

Institution: University of Glasgow (UofG)		
Unit of Assessment: UoA 2 (Public Health, Health Services and Primary Care)		
Title of case study: Successful elimination of second-hand smoke in Scottish prisons through a comprehensive smoking ban		
Period when the underpinning research was undertaken: March 2015–July 2017		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s): (1) Prof Kate Hunt; (2) Dr Helen Sweeting; (3) Ms Ashley Brown; (4) Dr Evangelia Demou; (5) Dr Greig Logan; (6) Prof Alastair Leyland; (7) Prof Peter Craig; (8) Prof Jill Pell; (9) Dr Kathleen Boyd.	Role(s) (e.g. job title): (1) Professor of Gender and Health; Honorary Professor; (2) Senior Investigator Scientist; Reader; Affiliate Reader; (3) Research Associate; (4) Research Fellow; (5) Research Assistant; Research Associate; (6) Professor of Population Health Statistics; (7) Research Fellow; Professor of Public Health Evaluation; (8) Henry Mechan Chair of Public Health; (9) Senior Lecturer.	Period(s) employed by submitting HEI: (1) 1985–March 2018; 2018–present; (2) 2014–2016; 2016–2020; 2021–present; (3) 2017–March 2018; (4) 2014–present; (5) 2016–2017; 2017–present; (6) 1999–present; (7) 2014–2020; 2020–present; (8) 2007–present; (9) 2007–present.
Period when the claimed impact occurred: 2015–present		
Is this case study continued from a case study submitted in 2014? No		
1. Summary of the impact High levels of second-hand smoke (SHS) in Scotland's prisons placed the health of staff and people in custody at risk. From 2015, UofG researchers have partnered with the Scottish Prison Service (SPS) to support delivery of an evidence-based smoking ban, implemented across all 15 Scottish prisons on 30 November 2018 (approximately 4,000 staff and 8,200 people in custody). SHS levels were reduced by 80% immediately after the ban, and by 91% at 6 months. Concentrations of SHS in Scottish prisons are now similar to those in most smoke-free environments. Health economic analyses found the policy highly cost-effective in both the short-term and long-term.		
2. Underpinning research Smoking has been prohibited by law in enclosed public spaces throughout Scotland since March 2006, to protect non-smokers from SHS. The effect of these smoke-free laws on health was the subject of a REF2014 impact case study (Pell). Nonetheless, some locations were exempt from this legislation, including Scotland's 15 prisons. In 2013, the Scottish Government published its Tobacco Control Strategy , which outlined the ambition to create a tobacco-free generation of Scots by 2034. To mitigate the health risks posed to staff and people in custody from exposure to SHS, the Tobacco Control Strategy stated a commitment to "work in partnership with the Scottish Prison Service and local NHS Boards to have plans in place by 2015 that set out how indoor smoke-free prison facilities will be delivered." A ban on smoking in prisons was highlighted as a key step towards creating a smoke-free Scotland. UofG partners with SPS to support development of a smoking cessation policy for Scottish prisons In March 2015, SPS announced it would lead a Scotland-wide Tobacco Strategy Workstream to develop a joint action plan related to smoking in prisons. Previous prison-based research by UofG had established links with the SPS Head of Health and Wellbeing, including a shared interest in prisoner smoking and health. In April 2015, Hunt and Sweeting presented early plans for the Tobacco in Prisons (TIPs) study (outlined below) at an SPS Tobacco Strategy Workstream meeting. Subsequently, they were commissioned to conduct a literature review on prison smoking and smoking bans to inform SPS decisions on how best to move towards the introduction of a smoke-free prisons policy in Scotland [3.1].		

