

Factors Associated With Success of Smoke-Free Initiatives in Australian Psychiatric Inpatient Units

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Objective: Smoking is the largest cause of preventable illness in the United States, the United Kingdom, Canada, Australia, and many other countries. Smokers with mental illness smoke significantly more than those without mental illness and therefore experience even greater smoke-related harm. Internationally, there is increasing pressure on psychiatric inpatient settings to adopt smoke-free policies. This study examined smoke-free policies across psychiatric inpatient settings in Australia and thereby identified factors that may contribute to the success or failure of smoke-free initiatives in order to better inform best practice in this important area. **Methods:** Semistructured in-depth telephone interviews were conducted with 60 senior administrators and clinical staff with direct day-to-day experience with smoking activities in 99 adult psychiatric inpatient settings across Australia. Quantitative data were analyzed using descriptive statistical analysis and Pearson's chi square correlations measure of association. **Results:** Factors associated with greater success of smoke-free initiatives were clear, consistent, and visible leadership; cohesive teamwork; extensive training opportunities for clinical staff; fewer staff smokers; adequate planning time; effective use of nicotine replacement therapies; and consistent enforcement of a smoke-free policy. **Conclusions:** A smoke-free policy is possible within psychiatric inpatient settings, but a number of core interlinking features are important for success and ongoing sustainability. (*Psychiatric Services* 61:300–305, 2010)

Tobacco consumption accounted for five million deaths worldwide in 2006, and that number will double by 2020 (1). Direct causal links between numerous physical health problems and smoking and passive smoking are well established, with smokers dying on average ten years earlier than nonsmokers (2–4). Compared with smokers in the general population, smokers with mental illness smoke significantly more (5), and they are

more likely to be heavier smokers, to be more dependent smokers, and to have smoked for a longer time (6). In the United States smokers with mental illness consume 44% of all tobacco (7). The highest smoking levels occur within psychiatric inpatient settings, where up to 70% are smokers and 50% are heavy smokers (8). Increased smoking levels are responsible for a large proportion of excess mortality among persons with mental illness (9,10). Persons with schizo-

phrenia, for example, have tenfold increased rates of death from respiratory disease (11).

Smoking is associated with increased rates of suicide (12) and increased prevalence of all psychiatric disorders (6), including anxiety, and anxiety levels have been shown to fall after smoking cessation (13). Smoking also increases risk of developing a mental disorder (14).

Smoking has historically been a part of psychiatric institutional culture (15) and is further entrenched by the tobacco industry, which has monitored and directly funded research supporting the idea that individuals with schizophrenia are less susceptible to the harms of tobacco and use tobacco as self-medication (16).

Several challenges persist in implementing smoke-free policies in this health care sector, including high rates of staff smoking, poor clinical integration of best-practice tobacco cessation guidelines, and attitudes held by staff about patients' smoking. Systematic research on smoke-free policy implementation in psychiatric settings is scarce. A review of 26 studies in 2005 (17) is the most recent, with the first review of studies on smoking policy occurring in 1996 (18) and another occurring in 2002 (19). These reviews and individual studies published after 2005 are useful for their articulation of general processes required to achieve smoke-free status. However, few provide rigorous analysis of factors contributing to policies' success or failure (20). In Australia, success of implementing smoke-free policies has been variable, and reasons for this remain un-

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clear. Further evidence is required so that smoke-free policies have the greatest chance of success with the least distress to smokers with mental illness and to frontline staff.

In the United Kingdom, guidance was developed to support smoke-free policy implementation, and the guidelines detailed how to work with management, staff, and patients to overcome their concerns (21,22). Another useful resource is the American Tobacco-Free Living toolkit (23). The study presented here builds on this work and is the first to undertake a national consultation with Australian inpatient psychiatric units to clarify factors associated with success or failure of implementing smoke-free initiatives.

Methods

Primary ethics approval was obtained from relevant South Australian committees, and several interstate committees approved the research and assessed it as being low risk. Research complied with all requirements of the National Health and Medical Research Council's National Statement on Ethical Conduct.

The study aimed to undertake a consultation with key clinical inpatient psychiatric staff across the nation to identify factors perceived as important for successful introduction of smoke-free policy into inpatient psychiatric settings.

