AETC AIDS Education & Training Center Program Mountain West

Tobacco Cessation Interventions for Patients with other Substance Use Disorders

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Disclosures

No conflicts of interest or relationships to disclose

OUTLINE

- Health effects of combustible tobacco use and benefits of quitting
- Helping patients quit
  - Behavioral Counseling
  - Pharmacotherapy
- Harm reduction counseling for patients not ready to or interested in quitting

Health effects of combustible tobacco use and benefits of quitting

Prevalence

- In 2019, an estimated 50.6 million U.S. adults (20.8%) reported currently using any tobacco product
- Most current tobacco product users (80.5%) reported using combustible products (cigarettes, cigars, or pipes).
- Among high school students, 13.4% had used tobacco product in last 30 days in 2021 survey, 11.3% had used e-cig.

Cornelius 2019.

Tobacco Products

- Combustible Tobacco: Cigarettes, cigars, pipes
- Smokeless tobacco: Chewing tobacco, “snuff”, Snus, smokeless nicotine pouches (Zyn)
- ENDS (Electronic Nicotine Delivery Systems): E-cigarettes, Juul pods.

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Health effects of combustible tobacco

- Death: (2x increase in all cause mortality).
- COPD (13x the risk)
- Lung cancer (15x)
- Ischemic heart disease (1.6x)
- Other cancers: Oropharynx, larynx, esophagus, stomach, pancreas, kidneys, colorectal, ureters, cervix and bladder, AML.
- Other vascular dz: CVAs, PVD, Aortic aneurysms, VTE.
- Other: Poor birth outcomes, Erectile dysfunction, cataracts, macular degeneration, GERD, osteoporosis, T2DM (increase risk by 30-40%), increased respiratory infections including TB, RA.

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Health Effects

- In the US, the equivalent of 3 Boeing 747s full of people die each day of smoking related causes (480,000 people a year)

Tobacco and SUDs

- Patients in addiction treatment are 3-4 times more likely to smoke than the general population[11].
- While 30% of general population die of tobacco-related deaths (typically after age 70), 53% of people with SUDs die of tobacco-related causes and at a younger age.[2]
- Interventions that target tobacco use are NOT well integrated into addiction treatment programs.[3]

1. Guydish 2011; 2. Bandiera 2015; 3. Knudsen 2010

Benefits of Quitting

1 to 12 months	Coughing and shortness of breath decrease
1 to 2 years	Risk of heart attack drops sharply
3 to 6 years	Added risk of coronary heart disease drops by half
5 to 10 years	Added risk of cancers of the mouth, throat, and voice box drops by half
	Risk of stroke decreases
10 years	Added risk of lung cancer drops by half after 10-15 years
	Risk of cancers of the bladder, esophagus, and kidney decreases
15 years	Risk of coronary heart disease drops to close to that of someone who does not smoke
20 years	Risk of cancers of the mouth, throat, and voice box drops to close to that of someone who does not smoke

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Benefits of Quitting

- Mortality benefit
  - Smoking in cancer: Quitting at the time of diagnosis can reduce mortality by 30-40%.
  - Quitting before age 40 reduces smoking related mortality by 90%
  - Quitting at age 55-64: Gain average of 4 years of life.
  - Quitting after age 70: Continues to lower mortality risk.

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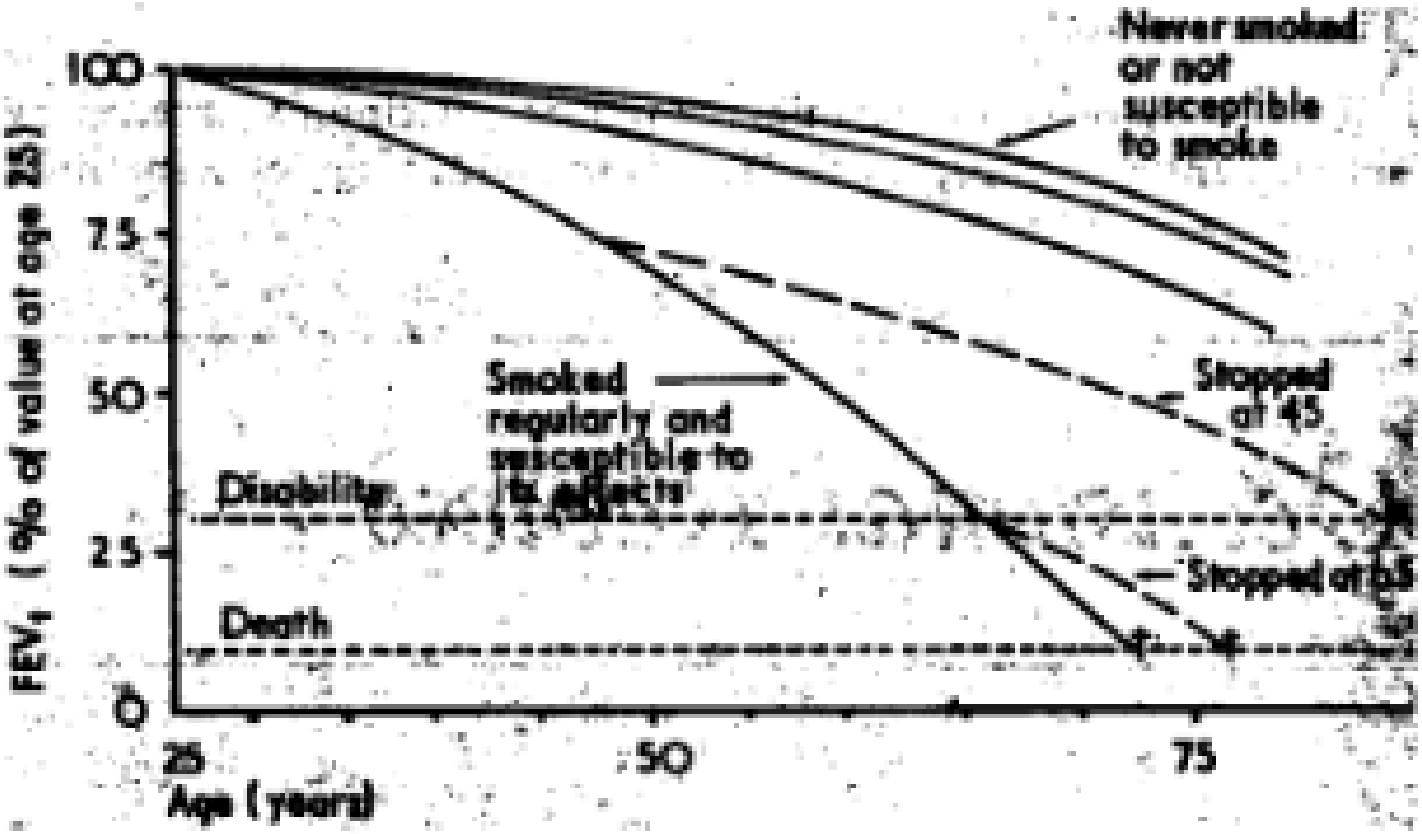
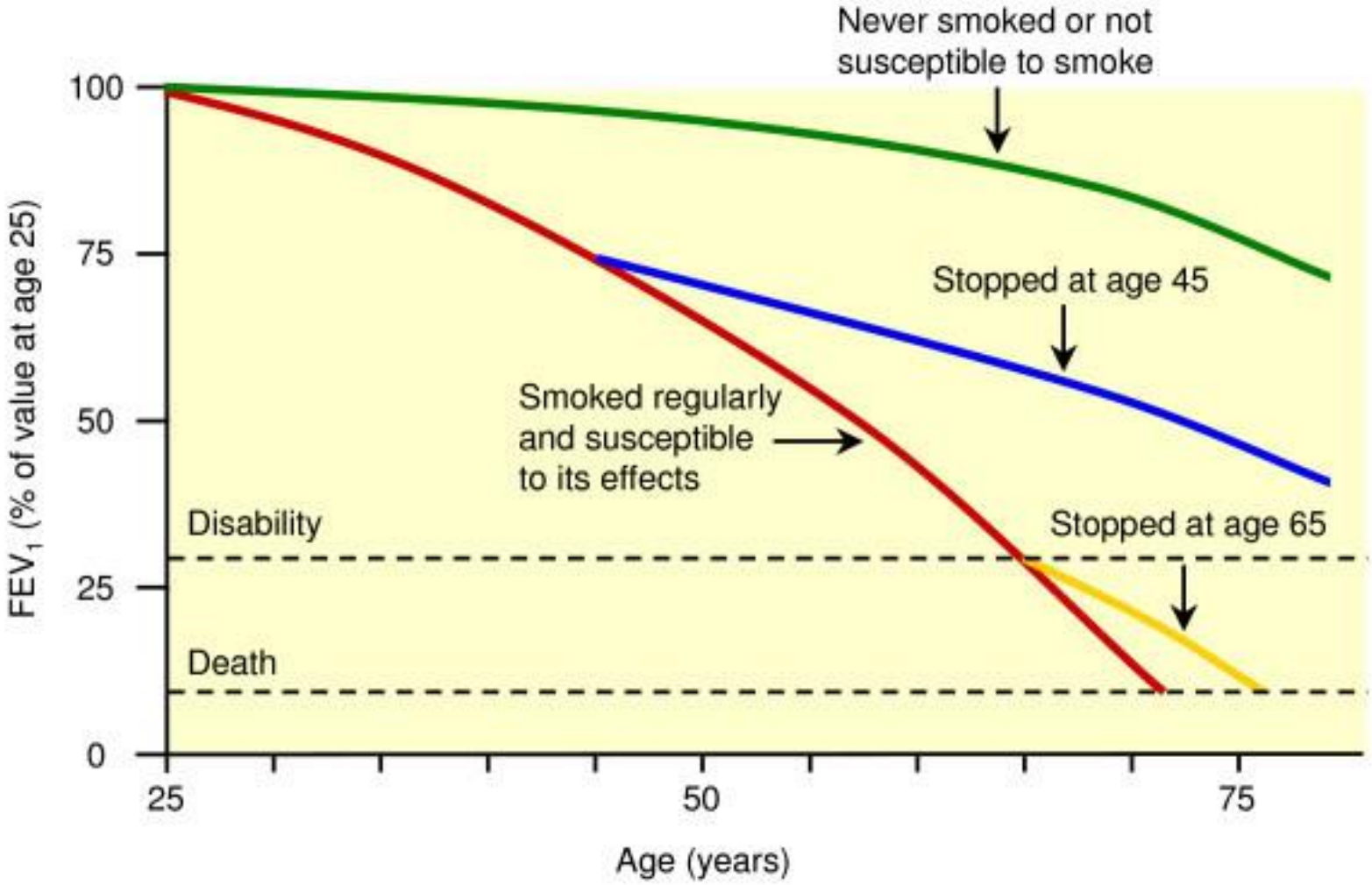
The natural history of chronic airflow obstruction

