Process and impact of implementing a smoke-free policy in prisons in Scotland: TIPs mixed-methods study

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Disclaimer: This report contains transcripts of interviews conducted in the course of the research and contains language that may offend some readers.

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Scientific summary

TIPs mixed-methods study

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Scientific summary

Background

When UK policies banned smoking in enclosed public spaces in 2006/7, prisons had partial exemption, becoming one of the few remaining workplaces with exposure to second-hand smoke, given the high levels of smoking among people in custody. Despite the introduction of smoke-free prisons (or 'smoking bans') elsewhere, evidence on the process and impact of implementing such 'bans' is sparse.

Objectives

Overall aims

- To evaluate the process of implementing a smoke-free policy in Scottish prisons to (1) strengthen the evidence base on what is likely to facilitate the successful implementation of smoke-free prison policies for other jurisdictions and (2) inform planning and communication strategies in Scotland and elsewhere.
- To evaluate the impact of implementing a smoke-free policy in Scottish prisons on (1) changes in smoking status and exposure to second-hand smoke, (2) changes in related health indicators among people in custody and staff and (3) organisational/cultural impacts.

Objectives

- To understand barriers to and facilitators of implementation of smoke-free policies in prisons through a scoping of evidence and experiences internationally in other jurisdictions (work package 1).
- To evaluate changes in smoking and exposures to second-hand smoke following the implementation of a smoke-free policy in Scotland's prisons, associated health-related indicators and costs, and other intended and unintended consequences (work package 2).
- To understand staff attitudes to and experiences of smoking-related issues in the prison context, including access to/restriction on tobacco and tobacco-related products (including e-cigarettes) in the prison environment; if/how these vary between prisons; and how these changed leading up to and following the implementation of the smoke-free policy (work package 3).
- To understand the attitudes to and experiences of smoking-related issues of people in custody in the prison context, including access to/restriction on tobacco/tobacco-related products (including e-cigarettes) in the prison environment; if/how these vary between prisons; and how these changed leading up to and following the implementation of the smoke-free policy (work package 4).
- To evaluate the provision and impact of smoking cessation services across Scottish prisons, the experiences of providers, users and potential users of these services in the lead-up to the implementation of smoke-free prisons and the efforts to harmonise smoking cessation services from 2016 (work package 5).
- To share emerging findings in a timely and ongoing way, so that they can inform the development of services, strategies and decision-making in the health and prison services about how best to implement smoke-free policies, taking account of the views and experiences of people in custody and prison staff (work package 6).

Methods

The Tobacco in Prisons study was a three-phase mixed-methods study that used a natural experimental design to investigate the process and outcomes of developing and implementing a comprehensive smoke-free policy across Scotland's prisons (introduced in 2018).

The study utilised the following:

- interviews ($n = 19$) with stakeholders from other jurisdictions with smoke-free prisons
- in all prisons, bespoke surveys of staff and people in custody in phases 1–3 [for staff, $n = 1271$ (response rate 27%), $n = 1494$ (31%) and $n = 757$ (16%), respectively; for people in custody, $n = 2512$ (34%), $n = 1959$ (26%) and $n = 1485$ (18%), respectively]; focus groups with prison staff in phase 1 ($n = 19$ groups with a total of 132 staff) and phase 3 ($n = 15$ groups with a total of 105 staff); measurement of second-hand smoke exposures [fine particulate matter (particulate matter ≤ 2.5 µm in diameter), airborne nicotine and cross-shift changes of salivary cotinine in non-smoking staff], including over 375,000 minutes of airborne data; and interviews with providers ($n = 38$) of smoking cessation services
- in six 'case-study' prisons, selected in consultation with the Scottish Prison Service to provide a range of prisons and people in custody, in-depth interviews with people in custody in phases 2 ($n = 38$) and 3 ($n = 23$), prison staff in phase 2 ($n = 38$) and users ($n = 45$ in phase 2) and providers ($n = 38$ in phase 2; $n = 27$ in phase 3) of smoking cessation services
- routine data (e.g. staff sickness absence, medications prescribed, inpatient stays and outpatient visits for people in custody) to assess policy impacts and cost-effectiveness.