Our sample included Australian adult public psychiatric inpatient facilities (open and locked), stand-alone psychiatric hospitals, forensic psychiatry inpatient units, and units with dedicated psychiatric wards within general hospitals. We sampled all units that consented to participate and that had staff representatives whom we could contact and interview within the study period. We ensured that we contacted at least two or three units in every state and territory, and some areas were fully canvassed.

Internet searches of state and territory Department of Health Web sites determined eligible sites. Letters to directors of each service requested participation by their sites and nomination of key stakeholders with direct experience and knowledge of day-to-day practices or direct involvement

in the development and implementation of smoke-free initiatives within their service who could be contacted via phone or e-mail for consent to be interviewed. Data from the Internet were used to create a convenience sample. Approximately one-quarter of the sites selected from this method were slow to respond or unresponsive, so we supplemented our data set with snowball sampling techniques. Selection of sites was not based on any prior knowledge of their smoking policy status. Within each state and territory, we ensured that we selected a cross section of urban and regional units and units located in stand-alone psychiatric hospitals and general hospitals.

We believe that the sample was representative because it included a full range of locations and types and sizes of settings across all Australian states and territories. Our sample served diverse populations and reflected the full range of policy development on this issue. Our sample represented 58% of the total possible number of psychiatric units within general hospitals.

In-depth teleconference interviews (mean length 45 minutes, range 30 to 90 minutes) were undertaken between October 2007 and July 2008 with key stakeholders in psychiatric inpatient settings across Australia (population 21.5 million). Action research methodology that used realistic evaluation techniques was used (24,25).

Each unit of measurement was a designated psychiatric inpatient unit with a set patient group and designated staff responsible for care of patients in that unit. Smoke-free units were those with a clear policy stating no smoking indoors or within hospital grounds and where staff actively attempted to enforce policy as part of daily practice. Success and failure of smoke-free policies was determined by the researchers on the basis of participants' comments and the definitions set to ensure consistent interpretation.

Qualitative data from all interviews were organized according to interview guide question areas. By undertaking analytic comparison of these issues across each site, we were

able to show commonalities among sites with successful smoke-free initiatives (method of agreement) and differences between sites that did and did not have successful smoke-free initiatives (method of difference) (26). The researchers then quantized (27,28) qualitative information about these variables to enable statistical analysis to investigate potential associations between variables. Quantitative analysis of the data set involved descriptive statistical analysis and Pearson's chi square correlations measure of association using Stata, version 10.0. Statistical analysis was checked, and advice was given by an independent statistician. Qualitative thematic analysis of results will be reported in a separate paper. A comprehensive independent report of both quantitative and qualitative results is available (29).

Results

We interviewed 60 clinical staff with responsibility for 99 adult psychiatric inpatient units (56 open units and 43 locked units) across all Australian states and territories. Some staff had responsibility for more than one unit. Participants spoke about each unit separately. This was important, because unit culture was often reported to vary across units within the same hospital. Senior nurses responsible for direct supervision of clinical nursing teams within units were greatly overrepresented in the sample, indicating their primary role in overseeing smoke-free policy enforcement and hands-on clinical care.

Between 10% and 100% of sites for each Australian state and territory were consulted. All sites in three of these regions were consulted. The sample consisted of open and locked units in four of 15 (26%) Australian stand-alone psychiatric hospitals, 63 of 109 (58%) specialty adult psychiatric units within general hospitals, two of six (33%) Australian veterans hospitals (30), and three drug and alcohol detoxification inpatient units (proportion not known). In total, 74 urban and 25 regional units were canvassed. Units ranged in size from six to 40 beds for open units (median 20 beds) and from two to 30 beds for locked units (median three beds). No

Table 1

Time spent by psychiatric inpatient units in preparation for going smoke free

Current smoking policy status	Total N	≥6 months (N=35)		<6 months (N=18)	
		N	%	N	%
Failed attempt	14	4	29	10	71
Smoke free	39	31	79	8	21

association was found between smoke-free status and unit type (locked or open) or unit size. Comparison of success rates for urban sites (N=25 of 74, or 34%) with success rates for regional sites (N=14 of 25, or 56%) showed a trend that suggests further focused research may prove worthwhile ($\chi^2=4.99$, $df=2$, $p<.08$).

