

The Impact of a Smoking Cessation Policy on Visits to a Psychiatric Emergency Department

Paul Kurdyak, MD, FRCPC¹; John Cairney, PhD²; Anna Sarnocinska-Hart, MA³;
Russell C Callahan, PhD⁴; Carol Strike, PhD⁵

Objective: Smoking cessation policies are increasingly imposed in mental health facilities because of the high prevalence of tobacco smoking and its related adverse health consequences. The objective of this study was to measure the impact of 2 smoking cessation policies—one imposed in a specific psychiatric hospital and the other across the entire province of Ontario—on weekly visit rates to a psychiatric emergency department.

Methods: Administrative data records from consecutive patient visits to a psychiatric emergency department were grouped by week from March 1, 2002, to December 31, 2005. The patients were grouped into 3 broad diagnostic categories: substance-related disorders, psychotic disorders, and other disorders. The impact of 2 smoking cessation policies—one imposed on September 21, 2005 at the Centre for Addiction and Mental Health (CAMH) and one imposed on May 31, 2006 across the province of Ontario—on psychiatric emergency department visit rates was measured using time series analysis.

Results: The CAMH-specific smoking cessation policy had no impact on psychiatric emergency department visit rates in any diagnostic category. The province-wide smoking cessation policy resulted in a 15.5% reduction in patient visits for patients with a primary diagnosis of psychotic disorder.

Conclusions: The benefits of a smoking cessation policy need to be balanced by the impact of the policy on the likelihood of patients to seek treatment.

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Clinical Implications

- Smoking is highly prevalent in patients with mental illnesses, particularly patients with psychotic and substance-related disorders.
- Smoking cessation policies imposed across a region may act as a barrier to crisis services for patients with psychotic disorders.
- The beneficial effects of a smoking cessation policy need to be balanced with the potential for these policies to act as barriers to crisis care.

Limitations

- The diagnostic categories are based on administrative diagnostic codes that have not been validated.
- The duration of observation past the smoking cessation policies is relatively brief.
- We were unable to measure regional effects of the smoking cessation policies.

Key Words: smoking cessation, psychiatric emergency department, visit rates

In the past, smoking tobacco in psychiatric and addiction treatment facilities was a widely accepted occurrence.^{1,2} People with mental illnesses are twice as likely as people with no mental illnesses to smoke,³ and the likelihood of smoking is even higher for patients with psychotic and (or) substance use disorders.³ Mental health treatment facilities have imposed smoking cessation policies in response to well-documented adverse health consequences associated with smoking.⁴⁻⁶

Reviews of smoking bans in inpatient settings suggest that adverse consequences, such as behavioural difficulties and violence, are rare with the exception of a few studies.^{1,2} While policy implementation may not lead to adverse consequences in inpatient settings, most studies indicate that most patients resume smoking immediately upon discharge.^{1,2} Further, most studies have focused on patient outcomes during hospitalization. Whether or not an inability to smoke is a deterrent to people seeking care from these institutions in the first place is unknown.

In this study, we assess the impact of 2 smoking cessation policies—one restricted to a particular institution and one affecting the entire province of Ontario—on the number of weekly visits to a psychiatric emergency department. We also assess the impact of these 2 policies on emergency department visit rates across 3 broad diagnostic categories—substance-related disorders, psychotic disorders, and other disorders. We hypothesized that the policies would reduce the number of patients seeking care, particularly in patients with the highest smoking rates, such as patients with chronic psychotic or substance use disorders.

Methods

Setting and Subjects

The CAMH emergency department receives referrals from neighbouring general medical emergency departments, but most patients (about 90%) self-refer on a walk-in basis. All patients who present to the CAMH emergency department receive a psychiatric assessment. Subjects were all patients who registered in the emergency department from March 1, 2002, to December 31, 2006. CAMH imposed a smoke-free policy on September 21, 2005. This policy only affected CAMH; other hospitals and health care facilities across Ontario did not change their smoking policies. However, on May 31, 2006, the Smoke-Free Ontario Act came into effect.⁷ The Smoke-Free Ontario Act imposed a ban on smoking in or

near all public buildings in Ontario, including all hospitals. Because we used administrative health data that are routinely collected, we did not obtain consent from patients. The CAMH Research Ethics Board approved this study.

