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# Smoke-free prison policy development, implementation, and impact across the entire national prison service in Scotland (TIPs study): a three-phase, mixed methods natural experimental evaluation

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## Abstract

### Background

Prisons had partial exemption from UK 2006–07 policies banning smoking in enclosed public spaces, becoming one of few workplaces with continued exposure to second-hand smoke (SHS). Although bans have been introduced elsewhere, evidence of the process and impact of implementing smoke-free prisons is sparse. We aimed to provide evidence on the process and impact of implementation of smoke-free policy across the national prison service in Scotland.

### Methods

The Tobacco in Prisons study (TIPs) is a three-phase, mixed-methods study exploring the periods before policy formulation (phase 1; September 2016–July 2017), during preparation for implementation (phase 2; August 2017–November 2018), and after implementation (phase 3; December 2018–May 2020). Data on SHS, health, smoking, beliefs (eg, smoking or e-cigarettes, desirability, benefits, and challenges of smoke-free policy) were gathered across all 15 Scottish prisons through: (1) staff and prisoner surveys, staff focus groups (phases 1 and 3), and cessation provider interviews; (2) SHS measures (fine particulate matter, PM<sub>2.5</sub>, using Dylos DC1700 monitors) before, during (week commencing Nov 28, 2018), and 6 months after (week commencing May 27, 2019) implementation on Nov 30, 2018. In six case-study prisons, in-depth interviews were carried out with prisoners, staff, and smoking cessation providers. We also accessed routine data (eg, sickness absence, “canteen” purchases of tobacco and other products) to assess policy impacts. Ethics approval was granted by SPS Research Access and Ethics Committee and University of Glasgow. Participants provided written informed consent.

### Findings

Phase 1 data showed high prisoner smoking rates (1858 [74%] of 2505 responders), confirmed by SHS measures (128 431 min of PM<sub>2.5</sub> data, median 31.7 µg/m<sup>3</sup>), and concerns about the challenges of smoke-free policy (eg, 1954 [81%] of 2407 prisoners and 737 [58%] of 1269 staff thought smoking bans caused “trouble”). Compared with 2016, air quality improved in all prisons in 2018 (114 303 min of PM<sub>2.5</sub> data) with an overall median reduction on the first full working weekday after implementation (Dec 3, 2018) of –81% (IQR –76 to –91). SHS measures collected 6 months after implementation (126 777 min of PM<sub>2.5</sub> data) showed sustained improvement

(median 3.1 µg/m<sup>3</sup>, overall median reduction –91% (IQR –88 to –93%)). Reasons for success and continuing challenges of smoke-free prison policy will be discussed.

### Interpretation

This evaluation of the development, planning, implementation, and impact of smoke-free prison policy demonstrates the importance of research evidence during policy implementation and, as a study of an entire national prison service, provides new evidence for other jurisdictions contemplating bans on smoking in prisons.

### Funding

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### Contributors

KH is the Principal Investigator for the TIPs study. KH, LB, KB, PCo, PCr, ED, DE, AL, JP, HS, and SS contributed to the original design and secured funding. KH, AB, HS, SS, and DE led amendments to the research design and the study protocol, following the announcement on July 17, 2017, of a definite date for the implementation of smoke-free policy in November 2018, with input from all authors; the amended protocol was approved by the Study Steering Committee, the funders, SPS, and both ethics committees. KH, SS, RD, HS, ED, and AB were responsible for the collection, analysis, and interpretation of the SHS data. KH, AB, DE, and RP led qualitative data collection, analysis, and interpretation. LB, HS, and SS contributed to conduct and interpretation of qualitative analysis. HS, KH, and AB led the design of survey instruments, with input from all other authors. HS led the data collection and analysis of the survey data. KB, NM, KH, AB, PCo, PCr, ED, AL, JP, and ET led the design and analysis of modelling of routine data, with input from all other authors. KH has full access to all the data and final responsibility for the decision to submit this Abstract for publication.

### Declaration of interests

We declare no competing interests.

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