CHARLES FLETCHER, RICHARD PETO

British Medical Journal, 1977, 1, 1645-1648

disease processes, chronic airflow obstruction and the hypersecretory disorder (including infective processes).




Never smoked or not susceptible to smoke
Stopped at age 45
Smoked regularly and susceptible to its effects
Stopped at age 65
Disability
Death
100
75
50
25
0
25
50
75
FEV1 (% of value at age 25)
Age (years)

What about cutting back?

- At least two prospective cohort studies found that smokers who reduced smoking by at least 50 percent had no change in all-cause mortality vs those who stopped entirely (who did).
- Even low levels of smoke exposure increase cardiovascular risk.
- Perhaps a dose related decrease in lung cancer incidence
- Smokers may compensate with increased puffs, volume or duration to get similar amount of tobacco exposure.

1. Godtfredsen 2002; 2. Tverdal 2004

Risks of Quitting

- Weight gain: Patients can gain an average total of 4-5kg.
- Depression: Older studies suggested patients with documented depression, depressive episodes may be triggered. A large meta-analysis, small to moderate improvements in mental health symptoms were found in individual who quit smoking among both general populations and those with known psychiatric diagnoses.
- Cough and aphthous ulcers may increase for a few weeks after quitting.

Taylor 2021.

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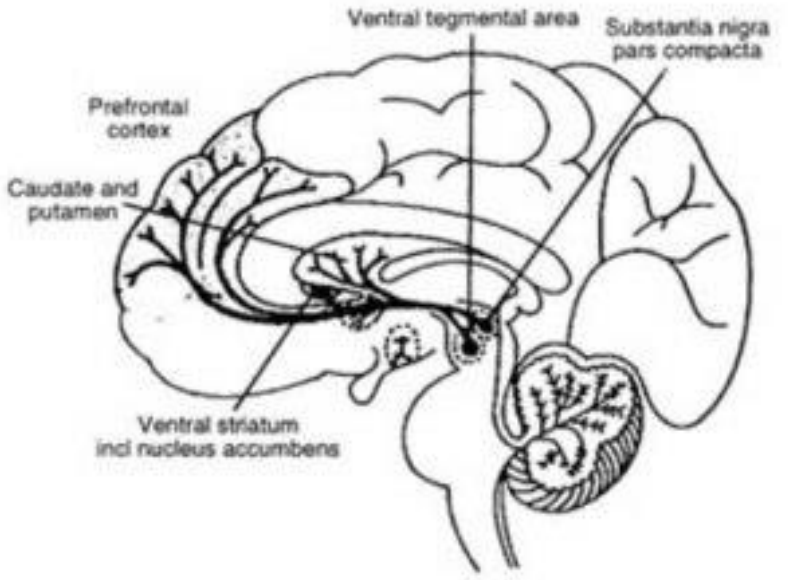
Tobacco Use Disorder



Acts on the mesolimbic reward pathways, causing release of dopamine which produces a mood-elevating physiologic response which becomes addictive

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Nicotine withdrawal syndrome

- Increased appetite or weight gain
- Dysphoric mood or anhedonia
- Insomnia
- Irritability, frustration, anger
- Anxiety
- Difficulty concentrating
- Restlessness
- These may peak in the first three days, and last for 3-4 weeks. Cravings may persist for months – years.