Data

Client visit data are collected at time of service for the CAMH emergency department as part of the National Ambulatory Care Reporting System of the Canadian Institute for Health Information. For the purpose of this study, only emergency department visit date and primary diagnosis were used. We assessed the impact of the policy on visit rates in total and by specific diagnostic categories. Diagnostic codes are based on the emergency department psychiatric assessment and are abstracted from the patient's chart. We used the following diagnostic categories: psychotic disorders, substance-related disorders, and other disorders. Most (62%) of the other category were comprised of mood, anxiety, and adjustment disorders. Table 1 reveals ICD-10 diagnostic codes within each of the 3 diagnostic categories (psychotic disorders, substance-related disorders, and other disorders), as well as the relative proportion of each ICD-10 diagnostic code within each of the 3 categories.

Data Analysis

We used time series analysis to examine patterns of weekly emergency department visit rates during the study period using SAS version 9.1 (SAS Institute, Cary, NC). Time series analysis is a collection of techniques used for modelling autocorrelation in temporally sequenced data.⁸ We estimated 4 intervention models (that combined regression analysis with a time-series analysis for residuals) using the conditional least squares method.

For all 4 cases (all patients and patients with substance-related disorders, psychotic disorders, and other patients), the policy variables were modelled as binary variables assuming the value of zero prior to policy implementation and a value of one after. Thus the policy impact was modelled as a step function with an assumed permanent impact on use rates for each smoking cessation policy.

Results

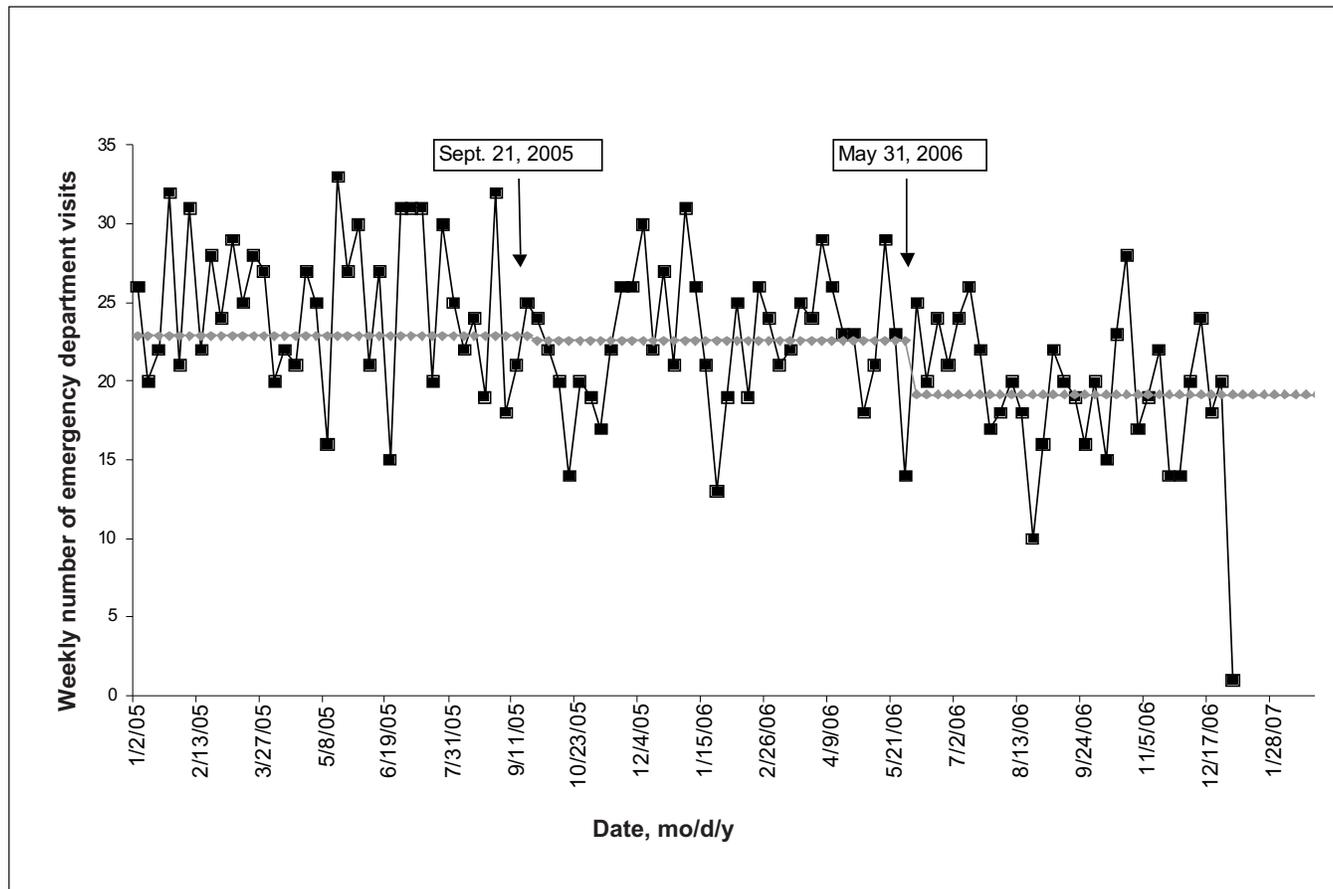
From March 1, 2002, to December 31, 2006, there were 20 736 visits to the emergency department, of which 5569 were due to psychotic disorders, 2291 were due to substance use disorders, and 12 876 were other disorders.

