

Estimates of 52-week continuous abstinence rates following selected smoking cessation interventions in England

Version 2

Robert West, University College London and Lesley Owen, National Institute of Health and Clinical Excellence

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robertwest100@gmail.com

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Background

There is a need for estimates of smoking cessation rates following different NHS and non-NHS interventions to enter in cost-impact models for bodies considering funding different types of intervention. In most cases the figures cannot be directly measured but can be derived from various sources.

Success rates can be defined in many different ways leading to very different estimates. The optimal estimate is the 52-week continuous abstinence rate [1]. This is because 52-week data are available for many interventions and regardless of the intervention used to attain 52 weeks of abstinence there is a known lifetime relapse rate of around 30% from that point [2] and so the total benefit in terms of health gain can be estimated.

The figures provided are based on 4% of unaided quit attempts succeeding for at least 52 weeks [3]. Success rate figures are rounded to the nearest percentage point to avoid the impression of spurious precision.

The figures are central estimates and there will be wide variation around these in particular cases. For example, it is known that there is wide variation in success rates across different Stop-Smoking Service providers even after all known confounding variables have been taken into account [4] and wide variation between individual practitioners within each provider. It may be that pharmacists and practice nurses who are delivering behavioural support can achieve success rates comparable with specialist services.

An important caveat with the figures is that more highly dependent smokers tend to seek the more intensive smoking cessation support [5]. Therefore, their unaided quit rate is typically lower than the national average. This means that the impact of the higher intensity interventions may be underestimated both in terms of success rates and health. Further research is needed on this.

Aims

To provide best available estimates of 52-week continuous abstinence rates in England following a range of NHS and non-NHS smoking cessation interventions, and associated uptake and cost figures.

Methods and Results

52-week abstinence rates are estimated from a variety of sources as given in Table 1. They represent absolute percentages and not incremental effects arising from the particular method of quitting versus, for example, unaided quitting.

Uptake is estimated for each method of quitting as a percentage of all smokers based on data from the Smoking Toolkit Study combined with estimates from Quit Manager.

The cost per treatment episode is the estimated cost to the NHS or commissioner of treatment services for a given quit attempt. In the case of behavioural support, it is based on judgements about how much time would be expected to be spent multiplied by the cost of the person providing that service and on-costs, training, premises etc. Medication costs are estimated approximately. Costs of non-NHS provision are judgements based on ongoing servicing or materials costs for the intervention.

Figures for uptake are broad estimates based on Smoking Toolkit Study data combined with data from the Stop-Smoking Services. Figures for costs are indicative for uncomplicated cases (e.g. not pregnant or suffering mental health problems) and are based on estimates from the NICE guidance on smoking cessation services and the tariff proposed by the Department of Health in proposals for Payment By Results options.

Table 1: Estimates of 52-week continuous abstinence rates, uptake and costs associated with selected methods of quitting smoking

Setting	Intervention	Estimated 52-week quit rate	Uptake as percentage of smokers ^a	Cost per treatment episode ^b
NHS specialist clinic for smokers who are seeking help with a quit attempt	<p><i>A specialist clinic is a clinic that offers multi-session (usually for at least 4 weeks post quit date) specialist behavioural support by practitioners whose primary role is in smoking cessation support and who have competences as assessed by the NCSCT recommendations (www.ncsct.co.uk). Lower intensity support by less specialised practitioners is covered by the figures for NHS non specialist clinic setting below.</i></p> <p><i>The figures are derived as follows:</i></p> <p>¹52-week CO-verified continuous abstinence rates from Ferguson et al [6]</p> <p>²Application of odds ratios in Brose et al [4] to the Ferguson et al figure, assuming that odds ratios for effect sizes in smoking cessation are broadly maintained from 4 to 52 weeks given a general rule of 70% relapse between 4 and 52 weeks.^c</p>			
	Mono NRT with specialist individual behavioural support	15% ¹	0.5%	£220
	Combo NRT ^d with specialist individual behavioural support	20% ²	0.3%	£250
	Bupropion with specialist individual behavioural support	17% ²	0.1%	£220
	Varenicline with specialist individual behavioural support	24% ²	0.5%	£300
	Mono NRT with specialist group behavioural support	20% ²	0.2	£170
	Combo NRT with specialist group behavioural support	26% ²	0.1	£200
	Bupropion with specialist group behavioural support	23% ²	0.1	£170
	Varenicline with specialist group behavioural support	31% ²	0.2	£250
	Mono NRT with specialist drop-in behavioural support	11% ²	0.1	£220
	Combo NRT with specialist drop-in behavioural support	15% ²	0.1	£250
	Bupropion with specialist drop-in behavioural support	13% ²	0.0	£220
	Varenicline with specialist drop-in behavioural support	19% ²	0.1	£300

^a Percentage of all smokers in England who use the method in a given quit attempt based on data from the Smoking Toolkit Study, where necessary combined with data from the Stop-Smoking Services

^b Indicative cost per treatment episode based on NICE guidance and Department of Health estimates for use in calculating tariffs. One treatment episode corresponds to one quit attempt.

