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Title: An audit of the management of nicotine withdrawal in an Australian inpatient unit: are we there yet?

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Abstract

Objective: This paper reports outcomes of a clinical audit of smoke-free policy implementation within an Australian inpatient psychiatric setting. It aimed to evaluate assessment of smoking status and subsequent management of nicotine withdrawal, and investigate any patient factors influencing these processes.
Method: Sixty-seven medical case-notes were retrospectively analysed for inpatient admitted to psychiatric units of a general hospital in South Australia, from July-September 2015. Patient demographic variables and information from the hospital's Smoking Assessment & Management Form (SAMF) were recorded. Data analysis involved descriptive statistics and Chi Square tests of association between dependent variables (how the SAMF was completed) and independent variables (gender, voluntary status, diagnosis).
Results: The SMAF was implemented for most patients (76.1%), with 64.71% completed within 24 hours of admission; though, many were incomplete. Nicotine dependence was not properly assessed for 42.3% of smokers; 69.23% were prescribed NRT, despite most scoring moderate-high nicotine dependence. No statistically significant relationships were found between patient factors and form completion.
Conclusions: SAMF completion was timely for most patients; however, sections important for determining support actions remained largely incomplete, suggesting patients' nicotine withdrawal is not being adequately addressed. More work is needed to improve inpatient staff's assessment to ensure optimal care.

Keywords: inpatients; mental illness; smoking cessation; nicotine replacement therapy; clinical procedures

Introduction

For individuals with psychiatric disorders, smoking prevalence is significantly higher (2-3 times) than the general population, particularly in inpatient settings [1,2], though their motivation to quit smoking is similar [3]. This contributes to them dying on average 20 years earlier from smoking-related diseases [4]. Smoking is the largest contributor to their overall disease burden [5], reflecting a complex combination of clinical, psychosocial and cultural factors that make efforts to support smoking cessation particularly challenging. Introduction of total smoking bans in healthcare facilities has been an important measure in addressing harms caused by smoking for the population [6, 7], protecting non-smokers from passive smoking, and encourage smokers to quit or reduce their tobacco consumption [8].

Many mental health services have successfully implemented smoke-free policies [6,9]. Clearly established guidelines exist for supporting people with mental illness to cease smoking and manage nicotine withdrawal whilst they are inpatients [5]. However, patients continue to report poor provision of interpersonal and pharmacological support from inpatient staff, to addresses smoking [10], suggesting that implementation of smoke-free policies and nicotine replacement therapy (NRT) provision is yet to be executed as routine protocol.

Determinants of successful smoke-free policy implementation include systemic changes, effective leadership, and staff acceptance [6,11,12]. While there is evidence that smoke-free policy is accepted by patients [3], negative staff views are reported as the greatest barrier to successful policy implementation, particularly staff expressed fears of patient aggression, ethical concerns, and staff and patient compliance issues [6,9-12]. An Australian study found that only half of the 181 patients surveyed perceived that staff

supported the policy and most patients who were smokers (83.5%) continued to smoke despite the policy [10].

Given higher prevalence of smokers among this population, psychiatric inpatients likely undergo nicotine withdrawal, including affective, behavioural, cognitive, and physiological symptoms with consequent increased feelings of anxiety, restlessness, depression, sleep disturbances, increased appetite, confusion, difficulty concentrating and craving [13]. These symptoms can mask or exacerbate psychiatric conditions, which may impact the course of treatment provided [14]. To properly manage care of hospitalised smokers, every patient's tobacco use status should be assessed on admission, and staff should offer NRT, such as nicotine gum or patches plus cessation counselling, to all smokers [7, 15]. However, evidence suggests that recording of smoking status is poor in psychiatric inpatient settings. A UK study of 290 inpatients found less than half (48%) were identified as smokers, despite 71% then confirmed as such, with 74% receiving smoking cessation advice and only 7% receiving NRT [16].

