



**BTS**  
Stop Smoking  
Champions

British Thoracic Society

## The Case for Change:

Why dedicated, comprehensive  
and sustainable stop smoking  
services are necessary  
for hospitals

**"Smoking Kills, Stopping Works"**

*Richard Peto, Harveian Oration, Royal College of Physicians 2012*

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### On behalf of the British Thoracic Society Stop Smoking Champions Project

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The Return on Investment calculator can be found via [www.brit-thoracic.org.uk](http://www.brit-thoracic.org.uk)

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## EXECUTIVE SUMMARY

**This is a Case for Change document to be used by BTS Stop Smoking Champions to underpin bids to Hospital Managers and Commissioners for support and funding of a dedicated, ongoing, comprehensive Stop Smoking Service in every hospital in the UK. Achieving this aim will be a major step forward towards integrating tobacco addiction treatment into a care management system similar to the systems currently used to manage other chronic diseases.**

**The Case for Change focuses on five key reasons for why a hospital should have a comprehensive and efficient Stop Smoking Service:**

- Smoking cessation is a **TREATMENT** for sick smokers, not prevention
- Significant numbers of smokers (and their families) who need treatment are in (or visiting) **HOSPITALS**
- Evidence exists that Stop Smoking interventions are **EFFECTIVE** in hospital
- **GAINS** for the patients are enormous
- **GAINS** for the hospital health economy are potentially enormous, both in terms of cost savings on patient-related use of resources and also in terms of staff smoking.

Each of these sections include some examples of supportive evidence, although these are by no means a full representation of the rapidly expanding body of evidence demonstrating the profound benefits of smoking cessation on individuals, on the general health economy and on the specific finances of each hospital.

Commissioning for a fully comprehensive Stop Smoking Service with sufficient resources and skill to provide quit smoking support as **TREATMENT** for all sick smokers based on current best evidence (i.e. pharmacotherapy with counselling) will need to include:

1. A mandatory training programme for all frontline healthcare staff to know and use Very Brief Stop Smoking advice and, where possible, train in motivational interviewing for behaviour change, in order to '**Make Every Contact Count**' (mecc@nhs.net)
2. A full complement of NICE-recommended pharmacotherapies<sup>69,70</sup>, including Varenicline, on formulary to assist smoking cessation, and to prevent nicotine withdrawal while in hospital
3. A full-time Stop Smoking Specialist (Band 7 or above) with further trained, dedicated Stop Smoking staff to be able to see and treat all patients (including those on the ward) and staff who smoke
4. A robust IT system for documenting smoking status and referring for Stop Smoking support
5. Regular outpatient Stop Smoking clinics, accessible to staff, to patients and to patients' families and visitors who smoke
6. A mandatory training programme for all doctors and pharmacists to improve skills in Stop Smoking interventions, prescribing of pharmacotherapies and motivational interviewing
7. Mandatory recording of smoking status and any Stop Smoking interventions on discharge summaries and inclusion of smoking on death certificates for patients where smoking contributed to long-term illness and/or directly to death
8. A hospital Stop Smoking Steering Group with appropriate linkage to and representation from the community Stop Smoking Service, to support the service and constantly review strategy.

## INTRODUCTION

*Smoking remains one of the biggest killers in our society, causing premature death in more than half of smokers. Smoking cessation interventions are evidence-based and **the single most cost-effective life-saving intervention provided by the NHS**. Yet, smoking cessation services within secondary care remain under-funded, under-prioritised and still not deemed a core part of TREATMENT strategy for smoking-related illness. While 48% of hospitals in the UK have some Stop Smoking Service, only ~1/3 have a full-time Stop Smoking Specialist (BTS Stop Smoking Champions Survey, 2011) and 2/3 of hospitals have no Varenicline on formulary despite its being a first-line, evidence-based treatment for supporting smoking cessation, with particularly excellent outcomes for smokers with COPD, being 2.5 times better than NRT<sup>1</sup>. In one study, more than 20% of inpatient smokers reported using NRT while in hospital, and only 15% were provided with NRT on discharge<sup>2</sup>.*

These blind spots are compounded by enormous gaps in data relevant to identifying and treating sick smokers. There exists very little accurate data on prevalence of smokers admitted to hospital, length of stay and readmission rates for sick smokers, relapse rates for quit attempts and the number of times sick smokers access Stop Smoking Services. The shocking reality of smoking prevalence (more than 70%) in hospitalised people with mental health conditions<sup>3</sup>, who die on average 16–25 years sooner than the general population from predominantly respiratory and cardiovascular disease<sup>4</sup>, is largely undocumented. Crucially, clinical coding (which sets the national standard used by the NHS to ensure that services and applications have appropriate clinical input, are fit for purpose and deliver real benefits for patients) exists for inpatient smokers (F17.1 patient asked and confirms smoking and F17.2 dependent smoker cessation advice given) but is either inconsistently used or not used at all.

The hope is that this document will provide at least some of the information required to argue a case for investing in a Stop Smoking Service that will:-

- offer real mortality and morbidity benefits for individuals
- extract best-value outcomes for healthcare investment
- fill the existing data gaps that would never be acceptable for other core medical interventions.

Further, a hospital claiming to be an *institution of healthcare promotion* would ensure its reputation with Commissioners, employees and patients if it invested in excellent Stop Smoking Services, as this would imply that it:-

*“Recognises its role in the wider community”* where smoking continues to flourish, particularly among young people under the age of 18 and in poorer, deprived communities

*“Takes on the corporate and social responsibility”* that is essential to the notion of true health promotion

*“Will take the necessary financial risks (together with Commissioners)”* to put in place top-quality, cost-effective services that may not generate immediate dividends but will definitely improve long-term outcomes in a vulnerable and highly resource-consuming population of sick smokers<sup>5</sup>.

The Case for Change also gives details of:

1. **A Return on Investment (ROI) Calculator**<sup>6</sup> – an easy-to-use tool with which to demonstrate to Managers and Commissioners the value (outcome/cost) of providing comprehensive Stop Smoking Services for hospital patients and staff, taking into account the demographics, smoking prevalence, and smoking-related morbidity/mortality of the specific hospital locality. By populating the calculator with local data, it is possible to estimate the costs of establishing a Stop Smoking Service and to compare these to the financial benefits for healthcare resource utilisation of stopping smoking, thus providing an estimated dividend. Questions relating to the use of the calculator may be addressed to [measurement@institute.nhs.uk](mailto:measurement@institute.nhs.uk).

