

Balancing the benefits and risks of electronic cigarettes

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What should physicians say to their patients who ask them about the safety of electronic cigarettes (e-cigarettes) and whether the devices can help them quit smoking? Massachusetts General Hospital (MGH) physician Nancy Rigotti, MD, outlines what is and is not known about the risks and benefits of e-cigarettes in a commentary published in the February 13 issue of *Annals of Internal Medicine*.

A member of the National Academy of Sciences, Engineering and Medicine (NASEM) committee that recently issued the report, "[Public Health Consequences of E-Cigarettes](#)," Rigotti writes that while, "E-cigarettes have the potential for enormous benefit if they help [smokers](#) quit... This benefit must be balanced against potential harm if e-cigarettes entice youths who would not otherwise have become cigarette smokers to try e-cigarettes, become addicted to nicotine and then switch to combustible cigarettes."

The NASEM committee was convened to evaluate all available evidence on the [health](#) effects of e-cigarettes and make recommendations for future

research. Its primary finding was that using e-cigarettes is less hazardous than continuing to smoke combustible cigarettes. This is because e-cigarettes do not burn tobacco, and the health hazards of cigarettes are largely due to the chemicals produced when tobacco is burned. While e-cigarettes do emit some potentially toxic chemicals, they are less hazardous and at lower levels than what are emitted by combustible cigarettes. Completely switching to from cigarettes to e-cigarettes is likely to reduce smoking-related [health hazards](#), but there is much less evidence of benefit for [e-cigarette](#) users who continue to smoke cigarettes, .

While the NASEM committee found no evidence that the devices increase risks of cardiovascular or pulmonary disease, cancer or other adverse outcomes, the novelty of e-cigarettes means that the kinds of long-term, epidemiologic studies required to establish such risks have not yet been possible. "However, lack of evidence does not equal evidence of no risk," Rigotti writes, reiterating the committee's call for long-term observational studies.

Determining the public health impact of e-cigarettes will depend on the balance of three factors, she notes - the ability to help current smokers quit, the potential to increase adolescents' use of combustible cigarettes and any inherent toxicity of e-cigarettes themselves. The committee did find that e-cigarettes may increase the likelihood that never-smoking teens would try combustible cigarettes, but whether they would become established smokers is not yet clear. Evidence supporting e-cigarettes as a quit-smoking aid is even more limited but promising. Overall, the committee's model for estimating the net effect of e-cigarettes on lives saved or lost in the U.S. over the next 50 years projected that the devices would likely save lives.

The report purposely offered no explicit advice to

physicians or other health professionals, but Rigotti points out that its findings can help guide their discussions with smokers. She writes, "I tell patients that using e-cigarettes is less harmful than continuing to smoke cigarettes; but because e-cigarettes are so new, I caution them that many questions about their long-term safety remain unanswered." Because of questions about safety, she recommends that smokers trying to quit use established, FDA-approved smoking cessation medications aids. For those who want to try e-cigarettes, she advises switching completely from cigarettes to e-cigarettes and eventually aiming stop the e-cigarettes too.

Director of the MGH Tobacco Research and Treatment Center and a professor of Medicine at Harvard Medical School, Rigotti concludes, "Overall, the message I aim to convey is that I will continue to support and assist patients on their journey to becoming nonsmokers."

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