

Question:

How does bupropion compare with varenicline or nicotine replacement therapies (NRTs) for promoting smoking cessation in adolescents and adults?

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<https://doi.org/10.1002/cca.3205>

Answer

Varenicline may be more effective than bupropion for promoting smoking cessation, but there may be little or no difference between effectiveness of bupropion and NRTs. Little or no difference was found between treatments for other outcomes, but evidence was limited.

RCT evidence comparing bupropion (300 mg/d for 7 to 12 weeks) with varenicline (0.5 to 2 mg/d for 7 to 12 weeks) favors varenicline for increasing smoking abstinence rates at six months or later (156 versus 218 per 1000 people; all results on average). Limited evidence does not show a difference between bupropion and varenicline in the numbers of adverse events, serious adverse events, deaths, and withdrawals due to adverse events experienced by people taking these medications.

Studies comparing bupropion (150 to 300 mg/d for 7 to 12 weeks) with NRT (varying form and dose for 6 to 12 weeks) found little or no difference in smoking abstinence rates at six months or later (156 versus 157 per 1000 people). Again, limited evidence does not show a difference between bupropion and NRT in the numbers of adverse events, serious adverse events, deaths, and withdrawals due to adverse events experienced by people taking these medications.

For a comparison of bupropion with placebo, see [CCA 3204](#); for effects of adding bupropion or fluoxetine to other treatments, see [CCA 3206](#).

Comparisons

1. Bupropion versus varenicline

[Expand All »](#)

> OUTCOME 1.1 Smoking cessation

Narrative result

Six RCTs with 6286 participants found that fewer people ceased smoking with bupropion than with varenicline.[1]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the six studies, two failed to report adequate allocation concealment and/or random sequence generation, four did not report adequate blinding of participants/carers/outcome assessors and one had high or unclear numbers of withdrawals.

Relative effect or mean difference

There was a statistically significant difference between groups, in favor of varenicline (RR 0.71, 95% CI 0.64 to 0.79).

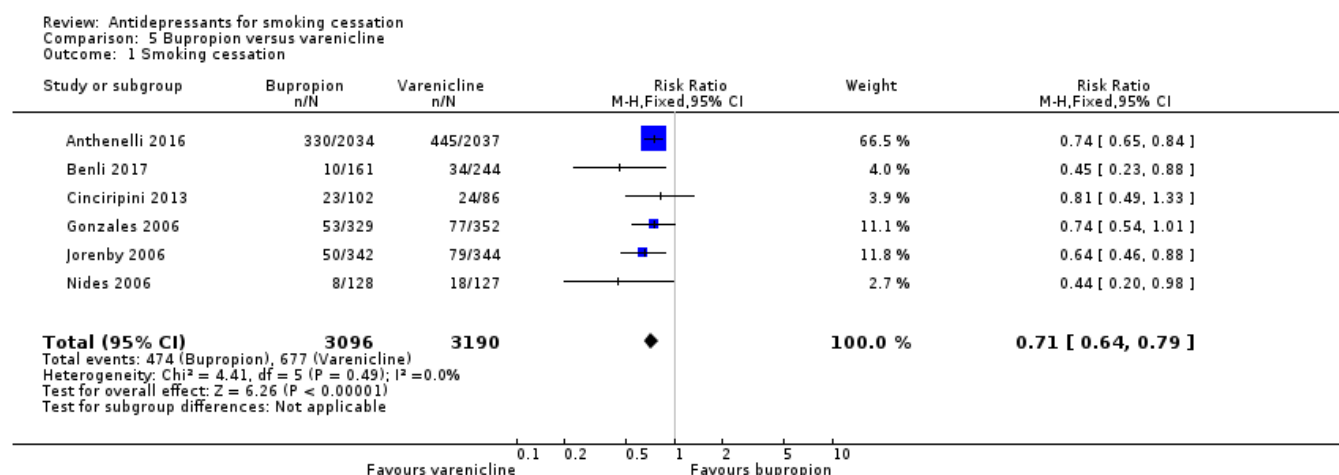


Figure 1

[Open in figure viewer](#)

Forest plot from Cochrane Review

Absolute effect

156 per 1000 people (95% CI 140 to 173) with bupropion compared with 218 per 1000 people with varenicline (calculated using median event rate).

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. [Antidepressants for smoking cessation](#). *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> OUTCOME 1.2 Adverse events

Narrative result

Reviewers assessed adverse events of any severity, psychiatric adverse events, anxiety and insomnia. For adverse events of any severity and psychiatric events, little or no difference was found between bupropion and varenicline; however, anxiety and insomnia were more common with bupropion. Click below for details.[2]

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. [Antidepressants for smoking cessation](#).

Cochrane Database of Systematic Reviews 2020, Issue 4. Art. No.: CD000031. DOI:

10.1002/14651858.CD000031.pub5. Search date May 2019

> Subgroup analysis 1.2.1 Adverse events – [subgroup: Adverse events of any severity]

Narrative result

Five RCTs with 5780 participants found no statistically significant difference between groups. Adverse events included abnormal test findings, clinically significant symptoms and signs, changes in physical examination findings, hypersensitivity, and progression or worsening of underlying disease[3]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the five studies, two failed to report adequate allocation concealment and/or random sequence generation, three did not report adequate blinding of participants/carers/outcome assessors and one had high or unclear numbers of withdrawals.

Relative effect or mean difference

There was no statistically significant difference between groups (RR 0.98, 95% CI 0.95 to 1.00).

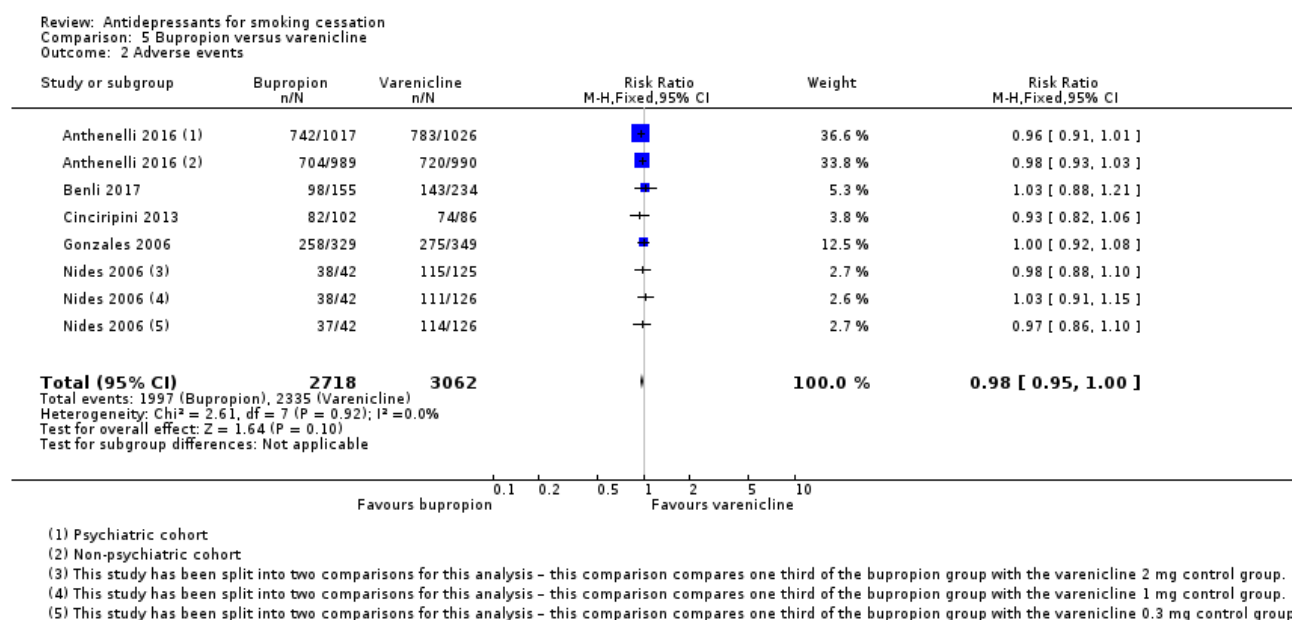


Figure 2

[Open in figure viewer](#)

Forest plot from Cochrane Review

Absolute effect

744 per 1000 people (95% CI 722 to 767) with bupropion compared with 763 per 1000 people with varenicline (calculated using median event rate).

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. [Antidepressants for smoking cessation](#).

Cochrane Database of Systematic Reviews 2020, Issue 4. Art. No.: CD000031. DOI:

10.1002/14651858.CD000031.pub5. Search date May 2019

> Subgroup analysis 1.2.2 Adverse events – [subgroup: Psychiatric]

Narrative result

Two RCTs with 4051 participants found no statistically significant difference between groups. Psychiatric adverse events included any adverse events relating to mental health other than suicide, which was reported as a serious adverse event.^[4]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the two studies, one failed to report adequate allocation concealment and/or random sequence generation, and one had high or unclear numbers of withdrawals; however, both did report adequate blinding of participants/carers/outcome assessors.

Relative effect or mean difference

There was no statistically significant difference between groups (RR 1.07, 95% CI 0.99 to 1.16).