The calculator is not the first of its kind. The ASH Reckoner<sup>7</sup> and the Brunel University Toolkit<sup>8</sup> are both tools developed to estimate the financial burden of tobacco use. The ASH model is intended to provide estimates of the burden of smoking at **local or regional level**, taking as its starting point estimates of the cost of smoking used in the Cough Up report produced by Policy Exchange<sup>9</sup>. The Brunel model is a sophisticated calculator modelling the costs of tobacco over time, focussing on the healthcare costs of smoking over time, and estimating the impact of implementing **sub-national strategies** to reduce smoking prevalence and uptake. Neither of these calculators, however, facilitates an estimate of the cost-benefits of smoking cessation services at local hospital level, which is what we offer with this Case for Change.

2. **Recommendations for Smoking Cessation in Secondary Care** – updated in 2012 by the BTS Tobacco Specialist Advisory Group ([http://www.brit-thoracic.org.uk/Portals/0/Delivery%20of%20RespCare/Stop%20Smoking%20Champions/Smoking\\_Cessation\\_Report.pdf](http://www.brit-thoracic.org.uk/Portals/0/Delivery%20of%20RespCare/Stop%20Smoking%20Champions/Smoking_Cessation_Report.pdf)). This should provide benchmarking for the quality and content of a desirable service.

**WHAT EVERY CLINICIAN SHOULD KNOW**

- \* Half of all smokers die from smoking-related disease
- \* Supporting people to stop smoking is TREATMENT not prevention

*Supporting smokers to stop smoking is every clinician's business*

**ash.** The Cost of Local Tobacco Control  
action on smoking and health 2012 update

**Important note on significance & accuracy of estimates:**  
The figures provided by the 'Reckoner' are estimates based on national surveys and research. However, they do provide an important and useful signifier of the scale and cost of smoking in your locality, and can be used as a tool to aid the planning and commissioning of services to reduce smoking rates and the harms caused by smoking. It should be noted that whilst these 'cost of smoking' figures are rough estimates, they do represent a degree of intelligence and knowledge that is difficult to obtain for other 'lifestyle behaviours' and do provide a strong economic argument supporting the commissioning of policies to reduce tobacco use.

**Select the area you wish to examine:**

**How to use the Reckoner:**  
The Reckoner allows you to generate graphs and key statistics relating to the costs of smoking at different locations in England. Select your geographical location of interest using the drop-down lists to the left. The figures will adapt to each area tier selected but when no tiers are selected, the figures default to the national values. To move up a tier, simply select 'None' from the list currently being examined.

Est. Smoking Population for England: **8,365,559**

Each year in England we estimate that smoking costs society **approx. £13,800m (£13.8bn)**

<b>The estimated output lost from early deaths in England is:</b> <b>£4,100 million</b>	<b>The estimated cost of lost productivity from smoking breaks in England is:</b> <b>£2,900 million</b>	<b>The total cost to the NHS of smoking in England is:</b> <b>£2,700 million</b>	<b>The estimated cost of lost productivity from smoking-related sick days in England is:</b> <b>£2,500 million</b>
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**Building the Economic Case for Tobacco Control**

Introduction | Model Structure | Inputs | Disclaimer

**fresh** **smokefree** **Brunel UNIVERSITY** **HERG**  
tobacco free futures

**BUILDING THE ECONOMIC CASE FOR TOBACCO CONTROL**  
**A TOOLKIT TO ESTIMATE ECONOMIC IMPACT OF TOBACCO**

This toolkit allows you to estimate the economic impact of tobacco on services in your local and sub-national area. By using the drop down menus on the **Inputs** page, you can select your area of interest and the toolkit will automatically estimate the smoking and ex-smoking populations based on up-to-date statistics. The population composition is used to model the impact of smoking on relevant endpoints, taking into account short-, medium- and long-term events.

The model predicts changes in health and non-health impacts in response to reduction of smoking prevalence, which is moderated through natural background quitting behaviour, an increase in local cessation support and by establishing a sub-national tobacco control programme. At a local level, the model allows you to allocate a proportion of your smoking population to one or several interventions, with reduced prevalence resulting from their relative effectiveness over and above the natural background quit rates. The inclusion of a sub-national programme in your area further increases this background rate. Outputs are presented to allow you to compare the economic impacts of the different scenarios.

The **Model Structure** has been developed and tested with stakeholders and commissioners. The Health Economics Research Group at Brunel University developed this work in partnership with London Health Observatory and Queen's Medical Centre, University of Nottingham. This work was funded by Tobacco Free Futures, Fresh Smoke Free North East and Smoke Free South West. Inputs from the Steering Group and stakeholders are acknowledged. For details on how to use this model, please refer to accompanying Report and User Guide. Also, read the **Disclaimer** information before you use this model.

The following citation is recommended:  
 Trappero-Ortiz M, Palmer S, Truman P. An economic model of tobacco control version 1. Tobacco Free Futures, Fresh Smoke Free North East & Smoke Free South West, January 2011.

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 Please acknowledge the source in all oral and written communications

## STOP SMOKING – A TREATMENT FOR LONG-TERM SMOKING-RELATED DISEASE

Smoking is the primary cause of preventable illness and premature death, accounting for 81,400 deaths in England in 2009<sup>10</sup>. Smoking harms nearly every organ of the body and dramatically reduces both quality of life and life expectancy. Smoking causes lung cancer, respiratory disease and heart disease as well as numerous cancers in other organs including lip, mouth, throat, bladder, kidney, stomach, liver and cervix. It is estimated that, in 2008-9, 462,900 NHS hospital admissions were attributable to smoking<sup>11</sup>. Estimates of the cost of smoking to the NHS range from £2.7bn<sup>12</sup> to £5.2bn a year<sup>13</sup>.

