Version 31.5.2012 (updated in 2014)

Less Smoking and More Health in Prisons

Swiss Tobacco Control Fund grant Nr 08.002295

Final Report

Basel, 31 May 2012

Contributors to this report:
Catherine Ritter, Bernice Elger, Martina Kunz, Jean-François Etter
CURML – Centre universitaire romand de médecine légale
Universités de Lausanne et Genève

In collaboration with:
Institut für Bio- und Medizinethik Universität Basel
Institute of social and preventive medicine,
University of Geneva. CMU, case postale, CH-1211 Geneva 4

Address for correspondence:
Prof. B. Elger, Institut für Bio- und Medizinethik, Missionsstr. 24, CH-4055 Basel

We thank the Swiss Tobacco Control Fund for the financial support.
We are grateful to our collaborators from different prisons and prison health services as well as to Bernergesundheit, CIPRET Geneva and Corinne Wahl for their collaboration and support.

Index

Summary 3
1 Introduction 5
2 Objectives of the study 8
3 Methods 8
3.1 Settings 9
3.1.1 Prison A 9
3.1.2 Prison B 9
3.1.3 Prison C 9
3.2 Data collection 10
3.2.1 Questionnaires 10
3.2.2 Interviews and focus groups 10
3.2.3 Air measurements 11
3.3 Interventions 12
4 Results 13
4.1 Literature on tobacco use and control in closed settings 13
4.2 Visits to prisons abroad 13
4.3 Questionnaires 13
4.3.1 Prison A 13
4.3.2 Prison B 14
4.3.3 Prison C 14
4.3.4 Summary of main results 14
4.4 Qualitative data 16
4.4.1 Interviews (Prison A and B) and Focus group (Prison A) 16
4.4.2 Interviews Prison C 17
4.4.3 Summary of main results 17
4.5 Air measurements 19
4.5.1 Prison A 19
4.5.2 Prison B 19
4.5.3 Prison C 20
4.5.4 Summary of main results 20
4.6 Interventions 20
4.6.1 Prison A 20
4.6.2 Prison B 21
4.6.3 Prison C 22
4.6.4 Summary of main results 23
4.7 Networking 23
4.8 Communication of the results, academic activities and publications 23
4.9 Published articles 24
4.10 Review of articles 24
5 Discussion 25
6 Conclusion 27
Further documents available at request 28
References 28

Summary

International literature on tobacco use and control in prisons is scarce. It shows that in contrast to recent developments in the life outside prisons where a remarkable decline in smoking prevalence rates has been observed among the general population, no comparable changes occur within prisons and the prevalence of smokers remains high with 64 to over 90 percent depending on the country and the setting. This is due to the concentration in prisons of marginalized people who are socio-economically disadvantaged; suffer from psychiatric disease, alcohol and substance abuse and generally have poor access to health care. Worldwide, prisons themselves do offer little support to tobacco cessation and this support is not equivalent to the one available in the general community. Tobacco is given less priority than other health or addiction issues prevailing in prisons.

Internationally, tobacco use and control in prisons remains little explored by research and there was a need to assess the situation in closed settings in Switzerland. In a research-action study, we explored the issue of tobacco use and control in three Swiss prisons.

Our aims were to assess the situation regarding tobacco use, second hand smoke exposure (SHS) and tobacco control in those three settings (phase 1), then, based on those preliminary results and stakeholders opinions, to propose adequate and adapted interventions to increase tobacco control in the respective settings, and finally to evaluate those actions (phase 2). We used a variety of instruments to have both a broad and in depth perception of the studied subject: questionnaire surveys, interviews (180), focus groups (one) and air quality measurements.

The settings are located in various language regions of Switzerland[1] They showed different insights to be taken into account. Prison A and B had already implemented a smoke-free regulation, whereas this step had not occurred in Prison C. The prisons have different characteristics comprising pre-trial facilities and detention centres, as well as prisons that host only male prisoners, and prisons that host both male and female inmates.

In all 3 prisons, most inmates (58-83%) were smokers, and were highly dependent on tobacco (median 5-15 minutes to the first cigarette of the day). Prevalence of smokers among staff varied between 10-55%.

In Prison A, SHS exposure of inmates and staff was shown to be important. The regulation defining where smoking was allowed (in cells and outdoors) was implemented a few years before the start of the study, but was at that time only partially endorsed. Non-smoking cells are provided and individual staff members make efforts to answer inmates' requests of being protected against SHS. However, due to general overcrowding, their efforts have only a limited impact. Active smoking among inmates was tackled by training medical staff to propose smoking cessation in a more systematic manner, and by handing out flyers and booklets in different languages to inmates. Staff's smoking has been addressed during the study, albeit with some limitations since smoking cessation or information activities were not allowed to occur during working hours. Even if prison administrators recognize SHS

[1] To protect prisons from any form stigmatization we do not reveal here the prisons' names.

and smoking among prisoners and staff as problematic, those issues can often not be given very high importance for the time being. Prison administrators referred to other priorities and difficulties to be taken into consideration (such as for example overcrowding and the need to consider other important criteria when deciding cell attribution).
As for Prison B, SHS was not reported to be problematic since inmates are in individual cells and the indoor smoking ban (with the exception of the cells and outdoors) is well respected. Active smoking of inmates was addressed in the same way as in Prison A, and staff were offered counselling and assistance by a community organisation that engages in the prevention of tobacco related problems and offers counselling how to address smoking at the work place.

In Prison C, semi-directed interviews (a total of 80) and questionnaires with detainees and staff were conducted in 2009 before a change in smoke free regulation was planned to take place, and again six months after the change. We explored staff and prisoners' opinion and proposals regarding the regulation change. After the first round, a summary of the collected data was presented to the prison administrators in order to integrate stakeholder opinions in the design of new smoking regulations. In the second round, interviews explored satisfaction regarding the new regulation and the need for further changes. The need for a more uniform and stricter regulation was expressed by both groups of participants, with general opposition towards a total ban. Various proposals to reduce SHS were made. Limits to smoking reduction or cessation were (1) other drugs use, because these were considered more seriously than the tobacco dependence, (2) the predominance of the right of the majority (smokers) and (3) staffs' smoking. After the change, the new regulation was reported to be predominantly satisfactory. Participants reported a reduction in tobacco use and better protection of non-smokers. Air quality measurements took place before and after the smoke free regulation change, using two indicators (dust particles and nicotine concentration). Although concentrations of SHS decreased significantly after the change, protection was still incomplete and further action is necessary to improve indoor air quality.

The intervention in Prison C consisted mainly in the implementation of a new regulation (partial smoking ban) and showed that it is part of broader tobacco control policy, but insufficient if used as only means. Other measures such as staff training, information and education of inmates and tobacco cessation programmes are also necessary.

We recommend to further explore the subject of tobacco use in prisons and other closed settings, and to develop more thorough tobacco control in such settings by using the concept of the four elements of drug policy in Switzerland (prevention, therapy, harm reduction and law enforcement). This allows a comprehensive package to tackle SHS exposure and support smokers in their behavioural changes. Without a more intensive public health approach towards tobacco use in prisons, the situation will perpetuate itself in closed settings.