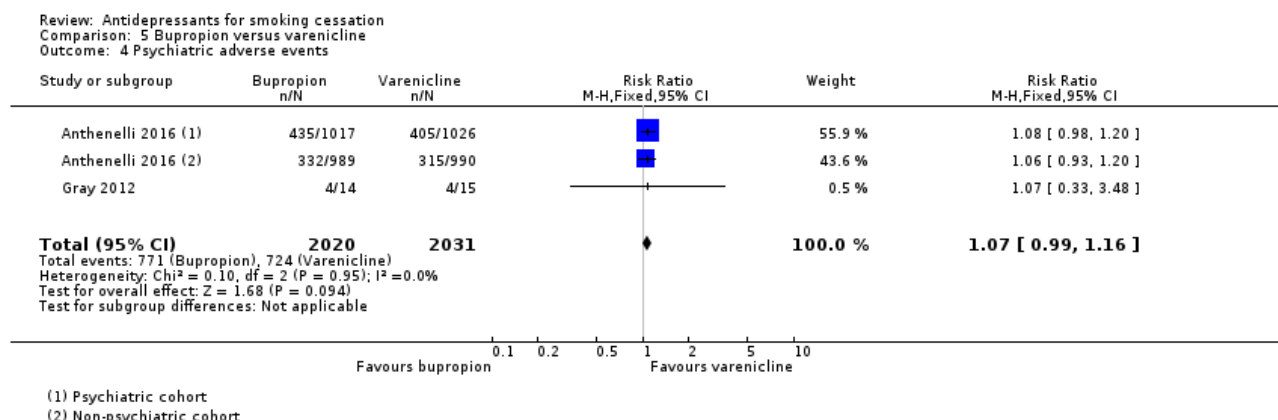


Figure 3

[Open in figure viewer](#)

Forest plot from Cochrane Review

Absolute effect

423 per 1000 people (95% CI 390 to 458) with bupropion compared with 395 per 1000 people with varenicline (calculated using median event rate).

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. [Antidepressants for smoking cessation](#).

Cochrane Database of Systematic Reviews 2020, Issue 4. Art. No.: CD000031. DOI:

10.1002/14651858.CD000031.pub5. Search date May 2019

> Subgroup analysis 1.2.3 Adverse events – [subgroup: Anxiety]

Narrative result

Two RCTs with 4705 participants found that more people had anxiety with bupropion than with varenicline.[5]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the two studies, one failed to report adequate blinding of participants/carers/outcome assessors; however, both reported adequate allocation concealment and/or random sequence generation and had low numbers of withdrawals.

Relative effect or mean difference

There was a statistically significant difference between groups, in favor of varenicline (RR 1.28, 95% CI 1.07 to 1.53).

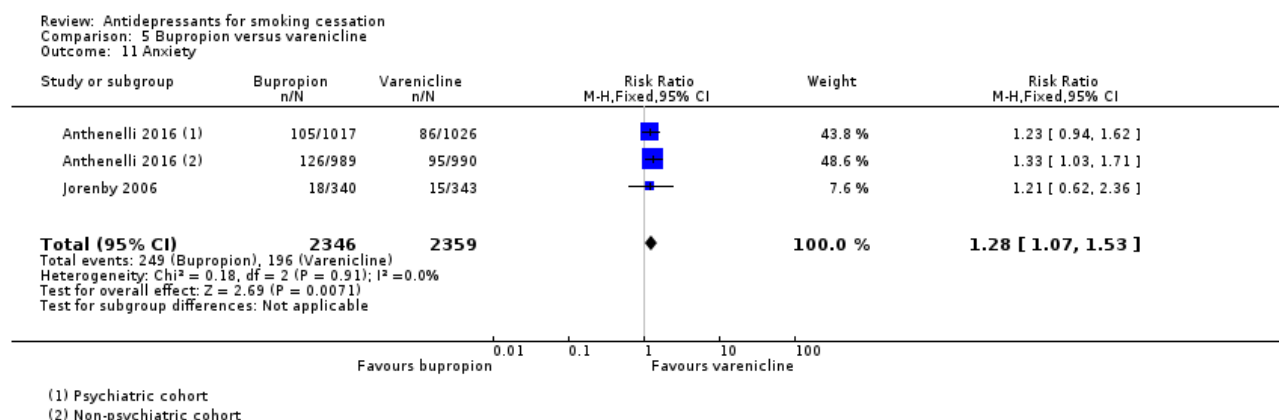


Figure 4

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Forest plot from Cochrane Review

Absolute effect

107 per 1000 people (95% CI 90 to 128) with bupropion compared with 84 per 1000 people with varenicline (calculated using median event rate).

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. Antidepressants for smoking cessation. *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> Subgroup analysis 1.2.4 Adverse events – [subgroup: Insomnia]

Narrative result

Three RCTs with 5208 participants found that more people had insomnia with bupropion than with varenicline.[6]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the three studies, two did not report adequate blinding of participants/carers/outcome assessors; however, all reported adequate allocation concealment and/or random sequence generation and had low numbers of withdrawals.

Relative effect or mean difference

There was a statistically significant difference between groups, in favor of varenicline (RR 1.40, 95% CI 1.22 to 1.60).

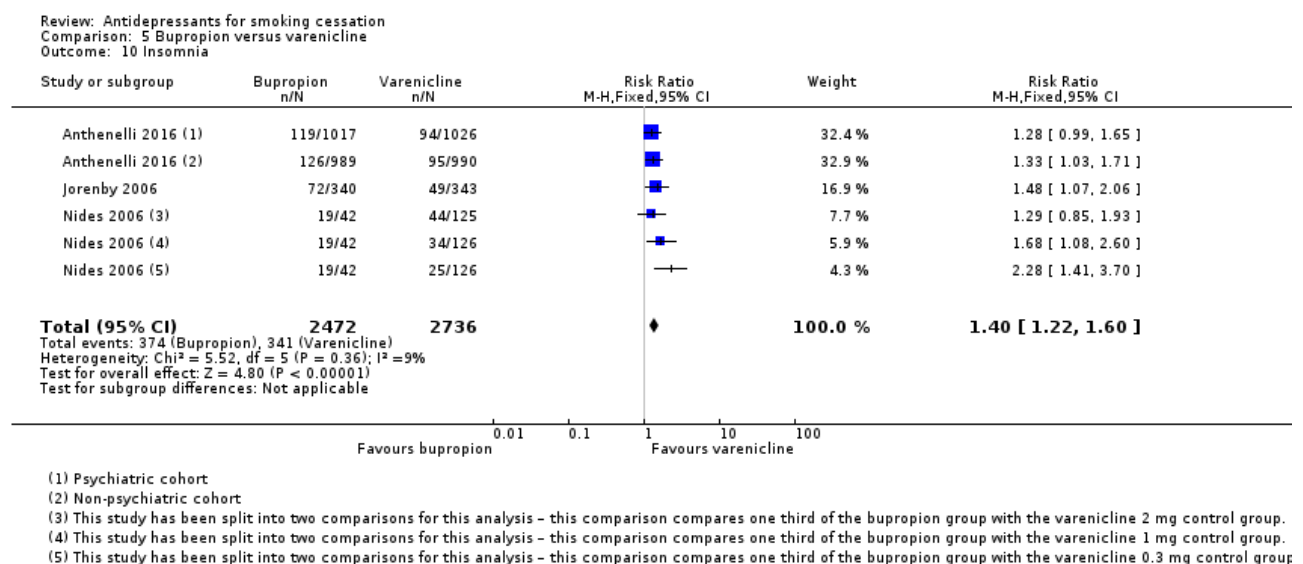


Figure 5

[Open in figure viewer](#)

Forest plot from Cochrane Review

Absolute effect

134 per 1000 people (95% CI 117 to 153) with bupropion compared with 96 per 1000 people with varenicline (calculated using median event rate).

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. Antidepressants for smoking cessation. *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> OUTCOME 1.3 Serious adverse events

Narrative result

Serious adverse events were defined as events that result in death, are life-threatening (immediate risk of death), require inpatient hospitalization or prolongation of existing hospitalization, result in persistent or significant disability or incapacity, and/or result in congenital anomaly or birth defect. Reviewers assessed several measures of serious adverse events including serious adverse events of any severity, seizures, overdoses and suicide attempts. All analyses found little or no difference between bupropion and varenicline but were underpowered. Click below for details.[7]

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. [Antidepressants for smoking cessation](#). *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> Subgroup analysis 1.3.1 Serious adverse events – [subgroup: Serious adverse events of any severity]

Narrative result

Four RCTs with 4742 participants found no statistically significant difference between groups.[8]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the four studies, two failed to report adequate allocation concealment and/or random sequence generation, two did not report adequate blinding of participants/carers/outcome assessors and one had high or unclear numbers of withdrawals.

Relative effect or mean difference

There was no statistically significant difference between groups (RR 1.39, 95% CI 0.94 to 2.04).

