



Vape Expectations: Are electronic cigarettes the real deal for smoking cessation? (Update)

CLINICAL QUESTION

Are nicotine-containing e-cigarettes more effective than other available options for smoking cessation?

BOTTOM LINE

For smoking cessation, nicotine e-cigarettes appear more effective than nicotine replacement therapy (NRT) (cessation rates: 18% versus 10% at 6-12 months). Nicotine-containing e-cigarettes have better cessation rates (10-11%) than nicotine-free e-cigarettes (~9.5%) and similar efficacy to varenicline. Short-term adverse effects of nicotine e-cigarettes are similar to comparators while long-term harms remain unknown.

EVIDENCE

- Differences statistically significant unless stated.
- Focusing on largest systematic review of 47 randomized controlled trials (RCTs)¹ and notable RCTs since systematic review. Patients' motivation to quit varied. Cessation rates: biochemically-validated.
- Nicotine e-cigarettes:¹
 - Smoking cessation rates (6-12 months):
 - Versus NRT: 18% versus 10% (NRT), number needed to treat (NNT)=14.

- 6 of 7 RCTs: Publicly funded.
 - Versus nicotine-free e-cigarettes: 11% versus 9.6% (nicotine-free e-cigarettes), NNT=75.
 - Versus behavioural/no support: 10% versus 6.3% (control), NNT=25.
 - Adverse events:
 - Versus NRT or nicotine-free e-cigarettes:¹ No difference.
- Nicotine-free e-cigarettes:¹
 - Cessation rates (3-6 months):
 - Versus NRT or behavioural/no support: No difference.
- Other systematic reviews: Similar.²⁻⁷ Exception:
 - Throat irritation: 55% (nicotine e-cigarettes) versus 44% (NRT), number needed to harm=9 (3-12 months).²
- Publicly funded, open-label RCT comparing standard-of-care counselling plus nicotine e-cigarettes or counselling alone (possibly including medications), 1246 patients (mean: 38 years, ~15 cigarettes/day for 25 years).⁸ At 6 months:
 - Abstinence: 29% versus 16% (control), NNT=8.
 - Adverse effects: 44% versus 37% (control), NNH=15.
 - Serious (including respiratory): Similar.
- Industry-supported, double-blind RCT comparing 12-week use of nicotine e-cigarettes, varenicline or placebo, 458 patients (mean: 50 years, ~33 years smoking).⁹ At six months:
 - Abstinence: 44% (varenicline), 40% (e-cigarettes), versus 20% (placebo).
 - Stopping due to adverse effects: 18% (varenicline), 9.9% (e-cigarettes), 9.2% (placebo) (no statistics reported).

CONTEXT

- In Canada:
 - 11% currently smoke.¹⁰
 - Nicotine e-cigarettes not approved for smoking cessation.¹¹
 - Guidelines do not recommend nicotine e-cigarettes as first line.¹¹
- Long-term harms unknown.¹²
 - Hospitalization and deaths from vaping-induced lung injuries reported, most with THC-containing e-cigarettes.^{13,14}
- Among those quitting tobacco cigarettes with nicotine e-cigarettes, 70% still using e-cigarettes after 6 months.¹⁵

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