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Pharmacologic Therapy for Tobacco Use & Dependence

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Learning Objectives

- Awareness of effective medications
- Recall comparative effectiveness of available pharmacotherapy
- Identify pharmacotherapy applications in smokers with mental illness
- Understand the role of pharmacy for effective use of pharmacotherapy

“Mortality from tobacco in the first half of the 21st century will be affected much more by the number of adult smokers who stop than by the number of adolescents who start.”

Peto, R, Darby S, Deo H, Silcocks P, Whitely E, Doll R. Smoking, smoking cessation and lung cancer in the UK since 1950: combination of national statistics with two case-control studies. *BMJ* 2000; 321: 323-329.

Pharmacological Therapy: Mechanisms in Tobacco Dependence Treatment

- Modulation of reward pathways mainly via increased dopamine transmission (positive reinforcement)
- Reduce withdrawal (negative reinforcement)
- Interact with target CNS receptor (block or stimulate)
- Reduce negative affect associated with abstinence

Impact of Pharmacotherapy for Tobacco Dependence

- Reduced withdrawal and urges to smoke
- Break the link between nicotine effects and environmental triggers
- Makes it easier to resist impulsive relapse
- Reduces negative cognitive and affective impacts of abstinence
- Provides space for behavioral therapy to work

Combined Behavioral and Pharmacotherapy

- Odds of successful abstinence at 6 months or longer with combined therapy compared with behavioral or pharmacotherapy alone
- **Overall** **1.82 (1.66, 2.00)**
- Health care setting 2.06 (1.81, 2.34)
- Community setting 1.53 (1.33, 1.76)

Stead, LF and Lancaster, T. Combined pharmacotherapy and behavioral interventions for smoking cessation. 2012 Cochrane Review

Prospective Cohort Study of the Effectiveness of Smoking Cessation Treatments Used in the “Real World”

Daniel Kotz, PhD; Jamie Brown, PhD; and Robert West, PhD

TABLE 3. Unadjusted and Adjusted Odds of Self-Reported Nonsmoking at 6-mo Follow-Up Stratified by the Method of Quitting

Smoking cessation treatment	Odds ratio (95% CI)		
	Unadjusted model	Partially adjusted model ^a	Fully adjusted model ^b
Medication on prescription combined with specialist behavioral support (n=62) ^c	1.98 (1.20-3.24)	2.27 (1.32-3.92)	2.58 (1.48-4.52)
Medication on prescription combined with brief advice (n=296) ^c	1.20 (0.89-1.62)	1.38 (1.00-1.91)	1.55 (1.11-2.16)
NRT bought over the counter (n=536)	0.57 (0.42-0.78)	0.62 (0.45-0.85)	0.68 (0.49-0.94)
None of the above (reference) (n=735)			

^aPartially adjusted model was adjusted for age, sex, social grade, time since last quit attempt started, number of quit attempts before the one in question, stopping abruptly vs cutting down, and year of the survey.

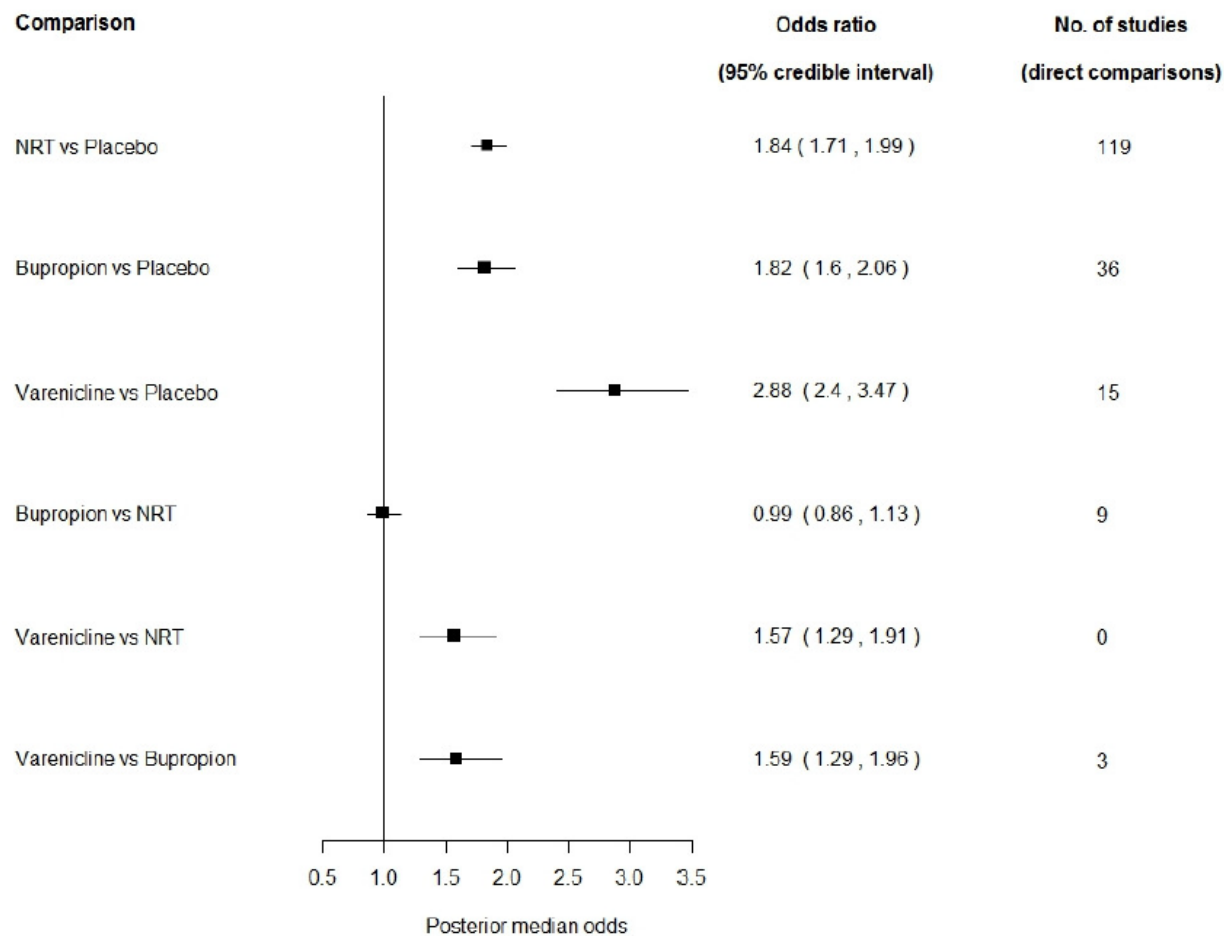
^bFully adjusted model was adjusted for the variables from the partially adjusted model and for time spent with urges to smoke and strength of urges to smoke.

