

Electronic cigarettes: help, hurt, or hype?

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Clinical question

Do nicotine electronic cigarettes (NECs) help smokers decrease or quit smoking?

Bottom line

Smokers motivated to quit who used NECs had similar quit rates compared with those using nicotine patches (NPs), but 1 in 7 reduced daily cigarette consumption by 50% or more. The long-term adverse effects are unknown.

Evidence

Evidence includes 2 high-quality industry-supported RCTs in which the mean age was in the early 40s and participants were each smoking about 1 pack per day.^{1,2}

- In 657 smokers in New Zealand motivated to quit who were randomized to NECs, NPs, or placebo electronic cigarettes (PECs) for 12 weeks,¹ at 6 months
 - there was no statistical difference in proportion of quitters (NECs 7.3%, NPs 5.8%, PECs 4.1%); and
 - statistically significantly more people had a 50% or greater reduction in daily cigarette use with NECs (57% versus NPs (41%) (NNT=7), but not PECs (45%).
- In 300 smokers in Italy (not contemplating quitting or interested in a cessation program) randomized to NECs, tapered-dose NECs, or PECs for 12 weeks,² at 12 months
 - similar outcomes were achieved with NECs and tapered-dose NECs (so results were combined); and
 - significantly more people quit while using NECs (11.0%) than PECs (4.0%); NNT=15, P=.04.
 - No difference in 50% or more reduction of daily cigarette use with NECs (14.5%) versus PECs (12.0%).
- Overall adverse events:
 - Adverse events were similar between groups in RCTs.^{1,2}
 - Cohort studies were limited by small sample sizes and short duration.³
 - Mouth and throat irritation were most often reported.³

Context

- Electronic cigarettes (e-cigarettes) are battery operated and vaporize liquids and flavours into an aerosol.^{2,4} Many are manufactured by makers of traditional cigarettes.⁵
- Toxins in NECs are usually present at lower levels than in traditional cigarettes,^{6,7} but occasionally there are higher levels (eg, formaldehyde level might be higher in variable-power systems set at high voltage).⁸
- Most NEC users are former or current smokers.^{9,10}
- Between 2011 and 2014, US high school students' use of NECs increased (1.5% to 13.4%), while their use of traditional cigarettes decreased (15.8% to 9.2%).¹¹
- Currently NECs are banned in Canada.¹²

-Health Canada and the FDA are deciding how to regulate e-cigarettes, including addressing health warnings and marketing toward minors.^{10,12,13}

-The WHO advises caution (especially for adolescents and pregnant women),⁴ while Public Health England supports e-cigarettes for smoking cessation and reduction.⁹

Implementation

Clinicians should ask all adults about tobacco use and their readiness to quit,¹⁴ as current smokers live 10 years fewer than those who have never smoked.¹⁵ Patients seeking to use e-cigarettes to help them quit should not be dissuaded, but might consider other cessation aids (eg, nortriptyline, varenicline, bupropion, NPs), given the greater evidence of their efficacy and safety.¹⁶ Licensing NECs as a cessation aid would help ensure products meet a quality standard¹⁷ and aid in tracking harms. 🌿

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The opinions expressed in Tools for Practice articles are those of the authors and do not necessarily mirror the perspective and policy of the Alberta College of Family Physicians.

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