1 Introduction

More than nine million people are incarcerated around the world (International Centre for Prison Studies http://www.prisonstudies.org/info/worldbrief/). High tobacco smoking prevalence rates are reported among prisoners, ranging from 64 to over 90 percent depending on the country and the setting (Ritter, Stöver, Levy, Etter, & Elger, 2011). In contrast to recent developments in the life outside prisons where a remarkable decline in smoking prevalence rates have been observed in the general population (WHO, 2007a), almost no changes occurred within prisons.

Within prison grounds, where inmates are forced to spend most of their time indoors and where ventilation is often poor, the probability of being exposed to second-hand smoke (SHS) is high. This is damageable to health of both staff during their work and prisoners while incarcerated and creates a need for effective interventions to reduce involuntary health risks again to both detainees and staff.

Raising awareness among the public and opinion leaders about the risks of SHS is important in order to ensure that the public understands and supports legislative action (WHO, 2009). This can also be attained through research within the prison environment. Furthermore, the production of local epidemiological evidence is more effective in convincing politicians to act than statistics imported from other countries (WHO, 2007b).

Prisoners are educationally, socially, economically disadvantaged people (K. L. Cropsey, Jones-Whaley, Jackson, & Hale, 2010; Hartwig, Stöver, & Weilandt, 2008) (Lincoln, et al., 2009). They have poor health care habits and risky behaviours and tend to be more sick (Kauffman, Ferketich, & Wewers, 2008) (Binswanger, Krueger, & Steiner, 2009; MacAskill, 2008) (O'Neill, 2010).

A low socio-economic status is associated with smoking behaviours (Stuart, et al., 2006). Smoking is contributing to social exclusion, health disparities and poverty. Disadvantaged smokers are less likely to succeed in quitting than more privileged smokers (Bryant, Bonevski, Paul, O'Brien, & Oakes, 2010).

Health problems are considered to be part of potential barriers to successful reintegration when being released from prison. Smoking should be considered as a behaviour leading to health inequalities. A tobacco cessation programme can also be seen as a means of support for integration. The positive rewards from successful cessation can encourage exploring further changes (Kauffman, Ferketich, Murray, Bellair, & Wewers, 2010) (National Offender Management Service, 2004) (MacAskill, 2008).

Prevalence of mentally ill people in prisons is higher than among the general population and it continues to increase; the most common diseases being psychotic illness, depression and antisocial personality disorder (Eytan, et al., 2010).

Mentally ill or substance using detainees use tobacco as self-treatment. Various biological factors such as a possible reduction in negative symptoms, improvement in stress, anxiety and depression, enhanced metabolism of antipsychotic medications (Baker, et al., 2006) and increased effects of licit and illicit drug use (Awofeso, 2005)

have been described. Prisoners belong to more than one sub-group of marginalized populations with psychiatric disease, alcohol and substance abuse (Sieminska, Jassem, & Konopa, 2006).

Cigarettes have been described as a way of coping with boredom, deprivation, stress related to incarceration, and relieving anxiety and tension when making court appearances (Eldridge & Cropsey, 2009) (Douglas, Plugge, & Fitzpatrick, 2009; Papadodima, et al., 2010; Sieminska, et al., 2006) (MacAskill, 2008; Richmond, et al., 2009). Factors prompting cigarette smoking within prisons have been reported: stress, the missing of family and friends, lack of freedom, boredom, lack of activities, long hours indoors, and anxiety about the case and sentence (Sieminska, et al., 2006) (Department of Health and HM Prison Service, 2007; Kauffman, et al., 2008).

In a detention facility in the US, (200 imprisoned men, partial smoking ban), 70% reported a desire to quit with 63% mentioning that this was (very) likely within the next year. 64.3% had made an attempt to quit (at least 24 hours abstinence) prior to their arrest, “cold turkey” being used as the quitting method by 77.2%. 29% had also made an attempt to quit while incarcerated, with again “cold turkey” being the most widely used method. 10.6% reported successful cessation (length of cessation not mentioned) (Kauffman, Ferketich, Murray, Bellair, & Wewers, 2011). Female prisoners are also interested in quitting smoking while in prison. In the absence of any intervention, quit rates are low, but successful smoking cessation was possible when provided a state of the art smoking cessation treatment. The prevalence cessation rates were comparable to the rates seen in samples following similar smoking cessation interventions (K. Cropsey, et al., 2008).

Although the smoking issue is clearly an important public health matter in prisons, with high prevalence of smoking, interest to quit and attempts to do existing among prisoners and studies showing results similar to those obtained in other smoking cessation programmes, relatively few interventions have been developed so far. Access to support is restricted and clearly not equivalent to support available in the general community. Tobacco cessation programmes are given less priority than other health or addiction issues in prisons (Kauffman, et al., 2008) (Richmond, et al., 2009).

Regulations however have been implemented, either total or partial bans. The reasons for it are concerns about exposure to SHS, reduce prisoners’ health care expenditures, maintenance and cleaning costs, the risk of fires; fear of litigation) (Eldridge & Cropsey, 2009; Falkin, Strauss, & Lankenau, 1998; Kauffman, et al., 2008; Patrick & Marsh, 2001) (Vaughn & Del Carmen, 1993).

Total bans prevail in Canada and US for example (Hammond & Emmons, 2005; Kauffman, et al., 2008; Proescholdbell, Foley, Johnson, & Malek, 2008). In Europe, in contrast, even though smoking bans have been implemented in public places, workplaces and hospitals, including psychiatric hospitals (Etter, Khan, & Etter, 2008), partial smoking bans prevail in most prisons, and very few, if any, prisons are totally smokefree (Ritter, Stöver, et al., 2011).

The situation in Swiss prisons at the beginning of the study reported here was largely unknown regarding tobacco use, SHS and tobacco control. Tobacco control was expected to vary greatly depending on the regions, being in line with other great differences in prison health issues across the country (OFSP, 2012). In the Swiss

system, prison health relies on regional administration, with great variance of health systems across the regions. In some cantons, medical services depend on health administration, independently from judicial administration (as recommended by European soft law and the Swiss academy of medicine (ASSM, 2012), while in others, on the contrary, they are attached to the latter.

While in the general community in Switzerland, smokeless regulation is clear, well implemented and protects individuals and groups from SHS, there is no uniform smoking policy in Swiss prisons, as confirmed by our experience in this study. In the general community, tobacco regulations vary also regionally, in the absence of a national law regulating protection against SHS. In prisons, cells are considered private places and a right to smoke in privacy has been upheld (Swiss_Confederation, 2010).

Tobacco control in prison is not considered in the Swiss national strategy of tobacco (OFSP, 2008).

2 Objectives of the study

The aim of this research-action project was to evaluate to what extent inmates and staff are exposed to second-hand smoke and to propose, based on the results of the research, a prison adapted and ethically acceptable strategy to reduce SHS.

For this it was necessary to:

- Obtain data about the tobacco situation in Swiss prisons
- Evaluate the need and wish for change among staff and inmates by conducting qualitative and quantitative research with a sufficient response rate
- Address recommendations to reduce SHS exposure (both among staff and inmates)
- Evaluate the impact of the recommendations or the intervention implemented by the settings participating in the study.

