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Patient survey examining the experience of care of a hospital-based opt-out tobacco dependency treatment service (the CURE Project)

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ABSTRACT

Introduction Treating tobacco dependency in patients admitted to hospital is a key priority in the National Health Service long-term plan. This service evaluation assessed the perception, needs and experience of care within an opt-out hospital-based tobacco dependency treatment service (the Conversation, Understand, Replace, Experts and Evidence Base (CURE) team) in North-West England.

Methods A survey was offered to all eligible patients between 1 July 2020 and 30 September 2020. Eligibility criteria were adult patients identified as an active smoker being approached by the CURE team as part of the standard opt-out service model, on a non-covid ward without a high suspicion of COVID-19 infection and able to read and write in English. **Results** 106 completed surveys were evaluated. Participants demonstrated high levels of tobacco dependency with an average of 37 years smoking history and 66% describing the onset of cravings within 30 min of hospital admission. The average number quit attempts in the previous 12 months was 1.3 but only 9% had used the most effective National Institute for Health and Care Excellence (NICE) recommended treatments, 100% felt the opt-out service model was appropriate and 96% stated the treatment and support they had received had prompted them to consider a further quit attempt. 82% of participants rated their experience of care as 9/10 or 10/10. Participants wanted a broad range of support post discharge with the most popular option being with their general practitioner. 66% and 65% of participants would have been interested in a vaping kit as stop smoking intervention and support vaping-friendly hospital grounds respectively. Conclusion These results suggest this hospital-based, opt-out tobacco dependency treatment service delivers high-quality experience of care and meets the needs of the patients it serves. It also highlights the opportunity to enhance outcomes by providing access to NICE recommended most-effective interventions (varenicline, vaping and combination nicotine replacement therapy) and providing flexible, individualised discharge pathways.

INTRODUCTION

Smoking tobacco is the leading cause of premature death and ill health in the UK.

WHAT IS ALREADY KNOWN

⇒ Hospital-based opt-out tobacco dependency treatment services have been demonstrated to have significant clinical and cost effectiveness. It is important to add to this evidence base and understand if such services deliver acceptable experience of care and meet the need of its patients.

WHAT THIS STUDY ADDS

⇒ The Conversation, Understand, Replace, Experts and Evidence Base Project delivers an exceptional experience of care (82% rated 9/10 or 10/10) and meets the needs of its patients, who often exhibit high levels of dependency but are highly agreeable to support and treatment.

HOW THIS STUDY AFFECTS RESEARCH, PRACTICE OR POLICY

⇒ These results support the commitment in the National Health Service long-term plan to embed hospital-based, opt-out tobacco dependency treatment services in acute care trusts and raises interesting questions about further research in defining the optimal postdischarge support.

Tobacco dependency pharmacotherapy, vaping and specialist support are highly effective, evidenced-based interventions that significantly increase the chance of long-term abstinence. 1-3 Acute care hospitals represent a significant opportunity to provide these interventions at scale to a concentrated population of sick smokers during acute hospital admissions. Highly significant patient and healthcare system benefits have been demonstrated by providing comprehensive opt-out tobacco dependency treatment in acute care hospitals through both reduction in readmission rates and reduction in mortality.⁴ The Royal College of Physicians have estimated the National Health Service (NHS) could



save over £60 million per year in healthcare utilisation costs from implementing tobacco dependency treatment services across all NHS hospitals. Furthermore, the NHS long-term plan has committed to funding these services in England based on these benefits. The Conversation, Understand, Replace, Experts and Evidence Base (CURE) Project delivered in Greater Manchester, a region in the North-West of England, is an early implementer of the NHS long-term plan ambitions and is an opt-out comprehensive tobacco dependency treatment service delivered by both frontline clinicians and specialist stop smoking CURE practitioners. This programme has demonstrated both clinical and cost effectiveness, including 22% abstinence rate at 12 weeks post-discharge for all patients that smoke admitted to hospital, a cost per quality adjusted life year of £487 and a public value return on investment of £30.49 for every £1 invested. Alongside clinical and cost effectiveness, it is also important to demonstrate that a clinical service provides good experience of care and is aligned to the needs of the patients it serves. This service evaluation investigated the needs and perspectives of patients that smoke admitted to hospital and their experience of care with the CURE team.

METHODOLOGY

Service evaluation outline

A patient survey was offered to all patients who smoke approached by the CURE team during an acute hospital admission to understand their experience of care and also their perceptions and needs of a hospital-based tobacco dependency treatment service.

Setting

A 900-bed acute care hospital in Greater Manchester, where the CURE Project was first piloted in 2018 and has been a recurrently funded, business-as-usual service since 2019.