The CAMH smoking cessation policy had no impact on total emergency department visits or any of the diagnostic categories. The Smoke-Free Ontario policy had no impact on the total emergency department visit trend (mean visits per week prior to May 31, 2006, 90.3; mean visits per week after May 31, 2006, 80.9; $P=0.73$). The smoke-free legislation also had

Abbreviations used in this article

CAMH	Centre for Addiction and Mental Health
ICD-10	International Classification of Diseases—tenth revision

Figure 1 Weekly number of visits for psychotic disorders. The 2 smoke-free policy dates are indicated by arrows. The figure shows actual (black) and modelled (grey) data.



no impact on the other diagnostic category (mean visits per week prior to May 31, 2006, 55.2; mean visits per week after May 31, 2006, 48.3; $P = 0.75$) or substance-related disorders (mean visits per week prior to May 31, 2006, 11.9; mean visits per week after May 31, 2006, 13.0; $P = 0.64$). However, the rate of emergency department visits was significantly reduced in the psychotic disorder category (mean reduction 3.6 visits per week, $P < 0.005$), a 15.5% reduction in visits, compared with substance-related visit frequency in the 12 months prior to the Smoke-Free Ontario policy (Figure 1).

Discussion

Neither the hospital-specific nor the province-wide smoking cessation policies reduced the overall number of visits to the emergency department. Nor did they reduce the emergency department visit rate for diagnoses other than psychosis-related disorders. However, the province-wide Smoke-Free Ontario Act imposed on May 31, 2006, had a significant impact on the number of emergency department visits for patients with psychosis-related diagnoses, one of the 2 diagnostic categories with high smoking prevalence rates. These results suggest that imposing a smoking cessation policy

across a region results in reduced psychiatric emergency department visit use for patients with psychotic disorders.

