

Less than one percent of millions of Google e-cigarette searches focused on quitting smoking

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Smoking harms nearly every organ in the body and causes many diseases. Credit: CDC/Debra Cartagena

Electronic cigarettes have significantly increased in popularity over the past decade, leaving the public health community to play catch up in terms of trying to understand the motivations and habits of e-cigarette users. A study of Google search trends led by researchers from the

University of North Carolina Lineberger Comprehensive Cancer Center and San Diego State University as part of the [Internet Tobacco Vendors Study](#) shows a significant jump in the popularity of the words "vape" and "vaping," and a decline in searches related to vaping health and smoking cessation, according to a new report published in the *American Journal of Preventive Medicine*.

"The e-cigarette industry, the media, and the vaping community have promoted the notion that e-cigarettes are an effective device for quitting smoking, yet what we're seeing is that there are very few people searching for information about that," said the study's senior author Rebecca S. Williams, MHS, PhD, researcher at the UNC Lineberger Comprehensive Cancer Center and Center for Health Promotion and Disease Prevention. "They are more commonly searching for terms like 'buy,' 'shop,' or 'sale.'"

In an attempt to better understand the rapidly changing landscape surrounding e-cigarette use, investigators analyzed Google searches related to electronic nicotine delivery systems (ENDS) from 2009 to 2014. The data revealed that the number of ENDS-related searches is rapidly increasing with 8,498,000 searches in 2014 alone, up from only 1,545,000 in 2010. Vaping and vaping-centric terms are also starting to overtake e-cigarette as the popular way to describe ENDS. While a growing number of searches pertained to purchasing, less than one percent of searches in 2013 and 2014 related to quitting smoking a traditional combustible cigarette. Only three percent of all ENDS searches in 2013 and two percent in 2014 included terms searching for health information (e.g., "e-cigarette risks" or "is vaping healthy").

"ENDS are the first tobacco product born in the online age," explained investigator John W. Ayers, PhD, MA, Professor, San Diego State University Graduate School of Public Health. "Examining the content of searches can reveal the searcher's thoughts and continued analysis of

Google search trends may fill some knowledge gaps and outline agendas for follow-up survey-based surveillance."

Researchers broke the data down by type of search vocabulary used and geographic location. They also looked for strings of search terms that would provide insights into the searcher's agenda, like "buy e-cigs" might infer that the person planned on buying an e-cigarette.

Although at the beginning of the study period in 2009, ENDS searches were predominantly concentrated in states like Florida, Nevada, and Texas, by the end of the study in 2014, searches were more uniformly spread across the country; however, ENDS searches were significantly more common in Midwestern and Western states than on the Eastern seaboard. Also, the research team found that coastal states were much more likely to refer to vaping terms during their searches as opposed to e-cigarette terms. For example, investigators found that in California, 72 percent of all ENDS searches included vaping terms.

Analyzing Google searches provides unique insights into the thoughts of ENDS users because all of the data is organic and only influenced by the searchers' wants and their questions surrounding vaping, which is why a decline in the number of searches related to ENDS as a cessation option or queries about the safety of vaping is particularly noteworthy.

"Individuals in the U.S. often endorse ENDS as smoking-cessation aids, and some surveys suggest that many believe using ENDS will help them quit combustible cigarettes. However, only a small and declining percentage of Google searchers for ENDS included terms indicative of cessation," said Dr. Williams. "The context of this discrepancy is critical. When primed by survey questions, individuals appear to link ENDS with cessation, but in the privacy of their own home (when no investigator is providing options), it appears that searches for ENDS and cessation are infrequent."

While researchers are still trying to fully explore and understand vaping trends, one thing is certain: big data like the data for this study culled from Google searches may hold an important key to formulating public health policy going forward. "Tobacco control has historically lagged behind online tobacco markets, leaving gaps in surveillance," concluded Dr. Williams. "Nowhere is this clearer than with the rise of ENDS. ENDS have become popular during a period without strong surveillance and a slowed [public health](#) reaction. Innovative methods like search query surveillance can improve the timeliness of tobacco control surveillance, especially around ENDS."

More information: "Revisiting the Rise of Electronic Nicotine Delivery Systems Using Search Query Surveillance," by John W. Ayers, PhD, MA, Benjamin M. Althouse, PhD, ScM, Jon-Patrick Allem, PhD, MA, Eric C. Leas, MPH, Mark Dredze, PhD, Rebecca Williams, PhD, MHS. It is published online in the *American Journal of Preventive Medicine*, ahead of Volume 50, Issue 6 (June 2016)

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