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

Findings from the November 2025 Cochrane review

This briefing document brings you the most up-to-date information on the effect and safety of using electronic cigarettes (ECs) to help people who smoke to stop smoking. This evidence comes from our latest Cochrane Review. Cochrane is a non-profit organisation that reviews all of the available evidence on a particular topic. Our findings help people to make healthcare decisions.

Key findings

- Our review showed more people stop smoking for at least six months using nicotine e-cigarettes than using nicotine replacement therapy.
- More people probably stopped smoking for at least six months using nicotine e-cigarettes than using nicotine-free e-cigarettes.
- Nicotine e-cigarettes may work better than no support for quitting smoking, or than behavioural support alone.
- Nicotine e-cigarettes may not be associated with serious unwanted effects.
- The unwanted effects reported most often with nicotine e-cigarettes were throat or mouth irritation, headache, cough and feeling sick. These effects reduced over time as people continued using nicotine e-cigarettes.

We need more, reliable evidence to be confident about the effects of e-cigarettes, particularly the effects of newer types of e-cigarettes that have better nicotine delivery.

Why this is this topic important?

Stopping smoking reduces the risk of getting lung cancer and other diseases. Many people find it difficult to quit. We want to find out if e-cigarettes can help and if people using them experience any unwanted effects.

In our latest full review (searches up to 1st March 2025) we found 104 studies in 30,366 adults who smoked.

What we are doing?

Each month we are searching for studies that look at the use of e-cigarettes to help people stop smoking. As we search monthly this is called a living systematic review. We look for randomized controlled trials, in which the treatments people received were decided at random. This type of study usually gives the most reliable evidence about the effects of a treatment. We also search for studies in which everyone received an e-cigarette treatment.

What we are looking at?

The studies we looked at compared electronic cigarettes to nicotine replacement therapy (for example, patches or gum), to stop smoking medication (varenicline), to non-nicotine e-cigarettes, and to behavioural support or no support.

New to this update

Fourteen new studies have been added. There are five new comparisons and data has been added to six existing comparisons.

AUGUST 2026 SEARCH UPDATE... Searches are run and screened monthly. Our August 2026 search identified 2 new studies & 2 linked reports. Between April 2025 & July 2026 searches identified 7 new studies, 12 new ongoing studies & 47 papers linked to studies already included in the review or picked up since April 2025. The findings from these searches will be incorporated into the next update of our review.

See our full review

Cochrane EC review Nov 2025

Visit our webpage

Webpage

Listen to our podcast

Podcasts

Disclaimer: the views and opinions expressed therein are those of the review authors and do not necessarily reflect those of the NIHR, National Health Service (NHS), Department of Health or the other organisations involved

Funded by CANCER RESEARCH UK NIHR National Institute for Health Research

Stopping smoking

Electronic cigarettes help more people to stop smoking than nicotine replacement therapy. Evidence in our review suggests that for every 100 people using nicotine e-cigarettes to stop smoking: 9 might successfully stop compared with 6 using nicotine-replacement therapy; 8 might stop compared to 6 using nicotine-free e-cigarettes; and 7 might stop compared to 4 when receiving no support or behavioural support only.

How long do people continue to use electronic cigarettes?

In response to feedback we are looking at how many people continue to use e-cigarettes at 6 months or longer. In most studies at least half of the participants were still using e-cigarettes at longest follow-up. 21 studies reported data on continued study product use.

Dual use?

Studies have shown a decrease in exhaled carbon monoxide in dual users (those using nicotine e-cigarettes and tobacco) as compared to participants who exclusively smoked tobacco cigarettes.

Not all e-cigarettes are the same

We need more information about device type, nicotine content and the role of flavours on the effectiveness of e-cigarettes to help people to quit tobacco cigarettes.

Health measures

We also look at information on health measures. Very few studies have looked at health outcomes. In those that did, there was no indication that e-cigarettes posed more risks than smoking cigarettes. We need more evidence on this.

Lung function measures

- Lung function data were mixed, and no conclusive judgements can be made. 10 of the 104 studies reported on lung function.

Changes in carbon monoxide

- In most studies carbon monoxide levels were lower in those using e-cigarettes. 57 of the 104 studies reported data on carbon monoxide.

Heart rate

- Most studies showed no clear evidence of a difference in heart rate measures for people using e-cigarettes compared to NRT, nicotine free e-e-cigarettes or usual care/ continued use of combustible cigarettes. Twelve of the 104 studies reported data on heart rate.

Changes in blood pressure

- Most studies found no clear evidence of a difference in blood pressure measures in people using e-cigarettes compared to NRT, nicotine free e-e-cigarettes or usual care/ continued use of combustible cigarettes. Of the 104 included studies, 15 reported data on blood pressure and 4 studies reported data on blood oxygen levels.

Serious harms

- The number of people experiencing serious harms was low across all study arms. We did not detect evidence of harm from nicotine e-cigarettes, but the longest follow-up was two years and the number of studies was small. 53 studies reported data on serious adverse events.

At a glance

Summary table to show how e-cigarettes compare to nicotine replacement therapy (NRT), non-nicotine e-cigarettes and usual care

How do e-cigarettes compare?	E-cig	NRT	Nicotine E-cig	Non-nicotine E-cig	E-cig	Usual care
Stopping smoking	✓		✓		✓	
Lung function	–	–	–	–	–	–
Carbon monoxide	✓		–	–	✓*	
Heart rate	–	–	–	–	–	–
Blood oxygen	–	–			–	–
Blood pressure	–	–	–	–	✓	
Levels of toxicants	–	–	–	–	–	–
Serious harms	–	–	–	–	–	–
Less serious harms	–	–	–	–		✓

✓	Favours
–	No clear evidence of a difference between groups
	Lack of evidence
*	Not pooled

We need more data to be confident of the findings on health measures.