The CURE pathway

All adult admissions to our hospital have an admission document completed within the electronic patient record (EPR) system and this contains a mandatory field for smoking status. When a patient is identified as a 'current smoker', the admitting team are prompted to provide very brief advice (VBA) and initiate pharmacotherapy, in line with the CURE prescribing protocol, and the patient is placed on a 'CURE inpatient list'. The prescribing protocol is centred on the provision of combination nicotine replacement therapy (NRT) and/or varenicline. The CURE specialist nurses will then visit all patients on the 'CURE inpatient list' and provide an opt-out offer of specialist support and treatment. This offer includes several interventions, including pharmacotherapy initiation, review or amendment as required, specialist behaviour change and a treatment plan following discharge. This treatment plan post discharge can include follow-up with the hospital CURE team or referral to a community stop smoking service (SSS).

Service evaluation design

Adult patients who had been identified as active smokers by the admitting team (see 'The CURE pathway' section on the recording of smoking status as a mandatory field within the routine EPR admission document as the method of identification) were approached by the CURE specialist nurses as per the standard CURE pathway. During this visit, the patient was offered the opportunity to complete a survey (this was regardless of whether the opt-out offer of specialist support was accepted). This was through provision of a paper copy of the survey, which could be completed at the patient's leisure at any point during the hospital admission. The survey focuses on the treatment of tobacco dependency and is not focused on the day to day care provided by the ward team. For this reason, we chose to ask patients to return the survey to the ward staff rather than the CURE team. The ward staff returned the surveys to a central collection point with our administrative team, so that the CURE staff were never able to see individual feedback. This was explained to the patients during the survey introduction. Following discussion with the infection control team, paper surveys could not be offered to patients on COVID-19 wards or to patients with a high suspicion of COVID-19 on admission and were, therefore, excluded. Patients must have been able to read and write in English to complete the survey. The questionnaire took roughly 10–15 min to complete.

Survey design

The survey was designed by the CURE team clinicians with external review via experts in the tobacco dependency field. The survey was split into four sections summarised in table 1. Section one explored the participants smoking history and the connection to the current hospital admission, including smoking duration and intensity, previous quit attempts and previous treatments used during quit attempt. Section two explored the treatment and support provided during this hospital admission and patient preferences for ongoing treatment after discharge. This included asking participants to rate their experience of care during their hospital admission in relation to the treatment of tobacco dependency. Participants were also asked to identify which discharge pathways were acceptable to them. Participants could tick multiple options that included follow-up with the hospital tobacco dependency team, community pharmacy, community physician (general practitioner, GP), community SSS and no follow-up at all. The usefulness of additional postdischarge support and information were also assessed using a 5-point Likert Scale and included information leaflets, digital apps, text message service, WhatsApp group and website information. Section three explored patient's perceptions of vaping as a stop smoking intervention, including previous use of vaping as a stop smoking intervention, perception of vaping versus NRT in cravings management, perception of vaping harms versus smoking tobacco (Likert Scale), level of interest in the



Table 1 Overview of the CURE service patient perceptions, needs and experience of care survey content

Section	Theme	Questions
Section 1	Smoking history and current hospital admission	 Duration and intensity of smoking history Number of previous quit attempts in previous 12 months Treatments used during previous quit attempts Impact of smoking on current hospital admission Hospital admission as a prompt to a quit attempt Smoking behaviour during hospital admission
Section 2	Treatment and support during hospital admission	 Provision of VBA during admission Offer and acceptance of stop smoking pharmacotherapy Speed of onset of cravings following admission to hospital Acceptability of an opt-out model during a hospital admission Offer and acceptance of specialist support and postdischarge support Impact on motivation for a quit attempt Experience of care (rated 0–10) Preferred discharge pathways Preferred additional support (digital and non-digital)
Section 3	Perceptions of vaping as a stop smoking intervention	 Previous use of vaping as a stop smoking intervention Perception of vaping versus NRT in cravings management Perception of vaping harms ersu smoking tobacco (Likert Scale) Interest in provision of vaping kits as a stop smoking tool during admission Agreement with vaping friendly hospital grounds

CURE, Conversation, Understand, Replace, Experts and Evidence Base; GP, general practitioner; NRT, nicotine replacement therapy; VBA, very brief advice.

provision of vaping kits as a stop smoking tool during admission and level of agreement with vaping-friendly hospital grounds.