Sites were categorized according to whether they had successfully gone smoke free (N=39, 39%), were actively planning to become smoke free (N=15, 15%), had attempted to go smoke free and failed (N=14, 14%), or were not currently planning to be smoke free (N=31, 31%). Smoke-free units had been smoke free for an average of two years (N=12, 12%), with several sites (N=15, 15%) smoke free for less than a year and two sites (2%) smoke free for five years or longer; one of these was a detoxification unit, the other a locked psychiatric unit (range, one month to six years; median, 1.65 years; mean, 2.08 years; mode, two years).

Seventy-four percent (N=29 of 39) of smoke-free units had taken 12 months to prepare and plan for the transition. The 15 units that were actively planning to become smoke free were intending to take at least six months to prepare. Analysis showed that sites that took more than six

months to prepare were more likely to successfully implement a smoke-free policy than those taking less than six months ($\chi^2=106.87$, $df=4$, $p<.001$) (Table 1).

Eighty-five percent of units (N=84) had the capacity to provide nicotine replacement therapy (NRT), regardless of whether they were smoke-free or not (Table 2). Clear protocols for offering NRT to patients, consistency in approach to clinical use of NRT, and persistence in offering NRT were cited as important factors for patient uptake of NRT. Capacity to provide NRT was not sufficient on its own. Where clear processes and diligence by staff in offering NRT were absent, staff reported that patients continued to smoke. This occurred in units with no smoke-free policy, a failed policy, and plans to implement a policy. In smoke-free sites, provision of NRT was part of standard care, although staff reported that not all patients who were smokers chose to accept the offered NRT. Ongoing negotiation of NRT use with patients was closely associated with enforcement of policy. Further analysis confirmed that sites offering combinations of NRT products to individual patients were more likely than sites that did not to be smoke-free ($\chi^2=81.47$, $df=3$, $p<.001$).

As described below, several factors

were found to be associated with successful implementation of a smoke-free policy: clear leadership, cohesive teamwork, staff education and training related to smoking and mental illness, and enforcement of the policy by staff members. Definitions of these factors, along with figures illustrating the association between two of the factors—teamwork and training—and successful implementation, are presented in an online appendix to this article at ps.psychiatryonline.org. The appendix also includes historical information on smoking bans in several countries and expanded Methods and Results sections with additional references.

Clear leadership was reported in all 15 sites where planning was involved in making the transition and 97% (N=38 of 39) of successful smoke-free sites, whereas in sites where no planning for the transition had occurred (N=31) or where implementation had been attempted and failed (N=14), all participants reported detached, inconsistent, or poor leadership ($\chi^2=95.08$, $df=3$, $p<.001$).

Cohesive teamwork was present in 36 successful smoke-free sites (95%). Only two smoke-free units (5%) reported fragmented teamwork. In sites actively planning to become smoke free, nine (64%) reported cohesive teamwork and five (36%) reported fragmented teamwork. In sites with failed implementation, fragmented teamwork occurred in 12 units (86%). In sites not attempting to go smoke free, fragmented teamwork was reported in 24 units (77%). In a comparison of smoke-free sites with sites where no attempt had been made and where smoke-free policy had failed, association between smoke-free status and teamwork was significant ($\chi^2=43.55$, $df=2$, $p<.001$).

Participants were asked about type and extent of staff education and training related to smoking and mental illness, NRT use, and how staff could assist patients to manage nicotine withdrawal while in the hospital. Ninety-two percent (N=36) of smoke-free units reported standard or extensive staff education and training. For sites that failed to implement a smoke-free policy, more than half (N=8, 57%) reported mini-

Table 2

Availability of nicotine replacement therapy (NRT) and smoke-free status

Current smoking policy status	Total N	No NRT offered (N=15)		NRT offered (N=84)	
		N	%	N	%
Failed attempt	14	0	—	14	100
No attempt made	31	6	19	25	81
Planning attempt	15	9	60	6	40
Smoke free	39	0	—	39	100

mal staff education and training. Where no smoke-free policy was in place or being planned, more than half (N=18, 58%) received no education and training. When the categories of minimal and no staff education were collapsed and when smoke-free sites and sites planning to become smoke free were combined, an association was found between education and training provided and smoke-free policy status ($\chi^2=51.91$, $df=4$, $p<.001$).