^cMedication on prescription included nicotine replacement therapy (NRT), varenicline, or bupropion.

Mayo Clin Proc. ■ October 2014;89(10):1360-1367

Pharmacotherapy for tobacco dependence: network meta-analysis

Figure 2. Network meta-analysis of smoking cessation with each first-line pharmacotherapy versus placebo and versus each other



Citation: Cahill K, Stevens S, Perera R, Lancaster T. Pharmacological interventions for smoking cessation: an overview and network meta-analysis. *Cochrane Database of Systematic Reviews* 2013, Issue 5. Art. No.: CD009329. DOI: 10.1002/14651858.CD009329.pub2.

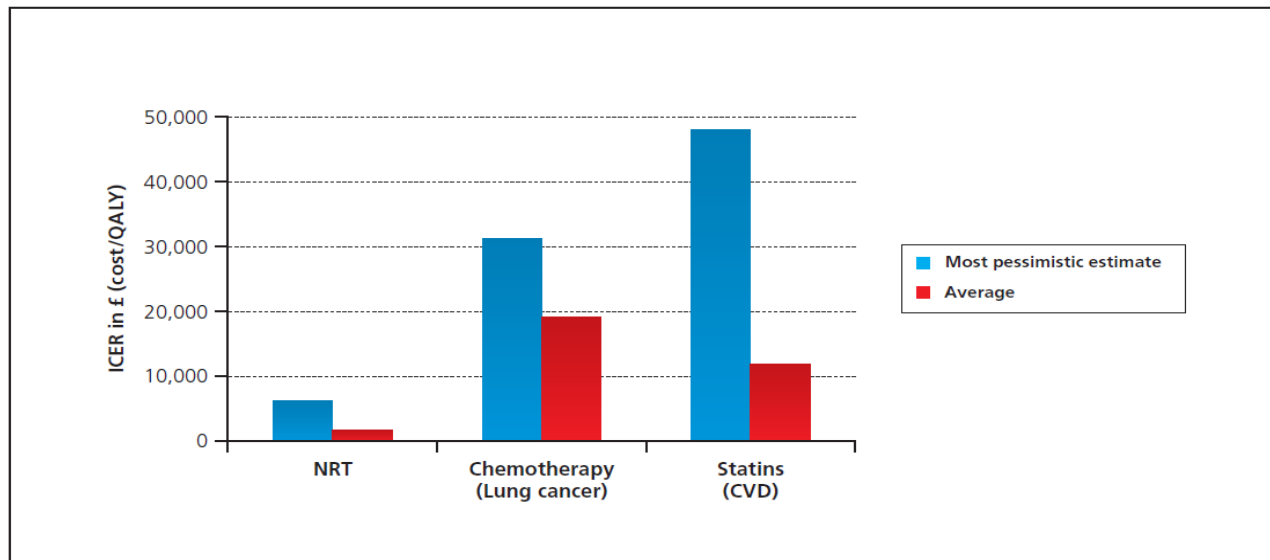
Cost-effectiveness of Pharmacotherapy

Incremental Cost Effectiveness Ratio (ICER) per Quality Adjusted Life-Year (QALY)

Shahab L. Cost-effectiveness of pharmacotherapy for smoking cessation. National Center for Smoking Cessation and Training. Briefing 7. 2012.

NRT	£350-4500
Bupropion	£316-2212
Varenicline	£950-1140

Figure 3: UK spend per QALY gained for treatments of smoking-related diseases in primary / secondary care compared with pharmacotherapy for smoking cessation.



Affordability of Pharmacotherapy*

Table 2 Affordability^a of health-care smoking cessation interventions.

Intervention ^b	Affordability			
	Low-income (Nepal)	Lower-middle-income (India)	Upper-middle-income (China)	High-income (UK)
Cytisine	1.7	4.9	11.3	15.0
Nortriptyline	1.4	4.1	9.5	8.6
Bupropion	0.5	1.6	3.7	7.7
Varenicline	0.5	1.3	3.0	9.2
NRT (single) ^d	0.4	1.0	2.4	6.9

West R, Raw M, McNeill A et al. Health-care interventions to promote and assist in tobacco cessation: a review of efficacy, effectiveness and affordability for use in national guideline development. *Addiction* 2015;110(9):1388-1403.

*Affordability...

Per capita GDP/Cost life-year gained ≥ 1

Pharmacotherapy for Tobacco Dependence Treatment

- Hospital and Clinic
- Mental Health Setting
- Role of Pharmacy