Service evaluation period

The survey was offered to eligible patients (adult patients identified as an active smoker being approached by the CURE team as part of the standard CURE pathway, on a non-covid ward without a high suspicion of COVID-19 infection and able to read and write in English) admitted for at least 1 night in hospital between 1 July 2020 and 30 September 2020. The questionnaires were analysed between March and June 2021. Not every patient answered every question and each question, therefore, will have a denominator of the total answers for that question. Where participants answered with a range (eg, number of cigarettes smoked per day), the middle point of this range was used within the analysis.

Patient and public involvement

Patients were not involved in the design of this experience of care survey.

RESULTS

During the study period from 1 July 2020 and 30 September 2020, there were 1092 patients identified as a 'current smoker' at our hospital. Twenty four per cent (267/1092) of patients were not approached face to face by the CURE team due to suspicion of COVID-19 infection or they were discharged prior to a CURE team visit. The CURE team, therefore, approached 825 patients as part of the standard opt-out offer of specialist treatment and support. Sixty nine per cent (569/825) of patients accepted and completed a specialist assessment. It was not recorded on how many occasions it was inappropriate to offer to the experience of care survey due to the severity of clinical illness, lack of capacity, English not being the first language or any other clinical factors as part of this service evaluation. A total of 106 patients completed an experience of care survey, 13% of all patients approached by the CURE team during the study period.

Section one: smoking history and current hospital admission

The average number of years participants had smoked for was 37 years (105/106 completed answers, range: 0.5-75 years, median: 40 years). Participants smoked an average of 13.9 cigarettes daily (102/106 completed answers, range: 1-40 cigarettes, median: 12.5 cigarettes). The average number of quit attempts in the last 12 months across 102 participants that provided an answer was 1.3 (range: 0-6, median: 1). Eighty eight out of 106 participants reported what their previous treatment when trying to quit smoking had been. Overall, 6% (5/88), 2% (2/88) and 1% (1/88) of participants had used vaping, varenicline or combination NRT, respectively, in a recent quit attempt (figure 1). Sixty eight per cent (69/101) of patients that smoke had received support previously from an SSS. In relation to the current hospital admission, 68% (69/101) of participants felt that smoking had a direct impact on the medical condition leading to their admission to hospital. Eighty seven per cent (90/103) of participants reported that the hospital admission had made them consider a further quit attempt, beginning while in hospital. However, 54% (56/103) had smoked on the hospital grounds while an inpatient.

Section two: treatment and support during hospital admission

Ninety five per cent (98/103) of participants reported they had been provided with VBA, specifically that their best chance of stopping smoking was with the help of medication and specialist support with 92% (95/103) confirming that they had already been offered stop smoking medication during their admission to hospital. Of the participants offered stop smoking medication, 88% (84/95) had accepted and been prescribed

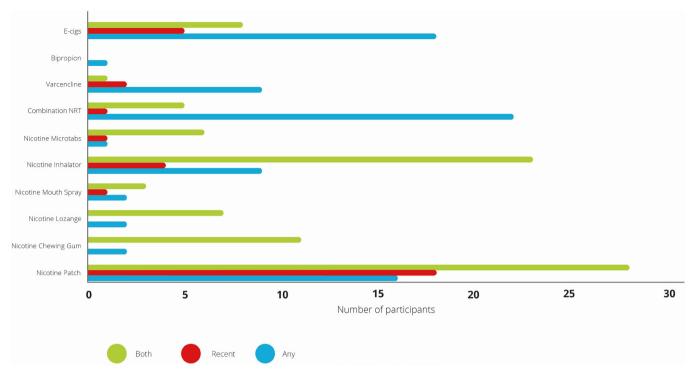


Figure 1 Treatments used during previous quit attempts. NRT, nicotine replacement therapy.

medication. When asked to describe how long it took for cravings to begin following an admission to hospital, 60% (59/98) stated it was within 30 mins compared with 12% (12/98) that stated up to 24 hours. One hundred per cent (103/103) of participants felt it was acceptable to be approached by as specialist tobacco dependency practitioner during a hospital admission without agreeing to referral (opt-out model). Eighty eight per cent (91/103) of participants had accepted the offer of specialist support on this admission and accepted the offer of support on discharge from hospital. Ninety six per cent (102/106) of participants reported that the treatment and support they had received during their admission had prompted them to consider a quit attempt. Participants rated the care they had received during their hospital admission to support them to stop smoking as 10/10 in 71% (65/91), 9/10 in 11% (10/91), 8/10 in 14% (13/91) and 7/10 in 3% (3/91) of responses. The most frequently selected preferred discharge pathway was follow-up with their GP (77%, 77/100) and referral to the community SSS was the least selected option (41%, 41/100, table 2). Finally, participants were broadly supportive of all forms of digital and non-digital sources of additional information and support (figure 2)

Section 3: perceptions of vaping as a stop smoking intervention

Forty eight per cent (38/80) of participants had previously tried vaping as a stop smoking aid and 45% (30/62) strongly agreed or agreed that vaping was better at managing cravings than NRT. Fifty four per cent (51/94) of participants either strongly agreed or agreed with the

statement 'e-cigarettes are less harmful than cigarettes'. Sixty six per cent (55/83) of participants stated that they would be interested in being offered electronic cigarettes if they were available to help them stop smoking during their inpatient stay. Finally, 65% (62/96) of participants either strongly agreed or agreed with the statement that patients should be able to vape on the hospital grounds to support them to be smoke free (figure 3).

