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ORAL NICOTINE POUCHES AND ELECTRONIC CIGARETTES FOR SMOKING CESSATION: THE LATEST COCHRANE EVIDENCE

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Acknowledgements and declarations of interest

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Additional – critical – acknowledgement: It takes a village to write a Cochrane review!

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What I'll cover

- Cochrane, and key Cochrane Tobacco Addiction Group methods
- Oral nicotine pouches review
- Latest update to our e-cigarettes for smoking cessation review
- Next steps

Pause for questions

Time for more questions

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(Key) standard
Cochrane
Tobacco
Addiction
Group methods

Searches, screening and data extraction

Protocols published in advance

Studies identified through: study registers, databases, screening of SRNT abstracts, and researcher contacts

Screening and data extraction conducted in duplicate

Risk of bias assessment

- Conducted using standard Cochrane Tobacco Addiction Group methods (ROB v1)
- Assessed the following domains as at high, low, or unclear risk of bias: random sequence generation, allocation concealment, performance bias, detection bias, attrition bias, other risk of bias
- Studies were judged to be at high risk of bias overall if high in one or more domains, low if low across all domains, and the remainder unclear


Addiction / Volume 118, Issue 9 / pp. 1811-1816

METHODS AND TECHNIQUES

Open Access

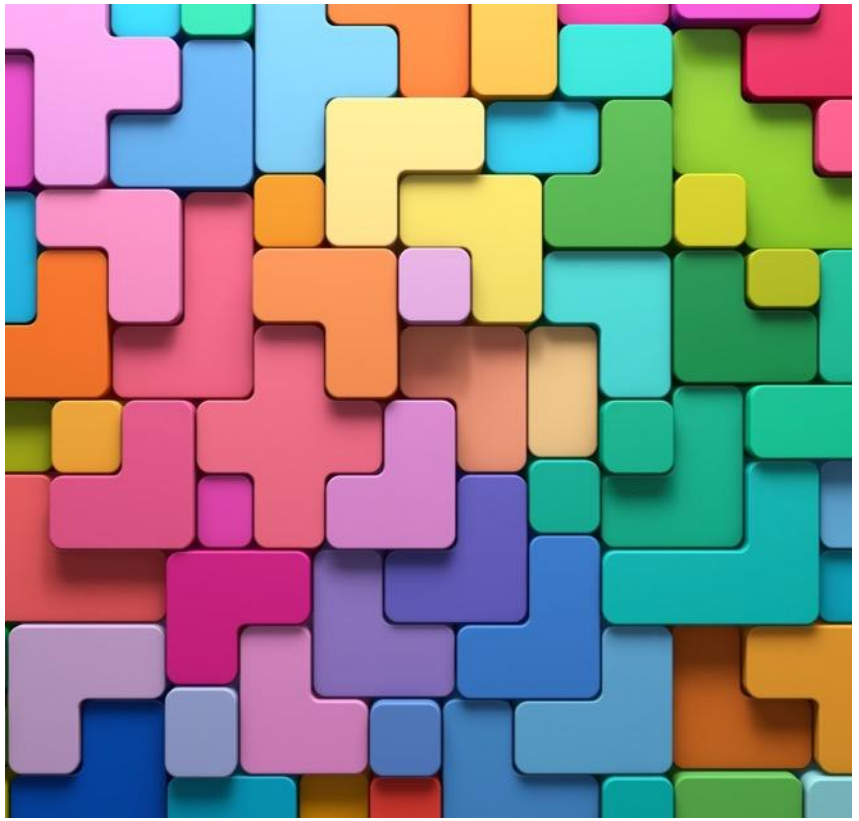
Assessing and minimizing risk of bias in randomized controlled trials of tobacco cessation interventions: Guidance from the Cochrane Tobacco Addiction Group

Jamie Hartmann-Boyce, Nicola Lindson

First published: 02 May 2023
https://doi.org/10.1111/add.16220

Statistical synthesis

- We pool dichotomous outcome data using a Mantel-Haenszel random effects model, with results reported as risk ratios (RRs) and 95% confidence intervals (CIs)
- Continuous data are pooled using generic inverse variance models, with results reported as mean differences (MDs) with 95% CIs
- For abstinence, we use the strictest definition at longest follow-up, counting those lost to follow-up as non-abstinent (intention to treat)
- For all other outcomes, we use complete case data
- Sensitivity analyses test sensitivity of findings to removal of studies with industry funding and/or at high risk of bias



GRADE Working Group grades of evidence

High certainty: we are very confident that the true effect lies close to that of the estimate of effect.

Moderate certainty: we are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.

Low certainty: our confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the effect.

Very low certainty: we have very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of the effect.

For randomized controlled trials, GRADE is based on five domains: risk of bias; imprecision; indirectness; inconsistency; and publication bias.

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Review language : English

Title Abstract K

Cochrane reviews | Searching for trials | Clinical Answers | About | Help

Cochrane Database of Systematic reviews | Review - Intervention

Open access

Oral nicotine pouches for cessation or reduction of use of other tobacco or nicotine products

Jamie Hartmann-Boyce, Harry Tattan-Birch, Jamie Brown, Lion Shahab, Maciej L Goniewicz, Claire L Ma, Angela Difeng Wu, Nargiz Travis, Holly Jarman, Jonathan Livingstone-Banks[a], Nicola Lindson[a]

Version published: 24 October 2025 Version history

https://doi.org/10.1002/14651858.CD016220.pub2

Searches to 13 Jan 2025

Full review published today!

Objectives

Primary

To evaluate:

- benefits and harms of oral nicotine pouches (ONPs) when used to help people stop tobacco smoking
- ~~the impact of ONPs on prevalence of tobacco smoking~~

Secondary

To evaluate:

- ~~benefits and harms of ONPs when used to stop using other non-combustible tobacco/commercial nicotine product use (e.g., heat-not-burn; e-cigarettes)~~
- ~~the impact of ONPs on prevalence of other non-combustible tobacco/commercial nicotine products use~~