The audit setting for the current study was inpatient psychiatric units of a general hospital in South Australia that has been smoke-free for over three years. A dedicated Smoking Assessment & Management Form (SAMF) exists to support staff to enact the policy, requiring them to enquire about and record smoking status, determine nicotine dependence level, and offer NRT to patients to manage nicotine withdrawal. Despite this policy, anecdotal evidence suggests that poor policy compliance and operationalization of the SAMF into routine clinical care.

The aims were to:

1. Audit processes of assessment of smoking status, level of nicotine dependence and NRT offered to patients who are smokers in the psychiatry inpatient setting.
2. Conduct a secondary analysis of the audit results to determine if there are any patient factors (eg. gender, principle diagnosis, voluntary/detained status, or ward type) associated with whether the SAMF is completed.

Method

This retrospective case-note audit was approved by the Southern Adelaide Clinical Human Research Ethics Committee (OFR#88.16). Inclusion criteria were all patients admitted to the hospital's inpatient psychiatric units (two 15-bed open units; one 10-bed closed unit) during July-September 2015. Each unit receives up to 10 new admissions each week. Lists of hospital unit record (UR) numbers and patient initials during the designated timeframe were presented to the hospital medical records department for file retrieval. Every third UR for each unit was selected for audit, from 214 unique patient records. Where patients had been

readmitted or transferred between open and closed units during the audit period, case-notes for their first admission location were examined.

Data Collection

The audit was performed by the first author- a final year medical student; hence, inter-rater agreement was not calculated. Each medical file was individually examined using agreed variables pre-determined by the first and third author, with data entered into a Microsoft Excel spreadsheet. Independent variables included age, gender, principle diagnosis, length of stay, voluntary/detained status, and whether patients were admitted to an open or closed ward. The SAMF (see Table 1) and medication charts were also analysed for each patient.

[Table 1]

According to the policy, the SAMF should be completed alongside other admission paperwork when the patient first enters the unit, or a soon as practicable once patients are able to answer questions about their smoking status. Level of nicotine dependence and recommended NRT dose are based on an evidence-based guideline provided in Section 5 of the SAMF. The following questions, representing the dependent variables, were asked, with binary response 'yes' or 'no' recorded for each question:

- Did each patient have a SAMF in their case-notes?
- Were the forms completed on the same day of admission?
- Were all sections of the form completed correctly?
- If the patients were smokers, were they correctly prescribed NRT?

Data Analysis

IBM SPSS Statistics (2015) software program was utilised for data analysis. Analysis involved descriptive statistics and two-way tables with measures of association (Chi-square test) to test the alternative hypothesis that there was a statistically significant association between dependent and independent variables based on a type I error rate of 5%.

Results

Sixty-seven case-notes were examined. Patients' mean age was 37.95 years (SD 13.05)(see Figure 1). Most patients (70%, n=47) were involuntarily admitted; 39 (58%) were male.

[Figure 1]

Suicidal ideation was the most reported principal diagnosis (n=21; 31.3%), followed by psychosis (n=19, 28.4%)(see Figure 2). For numerous patients both of these diagnoses were reported as resulting from emotional events in combination with illicit substance abuse, or a pre-existing mental health condition.

Schizophrenia was the next most common diagnosis, with admission associated with relapse or poor medication compliance (n=11, 16.4%).
[Figure 2]

Mean length of admission was 13.52 days (SD 9.85; range=2-49 days)(see Figure 3). Most patients (n=57, 85%) were in an open ward.
[Figure 3]

Analysis of the SAMF

Most patients (n=51, 76.1%) had the form in their case-notes, with many (n=33, 64.71%) completed on the same day as the patient's admission; however, extent to which each section was correctly filled in varied widely (see Figure 4).
[Figure 4]