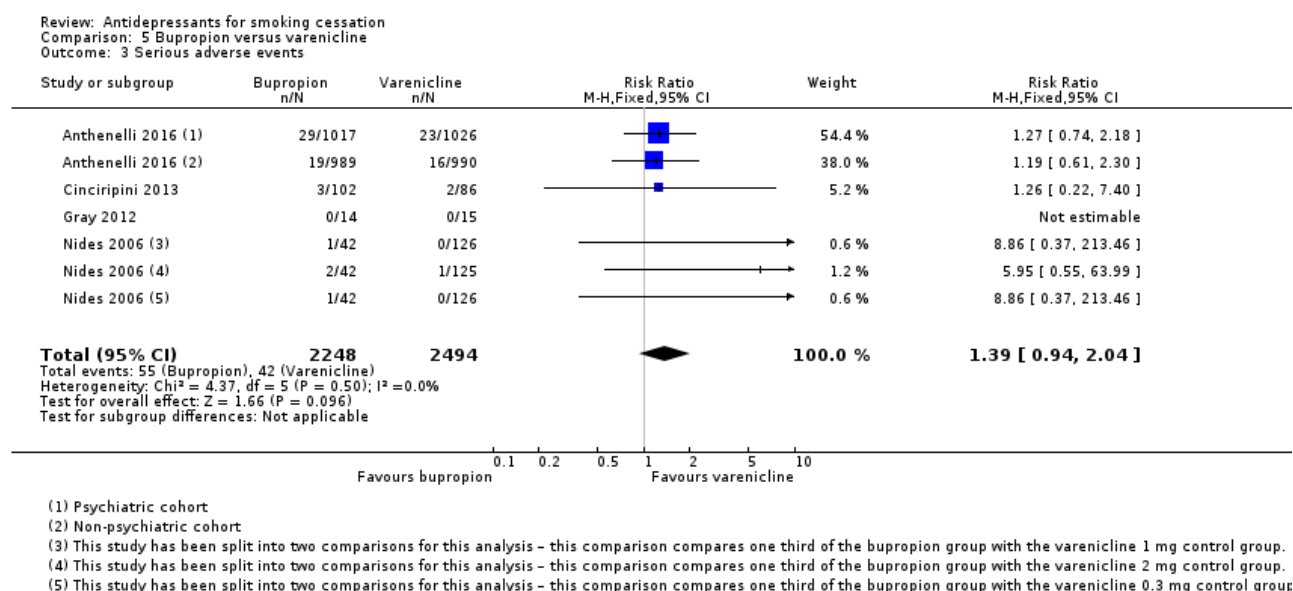


Figure 6

[Open in figure viewer](#)

Forest plot from Cochrane Review

Absolute effect

22 per 1000 people (95% CI 15 to 33) with bupropion compared with 16 per 1000 people with varenicline (calculated using median event rate).

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. [Antidepressants for smoking cessation](#). *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> Subgroup analysis 1.3.2 Serious adverse events – [subgroup: Seizures]

Narrative result

Four RCTs with 5389 participants found no statistically significant difference between groups.[9]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the four studies, one failed to report adequate allocation concealment and/or random sequence generation and two did not report adequate blinding of participants/carers/outcome assessors; however, all had low numbers of withdrawals.

Relative effect or mean difference

There was no statistically significant difference between groups (RR 7.16, 95% CI 0.92 to 55.42).

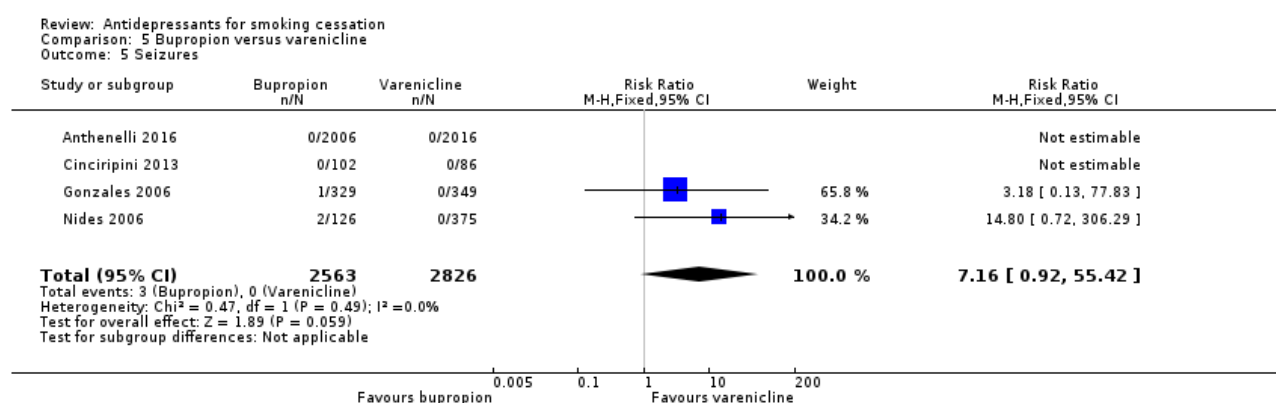


Figure 7

[Open in figure viewer](#)

Forest plot from Cochrane Review

Absolute effect

We could not calculate absolute results for this outcome because of low event rates.

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. [Antidepressants for smoking cessation](#). *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> Subgroup analysis 1.3.3 Serious adverse events – [subgroup: Overdoses]

Narrative result

Two RCTs with 4210 participants found no statistically significant difference between groups.[10]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the two studies, one failed to report adequate allocation concealment and/or random sequence generation and one did not report adequate blinding of participants/carers/outcome assessors; however, all had low numbers of withdrawals.

Relative effect or mean difference

There was no statistically significant difference between groups (RR 0.92, 95% CI 0.14 to 6.25).

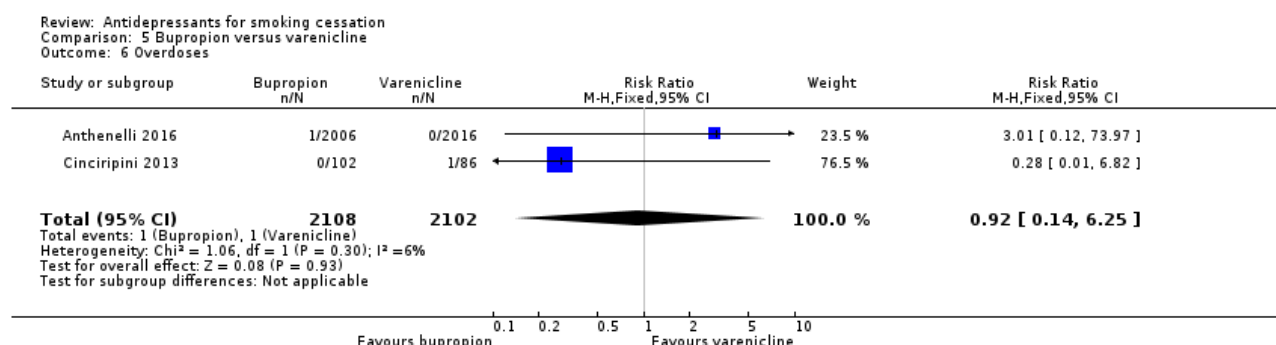


Figure 8

[Open in figure viewer](#)

Forest plot from Cochrane Review

Absolute effect

We could not calculate absolute results for this outcome because of low event rates.

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. Antidepressants for smoking cessation. *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> Subgroup analysis 1.3.4 Serious adverse events – [subgroup: Suicide attempts]

Narrative result

Three RCTs with 4239 participants found no statistically significant difference between groups.[11]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the three studies, two failed to report adequate allocation concealment and/or random sequence generation, one did not report adequate blinding of participants/carers/outcome assessors and one had high or unclear numbers of withdrawals.

Relative effect or mean difference

There was no statistically significant difference between groups (RR 3.01, 95% CI 0.31 to 28.96).

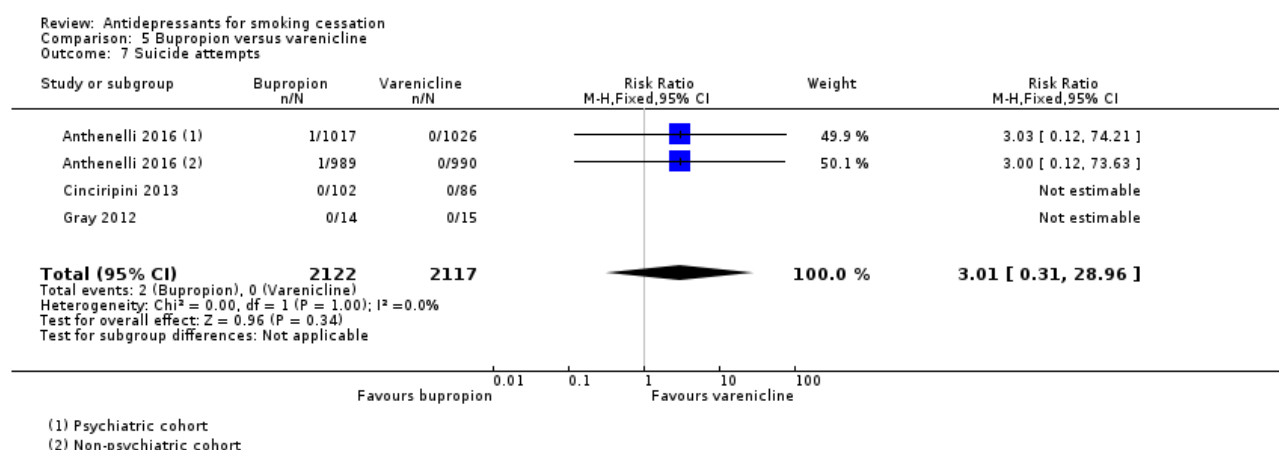


Figure 9

[Open in figure viewer](#)

Forest plot from Cochrane Review

Absolute effect

We could not calculate absolute results for this outcome because of low event rates.