Phase 1 ('pre-announcement phase', September 2016–July 2017) was completed before any definite policy change had been formulated. During this phase, we gathered data on health, smoking, beliefs (e.g. place of smoking/e-cigarettes in prisons and the desirability, benefits, unintended consequences and challenges of a smoke-free policy) and levels of second-hand smoke (using fine particulate matter as a proxy) in residential areas and during common tasks for staff (e.g. cell searches). Surveys of prison staff and people in custody were repeated during preparation for the implementation of a comprehensive smoke-free prison policy in phase 2 ('preparatory phase', August 2017–November 2018) and phase 3 ('post-implementation phase', December 2018–May 2020). Measures of fine particulate matter were repeated during the week of implementation (week commencing 28 November 2018) and 6 months later (week commencing 27 May 2019). Detailed qualitative interviews in phase 2 with people in custody, prison staff, and users and providers of smoking cessation services were also conducted to inform ongoing strategies in preparation for implementation. Detailed qualitative work in phase 3 collected data from key stakeholders (prison staff, people in custody, providers of cessation support) about facilitators of, barriers to and perceived positive and negative consequences of the introduction of a comprehensive smoke-free policy in Scotland's prisons.

An economic evaluation estimated short-term (within-study) impacts of the policy, and included a model-based lifetime analysis using data from before (June 2016–November 2018) and after (December 2018–December 2019) policy implementation, for prison staff and people in custody. Cost–consequences, cost-effectiveness and cost–utility analyses were undertaken using data sourced from the Tobacco in Prisons study surveys of prison staff and people in custody and routinely collected/reported data from the Scottish Prison Service and NHS National Services Scotland. Key resource use data included implementation costs, health service use and personal costs. Outcomes included second-hand smoke exposure, medication for people in custody, violent incidents and quality-adjusted life-years. The lifetime analysis used a Markov model to estimate cost per quality-adjusted life-year. Analyses were also conducted on staff sickness absence across the three study phases.

Ethics approval was granted by the Scottish Prison Service Research Access and Ethics Committee and the University of Glasgow.

Results

Interviews with people from other jurisdictions with experience in implementing a smoke-free prison policy highlighted several factors that were seen to be beneficial: adequate time to prepare; increased access and reduced barriers to smoking cessation support; good communication and engagement with staff and people in custody; and increased provision of alternative activities. Participants highlighted the value of adequate governance structures at local and national levels, and the benefit of good partnership working with relevant external agencies; those who had worked in prisons in England and Wales stressed the potential benefits of making e-cigarettes available as an alternative to tobacco.

Phase 1 data confirmed high prisoner smoking rates (74%), which were reflected in levels of second-hand smoke (128,431 minutes of fine particulate matter data; median 31.7 μg/m^3). Analysis of both 6-day fixed-site and ≈ 30-minute 'mobile' task-based fine particulate matter measurements showed that the smoke-free policy implementation reduced second-hand smoke exposures across every Scottish prison. The median fixed-site (6-day) measures of fine particulate matter concentrations in residential halls reduced markedly in the week of implementation, and by > 91% 6 months after implementation compared with measures in 2016 before the policy announcement. Changes in the time-weighted average concentrations across shifts decreased by > 90% across all shift types, and concentrations in task-based measurements (e.g. opening cells in the morning) decreased by 89%, on average, for high-exposure tasks. Following the smoke-free policy implementation, most staff reported no longer being exposed to second-hand smoke at work.

Survey and qualitative data consistently indicated that people in custody tended to be less positive about a smoke-free prison policy than staff, although views were mixed and sometimes complex, particularly among people in custody. However, response rates were relatively low and declined over time, so survey data should be interpreted with caution. Objectively measured prison levels of second-hand smoke, as measured in phase 1, among other factors, were associated with staff opinions on the prison smoke-free policy. Both groups expressed concerns pre implementation about the challenges of introducing a smoke-free policy, both in the surveys (81% of people in custody and 58% of staff thought smoking bans would 'cause trouble') and in qualitative data collected during focus groups with prison staff, interviews with people in custody and interviews with providers and users of prison smoking cessation services.

The very high smoking rates among people in custody were maintained until the introduction of the ban, following which the levels of e-cigarette use increased very substantially. Both survey and qualitative interview data (from staff and people in custody) suggested that e-cigarettes were by far the most common strategy reported to help people in custody manage without tobacco in smoke-free prisons, and their introduction was commonly viewed as a crucial factor in facilitating a relatively smooth transition to smoke-free prisons. However, opinions on e-cigarettes were somewhat more negative post ban (e.g. participants were more likely to view them as addictive).

Support for the smoke-free prison policy increased in both groups in anticipation of and following the 'ban'. Views on preparation in the lead-up to the ban and on the results of the ban were generally (very) positive among staff, but somewhat less so among people in custody, although many articulated benefits and around half indicated in the survey that it had helped improve their health. Both staff and people in custody raised potential issues with the use of e-cigarette devices for illegal drugs ('new psychoactive substances') and difficulties managing without tobacco for some former smokers.