The TIPs study: an evidence-based approach to the Scottish prisons smoking ban

TIPs was developed in 2015–2016 as a three-phase, multi-method study exploring the periods before announcement of a Scottish smoke-free prisons policy (Phase 1); during preparation for implementation of this policy (Phase 2); and after implementation of this policy (Phase 3). Its aim was to evaluate the process and impacts of implementing enhanced tobacco control in Scottish prisons. TIPs was funded by the National Institute for Health Research (grant PHR 15/55/44), with **Hunt** as Principal Investigator. TIPs Co-Investigators included other UofG researchers (**Sweeting, Pell, Demou, Leyland, Craig, Boyd**), with researchers from the University of Stirling and the University of Aberdeen. **Hunt** and **Brown** moved to the University of Stirling in March 2018; however, **Hunt** holds an Honorary Chair at UofG and remained Principal Investigator for TIPs. Phases 2 and 3 of TIPs involved a joint collaborative programme between UofG and the University of Stirling, with researchers from each institution leading workstreams (see section 4).

TIPs Phase 1 was conducted during September 2016–July 2017. This phase included a survey that confirmed high prevalence of smoking among people in custody in Scotland (74%); by contrast, the 2016 Scottish Health Survey recorded a 21% smoking rate within the community. **Hunt, Sweeting, Demou** and **Logan** led a multiple-method approach to characterise SHS exposures in all Scottish prisons, with Co-Investigator Dr Sean Semple (Respiratory Health Team, University of Aberdeen; now at University of Stirling). This novel research produced the largest dataset of SHS measures from any prison service worldwide [3.2], including measurement of fine particulate matter, airborne nicotine and biological markers of exposure. It provided evidence of SHS exposure in cells, landings, halls and other communal areas across all Scottish prisons, showing variations by time of day. Overall, the findings suggested that exposure to SHS for prison staff was likely to be similar to that of a non-smoker living with a smoker, although large between-prison variation was observed. Measurements taken during daily activities showed that some common tasks performed by staff (e.g. cell checks and maintenance) were likely to lead to high occupational SHS exposures, similar to those experienced in bars before the 2006 Scottish smoke-free laws [3.2].

Attitudes and opinions of staff and people in custody were also evaluated in all Scottish prisons ahead of SPS announcing the new policy to ban smoking, through focus groups and surveys conducted by UofG researchers. This research suggested that most staff (but a lower proportion of people in custody) felt positive about a smoking ban, while recognising potential major operational difficulties. It also suggested that support for the policy might be strengthened if staff had access to objective measures of SHS exposure (**Sweeting, Demou, Brown, Hunt**) [3.3]. Factors felt to be critical for successful implementation of a prison smoking ban included effective and timely communication, as well as enhanced training and support, before launching the policy (**Brown, Sweeting, Logan, Demou, Hunt**) [3.4].

3. References to the research

1. **Sweeting H, Hunt K** (2015) Evidence on smoking and smoking restrictions in prisons: a scoping review for the Scottish Prison Service's Tobacco Strategy Group. MRC/CSO Social and Public Health Sciences Unit, Glasgow (<http://www.sphsu.mrc.ac.uk/op25-sps-literature-review-v2.pdf>).
2. Semple S, **Sweeting H, Demou E, Logan G**, O'Donnell R, **Hunt K**, on behalf of the Tobacco in Prisons (TIPs) research team (2017) Characterising the exposure of prison staff to second-hand tobacco smoke. *Ann Work Expo Health*;61(7):809-821 (doi:[10.1093/annweh/wxx058](https://doi.org/10.1093/annweh/wxx058)). First published online 16 July 2017.
3. **Sweeting H**, Semple S, **Demou E, Brown A, Hunt K** (2019). Predictors of opinions on prison smoking bans: analyses of survey data from Scottish staff and prisoners. *Tob Induc Dis* 2019;17:47 (doi.org/10.18332/tid/109559).
4. **Brown A, Sweeting H, Logan G, Demou E, Hunt K** (2018) Prison staff and prisoner views on a prison smoking ban: evidence from the Tobacco in Prisons study. *Nicotine Tob Res*;21(8):1027–1035 (doi:[10.1093/ntr/nty092](https://doi.org/10.1093/ntr/nty092)).