Eligibility criteria

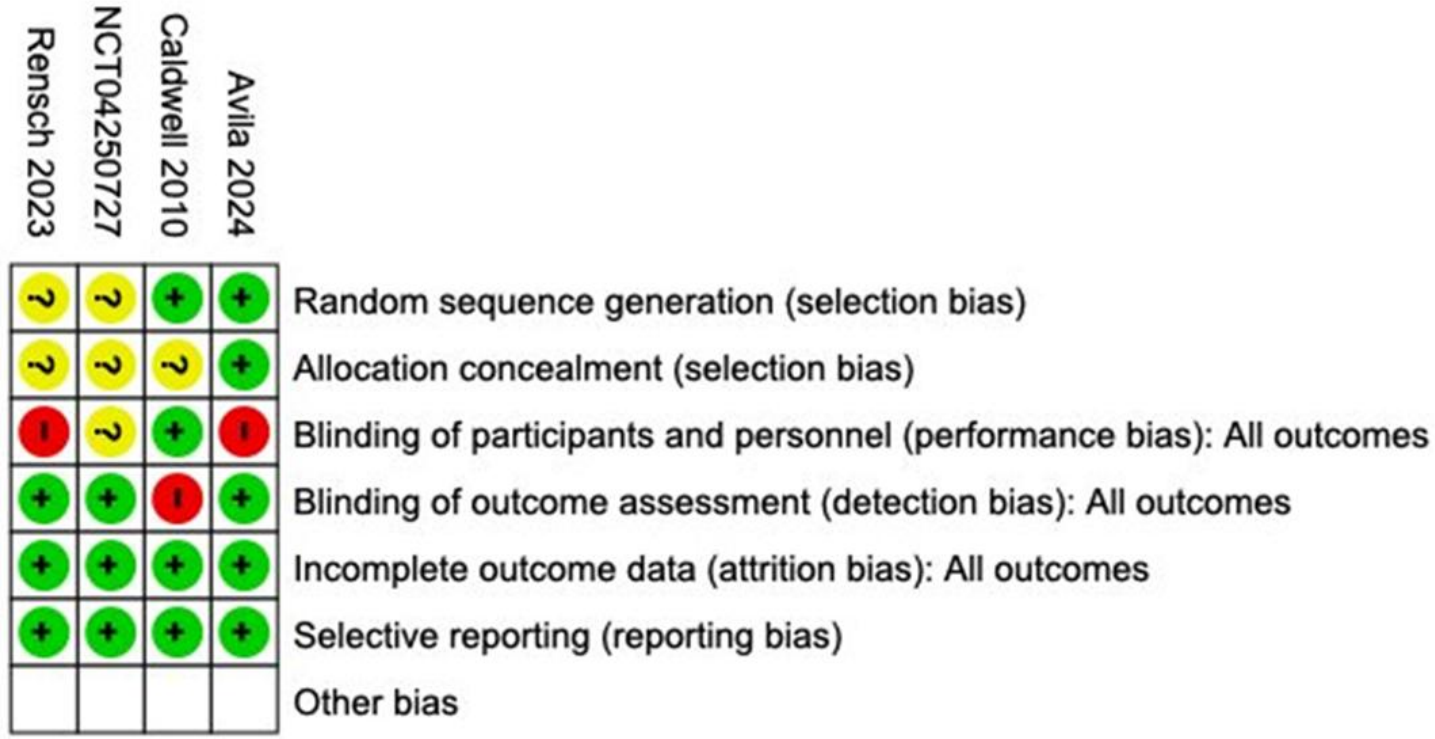
	For objectives related to benefits & harms of ONPs only*
Study design	Randomized controlled trials
Participants	People using tobacco or other (non-pharma) nicotine products
Intervention	Provision of ONPs to reduce or quit tobacco/other (non-pharma) nicotine product use
Comparators	• Another commercial tobacco/nicotine product • Another ONP intervention • Smoking cessation pharmacotherapy • Non-nicotine pouches (placebo) • No or minimal intervention
Outcomes	• Tobacco/nicotine abstinence at 4+ weeks • Biomarkers/adverse events at 1+ weeks

* Eligibility criteria for studies related to prevalence objectives can be found in the published protocol/review

Included studies

Four (small) RCTs (total n=282)

- All participants smoked cigarettes at baseline
- Size ranged from 30 - 146 participants
- One study (Rensch 2023) was tobacco industry funded
- 3 studies specifically included people not motivated to quit smoking
- Compared ONP to e-cigs (1 study), snus (1 study), NRT (1 study), minimal control (2 studies), tobacco abstinence (1 study), other ONP (varying dose; 2 studies)
- 3 studies high risk of bias; one unclear risk of bias



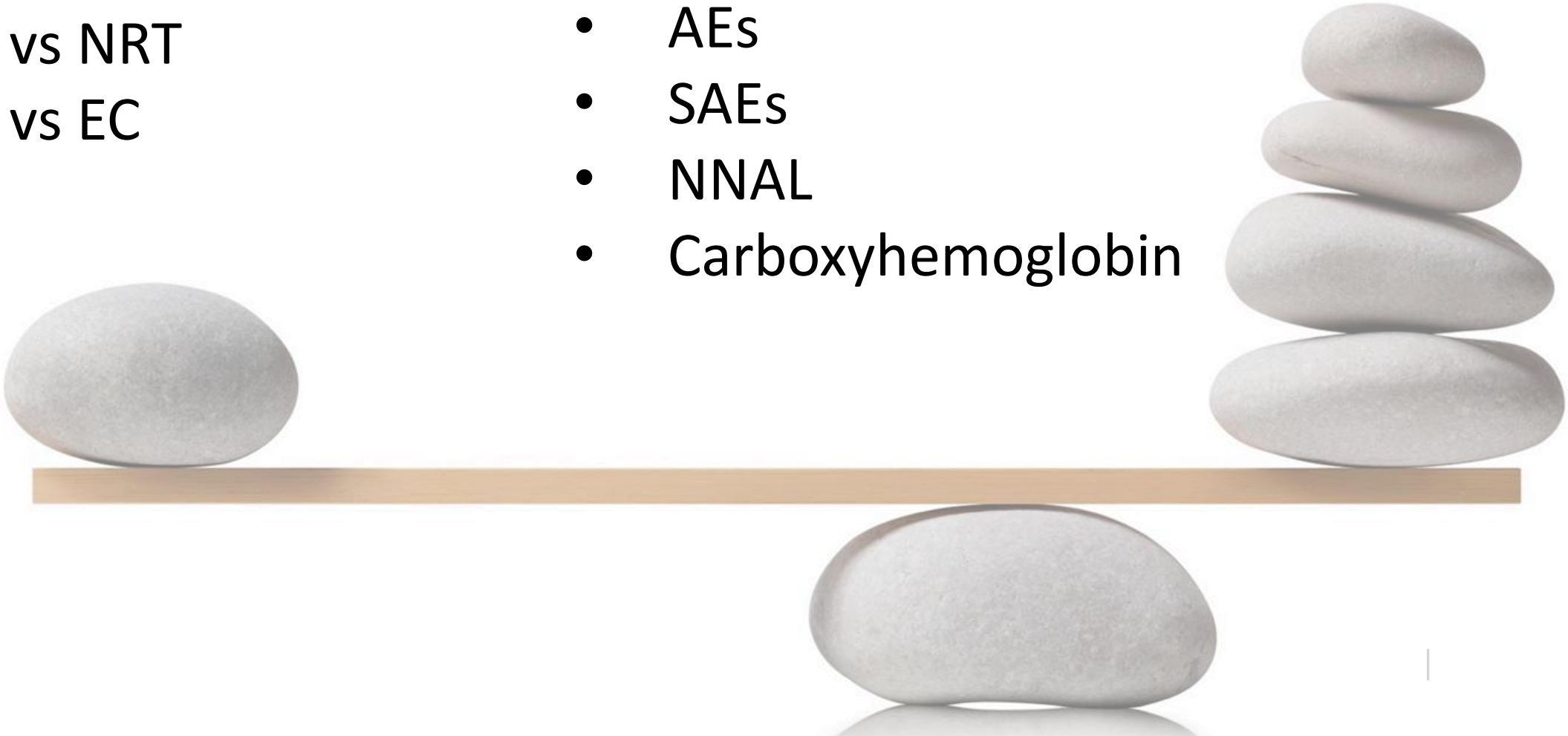
Results (from pre-specified comparisons/outcomes)

Comparisons

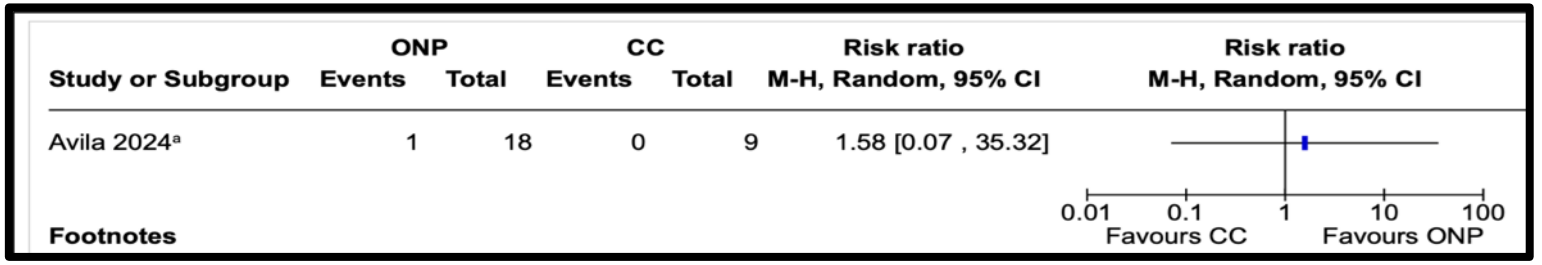
- ONP vs minimal control
- ONP vs NRT
- ONP vs EC