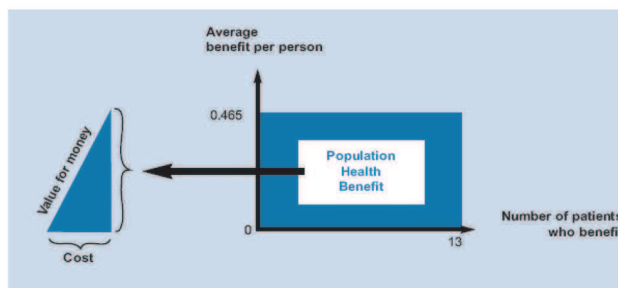
Bearing this in mind, Stop Smoking support has been shown to be highly cost-effective and an effective long-term intervention for people with smoking-related long-term disease. For example:

- Over a lifetime, the incremental costs per year of life gained by smoking cessation in low- and high-risk patients with coronary artery disease were approximately 1/25 the cost of both statins in the low-risk group and angiotensin-converting enzyme inhibitors in the high-risk group<sup>16</sup>.
- Stop Smoking support has been shown to be highly cost-effective: ~£2,000 per Quality Adjusted Life Year (QALY), which is ~1/10 of the NICE cut-off for a good value intervention at £20,000 per QALY, and an effective long-term intervention for people with COPD, as long as the support is evidence-based and manages the higher relapse rate and the time needed (90 minutes)<sup>17</sup>.
- Evidence from a study which modelled the relative value of different COPD interventions<sup>18</sup>, demonstrates that Stop Smoking interventions provide great value in both diagnosed and undiagnosed populations and should be commissioned as a treatment for COPD.
- Stopping smoking has been associated with a decreased risk of COPD exacerbations, the risk reducing with duration of smoking abstinence<sup>19</sup>.
- Stopping smoking dramatically reduces the risk of a stroke occurring: within two years of stopping smoking, a former smoker's risk of stroke is reduced to that of a non-smoker<sup>20</sup>.
- Stopping smoking reduces all-cause mortality by 36% after an MI<sup>21</sup> and by 21% in heart failure<sup>22</sup>.
- Stopping smoking early in rheumatoid arthritis may prevent development of high disease activity and severe extra-articular manifestations<sup>23</sup>.
- Stopping smoking improves exercise tolerance in peripheral vascular disease<sup>24</sup>.

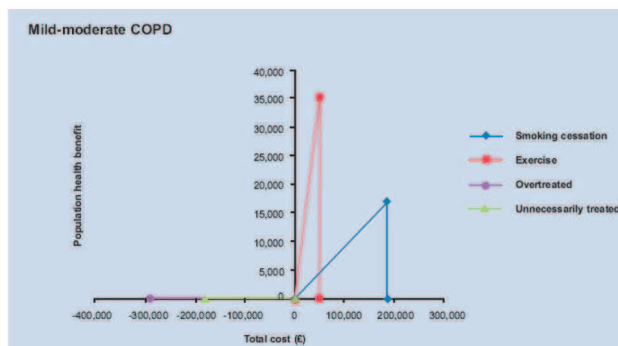
A cost-effective intervention in COPD (Hoogendoorn)		
	1 year abstinence %	QALY £
Usual care	1.4	
Minimal counselling	2.6	14,735
Intensive counselling	6	7,149
Intensive counselling + pharmacotherapy	12.3	2,092

*"An inexpensive intervention with a relatively low success rate can make an important difference if it has great potential and is applied early in the course of the diseases of interest"*<sup>14</sup>

*"Smoking cessation is still the most important intervention to slow down the disease progression of chronic obstructive pulmonary disease. It decreases the annual decline in lung function, reduces symptoms of cough and sputum, improves health status and reduces exacerbations of COPD. Because of the strong association between use of healthcare services and disease severity, slowing down disease progression is likely to reduce annual COPD-related healthcare costs"*<sup>15</sup>



*The larger the volume, the greater the population to benefit; the steeper the hypotenuse, the greater the value*



*IMPRESS Guide to the relative value of interventions for people with COPD, 2012*<sup>18</sup>



## SIGNIFICANT NUMBERS OF SMOKERS WHO NEED TREATMENT ARE IN HOSPITALS

Sick smokers are often admitted to hospital. The impact of smoking on secondary care is significant<sup>25</sup>. In 2009/10 there were:

**9.7 million hospital admissions for adults aged over 35 in England, of which 5% (461,700) are estimated to be attributable to smoking (291,000 men, 170,600 women). This equates to 1,417 smoking-attributable admissions per 100,000 population of adults aged over 35 years. That is:**

**1,260 admissions per day in England are due to smoking:**

**~ 1 in 20 of all admissions**

**~ 1 in 4 respiratory admissions**

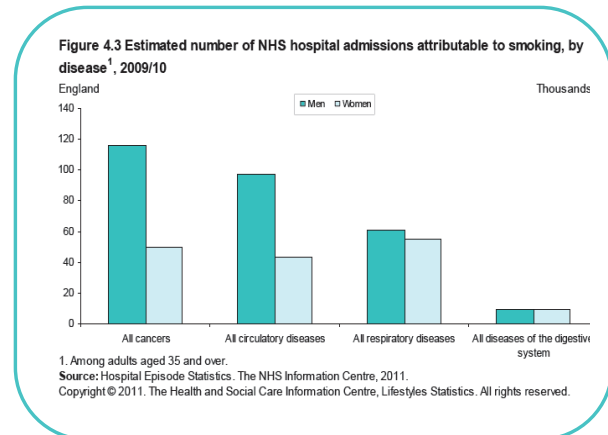
**~ 1 in 6 cardiac admissions**

**~ 1 in 10 cancers are due to smoking<sup>26</sup>**

- Higher smoking-attributable admission rates are associated with poor population health and high smoking prevalence. Compared to 1,417 smoking-attributable admissions per 100,000 population of adults aged over 35 years, this figure is 761 per 100,000 in Wokingham and 2,539 per 100,000 in Burnley.
- It is estimated that of all admissions attributable to smoking, 26% are due to respiratory disease, 16% are due to circulatory disease, 12% are due to cancers and 1% are due to digestive disorders. More than 8 out of 10 admissions for cancers of the trachea, lung and bronchus are estimated to be caused by smoking<sup>27</sup>.
- Smoking causes admissions for non-fatal conditions. For example in 2009/10, 11% of admissions with age-related cataracts were attributable to smoking.

