

‘The dark before the dawn’: the 2021 British Thoracic Society Audit of the treatment of tobacco dependency in acute trusts

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ABSTRACT

Smoking remains the single largest cause of preventable death, disability and health inequality. Smoking tobacco directly contributes to over 500 000 hospital admissions each year, making hospitals an important location to optimise treatment for tobacco dependency. The third British Thoracic Society Tobacco Dependency Audit was undertaken to determine how effectively national standards for treating tobacco-dependent smokers have been implemented and assess if any progress has been made from previous audits. Data on 14579 patients from 119 hospitals revealed 21% of patients were current smokers, 45% were offered very brief advice and 5% prescribed combination nicotine replacement therapy or varenicline. Only 9% completed a consultation with a specialist tobacco dependency practitioner during their inpatient stay and fewer than 1% of smokers were abstinent at 4 weeks following discharge. Clinical leadership of tobacco dependency services was deficient, and staff were ill equipped in supporting current smokers in their efforts to quit with only 50% of trusts offering regular smoking cessation training. There has been little meaningful improvement from previous audits and there remains woefully inadequate provision of tobacco dependency treatment for patients who smoke. The National Health Service (NHS) Long Term Plan has committed substantial, new funding to the NHS to ensure every patient that smokes admitted to hospital will be offered evidence-based support and treatment for tobacco dependency. The findings of this audit highlight the urgency with which this programme must be implemented to tackle the greatest cause of premature death in the UK and to achieve the wider well-recognised benefits for the healthcare system.

INTRODUCTION

Smoking tobacco is both uniquely addictive and uniquely harmful and results in the premature death of half of all lifelong smokers.¹ Smoking tobacco remains the single largest cause of preventable death, disability and social inequality and yet the single most cost-effective illness to treat in the National Health

Service (NHS).² There are over half a million acute hospital admissions and approximately 80 000 deaths attributable to smoking each year in the UK alone.^{3 4} There is a building evidence base that hospital-based tobacco dependency treatment services substantially increase long-term abstinence from tobacco and significantly reduce mortality and readmissions.^{5 6} The Royal College of Physicians estimate that implementing hospital-based tobacco dependency treatment services across the UK would save the NHS an estimated £60 million per year.⁷ Despite this, previous British Thoracic Society (BTS) Audits (2016, 2019) have conclusively demonstrated that acute trusts are failing to provide evidence-based care for these patients.

The 2021 updated National Institute for Health and Care Excellence (NICE) guidance on treating tobacco dependency outlines the standard of care for patients who smoke admitted to acute care trusts. This must include the provision of very brief advice (VBA), the offer of evidence-based pharmacotherapy and interventions, and referral to a specialist tobacco dependency service for support both during the admission and after discharge.⁸ Within this paper, we report the outcomes of the third and most recent BTS audit (2021) to examine if any progress has been made in providing comprehensive tobacco dependency treatment across the acute care system to realise well-recognised health benefits and cost savings for the NHS.

METHODS

The 2021 BTS national tobacco dependency audit invited acute hospital trusts across the UK to review 100 randomly selected case notes for all adult patients admitted during the period July to August 2021. Maternity



and mental health services were excluded with separate audits for these services planned. Basic demographic data, documentation of tobacco and nicotine-containing product use (eg, vaping), and any record of evidence-based smoking intervention was captured. A further inquiry into the leadership and organisation of services, availability of pharmacotherapy and training of front-line staff was also undertaken for each trust. All participating trusts were provided comprehensive guidance notes in advance of the data collection period and all data were entered onto a secure online BTS audit platform. The audit protocol is available as online supplemental file 1 and was approved by the BTS Quality Improvement Committee. Some of the data fields remained the same as previous audits thereby allowing direct comparison of results, whereas some data fields were new to assess compliance against latest national guidance.