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Cravings

- A pack per day smoker lights a cigarette 73,000 times per year
- The dopamine release associated with tobacco use creates associations which act as triggers (getting up in the morning, cup of coffee, big meals, getting in the car etc.) that are reinforced over time.
- The only way to reduce these cravings are to do these things WITHOUT smoking.

Effect of quitting smoking on other SUDs

- Some clinicians mistakenly believe that encouraging patients to address their tobacco use disorder may disrupt treatment for other SUDs.
- Continued tobacco use corresponds to poorer addiction treatment outcomes, including a higher likelihood of relapse to other substance use.
- Providing evidence-based treatment for TUD during addiction treatment is associated with a 25% increased likelihood of long-term abstinence from alcohol and illicit drugs.

Gentry 2017; Prochaska 2004.

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Helping patients to quit

Cold turkey abstinence rate < 5%

It is possible to quit and treatment can help

- People who smoke make an average of 6 attempts to quit before achieving long-term abstinence
- More than 60% of US adults who ever smoked are now former smokers.
- Meta-analysis and systematic reviews of clinical trials have found that a combination of **behavioral counseling** and **pharmacotherapy** produce the best results for smoking cessation. Can obtain 6 month quit rates in the 30-35% range.

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The 5 A's

- ASK
  - Identify and document tobacco use
- ADVISE
  - Strong, clear, personalized message
- ASSESS willingness to quit
  - If not ready, offer motivational counseling
- ASSIST
  - Behavioral counseling and support
  - Pharmacotherapy
- ARRANGE follow up
  - In person, by telephone
  - Monitor progress, side effects, withdrawal symptoms

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Provider Counseling

- Individual counseling by a health-care provider improves quit rates with a strong dose-response relationship. OR was 1.6 for low-intensity counseling (3-10 minutes) and 2.3 with high-intensity counseling (over 10 minutes).

Provider Counseling: Content

- Set a quit date (ideally within 2 weeks)
- Tell family, friends, and coworkers about it and request support
- Anticipate challenges to planned quit attempt, especially in the first few weeks (like nicotine withdrawal symptoms)
- Remove tobacco and tobacco products from the environment.
- Avoid alcohol during initial quitting period as it can cause relapse
- Encourage housemates to quit with them or not smoke in their presence.
- Anticipate triggers or challenges and how patient will overcome them

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Telephone Quit Lines

- Efficacy demonstrated in multiple studies with RR of 1.37 vs usual care.

1-800-QUIT-NOW or 1-800-784-8669*

1-855-DEJELO-YA or 1-855-335-3569*

***toll free number**

Less data for mobile apps

- A small pilot trial in *Drug and Alcohol Dependence* in 2014 showed a non-statistical trend towards efficacy for the SMARTQUIT application (13% vs. 8% with another self-directed quit program).


Want to quit Tobacco?
the Urge Monster
1 Take the Survey
2 Get Free Access Code
3 Move Forward Use Code FOR FREE APP!
Before you go to the app store:
1. Take the survey www.doh.wa.gov/smartquit
2. Get the FREE access code.
3. Use the code to download the app!
123 SmartQuit™ 4 FREE!
SmartQuit
I HAVE LET
45
URGES PASS
Anytime Coaching
Washington State Department of Health
DOH 340-246 April 2015
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FIRST LINE AGENTS:

- Nicotine Replacement Therapy (NRT)
- Varenicline (Chantix)
- Bupropion (Zyban)

NRT

5 available formulations:

- OTC: Patches, gum, lozenge
- Prescription only: oral inhaler, nasal spray

Directly alleviate cravings and withdrawal symptoms.

Only receive nicotine and not combustion byproducts.

All forms increase quit rates by approximately 2 fold at 6 months.

Combo NRT

- Combining more than 1 form has additional benefits.
- Usually involves long-acting (patch) with short acting (gum) for breakthrough cravings.

= 2mg nicotine

So,

= 40 mg nicotine

= 21 mg

= 2-4 mg
Per piece

Therefore:

=

+

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- Starting on the quit day, patients who smoke >10 cigarettes/day (one-half pack) use the highest dose of the nicotine patch (21 mg/day) for six weeks, followed by 14mg/day for two weeks, and finish with 7 mg/day for two weeks. Smokers who smoke ≤10 cigarettes per day are advised to begin with the 14mg/day strength for six weeks, followed by 7 mg/day for two weeks.
- Apply one patch each morning to any non-hairy skin site. It is removed and replaced with a new patch the next morning. The patch site should be rotated daily to avoid skin irritation, which is the most common side effect.

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- Heavy smokers or first-thing-in the morning smokers: 4 mg gum; Lighter smokers: 2mg.
- Chew the gum whenever you have an urge to smoke. Can chew every one to two hours for six weeks, with a gradual reduction over a second six weeks, for a total duration of three months.
- “Chew and park:” Chew until the nicotine taste appears, then "park" it in the buccal mucosa until the taste disappears. Then chew a few more times to release more nicotine. This cycle is repeated for 30 minutes, at which point the gum is discarded

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- Local skin reactions for patch (up to 50%) – rotate site.
- Vivid dreams or sleep disturbance possible if patch worn at night (Put on in the morning. It takes 2-3 hours to reach steady-state, so may need gum or other short-acting in the AM).
- Use with caution within 2 weeks of recent MI, severe angina or life-threatening arrhythmias, though remember to compair risk of NRT to CONTINUED SMOKING.

“Nicotine overdose”

- “Doc, I stopped using the patch because I really had to smoke, and I know it’s dangerous to smoked with the patch on.”
- Concerns for nicotine “overdose” largely unsubstantiated.
- Might have some side effects if gum is used incorrectly (must use “chew and park” technique).

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Varenicline

- Acts at the alpha4-beta2-nicotininc receptor, the receptor that appears to produce the reinforcing effects of nicotine, as a partial agonist and antagonist.
- Efficacy: Meta-analysis showed 2.27 RR vs placebo.
- 2016 RCT in the Lancet compared varenicline with a nicotine patch, bupropion, and placebo in over 8000 smokers. At both three and six months' follow-up, varenicline produced a higher rate of continuous tobacco abstinence compared with the other three groups. The trial did not compare varenicline with combination nicotine therapy.

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Varenicline

- Start 1 week before your quit date
- 0.5 mg daily for three days, then 0.5 mg twice daily for four days, and then 1 mg twice daily for the remainder of a 12-week course. (“starter pack” and “continuation pack”)
- Studied for 24 week period.
- “Flexible” start day (between days 8 and 30); and “Gradual” approach (Reduce amount of smoking every week for 4- 8 weeks and quit by week 12) also described in package insert.

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Gradual Approach

- A randomized trial in 1510 smokers who were not willing or able to make a quit attempt within the next month but were willing to reduce smoking and make a quit attempt within the next three months found that compared with placebo, patients on varenicline for 24 weeks had a higher continuous abstinence rate during weeks 21 through 24 (37.8 versus 12.5 percent) and weeks 21 through 52 (27 versus 9.9 percent) (JAMA – 2015)

Varenicline safety

- Neuropsychiatric: FDA added black box warning in 2009 based post-marketing case reports.
- A 2015 large meta-analysis of 39 randomized trials including over 10,000 participants and several trials enrolling patients with psychiatric illness found that, compared with placebo, varenicline users did not have an increased risk of suicide or suicide attempts, suicidal ideation, depression, aggression, or death. They did have increased rates of sleep disorders
- 2016 EAGLES trial demonstrated no significant increase in neuropsych symptoms in cohort with or without baseline psychiatric disease.