Participants estimated proportions of staff smokers working within each unit. Analysis showed an association between staff smoking rates and failure of smoke-free initiatives ($\chi^2=98.10$, $df=9$, $p<.001$). Participants from smoke-free units reported that reducing staff smoking had been prioritized in the months before initiating the transition to a smoke-free unit. Ninety-five percent of smoke-free units (N=37) reported staff smoking rates of 19% or less, whereas 86% (N=12) of units where smoke-free policies had failed reported staff smoking rates of 30%, with one reporting 50% and another reporting 60%.

Reduced rates of staff smoking were associated with better leadership ($\chi^2=49.72$, $df=3$, $p<.001$), more extensive staff education and training about mental illness and smoking ($\chi^2=35.24$, $df=6$, $p<.001$), and more cohesive teamwork ($\chi^2=35.24$, $df=6$, $p<.001$). Leadership, education and training, and teamwork all appeared to play an important role in supporting staff to quit smoking. This in turn was an important determinant of success of smoke-free initiatives.

Whether NRT was offered to staff was associated with smoke-free status ($\chi^2=55.52$, $df=3$, $p<.001$). However, no significant difference was found between units in which NRT was free or subsidized; 38 of 39 (97%) smoke-free sites offered free or subsidized NRT, 100% of sites that failed to implement a smoke-free policy offered free or subsidized NRT, and 20 of 31 (65%) units where no attempt was made provided no NRT to staff. Although staff were offered NRT in many units, factors highlighted above appeared to influence whether or not staff accepted this offer.

Consistency in which staff enforced

smoke-free policy was associated with successful implementation ($\chi^2=59.80$, $df=3$, $p<.001$). For the 14 units that failed to implement a smoke-free policy, none reported consistent policy enforcement. In smoke-free units, 90% (N=35) consistently enforced the policy and 10% (N=4) did not.

Level of staff education and training about smoking and mental illness was associated with whether they enforced smoke-free policy ($\chi^2=46.47$, $df=2$, $p<.001$). Units with minimal or no training were more likely to not enforce the smoke-free policy (N=45 of 51, 88%). Units with extensive training were more likely to enforce the smoke-free policy (N=17 of 18, 94%).

We hypothesized that better access to locked, high-security units to support highly distressed smokers may play a role in whether open units were more likely to be successfully smoke-free. No association was found. Presence of discharge supports for patients to remain abstinent, including NRT provision, follow-up by community staff, and clear linkage with services to help patients quit smoking, likewise showed no association.

Discussion

From these results, it appears that introducing smoke-free policies in psychiatric units is possible but that certain interdependent factors may be associated with increased rates of success.

Units that planned to implement the initiative for six months or more were more successful than those taking less time. Integration of strategies and preparation of staff were noted as important by participants, and this required time. However, participants at all sites in one state reported that smoking policy changes taking more than 12 months had taken too much time and that some staff had responded by disengaging from the initiative. The importance of comprehensive planning when implementing a smoke-free policy is clearly understood and supported by previous research (17,31–33).

Provision of individual and combination NRT products for patients was associated with improved success. More comprehensive under-

standing of nicotine withdrawal matched with the needs of particular patient groups and greater clinical knowledge of when and how to use NRT effectively may also be important. Many participants reported that their patients used more than one NRT patch or a combination of patch and inhaler together to alleviate patients' withdrawal, recognizing that highly distressed patients also often needed more immediately delivered, "hand-mouth" comfort provided by NRT inhalers to supplement NRT patches. These results support previous findings (22,34).