RESULTS

A total of 119 institutions from across the UK participated with 14 579 patient records submitted. The median age was 67 years, 49.9% (7297/14 579) of patients were

female and most were emergency admissions (80%, 11 695/14 579). A total 79% (11453/14579) had documentation of smoking status (compared with 77% in 2019 and 73% in 2016) and of these, 21% (2397/11453) were current smokers (compared with 24% in 2019 and 25% in 2016). Similar to previous audits, smoking prevalence was higher in male patients (23%, 1350/5805) compared with female patients (19%, 1047/5648); and highest among those aged 26–35 (36%, 307/858) and those admitted under respiratory medicine (23%, 346/1506). Documentation of vaping status, a novel metric for the 2021 audit, was evident in only 6% (901/14579) of notes with 16% (146/901) of patients reporting current use of a vape device. [Table 1](#) provides a detailed breakdown of patient demographics with comparisons made to previous audits.

Of the 2397 patients who smoked, 45% (1070/2397) were offered VBA and 40% (966/2397) accepted a subsequent referral to a smoking cessation service. In previous iterations of the audit, inquiry into whether the patient was ‘asked if they would like to quit’ was made rather than the offer of VBA—this was evident in 44% of patients who

Table 1 Smoking status by demographic (2021 data) with comparisons of current smoking rates against 2019 and 2016 audits

Demographic	Total sample	Percentage with smoking status documented	Of those with smoking status recorded, percentage of current smokers		
	2021	2021	2021	2019	2016
Sex					
Female	7282 (49.9%)	78%	1047 (19%)	21%	23%
Male	7297 (50.1%)	80%	1350 (24%)	27%	28%
Age (years)					
16–25	769 (5.2%)	77%	172 (29%)	37%	41%
26–35	1100 (7.5%)	78%	203 (36%)	40%	41%
36–45	1204 (8.3%)	78%	309 (33%)	40%	42%
46–55	1706 (11.7%)	78%	430 (32%)	38%	37%
56–65	2223 (15.2%)	82%	504 (28%)	30%	30%
66–75	2902 (19.9%)	81%	408 (17%)	18%	21%
76–85	3029 (20.8%)	78%	225 (10%)	12%	12%
86+	1646 (11.3%)	27%	42 (4%)	4%	6%
Route of admission					
Elective	2884 (19.8%)	76%	346 (15.7%)	19%	19%
Emergency	11 695 (80.2%)	79%	2051 (22.3%)	26%	27%
Specialty					
Respiratory medicine	1779 (12.2%)	85%	46 (23%)	29%	30%
Other medical specialty	6000 (41.2%)	78%	1007 (21%)	23%	24%
Surgical specialties	6135 (42.1%)	77%	972 (21%)	23%	25%
Obstetrics and gynaecology	288 (2%)	68%	26 (13%)	21%	26%
Other	377 (2.6%)	77%	46 (14%)	22%	23%