There are several limitations to this study. First, the diagnostic categories are based on administrative diagnoses. These diagnoses have not been validated against any gold standard. However, we elected to use broad diagnostic categories that have face validity as clinically meaningful, distinct categories. The duration of study past the policy date is relatively brief; it is possible that the reduction in emergency department visits for patients with psychotic disorders is not sustained. Nonetheless, we detected a significant and persistent reduction in use for the 7 months following the policy implementation date. Given the nature of clientele who frequent a psychiatric emergency department, any reduction in visit frequency could be associated with adverse outcomes. Our data do not permit analysis of any regional effect of the smoking cessation policy on service use beyond the psychiatric institution studied. However, the Smoke-Free Ontario smoking cessation policy was imposed across the province of Ontario, making it unlikely that patients were preferentially seeking mental health care elsewhere.

Any policy has intended and unintended consequences. The goal of smoking reduction and cessation in patients with mental illnesses is laudable, especially given the high smoking rates³ and well-documented health risks associated with smoking. Our findings suggest that if a smoking cessation policy is implemented in a psychiatric emergency department setting, consideration must be given as to whether this will disadvantage some patient groups or populations. The smoking cessation policy may act as a barrier to crisis services in people with psychotic disorders. Further research is required to determine whether the reduction observed is sustained.

Conclusions

When a smoking cessation policy impacts all health care facilities in a region, the number of patients with psychotic illnesses seeking mental health crisis support drops. The goal of smoking cessation in people with mental illnesses needs to be balanced by the goal of providing emergency department service access to patients in crisis, especially those with psychotic disorders. Given that these are vulnerable populations with specific clinical needs, concern must be raised over the potential for these kinds of policies to adversely affect access to services. Further research is required to explore more detailed outcomes related to the no smoking policy.

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¹Head of Emergency Crisis Services, Centre for Addiction and Mental Health, Toronto, Ontario.

²Senior Scientist, Health Systems Research and Consulting Unit, Centre for Addiction and Mental Health, Toronto, Ontario.

³Research Analyst, Health Systems Research and Consulting Unit, Centre for Addiction and Mental Health, Toronto, Ontario.

⁴Assistant Professor, Department of Public Health Sciences, University of Toronto, Toronto, Ontario.

⁵Research Scientist, Health Systems Research and Consulting Unit, Centre for Addiction and Mental Health, Toronto, Ontario; Department of Public Health Sciences, University of Toronto, Toronto, Ontario.

Address for correspondence: Dr P Kurdyak, Centre for Addiction and Mental Health, 250 College Street, G63, Toronto, ON M5T 1R8; paul_kurdyak@camh.net

Résumé : L'effet de la politique antitabac sur les visites à un département psychiatrique d'urgence

Objectif : Les politiques antitabac sont de plus en plus imposées dans les établissements de santé mentale en raison de la prévalence élevée du tabagisme et des conséquences néfastes pour la santé qui y sont associées. L'objectif de cette étude était de mesurer l'effet de 2 politiques antitabac — l'une imposée dans un hôpital psychiatrique spécifique, et l'autre dans toute la province de l'Ontario — sur les taux de visites hebdomadaires à un département psychiatrique d'urgence.

Méthodes : Les dossiers de données administratives des visites consécutives de patients à un département psychiatrique d'urgence ont été regroupés par semaine, du 1^{er} mars 2002 au 31 décembre 2005. Les patients ont été répartis en 3 grandes catégories diagnostiques : les troubles liés aux substances, les troubles psychotiques, et les autres troubles. L'effet de 2 politiques antitabac — l'une imposée le 21 septembre 2005, au Centre de toxicomanie et de santé mentale (CAMH), et l'autre imposée le 31 mai 2006, dans toute la province de l'Ontario — sur les taux de visites au département psychiatrique d'urgence a été mesuré à l'aide d'une analyse des séries chronologiques.

Résultats : La politique antitabac spécifique du CAMH n'a pas eu d'effet sur les taux de visites au département psychiatrique d'urgence, dans aucune catégorie diagnostique. La politique provinciale antitabac a entraîné une réduction de 15,5 % des visites de patients, dans la catégorie des patients ayant un diagnostic principal de trouble psychotique.

Conclusions : Les avantages d'une politique antitabac doivent être balancés par l'effet de la politique sur la probabilité que les patients recherchent un traitement.