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Building the case for comprehensive hospital-based tobacco addiction services: Applying the Ottawa Model to the City of Manchester

Dear Editor,

Smoking is the single biggest cause of preventable death in the United Kingdom (UK) [1]. In 2015/16 there were 474,000 hospital admissions and 79,000 deaths caused by smoking at a cost of 2.5 billion pounds to the National Health Service (NHS) [2,3]. An interaction between a smoker and an NHS secondary care trust represents a unique moment for intervention. Patients may be motivated to stop smoking due to illness and health concerns, they may feel too unwell to smoke and they may be unable to smoke when restricted to the ward environment. Delivering treatment for tobacco addiction in secondary care is highly effective [4]. In meta-analysis, intensive support (defined as at least one hospital contact and support on discharge lasting > 1 month) increases abstinence at 6 months by 37% (HR 1.37 95%CI 1.27–1.48, 25 trials) and adding NRT to intensive support increases abstinence by a further 54% (HR 1.54 95%CI 1.34–1.79, 6 trials) [5].

The Ottawa Model of Smoking Cessation (OMSC) tested the effectiveness of a hospital-initiated smoking cessation programme across 14 hospitals in Canada. The core components of this model were: the systematic identification and documentation of all smokers admitted to hospital, the systematic administration of pharmacotherapy & behavioural support to active smokers in hospital and the systematic attachment to long term community follow-up services after discharge, with printed recommendations for continuing pharmacotherapies post-discharge. The community follow-up consisted of an automated telephone service providing 8 telephone calls over 6 months with access to counselling from smoking cessation nurse specialists in the event of relapse or low confidence. Outcomes were compared between 641 control smokers admitted to the 14 hospitals prior to the OMSC implementation and 726 intervention smokers admitted after the OMSC implementation [6]. The control group received 'usual care' which typically consisted of a self-help brochure and very brief advice. The abstinence from smoking at 6 months was higher in the intervention group (35% vs 20%). There was a 6.2% reduction in all cause re-admissions in the intervention group at 30 days (13.3% vs 7.1% p = < 0.001) and an 11.7% reduction at 1 year (38.4% vs 26.7%, p = < 0.001). There was also a 4.5% reduction in the all cause Accident and Emergency (A&E) attendances in the intervention group at 30 days (20.9% versus 16.4%, p = < 0.001). Mortality was reduced by 6.0% in the intervention group at 1 year (11.4% versus 5.4%, p = < 0.001).

Greater Manchester is a region in the North West of England with a population of approximately three million people and more than 10 acute care hospital trusts. There are nearly 400,000 smokers representing approximately 20% of the population, a prevalence of smoking significantly higher than the national average of 15% [3]. The Manchester Health and Care Commissioning (MHCC) Group is a Clinical Commissioning Group (CCG) for the City of Manchester, one of ten CCGs in Greater Manchester. The MHCC has developed a 'data warehouse' that combines primary care data, secondary care data and chronic disease registry data for patients registered at primary care practices in the City of Manchester; a population of 525,000. The MHCC data warehouse was used to identify the number of active smokers in the City of Manchester and how many hospital admissions occurred in this cohort in the calendar year 2016. The percentage of hospital re-admissions, A&E attendances and deaths within the control arm of the OMSC study were used to estimate the absolute risk of these events occurring in the Manchester cohort. The absolute risk reduction in events from the OMSC study were then applied to the Manchester data to estimate the reduction in re-admissions and deaths that could potentially occur with a similar model of smoking cessation in Manchester and provide a number needed to treat for each outcome.