^c These and subsequent figures cannot be obtained directly. At the time of the Ferguson paper, only mono NRT was widely available and there have been no large scale 52-week follow-up studies of smokers attending different stop-smoking services, although one is currently ongoing. The data from Brose et al provide the best estimates of relative effect size at 4-week follow up of different interventions because they include adjustments for client and other treatment characteristics. This relative effect can be expected to generalise to 52 week follow up. In this example an odds ratio of 1.42 from Brose applied to 15% yields 20%

^d Combo NRT is NRT transdermal patch plus one of the faster acting forms, used together from the start of the quit attempt

Setting	Intervention	Estimated 52-week quit rate	Uptake as percentage of smokers	Cost per treatment episode
NHS non-SSS interventions for smokers who are seeking help with a quit attempt	<p><i>These include interventions in primary care and hospital setting in which there is limited behavioural support which may range from a prescription from the GP only to stop-smoking advice from practice nurses or pharmacists. If the pharmacist or nurse is delivering behavioural support according to the recommended treatment plan (see above) and has the necessary competences to do this, then the estimated success rates will be as given above for specialist services.</i></p> <p><i>The figures are calculated as follows:</i></p> <p>³<i>Application of the odds ratio for single form NRT from Cochrane review [7], confirmed by Smoking Toolkit Study [4] and Brose et al [4] of 1.7 to the 52-week unaided quit rate from Hughes et al [3]</i></p> <p>⁴<i>Application of odds ratios from Cochrane reviews and Brose et al to ³</i></p>			
	Prescription mono NRT	7% ³	2%	£200
	Prescription combo NRT	10% ⁴	1.7%	£250
	Prescription bupropion	8% ⁴	0.6	£200
	Prescription varenicline	12% ⁴	2.8%	£300
NHS interventions to smokers coming into contact with a health professional but not necessarily seeking help with stopping smoking	<p><i>The only intervention known to have an effect is physician advice. Brief opportunistic advice from other health professionals may have an effect but to date there is no good evidence for this. Nevertheless they are recommended to give such advice so as to encourage smokers to use the Stop-Smoking Services which do have proven effectiveness.</i></p> <p>⁵<i>Based on Cochrane review [7] and evidence that such advice prompts 25% of smokers to try to stop if the offer of help is made (even if the offer is not taken up) [4] and that most resulting quit attempts will be unaided yielding a 4% quit rate. By taking the unaided quit rate as the success rate it avoids double counting with people who use other forms of cessation aid.</i></p>			
	Brief advice from a physician during a routine consultation	1% ⁵	70%	£30

Setting	Intervention	Estimated 52-week quit rate	Uptake as percentage of smokers	Cost per treatment episode
Non-NHS interventions used by smokers making a quit attempt	<p><i>Non-NHS interventions include those that smokers purchase themselves, or are (or could be) delivered by other agencies.</i></p> <p><i>Figures are derived as follows:</i></p> <p>⁶<i>Application of rate ratio from the Free et al [8] text2stop trial to unaided success rate of 4% in people attempting to quit. It cannot be assumed that text messaging interventions using different content will have the same level of effectiveness.</i></p> <p>⁷<i>Assumed to have no effect as currently used by smokers in England based on findings from Smoking Toolkit [4]. This may change with improved messaging to ensure that the products are used as directed.</i></p> <p>⁸<i>Application of odds ratio from Cochrane review [9] to unaided cessation rate</i></p> <p>⁹<i>This figure is provisional; awaiting the results from the PORTSS trial. The Cochrane review [10] finds that telephone counselling is effective but there is a substantial heterogeneity so that it is unwise to extrapolate to a particular intervention without direct evidence.</i></p> <p>¹⁰<i>This figure is provisional; awaiting the results from the STOPADVISOR trial. A recent review [11] finds that internet support can be effective but there is a substantial heterogeneity so that it is unwise to extrapolate to a particular intervention without direct evidence.</i></p>			
	SMS text messaging	9% ⁶	0.1%	£5
	OTC NRT	4% ⁷	9.1%	£0 ^e
	Self-help books and booklets	5% ⁸	0.2%	£5
	Pro-active telephone support	8% ⁹	0.3%	£150
	Internet support	8% ¹⁰	0.2%	£5

^e Smokers pay for this themselves

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