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Bupropion

- Inhibits serotonin, norepinephrine and dopamine.
- Similar efficacy to NRT (single agent) with RR of 1.62.
- Typically begun 1-2 weeks before quit date and continued for 8-12 weeks (but used safely for much longer periods for depression)
- Can help mitigate quitting related weight gain and depression

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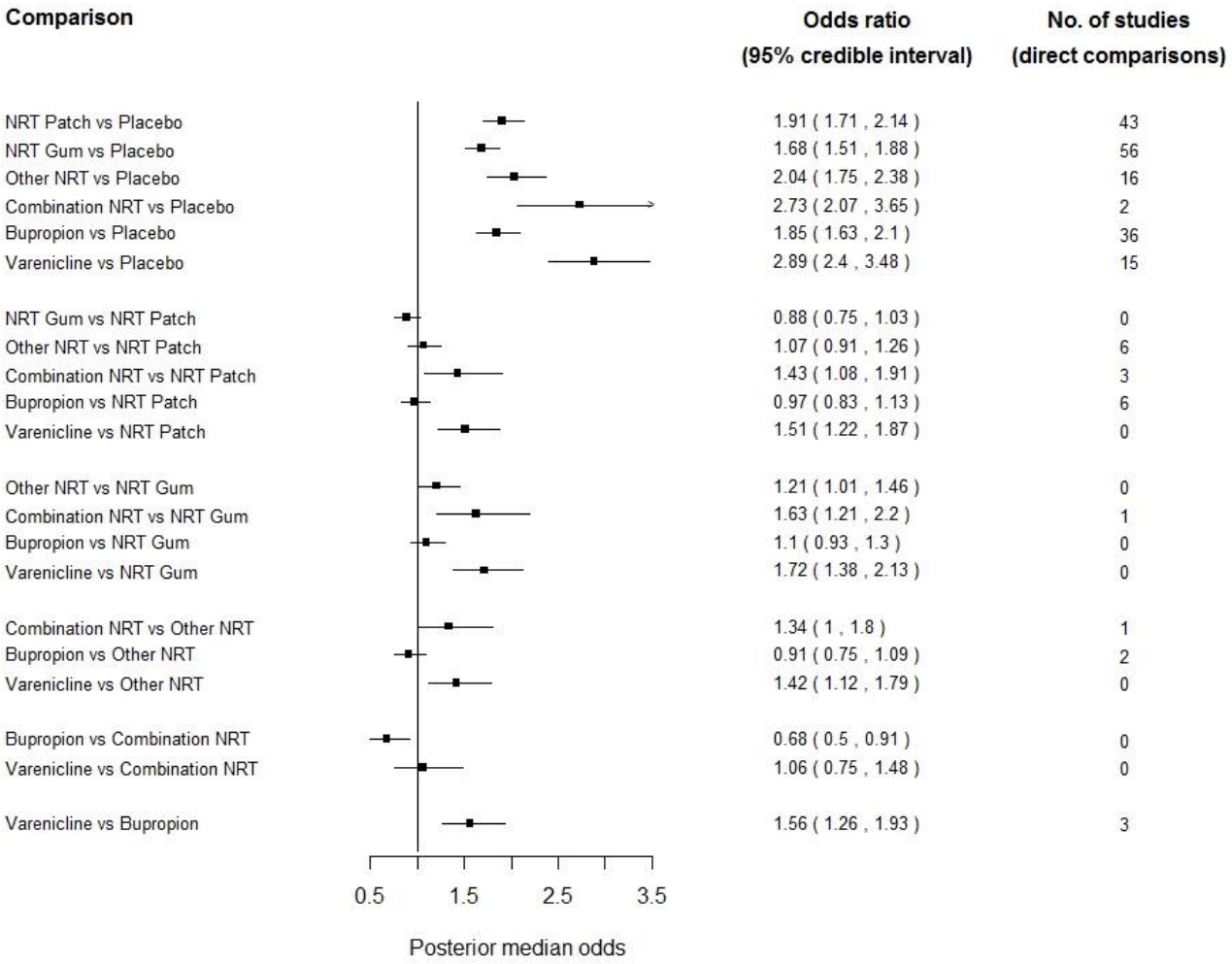
Bupropion Safety

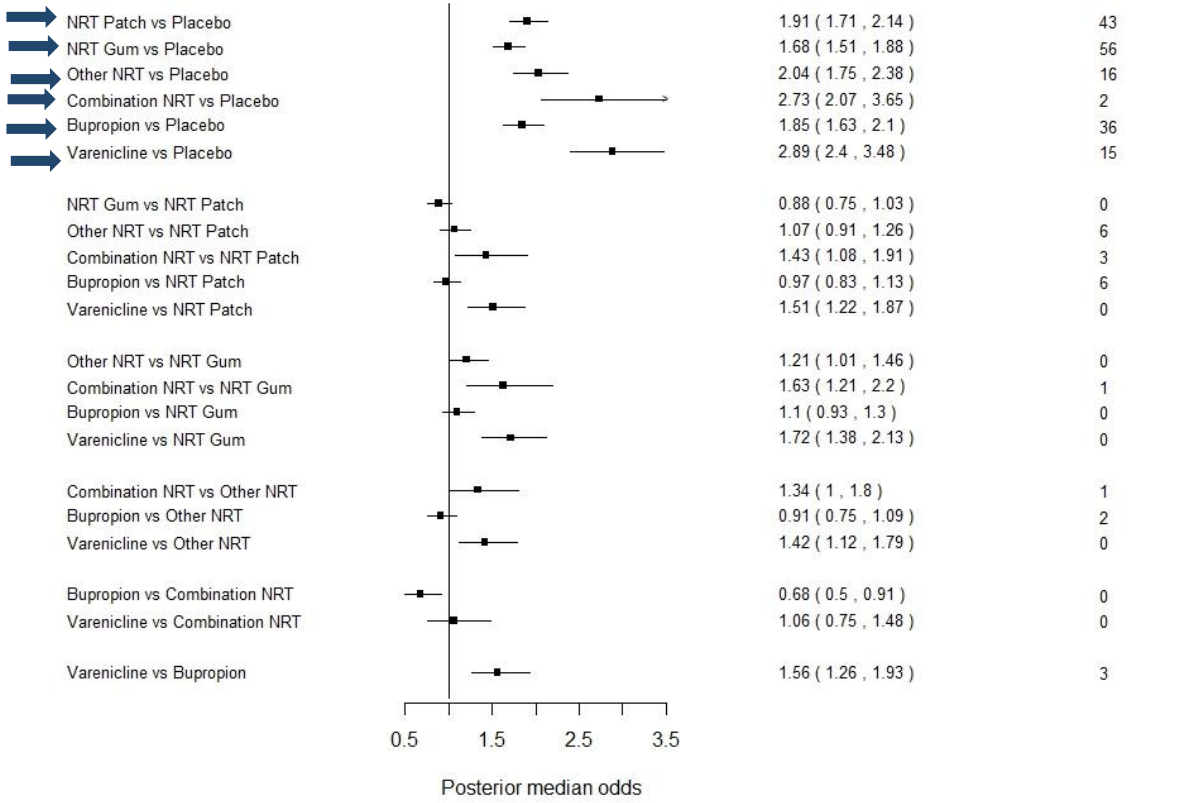
- SE: Insomnia, anxiety, dry mouth, HA, rash.
- Adverse Effects: Lowers seizure threshold No excess neuropsychiatric or CV events.