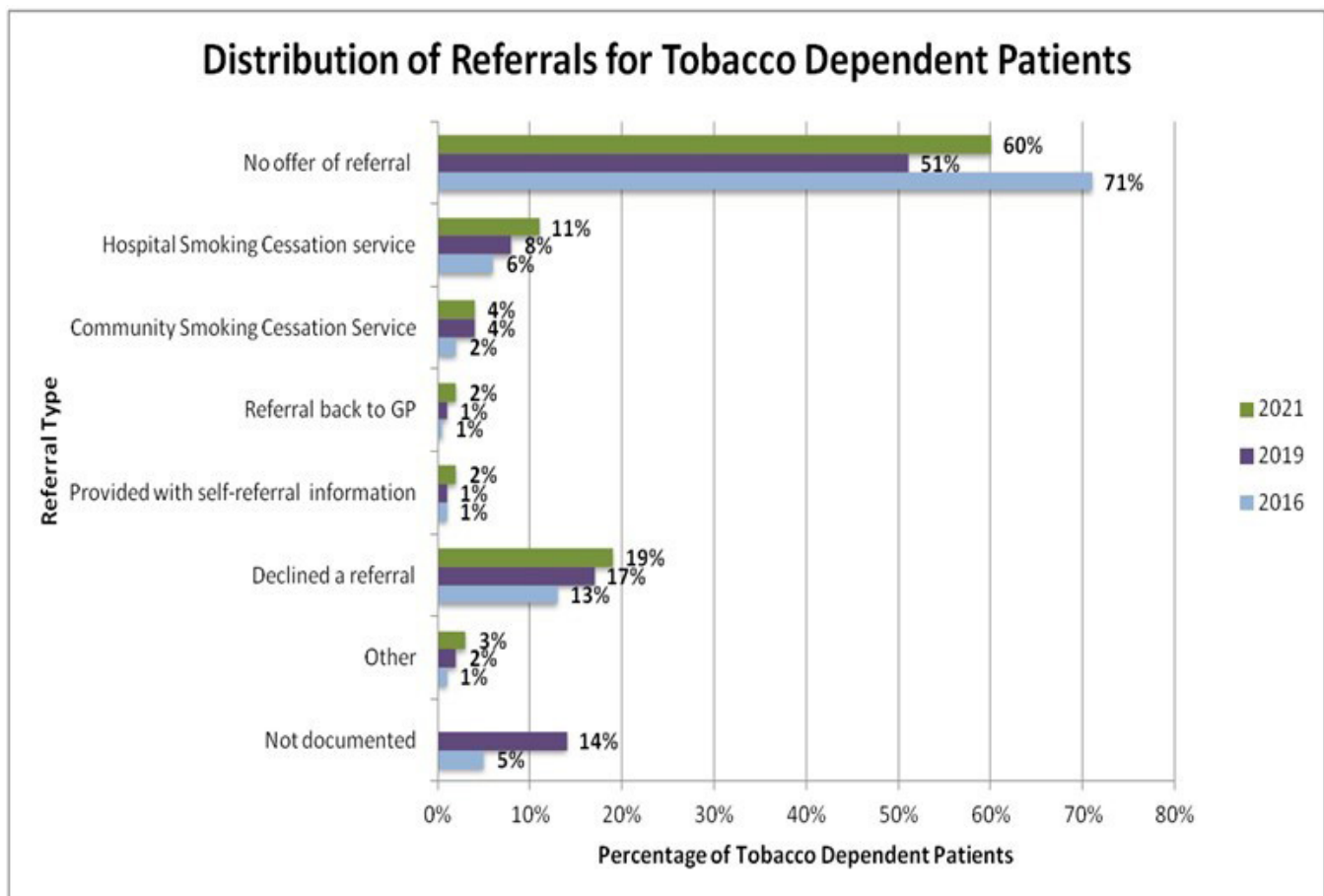


Figure 1 Distribution of referrals made for tobacco-dependent patients (expressed as a percentage of the total number of current smokers in each audit, in 2021, n=2397; 2019, n=2528, 2016, n=2716).

smoked in 2019 and only 28% in 2016; with only 24% accepting a subsequent referral to a smoking cessation service in 2019 and 27% in 2016. **Figure 1** demonstrates the distribution of referrals for current smokers across the three audits. In this current audit, fewer than 10% (206/2397) of the patients who smoked were reviewed by an on-site hospital stop smoking service during their admission. Licensed pharmacotherapy was offered to 32% (776/2397) of patients who smoked (compared with 31% in 2019 and 4% in 2016) yet only 5% (120/2397) were prescribed NICE-recommended combination nicotine replacement therapy (NRT) or varenicline. Fourteen per cent (331/2397) of patients were prescribed single-agent NRT alone (**table 2**). Less than 1% (17/2397) were offered a vape kit for use during and after admission with only 1 patient accepting this offer. Only 10% (235/2397) of patients who smoked were discharged on licensed pharmacotherapy for tobacco dependency, 3% (71/2397) attended a follow-up service on discharge and less than 1% (22/2397) remained abstinent at 4 weeks. This granular patient-level data regarding individual interventions was a novel metric in the 2021 audit and not collected in the 2019 or 2016 datasets.

Only 36% (10/28) of hospitals could always provide patients who smoke with access to a hospital smoking

tobacco dependency practitioner while an inpatient (compared with 49% in 2019 and 35% in 2016) and 41% (49/119) of participating institutions had access to a hospital-based tobacco dependency service on their premises (compared with 38% in 2019 and 56% in 2016). **Table 3** outlines the interventions and treatment pathways offered by these services captured in the 2021 audit.