From the 51 SAMFs available, 26 patients (50.98%) were identified as smokers. Sections 1 and 2 were assessed as being completed correctly by marking the 'yes' or 'no' boxes. Section 3 required a tick indicating it was safe to initiate NRT. Section 4 required calculation of the Fagerstrom Score [17] indicating level of nicotine dependence, to be deemed complete. Of the 26 smokers, 42.3% (n=11) did not have a Fagerstrom Score. Section 5 was assessed by noting which mode of NRT had been selected. Lastly, section 6 was deemed correctly completed if the referral checklist had been performed (see Figure 5). From the 51 forms available, none indicated completion of section 6, suggesting that no follow-up referrals outlining smoking cessation support needs were made to either the patient's GP or Quitline. This does not mean that these actions did not occur in practice; however, no evidence of these actions was apparent during audit of the broader case-notes for these patients.
[Figure 5]

Of the 15 forms where section 4 was completed, Fagerstrom Scores showed that most patients' levels of nicotine dependence were moderate to high (n=14, 93.33%)(see Figure 6).
[Figure 6]

Of the 26 smokers, 18 (69.23%) were prescribed NRT. Of these, most (n=14, 77.78%) opted for nicotine inhalers, and 4 people (22.22%) chose nicotine patches; none selected nicotine lozenges. Eight smokers (30.77%) were not prescribed NRT. Nine patients who were prescribed NRT did not have the SAMF present in their case-notes (see Figure 7)
[Figure7]

Patient variables were then explored for any associations pertaining to whether or not the SAMF was present in patients' case-notes. No associations were found (see Table 2).
[Table 2]

Discussion

This clinical audit investigated how effectively psychiatric inpatients' smoking status was assessed, and whether they were subsequently appropriately managed with NRT and other smoking cessation support. Results revealed that the SAMF was implemented for most patients, with many forms completed within 24 hours of admission. However, inconsistencies in how the SAMF was completed, beyond determining basic smoking status, make it difficult to draw further conclusions. Almost half (n=11, 42.3%) of identified smokers did not have their level of nicotine dependence properly assessed. Where this was assessed, scores suggest that most patients would experience marked withdrawal if unable to smoke. However, one third of smokers were not prescribed NRT, confirming concerns raised by previous studies [10,16]. Stockings et al. [10], for example, found that, whilst 73.3% of inpatients received NRT, only 19.6% received optimal NRT. This highlights the importance of completing the form fully, so that nicotine dependence and withdrawal is properly assessed and accurately addressed without delay. Optimally, every smoker should be prescribed some form of NRT, to minimise nicotine withdrawal symptoms which can disguise or aggravate psychiatric conditions and impact the course of treatment provided during admission.

Given that smoking is the largest contributor to overall disease burden for psychiatric patients [4,5], psychiatric admissions provide opportunistic occasions during which smoking cessation support could be introduced [18]. Essential to this process is ensuring appropriate follow-up at discharge; however, audit of the SAMF and case-notes indicated that no patient was referred to the GP or Quitline at discharge for further smoking cessation support. It suggests clear governance and accountability structures are needed across the continuum of care to ensure better completion of the SAMF and more effective systems for communication with cessation support providers post-discharge from hospital. It also suggests that more education, supervision, and leadership are needed to support inpatient staff to perceive these actions as a core part of their role.

Relationships between patient and staff factors regarding smoking in mental health facilities have been studied to determine any barriers that may affect how smoking is addressed clinically [6, 12,14,19]. However, results of this audit did not yield any statistically significant associations between patient gender, diagnosis, type of admission, or type of ward, and whether or not the SAMF was completed. This suggests that staff behaviour and system responses to how smoking is assessed and responded to lie at the heart of addressing smoking in these settings. Wye et al. [20] tested a clinical practice change intervention that showed promising improvements in staff provision of smoking cessation support. Of interest, this intervention included several system-driven elements: leadership and consensus; enabling systems and procedures; training and education; information and resources; audit and feedback; and provision of an on-site practice change facilitator to support staff to make this part of routine care.