DISCUSSION Summary of key findings

Participants in this survey, focused on patients that smoke admitted to an acute care trust, have reported high levels of tobacco dependency but a willingness to engage with treatment and further quit attempts. This data confirms

Table 2 Preferred discharge pathways selected by patients identified as active smokers and admitted to hospital during the study

Discharge pathway description	Numbers of participants selecting this option		
Hospital tobacco dependency team follow-up (face to face)	57% (57/100)		
Hospital tobacco dependency team follow-up (virtual)	63% (63/100)		
Community physician/GP follow-up	77% (77/100)		
Community pharmacist follow-up	56% (56/100)		
Community stop smoking service	41% (41/100)		
No further support after discharge	45% (45/100)		
GP, general practitioner.			

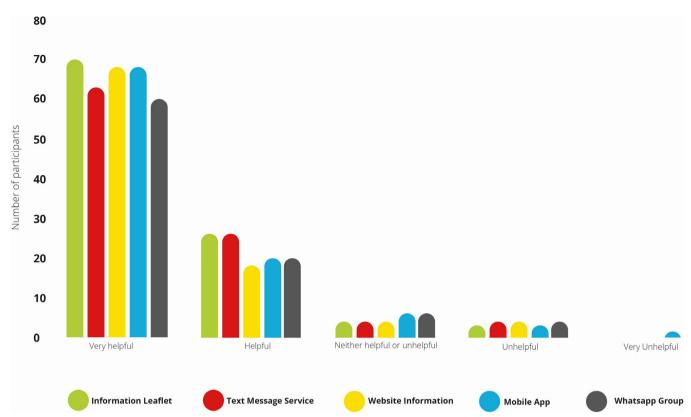


Figure 2 Usefulness of additional sources of information and support after discharge for patients identified as active smokers during a hospital admission.

there is significant opportunity within this cohort of patients to use the hospital admission as strong catalyst for a quit attempt. The results have shown high uptake of brief advice, pharmacotherapy and specialist support among the participants based on an opt-out model of care that is both acceptable and provides a very high level of experience of care. This in turn further enhances the chances of a quit attempt during the hospital admission

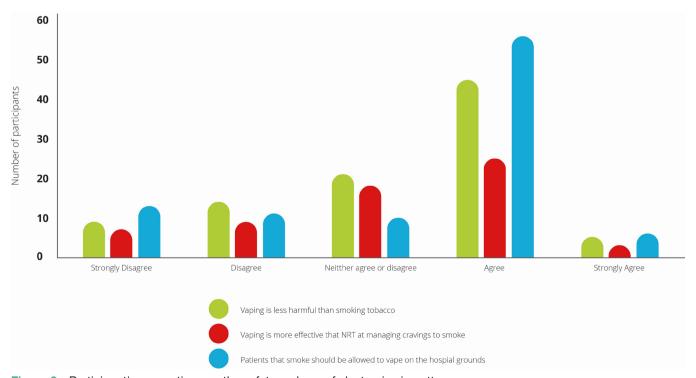


Figure 3 Participant's perceptions on the safety and use of electronic cigarettes.

and after discharge. All of this supports the need for comprehensive tobacco dependency treatment services in acute care trusts and provides evidence that these services align with the needs of patients. There are also opportunities to enhance the effectiveness of such services by ensuring access for all patients to the most effective interventions for tobacco dependency (varenicline, vaping and combination NRT¹) and by offering personalised discharge follow-up pathways driven by patient choice and supported by digital and non-digital sources of information and support. Importantly, this data support the pivotal role the admitting healthcare professionals play in this service with the provision of brief advice and pharmacotherapy at the point of admission, especially as the majority of participants reported a very rapid onset of cravings after the point of admission. The high uptake of specialist support, pharmacotherapy and discharge support may be related to the high levels of VBA and pharmacotherapy provided by the admitting team and further highlights the importance of this intervention by frontline healthcare professionals. The findings around preferred follow-up care are interesting and may warrant further research and exploration, particularly, given that current service models for hospital-based tobacco dependency treatment services being implemented via NHS long-term plan funding includes referral to community SSSs after discharge. Further research to understand optimising postdischarge support will be key in the successes of these services.