While estimates of smoking-attributable hospital admissions are available, as described above, there are no statistics collected nationally that give the prevalence of smoking amongst patients seen in secondary care. However, individual audits and studies suggest smoking prevalence on specific hospital wards anywhere between 13% and 35%, depending on the type of ward, demographics of the patients, location of the hospital and year of the study<sup>28,29</sup>.

**If 20% of inpatients are smokers (estimate) and there are ~100,000 adult inpatient beds in UK (DoH: Knowledge & Intelligence Report 2011), there are 20,000 smokers in hospital at any one time.**



Further, this estimate does not take into account the potential impact of quitting behaviour on family members who smoke. A successful quit by a smoker following hospital admission may result in either, decreased risk of children smoking, or a reduction or quit by other family members or carers who smoke.

Thus, compared to a family where neither parent smokes, where the risk of teenagers smoking is 3%, the risk where both parent smokes rises to 20%, i.e. seven times the risk<sup>30</sup>, and is three times the risk if only one parent smokes. Having one sibling smoking increases the risk of smoking to younger siblings by 2-3 times. The impact of both parents quitting is a 40% reduction in the risk of children smoking<sup>31</sup>.

- Adults with mental health problems smoke 42% of all tobacco in England<sup>4</sup> and smoking prevalence among people living in mental health institutions is more than 70%<sup>3</sup>, with 50% of these being heavy smokers (20 cigarettes per day)<sup>32</sup>. These patients die on average 16-25 years sooner than the general population, largely due to higher rates of respiratory and cardiovascular illness, as well as poor survival outcomes for patients who have COPD which is largely undiagnosed and untreated<sup>33</sup>. Patients with schizophrenia, for example, have a 28% 5-year mortality from COPD compared to a 12% 5-year mortality in an age-adjusted population<sup>34</sup>. Annual costs for these patients have been shown to be four times higher than age-matched controls<sup>35</sup> and this is despite the fact that more than 50% of patients with mental health disorders want to stop smoking<sup>32</sup> and that there is good evidence that standard smoking interventions are effective and without excess side effects for these patients<sup>36</sup>.

**Concentrating services<sup>37</sup> where many smokers are already located is opportunistic, effective<sup>38</sup> and certainly cost-effective.**

## STOP SMOKING INTERVENTIONS IN HOSPITAL ARE EFFECTIVE, AND HOSPITAL ADMISSION INCREASES THE LIKELIHOOD OF SUCCESSFULLY QUITTING

Few opportunities hold more promise for increasing the rate of stopping smoking than patient contact with the healthcare system. Although hospitalisation is seldom a desired healthcare outcome it can, at the very least, offer smokers the chance to receive Stop Smoking support. Further, hospital admissions are important 'teachable moments', situations that provide the potential to motivate positive change in unhealthy behaviour<sup>39</sup>. Smokers are more open to being helped at a time of perceived vulnerability<sup>40-43</sup> and some smokers who have not contemplated the possibility of stopping smoking beforehand may make concerted efforts to quit, especially if their pathology is related to tobacco use<sup>44</sup>.

*Recent or initial hospitalisation is an independent predictor of abstinence at two months, and long-term cessation is higher in people who have been admitted to hospital, even without a cessation intervention<sup>44</sup>.*

Smokers may find it easier to quit in a place where smoking is restricted or, preferably, completely prohibited, where there are fewer cues (e.g. family members who smoke) and where pharmacotherapy is readily available. Among hospitalised patients, the main independent predictors of smoking abstinence after discharge from hospital were receiving smoking cessation intervention, low dependence on tobacco, and motivation to quit by sudden cessation<sup>45</sup> - especially if they were admitted for a smoking-related disease<sup>46</sup>. Giving hospitalised patients expert advice on how to quit smoking and information on how their diseases and symptoms are related to tobacco use is crucial<sup>47</sup>, and this advice is more effective for patients who also directly experience the mitigation of withdrawal symptoms provided by tobacco-cessation medications during forced abstinence in a hospital.

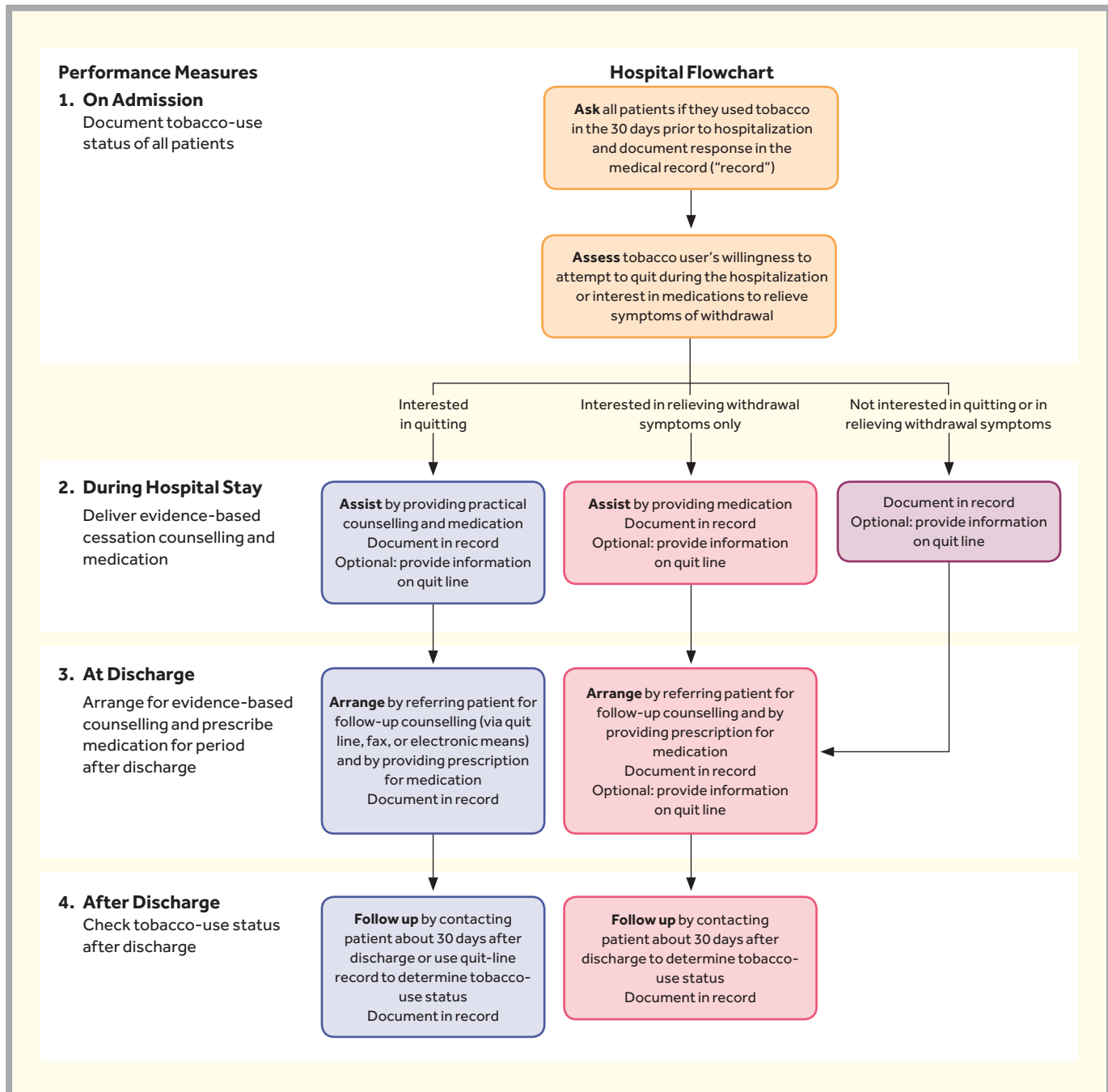
The Framingham Heart Study showed that hospitalisation in the preceding two years was associated with a 30-40% increase in likelihood of smoking cessation<sup>47</sup>, while specific health events that have been shown to increase the likelihood of smoking cessation include surgery<sup>48</sup> and a diagnosis of cancer<sup>49</sup>.

