

Supplementary Material 4
Details on Risk of Bias Assessment for each outcome of interest

Supplementary Table 2. Detailed description of concerns for each domain marked identified as “some concerns” or “high risk” on Risk of Bias Assessment

Smoking cessation outcome					
	Randomization Process	Deviations from intended intervention	Missing of outcome data	Measurement of the outcome	Selection of the reported result
Bullen 2013	Low risk	Adherence higher in the ENDS group compared to NRT group at all timepoints. At 6 months, 29% of ENDS group vs 8% of NRT group still using assigned treatment.	Low risk	Low risk	Low risk
Hajek 2019	Low risk	At 52 weeks among participants with 1-year abstinence, 80% were using e-cigarettes in the ENDS group vs 9% in the NRT group. Also, 6% of participants in the ENDS group reported using non-allocated NRT for at least five consecutive days in the past six months compared to 22% in the NRT group that reported using non-allocated product	Low risk	Low risk	Low risk
Hatsukami 2019	No information provided with regards to randomization process and allocation concealment. However, there were no	The NRT group had the highest dropout rates compared to the other groups in the study. At 8 weeks, 24% dropped out in the ENDS group compared to 30% in the NRT group.	Large number of dropouts; participants who did not stop smoking could be less motivated to continue with study follow up	Low risk	Low risk

	significant baseline differences between groups				
Lee, SH 2019	The use of constant block sizes of 2 makes it easy to determine order of randomization.	No participants discontinued the intervention. However, 4 and 14 participants in the ENDS and NRT group dropped out before treatment, respectively.	Although data was missing for 12% of randomized individuals, all dropouts occurred prior to the start of treatment. Missingness in this case less likely to be due to the value of the outcome as it happened prior to onset of therapy	Low risk	Low risk
Lee, SM 2018	Low risk	Low risk	Low risk	Low risk	Low risk
Smoking reduction outcome					
Bullen 2013	Low risk	Refer to smoking cessation outcome	Sensitivity analyses conducted for the smoking cessation outcome were not performed for the smoking reduction outcome	Low risk	Low risk
Eisenhofer 2015	Not enough information available in abstract	Not enough information available in abstract	Not enough information available in abstract	Low risk	Not enough information available in abstract
Hajek 2019	Low risk	Refer to smoking cessation outcome	Low risk	Low risk	Low risk
Hatsukami 2019	Refer to smoking cessation outcome	Refer to smoking cessation outcome	Refer to smoking cessation outcome	Low risk	Low risk
Lee, SH 2019	Refer to smoking cessation outcome	Refer to smoking cessation outcome	Refer to smoking cessation outcome	Low risk	Low risk
Lee, SM 2018	Low risk	Low risk	Low risk	Low risk	Low risk
Harms outcome					

Bullen 2013	Low risk	Differences in treatment adherence could potentially lead to discrepancies in harm reporting	No information on the proportion of participants on whom adverse events were collected; it is likely that people who experienced more severe side effects did not continue with study follow-up activities	high likelihood that participants who were unhappy with their treatment allocation would report side effects more often than their counterparts.	Low risk
Hajek 2019	Low risk	Differences in treatment adherence could potentially lead to discrepancies in harm reporting	The authors reported harm data based on number of participants at randomization, however significant dropout seen at 4-week follow up, raising concerns that adverse event data not collected on all participants	High likelihood that participants who were unhappy with their treatment allocation would report side effects more often than their counterparts	Low risk
Hatsukami 2019	Refer to smoking cessation outcome	Differences in treatment adherence could potentially lead to discrepancies in harm reporting	No information on the proportion of participants on whom adverse events were collected; it is likely that people who experienced more severe side effects did not continue with study follow-up activities	High likelihood that participants who were unhappy with their treatment allocation would report side effects more often than their counterparts	Low risk
Lee, SH 2019	Refer to smoking cessation outcome	Differences in treatment adherence could potentially lead to discrepancies in harm reporting however non-adherence happened prior to onset of treatment, therefore less likely to have an impact	Low risk	High likelihood that participants who were unhappy with their treatment allocation would report side effects more often than their counterparts	Low risk
Lee, SM 2018	Low risk	Low risk	Low risk	High likelihood that participants who were unhappy with their	Low risk

				treatment allocation would report side effects more often than their counterparts	
Withdrawal symptoms outcome					
Eisenhofer 2015	Not enough information available in abstract	Not enough information available in abstract	Not enough information available in abstract	Not enough information available in abstract	Not enough information available in abstract
Hajek 2019	Low risk	Differences in treatment adherence could potentially lead to discrepancies in withdrawal symptoms reporting	Outcome not available for all randomized participants; likely that people who experienced more nicotine withdrawal symptoms did not continue with study follow-up activities	Given that the withdrawal measurements were self-reported, there is a high likelihood that participants who were unhappy with treatment allocation reported more withdrawal symptoms than their counterparts	Low risk
Hatsukami 2019	Refer to smoking cessation outcome	Differences in treatment adherence could potentially lead to discrepancies in withdrawal symptoms reporting	Outcome not available for all randomized participants; likely that people who experienced more nicotine withdrawal symptoms did not continue with study follow-up activities	Given that the withdrawal measurements were self-reported, there is a high likelihood that participants who were unhappy with treatment allocation reported more withdrawal symptoms than their counterparts	No information on how withdrawal symptom assessment was performed
Lee, SM 2018	Low risk	Low risk	Low risk	Given that the withdrawal measurements were self-reported, there is a high likelihood that participants who were	Low risk

				unhappy with treatment allocation reported more withdrawal symptoms than their counterparts	
Acceptance of therapy outcome					
Bullen 2013	Low risk	Differences in treatment adherence could potentially lead to discrepancies in acceptance of therapy outcome	Participants unhappy with their assigned therapy likely did not continue with study follow-up activities	Highly subjective outcome, inability to blind participants to assigned therapy	Low risk
Hajek 2019	Low risk	Differences in treatment adherence could potentially lead to discrepancies in acceptance of therapy outcome	Participants unhappy with their assigned therapy likely did not continue with study follow-up activities	Highly subjective outcome, inability to blind participants to assigned therapy	Low risk
Hatsukami 2019	Not enough information available in abstract	Differences in treatment adherence could potentially lead to discrepancies in acceptance of therapy outcome	Participants unhappy with their assigned therapy likely did not continue with study follow-up activities	Highly subjective outcome, inability to blind participants to assigned therapy	Low risk
Lee, SM 2018	Low risk	Low risk	Low risk	Highly subjective outcome, inability to blind participants to assigned therapy	Low risk