3 Methods

Prof. Bernice Elger, MD, Universities of Basel and Geneva and Jean-François Etter, PhD MPH, University of Geneva conducted the project. In order to advise its implementation, a working group was set up. It united research and clinical staff from several Swiss Universities and from organisations for tobacco prevention: Prof. B. Elger, Prof. J.-F. Etter, Dr A. Eytan, Dr H. Wolff, Dr J.-P. Humair, C. Wahl Dr. J. Sommer, Dr C. Ritter, M. Kunz and D. Christie. This group has been meeting regularly all along the project.

The project started with separate meetings between prison directors, members of the prison's medical service and researchers from the involved universities, where the main parts of the project were discussed and agreed upon. Then the project was submitted to and approved by the competent cantonal ethics committee. The documents were translated to obtain versions in the main languages spoken in Switzerland (interview guides, questionnaires, information and consent form) adapted to the specific requirements of the prisons and submitted to the cantonal ethics committees.
The principal ethics committee (Leitkommission) was contacted again twice during the study for small amendments.

The data collection part of the study lasted two years (2009-2011). With locally diverse variations in dates due to specific constraints in the three settings, the general frame of the study was cut into three main periods:

- Baseline needs assessment phase (T1): first round of interviews and questionnaire surveys among all personnel and inmates of the three prisons; quality of air measurements.
- Intervention phase: proposals by researchers were made to the prison administrations, taking into account the stakeholder opinions collected in the first round and the characteristics of the participating settings.
- Evaluation phase (T2): second round of interviews and questionnaire surveys among all personnel and inmates of the three prisons; quality of air measurements.

We also included a literature review and the visits of various settings abroad, in order to acquire a sound knowledge of the matter addressed in this study.

3.1 Settings

We focused on three institutions that differ markedly from each other.
The three settings comprise remand as well as post-trial prisons and also prisons that house only male prisoners and a prison that houses male and female prisoners. Staffing in all three prisons depended on the prison size and the setting and there were more than 100 staff members in each of the two bigger facilities. Less than 8% of prisoners from the included prisoners are female.
The prison directors provided substantial support to the project. In meetings at the beginning of the study (between the director, members of the prison administration and from the research team and its collaborators), the main parts of the project were agreed upon and information about the project was disseminated in prisons through available resources such as meetings or written communications. We have been very careful not to place extra burden upon prison staff and administration and to avoid disrupting the normal functioning of the prison institutions.
Health staff in the three prisons is variably attached to cantonal or University structures as well as to the prison itself. Therefore, the health personnel works, based on the type of prison and cantonal organisation, either independently or somewhat independently from the prison administration.

3.1.1 Prison A

In prison A, work places are available for less than half of all detainees, comprising among others woodwork, food processing and mechanics. Since most inmates smoke, situations of non-smokers surrounded by smokers are common. Due to the insufficient working and occupational activities around half of the inmates are locked up in their cells 23 out of 24 hours. In this prison, administrators had introduced a smokefree regulation a few years before our study started. Smoking is allowed in the cells and outdoors.

3.1.2 Prison B

In Prison B, smoking is allowed in cells and in the central courtyard only. Working and occupational activities are somewhat better than in prison B, but not at all available to the extent offered in prison C.

3.1.3 Prison C

In prison C, work is mandatory for all detainees. A large variety of jobs is available, comprising woodwork, farming and animal caring, masonry, food processing, mechanics. During free time, various sport activities are available.
At arrival, they undergo evaluation of their competences during several days aiming at designing a personalised program with educational, integration and professional objectives to be accomplished during incarceration. During the time of the study, health objectives such as smoking cessation were not included among those objectives. The health of detainees is evaluated in the medical department.

Most detainees are allowed to move freely indoors and outdoors during the day, depending on their work assignment; at night, they are locked in individual cells.

The motivation for changing tobacco control was related to a new stricter cantonal (regional) law that prohibited smoking in enclosed working areas. The prison director was very interested in health improving activities and very open to collaborate with researchers in order to document SHS and propose an evidence-based strategy and smoke free regulation.

3.2 Data collection

No incentives, of financial or other kind, were given to participants.
We used various instruments to collect both quantitative and qualitative data: questionnaire surveys, interviews, focus groups, and air quality measurements.

3.2.1 Questionnaires

The questionnaires were anonymous and participation was voluntary. Research assistants distributed the questionnaires to prisoners after explaining the study. Since many prisoners were foreigners, the questionnaires were available in eight languages (German, French, English, Italian, Spanish, Russian, Serbo-Croat and Albanian). Prisoners answered the survey individually in their cells or in the medical service, or assembled in a common room. In most cases, prisoners answered themselves, but in a few cases, a research assistant, health staff or another prisoner assisted prisoners who had questions or had difficulty understanding the questions by themselves. After answering (or not) the questionnaires, prisoners gave them back in a sealed envelope to the research assistants or to the guards, or put them into a mail box at the medical service. This ensured that prison staff would not know whether a prisoner had answered or what they had answered.

Staff members received the questionnaires by internal mail or post and returned them to us by postal mail, thus, questionnaires completed by prison staff did not transit through the prison administration.

The questionnaires were self-administered. Preliminary results from the interviews at T1 were used to fine-tune them. In the first round questions covered demographics, smoking status, smoking behaviour, smoking cessation support received or provided at the prison, opinions about the smoking policy in the prison, specific aspects of smoking in prison environment, and exposure to SHS. In the second round, the questionnaires contained additional items on the intervention.

We used chi-square tests to compare proportions, Mann-Whitney U tests to compare medians and independent-sample t tests to compare means.

3.2.2 Interviews and focus groups

In one setting (Prison A), qualitative assessment was done using both focus groups and interviews. In the others, we used only interviews and not focus groups, mainly because of prisons' security regulations that made assembling larger groups difficult or impossible in these settings.

Recruitment and sampling varied in the three settings. Participant detainees were in general invited orally by medical or occupational staff, whereas prison managers invited staff in written to participate. The aim of our sampling was to collect information as representative as possible of the multiple and various aspects

regarding the context participants are living and working in, and to provide particular rich information (sufficient duration of incarceration to be able to analyse the matter for example) on the research subject. We intended to maximise the validity of our findings by covering multiple languages, cultural and age groups among prisoners, as well as diverse occupational areas, experience and position of responsibilities among staff, smokers and non-smokers. The number of participants was intentionally limited based on expected saturation, achievement of maximum variation and representation of the various groups as mentioned. Staff and detainees who volunteered for participation were consecutively appointed to the interview. The study was explained in a comprehensive and detailed way and participation was confirmed by providing a written informed consent. Two independent (one female qualified as a medical doctor and experimented in prison health and addictions, and one male qualified in tobacco cessation) multilingual research fellows (German, French and English) conducted the interviews.
Staff members and detainees (when duration of stay made it possible) who participated in the first round of interviews were invited to the second round.