**A Cochrane review of 33 trials concluded that high-intensity interventions that begin during hospitalisation, and include at least one month of supportive contact post-discharge, promote smoking cessation irrespective of the admitting diagnosis. Thus, offering smoking cessation counselling to all hospitalised**

**smokers is effective, and adding nicotine replacement therapy to counselling may further increase smoking cessation rates and should be offered when clinically indicated, especially to hospitalised smokers with nicotine withdrawal symptoms<sup>37</sup>.**

This evidence has been sufficient to prompt the Joint Commission in the United States to set new national standards for smoking cessation interventions in US hospitals in 2012. These standards will be achieved through the development of performance measures mandating the delivery of evidence-based cessation counselling and medication during hospitalisation for all identified smokers<sup>50</sup>, and provide a model for use around the world.





### The New Joint Commission Tobacco Cessation Performance Measure-Set.

After a patient's tobacco use and level of interest in quitting have been determined at admission, specific approaches are recommended for the hospital stay, at discharge, and on follow-up (as derived from the 2008 Public Health Service Guideline 2). Counselling about evidence-based tobacco-cessation measures and prescribing of appropriate medication can take place as long as there are no contraindications and the patient does not refuse such treatment. 2 Quit line (1-800-QUIT NOW) is an evidence-based telephone service that offers tobacco-cessation counselling and is available in all 50 states.<sup>50</sup>

## GAINS FOR PATIENTS ARE ENORMOUS

*The health benefits of quitting smoking start almost immediately, are evidence-based, wide-ranging and have profound effects on mortality and morbidity.*

<b>20 mins</b>	Reduction in blood pressure, pulse rate, and normalisation of temperature of hands and feet.
<b>8 hrs</b>	Serum nicotine falls 6.25% of normal peak daily levels, a 93.25% reduction.
<b>12-24 hrs</b>	Normalisation of oximetry (12 hrs) and carbon monoxide levels (24 hrs).
<b>48 hrs</b>	Sense of smell and taste noticeably improved.
<b>72 hrs</b>	100% nicotine-free and more than 90% of nicotine metabolites excreted. Improvement in breathing.
<b>2 weeks to 3 months</b>	Risk of <b>MI</b> begins to fall and lungs begin to improve.
<b>3 weeks to 3 months</b>	Decrease in <b>respiratory symptoms</b> (cough and breathlessness).
<b>1 yr</b>	Excess risk of <b>MI and stroke</b> decreased to less than half that of a smoker.
<b>5 to 15 yrs</b>	<b>CVA</b> risk has declined to that of a non-smoker.
<b>10 yrs</b>	Risk of being diagnosed with <b>lung cancer</b> decreased to between 30% and 50% of that for a continuing smoker. Risk of death from lung cancer has declined by almost half for an average smoker (one pack per day). Risk of pancreatic cancer has declined to that of a never-smoker, while risk of <b>cancer of the mouth, throat and esophagus</b> has also declined. Risk of developing <b>diabetes</b> is now similar to that of a never-smoker.
<b>13 yrs</b>	Risk of smoking-induced <b>tooth loss</b> has declined to that of a never-smoker.
<b>15 yrs</b>	<b>Risk of coronary heart disease</b> is now that of a person who has never smoked.
<b>20 yrs</b>	Female excess risk of death from <b>all smoking related causes</b> , including lung disease and cancer, has now reduced to that of a never-smoker. Risk of pancreatic cancer reduced to that of a never-smoker.

## Gains for Patients with Diagnosed Long-Term Conditions

### For Diabetic Patients

Stopping smoking:-

- Decreases the risk of developing heart disease<sup>51</sup>
- Slows the progression of renal disease<sup>52</sup>.

### For Cancer Patients

Stopping smoking:-

- Improves the outcomes for surgery for lung cancer<sup>53</sup> as well as increasing the overall survival and decreasing recurrence of non-small cell lung cancer<sup>54</sup>
- Increases responsiveness to radiotherapy for head and neck cancers<sup>55</sup>, and increases survival<sup>56</sup>
- Reduces the risk of recurrence and improves overall survival in bladder cancer<sup>57</sup>.

### For Asthma Patients

Stopping smoking:-

- Improves lung function, reduces symptoms, medication use and improves quality of life<sup>58</sup>
- Improves the efficacy of corticosteroids as treatment<sup>59</sup>
- Decreases hospital admissions and near-fatal exacerbations<sup>60</sup>.