Outcomes

- Smoking abstinence
- AEs
- SAEs
- NNAL
- Carboxyhemoglobin



ONP versus minimal control (2 studies)



Study or Subgroup	ONP Events	ONP Total	CC Events	CC Total	Risk ratio M-H, Random, 95% CI
Avila 2024[a]	1	18	0	9	1.58 [0.07 , 35.32]

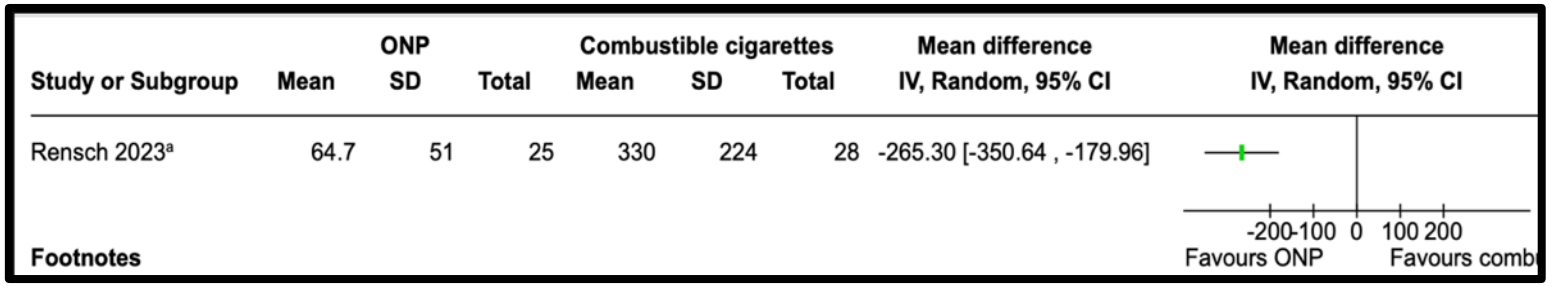
Risk ratio M-H, Random, 95% CI

0.01 0.1 1 10 100

Favours CC Favours ONP

Footnotes

Smoking Cessation: Very low certainty evidence. No conclusions can be drawn



Study or Subgroup	ONP Mean	ONP SD	ONP Total	Combustible cigarettes Mean	Combustible cigarettes SD	Combustible cigarettes Total	Mean difference IV, Random, 95% CI
Rensch 2023[a]	64.7	51	25	330	224	28	-265.30 [-350.64 , -179.96]

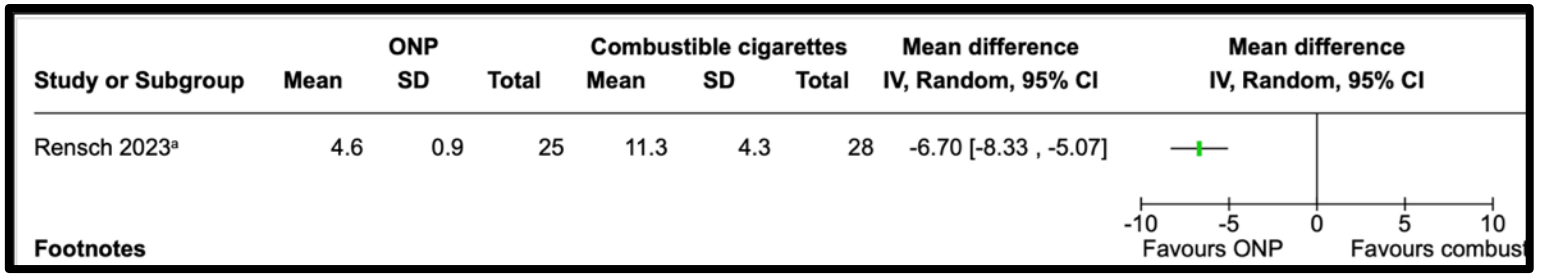
Mean difference IV, Random, 95% CI

-200 -100 0 100 200

Favours ONP Favours comb

Footnotes

NNAL: Very low certainty evidence of lower NNAL in those randomized to ONP



Study or Subgroup	ONP Mean	ONP SD	ONP Total	Combustible cigarettes Mean	Combustible cigarettes SD	Combustible cigarettes Total	Mean difference IV, Random, 95% CI
Rensch 2023[a]	4.6	0.9	25	11.3	4.3	28	-6.70 [-8.33 , -5.07]

Mean difference IV, Random, 95% CI

-10 -5 0 5 10

Favours ONP Favours combust

Footnotes

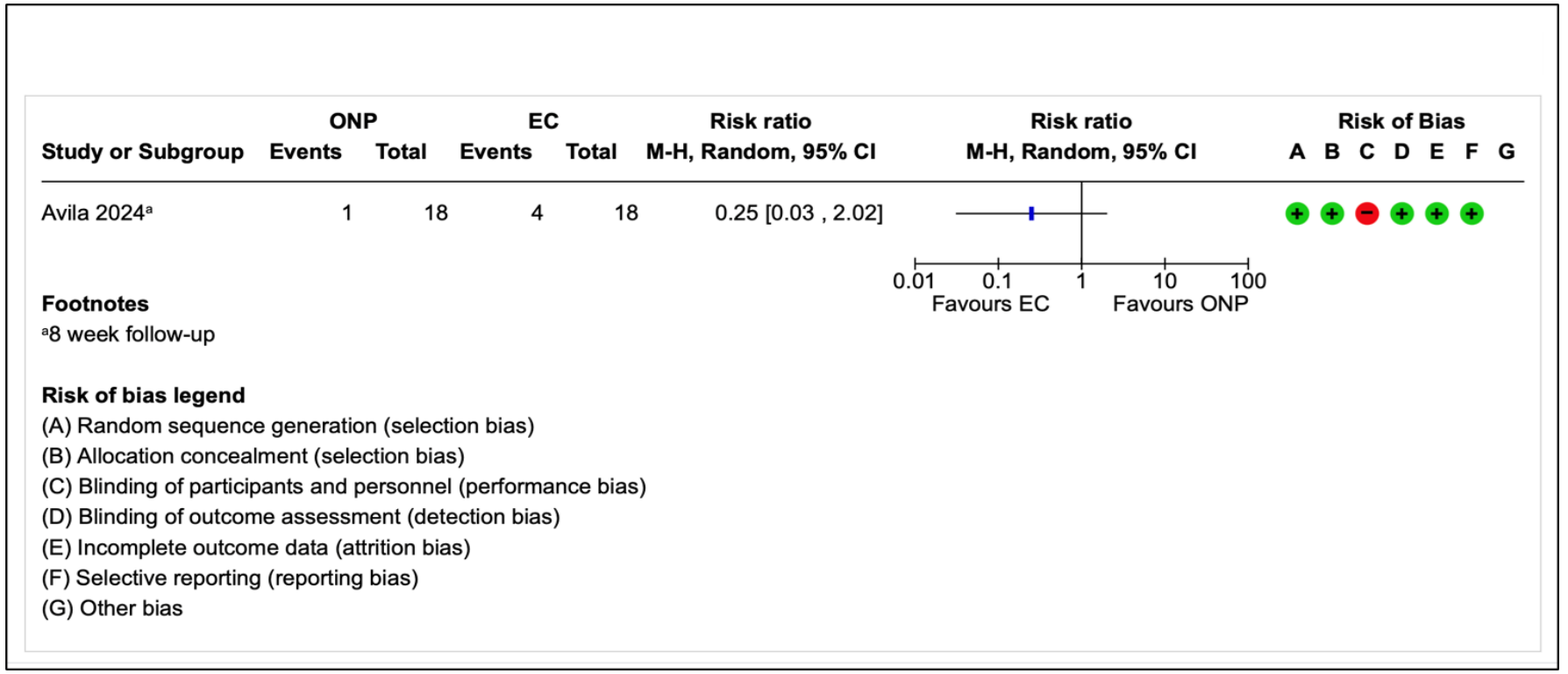
Carboxyhemoglobin: Very low certainty evidence of lower levels in those randomized to ONP

No other key outcomes reported

ONP versus NRT (1 study)

- Of our key outcomes this study (Caldwell 2020) only reported non-serious adverse events
- ONP use was associated with fewer reports of ‘bad taste’ or ‘gastrointestinal side effects’ than NRT. One participant reported discontinuing ONP use due to gastrointestinal symptoms, compared to two participants who discontinued gum use for the same reason.