Comparative Efficacy



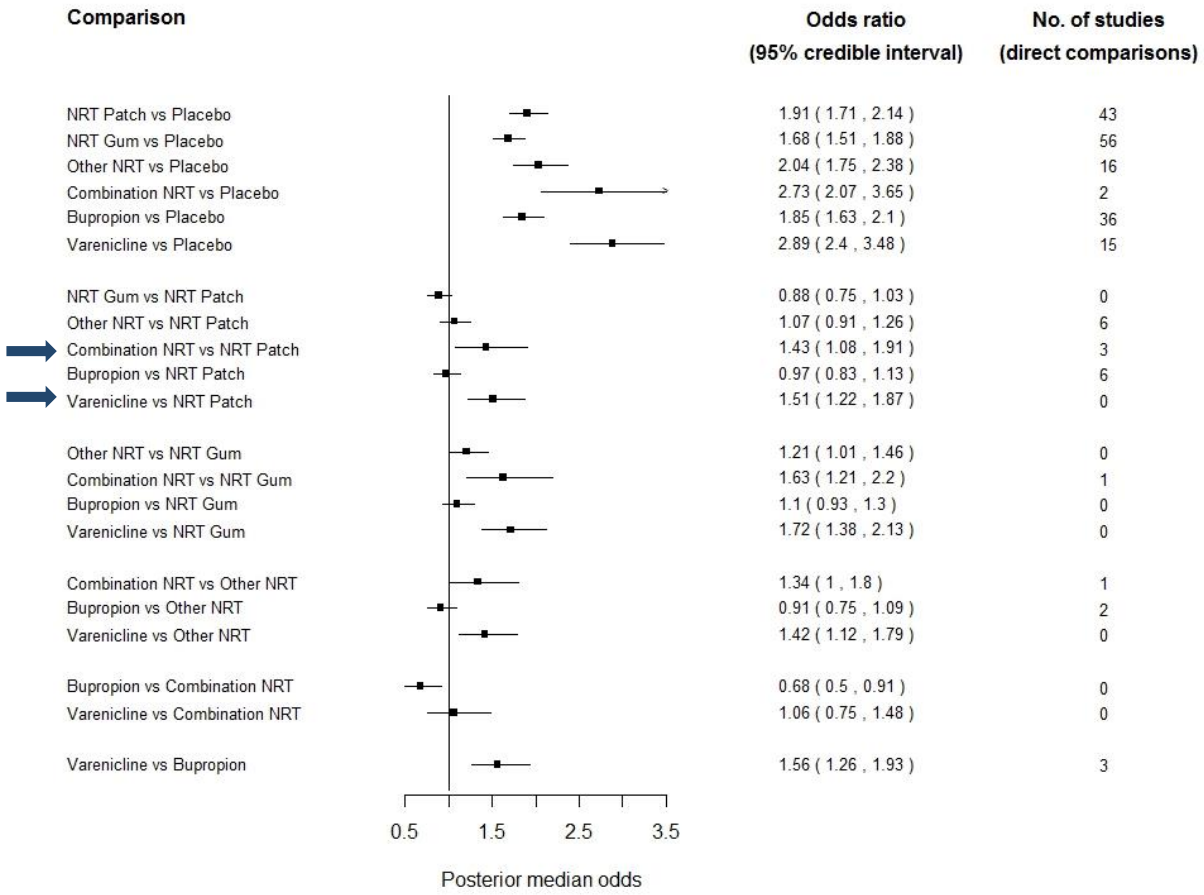
Comparative Efficacy

Vs placebo

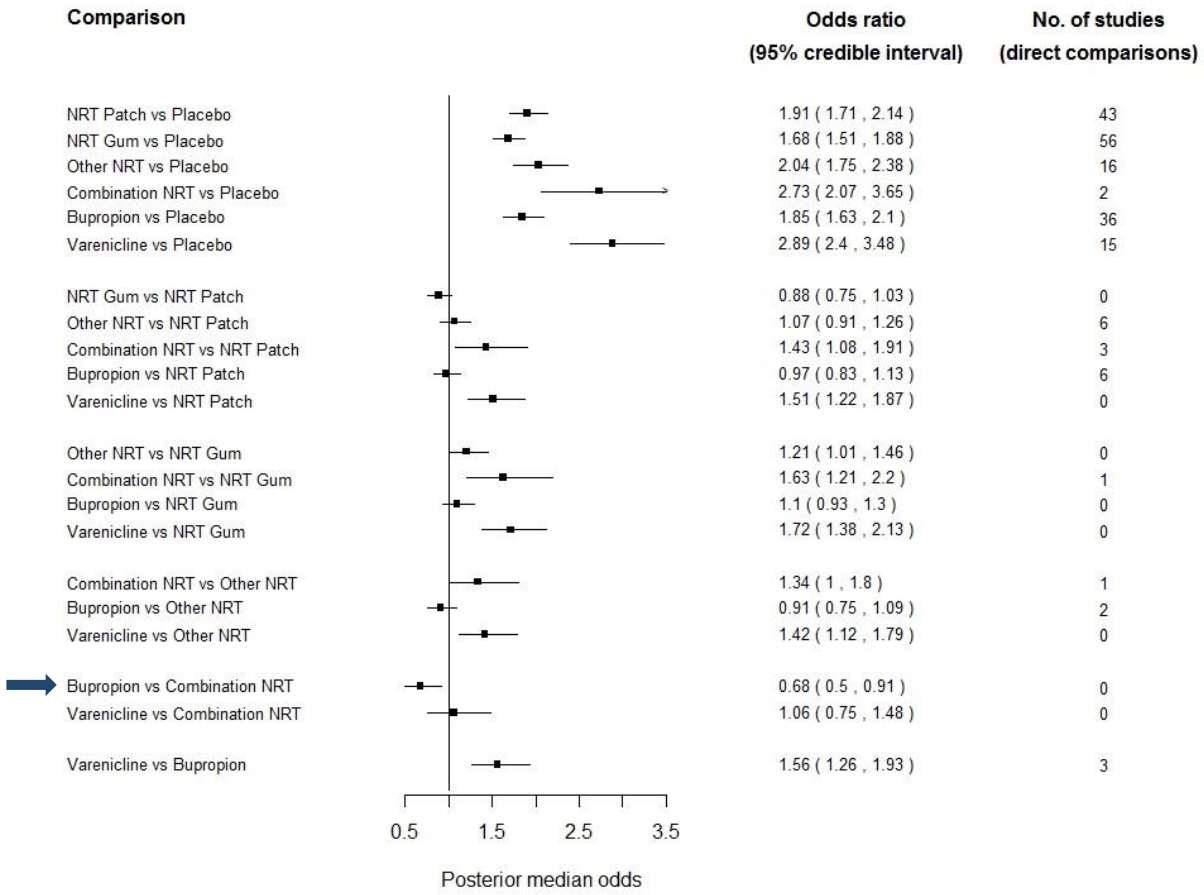


Comparative Efficacy

Vs single agent NRT

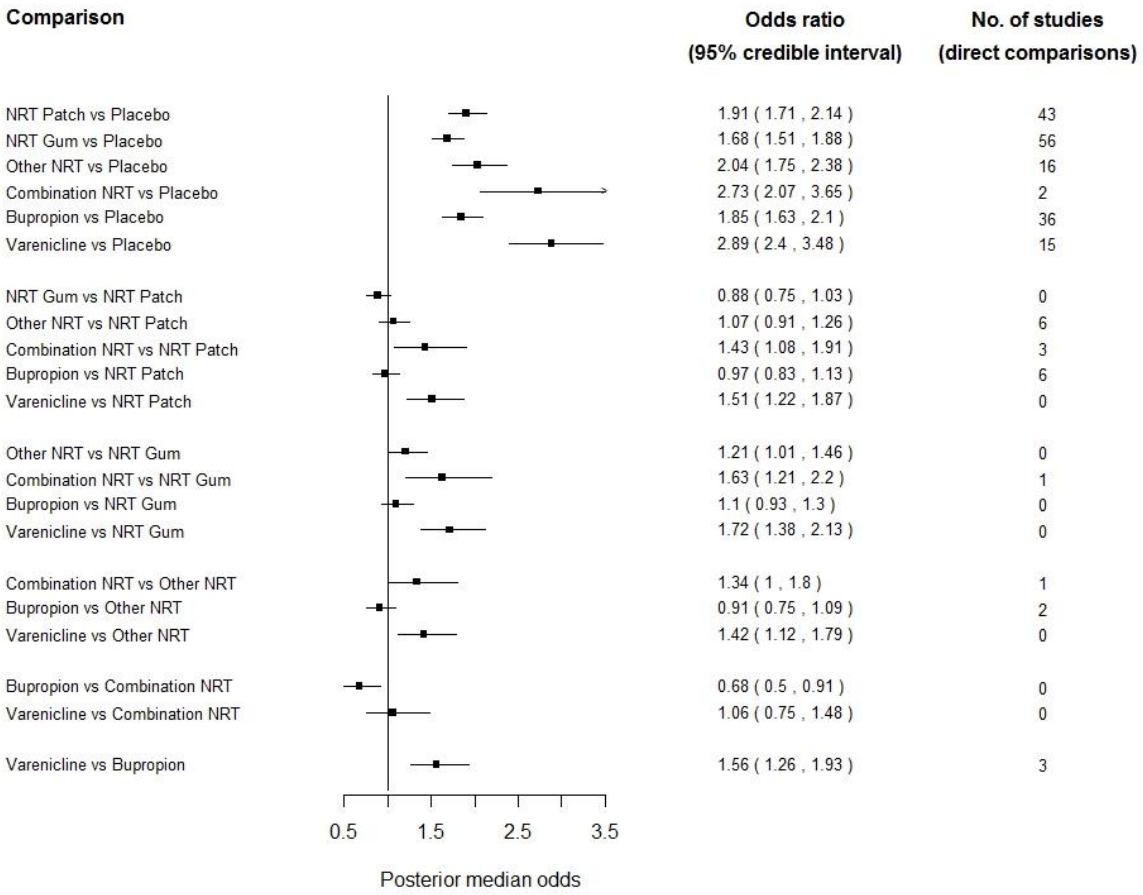


Comparative Efficacy



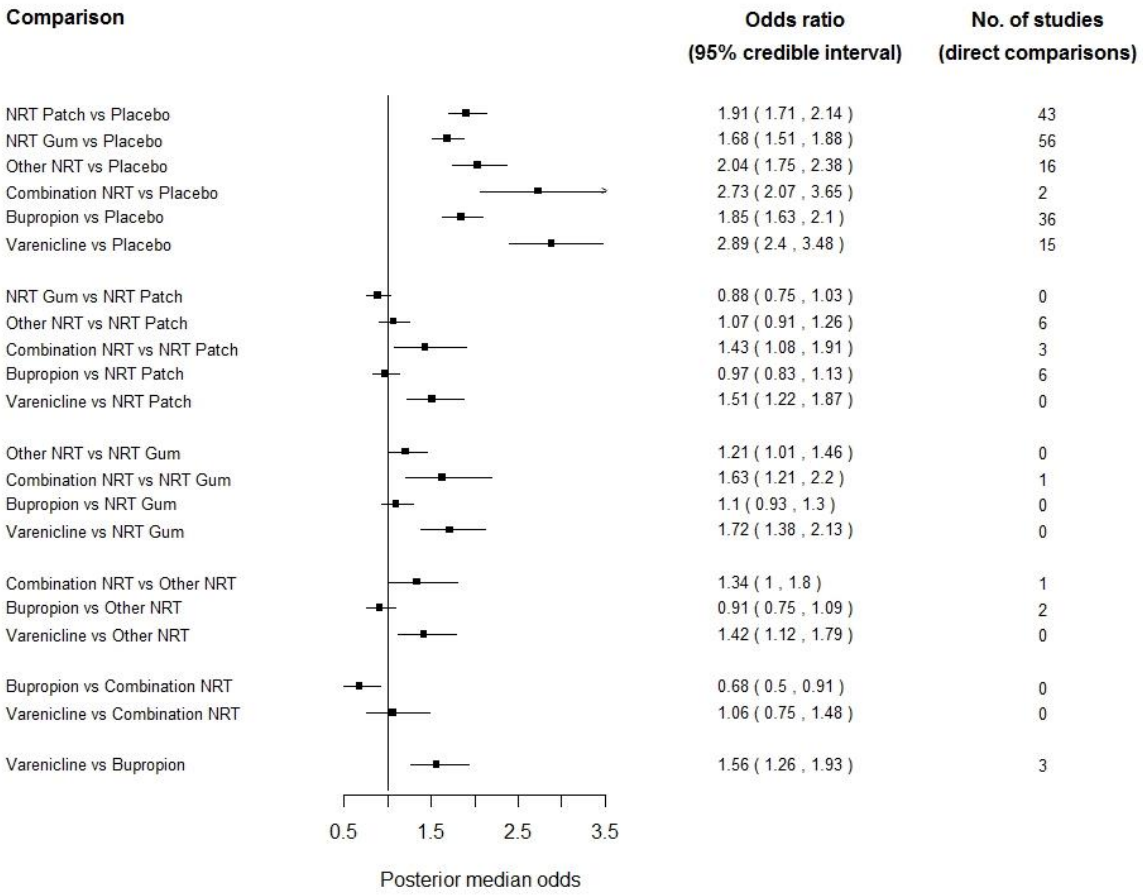
Vs Combo NRT

Comparative Efficacy



Varenicline vs Buproprion

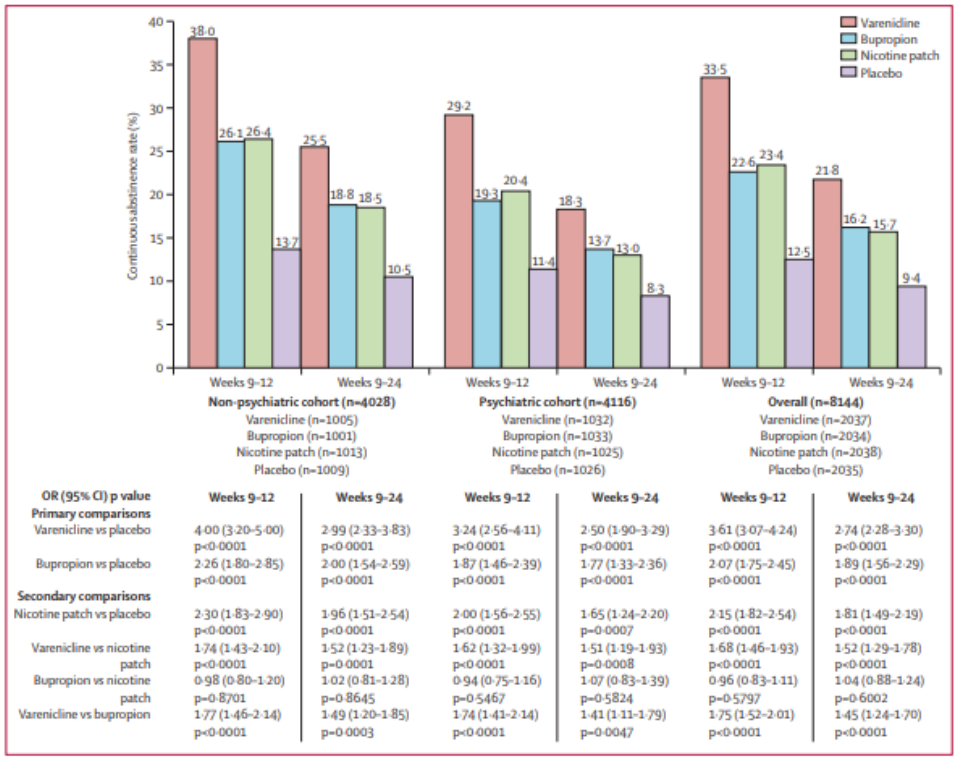
Comparative Efficacy



Varenicline vs Buproprion

Comparative Efficacy

- RCT: Patch vs varenicline vs bupropion vs placebo for 12 weeks with 12- week non-treatment follow up – 140 centers, over 8k patients.



OR (95% CI) p value	Weeks 9–12	Weeks 9–24	Weeks 9–12	Weeks 9–24	Weeks 9–12	Weeks 9–24
Primary comparisons						
Varenicline vs placebo	4·00 (3·20–5·00) p<0·0001	2·99 (2·33–3·83) p<0·0001	3·24 (2·56–4·11) p<0·0001	2·50 (1·90–3·29) p<0·0001	3·61 (3·07–4·24) p<0·0001	2·74 (2·28–3·30) p<0·0001
Bupropion vs placebo	2·26 (1·80–2·85) p<0·0001	2·00 (1·54–2·59) p<0·0001	1·87 (1·46–2·39) p<0·0001	1·77 (1·33–2·36) p<0·0001	2·07 (1·75–2·45) p<0·0001	1·89 (1·56–2·29) p<0·0001
Secondary comparisons						
Nicotine patch vs placebo	2·30 (1·83–2·90) p<0·0001	1·96 (1·51–2·54) p<0·0001	2·00 (1·56–2·55) p<0·0001	1·65 (1·24–2·20) p=0·0007	2·15 (1·82–2·54) p<0·0001	1·81 (1·49–2·19) p<0·0001