### For Cardiovascular Patients

Stopping smoking:-

- Decreases the risk of death due to all causes after an MI by 36%<sup>16</sup> and by 21% in patients with heart failure<sup>22</sup>
- Decreases the need for re-hospitalisation and mortality following acute coronary syndrome<sup>61</sup>
- Is associated with a 40% decreased risk of all-cause mortality and a 30% decreased risk of recurrent MI or hospitalisation after a high risk MI<sup>62</sup>
- Decreases the risk of re-stenosis after angioplasty<sup>63</sup>.

### For COPD Patients

Stopping smoking:

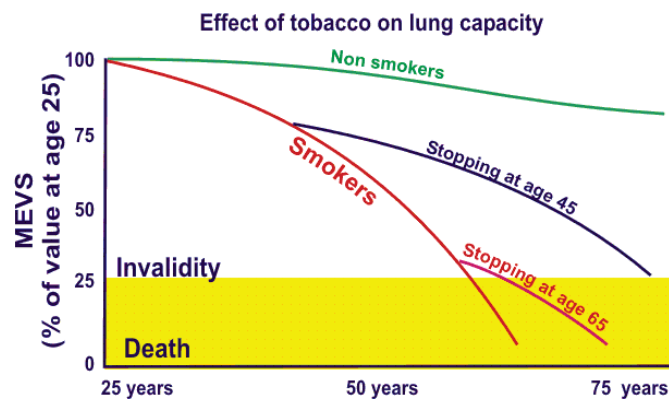
- Slows down the progression of disease and may lead to a return to normal levels of FEV1 decline. By the time patients are symptomatic with breathlessness, they will have already have severe impairment of lung function, so although stopping smoking at this stage may not cure the symptoms, it reduces exacerbations, and may extend their life expectancy at whatever stage they quit<sup>64</sup>.

**Other benefits of quitting smoking include:**

- Protecting the health of family and contacts by reducing their exposure to secondhand smoke
- Reducing the chances of children suffering from bronchitis, pneumonia, asthma attacks, meningitis and ear infections
- Saving money - as much as several hundred pounds a month for heavy smokers

**Currently, a 20-a-day smoker of a premium cigarette brand will spend about £2,600 a year on cigarettes<sup>65</sup>**

- Losing the smell of stale tobacco
- Improving the appearance of skin and teeth
- Feeling more confident in social situations by not worrying about the secondhand smoke created
- Reducing the risk of fire in the home and even possible impact on lower insurance premiums.



Fletcher Peto curve showing the effect of smoking continuation or discontinuation on the decrease in Forced Expiratory Volume at one second over time<sup>64</sup>

## POTENTIAL GAINS FOR HOSPITALS ARE ENORMOUS

Trusts can benefit financially from investing in Stop Smoking services at a number of levels, including admission avoidance, reducing length of stay and reducing re-admissions. This is in addition to reduced use of hospital resources required by smokers during the hospital stay as well as generating, in some hospitals, income from tariffs for smoking cessation started in hospital. There are also profound health and economic impacts of providing good Stop Smoking services for staff who smoke, currently estimated to cost UK businesses £400 to £1,800 per smoker per year in direct salary costs, with real business costs estimated to be more than £7,000 per smoker per year<sup>66</sup>. Provision of accessible, comprehensive and supportive Stop Smoking services onsite for staff can result in increased productivity in the workplace, decreased absenteeism due to illness and net cost savings.

The BTS ROI calculator (<http://www.brit-thoracic.org.uk>) will assist in providing estimated dividends for establishment of a successful Stop Smoking service. While at least some of the evidence underpinning the calculations derives from observations of benefit for COPD and asthma smokers who quit, there is also good evidence that surgical outcomes, including post-operative complications, length of stay and need for ITU admission<sup>67,68</sup> can be reduced by stopping smoking prior to surgery.

### Other examples of evidence relating to patient smoking include:

- Stopping smoking is associated with a 43% decreased risk in hospitalisation in COPD<sup>69</sup>

**1% decrease in smoking prevalence in COPD population = 1% decrease in COPD admissions**  
A calculation based on real data<sup>70</sup>

**1% of ~ 411 admissions per year coded HRG DZ21B-K = 4**  
Average payment per admission = £2352 – total £9,408

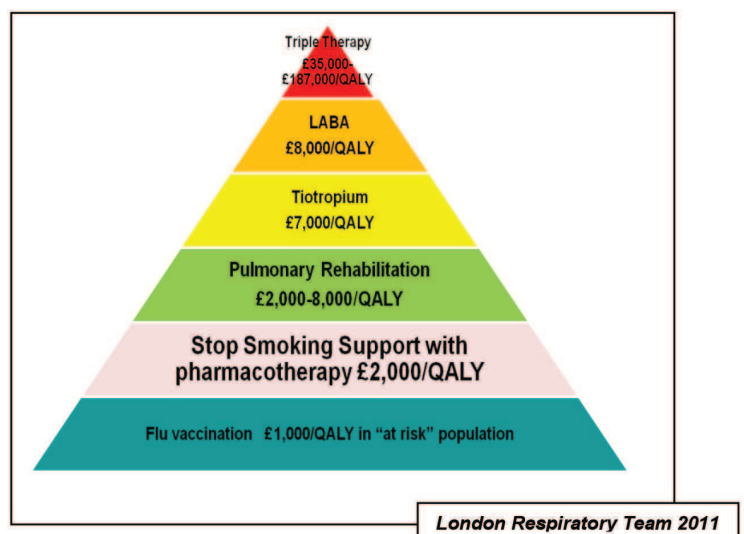
**~ 40% of the COPD patients admitted smoke**

**Thus helping two patients (1% of calculated prevalence) to quit at a cost of £250 per quit (total £500) would result in a saving of four admissions (1% of admissions) at £2352 per admission (total £9,408)**

- A decrease of 1% in smoking prevalence among the asthma population can lead to a 1% decrease in asthma admissions<sup>70</sup>. An average 37% of patients admitted to UK hospitals with acute severe asthma are current smokers (2011 BTS National Asthma Audit of 112 hospitals), a figure much higher in some hospitals.
- Between 1996 and 2006, smoking prevalence for the UK declined from 29% to 25% as a result of public health policies (including the ban on smoking in public places and on smoking advertising) and was associated with a 13% decrease in smoking-attributable costs for the NHS (~£380 million per year)<sup>27</sup>.