Context within published literature

This service evaluation is one of the first to examine the acceptability and experience of care of an opt-out service model in the treatment of tobacco dependency in hospitalised patients that smoke. This model is recommended nationally as the optimal model to deliver the optimal clinical outcomes.^{5 9} This data support this national recommendation and shows that it is acceptable to patients and delivers high quality experience of care. Furthermore, it provides important insights into the opportunities for improvement and to increase the reach and effectiveness of the service. Varenicline is a dual agonist and antagonist at the nicotinic receptor in the brain and is a highly effective tobacco dependency medication. In the 2007 NICE Technology Appraisal, varenicline was found to be cheaper and more effective than NRT and bupropion in all sensitivity analyses. 10 In a head-to-head randomised controlled trial of NRT, bupropion and varenicline in over 8000 patients across the world, varenicline was the most effective treatment in achieving abstinence from tobacco. NRT has been shown to be more effective when provided in combination as long acting and short acting nicotine products and when prescribed at maximal dose. 11 Vaping has been shown to be twice effective at achieving long-term abstinence than NRT in randomised controlled trials and in a large Cochrane review.³ 12 The latest National Institute for Health and Care Excellence

(NICE) guidelines on the treatment of tobacco dependency have identified these three interventions (varenicline, vaping and combination NRT) as the most effective interventions to achieve abstinence from tobacco and recommend that these are made available to all patients with tobacco dependency. This service evaluation has demonstrated that while patients had showed significant motivation to complete a quit attempt prior to the admission, there were low rates of uptake of these most effective interventions. Given the high levels of interest in a further quit attempt prompted by the hospital admission, a hospital-based tobacco dependency treatment service provides the opportunity to offer these most-effective interventions and maximise the subsequent quit rates. A significant proportion of participants in this service evaluation would accept the offer of a vaping kit as part of the treatment for tobacco dependency. Nearly half of respondents felt that vaping provided better cravings management than NRT and along with the support of vaping friendly hospital grounds indicates this a significant opportunity to enhance the effectiveness of acute care tobacco dependency treatment services.

Limitations

There are a number of limitations to consider from this service evaluation and some methodological flaws inherent to a service evaluation outside of a research study design. These limitations are centred in the risk of inclusion bias. The survey was not anonymous and although patients did not return the survey directly to the CURE team, it was still returned to ward staff providing day to day care. This could discourage those with a poor experience of care from completing the survey. We did not collect demographic data (age, gender, ethnicity and deprivation level) of those patients that participated and those that did not, to understand if the findings of those that participated are generalisable across the CURE service. Without this data, we can only assume there is a high risk of inclusion bias of patients that had a positive experience and were keen to engage with the treatment offer. This bias could also influence results in other ways, for example, with a selected group of younger patients with more experience of vaping. We must conclude, therefore, that the views of patients completing the survey might only be representative of those who are keen to engage with the CURE service and might be over-represented by those that have had a positive experience. This might be the explanation for the high rates of uptake of pharmacotherapy, support and acceptance of discharge support at 88% of participants in this survey compared with the overall uptake rates reported in the pilot study of this service in which 61% completed specialist assessment as an inpatient and 49% that completed follow-up at 4 weeks. Finally, this patient survey was completed at a challenging and unprecedented time for the NHS, during the COVID-19 pandemic. It is possible the answers provided could be influenced by the



pandemic (eg, type of follow-up and usefulness of digital support). It is also possible the pandemic has affected the demographics of hospital admissions which could also influence the results.

CONCLUSIONS

This service evaluation has presented important evidence to support the delivery of opt-out tobacco dependency treatment services in acute trusts. Respondents to this survey confirm this as an acceptable service model with high quality experience of care. The impact of such services could be improved and ensure alignment with patient's needs though access to NICE recommended evidence-based interventions that include vaping and by offering personalised follow-up after discharge driven by patient choice.

Contributors ME (guarantor) and FH developed the concept of the study. ME, FH and RLM designed the content of the survey and all authors reviewed this. CP, MB, MR, HH, AM, EM and KH supported the implementation and survey collection. LH conducted the analysis. LH and ME drafted the manuscript and all authors edited and agreed the final version.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Ethics approval This work is part of the service evaluation of the Conversation, Understand, Replace, Experts and Evidence Base Project and did not require ethical approval, confirmed during discussion with the local ethics team.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement No data are available.

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