In 2016 of the 524,344 patients registered at GP practices in the City of Manchester; 390,051 were recorded as non-smokers, 118,967 were recorded as smokers and 92,244 as ex-smokers. 10,010 of the 118,967 smokers were admitted to hospital in 2016 and there were 15,326 hospital admissions in total. Applying the absolute risk reduction calculated from the OMSC study to the 10,010 smokers living in the City of Manchester and admitted to hospital in 2016, comprehensive hospital-initiated smoking cessation services would result in an additional 3503 patients successfully stopping smoking per year. There would be 621 re-admissions and 450 A&E attendances prevented within 30 days of discharge. In total there would be 1171 re-admissions prevented and 601 lives saved per year. The 2015 Department of Health Reference Costs state an average non-elective hospital admission costs £1609. The estimated savings from prevention of readmissions by applying the Ottawa Model to the City of Manchester is therefore £1,884,139 per year. It would require the smoking cessation programme to treat 16 patients to prevent 1 admission at 30 days, 9 patients to prevent 1 admission at 1 year, 22 patients to prevent 1 A&E attendance at 30 days and 17 patients to prevent 1 death at 1 year (Table 1).

In July 2017 the government's new Tobacco Control Plan was published and sets the bar high with a series of challenging ambitions by 2022 including: Reduce adult smoking rates from 15.5% to 12% or less [7]. Public Health England published data on the cost of smoking to the NHS in England in 2015 [8]. The costs to secondary care are staggering: excess outpatient visits in hospitals which amount to an estimated £696.6 million nationally in 2015. There were approximately 520,000 smoking attributable hospital admissions in people aged 35 and over in England at a cost of £851.6 million. The 2016 British Thoracic Society Smoking Audit provided insight into the woeful inadequacies of smoking cessation services in secondary care in the United Kingdom. Of the 14750 admissions from 146 hospitals only 6% of smokers admitted to secondary care were referred to smoking cessation services and only 4% were prescribed pharmacotherapy. Furthermore, only 51% of hospitals had a smoking cessation practitioner and only 23% of hospitals were able prescribe pharmacotherapy for tobacco addiction [9]. Despite the wealth of evidence in favour of treating tobacco addiction in hospitals and the prevalence of smokers in hospitals [4,10], resources and investment remains poor and in many areas of the UK, has been cut [11]. Perhaps for too long, smoking cessation has been labelled as a prevention strategy suggesting the beneficial impact would only be realised a long time into the future. However, tobacco addiction is a disease, a chronic and

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Table 1
Application of the Ottawa Model for Smoking Cessation results to the City of Manchester Population Data.

Outcome	OMSC[a] AR[b]	OMSC ARR[b]	OMSC RRR[b]	MCR[a] Admissions in Smokers	Potential Impact of implementing the OMSC in City of Manchester	NNT
Re-admissions at 30 days	13.3%	6.1%	46.6%	10,010	621	16
Re-admissions at 1 year	38.4%	11.7%	30.5%	10,010	1171	9
A&E attendances at 30 days	20.9%	4.5%	21.5%	10,010	450	22
Mortality at 1 year	11.4%	6.0%	52.6%	10,010	601	17

[a] OMSC = Ottawa Model for Smoking Cessation, MCR = Manchester.
[b] AR = Absolute risk, ARR = Absolute risk reduction, RRR = Relative risk reduction.

relapsing disease that often begins in childhood or early adulthood. All patients deserve access to the most effective treatment for any form of disease, including tobacco addiction. This change in language may help drive the investment needed to deliver comprehensive smoking cessation services in secondary care with the appropriate community follow-up following discharge. The data presented here suggests there could be significant and immediate benefits in such services particularly with the current pressures and bed crisis the NHS is facing. The treatment of tobacco addiction is the single most cost effective intervention the NHS can provide and for every £1 spent on smoking cessation services the NHS saves £2.37 in treating tobacco-related illnesses [12]. The evidence is overwhelming and the call to action is clear.

Greater Manchester is answering this call and developing its own comprehensive smoking cessation service in secondary care (CURE programme; Conversation, Understanding, Replace, Experts & Evidence Base) to deliver the same level of service described in the OMSC and aims to report the outcomes on re-admissions and mortality in a UK population in the future. The data presented are taken from an intervention in a different healthcare system and may not necessarily predict the possible outcomes in UK practice but the results of a 'proof of concept' pilot in Manchester will be published in the near future.

Conflicts of interest

There no conflicts of interest to declare.

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