

## Estimated costs of roll out of Cure programme to other areas based on Wythenshawe Hospital pilot programme.

### 1. INTRODUCTION

#### 1.1 OVERVIEW OF ANALYSIS

This analysis sets out the results from the CURE pilot which was based at Wythenshawe Hospital from 1st October 2018 to 31st March 2019. It then considers the costs of rolling the approach out across Greater Manchester, calculates the cost per quit, and considers wider impacts through a costs benefit analysis model.

#### 1.2 COST CATEGORIES UNDER CONSIDERATION:

The following categories were under consideration for this analysis:

- **Secondary care costs**
  - o Specialist tobacco addiction practitioners to provide behavioural change support\*
  - o Pharmacotherapy during admission and 1 week prescription on discharge
  - o Lead consultant (1x PA / week)
- **Primary care costs**
  - o Continuation of pharmacotherapy in the community
- **Project management**
  - o Grade 7 Project management support for the 6 month pilot. N.B. this is included in the CBA calculations in section 4 below, but not in the calculations for future roll out costings.

\*For the Wythenshawe CURE pilot the specialist support was provided by the secondary care CURE staff for both the inpatient component and outpatient follow-up. Therefore, the costs of specialist support for both inpatient and outpatient support are within the secondary care costs. The outpatient follow-up provided in the CURE pilot was a minimum of three follow-up consultations at 2,4 and 12 weeks. All medications after the 1 week provision at discharge from hospital were provided by GP practices and are included within primary costs.

**This model of care may differ in other areas of Greater Manchester for the roll out of CURE with community stop smoking services taking on the follow-up pathway\*. Some community stop smoking services may supply nicotine replacement therapy (NRT) directly to patients though varenicline is often required to be prescribed by a GP. The frequency of follow-up consultations may also differ with community stop smoking services offering 2 weekly appointments for 12 weeks (6 consultations). However, not all smokers will complete such a regime, particularly in this opt-out model inclusive of all smokers admitted to hospital. Using an average of three follow-up consultations per smoker as provided in the CURE pilot funding therefore seems appropriate.**

Although the model of CURE delivery may differ across localities there is consistency in the requirement for both specialist staffing pharmacotherapy that are provided both during the inpatient admission and after discharge and all of these costs are included within this cost benefit analysis.



## 1.3 SECONDARY CARE COSTS CALCULATIONS

These costs are based on the Wythenshawe pilot. We have used smoking prevalence rates to estimate the equivalent costs per patient for each CCG.

### Key Results from Wythenshawe pilot (1st October 2018 – 31st March 2019):

- 92% (13,515/14690) of adult admissions were screened for smoking status
- 2393 current smokers were identified
- 96% (2308/2393) were given brief advice to quit by the admitting team
- Through the 'opt-out' referral process, 61% (1450/2393) patients completed inpatient behavioural interventions with a specialist cessation practitioner
- 66% (1568/2393) of smokers were prescribed pharmacotherapy
- 22% (525/2393) of all smokers admitted during this pilot reported they were abstinent from smoking at 12 weeks after discharge

Total NRT and varenicline pharmacotherapy costs for the pilot (the hospital component of treatment including the 1 week of medications post-discharge) was £27,974. The staffing costs for the CURE pilot (three pay-band 6 specialist nurses plus administration support required to deliver opt-out specialist assessment of all smokers admitted to hospital and 3x follow-up consultations) was £68,250. The total secondary care costs were therefore

£96,224. Additional support for the implementation of the CURE pilot and workforce training was provided by a consultant lead though this was without specific additional cost to the trust. However, dedicated time within a job plan for a lead consultant might be considered for any acute trust implementing CURE with an additional cost not accounted for in this analysis.

Smoking prevalence of the patients admitted to Wythenshawe that were screened (17.7%) is similar to the overall prevalence of smoking across the City of Manchester (18.7%).

### Total estimated annual costs per smoking patient from the Wythenshawe pilot are £40.21.

In order to estimate the costs for the roll out across other hospitals and CCGs, we have used the total admissions per CCG per year and then used the locality smoking prevalence to estimate how many of these patients are smokers. This is then multiplied by the cost per patient figure calculated above.