Funding of TIPs:

Principal Investigator: **Hunt K**; UofG Co-Investigators: **Sweeting H, Demou E, Leyland A, Craig P, Pell J, Boyd K**. *Evaluating graduated progress towards, and impacts of, the*

implementation of indoor smoke free prison facilities in Scotland. National Institute for Health Research, [PHR 15/55/44](#), GBP958,679 (September 2016–June 2020).

4. Details of the impact

Tobacco is the world's leading cause of avoidable ill health and premature death, with 27% of UK cancer deaths and 22% of all deaths in 2010 attributable to smoking. High levels of smoking and SHS exposure contribute to health inequalities among prison staff and people in custody for jurisdictions without a smoke-free prisons policy. To address this issue, the Scottish Government included cessation of smoking in its prisons as part of the ambition to create a tobacco-free generation of Scots by 2034. UofG research conducted in partnership with SPS and other key stakeholders was critical in terms of: **(1)** demonstrating high levels of SHS risk in 2016; **(2)** supporting planning and implementation of a service-wide smoke-free policy for Scottish prisons; and **(3)** demonstrating its effectiveness by confirming substantially reduced SHS concentrations after policy implementation in 2018.

Shaping the Scottish prisons smoking cessation policy (March 2015–July 2017)

From 2015 onwards, **Hunt** and **Sweeting** regularly met with SPS (including people in senior positions in SPS headquarters and union leaders representing prison staff), as well as people working in smoking cessation services and tobacco control in NHS Health Scotland and the Scottish Government, to discuss how UofG research could inform, and evaluate, the policy-making process. Their literature review [3.1] provided key evidence to support an SPS strategy paper, which was submitted to the Scottish Government in February 2016 [5.A]. This document recommended a comprehensive smoke-free policy for Scottish prisons as *“the most effective option to address the negative health impacts associated with exposure to SHS to those in custody and those working in or visiting prisons.”* The Cabinet Secretary for Justice accepted the SPS recommendations and requested further advice on timescales to embed a culture of smoking cessation. In September 2016, activities and timelines for development and implementation of the smoke-free policy were outlined to the Governors and Deputy Governors of Scottish prisons [5.A], citing the UofG literature review [3.1].

High baseline measures of SHS levels recorded in 2016 in residential areas across all 15 Scottish prisons (TIPs Phase 1) [3.2] highlighted the severity of the issue, and were shared with the SPS Tobacco Strategy Workstream group ahead of publication [5.A]. These SHS exposure data [3.2] supported the decision taken by SPS that all prisons in Scotland should become smoke free in November 2018. This service-wide smoking ban was announced by the SPS Chief Executive at a joint press conference with **Hunt** in July 2017, on the day the SHS data were first published online [3.2]. The accompanying press release highlighted that the move to smoke-free prisons had been informed by TIPs [5.B]. The Chief Executive of SPS described the UofG findings as *“a call to action. It is not acceptable that those in our care and those who work in our prisons should be exposed to second hand smoke”* [5.B].

Announcement of the Scottish prisons smoking ban attracted considerable media interest [5.B].

The SPS lead for smoke-free policy implementation described the SHS results as *“an absolute game changer .. finding out that very broadly speaking .. working in a residential area of a prison was like living with a smoker. It was shocking and unacceptable, .. so that effectively moved things”* [5.C]. A representative of the Scottish Government said *“What TIPs brought us was the catalyst .. without TIPs I think we probably still wouldn't have smoke-free prisons .. and the transition certainly would not have been as smooth. It gave us some credible evidence which was very persuasive politically for the decision makers, but also for the people who'd have to implement it. So, the timing for implementation became suddenly very accelerated .. without TIPs that wouldn't have happened .. in terms of the focus of TIPs and the quality of TIPs it was absolutely perfect”* [5.C].