There was strong consistency in findings from interviews with service providers and service users in the pre-implementation stage. The prospect and, in particular, the announcement of the ban were important triggers for some smokers in custody to engage with cessation support. Most service user feedback was positive, in particular praising the expertise and active engagement of smoking cessation advisors, the provision of carbon monoxide monitoring as a means of assessing progress, and

opportunities to meet and speak with like-minded peers who were also trying to quit. Criticisms of the service by users largely mirrored those expressed by service providers (e.g. long waiting times, disruption in accessing group sessions, inconsistencies in nicotine replacement supplies). People in custody also highlighted the need for diversionary activities to keep people's hands and minds occupied, provision of smoke-free spaces to make quitting easier and enhanced communication about the smoke-free services and how the ban would be introduced. Like service providers, some service users anticipated prison reception and admission procedures to be key areas post implementation, with (free) provision of nicotine replacement and/or e-cigarettes seen as likely to be helpful in assisting smokers entering prison to deal with nicotine cravings following admission.

The health economic analyses pointed to the clear cost-effectiveness of the policy. Base-case cost-effectiveness analysis results for both staff and people in custody demonstrated that, post implementation, costs and second-hand smoke levels were lower than before the announcement. Base-case cost–utility analysis results for staff demonstrated that the post-implementation period was less costly and associated with higher quality of life than the pre-announcement period; however, for people in custody, although costs were also lower, quality of life was lower post implementation, compared with pre announcement. Sensitivity analyses generally supported the base-case results, demonstrating that, over a short time horizon, implementing the smoke-free policy was cost-effective.

The base-case health economic lifetime model demonstrated that, during the period 'with smoke-free policy', costs were lower and quality-adjusted life-years were greater than the period 'without smoke-free policy' for both people in custody and staff, and confirmed cost-effectiveness as judged against a £20,000 willingness-to-pay threshold. Several scenario analyses confirmed the robustness of the base-case results, but the scenarios with the greatest effect on the incremental cost-effectiveness ratio were varying (decreasing) smoking resumption rates on release from prison (associated with improved quality of life and decreased costs for people in custody) and changing assumptions about the length of sentence. Detailed analysis of some routine health data (medications for people in custody, staff sickness absence) will be reported separately.

Conclusions

To our knowledge, this is the first comprehensive international study to examine the views of prison staff and people in custody, and to objectively measure levels of second-hand smoke and health and other outcomes, throughout a process of organisational change (i.e. the introduction of a comprehensive smoke-free policy) prior to formulating the policy, in the period between policy announcement and implementation, and after the policy became part of the organisation's status quo. The study also included detailed interviews with users and providers of prison smoking cessation services before and after the introduction of the smoke-free policy and the sale of e-cigarettes to people in custody, and with key stakeholders from other jurisdictions with smoke-free prison policies, and a health economic analysis. The findings confirm that a comprehensive smoke-free prison policy can be successfully implemented, and is highly likely to be cost-effective in the short and long term. Despite initial concerns, smoke-free rules rapidly became accepted as the 'new normal' by prison staff and people in custody and effectively eliminated exposures to second-hand smoke. The changes are also very likely to reduce tobacco-related harms among people in custody who smoked prior to entering prison or the introduction of the policy. Despite overall successful policy implementation, some drawbacks to removing tobacco from prisons were also reported, and the views of staff and people in custody could be multidimensional.

The results are relevant for jurisdictions that are considering changes to prison smoking legislation, with or without concomitant changes in whether or not the sale of e-cigarettes is permitted in prisons. This evaluation of the development, planning, implementation and impact of a smoke-free prison policy demonstrates the importance of research evidence during policy implementation, providing a model for partnership working in research and policy change, across an entire national prison service.

Priorities for future research

Research on the following:

- the number of people who remain tobacco abstinent, with and without the use of e-cigarettes on release from smoke-free prisons, and ways to maximise pre- and post-release support for tobacco and/or nicotine cessation
- experience and likely effectiveness of new guidance for those wanting support to cut down on/quit vaping in prison to inform pre-release support and transferability to other settings
- long-term use of e-cigarettes in prison, and (cost-)effectiveness of support for people wishing to become nicotine free [alongside (or not) aspirations to overcome former addictive behaviours]
- the impact for those leaving prison of returning to a smoking household/social network (for people who have become tobacco abstinent while in custody, with or without e-cigarettes) and any positive or negative impacts on family members
- updated estimates of outcomes and impacts of the smoke-free prison policy in Scotland, utilising any new evidence worldwide on smoking relapse post release, e-cigarettes or changes in e-cigarette use in prisons (where permitted)
- impact of COVID-19 and associated restrictions on experiences of living in a smoke-free environment, and coping mechanisms in the face of additional stresses and restrictions (e.g. diminished visitor contact), including the use of e-cigarettes.

Study registration

This study is registered as research registry 4802.

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