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. [Antidepressants for smoking cessation](#). *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> OUTCOME 1.4 Mortality

Narrative result

Mortality was measured as all-cause mortality and deaths by suicide; reviewers found little or no difference in all-cause mortality between groups, but the analysis was underpowered. No instances of death by suicide were reported. Click below for details.[\[12\]](#)

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. [Antidepressants for smoking cessation](#). *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> Subgroup analysis 1.4.1 Mortality – [subgroup: All-cause mortality]

Narrative result

Five RCTs with 6074 participants found no statistically significant difference between groups.[13]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the five studies, one failed to report adequate allocation concealment and/or random sequence generation and three did not report adequate blinding of participants/carers/outcome assessors; however, all had low numbers of withdrawals.

Relative effect or mean difference

There was no statistically significant difference between groups (RR 3.01, 95% CI 0.31 to 28.96).

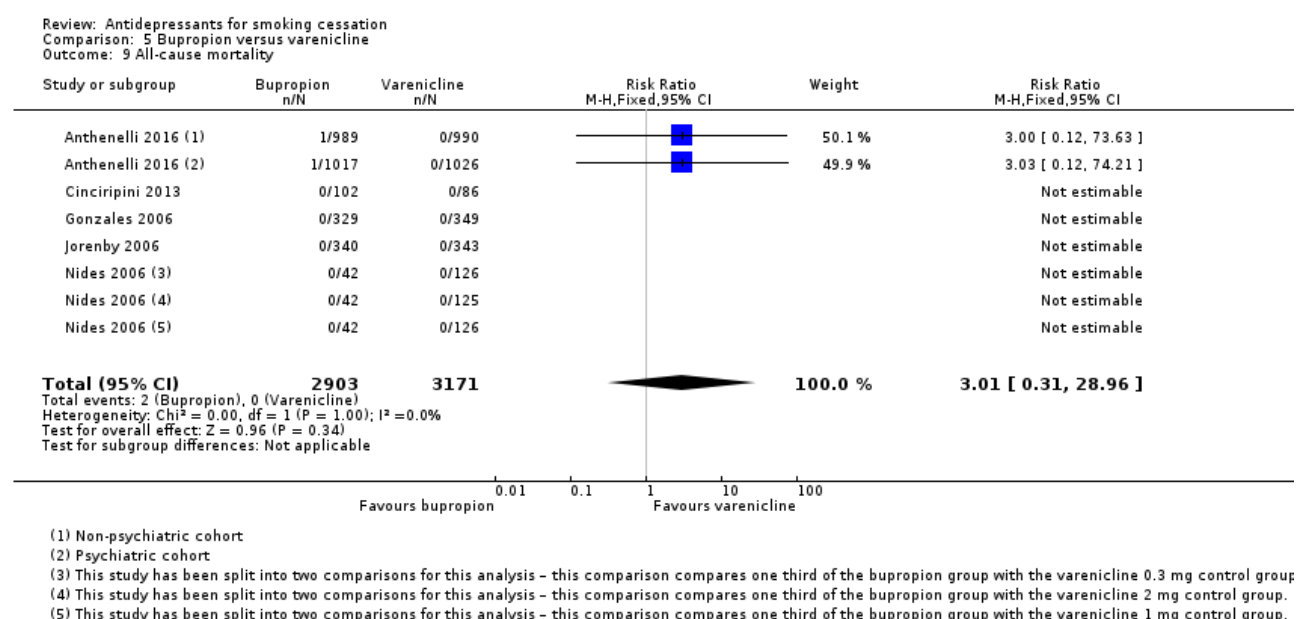


Figure 10

[Open in figure viewer](#)

Forest plot from Cochrane Review

Absolute effect

We could not calculate absolute results for this outcome because of low event rates.

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. Antidepressants for smoking cessation. *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> Subgroup analysis 1.4.2 Mortality – [subgroup: Death by suicide]

Narrative result

Five RCTs with 5600 participants found no instances of death by suicide in either group.[14]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the five studies, two failed to report adequate allocation concealment and/or random sequence generation, two did not report adequate blinding of participants/carers/outcome assessors and one had high or unclear numbers of withdrawals.

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. Antidepressants for smoking cessation. *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

OUTCOME 1.5 Withdrawals due to adverse events

Narrative result

Six RCTs with 6103 participants found no statistically significant difference between groups.[15]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the six studies, two failed to report adequate allocation concealment and/or random sequence generation, three did not report adequate blinding of participants/carers/outcome assessors and one had high or unclear numbers of withdrawals.

Relative effect or mean difference

There was no statistically significant difference between groups (RR 1.12, 95% CI 0.96 to 1.31).

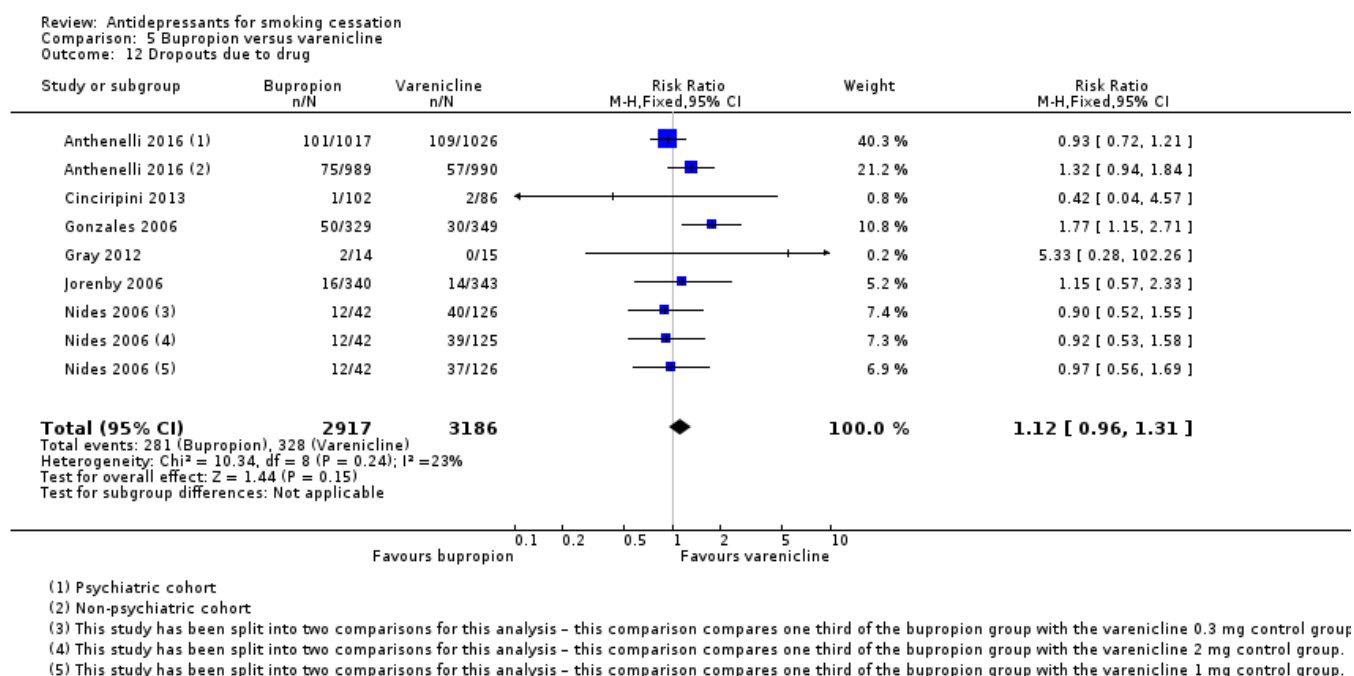


Figure 11

[Open in figure viewer](#)

Forest plot from Cochrane Review

Absolute effect

96 per 1000 people (95% CI 83 to 112) with bupropion compared with 86 per 1000 people with varenicline (calculated using median event rate).

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. [Antidepressants for smoking cessation](#). *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> Population, Intervention, Comparator**Population**

Adolescent and adult smokers (average age 19-47 years, 18-56% female) who smoked an average of 16-23 cigarettes per day, where reported. All participants also received one-to-one counseling in person or over the phone delivered as multiple sessions for a total of 150-240 minutes and/or smoking cessation information brochures. Recruited from clinics, academic centers and community centers worldwide

Intervention

Bupropion 300 mg/day for 7-12 weeks with or without placebo NRT or varenicline

Comparator

Varenicline 0.5-2 mg/day for 7-12 weeks with or without placebo NRT or bupropion

2. Bupropion versus NRT

Expand All »

> OUTCOME 2.1 Smoking cessation**Narrative result**

Ten RCTs with 8230 participants found no statistically significant difference between groups.^[16]

Subgroup analyses were conducted on the type of NRT used (patch, lozenge, patch plus lozenge or choice of NRT); all analyses were consistent with the main analysis except for the patch plus lozenge comparison that found smoking cessation rates were lower with bupropion. Most participants received a patch (5778). Click below for details.

