Electronic Cigarettes for Smoking Cessation — Have We Reached a Tipping Point?

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After more than a decade on the market as consumer products in the United States, electronic nicotine-delivery systems — or e-cigarettes — remain highly controversial in medical and public health communities.[1] These battery-operated devices allow users to inhale ("vape") a nicotine aerosol, which sustains the nicotine dependence that keeps people smoking but avoids exposing the smoker to the many toxic chemicals that are generated when a cigarette burns tobacco.[2,3] The products of tobacco combustion account for the bulk of tobacco-related diseases that make cigarette smoking the leading preventable cause of death worldwide. Nicotine exposure alone has far fewer risks, making e-cigarettes potentially valuable harm-reduction tools for adults who smoke.

The available evidence indicates that switching completely from smoking combustible cigarettes to vaping nicotine e-cigarettes substantially reduces a person's exposure to tobacco toxins, reduces respiratory symptoms, and reverses smoking-related physiological changes.[2,3] These results will probably translate into future declines in the risk of tobacco-related diseases, although longer follow-up may reveal other health concerns. In the broader context of the net population impact of e-cigarettes, the benefits noted above must be balanced against the risks resulting from the use of e-cigarettes by nonsmoking youth.[1,2] Policies that have been proposed to maximize the population benefits of e-cigarettes are vigorously debated. This debate often overshadows the evidence that e-cigarettes can be used as smoking-cessation tools that might help the 28 million U.S. adults who still smoke.[4]

Whether e-cigarettes are effective tools to help people stop smoking cigarettes is a key question. Randomized clinical trials provide the strongest evidence to answer the question, but surprisingly few are available.[5] An article in this issue of the *Journal* adds valuable new data.[6] Auer and colleagues in Switzerland conducted a large, multisite, open-label, randomized clinical trial that tested the efficacy and short-term safety of providing e-cigarettes in addition to standard behavioral counseling to adults who sought to stop smoking.[6] Trial participants had to set a quit date within 3 months after trial enrollment, but the enrollment criteria were otherwise broad, which strengthens the generalizability of the findings. Half of the 1246 participants were randomly assigned to receive a free refillable tank-type e-cigarette kit (unlike the disposable devices now dominating the U.S. market[7]) and 6 months of free e-liquids in their choice of nicotine concentrations and flavors. Participants in both the intervention and control groups received standard-of-care smoking-cessation counseling, which consisted of nurse-delivered counseling (including optional nicotine-replacement therapy) at an office visit followed by five telephone calls.

Outcomes, assessed at 6 months, included measures of efficacy (use of combustible tobacco cigarettes, e-cigarettes, and nicotine-replacement therapy), safety (adverse events), and health (respiratory symptoms). The percentage of participants with continuous, biochemically verified abstinence from smoking at 6 months (the primary outcome) was 28.9% in the intervention group and 16.3% in the control group (relative risk, 1.77, 95% confidence interval [CI], 1.43 to 2.20).[6] Severe adverse events were few and similar in the two groups, and the intervention group reported fewer respiratory symptoms than the control group at 6 months.

The intervention group reported more abstinence from smoking but less abstinence from nicotine use than the control group at 6 months because most participants in the intervention group who stopped smoking tobacco cigarettes continued using e-cigarettes. Concerns about long-term exposure to constituents of e-cigarette aerosol drive much of the debate about e-cigarettes as smoking-cessation tools. Assessment of long-term users' exposure to toxic chemicals could help to further define this risk.

The percentage of participants who abstained from smoking was an end-of-treatment measure because e-cigarettes were provided free

for 6 months. The trial cannot assess how long e-cigarette use will last after e-cigarette provision ends or whether the marginal efficacy of e-cigarettes over standard care will persist. The authors plan to follow participants for 5 years and are well positioned to address these questions in future work.

The trial showed that adding e-cigarettes to standard-of-care counseling improved smoking-cessation rates without worsening health risks over 6 months. These findings are consistent with those in the 2024 update of the Cochrane systematic review of e-cigarettes for smoking cessation. Its meta-analyses of randomized trials showed that e-cigarettes were more effective than nicotine-replacement therapy or behavioral counseling and caused minimal short-term harm.[5] Trials are needed to compare e-cigarettes with varenicline and to evaluate the marginal value of adding e-cigarettes to currently marketed smoking-cessation medications.[5]

The trial conducted by Auer et al. and the 2024 Cochrane systematic review show the growth in evidence regarding the efficacy and safety of e-cigarettes for smoking cessation since the *Journal* first published a randomized trial testing this question 5 years ago.[8] The evidence now supports a strong conclusion that e-cigarettes are tools that clinicians can use to help adults stop smoking, especially those who are unable to quit with current evidence-based treatments. E-cigarettes are neither completely harmless nor "magic bullets" that help every tobacco smoker quit, but they can and do help some.

It is now time for the medical community to acknowledge this progress and add e-cigarettes to the smoking-cessation toolkit. Clinicians should be prepared to have a risk–benefit discussion about e-cigarettes with their patients who smoke and recommend a trial of the products in appropriate situations.[1] U.S. public health agencies and professional medical societies should reconsider their cautious positions on e-cigarettes for smoking cessation.[1] The evidence has brought e-cigarettes to a tipping point. The burden of tobacco-related disease is too big for potential solutions such as e-cigarettes to be ignored.

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