Smoke-free policies continue to be poorly enforced with only 9% (9/97) of institutions able to completely enforce smoking restrictions throughout hospital grounds compared with 14% in 2019 and 7% in 2016. Thirty per cent (36/119) of institutions permitted vaping on hospital grounds with 8% (9/119) having designated vaping areas. Clinical leadership of hospital-based tobacco dependency services was delivered by a senior clinician (consultant, nurse consultant or equivalent) in 47% (56/119) of trusts (compared with 35% in 2019) yet most reported no allocated time in their job plan to support this work. Only 50% (59/119) of hospitals report offering regular tobacco dependency training to front-line staff, a figure similar to previous audits (50% in 2019; 44% in 2016). Most trusts (98%, 117/119) provided one or more forms of licensed pharmacotherapy and 72% (81/119) had a guideline/protocol to support

**Table 2** Provision of evidence-based interventions for treating tobacco dependency during an acute care hospital admission

	No of patients
Provision of pharmacotherapy as inpatient	
Single agent NRT	331 (13.8%)
Combination NRT	117 (5%)
Varenicline	3 (0.1%)
Bupropion	0 (0%)
Offered but declined	333 (13.9%)
Provision of pharmacotherapy on discharge	
Single agent NRT	167 (7%)
Combination NRT	65 (2.7%)
Varenicline	2 (0.08%)
Bupropion	0
Attendance at follow-up after discharge	
Hospital stop smoking service	42 (1.9%)
Community stop smoking service	29 (1.2%)
Patient did not attend	56 (2.3%)
No-follow-up arrangement made	696 (29%)
Patient declined follow-up	300 (12.5%)
Not possible to ascertain	1274 (53.1%)
NRT, nicotine replacement therapy.	

clinicians when prescribing this. Consistent with previous audits, prescription or recommendation of licensed pharmacotherapy could be made by a range of health professionals and not just doctors – pharmacists (75%, 89/119, of institutions) and nurses (71%, 85/119, of institutions) comprising the majority.

DISCUSSION

The updated 2021 NICE guidance on treating tobacco dependency recommends all patients who smoke to have

Table 3 Proportion of institutions offering specific on-site tobacco dependency services with specialist practitioners

Intervention	Proportion of institutions
An initial consultation lasting up to 40 min	31% (37/119)
An initial consultation lasting 40–60 min	8% (10/119)
Weekly follow-up appointment 10–20 min, for at least 4 weeks in the first month after stop date	19% (23/119)
A validated method for confirming a patient has stopped smoking 4 weeks after quit date	18% (21/119)
Phone call contact at 3 and 6 months	13% (16/119)
Self-reported quitters offered a final appointment at 12 months	9% (11/119)

access to the most effective treatments which they list as varenicline, combination NRT and vaping. Furthermore, NICE recommends that all patients who smoke admitted to hospital are provided with VBA, on-site specialist support alongside the most effective treatments described above and a postdischarge support package that includes a validated carbon monoxide test at 4 weeks.⁸ The third BTS audit demonstrates the catastrophic non-compliance with these recommendations and the little progress made when compared with the 2019 and 2016 audits. Only 5% of patients who smoke receive any of the three most effective treatments recommended by NICE, only 10% are seen by an on-site specialist practitioner and only 3% attend postdischarge follow-up. Therefore, it is not surprising that there is no evidence of long-term abstinence from tobacco after an acute care admission in the UK.

Across the three BTS national audits (2016, 2019 and 2021, totalling 6 months), data were captured for a total of 7641 patients who smoke admitted to acute care trusts across the UK. Extrapolating this figure to cover the total time-period 2016–2021 would suggest the true number of smokers admitted to hospital over this timeframe is likely closer to 90 000. Using the relative risk reductions in readmissions published in the Ottawa Model for Smoking Cessation (OMSC),⁵ we can estimate the potential benefits the NHS might have realised by providing comprehensive tobacco dependency treatment services during this time period: approximately 10 000 readmissions saved, approximately 50 000 bed days saved and estimated healthcare savings of between £9 and £38 million. These estimations are based on the reduction in readmissions of 38.4%–26.7% reported in the OMSC,⁵ assuming an average length of stay of 4.5 days⁹ and using 2019/2020 Admitted Patient Care costs (non-elective short stay £654/unit and non-elective inpatient £3614/unit).¹⁰ This financial benefit is likely underestimated given the overall cost of smoking to the NHS is estimated to be £2.5 billion/year which includes costs to social care in England alone of £1.2 billion.¹¹ Furthermore, we can estimate nearly 20 000 people would have been supported to successfully stop smoking (based on a 22% 12-week abstinent rate reported by the CURE project¹²) and 5400 lives would have been saved (based on the mortality reduction of 11.4%–5.4% reported in Ottawa⁵).