ONP versus nicotine e-cigarettes (1 study)



Study or Subgroup	ONP Events	ONP Total	EC Events	EC Total	Risk ratio M-H, Random, 95% CI	Risk of Bias A B C D E F G
Avila 2024[a]	1	18	4	18	0.25 [0.03 , 2.02]	+ + − + + +

Footnotes

[a]8 week follow-up

Risk of bias legend

(A) Random sequence generation (selection bias)
(B) Allocation concealment (selection bias)
(C) Blinding of participants and personnel (performance bias)
(D) Blinding of outcome assessment (detection bias)
(E) Incomplete outcome data (attrition bias)
(F) Selective reporting (reporting bias)
(G) Other bias

Smoking cessation: Low certainty evidence of higher quit rates in those randomized to nicotine e-cigarettes

No other key outcomes reported

Serious adverse events (SAEs)

- 3 of the 4 included studies measured SAEs
- All three studies reported that none occurred
- This equates to very low certainty evidence

Ongoing studies

Study ID (funder/sponsor)	Sample size	Expected comparator(s)	Expected (relevant) outcome(s)	Anticipated completion
Cheng 2024 (Altria)	400	ONPs varying on **flavour**	3 and 6 weeks: smoking abstinence/reduction, CO,	June 2025
Hammeed 2024 (NS)	600	**E-cigarettes; minimal control**	**1 year**: smoking abstinence/reduction, adverse events,	April 2025
ISRCTN13243849 (Swedish Match)	46	ONPs varying on **texture** (moist vs dry) and **strength**	Timeline unclear: biomarkers of exposure, "safety"	Dec 2025
NCT06043362 (Penn State)	375	ONPs varying on **strength** and **flavour**	16 weeks: smoking abstinence/reduction, NNAL, CO	August 2028
NCT06088862 (Global Action to End Smoking)	325	**E-cigarettes; NRT**	10 weeks: smoking abstinence, CO	Dec 2024
NCT06315881 (Ohio State)	160	ONPs varying on **strength**; **minimal control**	12 weeks: smokeless tobacco or smoking abstinence	August 2028
NCT06372899 (NCI)	200	**E-cigarettes**	**6 months**: smoking abstinence, NNAL, CO, biomarkers of exposure	March 2028
NCT06506162 (NCI)	320 (EC)	ONPs varying on **flavour** and **strength**; **NRT**	1 week: product use	Feb 2028
NCT06568900 (Swedish Match)	450	ONPs varying on **flavour**; **minimal control**	12 weeks: NNAL	Aug 2024
NCT06678789 (NIDA)	50	ONPs varying on **strength**	8 weeks: smoking abstinence/reduction, product use	July 2026

We estimate we are aware of 50-70% of ongoing studies prior to publication, so this is not an exhaustive list!

Conclusions

- There is limited evidence on using ONPs for smoking cessation or reduction
- There is no evidence on using ONPs for cessation/reduction of other tobacco/nicotine products
- There is no data on whether ONP use affects prevalence of use of tobacco/other nicotine products
- Low certainty evidence suggests that people randomized to ONPs may be slightly less likely to quit smoking than those randomised to nicotine e-cigarettes, but data is from one small study & very imprecise
- Evidence from all other comparisons & outcomes was either entirely absent, or very low certainty, meaning we are not able to draw conclusions
- The 3 studies that reported SAEs found that none occurred
- Future trials should prioritise comparing ONP to other active interventions, e.g., NRT; e-cigarettes
- They should aim to measure abstinence and SAEs for as long as possible (i.e., 6 months +)

Pause for questions

PLEASE NOTE:

This update is still going through editorial processes.

Please do not share the contents of the second half of this presentation more widely!

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Review l

Update should be out soon!

Cochrane reviews | Searching for trials | Clinical Answers | A | H

Cochrane Database of Systematic reviews | Review - Intervention

New s

Electronic cigarettes for smoking cessation

Nicola Lindson, Ailsa R Butler, Hayden McRobbie, Chris Bullen, Peter Hajek, Angela Difeng Wu, Rachna Begh, Annika Theodoulou, Caitlin Notley, Nancy A Rigotti, Tari Turner, Jonathan Livingstone-Banks, Tom Morris, Jamie Hartmann-Boyce Authors' declarations of interest

Version published: 29 January 2025 Version history

https://doi.org/10.1002/14651858.CD010216.pub9

Searches to 1 March 2025

Objective:

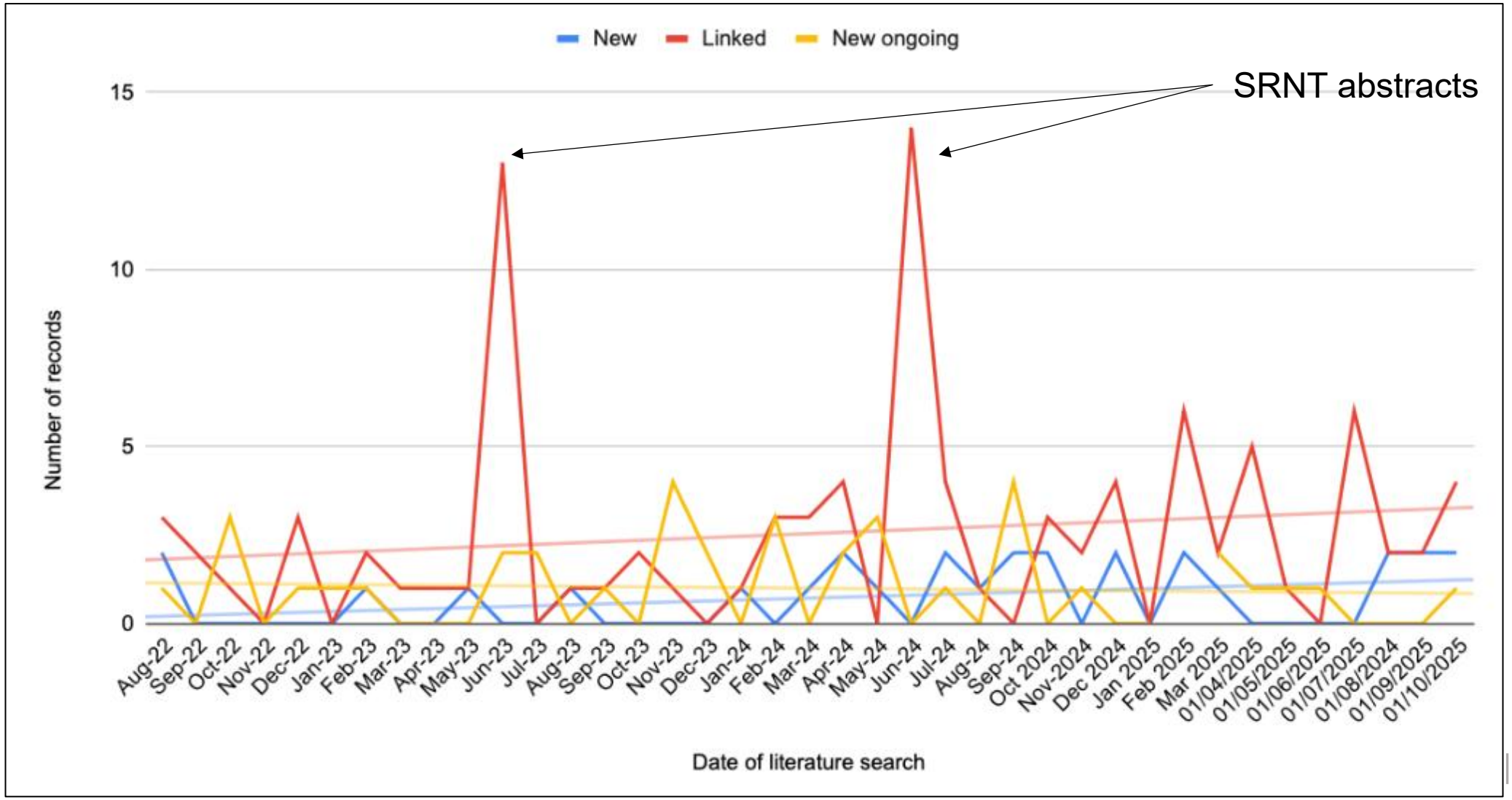
To examine the safety, tolerability, and effectiveness of EC for helping people who smoke tobacco achieve long-term smoking abstinence, in comparison to non-nicotine EC, other smoking cessation treatments, and no treatment.