	Adult admissions	Smoking prevalence	Smoker admissions	Secondary Care Costs
<b>Bolton</b>	73,413	24%	17,663	£ 710,247
<b>Bury</b>	52,135	17%	8,707	£ 350,096
<b>HMR</b>	61,811	11%	6,595	£ 265,198
<b>Manchester</b>	136,944	20%	26,800	£ 1,077,642
<b>Oldham</b>	59,986	22%	12,987	£ 522,214
<b>Salford</b>	75,065	18%	13,647	£ 548,747
<b>Stockport</b>	91,416	24%	21,684	£ 871,922
<b>Tameside &amp; Glossop</b>	64,261	26%	16,605	£ 667,699
<b>Trafford</b>	63,831	8%	5,330	£ 214,318
<b>Wigan</b>	92,443	16%	14,375	£ 578,023



## 1.4 PRIMARY CARE COST CALCULATIONS

### 1.4.1 Annual admission data for Wythenshawe Hospital

Total number of admissions to Wythenshawe Hospital (18/19) = **57,465**

Wythenshawe admissions from MHCC registered patients (18/19) = **19,634 (34.2%)**

### 1.4.2 MHCC patients

Number of patients admitted to Wythenshawe identified as smokers = **2393**

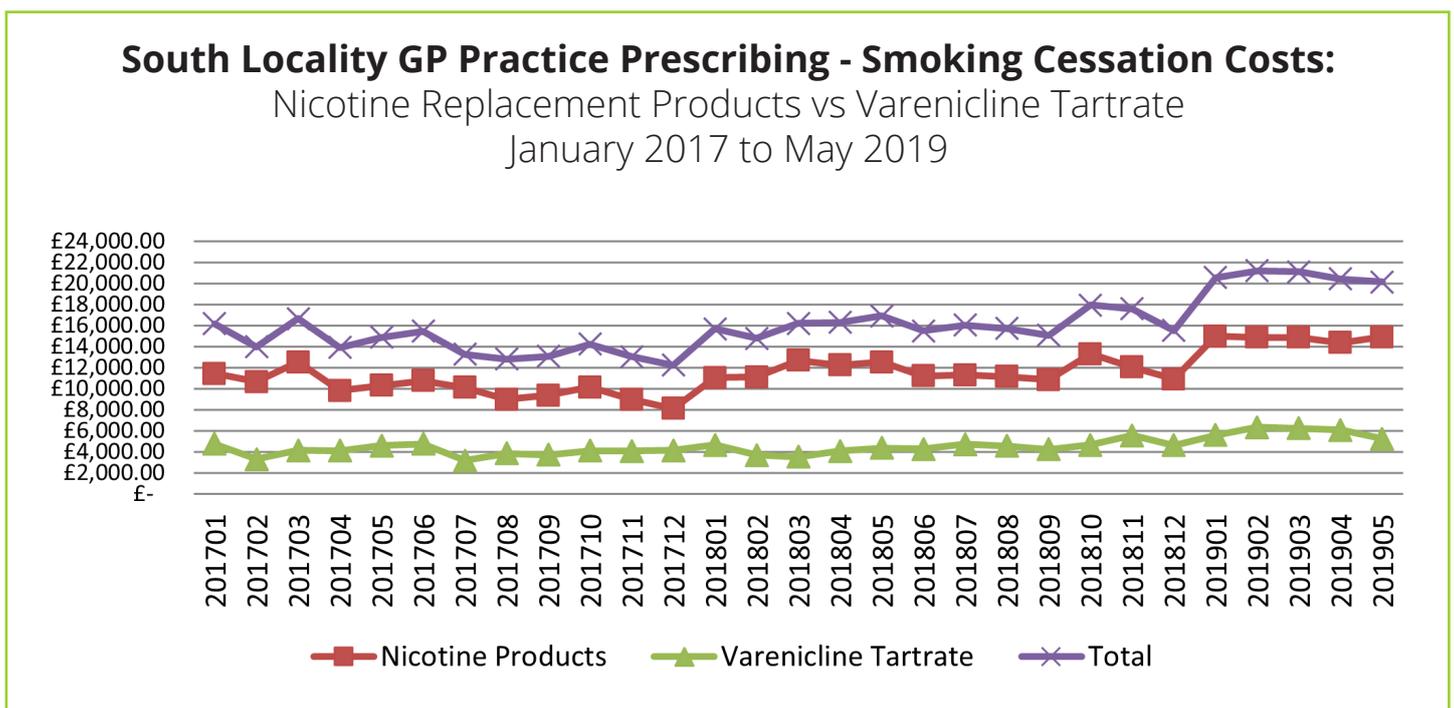
% of smokers discharged on medication = **66%**

NB Not all patients prescribed medication during an IP will continue to use post-discharge, however using this number will offer the potential maximum

Number of smokers total discharged on medication = **1579**

Apply 34.2% to get an estimated number of discharge patients registered to Manchester GPs that would need a continued prescription = **534**

The total monthly spend on smoking cessation pharmacotherapy pre and post launch of the CURE pilot within the South Manchester locality from January 2018 to April 2019 is provided below.



