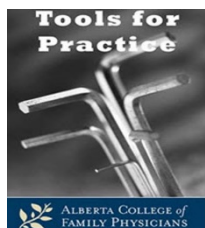


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Electronic Cigarettes - Hoot that helps, hurts, or just hype?

Clinical Question: Do electronic cigarettes help smokers quit smoking?



Bottom Line: Compared to nicotine replacement therapy (NRT) or placebo electronic cigarettes, two randomized controlled trials (RCTs) demonstrate that nicotine electronic cigarettes (NEC) aid in smoking cessation [number needed to treat (NNT)=13, 15]. Two other RCTs found no difference in cessation rates. Serious lung disease and deaths have been reported with electronic cigarettes (e-cigarette) use. Tetrahydrocannabinol (THC) and vitamin E acetate containing e-cigarettes should be avoided.

Evidence:

- Focusing on larger (>200 patients) RCTs of ≥ 4 weeks duration with objective documentation of abstinence.¹⁻⁴ Three of four trials^{1,3,4} industry supported. Typical patient: ~40 years old, smoking ~0.75-1 pack/day for ~20-25 years. Continuous abstinence reported below.
 - Smokers motivated to quit:
 - 657 randomized to NEC, nicotine patch, or placebo electronic cigarettes (PEC).¹ 6-month abstinence:
 - NEC 7%, patch 6%, PEC 4% (not statistically different).
 - 886 randomized to NEC or any other type of NRT.² 12-month abstinence:
 - NEC 18%, NRT 10%, NNT=13.
 - Smokers not intending to quit:
 - 300 randomized to NEC, tapering doses of NEC, or PEC.³ 12-month abstinence (NEC and tapered NEC combined):
 - NEC 11%, PEC 4%, NNT=15.
 - 1191 American company workers who responded to email invitations to participate in a smoking cessation trial were randomized to interventions below.⁴ All received cessation information. 6-month abstinence:
 - Cessation information only: 0.7%.
 - Cessation aids (NRT/cessation medications): 3% (not statistically different).
 - NEC: 5% (not statistically different).

- Adding monetary rewards or redeemable deposits: 10% and 13%, respectively.
- Adverse effects inconsistently reported in RCTs: throat/mouth irritation reported.²

Context:

- E-cigarettes are commonly used cessation aids.⁵
- While long-term safety data are emerging, cases of e-cigarette or vaping product use-associated lung injury (EVALI), including 48 deaths in the United States, have been reported.⁶
 - THC-containing products were associated with 80% of reported hospitalized EVALI patients.⁶
 - Vitamin E Acetate: might be the toxicant in THC related EVALI cases.^{7,8}
- CDC recommends against the use of THC-containing vaping products.⁶
- Survey data suggests that e-cigarette use may be an independent risk factor for developing respiratory disease (COPD, asthma).⁹
- Regulations should limit adolescent/young adult exposure to e-cigarettes.

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Disclosures:

Authors do not have any conflicts of interest to declare.

References:

1. Bullen C, Howe C, Laugensen M, *et al.* Lancet. 2014; 382(9905):1629-37.
2. Hajek P, Phillips-Waller A, Przulj D, *et al.* N Engl J Med. 2019; 380(7):629-37.
3. Caponnetto P, Campagna D, Cibella F, *et al.* PLoS One. 2013; 8(6):e66317.
4. Halpern S, Harhay M, Saulsgiver K, *et al.* N Engl J Med. 2018; 378(24):2302-10.
5. Rodu B, Plurphanswat N. Int J Environ Res Public Health. 2017; 14(11):E1403.
6. Lozier MJ, Wallace B, Anderson K, *et al.* MMWR Morb Mort Wkly Rep. 2019; 68(49):1142-48.
7. Blount BC, Karwowski MP, Morel-Espinosa M, *et al.* MMWR Morb Mort Wkly Rep. 2019; 68(45):1040-41.
8. Landman ST, Dhaliwal I, Mackenzie CA, *et al.* CMAJ 2019 December 2;191:E1321-31.
9. Bhatta DN, Glantz SA. Am J Prev Med 2019 Dec 11 [epub ahead of print].

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