We developed two different interview guides with open-ended questions, adapted to each round, with the help of tobacco experts. At T1 (and T2 when interviewees had not participated in the first round) issues covered were: description and opinion about the current regulation; proposals to reduce SHS (changes in regulation or interventions on individuals' smoking behaviour); opinions on obstacles to change. At T2, we addressed attitudes regarding the new regulation (acceptance, consequences), the intervention that was developed, and the need for further changes.

Data were anonymised in order to preserve the confidentiality of the participants and avoid that interviewees might feel pressured to express socially acceptable answers.
The independence of the research team was clearly underlined. Local staff provided the research fellows with help regarding the selection of participants and organisation of the appointments, and a summary of the collected data at T1 was going to be presented anonymously to the prison administrators.

We compared detainees and staffs' attitudes, taking into account their smoking status. We compared the situation inside prisons with the one prevailing in the general community. Our frame for analysis was that of a changing process, starting from the description of attitudes regarding a specific situation before the change (i.e the tobacco issue in this setting at T1), the proposal of changes, the factors that impede changes (fears, anticipated difficulties, and limits) or on the contrary that might facilitate them, and attitudes on the situation after the change (T2), including the necessity for further improvements.

3.2.3 Air measurements

Previous studies to measure air quality were done in the prisons in the US, but none used both indicators to assess indoor air quality:

- Particulate matter PM10 assessed with SidePark monitors (DataRAM PDR) placed in various locations. Those aerosol monitors measured the particles in real time.
- Nicotine concentrations in the ambient air, assessed with a passive sampling device called Monitor of Nicotine (MoNIC) constructed by, and validated at, the

laboratory of the Institute of Occupational Health (Lausanne, Switzerland) (Huynh, Moix, & Dubuis, 2008). These devices were placed in different locations. More details on the method are described elsewehre (Ritter, Huynh, Etter, & Elger, 2011).

Analysis was conducted at the Institute of Occupational Health (Lausanne).

3.3 Interventions

Research action would have theoretically comprised a diversity of interventions, depending on the characteristics of the settings and the respective results of the first round of the study. However, as independent research team, we only made proposal to the prison administration who had full decision making power. The research team was not directly involved in the implementation of the proposals.
For details regarding interventions, go to section 4.6 (see below: “Interventions”).

4 Results

4.1 Literature on tobacco use and control in closed settings

We identified 250 useful articles in several languages, all directly or indirectly related to tobacco use in prisons. Based on this work, a theoretical paper has been published (Ritter C, Stöver H, Levy M, Etter JF, Elger B. Smoking in prisons: the need for effective and acceptable interventions. J Public Health Policy. 2011 Feb;32(1):32-45. Epub 2010 Dec 16).

4.2 Visits to prisons abroad

Four prisons were visited (by D. Christie): one in France and three in Canada. The French one, near Grenoble, is a Maison d'arrêt. It loges remand and sentenced prisoners. A previous project to address tobacco smoking in this setting had recently failed, mainly because of the lack of in-house support.

In Ontario, Canada, the three visited settings are smokefree (under total ban). Meetings with federal government officials in Ottawa made the switch from smoking to non-smoking prisons in Canada understandable. It occurred in a two-stage process. The first stage was an indoor ban (length: one year). Inmates were instructed that they were no longer allowed to smoke in their cells and that the only authorized smoking area was outdoors. Then, in a second phase, the all (in and out) ban was implemented with remarkable success, according to their experience, which surprised both prison staff and detainees.

4.3 Questionnaires

4.3.1 Prison A

At T1 (2009), a total of 79 completed and usable questionnaires were received from prisoners and a similar number from prison staff. Response rates were lower than 50%, but this must be viewed in the context. We obtained authorization for only one distribution of the questionnaires due to related security aspects. The scientific literature (and our own experience) clearly states that several distributions and/or reminders are necessary to boost the response rate. Less than 5% of returned questionnaires were in languages other than French.

At T2, as the second wave of questionnaires was due to take place (October 2010), the prison authorities refused any further intervention outside of the medical service (due to overcrowding, understaffing, and a few violent incidents that occurred independently from our study). After negotiations, the directorate agreed to reconsider the participation in January 2011 and a compromise was found: questionnaires could be given to all inmates, but not to prison staff. This solution was acceptable for us since no particular intervention had been undertaken concerning prison staff (see below the section "Interventions"). The distribution of questionnaires to the inmates took place in spring 2011.

See section 4.3.4. Summary of Main results.

4.3.2 Prison B

See section 4.3.4. Summary of Main results.

4.3.3 Prison C

Questionnaires were addressed to all prisoners and staff. Approximately 40% of both groups participated in each round. The participation had to be actively encouraged to get satisfactory response rates. This was among others due to ongoing important changes in the prison regarding general organisation that occurred at the same time as the study, and in a particular context of understaffed professionals.

4.3.4 Summary of main results

Those results have been published in more detail (Etter JF, Ritter C, Christie DH, Kunz M, Rieder JP, Humair JP, Wolff H, Eytan A, Wahl C, Elger B. Implementation and impact of anti-smoking interventions in three prisons in the absence of appropriate legislation. Prev Med. 2012 Nov;55(5):475-81).

Opinion on smoke-free regulation
Across all prisons, in 2009 and 2011, most prisoners (57-78%) answered that the regulations about smoking were adequate, but in 2011, 36% of prisoners in Prison C said that they were too strict. A substantial minority of prisoners (12-45%) answered that the regulation was *not* respected and the least being in Prison A. In 2011, most prisoners in Prison C and Prison B (60-61%), but only 25% in Prison A, endorsed that: “smoking should be allowed in all cells” ($p<=0.006$). Most prisoners (65-96%) agreed with: “For some other prisoners, prohibition of smoking in cells would be very hard to bear”.

Most staff members in Prison B (88%) and Prison A (68%) said that the regulation was adequate, but 40% of staff members in Prison A said prisoners were not respecting it. In Prison C, more staff members considered the regulation adequate in 2011 (81%) than in 2009 (57%, $p=0.017$).

Prevalence of smoking and dependence
In all 3 prisons, most inmates (58-83%) were smokers, and were highly dependent on tobacco (median 5-15 minutes to the first cigarette of the day). Among prisoners who smoked, cig./day during the prison stay was the same as cig./day before incarceration ($t=1.6$, $p=0.11$). A few smokers said that before their current prison stay, they were either never smokers (0-11%) or former smokers (0-6%). A substantial minority of smokers (17-50%) seriously tried to quit during their current prison stay, or had decided to quit in the next 30 days (6-47%), but smokers were not very confident in their ability to quit (33-57% were sure to succeed if they tried to quit).

Table 1: Prevalence of smokers among prisoners and staff

	Prison C		Prison B		Prison A	
	2009	2011	2009	2011	2009	2011
Prisoners						
Intended sample, N	120	120	68	68	500	400
Participation rate, %	58	50	40	44	23	17
Smokers (daily and occasional) %	83	82	73	64	69	58
Staff						
Intended sample, N	120	120	35	35	235	0
Participation rate, %	43	40	77	63	54	0
Smokers (daily and occasional) %	26	10	45	55	34	Not measured

Among prisoners who smoked, cigarette consumption decreased from 20 to 17 cig./day between 2009 and 2011 in prison Prison C (p=0.01), but remained unchanged in the two other settings. Otherwise, we detected no change between 2009 and 2011 in smoking status, quit attempts, relapse to smoking, smoking initiation or relapse during imprisonment, motivation to quit and confidence in ability to quit.