Clear and visible service leadership was shown to be important for preparation, successful implementation, and sustainability of policy. It was also associated with reduced staff smoking and leading by example and concurs with other studies (33). This fits with general understandings of organizational change management (35) and results from other studies (17,36,37). Clear leadership as part of a defined process and commitment to getting all staff on board was also evident in a large Canadian smoke-free policy initiative (31) and has been recommended as essential by others (23). Our study also found these leadership qualities to be important. In addition, smoke-free status was associated with cohesive teamwork. Conflict and division between staff has been found to be important in undermining implementation of organizational policy and its operationalization more generally (35). The need for staff to provide consistency in approach toward patients, coupled with staff needs for consistency when implementing change, maintaining morale, and alleviating team anxiety associated with the process of becoming smoke-free, have all been noted by several studies as important for success (17), and their absence has been noted as an important reason for policy failure (19,33).

Results revealed an association between staff education and training and successfully implementing smoke-free policy. Previous studies have highlighted lack of awareness regarding the effects of smoking among staff; a British study of attitudes of 1,471 clinical psychiatric staff found

that most staff believed patients' behavior would deteriorate if their access to cigarettes was restricted, with 22% of nurses believing that cigarettes should be provided to patients to achieve therapeutic goals (38). Other studies reveal lack of staff skills regarding delivery of smoking cessation best-practice advice to patients (39–42). The results and previous research suggest that education and training needs to be extensive and go beyond token presentations and general information to include practical, mentored skills development that is grounded in the day-to-day practice experience of staff.

Smoking rates are high among nursing staff, particularly among psychiatric nursing staff. Our study found an association between staff smoking rates and failure of smoke-free policy implementation. Other studies have also highlighted the importance of staff smoking in relation to smoke-free policy (33,38,40,43–46). Suggested mechanisms for our findings of associations between staff smoking rates, team cohesion, training, leadership, and success of implementing smoke-free policies are improved staff support and empowerment across a range of issues.

Consistent staff enforcement of smoke-free policy was associated with successful implementation and level of staff education and training. This is supported by other studies (17,33). Previous research also suggests that compared with nonsmoking staff, staff who smoke are more likely to be inconsistent in or resistant to enforcing smoke-free policy and less likely to provide patients with health promotion support and cessation interventions (33,40,43,47).

Although follow-up strategies for support and NRT provision after discharge from the hospital appeared to have little influence on success of smoke-free policy implementation, this study found several smoke-free sites or sites that were planning to become smoke free actively planning to incorporate NRT across their care continuum. Studies have confirmed that smoke-free policy has positive effects on patients' desire to remain an exsmoker postdischarge (48,49). Therefore, although follow-up sup-

port is not necessary for successfully implementing smoke-free policies, it is important and may have long-term benefits for patients' physical health. Also, patients would be less likely to begin or relapse to smoking during rehospitalization if they received follow-up support, regardless of whether units were smoke free.

This study relied on individuals' views. Their comments may not reflect the views of all staff in their settings. The study did not attempt to gain patients' or caregivers' perspectives. Veracity of comments was assumed, although some participants may have given more favorable reports than was actually the case. We relied on detailed verbal information alone, which is subject to potential recall bias. However, as much as possible, the researchers verified that participants had clear working knowledge of day-to-day activities in the settings.

In one state, only metropolitan sites were contacted. In another state, only three sites, consisting of 10% of facilities in that state, were contacted. Numbers of veteran and forensic sites canvassed were small. Such settings may have specific needs, culture, and make-up of patients and staff that vary from other adult acute units.

Care also needs to be taken in inferring direct causal relationships given the limits of statistical tests used in this research. More rigorous research is needed to fully understand causal relationships between variables and the impact of such policies on patients, staff, and systems. This research can show only associations because of the methodology used. Further research is also needed on patients' perceptions and implications for supporting people with mental illness once discharged from these settings to their community.

Conclusions

This study highlights associations between successful smoke-free policy implementation in mental health settings and a number of important factors. Sufficient preparation time, availability and effective use of NRT, good leadership, cohesive teamwork, and extensive training and education were all associated with more suc-

cessful smoke-free policy implementation. In addition, reduced staff smoking was associated with NRT support, education, cohesive teamwork, and good leadership, as well as higher rates of successful smoke-free policy implementation. Possible mechanisms for these findings relate to improved staff support and empowerment across a range of issues. Also essential is the recognition of the importance of systemic issues in the success of a smoke-free initiative (33,50). To help address this, investment in staff training and education appears to be essential for future successful smoke-free policy, so that smoking culture and practice can be shifted.

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