Living systematic review (LSR)

- Search for new evidence monthly
- Publish links to new evidence monthly
- Update full review when new data emerges that changes, strengthens, or weakens existing conclusions, or relates to new comparisons or outcomes

Are all other reviews ’dead’?

Number of new records picked up in monthly searches



Eligibility criteria

	Comparison between EC and ONP reviews
Study design	Randomized controlled trials and uncontrolled intervention studies
Participants	People who smoke ~~using tobacco or other (non-pharma) nicotine products~~
Intervention	Provision of electronic cigarettes or information about electronic cigarettes ~~ONPs~~ to reduce or quit smoking ~~tobacco/other (non-pharma) nicotine product use~~
Comparators	• Another commercial tobacco/nicotine product • Another nicotine e-cigarette ~~ONP~~ intervention • Smoking cessation pharmacotherapy • Non-nicotine e-cigarettes ~~pouches~~ (placebo) • No or minimal intervention
Outcomes	• Tobacco/nicotine abstinence at 6+ months ~~4+ weeks~~ (key outcome) • Biomarkers/adverse events at 1+ weeks (key: SAEs, AEs)

Results (from pre-specified comparisons/outcomes)

Comparators

- Nicotine EC vs NRT
- Nicotine EC vs non-nicotine EC (placebo EC)
- Nicotine EC vs behavioral support only/no support

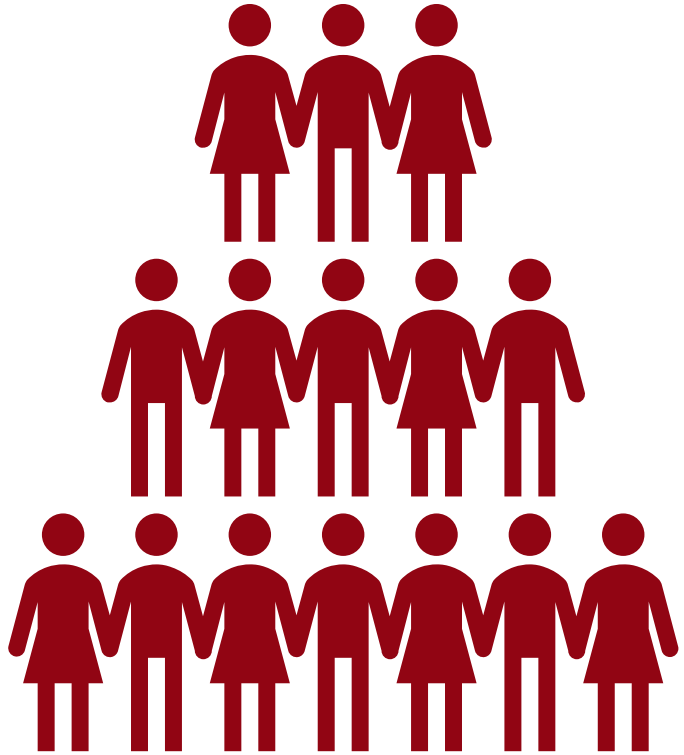
Outcomes

- Smoking abstinence
- SAEs

Included studies

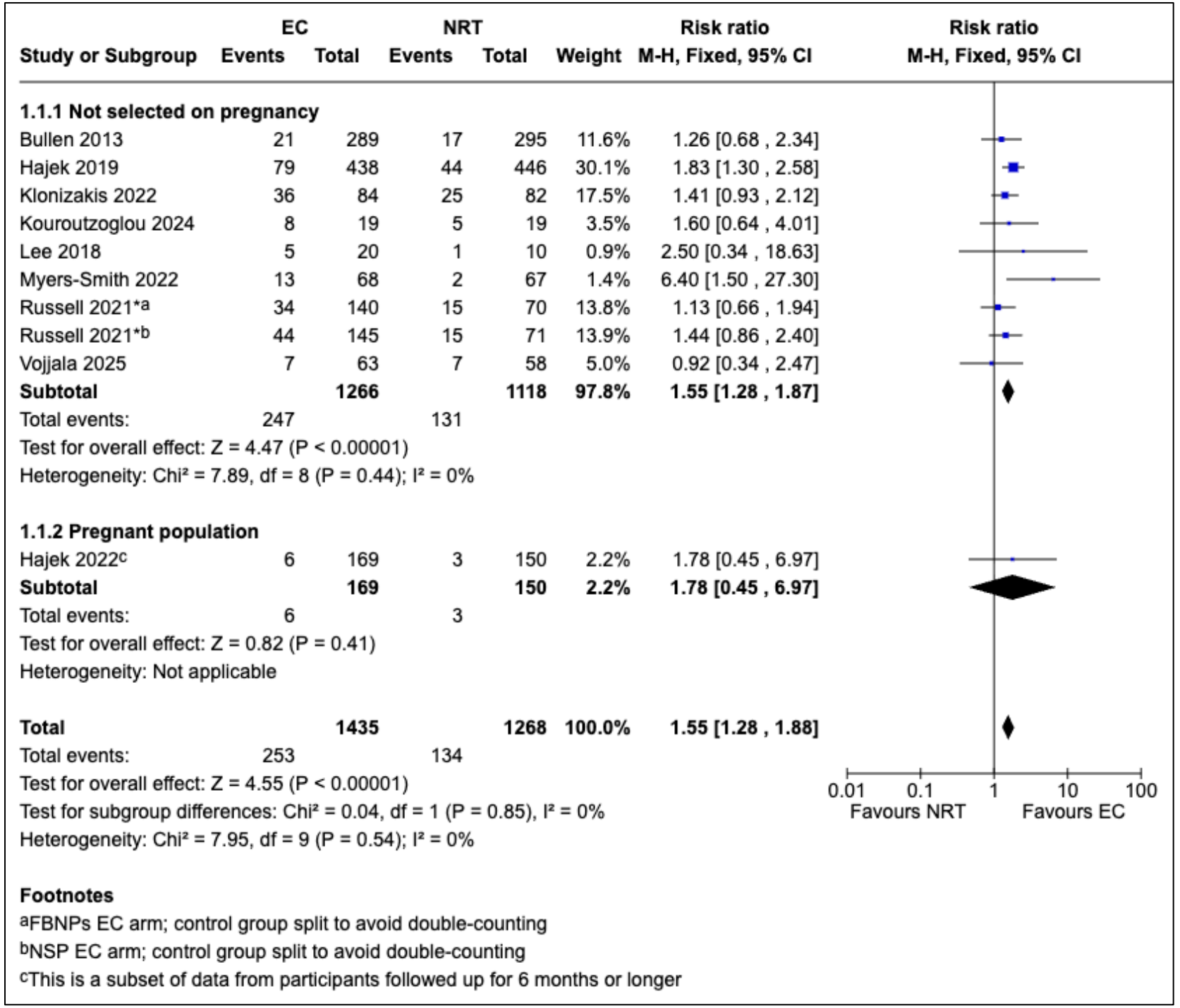
104 trials (total n=30,366); 61 RCTs (14 new to this update)

