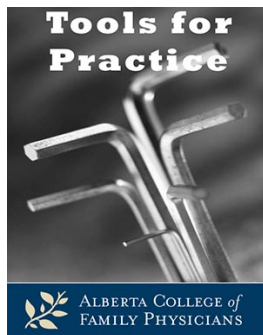


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Electronic Cigarettes—Hoot that helps, hurts, or just hype?

Clinical Question: Do electronic nicotine replacement systems (electronic cigarettes) help smokers decrease or quit smoking?

Bottom-line: Compared to nicotine patches, smokers motivated to quit who used nicotine electronic cigarettes (NEC) had similar quit rates but one in seven more reduced daily cigarette consumption by $\geq 50\%$. The long-term adverse effects and whether NECs lead to traditional cigarette use is unknown.

Evidence:

- Two high-quality industry-supported randomized controlled trials (RCTs).¹ Mean age early 40s, smoking ~ 1 pack per day.^{1,2}
 - New Zealand:¹ 657 smokers, motivated to quit, randomized to NEC, nicotine patches (NP), or placebo electronic cigarettes (PEC) for 12 weeks. At six months:
 - Quitters: No statistical difference (NEC 7.3%, NP 5.8%, PEC 4.1%).
 - $\geq 50\%$ reduction in daily cigarette use: Statistically significantly more with NEC 57% versus NP 41% (Number Needed to Treat (NNT)=7) but not PEC 45%.
 - Italy:² 300 smokers (not contemplating quitting or interested in cessation program) randomized to NEC, tapered dose NEC (TNEC), or PEC for 12 weeks. At 12 months:
 - NEC and TNEC similar outcomes, therefore combined.
 - Quitters: NEC (11%) statistically significantly better than PEC (4.0%), NNT=15.
 - $\geq 50\%$ reduction in daily cigarette use: Not statistically different (NEC 14.5% versus PEC 12.0%).
 - Overall adverse events:
 - RCTs: Similar between groups.^{1,2}
 - Cohort studies: Limited by small sample sizes and study duration.³
 - Mouth/throat irritation most commonly reported.³

Context:

- NECs are battery-operated devices that vapourize liquids and flavours into an aerosol.²⁻⁴ Many manufactured by traditional cigarette makers.⁵
- May contain toxins at levels normally much lower than traditional cigarettes,^{6,7} but occasionally higher (example: Formaldehyde may be higher in variable power systems

- set at high voltage).⁸
- Majority of NEC users appear to be former or current smokers.^{9,10}
 - Between 2011 and 2014, US high school students' use of NEC increased (1.5—13.4%) while traditional cigarette use decreased (15.8—9.2%).¹¹
 - NECs are currently banned in Canada:¹²
 - Health Canada and FDA are deciding how to regulate electronic cigarettes, including addressing health warnings and marketing towards minors.^{10,12,13}
 - World Health Organization advises caution (especially adolescents, pregnant women)⁴ while Public Health England supports as smoking cessation aid and for reducing number of cigarettes smoked.⁹

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Disclosure:

Authors do not have any conflicts to disclose and neither have smoked.

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