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the ten studies, eight failed to report adequate allocation concealment and/or random sequence generation, seven did not report adequate blinding of participants/carers/outcome assessors and two had high or unclear numbers of withdrawals.

Relative effect or mean difference

There was no statistically significant difference between groups (RR 0.99, 95% CI 0.91 to 1.09).

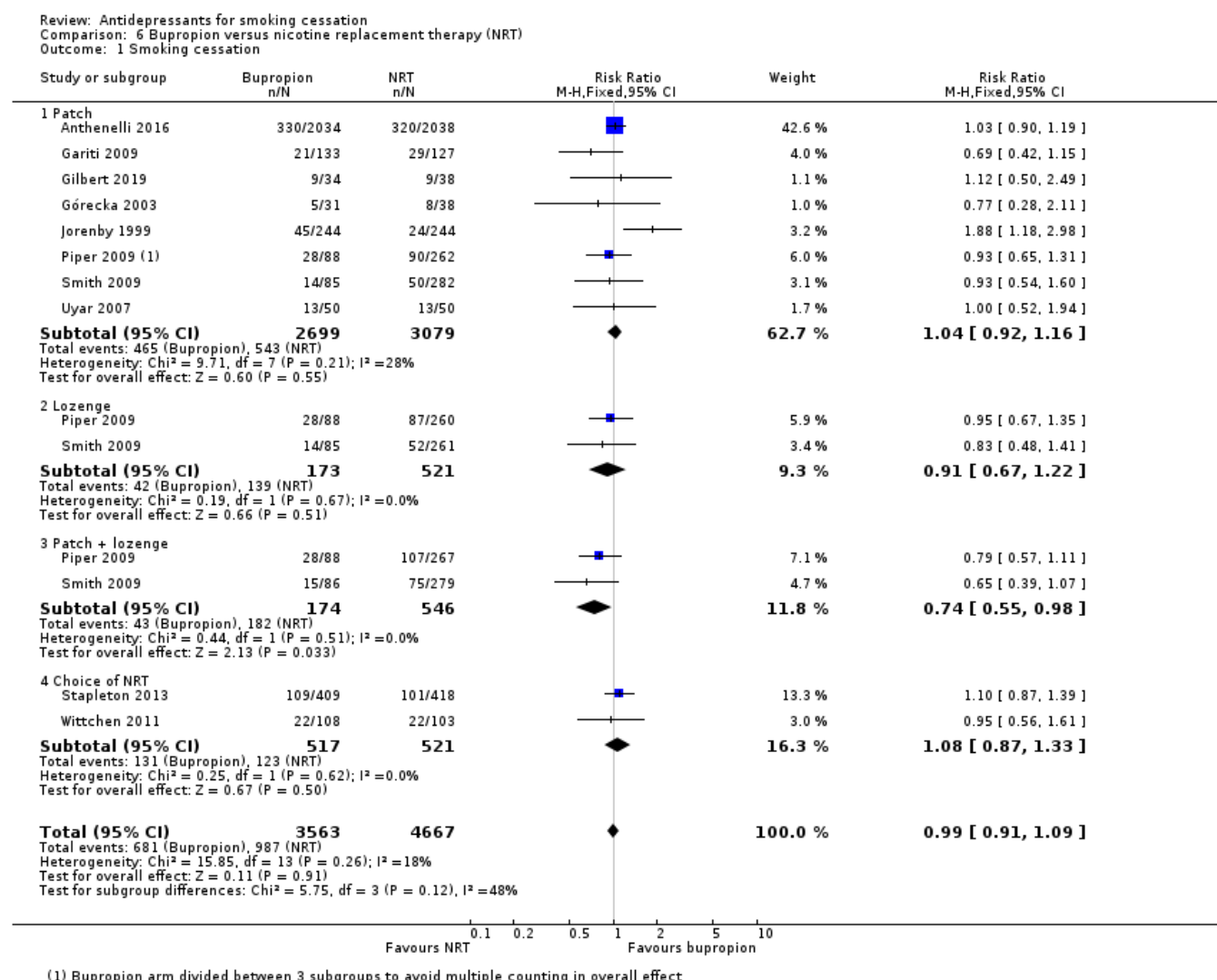


Figure 12

[Open in figure viewer](#)

Forest plot from Cochrane Review

Absolute effect

156 per 1000 people (95% CI 143 to 171) with bupropion compared with 157 per 1000 people with NRT (calculated using median event rate).

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. Antidepressants for smoking cessation. *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> Subgroup analysis 2.1.1 Smoking cessation - [subgroup: Patch plus lozenge]

Narrative result

Two RCTs with 720 participants found that fewer people ceased smoking with bupropion than with NRT.[17]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the two studies, neither reported adequate allocation concealment and/or random sequence generation, or adequate blinding of participants/carers/outcome assessors; however, both studies had low numbers of withdrawals.

Relative effect or mean difference

There was a statistically significant difference between groups, in favor of NRT (RR 0.74, 95% CI 0.55 to 0.98).

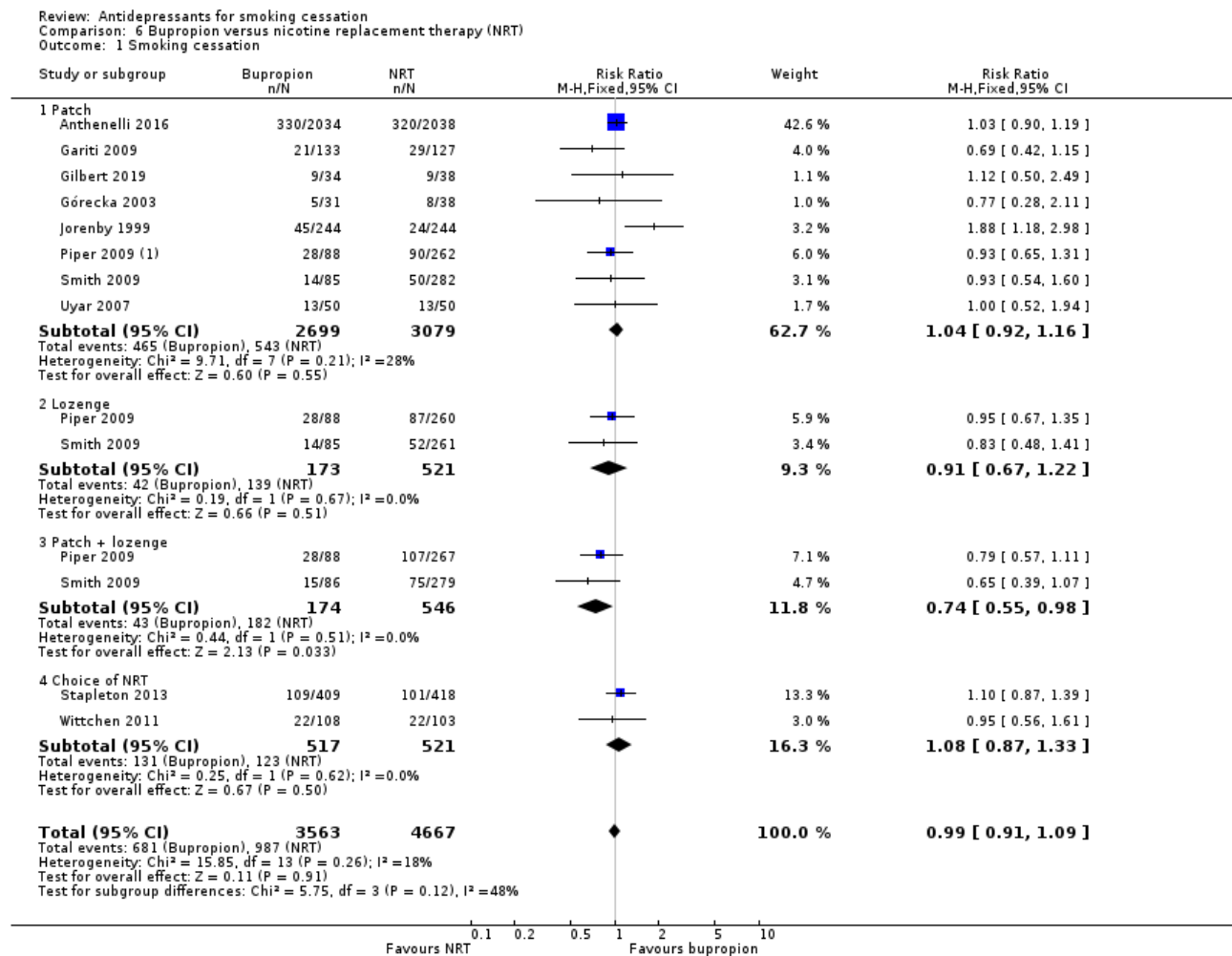


Figure 13

[Open in figure viewer](#)

Forest plot from Cochrane Review

Absolute effect

198 per 1000 people (95% CI 149 to 262) with bupropion compared with 269 per 1000 people with NRT (calculated using median event rate).