- All participants smoked cigarettes at baseline
- 48 studies conducted in USA, 21 in UK, 9 in Italy, 6 in Greece, 5 in Australia (all other countries 2 or fewer studies)
- 30 studies exclusively recruited people not motivated to quit smoking
- 16 reported funding from tobacco/vaping industries (no analyses were sensitive to their exclusion)
- 11 at low risk of bias, 70 at high risk (including all non-randomized studies), remainder at unclear risk



Nicotine EC versus NRT, Smoking cessation at 6+ months

GRADE certainty of evidence: HIGH



Study or Subgroup	EC Events	EC Total	NRT Events	NRT Total	Weight	Risk ratio M-H, Fixed, 95% CI
1.1.1 Not selected on pregnancy						
Bullen 2013	21	289	17	295	11.6%	1.26 [0.68 , 2.34]
Hajek 2019	79	438	44	446	30.1%	1.83 [1.30 , 2.58]
Klonizakis 2022	36	84	25	82	17.5%	1.41 [0.93 , 2.12]
Kouroutzoglou 2024	8	19	5	19	3.5%	1.60 [0.64 , 4.01]
Lee 2018	5	20	1	10	0.9%	2.50 [0.34 , 18.63]
Myers-Smith 2022	13	68	2	67	1.4%	6.40 [1.50 , 27.30]
Russell 2021*[a]	34	140	15	70	13.8%	1.13 [0.66 , 1.94]
Russell 2021*[b]	44	145	15	71	13.9%	1.44 [0.86 , 2.40]
Vojjala 2025	7	63	7	58	5.0%	0.92 [0.34 , 2.47]
Subtotal		**1266**		**1118**	**97.8%**	**1.55 [1.28 , 1.87]**
Total events:	247		131			
Test for overall effect: Z = 4.47 (P < 0.00001)						
Heterogeneity: Chi² = 7.89, df = 8 (P = 0.44); I² = 0%						
1.1.2 Pregnant population						
Hajek 2022[c]	6	169	3	150	2.2%	1.78 [0.45 , 6.97]
Subtotal		**169**		**150**	**2.2%**	**1.78 [0.45 , 6.97]**
Total events:	6		3			
Test for overall effect: Z = 0.82 (P = 0.41)						
Heterogeneity: Not applicable						
Total		**1435**		**1268**	**100.0%**	**1.55 [1.28 , 1.88]**
Total events:	253		134			
Test for overall effect: Z = 4.55 (P < 0.00001)						
Test for subgroup differences: Chi² = 0.04, df = 1 (P = 0.85), I² = 0%						
Heterogeneity: Chi² = 7.95, df = 9 (P = 0.54); I² = 0%						

Footnotes

[a]FBNPs EC arm; control group split to avoid double-counting

[b]NSP EC arm; control group split to avoid double-counting

[c]This is a subset of data from participants followed up for 6 months or longer

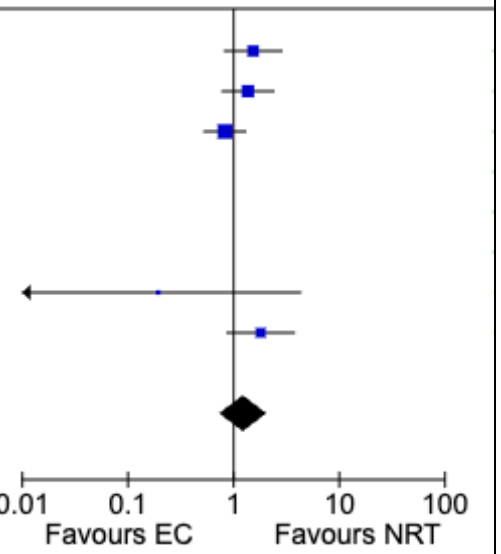
Nicotine EC versus NRT, Serious adverse events at 1+ weeks

GRADE certainty of evidence: LOW

Study or Subgroup	EC Events	EC Total	NRT Events	NRT Total	Weight	Risk ratio M-H, Random, 95% CI
Bullen 2013	24	241	14	215	22.4%	1.53 [0.81 , 2.88]
Hajek 2019	27	356	19	342	25.8%	1.37 [0.77 , 2.41]
Hajek 2022	31	564	37	557	32.7%	0.83 [0.52 , 1.31]
Lee 2018[a]	0	19	0	10		Not estimable
Myers-Smith 2022	0	60	0	47		Not estimable
Piper 2025[b]	0	108	0	53		Not estimable
Smith 2025	0	18	1	10	1.3%	0.19 [0.01 , 4.34]
Wagener 2023	18	175	10	175	17.8%	1.80 [0.86 , 3.79]
Total (HKSJ[c])		**1541**		**1409**	**100.0%**	**1.22 [0.73 , 2.03]**
Total events:	100		81			

Test for overall effect: T = 1.06, df = 4 (P = 0.35)

Heterogeneity: Tau² (DL[d]) = 0.05; Chi² = 5.70, df = 4 (P = 0.22); I² = 30%



Footnotes

[a]Data at 4 weeks post-operation; time from baseline not defined and likely to differ between participants

[b]Intervention arm contains data from EC + placebo patch and EC + no patch study arms

[c]CI calculated by Hartung-Knapp-Sidik-Jonkman method.

[d]Tau² calculated by DerSimonian and Laird method.

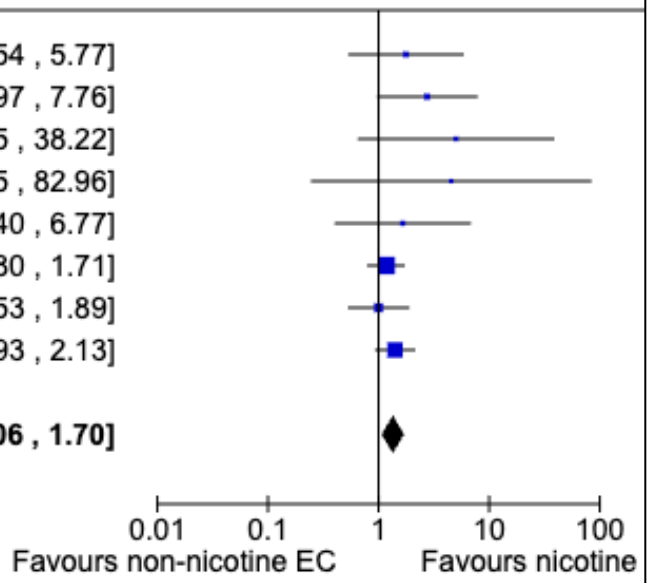
Nicotine EC versus non-nicotine (placebo) EC, Smoking cessation at 6+ months

