014 13.4% of high school students reported using e-cigarettes in the previous 30 days, whereas 9.2% said that they used tobacco cigarettes. E-cigarettes have seemingly come out of nowhere, rising in use from 1.5% in 2011 to 13.4% in 2014. In the same period use of tobacco cigarettes declined

from 15.8% to 9.2%. Data for the younger middle school students moved in the same directions but with lower percentages. In total, at least 2.45 million US teenagers used e-cigarettes last year.

### E-cigarette use undercounted in past

The increased use of e-cigarettes in 2014 is, however, likely not as dramatic as it seems. Though there is no reason to doubt the 2014 e-cigarette findings, the tripling of use since just the previous year that was breathlessly reported by the media may be an artifact of the way the survey was administered. As conceded in a footnote in the report,<sup>2</sup> for the first time in 2014 the survey had a question specifically about e-cigarette use: “During the past 30 days, on how many days did you use electronic cigarettes or e-cigarettes such as Blu, 21st Century Smoke, or NJOY?” In previous years it just asked which tobacco products the teenager had used. This may have resulted in an undercount of e-cigarette users, who (correctly) may not have considered e-cigarettes to be a tobacco product and so answered no.

The great attention given to and concern about youth smoking is not misplaced, however. Given that tobacco use is the leading cause of death and that getting people to stop smoking is difficult, logic alone demands that we make every effort to keep young people from starting smoking. More persuasive than logic, though, is the hard fact that almost no one starts regular tobacco smoking as an adult. Surveys of adult smokers have found that “virtually no initiation of cigarette smoking (<1.5%) and few transitions to daily smoking (<4.3%) actually occurred in adulthood.”<sup>3</sup> If we can get kids through childhood and into their 20s without smoking tobacco, it is overwhelmingly likely that they won’t become smokers.

So, the great news in these 2014 data is that the cigarette smoking rate is in rapid decline among US teenagers, from around 16% to almost 9% in just three years. Hardly any of the public health experts interviewed about last week’s study emphasized this, however. Instead, they all focused on the jump in e-cigarette use: “Shocking,” said CDC’s director, Tom Frieden. “It’s a really bad thing, and it is subjecting another generation of our children to an addictive substance.”<sup>4</sup>

## Lack of research and regulation

Is it good news or bad news that at least one of the major reasons for the decrease in tobacco smoking is the rising use of e-cigarettes? The honest answer is that we really don't know. Clearly e-cigarettes are likely to be less dangerous than tobacco cigarettes, but their main constituent, nicotine, is addictive and may have deleterious effects on developing brains. The flavorings and other junk that go into e-cigarettes, while not as toxic as tobacco, may also not be benign.<sup>5</sup> We are just beginning to do research on e-cigarettes, and a lot more needs to be known.

The lack of regulations on e-cigarettes is what is shocking, not that 10% or 15% of teenagers are experimenting with them. Some US states have outlawed e-cigarette purchases by anyone under 18, but there are no federal rules as yet. Manufacturing is unregulated. Advertising on television, the web, and billboards is unrestricted. They are freely available by mail order by simply ticking a box stating you are an adult. More than a year ago the FDA began a regulatory process for e-cigarettes with great fanfare, but nothing has emerged in the way of rules on sales, advertising, or manufacturing.

The good news is that kids are smoking tobacco less. The bad news is that we have a long way to go before we understand the

effects of e-cigarettes and (apparently) before we even begin to regulate their manufacture and use. That is the real scandal.

Competing interests: See [www.bmj.com/about-bmj/editorial-staff/douglas-kamerow](http://www.bmj.com/about-bmj/editorial-staff/douglas-kamerow).

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- 2 Arrazola RA, Singh T, Corey CG, et al. Tobacco use among middle and high school students—United States, 2011-2014. *MMWR Morb Mortal Wkly Rep* 2015;64:381-5.
- 3 US Department of Health and Human Services. Preventing tobacco use among youth and young adults: a report of the Surgeon General. US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2012:708.
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