**• If London patients admitted for planned surgery were supported to stop smoking prior to operation, 2,500-5,300 post-operative complications would be avoided each year, resulting in a saving of 2,600-4,000 bed days, £0.5-£1.1 million across the Commissioning Agencies, and £0.9-£2.8 million across London's hospital trusts<sup>71</sup>.**

- Stop Smoking support is a highly cost-effective and clinically effective long-term measure for people with COPD, as shown in a systematic review of nine studies<sup>12</sup>
- Compared to triple inhaler therapy, which costs up to £187,000 per QALY, and single long-acting bronchodilator inhalers, which cost £7,000-£8,000 per QALY, quit smoking costs are estimated to be £2,000 per QALY (ten times less than NICE limit of £20,000 per QALY for an effective intervention)



**COPD 'Value Pyramid'**

**What we know: cost per QALY**

**“At the horizon of a smoking COPD patient’s remaining lifetime, smoking cessation at cohort initialisation, relapses being allowed as observed in practice, would result in:-**

- **Gains (mean) of 1.27 life-years and 0.68 QALY**
- **Savings of -£1,824 per patient in the disease-related costs.**

**These gains and savings are relevant across the spectrum from mild to severe disease in most scenarios, even when hypothesising expensive smoking cessation intervention programmes associated with low success rates. Considering a ten-year time horizon, the burden of continuous smoking in English COPD patients was estimated to cost a total of £1,657million, while 452,516 QALY would be simultaneously lost”<sup>72</sup>.**

### **Evidence relating to staff smoking**

- Current smokers have significantly greater absenteeism than never-smokers. Ex-smokers have intermediate absenteeism compared to current and never smokers, but this significantly declines over the years following cessation<sup>72</sup>.
- A review of the health and well-being found that, among NHS employees, the likelihood of sickness absence is a third higher for smokers compared to non-smokers; and smokers are more likely to be absent due to ill health, and for longer, than a non-smoker<sup>62</sup>. A health economic review<sup>73</sup>, conducted to inform the development of National Institute for Health and Clinical Excellence guidelines workplace interventions to promote smoking cessation<sup>63</sup>, reported that productivity losses due to illness and increased absences from work amounted to 33 hours per smoking employee per year. This is 33 hours which would not be lost by a non-smoking employee and does not include lost productivity due to smoking breaks.
- In Scotland, the estimated cost of smoking-related absence is £40 million per annum. Total productivity losses are estimated at ~£450 million per annum<sup>77</sup> - costs which outweigh the cost of even the most sophisticated smoking cessation programmes.
- A US study has shown that providing a specific financial benefit as a reward for smoking cessation, results in greater numbers of successful cessations and decreased rates of smoking-related diseases. Total savings from benefit coverage (decreased healthcare and workplace costs) exceeded costs of the benefit within four years. Total savings per smoker ranged from 350 dollars to 582 dollars at 10 years and 1,152 dollars to 1,743 dollars at 20 years. The internal rate of return ranged from 39% to 60% at 10 years<sup>78</sup>.
- The case for the potential of smoking cessation interventions to realise savings has been identified as one of the potential high-impact areas for the NHS Wales Five-Year Plan<sup>79</sup>.

## SO WHAT SHOULD WE, AS HOSPITAL STOP SMOKING CHAMPIONS, BE DOING?

- Liaising with management and consultant colleagues to raise the profile of smoking cessation within the trust and to embed the principle that **STOPPING SMOKING is a TREATMENT FOR SMOKING-RELATED ILLNESS.**
- Assessing specific hospital requirements and plan for a Stop Smoking service, for example:-
  - Outpatient clinics - how many, where, staffing, appointments
  - Inpatient services - identifying smokers, documenting smoking status, prescribing pharmacotherapy for nicotine withdrawal for all current smoking, providing brief advice for Stop Smoking by frontline staff, referring for Stop Smoking support either as inpatient (preferable) or after discharge
  - Special services (e.g. stop before your op, maternity, paediatrics)
- Lobbying for:-
  - a dedicated hospital Stop Smoking adviser
  - standard formulary provision of NRT and Varenicline with stocks on every ward
  - provision of level 1 training for all frontline healthcare staff, for example as part of **induction** programs or as **mandatory annual training**
- Writing guidelines for hospital NRT and Varenicline prescribing
- Providing clinical supervision and support to:-
  - the dedicated hospital Stop Smoking adviser(s)
  - level 2 trained specialist nurses and pharmacists
  - any of the medical staff involved in Stop Smoking referral or prescribing
- Providing education and training to junior doctors e.g. formal incorporation of lectures on smoking cessation and prescribing (NRT/ Varenicline/Bupropion) into the Foundation Year, Core Medical Training and Specialist Registrar lecture programmes (source material can be found on the BTS Stop Smoking Champions webpages)
- Providing (or organising) education and training to specific clinical groups e.g. midwives, pre-surgical assessment nurses, specialist nurses
- Liaising with associated Mental Health Trusts to improve education and Stop Smoking policies for patients
- Auditing outcomes and presenting annually to both medical and surgical teams (the BTS audit tool will be available via website) – involving junior doctors will enhance training
- Developing and leading on a CQUIN for incentivising Stop Smoking activity in Trusts
- Taking a lead in developing Hospital Strategy on maintenance of the Smokefree environment (including setting up a steering committee comprised of representatives from clinical and managerial sectors if not already active)



## AND WHAT SHOULD WE, AS CLINICIANS, TOGETHER WITH OUR MANAGERS, BE ASKING COMMISSIONERS TO COMMISSION?

**A fully comprehensive Stop Smoking service with sufficient resources and skill to provide Stop Smoking support as TREATMENT for all sick smokers based on current best evidence (i.e. pharmacotherapy with counselling). This would need to include:**