Smoking cessation support

Among inmates at all prisons, most smokers (55-92%) reported having been asked whether they smoked by a physician or nurse during their current prison stay, but in Prison C and Prison A, only a minority (19-34%) reported having received medical help to quit (4-29%), smoking cessation medications (2-15%) or a self-help booklet (12-33%).

Among prisoners in Prison C, smokers were more likely to report having received medical support to quit smoking in 2011 (20%) than in 2009 (4%, p=0.012), whereas no change was observed in the two other settings. In all prisons in 2011, most prisoners (48-77%) answered that staff members should do more to help smokers quit. In 2011, only 21% of prisoners in Prison B and 16% in Prison A reported having received a smoking cessation leaflet at entry in the prison (whereas in principle, almost all should have received it).

In 2009, 83% of medical staff reported that they “sometimes” or “often” advised prisoners to quit smoking, and 67% that they “sometimes” or “often” helped them to quit. In 2011, these proportions were respectively 89% and 44% (p>=0.3 for change over time, all prisons merged).

Exposure to SHS

In Prison A, 64% of non-smokers shared a cell with smokers in 2009 and 46% in 2011 (p=0.18). In Prison A exposure to SHS took place mainly in cells, whereas in Prison C in 2009, it was mainly in common rooms and break rooms.

Prisoners in Prison C also reported substantial decreases in exposure to SHS between 2009 and 2011, in particular in common rooms (p<0.001), in indoor workplaces (p=0.001), in break rooms (p=0.004) and in the cafeteria (p=0.001).

In all prisons, staff members reported less exposure to SHS than prisoners. In Prison C decreases in exposure to SHS between 2009 and 2011 were reported, in particular in the cells sector ($p<0.001$) and in indoor workplaces ($p<0.001$). In staff members, the median duration of exposure to SHS decreased from 25 minutes/day in 2009 to 2 minutes in 2011 ($p<0.001$).

Cohabitation
Across all prisons in 2011, among prisoners, more non-smokers (70%) than smokers (41%, $p=0.012$) agreed that the cohabitation between smokers and non-smokers was "very difficult", that "tobacco smoke is a source of conflict with other prisoners" (63 vs. 28%, $p=0.001$), and that prisoners "should be better protected against SHS in prison" (70 vs 33%, $p=0.001$) (no change between 2009 and 2011).

4.4 Qualitative data

4.4.1 Interviews (Prison A and B) and Focus group (Prison A)

We report here first the number of interviews realised in Prison A and B.

Table 2: Number of interviews conducted

	Detainees	Staff
Prison A		
1st round	11	16
2nd round	12	12
Prison B		
1st round	11	14
2nd round	12	11
Total	46	53

A relatively high number of prisoners in Prison B declined participation. One possible reason is that the ethics commission did not accept financial compensation for prisoners during working time wasted by participation. Another reason might be that in Prison B prisoners have more time to move around indoors and therefore are less interested in diversion activities.

In Prison A, qualitative assessment was done using both focus groups and interviews.

One research assistant and a collaborator trained in tobacco control interventions animated the focus group (23 November 2009). Participants were: head warden and an administrative employee (both appointed by the director to be our contacts for this project), one other warden, one social worker, two medical doctors and two nurses.

Two questions were discussed:

- What is the situation at present in the prison; who smokes and where; is this problematic?
- What could be done to change or improve the situation?

Concerning the results of the interviews and the focus groups, we find a high overlap. Various propositions raised by the group had also been identified in the qualitative interviews (ideas that come up via two different methodologies may be qualified as more robust, i.e. more likely to be relevant, true and acceptable). Participants expressed the following main views:

- protecting non-smokers is an important principle and priority, also in prison;
- it is difficult to design measures for most of the inmates, especially for those that stay in the prison less than one month;
- it is difficult, if not almost impossible, to design measures that rely on external support after release from prison, especially for those the inmates tzat don't have an address in Switzerland (illegal immigrants);
- the change in smoking rules that took place a few years ago was accepted by the inmates (and prison personnel) because it was imposed from above and was part of a larger plan applied to all official cantonal buildings; members of the focus group were convinced that if the prison had decided on the measures itself there would have been a considerable uproar/backlash;
- free access of NRT patches has been attempted but was described as a major failure: inmates did not use them but stashed them away in their cells; it seems that they valued them because they didn't have any other possessions; for these reasons focus group members are unwilling to use free patches again.

  Because the topic did not emerge spontaneously, participants were asked to vote on the idea of creating non-smoking cells in the prison. Most voted in favour, but the building of a new prison was considered to be a better opportunity for doing that.

4.4.2 Interviews Prison C

Data collection was easy-going as regards interviews. We conducted 77 interviews (38 at T1 before the change of regulation and 39 at T2) with 58 different participants (six detainees and thirteen staff members participated in both rounds).

Table 3 Characteristics of respondents

	Detainees (N= 31)	Prison staff (N= 27)
Mean age (years)	35 (22-60)	46 (29-65)
Length of incarceration or employment	12 months (3-32)	11 years (3-22)
Tobacco smokers (%)	84	37
Non-smokers (%)	13	30
Former smokers (%)	3	33
Male (%)	100	67
Swiss nationality (%)	58	100

42% of the participating detainees are foreigners (from Turkey, Serbia, Kosovo, Bosnia, Germany, Portugal, Italy, Spain, Eritrea, Congo Kinshasa, Sri Lanka).

4.4.3 Summary of main results

Face-to-face interviews revealed an extremely rich amount of information that went

beyond our expectations.
The summary of results presented here focuses on the analysis of the interviews in Prison C. More results are currently being submitted for publication.

Involvement in the research
Participants of both phases generally commented the project, and the overwhelming majority of their opinion was positive with detainees and staff appreciating very much having been involved in the process and the possibility of expressing their own opinion and proposals of changes. Both detainees and staff showed curiosity and willingness to be informed about the results of the study. Participants expected concrete changes in smoke-free regulation and that the research would enable finding ways of motivating detainees to quit smoking.

Attitudes on regulation and tobacco control
Before the new smoke-free regulation, smoking was allowed in common indoor rooms and most working places. The need for a more uniform and stricter regulation was expressed by both groups of participants, with general opposition towards a total ban. Various proposals to reduce second-hand smoke were made. Expressed fears and difficulties regarding a stricter regulation were increased stress on detainees and strain on staff, and changes in social life. Limits to smoking reduction or cessation were other drugs use, considered more seriously than the tobacco dependence, the predominance of the right of the majority (smokers) and staffs' smoking.
After the change, the new regulation was reported to be predominantly satisfactory. Participants declared reduction in tobacco use and better protection of non-smokers. Work was reorganised and adapted to heavy smokers with an increased number of breaks. Sanctions were introduced and social life had moved to individual cells.
Prisoner and staff support uniform and stricter smoking regulations in prison as long as total bans are avoided and prison regulations remain comparable to levels of restriction in community. However, the debate must not focus only on regulation and sanctions, further developments in order to have a comprehensive tobacco control policy are necessary.