Approximate increase in spend on tobacco addiction pharmacotherapy in the South Locality = £5000-£7500 per month. Analysis of discharges from Wythenshawe to Manchester GPs show that 86.5% are from South Locality. Uplifting the above costs from the South Locality to the whole of Manchester CCG results in the following total cost:

**Total increase in spend for CURE pilot (6 months) = £35k to £52k for the 6 month pilot.**

Costs associated with the continuation of pharmacotherapy support post discharge will have been funded entirely by the CCG as there were no community services to refer patients into. Therefore this increase is a reflection of the total as it cannot have been provided elsewhere (apart from self-funded by the patient).



### 1.4.3 Discussion on costs

This cost is significantly less than the £300k cost pressure previously modelled during the set-up of the Wythenshawe pilot. Some of the reasons for this include:

- 66% of patients accepted pharmacotherapy not the 90% predicted
- 10% patients were prescribed varenicline not the 25% predicted
- Although the dropout rate was not predicted, 54% of patients were not followed up at 4 weeks so we can presume these patients were still smoking and not prescribed pharmacotherapy.
- The funding modelled for smokers completing 12 weeks of treatment whereas the published evidence suggest the average course length is 6-7 weeks

### 1.4.4 Calculation of costs

In order to estimate the post discharge costs per patient we have conservatively used the £52k increase on costs for the 6 month pilot. The average cost per patient is set out in the box below.

Spend per patient in Primary Care post CURE intervention (MHCC):

ESTIMATED number of MHCC pts discharged on medication = 534

**Spend per MHCC patient who smokes & accepts treatment = £97\***

\*not all patients who were prescribed treatment on admission to hospital will continue post discharge



## 1.5 PHARMACOTHERAPY COSTS IN PRIMARY CARE – GREATER MANCHESTER

We have used the £97 per patient calculated above to estimate the future follow up pharmacotherapy costs based on the 66% of patients who were offered this treatment in hospital. This results in the following costs per year per CCG.

	Estimated smoker admissions	Smokers offered treatment	Primary Care Pharmacotherapy costs
<b>Bolton</b>	17,663	11,658	£1,130,796
<b>Bury</b>	8,707	5,746	£557,393
<b>HMR</b>	6,595	4,353	£422,227
<b>Manchester</b>	26,800	17,688	£1,715,732
<b>Oldham</b>	12,987	8,571	£831,426
<b>Salford</b>	13,647	9,007	£873,669
<b>Stockport</b>	21,684	14,311	£1,388,202
<b>Tameside &amp; Glossop</b>	16,605	10,959	£1,063,055
<b>Trafford</b>	5,330	3,518	£341,219
<b>Wigan</b>	14,375	9,487	£920,280

## 2 OVERALL COSTS OF THE ROLLOUT PER CCG

Combining the secondary care and primary care costs above results in the following annual cost estimates for roll out of the CURE programme across Greater Manchester:

	Secondary Care costs (per year)	Primary Care Pharmacotherapy costs (per year)	Total costs (per year)
<b>Bolton</b>	£ 710,247	£1,130,796	£1,841,043
<b>Bury</b>	£ 350,096	£557,393	£907,489
<b>HMR</b>	£ 265,198	£422,227	£687,425
<b>Manchester</b>	£ 1,077,642	£1,715,732	£2,793,374
<b>Oldham</b>	£ 522,214	£831,426	£1,353,640
<b>Salford</b>	£ 548,747	£873,669	£1,422,416
<b>Stockport</b>	£ 871,922	£1,388,202	£2,260,124
<b>Tameside &amp; Glossop</b>	£ 667,699	£1,063,055	£1,730,754
<b>Trafford</b>	£ 214,318	£341,219	£555,538
<b>Wigan</b>	£ 578,023	£920,280	£1,498,303
<b>Greater Manchester Total</b>	<b>£ 5,806,106</b>	<b>£9,243,999</b>	<b>£15,050,105</b>



