

# Physician advice to patients on e-cigarettes varies, reveals knowledge gaps, study shows

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If you ask two different doctors about e-cigarettes, you might get two different answers.

Whether you want to know about the safety of the devices—which create an inhalable aerosol from heated liquid nicotine and flavoring—or how to use them to quit smoking tobacco cigarettes, physicians range greatly in their responses to [patients](#).

That's one finding from a new study by researchers at the Stanford University School of Medicine who analyzed more than 500 online interactions between patients and doctors discussing e-cigarettes. The study will be published online Aug. 26 in the *American Journal of Preventive Medicine*.

"Researchers have previously surveyed doctors about their knowledge and attitudes concerning e-cigarettes. In this study, we were curious about actual provider behavior—the advice doctors gave in real patient interactions," said the study's senior author, Judith Prochaska, PhD, MPH, associate professor of medicine at the Stanford Prevention Research Center. "Within a novel online medical forum, we were able to observe the exact advice doctors were giving patients and see how that advice varied by topic and clinician."

The new observations have already helped inform the development of an educational portal, by Prochaska and colleagues, which aims to teach doctors what's known about the health effects of e-cigarettes and how to

communicate the benefits and risks of the devices to patients. Available online through the Stanford Center for Continuing Medical Education, the interactive program provides clinicians with continuing medical education credits.

## **A growing trend**

While traditional cigarettes deliver nicotine to a person's body when they inhale burning tobacco, e-cigarettes work by heating up liquid until it vaporizes. E-cigarette use among both adults and teenagers has risen quickly in the decade since coming on the market. According to the latest estimates from the U.S. Centers for Disease Control and Prevention, 3.7 percent of U.S. adults regularly use e-cigarettes. The devices are often promoted as safer than combustible cigarettes, and are also suggested as a smoking cessation aid, yet there's little long-term evidence to support either assertion.

"There's been rapid growth in the promotion and use of the products without an evidence base in terms of their safety and efficacy for tobacco cessation," Prochaska said.

Because e-cigarettes are so new, and so few studies have been conducted on them, physicians have little to rely upon when patients ask about the devices. For this reason, Prochaska and her colleagues wondered what doctors typically said, and whether they conveyed that uncertainty.

"The big question for me, working in tobacco control, is what's the best way for physicians to counsel their patients about electronic cigarettes," said postdoctoral scholar Cati Brown-Johnson, PhD, a co-lead author of the new paper.

## **A new source of data**

Prochaska and Brown-Johnson teamed up with researchers at HealthTap, an online health company that allows users to submit medical questions, which are answered by any of the 72,000 licensed physicians that work with the site.

"Outside of sitting and watching years of live interactions between patients and providers, this was really the best way for us to get data," said Brown-Johnson.

When the scientists searched through all the anonymous questions posted on the site from July 2011 through June 2015, they identified almost 10,000 that related to tobacco or smoking. Of those, about 500 mentioned e-cigarettes—and the rate of e-cigarette-related questions increased over the four-year time period.

The questions ranged from the straightforward, like "Are e-cigs unsafe and can they become addictive?" to more specific concerns, including "Does nicotine/e-cigs cause hair loss?" and "Can vapor cigarettes affect asthma?" Overall, about 34 percent of the questions related to specific side effects and harms of e-cigarettes, 27 percent to general safety and 19 percent to use of e-cigarettes as quitting aids.

For each question and answer, the researchers analyzed what themes were mentioned by patients and physicians, whether the answers were negative or positive about e-cigarettes in tone and message, and whether patients clicked a button to thank the provider for their answer.

## **Mixed messages**

The most frequent themes brought up by physicians matched the most frequent concerns of patients: specific side effects and general safety. But doctors also often brought up topics not mentioned by patients, including the need for more research on e-cigarettes and the relative

safety of e-cigarettes compared with combusted tobacco. In addition, clinicians tended to mention nicotine more often than patients, often expressing specific concern about nicotine addiction.

And when it came to the overall tone of the physicians' answers, there was a range: 47 percent of answers were deemed by the researchers as being negative regarding e-cigarettes—for example, focusing on risks of the devices and discouraging patients from using them. Another 20 percent were positive—for example, encouraging the use of e-cigarettes as smoking cessation aids.

When asked specifically about quitting smoking, 54 percent of doctors mentioned e-cigarettes as a potential tool.

"The existing research, however, does not indicate that e-cigarettes help people quit combustible cigarettes," Prochaska said. "This is an area in need of greater study."

## **Educating doctors**

When the researchers looked at how often patients thanked providers for their answers, they also spotted a trend: Most thanks were directed at doctors who had given a positive message about e-cigarettes.

"That finding is really interesting in thinking about how physicians might best connect with their patients," said Brown-Johnson. "Doctors might consider conveying their information about e-cigarettes in a non-judgmental way, even when conveying the risks," she said.

The study also suggested other ways that scientists who research vaping and smoking might help doctors better communicate with their patients. "It showed us the need for provider education on e-cigarettes so they are aware of the limitations of what's known," said Prochaska. Future

studies, they said, could inform how [doctors](#) may tailor messages on e-cigarettes to different types of patients.

Andrea Burbank, MD, the other co-lead author and a former Stanford Health4All fellow, said the research "is an example of evidence-based medicine in the information age. With this data we were able to rapidly prioritize real-world concerns about [e-cigarettes](#) for policymakers and researchers."

Provided by Stanford University Medical Center

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