Specific functions of tobacco use in prisons
Detainees reported to smoke tobacco to obtain relieve from stress, tension, depression and anxiety. Tobacco is used to face the reality, feel pleasure, freedom, as a currency and to compensate the absence of other drugs. Some also smoke to follow the environmental trend or the majority.

Staff considered that tobacco was facilitating relations among detainees and regulating their emotions. It was also reported to be helping to mislead other smells

Table 4: Factors that were reported to increase the need to smoke in the prison environment (data from Prison C, prisoners)

	2009 N = 55
Boredom	53%, 29
Absence of freedom	47%, 26
Missing friends and relatives	35%, 19
Absence of sexual life	33%, 18
Lack of alcohol and drugs	16%, 8
Lack of cannabis	20%, 11

Uncertainty regarding the judicial situation	25%, 14
Situations that need to be resolved back to free life	18%, 10
Absence of perspective after liberation	13%, 7
Uncomfortable feelings about acts that conducted to incarceration	11%, 6
Conflicts with other detainees	6%, 3
Conflicts with staff	15%, 8

Cannabis use

We also analysed some confidential data regarding cannabis use. Results confirmed that it was perceived as a relatively frequent problem. It was felt as having an important function on individuals by reducing detainees' mental strain, and on the setting's ambiance by preventing violence, riots, and the consumption and trafficking of other illegal substances. Both among inmates and staff, some expressed the opinion that positive effects regarding cannabis use exceed the negative ones. We suggest that tackling cannabis consumption in prison needs to take into account those effects, and include harm reduction measures, tailored to the individual users and their therapeutic needs. Means others than substance or medication use are necessary to favour a calm and safe environment in prisons.

4.5 Air measurements

4.5.1 Prison A

At T1, fine particles ($PM_{2.5}$) levels in the air were ascertained at Prison A within the collaboration with the cantonal office for the environment. $PM_{2.5}$ captors were placed in three places in the medical sector. Measurement in areas accessible to inmates was not feasible due to worries regarding damages to the instruments. The average $PM_{2.5}$ concentrations for 24 hours were respectively 8.5, 16 and 22 micrograms per cubic meter. The last of these values lies over the limit for "good quality" air and is only considered "acceptable" by the EPA (U.S. Environment Protection Agency).

A collaboration with Prof. CK Huynh of the Institute for occupational health (IST) in Lausanne enabled us to go a step further and nicotine samplers were used to verify that the $PM_{2.5}$ levels measured in the medical sector were indeed attributable to tobacco smoke and not to another cause.

At T2 we used only the "MoNIC" badges. They were pasted on the wall (10 locations) or worn by prison staff during one week. Results revealed high rates of passive smoking in corridors and two places used for playing (ping-pong, weight lifting), with one showing levels up to the equivalent of 18 cigarettes smoked per day. This confirmed SHS exposure in areas legally defined as smoke-free.

4.5.2 Prison B

The smoking regulation is very well respected in this setting. During our visits there, no telltale smell or cigarette butts could be noticed in smoke-free areas. Given this situation, no measures of air quality were carried out, since it had been made clear from the onset that the canton's environment service would only make them in case of prior complaint about SHS.

4.5.3 Prison C

The partial smoking ban was followed by a decrease in nicotine concentrations in ambient air. These improvements can be attributed to the introduction of the smoking ban, since no other policy change occurred during this period.
We observed a significant improvement of nicotine concentrations in the air after the introduction of the smoking ban (before: 7.0 µg/m^3, after: 2.1 µg/m^3, difference 4.9 µg/m^3, 95 percent confidence interval for difference: 0.52 to 9.8, P = 0.03), but not in particulate matter PM10 (before: 0.11 mg/m^3, after: 0.06 mg/m^3, difference 0.06, 95 percent confidence interval for difference of means: - 0.07 to 0.19, P = 0.30).
Although this shows that concentrations of SHS decreased significantly, protection was still incomplete and further action is necessary to improve indoor air quality.
More details are available elsewhere (Ritter, Huynh, et al., 2011).

4.5.4 Summary of main results

The measures showed that staff and prisoners are exposed to SHS. The implementation of a partial ban regulation significantly improves the quality of air, however insufficiently, since the measures remain above comparable values outdoors.

4.6 Interventions

4.6.1 Prison A

The project in Prison A evolved somewhat slower than planned due to a very marked overpopulation of the setting during the study period with an unprecedented high workload on prison and medical staff. We are thankful to the Tobacco Control Fund for their flexibility to adapt the project timeline to this situation.

Intervention did not address the smoke-free regulation (partial ban), since it was already implemented. However, as showed by the results (questionnaires and air measurements) regulation is partially respected only.

Intervention consisted in training of health staff, information and education of prisoners and staff smoking.

i) <u>Training of Health Professionals</u>
With a view to launching a dynamic process, a clinical sub-group was formed at an early stage within the working group. Under the direction of the physician responsible for tobacco cessation at the closest available University Hospital, the medical intervention could be defined as followed: train health professionals of the prison health service in performing brief interventions to help inmates quit smoking, supported with counselling and pharmacological therapy. Successive drafts of this project have been discussed during working group meetings, and confronted with information coming from preliminary results of the first round, in a dynamic and iterative process. In particular, participants in the interviews and in the focus group were asked about their opinion about interventions aiming to help inmates quit smoking. In May 2010, the tobacco cessation expert from the University hospital conducted an in-depth training involving 25 health workers, including physicians, nurses and psychologists (two 1.5-hour sessions with 12-15 participants each time).

ii) Micro-counselling
In the first quarter of 2010, the research team developed a one-page-aid for tobacco cessation which became known as the “micro-counselling” tool. It is designed to be used in any consultation with smokers. Taking only 2-3 minutes, it helps all health professionals (clinicians, nurses, psychologists, psychiatrists) to evaluate the patient’s motivation to quit, as well as the degree of physical dependency, and provides guidance for administering pharmacological treatment in case of need, while ensuring sufficient motivation of the patient. Implementation started in May 2010 with the micro-counsel sheets, and also quit-smoking booklets provided by www.stop-tabac.ch and at-swiss in every relevant consultation room in the medical sector. Carbon copies were used in order to collect these sheets for statistical purposes, while the original remained in the patient file in order to fulfil its purpose as an aid towards tobacco cessation. Unfortunately, the sheet was only used in about 5% of the consultations, the reasons stated being mostly lack of time and of priority because other, more urgent problems had to be addressed at the time. It should be noted that during the summer of 2010 the high number of inmates increased the number of patients and therefore the pressure for the medical staff.
Nevertheless, the micro-counselling sheet has proven useful for at least some consultations and can be integrated permanently and routinely.

iii) Anti-smoking flyers
The prison authorities agreed to include an anti-smoking flyer that has the title “10 rules for successful smoking cessation” in the entry kit given to all incoming inmates (a total of 2000 flyers were distributed between June and September 2010).

iv) Counselling of prison staff
Involved tobacco sessation experts proposed to give presentations and to organise meetings either on-site or off-site for the benefit of prison staff. Because of the overcrowding the prison directorate decided to set strict priorities and was not able to find time for tobacco prevention and information sessions for the prison staff within the prison environment or during working hours. We are not aware of prison officers who used the offers to obtain the free counselling outside working hours.