GRADE certainty of evidence: MODERATE

Study or Subgroup	Nicotine EC Events	Nicotine EC Total	Non-nicotine EC Events	Non-nicotine EC Total	Weight	Risk ratio M-H, Random, 95% CI
Bullen 2013	21	289	3	73	4.0%	1.77 [0.54 , 5.77]
Caponnetto 2013a*	22	200	4	100	5.2%	2.75 [0.97 , 7.76]
Cobb 2021[a]	10	130	1	65	1.3%	5.00 [0.65 , 38.22]
Cobb 2021[b]	4	130	0	65	0.7%	4.53 [0.25 , 82.96]
Eisenberg 2020	5	128	3	127	2.8%	1.65 [0.40 , 6.77]
Klonizakis 2022	36	84	30	82	39.2%	1.17 [0.80 , 1.71]
Lucchiari 2022	15	70	15	70	13.9%	1.00 [0.53 , 1.89]
Tuisku 2024	42	152	30	153	33.0%	1.41 [0.93 , 2.13]
Total (Wald[c])		**1183**		**735**	**100.0%**	**1.34 [1.06 , 1.70]**
Total events:	155		86			

Test for overall effect: Z = 2.46 (P = 0.01)

Heterogeneity: Tau² (DL[d]) = 0.00; Chi² = 6.14, df = 7 (P = 0.52); I² = 0%



Footnotes

[a]36 mg/mL arm; control group split to avoid double-counting

[b]8 mg/mL arm; control group split to avoid double-counting

[c]CI calculated by Wald-type method.

[d]Tau² calculated by DerSimonian and Laird method.

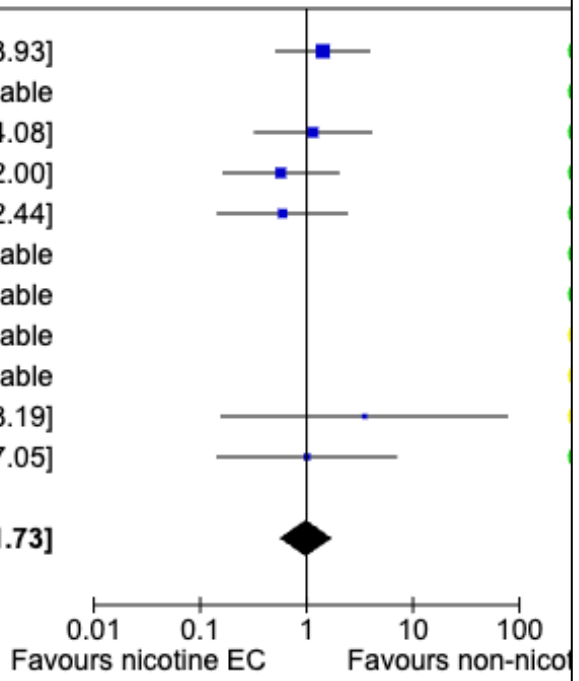
Nicotine EC versus non-nicotine (placebo) EC, SAEs at 1+ weeks

GRADE certainty of evidence: LOW

Study or Subgroup	Nicotine EC Events	Nicotine EC Total	Non-nicotine EC Events	Non-nicotine EC Total	Weight	Risk ratio M-H, Random, 95% CI
Bullen 2013	24	241	4	57	31.2%	1.42 [0.51 , 3.93]
Caponnetto 2013a*	0	72	0	45		Not estimable
Cobb 2021[a]	8	86	3	37	20.1%	1.15 [0.32 , 4.08]
Cobb 2021[b]	5	81	4	37	20.5%	0.57 [0.16 , 2.00]
Eisenberg 2020	3	128	5	127	16.3%	0.60 [0.15 , 2.44]
George 2019	0	37	0	37		Not estimable
Lucchiari 2022	0	70	0	70		Not estimable
Meier 2017	0	24	0	24		Not estimable
Okuyemi 2022	0	109	0	106		Not estimable
Rose 2023*[c]	1	11	0	13	3.4%	3.50 [0.16 , 78.19]
Tuisku 2024	2	152	2	153	8.5%	1.01 [0.14 , 7.05]
Total (Wald[d])		**1011**		**706**	**100.0%**	**0.98 [0.55 , 1.73]**
Total events:	43		18			

Test for overall effect: Z = 0.07 (P = 0.95)

Heterogeneity: Tau² (DL[e]) = 0.00; Chi² = 2.41, df = 5 (P = 0.79); I² = 0%



Footnotes

[a]36 mg/mL; control group split to avoid double counting

[b]8 mg/mL; control group split to avoid double counting

[c]All participants receiving placebo patch

[d]CI calculated by Wald-type method.

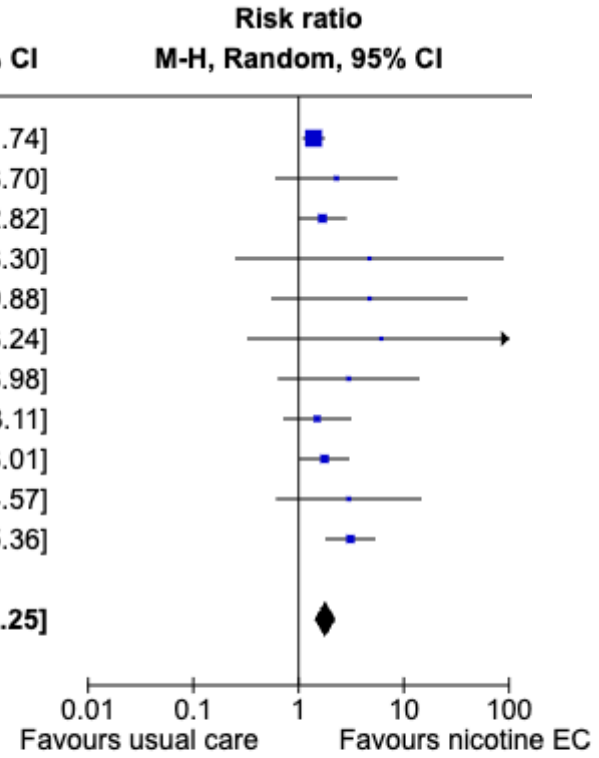
[e]Tau² calculated by DerSimonian and Laird method.

Nicotine EC versus behavioral support only/no support, Smoking cessation at 6+ months

GRADE certainty of evidence: LOW

Study or Subgroup	Nicotine EC Events	Nicotine EC Total	Usual care Events	Usual care Total	Weight	Risk ratio M-H, Random, 95% CI
Auer 2024[a]	141	622	102	624	40.6%	1.39 [1.10 , 1.74]
Begh 2021	7	164	3	161	2.7%	2.29 [0.60 , 8.70]
Carpenter 2023	58	427	17	211	14.8%	1.69 [1.01 , 2.82]
Dawkins 2020	3	48	0	32	0.6%	4.71 [0.25 , 88.30]
Eisenberg 2020	5	128	1	121	1.1%	4.73 [0.56 , 39.88]
Halpern 2018	4	1199	0	813	0.6%	6.11 [0.33 , 113.24]
Holliday 2019[b]	6	40	2	40	2.0%	3.00 [0.64 , 13.98]
Lucchiari 2022	15	70	10	70	8.2%	1.50 [0.72 , 3.11]
Pope 2024	35	484	20	488	13.9%	1.76 [1.03 , 3.01]
Pratt 2022	6	120	2	120	1.9%	3.00 [0.62 , 14.57]
Xu 2023*	91	566	14	271	13.6%	3.11 [1.81 , 5.36]
Total (HKSJ[c])		**3868**		**2951**	**100.0%**	**1.78 [1.42 , 2.25]**
Total events:	371		171			

Test for overall effect: T = 5.58, df = 10 (P = 0.0002)



Heterogeneity: Tau² (DL[d]) = 0.02; Chi² = 11.47, df = 10 (P = 0.32); I² = 13%

Footnotes

[a]As NRT was not provided by the study, we classed this comparator arm as "behavioural support only."