These audit results come at a time of significant investment into hospital-based tobacco-dependence services. The NHS has committed funding to ensure all patients who smoke admitted for at least one night in an acute care trust in England will be provided with evidence-based interventions as set out in the NICE guidance by 2023/2024 and have appointed a National Specialty Advisor for Tobacco Addiction. The BTS has provided a series of national improvement objectives within the audit report (box 1) and has developed a strong presence on Respiratory Futures with a suite of resources including a ‘roadmap’ to support healthcare professionals as they navigate the processes involved in delivering successful

Box 1 National improvement objectives, proposed by the British Thoracic Society tobacco-dependence audit team (with suggested timeframes for achievement)

1. All hospitals should identify a healthcare professional(s) to lead on the delivery of a tobacco dependency treatment service and appoint an executive level board member to support the service (immediate).
2. All hospitals should introduce a system of regular local data collection of adult inpatient tobacco dependency pharmacotherapy prescribing to drive on-going improvement and further encourage delivery of National Institute for Health and Care Excellence recommended interventions (3–6 months).
3. Ensure all adult patients admitted to hospital have their smoking status recorded (3–6 months).
4. Introduce a training package available to all front-line staff to ensure a minimal level of competence in supporting and treating tobacco dependency (eg, Very Brief Advice) and implement a system of monitoring uptake (6 months).
5. At least 90% of tobacco-dependent adult inpatients to receive Very Brief Advice during the course of their inpatient stay (before next national audit).
6. Offer all hospitalised tobacco-dependent patients a referral to a specialist on-site tobacco dependency treatment service (before next national audit).
7. Establish a system to monitor the number of patients provided with Very Brief Advice and referred to (and engaging with) a specialist tobacco dependency treatment services (next 12 months).

tobacco dependency services.¹³ Most of these initiatives were introduced too late for their impact to be seen in the 2021 audit; however, this substantial investment provides a source of optimism that future iterations of this audit will demonstrate marked improvements in this field.

In conclusion, there is an urgent need to address the ongoing woefully inadequate provision of support for tobacco-dependent patients in acute care trusts and ensure that failings laid bare in this audit are never seen again in future results. The significant national focus on treating tobacco dependency in acute care trusts will hopefully ensure this is the dark before the dawn.

LIMITATIONS

There are some limitations to consider when interpreting the 2021 data. First, it is important to note that the Department of Health and Social Care has issued a Supply Disruption Alert for varenicline in June 2021 due to concerns over nitrosamine contaminants, followed by a wholesale recall for varenicline from Pfizer in October 2021. Given that this audit was completed between July and August 2021, the results could therefore have been impacted by these supply issues with varenicline. However, it has been well described that despite the significant body of evidence demonstrating the efficacy of varenicline, tobacco-dependent patients have not had access to this treatment and it is critically important that when varenicline is once again available, all hospital-based tobacco dependency treatment services ensure this

is readily available and uptake is maximised in patients who smoke. Furthermore, in the absence of varenicline and with the 2022 Living Cochrane Systematic Review reaching a ‘high-certainty’ conclusion (future evidence is unlikely to change this conclusion) that nicotine vapes are approximately twice as effective as NRT in treating tobacco dependency,¹⁴ it is important for hospital-based tobacco dependency services to integrate consistent information about vaping or vaping devices and liquids as part of a comprehensive treatment offer. Second, the audit was undertaken when hospitals were experiencing a ‘third wave’ of COVID-19 infections and still attempting to recover activity from previous waves of the pandemic. Prioritising acute patient care and delivery of a vaccination programme is likely to have taken focus away from implementing tobacco-dependence support services and training staff accordingly. This might account for some of the little progress seen in the 2021 audit.

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