4.6.2 Prison B

Interventions at Prison B are made difficult by the high turnover rate of prisoners (half of them stay less than 8 days).

All interventions and evaluations took place in Prison B a few months later than in Prison A. As in Prison A, intervention in Prison B did not address the already existing smoke-free regulation which was considered satisfactory. Intervention consisted in training of health staff, information and education of prisoners and staff smoking.

i) Micro-counselling and anti-smoking flyers
As in prison A, micro-counselling was implemented and anti-smoking flyers were distributed (500 flyers in October 2010).

ii) Counselling of prison staff
In September 2010, group interventions were proposed to all the smoking members of the personnel, a proposal highly welcomed by the prison director who is looking to cut costs by inciting his staff to quit smoking. In spite of repeated reminders and information, only one out of about 8 smokers was interested in this offer, for whom individual consultations were arranged.

4.6.3 Prison C

The data collection and intervention in Prison C took place in line with the proposed timeframe and has significantly benefited from the support of the prison direction and staff during the entire part of the study. The cooperation with the warden, who helped to coordinate the research in the field over the two years, was excellent. Various follow-up meetings with prison administrators in charge of the research project in the prison were organised all along the study, in order to discuss organisation matters, provisional results, and our recommendations. Final results were presented orally to the staff during their annual assembly in 2011.

We made six recommendations of intervention:

i. Change smoking regulation for a partial ban: we recommended regulation change towards a smoking ban in common enclosed rooms and during working time indoors
ii. Increase smoking cessation help intervention: we recommended to delegate smoking cessation support to nursing staff (medically assisted cessation support depended on the general practitioner in charge).
iii. Train staff in smoking cessation support
iv. Network with professionals in tobacco cessation support as potential trainers. Staff training was not allowed during working time by the direction of the prison and did not take place, which compromised the intervention partly.
v. Increase information to detainees about smoking (we furnished the prison library with books on smoking cessation, informed on web based cessation support, sent information about tobacco written by AT-Schweiz and Addiction Info Suisse
vi. Favour tobacco cessation support groups by a local NGO. It did not take place due to an insufficient number of participants.

The intervention phase, although the vocabulary might suggest it, does not design actions limited to the time of the study. On the contrary, the aim was to bring in long-term improvements following changes that occurred during the research, whose impact could already be measured partially at T2.

In practice, the intervention phase consisted mainly in the implementation (in November 2009) of a new smoke-free regulation (partial ban), taking into account the stakeholder opinions we had collected in the first round. To develop therapeutic activities oriented to smoking cessation and staff training, local actors were mobilised through the research fellow and prison administrators following our recommendations. However, practically, their efforts could be expected to be even more successful in the long term future. Indeed, during the study period prison actors indicated to have been limited by understaffing and it was therefore difficult for the directorate to support activities during the working time of prison staff. Smoking cessation activities will most probably be reinforced in the future, once major

difficulties with understaffing and other structural changes in the setting will have been resolved.

4.6.4 Summary of main results

The interventions were adapted to the settings and their needs revealed in the first round of assessment. In Prison C, the main focus was on regulation change, whereas in the two other institutions, since the smoke-free regulation was already established (although not fully respected), further aspects could be addressed, such as training of health staff, information and education of prisoners and staff smoking.

4.7 Networking

As shown by the results regarding the interventions that were proposed and developed to some extent, health staff in prison benefits significantly from cooperation with tobacco experts in the general community to address the tobacco issue in prisons. Regional and local networking in each setting is therefore of great importance.

Due to scarce to absent research in the issue of tobacco control in prison settings but important needs to intervene, our research rapidly allowed us to be involved in other settings, beyond the ones considered by this project.

In Switzerland, a bottom-up group working on health promotion in two prisons in the Canton de Neuchâtel was constituted around tobacco smoking (mandate to Catherine Ritter by the Regional Health service). Concrete interventions to decrease tobacco smoke were considered through interdisciplinary collaboration including prison staff, health staff in prison, local NGO (CIPRET) and public health authorities outside prison. Measurements of SHS exposure (using MoNic badges) were done.

C. Ritter also obtained a professional commitment to establish a research project on tobacco smoking in German prison during 2011 (Institut für Suchtforschung, University of Applied Sciences, Frankfurt am Main, Germany).

4.8 Communication of the results, academic activities and publications

We presented the main results of the study to the respective participants in each setting, as mentioned above under the results corresponding to the settings.

We used various opportunities to present our results, as we considered this an important way to sensitise professionals inside and outside prisons on the topic of tobacco use in closed settings.
Other occasions were:

- Presentation of quantitative results (Phase 1) at the Forensisch-Psychiatrischer Dienst (FPD), Universität Bern, Februar 24. 2010
- Presentation of results from phase 1 at the European congress « Gesundheit in Haft » (http://www.gesundinhaft.eu/), Hamburg, September 2010.
- Presentation of Poster « Tobacco prevention in prisons » **prized (2nd prize)** at the 12. Interdisziplinärer Kongress für Suchtmedizin (30. June - 02. Juli 2011 München, Germany).
- Oral presentation of results: Health in Prison and Throughcare: Provision and

continuity of care for those in the criminal Justice System, October 05 - 07, 2011, Abano Terme, Italy, http://www.throughcare2011.eu/

- Oral presentation of results at the Deutscher Suchtkongress 2011, 28.09-1.10.2011, Frankfurt am Main, www.deutscher-suchtkongress.de
- Two oral presentations of results to the 2e Conférence nationale sur la prévention du tabagisme 10. - 11. novembre 2011, Berne http://www.at-schweiz.ch/de/startseite/weiteres/tagungen.html

4.9 Published articles

1. La santé publique à l'interface des parcours de vie: l'exemple du tabac en milieu carcéral, Dépendances N° 39, 2009: http://www.ispa.ch/index.php?IDpub=1&langue=F&IDpubvis=1&pubnouv=1
2. Ritter C, Stöver H, Levy M, Etter JF, Elger B. Smoking in prisons: the need for effective and acceptable interventions. J Public Health Policy. 2011 Feb;32(1):32-45. Epub 2010 Dec 16.
3. Ritter C, Huynh CK, Etter JF, Elger BS. Exposure to tobacco smoke before and after a partial smoking ban in prison: indoors air quality measures. Tob Control. 2011 Aug 11. [Epub ahead of print] PMID: 21836161
4. Etter JF, Ritter C, Christie DH, Kunz M, Rieder JP, Humair JP, Wolff H, Eytan A, Wahl C, Elger B.Implementation and impact of anti-smoking interventions in three prisons in the absence of appropriate legislation. Prev Med. 2012 Nov;55(5):475-81.
5. Ritter C, Elger BS. Attitudes of detainees and prison staff towards tobacco control policy in Switzerland: A qualitative interview study. Health Policy. 2014 Mar;115(1):104-9.
6. Ritter C, Elger BS. Second-hand tobacco smoke in prison: tackling a public health matter through research. Public Health. 2013 Feb;127(2):119-24.
7. Ritter C, Broers B, Elger BS. Cannabis use in a Swiss male prison: qualitative study exploring detainees' and staffs' perspectives. Int J Drug Policy. 2013 Nov;24(6):573-8.
8. Ritter C, Stöver H, Elger BS: Rauchen in Gefängnissen: von der Forschung zu Lösungsstrategien. Suchtmagazin 2012;3-4:23-32.