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. Antidepressants for smoking cessation. *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

OUTCOME 2.2 Adverse events

Narrative result

Reviewers assessed adverse events of any severity, psychiatric adverse events, anxiety and insomnia. For adverse events of any severity, little or no difference was reported between groups while anxiety and insomnia were more common with bupropion. Results were mixed for psychiatric events. Click below for details.[\[18\]](#)

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. [Antidepressants for smoking cessation](#). *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

Subgroup analysis 2.2.1 Adverse events – [subgroup: Adverse events of any severity]

Narrative result

Two RCTs with 4097 participants found no statistically significant difference between groups.[\[19\]](#)

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the two studies, one failed to report adequate allocation concealment and/or random sequence generation; however, both reported adequate blinding of participants/carers/outcome assessors and had low numbers of withdrawals.

Relative effect or mean difference

There was no statistically significant difference between groups (RR 1.02, 95% CI 0.98 to 1.06).

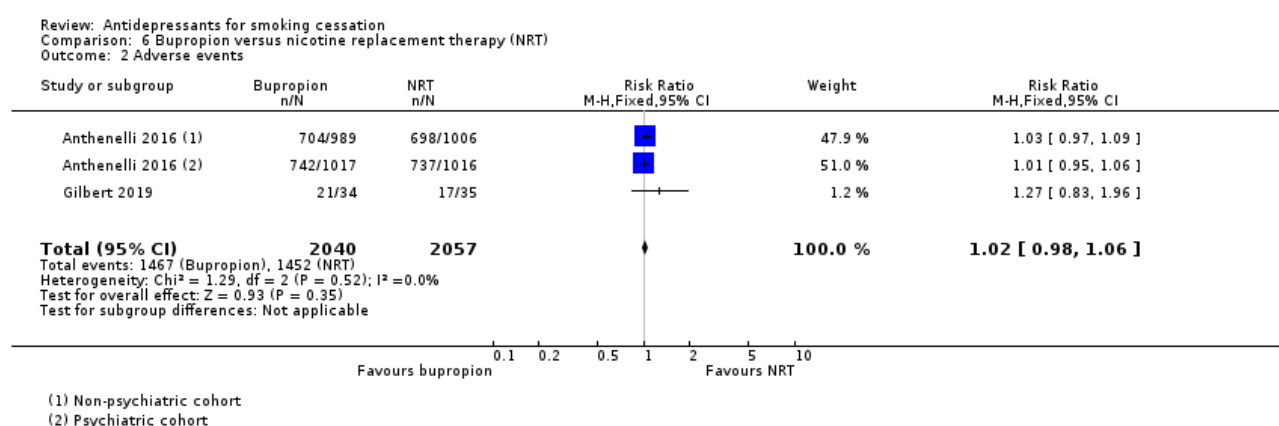


Figure 14

Forest plot from Cochrane Review

[Open in figure viewer](#)

Absolute effect

707 per 1000 people (95% CI 680 to 735) with bupropion compared with 694 per 1000 people with NRT (calculated using median event rate).

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. *Antidepressants for smoking cessation*. *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> Subgroup analysis 2.2.2 Adverse events – [subgroup: Psychiatric]

Narrative result

Two RCTs with 4100 participants reported psychiatric events. One RCT found that psychiatric events were more common with bupropion than with NRT; the other RCT found no statistically significant difference between groups. Psychiatric adverse events included any adverse events relating to mental health other than suicide, which was reported as a serious adverse event.^[20]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the two studies, one failed to report adequate allocation concealment and/or random sequence generation but both reported adequate blinding of participants/carers/outcome assessors and had low numbers of withdrawals.

Relative effect or mean difference

The results from individual studies were: Study 1: RR 1.76, 95% CI 1.63 to 1.92; Study 2: RR 2.38, 95% CI 2.15 to 2.64; Study 3: RR 0.97, 95% CI 0.54 to 1.73.

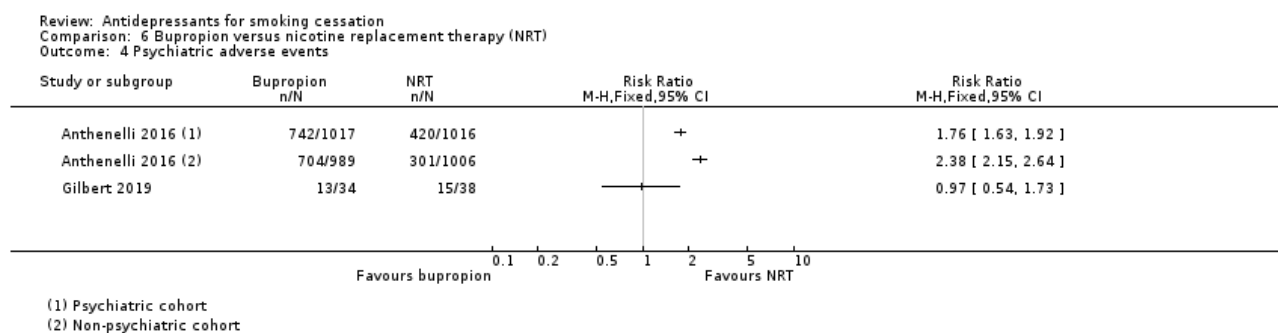


Figure 15

Forest plot from Cochrane Review

[Open in figure viewer](#)

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. *Antidepressants for smoking cessation*. *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> Subgroup analysis 2.2.3 Adverse events – [subgroup: Anxiety]

Narrative result

Two RCTs with 4855 participants found that more people had anxiety with bupropion than with NRT.[21]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the two studies, one did not report adequate blinding of participants/carers/outcome assessors, but both reported adequate allocation concealment and/or random sequence generation, and low numbers of withdrawals.

Relative effect or mean difference

There was a statistically significant difference between groups, in favor of NRT (RR 1.31, 95% CI 1.06 to 1.62).

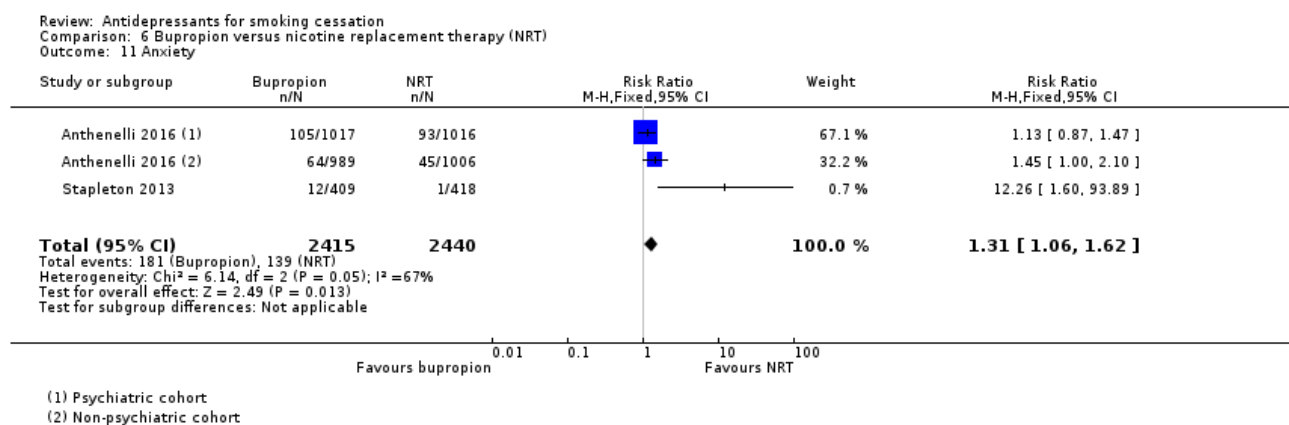


Figure 16

[Open in figure viewer](#)

Forest plot from Cochrane Review

Absolute effect

59 per 1000 people (95% CI 47 to 72) with bupropion compared with 45 per 1000 people with NRT (calculated using median event rate).

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. [Antidepressants for smoking cessation](#). *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> Subgroup analysis 2.2.4 Adverse events – [subgroup: Insomnia]

Narrative result

Two RCTs with 4128 participants found that more people had insomnia with bupropion than with NRT.[22]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the two studies, one failed to report adequate allocation concealment and/or random sequence generation, one did not report adequate blinding of participants/carers/outcome assessors and one had high or unclear numbers of withdrawals.

Relative effect or mean difference

There was a statistically significant difference between groups, in favor of NRT (RR 1.31, 95% CI 1.10 to 1.55).

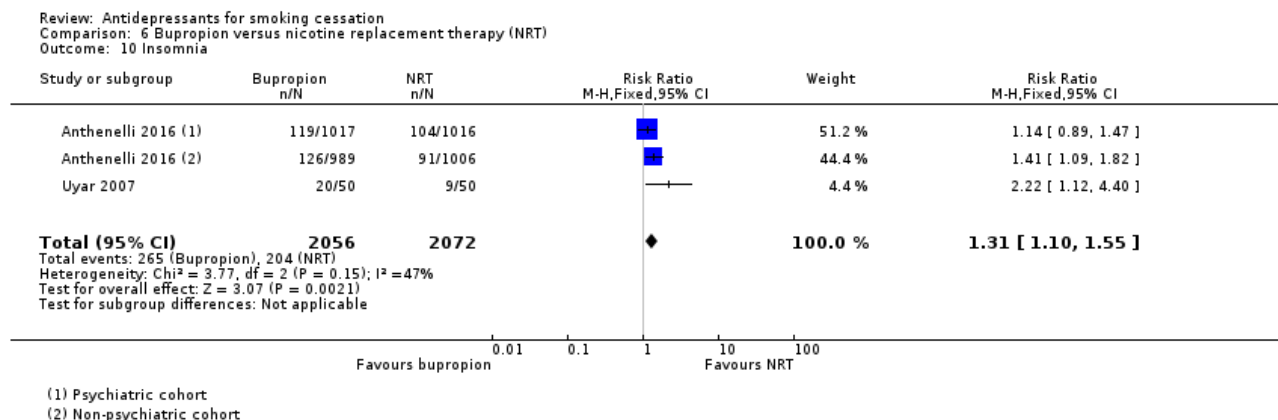


Figure 17

[Open in figure viewer](#)

Forest plot from Cochrane Review

Absolute effect

134 per 1000 people (95% CI 113 to 159) with bupropion compared with 102 per 1000 people with NRT (calculated using median event rate).