## 3 QUIT RATES AND COST PER QUIT

### 3.1 QUIT RATES

	Total number	% of all smokers	Number of quits	Quit rate* (% with FU data)	Quit rate** (% of all smokers)
All smokers	2393	100%	-	-	-
Completion of inpatient CURE assessment and treatment	1450	61%	-	-	-
Completion of 2 week follow up post-discharge	1105	46%	-	-	-
Completion of 4 week follow up post-discharge	1179	49%	495	42%	21%
Completion of 12 week follow up post-discharge	800	33%	525	66%	22%

\*Quit rate in those patients completing the follow-up assessment and smoking status recorded

\*\*Quit rate as a proportion of all smokers admitted during the pilot assuming all lost to follow-up have relapsed/continued to smoke (intention to treat basis)

### 3.2 OVERALL COST PER QUIT RESULTS

Taking into consideration the above costs for both secondary and primary care, we estimate the **costs per smoking patient engaged by the programme** to be **£104.23**.

22% of smoking patients achieve a 12 week quit as a result of the programme. Therefore, the costs per quit rate at 12 weeks with the intention to treat is £475.

Comparing this cost per quit to the figures published in the PHE Local Tobacco Control Profiles:

- **The CURE cost per quit is cheaper** than the costs published for the 4 GM LAs where figures are available for 2018/19 <sup>1</sup>
- **The CURE cost per quit is cheaper** than the NW average (£532) and the England average (£490) <sup>2</sup>

1. <https://digital.nhs.uk/data-and-information/publications/statistical/statistics-on-nhs-stop-smoking-services-in-england/april-2018-to-march-2019>

1. PHE Fingertips Local Tobacco Control Profiles 2018/19



## 4 COST BENEFIT ANALYSIS

### 4.1 APPROACH

The Costs Benefit Analysis was carried out in a 2 stage process. Initial costs and benefits were calculated using the European-study for Quantifying the Utility of Investment in Protection from Tobacco (EQUIPT) tool. The EQUIPT tool is a second generation version of the NICE Tobacco Return on Investment tool we have previously used in GM for smoking cessation interventions.

The values created from the tool, were then input into the Greater Manchester CBA toolkit, to provide consistent metrics for comparison with other transformation programmes.

The CBA assesses the potential reductions in healthcare costs related to reductions in smoking-attributable cases of lung cancer, COPD, coronary heart disease and stroke. It also assesses the individual health and wellbeing impacts using a Quality Adjusted Life Years approach (QALYs).

The CBA model produces both fiscal outputs and overall public value outputs.

### 4.2 FISCAL OUTPUTS

These fiscal outputs relate to outcomes that have a potential impact on the costs of delivering public services. As above, these include the potential reductions in healthcare costs related to reductions in smoking-attributable cases of lung cancer, COPD, coronary heart disease and stroke. The modelling has been carried out over a 10 year period.

Two scenarios have been modelled.

#### 4.2.1 Gross fiscal benefits

The first looks at the gross fiscal benefits of the programme before any assessment of the cashability of the benefits.

- Gross financial return on investment ratio: £2.12 return per £1 invested
- Payback period 4 years

#### 4.2.2 Cashable fiscal benefits

The second approach considers how much of these fiscal benefits are cashable – either through reducing capacity, or offsetting the need for future capacity. The methodology uses standard percentages based on the government agency potentially making the savings. For the NHS, the assumption is that approximately 50% of the fiscal benefits can be cashable assuming that the scale of the transformation programme is large. Using this approach, the metrics are as follows:

- Cashable financial return on investment ratio: £1.06 return per £1 invested
- Payback period 10 years



## 4.3 PUBLIC VALUE OUTPUTS

In addition to the fiscal benefits, there are significant public value benefits of the programme related to improving the health of the patients who quit smoking. These can be calculated using a Quality Adjusted Life Years (QALY) approach which is common in health economics. The EQUIPT model produces estimated of QALYs gained through the programme which we have included in the CBA model using the social value per QALY of £60,000 per year.

The overall Public Value metric is as follows:

- Public value return on investment ratio: **£30.49 return per £1 invested**

Another way of presenting the public value impact is the Incremental Cost Effectiveness Ratio (ICER). This is calculated by dividing the incremental healthcare costs of delivering the project by the QALYs gained over the lifetime of the patients treated. Even assuming that none of the future healthcare savings assumed above would be cashable, the **ICER for this study would be £487**. Programmes with ICERs less than £20,000 are deemed by the National Institute of Health and Care Excellence (NICE) to be value for money. Therefore this programme can be seen to be **very good value**.

## 4.4 CBA SUMMARY

The results above show that the CURE approach provides high value for money. **The fiscal return outperforms many other transformation programmes**, and the overall public value impact is significant.