	Estimated Cost per Annum
1. A mandatory training program for all frontline healthcare staff to know and use Very Brief Stop Smoking Advice and where possible, train in motivational interviewing for behaviour change, in order to ' <b>Make Every Contact Count</b> ' ( <a href="mailto:mecc@nhs.net">mecc@nhs.net</a> )	A training module developed by the National Centre for Smoking Cessation and Training (NCSCCT) on how to deliver Very Brief Advice to smokers is available at no charge on their website: <a href="http://ncsct-training.co.uk/player/play/VBA">http://ncsct-training.co.uk/player/play/VBA</a>  The training takes ~30 minutes
2. A full complement of NICE-recommended pharmacotherapies <sup>69,70</sup> , including Varenicline, on formulary, to assist smoking cessation, and to prevent nicotine withdrawal while in hospital. This should be complemented by 'dummy example' boxes for clients to see and choose from, and easily-understood and accessible guidelines for prescribing of all the available products	<b>£20K - £25K</b>  (based on annual spend 2011-12 in an inner London Hospital with ~300 beds)
3. A full-time Stop Smoking Specialist (Band 7 or above) with further trained, dedicated Stop Smoking staff to be able to see and treat all patients (including those on the ward) and staff who smoke	Band 7 with on-costs (midpoint) - <b>£53K</b>
4. A robust IT system for documenting smoking status and referring for Stop Smoking support, i.e.:-  a) Documenting the smoking status of every patient (inpatient and outpatient) and all staff members  b) Referral to be seen either on the ward by a Stop Smoking specialist as an inpatient (preferred option), or in an outpatient Stop Smoking clinic in the hospital following discharge, or to a standard community Stop Smoking clinic (i.e. in the GP practice, local pharmacy or regional Stop Smoking service)  c) Documenting, disseminating and sharing information on outcomes, e.g. 4-week and 12-week validated quits, hospital admissions before and after stopping.	Should be adaptable on current patient management systems, e.g. Anglia ICE, at no additional cost

<p>5. Regular outpatient Stop Smoking clinics, accessible to staff, to patients and to patients' families and visitors who smoke</p>	<p>Approximate costs for a full year (i.e. 40 weeks of 5 clinics per week (seeing a maximum of 1,600 patients and or staff per year) taking into account annual leave, study and sickness, and with 'on-costs' but not including staff which is accounted for above:</p> <ol style="list-style-type: none"> <li>1. Clinic administrator (Band 4, 0.5 WTE) to include clinic administration 1.5 hours per clinic and booking/referrals 2 hours per clinic  £15,000</li> <li>2. Consumables (paper, stamps etc)  £1,000</li> </ol> <p><b>Total £16K</b></p>
<p>6. A mandatory training programme for all doctors and pharmacists to improve their skills in Stop Smoking interventions, prescribing of pharmacotherapies and motivational interviewing</p>	<p>Should be delivered as part of teaching program for junior doctors (FY and CMT) at no additional cost</p>
<p>7. Mandatory recording of smoking status and any Stop Smoking interventions on discharge summaries and inclusion of smoking on death certificates for patients where smoking contributed to long-term illness and/or directly to death</p>	<p>No additional cost</p>
<p>8. A hospital Stop Smoking Steering Group with appropriate linkage to and representation from the community Stop Smoking service, to support the service and constantly review strategy</p>	<p>No additional cost</p>
<p>9. Other Costs:</p> <p>Stationery</p> <p>Consumables/replacement equipment</p> <p>Travel/mobile phones</p>	<p><b>£0.2k</b></p> <p><b>£0.2k</b></p> <p><b>£0.2k</b></p>



**'Dummy Examples' box of Stop Smoking Pharmacotherapies**

### Prescribing Guidelines<sup>80</sup>

PRODUCT	WHAT IT DOES	WHO SHOULD USE IT	WHAT TO PRESCRIBE	PROS	CONS	CONTRAINDICATION	SIDE EFFECTS*
<b>Nicotine Patch</b>	Steady flow of nicotine into the bloodstream	Any daily smoker	Step 1 nicotine patch 25 mg per 16 hr	Easy to use, widely tolerated Gives good, steady blood levels of nicotine	Can't titrate Doesn't offer replacement activity for smoking	Skin problems, e.g. eczema Excessive sweating Previous allergic reaction	Possible slight skin marking irritation
<b>Nicotine Gum</b>	Nicotine absorbed through the lining of the mouth when gum 'parked' after chewing	Any smoker (but needs good natural teeth)	4 mg nicotine gum PRN up to 15 per day	Can titrate to nicotine needs Offers replacement activity for smoking		Poor dentition Peptic ulcer disease	Can cause indigestion, especially if not used correctly
<b>Nicotine Lozenge</b>	Nicotine absorbed through lining of mouth when lozenge parked in cheek and allowed to dissolve	Any smoker	Nicotine lozenge 1 mg PRN up to 30 per day 2 mg PRN up to 15 per day	Can titrate to nicotine needs Offers replacement activity for smoking		Peptic ulcer disease	Can cause indigestion
<b>Nicotine Microtabs</b>	Nicotine absorbed through lining of mouth/tongue	Smokers wanting a discreet oral product	Nicotine microtabs 2 mg (only available) PRN up to 40 per day	Discreet Can titrate to nicotine needs	Tastes unpleasant	Peptic ulcer disease	Unpleasant taste in mouth, indigestion
<b>Nicotine Nasal Spray</b>	Nicotine absorbed through lining of the nose	Long-term, highly dependent smokers Gives rapid increase in blood levels closest to cigarette effect	Nicotine nasal spray 10 ml (only available) PRN up to 64 sprays per day	Very strong, quick Can titrate to nicotine needs	Difficult to use at start, sneezing, eyes watering, temporary nasal irritation		Nasal irritation (temporary)
<b>Nicotine Inhalator</b>	Nicotine absorbed directly through the mouth	1) Any smoker as a secondary product to any of the others 2) As a main product for occasional smokers	2 mg (only available) PRN up to 12 cartridges per day	Offers very useful replacement activity for smoking Can titrate to nicotine needs			Can cause sore throat, especially if not used correctly
<b>Varenicline (Champix)</b>	Partial agonist to nicotinic receptors	Long-term/highly dependent smokers	0.5 mg OD x 3 days 0.5 mg OD x 3 days 1 mg bd for 3 months	Very effective treatment when combined with counselling support Can smoke for first week		Not for under 18s, pregnant and lactating women, non-daily smokers, end stage renal disease	Nausea, sickness, abdominal bloating, flatulence  Suicidal ideation – rare but described

\*It is important to remember that smokers report a myriad of symptoms when they give up smoking, and it is rarely possible to be sure that it is the products rather than quitting smoking that are causing the symptoms, as those who give up cold turkey often report similar symptoms.

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