Preparation for implementation of the smoke-free policy (July 2017–November 2018)

Following announcement of the smoking ban in July 2017 [5.B], **Hunt**, **Brown** and **Sweeting** joined colleagues from SPS, NHS Scotland, University of Stirling and the Scottish Government as members of the SPS Smoke-Free Prisons Stakeholder Advisory Group (SAG). Research updates were a standard agenda item at these monthly meetings. A lead on public health and

tobacco control in Health Scotland said *“I can’t think of a better example of where there has been a piece of research and then a policy change as a result of it. [TIPs] has a great study design .. it had both the numbers which had come from the exposure data, then also had the story of what that means in terms of the perspective of the staff, .. the narrative was so strong and that’s why I think it had this huge impact”* [5.C].

The TIPs Phase 1 survey found that [53%](#) of people in custody who were current smokers wanted to quit. UofG researchers also identified key factors likely to influence the successful implementation of the smoking cessation policy [3.3, 3.4]. TIPs Phase 2 aimed to determine whether smoking behaviours, attitudes and cultures changed ahead of the ban; for example, would smoking rates reduce as people in custody attempted to become non-smokers before being required to quit or abstain. UofG (**Sweeting**) led surveys of staff and people in custody among all Scottish prisons (May 2018–July 2018). Furthermore, in-depth interviews with people in custody, prison staff and smoking cessation staff in six case study prisons were conducted initially by UofG (**Hunt, Brown**; November 2017–February 2018) and by University of Stirling thereafter (March 2018–November 2018). Survey and interview findings were regularly communicated to SPS via meetings, presentations and summaries during the pre-ban period. Measures adopted by SPS to facilitate smoking cessation before the ban included extensive communication and diversionary activity programmes to promote the smoke-free policy.

A Scottish Government representative involved in the SAG meetings said *“I think the Phase 2 [of TIPs] was as important as the Phase 1. The Phase 1 gets us to an evidence base for making decisions. The Phase 2 is much more focussed on how the actual policy change would be made .. it’s one of the rare brilliant times where you can see the research smoothing the way for the policy”* [5.C]. The SPS lead for the smoke-free prison implementation said *“The fact that you guys were doing some very informed and robust focus groups and questionnaires allowed us to check whether our message was getting home. So having you as part of our SAG meetings was really important. And you feeding back on some of the research .. was really helpful for us”* [5.C]. A lead on public health and tobacco control in Health Scotland described TIPs as *“a great example of how Health Scotland and third sector and then academia can work together”* [5.C]. The SPS Head of Health and Safety who helped to facilitate the collection of the SHS data praised the way that prison staff were brought on board through the research process, and the positive impact of the research process on continuing professional development [5.C]: *“It’s been fantastic that we’ve went through the stages [of the research] and provided [staff and the Unions] a baseline [SHS exposure] to what it is now, through a proper process that they understand .. how it was monitored and measured .. that’s all in all perfect for me... it’s been a benefit, a massive benefit, to transfer information to the people on the shop floor”* [5.C].

The smoke-free policy, informed by UofG research, came into force in all 15 Scottish prisons on 30 November 2018, an event widely covered by the media [5.D]. In addition to affecting approximately 8,200 people in custody, the smoking ban ended the inequity of over 4,000 prison staff experiencing occupational exposure to SHS, a situation that had been illegal in almost all other Scottish workplaces since 2006. The journey taken by one Scottish prison (HMP Kilmarnock) to implement the policy was outlined in a video commissioned to mark the first year of being smoke free [5.D].

Evaluation of the smoke-free policy (December 2018–present)

Implementation of the smoking ban in November 2018 fulfilled the Scottish Government’s commitment to achieve smoke-free prison facilities by 2034. TIPs Phase 3 was designed to evaluate the outcomes of this policy, including post-ban SHS levels and cost effectiveness.