Varenicline vs nicotine patch	1·74 (1·43–2·10) p<0·0001	1·52 (1·23–1·89) p=0·0001	1·62 (1·32–1·99) p<0·0001	1·51 (1·19–1·93) p=0·0008	1·68 (1·46–1·93) p<0·0001	1·52 (1·29–1·78) p<0·0001
Bupropion vs nicotine patch	0·98 (0·80–1·20) p=0·8701	1·02 (0·81–1·28) p=0·8645	0·94 (0·75–1·16) p=0·5467	1·07 (0·83–1·39) p=0·5824	0·96 (0·83–1·11) p=0·5797	1·04 (0·88–1·24) p=0·6002
Varenicline vs bupropion	1·77 (1·46–2·14) p<0·0001	1·49 (1·20–1·85) p=0·0003	1·74 (1·41–2·14) p<0·0001	1·41 (1·11–1·79) p=0·0047	1·75 (1·52–2·01) p<0·0001	1·45 (1·24–1·70) p<0·0001

Comparative Efficacy

- Combo NRT and Varenicline roughly equivalent efficacy to one another and the most efficacious in general.
- Bupropion or single agent NRT are reasonable alternatives based on patient preference, co-morbid diseases, or side-effect profile.

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Combination Treatment

- NRT (patch) + Varenicline: RCT in JAMA 2014 → Higher rate of abstinence vs varenicline alone (65.1% abstinent at 6 months vs 46.7%).
- Bupropion + Varenicline: Combo increased quit rates at 26 weeks (36.6% vs 27.6%) but not at 52 weeks. .
- Bupropion + NRT: In a 2014 JAMA meta-analysis of 12 randomized trials, there was only a non-significant trend toward higher rates of abstinence with the combination of NRT and sustained-release bupropion than with NRT alone
- Reasonable to trial 2 medication classes when an initial drug dose not produce complete abstinence.

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Harm Reduction: Switching from combustible tobacco products

Harm Reduction

- Widespread use of ENDS as a form of tobacco use harm reduction is hotly debated.
- Tobacco control community recall the filtered and low-tar/low-nicotine cigarette campaigns launched by tobacco companies promoting ostensibly safer products.
- Must weigh competing priorities of avoiding new initiates among non-smokers and helping existing smokers reduce harm.

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Risks of E-cigarettes

- Chronic nicotine exposure alone in the absence of cigarette smoking do not look to increases long-term cardiopulmonary or cancer risk (NRT studies).
- The consequences of chronic e-cigarette aerosol inhalation are largely unknown, and levels of toxic and carcinogenic compounds may vary depending on the e-cigarette liquid components and device used
- Severe lung injury (EVALI) associated with vaping in 2019 was related to THC-containing e-cigarettes that contained vitamin E acetate and not to commercial nicotine e-cigarettes.

