

Latest evidence from the Cochrane living systematic review of electronic cigarettes for smoking cessation

Results from the November 2025 Cochrane review

Nicola Lindson¹, Jonathan Livingstone Banks¹, Ailsa R Butler¹, Hayden McRobbie², Christopher R Bullen³, Peter Hajek⁴, Claire L Ma⁵, Angela D Wu¹, Rachna Begh¹, Annika Theodoulou¹, Caitlin Notley⁶, Nancy Rigotti⁷, Tari Turner⁸, Thomas Fanshawe¹, **Jamie Hartmann-Boyce**⁹.

¹University of Oxford, Oxford, United Kingdom. ²University of New South Wales, Sydney, Australia. ³University of Auckland, Auckland, New Zealand. ⁴Queen Mary University of London, London, United Kingdom. ⁵University of Michigan School of Public Health, USA. ⁶University of East Anglia, Norwich, United Kingdom. ⁷Harvard Medical School, Lincoln, MA, USA. ⁸Monash University, Melbourne, Australia. ⁹Department of Health Promotion and Policy, University of Massachusetts, Amherst, USA.

Overview

We synthesised the latest evidence on the effectiveness, safety and long-term use of e-cigarettes (EC) when used to quit combustible cigarettes (CC) from our living review to inform health policy and practice.

Methods

6 electronic databases searched to 1st March 2025 for studies testing EC interventions for smoking cessation. (CENTRAL, MEDLINE, Embase, PsycINFO, ClinicalTrials.gov, ICTRP). Monthly searches. We followed Cochrane methods.

Studies: RCTs, cross-over trials & uncontrolled intervention studies.

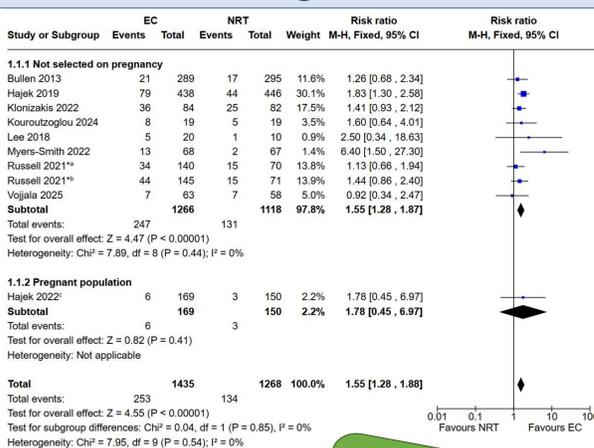
Outcomes: smoking cessation 6m+; AE & SAEs at 1w+; number using study product 6m+; biological markers (e.g. blood pressure) 1w+.

Main comparators: nicotine replacement therapy (NRT), non-nicotine EC and behavioural support only/no support.

Results

104 studies (61 RCTs); 66 ongoing studies
30,366 participants
11 studies low risk of bias; 70 high; 23 unclear

Smoking cessation



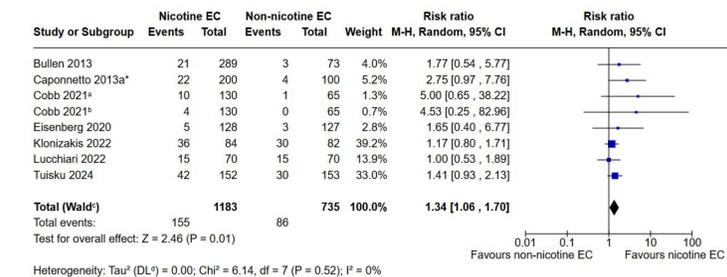
High certainty

Can electronic cigarettes (EC) help people stop smoking and are they safe to use for this purpose?

- Nicotine vapes help more people to stop smoking than nicotine replacement therapies (NRT) e.g. patches and gums.
- More people probably stopped smoking for at least 6 months using nicotine vapes than using nicotine-free vapes.
- Nicotine vapes may work better than no support for quitting smoking, or than behavioural support alone.
- We did not detect any clear evidence of harm from licenced nicotine vapes; however, longest follow-up was 2 years and the overall number of studies was small.



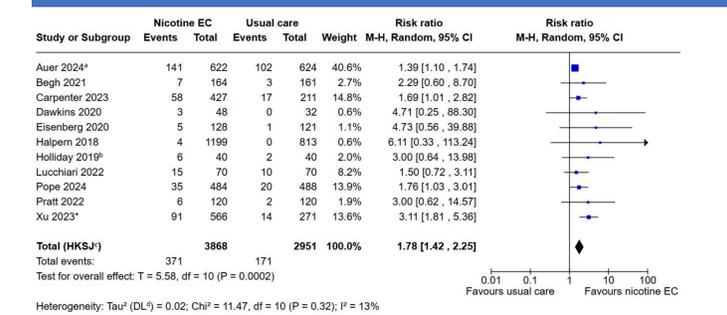
Scan for full information on our review, podcasts and webpage.
For more information contact Dr Ailsa Butler: ailsa.butler@phc.ox.ac.uk



Footnotes
*36 mg/mL arm; control group split to avoid double-counting
*8 mg/mL arm; control group split to avoid double-counting
*CI calculated by Wald-type method.
*Tau² calculated by DerSimonian and Laird method.

Moderate certainty

Fig 2: Nicotine EC vs non-nicotine EC



Footnotes
*As NRT was not provided by the study, we classed this comparator arm as "behavioural support only."
*Although participants were given a choice of nicotine concentration including 0 mg, none of the participants chose the non-nicotine e-liquid
*CI calculated by Hartung-Knapp-Sidik-Jonkman method.
*Tau² calculated by DerSimonian and Laird method.

Low certainty

Fig 3: Nicotine EC vs behavioural support /no support

SAEs & AEs

SAEs were rare, with insufficient evidence to determine whether rates differed between groups for all comparisons.
AEs were similar between nicotine EC and NRT groups (RR 1.00, 95% CI 0.73 to 1.37; I² = 0%; 7 studies, N=2241, moderate certainty).
There was no difference in AEs between nicotine EC and non-nicotine EC (RR 1.01, 95% CI 0.95 to 1.08; I² = 0%; 5 studies, N=840, moderate certainty).
AEs may be more common in people randomized to nicotine EC than behavioural support only/no support (RR 1.22, 95% CI 0.96 to 1.55; I² = 66%, 8 studies, N=2485, very low certainty).

Conclusion

The latest data continues to signal the benefits of nicotine EC for smoking cessation and no clear evidence of short-term harms when used to quit CC. More research is needed into reasons for and consequences of continued EC use, including longer-term studies investigating potential benefits and harms.