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. [Antidepressants for smoking cessation](#). *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> OUTCOME 2.3 Serious adverse events

Narrative result

Serious adverse events were defined as events that result in death, are life-threatening (immediate risk of death), require inpatient hospitalization or prolongation of existing hospitalization, result in persistent or significant disability or incapacity, and/or result in congenital anomaly or birth defect. Reviewers assessed several measures of serious adverse events including serious adverse events of any severity, seizures, overdoses and suicide attempts. All analyses found little or no difference between bupropion and NRT; most were underpowered. Click below for details.[23]

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. [Antidepressants for smoking cessation](#). *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> Subgroup analysis 2.3.1 Serious adverse events – [subgroup: Serious adverse events of any severity]

Narrative result

Five RCTs with 5624 participants found no statistically significant difference between groups.[24]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the five studies, three failed to report adequate allocation concealment and/or random sequence generation and three did not report adequate blinding of participants/carers/outcome assessors; all had low numbers of withdrawals.

Relative effect or mean difference

There was no statistically significant difference between groups (RR 1.22, 95% CI 0.83 to 1.80).

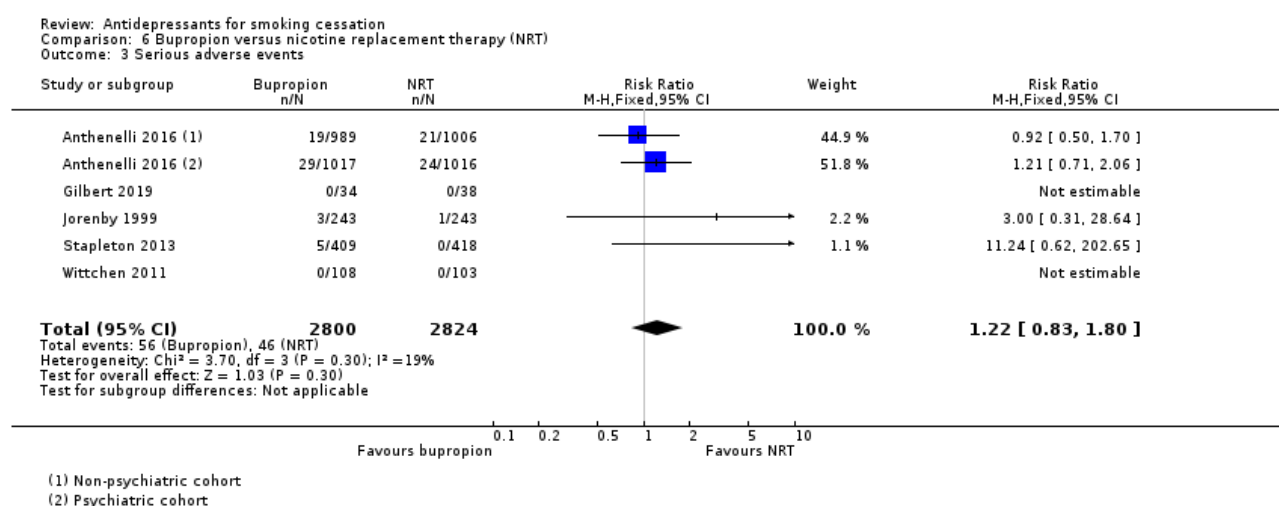


Figure 18

Forest plot from Cochrane Review

[Open in figure viewer](#)

Absolute effect

26 per 1000 people (95% CI 17 to 38) with bupropion compared with 21 per 1000 people with NRT (calculated using median event rate).

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. Antidepressants for smoking cessation. *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> Subgroup analysis 2.3.2 Serious adverse events – [subgroup: Seizures]

Narrative result

One RCT with 4028 participants found no statistically significant difference between groups.[25]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. The study reported adequate allocation concealment and/or random sequence generation, adequate blinding of participants/carers/outcome assessors and had low numbers of withdrawals.

Relative effect or mean difference

There was no statistically significant difference between groups (RR 0.34, 95% CI 0.01 to 8.24).

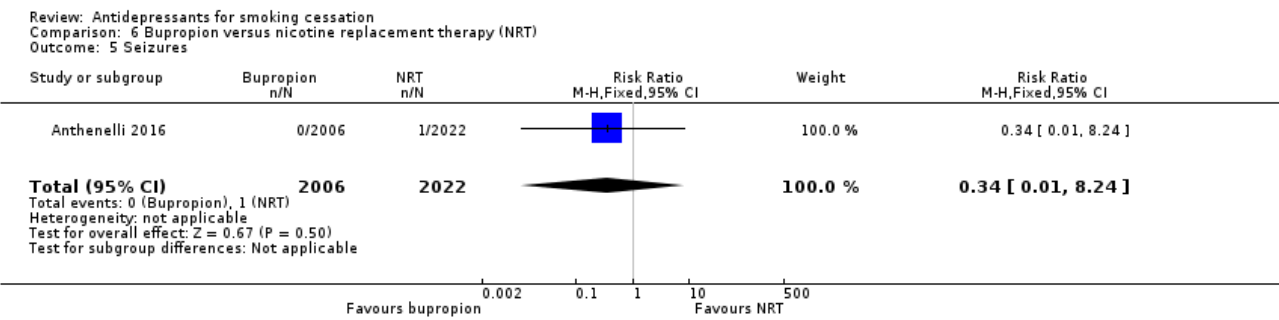


Figure 19 Forest plot from Cochrane Review [Open in figure viewer](#)

Absolute effect

We could not calculate absolute results for this outcome because of low event rates.

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. Antidepressants for smoking cessation. *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> Subgroup analysis 2.3.3 Serious adverse events – [subgroup: Overdoses]

Narrative result

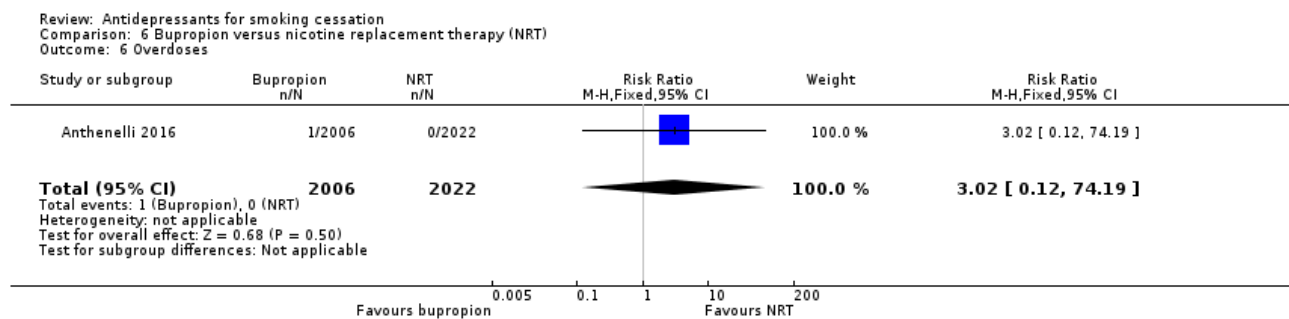
One RCT with 4028 participants found no statistically significant difference between groups.[26]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. The study reported adequate allocation concealment and/or random sequence generation, adequate blinding of participants/carers/outcome assessors and had low numbers of withdrawals.

Relative effect or mean difference

There was no statistically significant difference between groups (RR 3.02, 95% CI 0.12 to 74.19).

**Figure 20**[Open in figure viewer](#)

Forest plot from Cochrane Review

Absolute effect

We could not calculate absolute results for this outcome because of low event rates.

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. [Antidepressants for smoking cessation](#). *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

Subgroup analysis 2.3.4 Serious adverse events – [subgroup: Suicide attempts]

Narrative result

Two RCTs with 4514 participants found no statistically significant difference between groups.[27]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the two studies, one failed to report adequate allocation concealment and/or random sequence generation and one did not report adequate blinding of participants/carers/outcome assessors; however, both had low numbers of withdrawals.

Relative effect or mean difference

There was no statistically significant difference between groups (RR 1.68, 95% CI 0.22 to 12.75).