This audit has a number of limitations including sampling from a single service, small sample size, use of one auditor, and analysis according to first admission for each individual patient rather than auditing the process for transfers between open and locked units and readmissions during the period. Further research, involving patients and staff, is needed to explore why these processes and patterns existed. Further research, that more fully captures patient journeys and staff responses to smoking across unit transfers and readmissions, is also needed. The following recommendations are made (Table 3):
[Table 3]

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Table 1: The Smoking Assessment & Management Form (SAMF)

- Section 1: Has the patient ever smoked?
  - If no, then no further action required.
- Section 2: Does the patient currently smoke?
  - If no, then no further action required.
- Section 3: Is it safe to initiate nicotine replacement therapy (NRT)?
  - A table of contraindications and precautions to NRT is provided.
- Section 4: What is the level of nicotine dependence?
  - This is determined by the Fagerstrom Test for Nicotine Dependence (Fagerstrom, Heatherton & Kozlowski, 1990) that generates a score based on two questions that can then provide a guide for which NRT to prescribe.
- Section 5: Initiate NRT according to level of dependence
  - Based on the score and dependence level ascertained in Section 4, NRT route and dosage should then be selected in conjunction with patient's preference.
- Section 6: Ensure communication to GP & appropriate follow-up at discharge
  - Checklist of referral to GP and Quitline to secure optimal continuity of care.

Table 2: Tests of Association between variables and completion of SMAF

Variables	**Test of Association**
Gender and presence of forms in case notes	Of the 39 males, 28 (71.79%) had forms in their case notes; 23 out of the 28 females (82.14%) had forms in their notes. No statistical significance, $\chi^2(1, N = 67) = 1.82, p = 0.18$.
Principle diagnosis and presence of forms in case notes	Of the 21 patients admitted with suicidal ideation, 19 (90.48%) had forms in their case notes, as did 14 of the 19 patients (73.68%) admitted with psychosis. No statistical significance, $\chi^2(7, N = 67) = 8.43, p = 0.30$.
Voluntary / Involuntary admission status and presence of forms in case notes	Of the 47 patients admitted involuntarily, 33 (70.21%) and 18 of the 20 (90%) voluntarily admitted patients had forms in their case notes. No statistical significance, $\chi^2(1, N = 67) = 2.42, p = 0.11$.
Open / Locked ward status and presence of forms in case notes	Forty-five of the 57 patients (78.95%) admitted to the open ward had forms in their case notes. Of the 10 patients admitted to the locked ward, 6 patients (60%) had forms. No statistical significance, $\chi^2(1, N = 67) = 2.01, p = 0.15$.

Table 3: Recommendations arising from the audit

1. Ensure all mental health care staff are sufficiently educated regarding the importance of smoking assessment and administration of NRT during hospital admissions, by providing information and tools pertaining to smoking cessation which can then be provided to empower patients.
2. Ensure all mental health care staff are trained and competent at completing the Smoking Assessment & Management Form in its entirety.
3. Devise clear clinical processes for continuing to offer NRT consistently to patients throughout their admission, including across transitions between open and locked units.
4. Provide referral to ongoing cessation support for all smokers discharged from the psychiatric wards.
5. If NRT is to be charted for a patient, consider implementing one of the following recommendations:
    a. Devise a standardised method of notifying the relevant Medical Officer to prescribe the selected NRT in the patients' medication chart within a designated time frame (ideally the same day). Examples include utilising an electronic task-board, verbal handover, nursing staff to fill out order on medication chart and medical officer to sign.
    b. Nurse Practitioners and senior nursing staff to undergo extensive training regarding NRT and subsequently granted authorisation to prescribe NRT after completing the form. However, this would require a systemic change to the healthcare structure.
    c. Alternatively, consider adopting a policy where the Medical Officer is required to complete the Smoking Assessment & Management Form as part of the medical admission of the patient. This may yield a more efficient paradigm, as the Medical Officer can prescribe the NRT in the medication chart simultaneously, in addition to ensuring inclusion of appropriate follow-up at discharge as they liaise with the GP and/or community mental health services via the discharge summary.