Air quality monitoring data collected during the first days following implementation of the smoking ban demonstrated an immediate impact of this policy (Semple, Hunt, with **Sweeting**) [5.E]. Exposure to SHS was reduced by approximately 80% when compared with measurements from 2016, providing evidence for high levels of compliance with the smoking ban as soon as it was introduced. This early success was highlighted by the media [5.E]. Data

collected in all prisons at 6 months after implementation of the smoking ban demonstrated further reductions in SHS exposure (**Demou, Sweeting**, with Hunt, Semple) [5.E]. Fixed-site measurements in residential halls demonstrated that SHS levels were 91% lower than those in 2016, with measurements taken during staff activities showing decreases for previously high-exposure tasks (e.g. unlocking cell doors). SHS exposures among people in custody and prison staff are now similar to those found in most smoke-free environments. The majority of prison staff also reported no longer being exposed to SHS at work [5.E]. The SPS Head of Health and Safety described the post-implementation reduction in SHS as “*absolutely magnificent*,” praising the outcome and the process, which made it “*a safer place for prisoners in terms of health and for staff*.” [5.C].

Health economic analyses pointed to the clear cost-effectiveness of the smoke-free policy [5.F]. Long-term analyses showed total costs were lower with the smoke-free policy compared to without it for both people in custody (GBP32,848 versus GBP33,749) and prison staff (GBP10,462 versus GBP11,183). Quality-adjusted life years were higher in the smoke-free comparator for both groups, suggesting that prison staff and people in custody benefit from an increase in quality of life with a smoke-free policy. At the GBP20,000 willingness-to-pay threshold set by the UK National Institute for Health and Care Excellence, the smoke-free policy for both groups would be considered highly cost-effective compared to not having the smoke-free policy.

A model for implementation in other countries

The Scottish smoke-free prisons policy was the first service-wide implementation founded on a comprehensive multifaceted evidence base, and so offers a clear model for other countries to follow. The Scottish ban was highlighted for World No Tobacco Day in May 2019, an event led by the World Health Organization to promote effective policies for reducing tobacco consumption. During October–November 2019, the Northern Ireland Prison Service (NIPS) held a consultation on its intention to make all prisons nationwide smoke-free. NIPS highlighted that this change in policy was “*informed by the success of the implementation of smoke free prisons in the Scottish Prison Service*” [5.G], with the TIPs investigators invited to contribute to the consultation process.

5. Sources to corroborate the impact

PDFs uploaded for all listed items, unless indicated otherwise.

- A. Shaping the smoke-free policy: (1) SPS [Scotland's journey towards smoke-free prisons](#) (February 2016). The UofG literature review [3.1] is cited on p.5, p.6, p.22, p.24, p.42; (2) SPS [Tobacco Strategy Timescales](#) communication (September 2016) citing the literature review [3.1], with [Annex B](#) citing UofG; (3) UofG [Report for SPS](#) on exposure to SHS (2017).
- B. SPS [press release](#) announcing the intention to ban smoking in all Scottish prisons (July 2017), with examples of media coverage.
- C. Interviews conducted by Hunt and Brown with key stakeholders in policy development and implementation. Anonymised transcripts of the recordings available on request from the University of Stirling (Hunt).
- D. Implementation of the smoking ban: (1) Examples of media coverage (November 2018); (2) HMP Kilmarnock 1-year smoke-free anniversary video [[YouTube](#)].
- E. Post-ban air quality: (1) Semple S *et al.* [Tob Control 2020;29:234–236](#). NB: First published online May 2019; (2) Examples of media coverage (May 2019); (3) Demou E *et al.* [Ann Work Expo Health 2020;64\(9\):959–969](#).
- F. Health economic analysis for the smoke-free policy (conducted as part of the final TIPs report to NIHR). A copy of this report is available on request from UofG.
- G. A model for implementation in other countries: NIPS [consultation](#) document (2019). See p.2 for the Scottish prisons smoking ban.