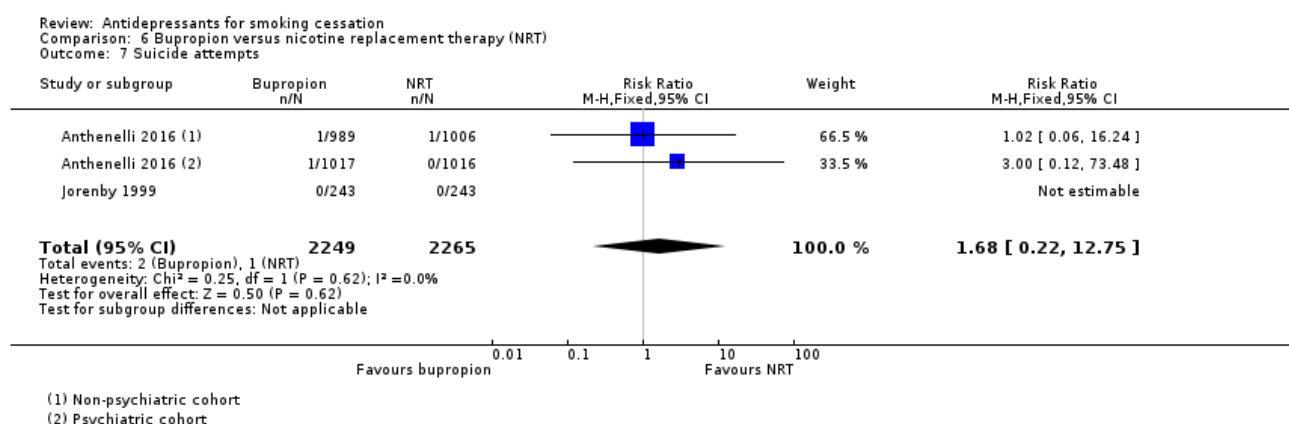


Figure 21[Open in figure viewer](#)

Forest plot from Cochrane Review

Absolute effect

We could not calculate absolute results for this outcome because of low event rates.

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. [Antidepressants for smoking cessation](#). *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> OUTCOME 2.4 Mortality**Narrative result**

Mortality was measured as all-cause mortality and deaths by suicide; reviewers found little or no difference in all-cause mortality between groups, but the analysis was underpowered. No instances of death by suicide were reported. Click below for details.[28]

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. [Antidepressants for smoking cessation](#). *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> Subgroup analysis 2.4.1 Mortality – [subgroup: All-cause mortality]**Narrative result**

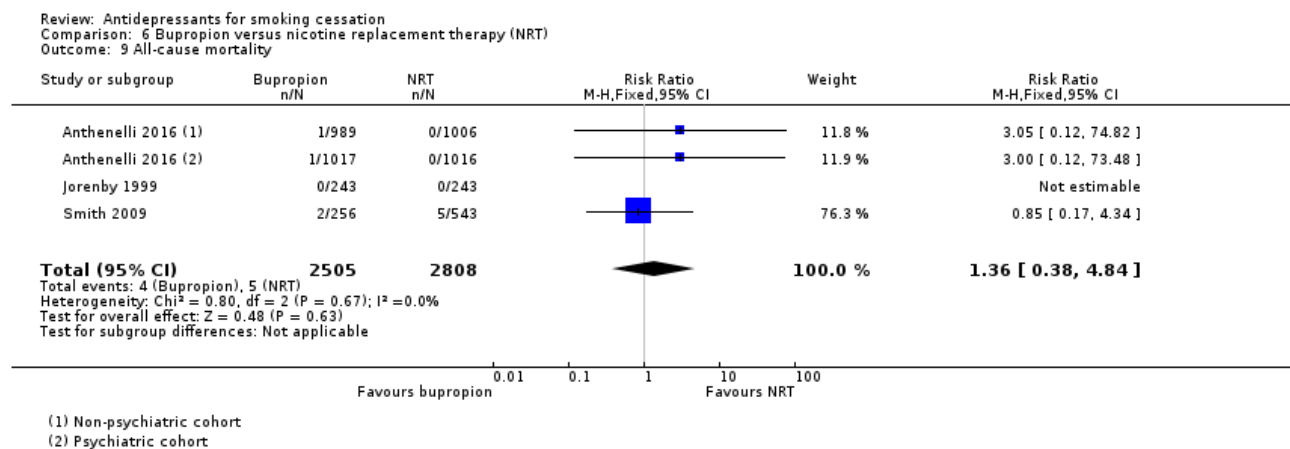
Three RCTs with 5313 participants found no statistically significant difference between groups.[29]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the X studies, X failed to report adequate allocation concealment and/or random sequence generation, X did not report adequate blinding of participants/carers/outcome assessors and X had high or unclear numbers of withdrawals.

Relative effect or mean difference

There was no statistically significant difference between groups (RR 1.36, 95% CI 0.38 to 4.84).

**Figure 22**[Open in figure viewer](#)

Forest plot from Cochrane Review

Absolute effect

We could not calculate absolute results for this outcome because of low event rates.

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. [Antidepressants for smoking cessation](#). *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> Subgroup analysis 2.4.2 Mortality – [subgroup: Death by suicide]

Narrative result

Two RCTs with 4514 participants found no instances of death by suicide in either group.[30]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the two studies, one failed to report adequate allocation concealment and/or random sequence generation and one did not report adequate blinding of participants/carers/outcome assessors; however, both had low numbers of withdrawals.

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. [Antidepressants for smoking cessation](#). *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> OUTCOME 2.5 Withdrawals due to adverse events

Narrative result

Four RCTs with 4825 participants found no statistically significant difference between groups.[31]

Risk of bias of studies

The reviewers did not perform a GRADE assessment of the quality/certainty of the evidence. Of the four studies, three failed to report adequate allocation concealment and/or random sequence generation, three did not report adequate blinding of participants/carers/outcome assessors and one had high or unclear numbers of withdrawals.

Relative effect or mean difference

There was no statistically significant difference between groups (RR 1.14, 95% CI 0.95 to 1.38).

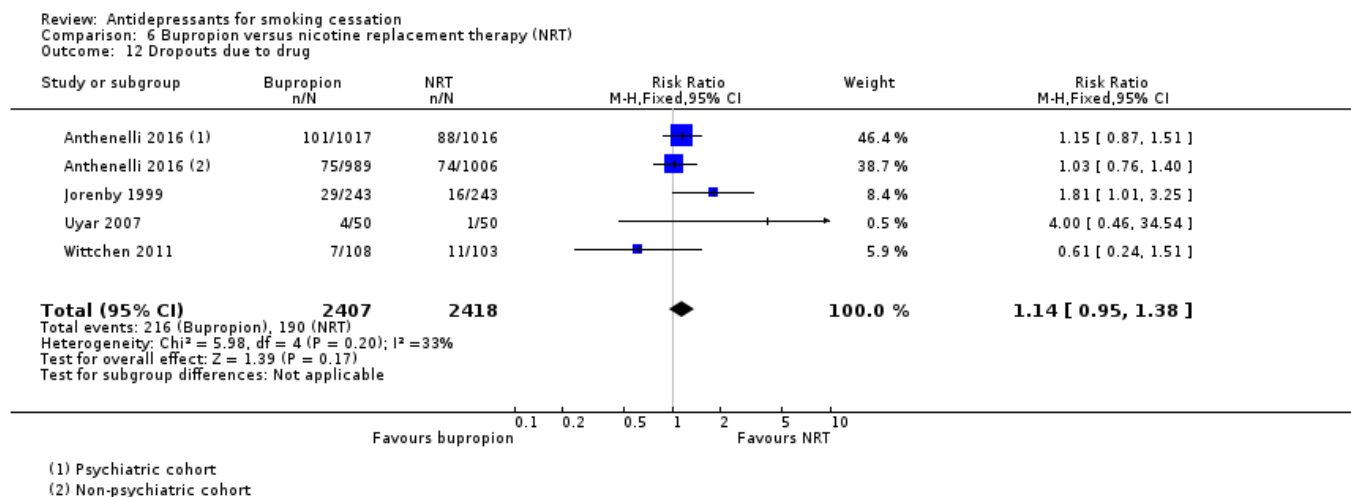


Figure 23

[Open in figure viewer](#)

Forest plot from Cochrane Review

Absolute effect

84 per 1000 people (95% CI 70 to 101) with bupropion compared with 74 per 1000 people with NRT (calculated using median event rate).

Reference

Howes S, Hartmann-Boyce J, Livingstone-Banks J, Hong B, Lindson N. [Antidepressants for smoking cessation](#). *Cochrane Database of Systematic Reviews* 2020, Issue 4. Art. No.: CD000031. DOI: 10.1002/14651858.CD000031.pub5. Search date May 2019

> Population, Intervention, Comparator

Population

Adult smokers (average age 26-56 years, 19-58% female) who smoked an average of 11-25 cigarettes per day, where reported. Recruited from clinics, academic centers and community centers worldwide

Intervention

Bupropion 150-300 mg/day for 7-12 weeks with or without placebo NRT. All participants also received one-to-one counselling in person or over the phone delivered as multiple sessions for a total of 150-630 minutes and/or smoking cessation information/programs

Comparator

Nicotine replacement therapy: patch 7-21 mg/day; lozenge 2-4 mg every 1-8 hours; or choice of single product for 6-12 weeks with or without placebo bupropion

Additional Information

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<https://doi.org/10.1002/cca.3205> [scolaris.information.information.copy.clipboard](#)

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