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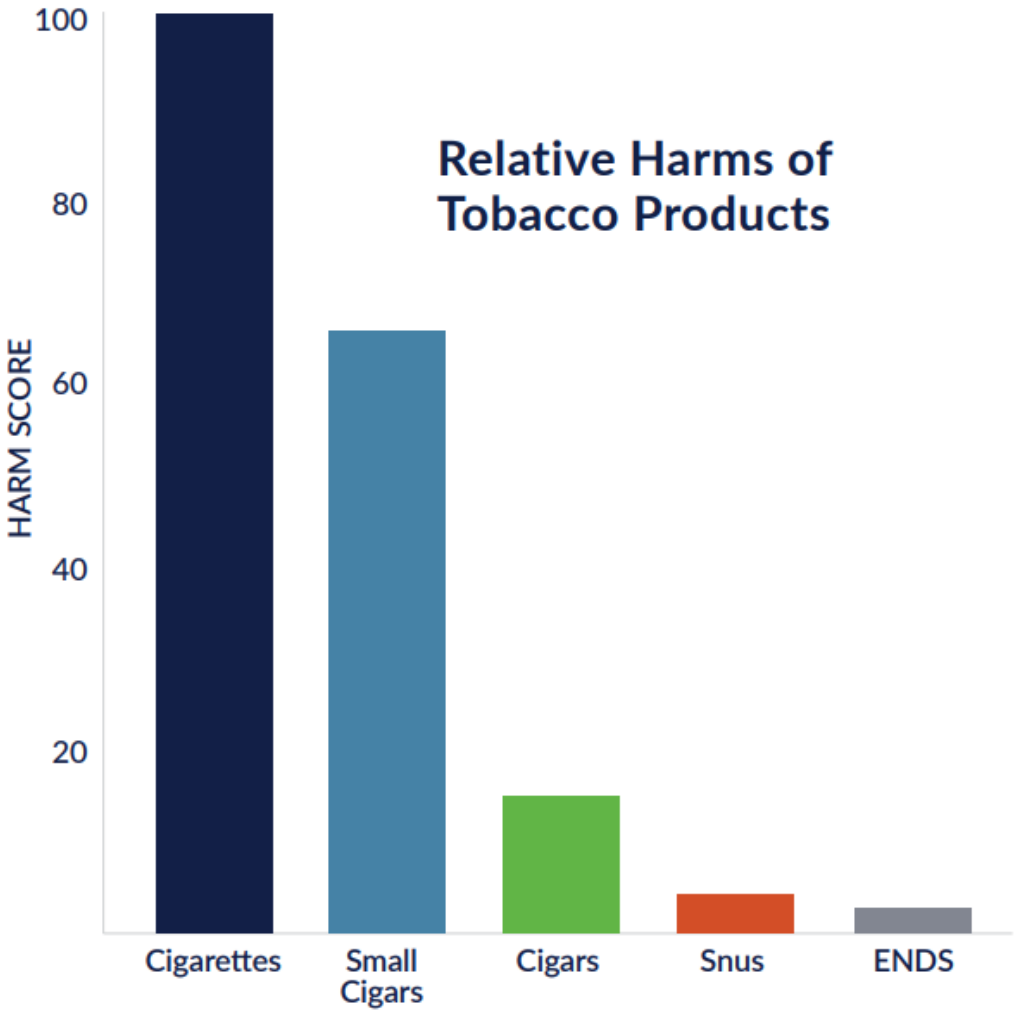
Comparative Risks



Nutt et al., 2014

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E-cigs as smoking cessation tool

- A 2021 Cochrane review
  - 61 studies (34 RCTs) with almost 17K participants
  - e-cigs were associated with being more effective than NRT for smoking cessation (RR 1.53) .
  - Review found no evidence of serious harms for up to 2 years.
- USPSTF 2021 Guidance and Surgeon General's 2020 concluded that evidence was insufficient to evaluate the balance of benefits and risks of e-cigarettes for smoking cessation.

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E-cigarettes, counseling patients.

- E-cigarettes are less harmful than continuing to smoke cigarettes, but because e-cigarettes are so new, many questions about their long-term safety remain unanswered.
- Recommend FDA-approved smoking cessation aids with established safety and efficacy as first-line treatment.
- If smokers want to try e-cigarettes, recommend switching completely and avoiding flavored e-cigarettes.
- Encourage smokers who switch to e-cigarettes to eventually quit using e-cigarettes too because of uncertainty regarding their long-term safety.

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Take Home Points

- Smoking is more prevalent and causes more morbidity and mortality among patients with other SUDs
- Treating Tobacco use disorder along with other SUDs will not jeopardize treatment success, but well may augment it.
- Varenicline and Combo NRT are first line pharmacotherapy, bupropion and single agent NRT are alternatives.
- Switching completely to e-cigarettes is likely much safer than continuing to use combustible tobacco and may help some quit tobacco altogether.

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Panel Discussion

- How do you counsel patients who are considering transitioning to e-cigarettes?
- When and how have you found it helpful to approach tobacco use in patients seeking treatment for other SUDs?

References

- Doll R, Peto R, WheatleyK, Gray R, Sutherland I.Mortality in relation tosmoking: 40 years' obser-vations on male Britishdoctors. BMJ. 1994;309:
- Cornelius ME, Wang TW, Jamal A, Loretan CG, Neff LJ. Tobacco Product Use Among Adults - United States, 2019. MMWR Morb Mortal Wkly Rep. 2020 Nov 20;69(46):1736-1742. doi: 10.15585/mmwr.mm6946a4. PMID: 33211681; PMCID: PMC7676638.
- Taylor GM, Lindson N, Farley A, Leinberger-Jabari A, Sawyer K, Te Water Naudé R, Theodoulou A, King N, Burke C, Aveyard P. Smoking cessation for improving mental health. Cochrane Database Syst Rev. 2021 Mar 9;3(3):CD013522. doi: 10.1002/14651858.CD013522.pub2. PMID: 33687070; PMCID: PMC8121093.
- . Gentry S, Craig J, Holland R, Notley C. Smoking cessation for substance misusers: A systematic review of qualitative studies on participant and provider beliefs and perceptions. Drug Alcohol Depend 2017; 180: 178-92
- Prochaska JJ, Delucchi K, Hall SM. A meta-analysis of smoking cessation interventions with individuals in substance abuse treatment or recovery. J Consult Clin Psych 2004; 72(6): 1144
- Godtfredsen NS, Holst C, Prescott E, Vestbo J, Osler M. Smoking reduction, smoking cessation, and mortality: a 16-year follow-up of 19,732 men and women from The Copenhagen Centre for Prospective Population Studies. Am J Epidemiol. 2002 Dec 1;156(11):994-1001. doi: 10.1093/aje/kwf150. PMID: 12446255.
- Tverdal A, Bjartveit K. Health consequences of reduced daily cigarette consumption. *Tob Control*. 2006;15(6):472-480. doi:10.1136/tc.2006.016246
- Rigottie, Nancy, Kruse, Gina, Treatment of Tobacco Smoking: A Review; JAMA 2022.
- ASAM: Integrating Tobacco Use Disorder iNterventions in Addiction Treatment. A guide for addiction treatment clinicians and programs. 2021.
- Patel MS, Steinberg MB. Smoking Cessation. Ann Intern Med. 2016;164:ITC33-ITC48. doi:10.7326/AITC201603010
- Cahill K, Stevens S, Perera R, Lancaster T. Pharmacological interventions for smoking cessation: an overview and network meta-analysis. Cochrane Database Syst Rev 2013; 5:CD009329.

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