[b]Although participants were given a choice of nicotine concentration including 0 mg, none of the participants chose the non-nicotine e-liquid

[c]CI calculated by Hartung-Knapp-Sidik-Jonkman method.

[d]Tau² calculated by DerSimonian and Laird method.

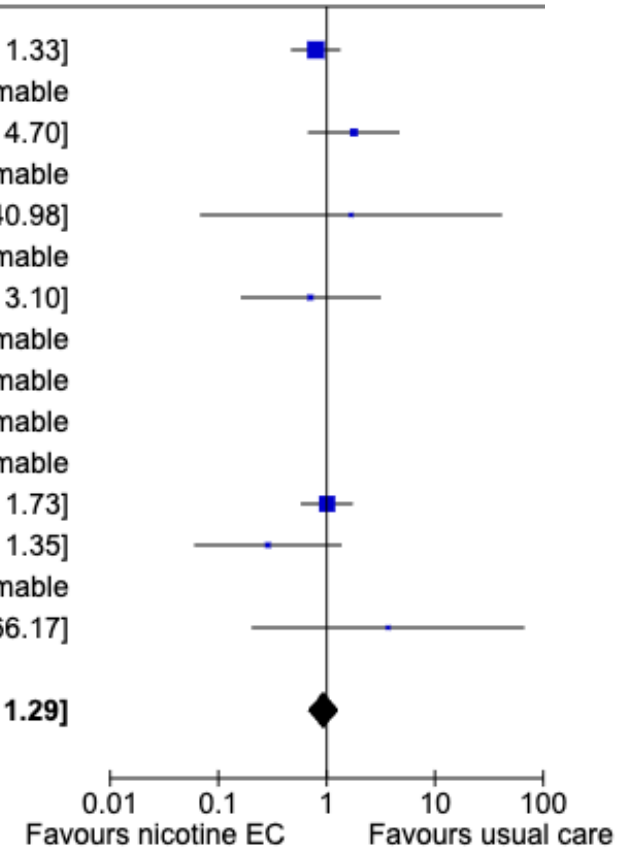
Nicotine EC versus behavioral support only/no support, SAEs at 1+ weeks

GRADE certainty of evidence: VERY LOW

Study or Subgroup	Nicotine EC Events	Nicotine EC Total	Usual care Events	Usual care Total	Weight	Risk ratio M-H, Random, 95% CI
Auer 2024	25	575	31	566	40.4%	0.79 [0.47 , 1.33]
Avila 2024	0	14	0	7		Not estimable
Begh 2021	11	148	6	144	11.4%	1.78 [0.68 , 4.70]
Carpenter 2017[a]	0	34	0	16		Not estimable
Carpenter 2023	1	292	0	163	1.0%	1.68 [0.07 , 40.98]
Edmiston 2022*[b]	0	300	0	150		Not estimable
Eisenberg 2020	3	128	4	121	4.9%	0.71 [0.16 , 3.10]
George 2019	0	37	0	40		Not estimable
Holliday 2019[c]	0	29	0	29		Not estimable
Kale 2025	0	15	0	12		Not estimable
Piper 2025	0	54	0	53		Not estimable
Pope 2024	25	484	25	488	36.6%	1.01 [0.59 , 1.73]
Pratt 2022	2	120	7	120	4.4%	0.29 [0.06 , 1.35]
Pulvers 2020	0	115	0	54		Not estimable
Walele 2018*	5	306	0	102	1.3%	3.69 [0.21 , 66.17]
Total (Wald[d])		**2651**		**2065**	**100.0%**	**0.93 [0.67 , 1.29]**
Total events:	72		73			

Test for overall effect: Z = 0.45 (P = 0.65)

Heterogeneity: Tau² (DL[e]) = 0.00; Chi² = 5.55, df = 6 (P = 0.48); I² = 0%



Footnotes

[a]Data from 24 mg arm (0 events in 16 mg arm as well)

[b]Menthol and tobacco flavour arms were combined

[c]Participants offered choice of nicotine or no-nicotine EC; all chose nicotine-containing EC

[d]CI calculated by Wald-type method.

[e]Tau² calculated by DerSimonian and Laird method.

Conclusions

- There is high-certainty evidence that nicotine EC increase quit rates compared to NRT, and moderate-certainty evidence they increase quit rates compared to EC without nicotine. Evidence comparing nicotine EC with behavioral support or no support also suggests benefit, but is less certain due to lack of blinding.
- Overall incidence of SAEs was low across all study arms. We did not detect evidence of serious harm, but longer, larger trials are needed to fully evaluate safety. Included studies tested regulated nicotine-containing EC; other products may have different harm profiles.
- We need more RCTs that:
  - Aim to assess safety for as long as possible (and ideally be powered to detect differences in SAEs)
  - Use active comparators, particularly those other than NRT, or other EC characteristics (e.g. flavor, nicotine strength)
  - Test EC as an adjunct to other treatments
  - Test newer EC devices

ONPs versus vaping for smoking cessation – very different evidence bases!

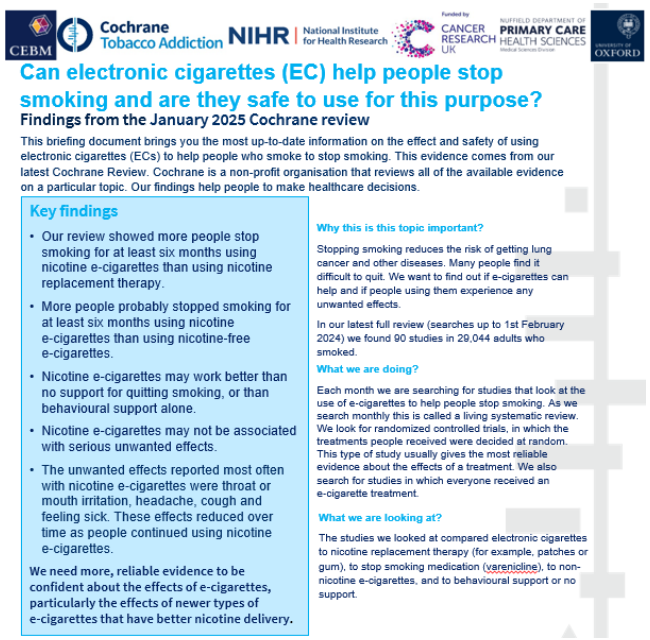
	ONP	EC
RCTs	4	61
Participants	282	30,366
Strength of evidence for cessation	No studies following up for 6+ months	Compared to NRT: high certainty, more effective Compared to placebo: moderate certainty, more effective Compared to minimal control: low certainty, more effective
Strength of evidence, serious adverse events	Low/very low (no clear difference)	Low/very low (no clear difference)

1. Hartmann-Boyce J, Chepkin SC, Ye W, Bullen C, Lancaster T. Nicotine replacement therapy versus control for smoking cessation. Cochrane. 2018 May 31;5(5)

Thank you! For further information…

See full reviews for:

- More detail on everything that's been presented
- Secondary outcomes
- Other comparisons
- Data from uncontrolled studies
- Comparison with other reviews



Cochrane Tobacco Addiction | NIHR National Institute for Health Research | CANCER RESEARCH UK | NUFFIELD DEPARTMENT OF PRIMARY CARE HEALTH SCIENCES | UNIVERSITY OF OXFORD

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

Findings from the January 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 February 2024) we found 90 studies in 29,044 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.

See our living review project website for briefing documents, infographics, and a link to our monthly podcast

Or just email me, at jhartmannboy@umass.edu