4.10 Review of articles

Thanks to the expertise and publication in tobacco issue in prisons that was build up in this project, C. Ritter was invited to review three articles aimed to be published in peer reviewed journals in 2011: BMC Public Health, European Journal of Public Health, Nicotine and Tobacco Research.

5 Discussion

As expected from previous studies published in the international literature, prevalence of smoking is high among prisoners in Switzerland also, as shown by questionnaires and testified by interviewees.

In all prisons, the amount of smoking cessation support offered to smokers needs to be improved since, as reported by prisoners, it remained low even after the intervention, and a majority of prisoners in all three prisons agreed that: “prison staff should do more to help smokers quit”. Prisoners in Switzerland have access to medical care of high quality and medications are covered by the prison, by the public health authorities or by the prisoners’ health insurance for those who have one (Elger, 2008). Thus, imprisonment represents an opportunity to treat tobacco dependence, an opportunity that remains largely missed.

In all prisons, most prisoners said they feel they should be better protected against SHS.
In practice, in settings where individual cells are not available, even though staff makes efforts to bring non-smokers together, half of them shared the cell with smokers. Exposure to nicotine was confirmed by air measurements in all the settings. In Prison C our results also showed that a partial ban could significantly decrease SHS exposure. This again was confirmed by quantitative data (prisoners and staff reported less exposure to SHS in 2011 than in 2009 according to the questionnaires survey) and interviews. The participants also reported that a debate on tobacco issue - that was absent before the research - opened the discussion on drug use in general.

As data collected throughout this study showed significant complexity and interest far beyond our expectations, we were active in communicating the results as much as possible. One important observation we could make throughout this project was that experienced community professionals in tobacco intervention were little aware of the situation in prisons, and the overwhelming majority of professionals in prisons are not sufficiently trained in tobacco prevention and treatment measures in general. Our project helped both groups of professionals to exchange experiences and to meet occasionally through conferences and presentations. However, for many health care professionals in prisons access to scientific literature on site is limited. Therefore we found it important to (1) publish our results in peer reviewed journals, but also (2) to facilitate the access to our results and conclusions in ways adapted to prison professionals. The aim of our dissemination efforts continues to be the building of further bridges among prisons and tobacco specialists.

One of our main learning points concerned the relation between public health and intervention-research: there is an important need to tackle a public health issue such as tobacco prevention in prisons through research. Active involvement of stakeholders benefits public health promotion. Interviewing inmates and prison staff as part of a research-action is a way to facilitate changes and raise awareness on a public health matter. This is particularly of importance in prisons where debating about tobacco use is a complex and delicate task. Most prisoners and staff express fear of total ban or to be deprived of “one more/last” space of freedom. Approaching this subject through a research project allowed to have an objective debate and to

propose regulations that are fair and ethically acceptable to prisoners. Indeed participants, including many smokers, proposed smoke-free regulation and accept them as long as they are fair and comparable to regulation in the general community.

Furthermore, decisions in the field of psycho-active substance use are entangled with emotions. To conduct research in this field and to integrate the results in decisions are ways to bring objectivity and avoid partial opinions in the decision-making process prison administrators have to face. Participants were satisfied that we raised knowledge on which prison administrators could base their decisions.

On the side of the prisoners, involving them facilitates the understanding and the difference of other fellow prisoners. We believe that they are also empowered by participation. The process of integrating detainees' opinions in the process of change is of great importance in prisons where decisions are usually made by prison administrators with detainees having to follow the established rules. We believe that being given the opportunity to express their own opinions and to contribute their own analysis of a specific situation can reinforce their self-esteem as well as the ultimate acceptance of any changes.

Among the difficulties we encountered during the study, one is related to a positive and necessary aspect to conduct an independent and objective assessment, that is that our research assistants were not employed in the prisons were the studies were conducted, i.e, they were independent. This guarantees more objective results and confidentiality, but at the same time we had to rely on prison staff to organise most aspects of the study, and in particular the sampling of participants, direct contact with them or the distribution of questionnaires. With currently overcrowded and understaffed settings, regularly faced with security matters (violence, riots), research activities clearly represent an overload for prison staff. Researchers have to adapt themselves constantly to this reality and accept methodological limits (obtain lower response rates to surveys) and less efficient interventions. Indeed, as independent researchers, we were able to recommend some changes, but not to implement them. Therefore, recommendations were only partially attained by the end of the study period.

6 Conclusion

In spite of objectively difficult situations faced by the institutions, the objectives of this research-action project were mostly attained. Thanks to the complementary instruments (quantitative and qualitative data, air measurements) used in this study, we are able to have an extensive and more in depth comprehension of tobacco use and control in prisons. This was necessary given the lack of Swiss data in this field

We are however faced with a clear and urgent need for further studies in the prison setting, including studies that explore the relationships between tobacco addiction and other types of highly addictive consumptions such as cannabis and medication. This research has brought up knowledge that needs to be put in practice in order to propose smoking reduction and cessation programs that are adapted to prison population, to implement them and measure their efficiency.

Prison and health staff are facing chronic work overload that often allows too little opportunity to take a step back and analyse in depth the practices, build up knowledge and promote new ways of facing public health challenges. Indeed, professionals in prisons are supposed to apply the principle of equivalence, which means they should bring experiences conducted outdoors into prisons, as well and as extensively as they can. In the issue of tobacco use among prisoners, the other way round might be of great value to experts working in this field in the general community. Tobacco reduction programs, or cessation help conducted among prisoners, considered as the “hard core to cessation” people, can help the experts in tobacco issues outdoors to develop adapted offers to this group in the general community.

We recommend to further explore the subject of tobacco use and to develop more thoroughly its control in closed settings by using the concept of the four elements of drug policy in Switzerland (prevention, therapy, harm reduction and law enforcement)[2]. There is a need for a comprehensive package of activities to tackle SHS exposure and support smokers in their behavioural changes. Without a more intensive public health approach towards tobacco use in prisons, the situation will remain stable in closed settings, whereas it is decreasing in the general community. This inequality is not acceptable and should be addressed in the Swiss tobacco control policy. Prisoners belong to society and have to be considered along the public health issues prevailing for the community at large.

[2] www.psychoaktiv.ch, http://www.bag.admin.ch/themen/drogen/00042/00624/index.html?lang=en

Further documents available at request

- Copies of the published articles in international and national journals.
- Conference presentations: copies of posters and presentations on request.

References

ASSM. (2012). Annexe aux directives médico-éthiques «Exercice de la médecine auprès de personnes détenues» Conseils pratiques relatifs à l'application des directives.

Awofeso, N. (2005). Why fund smoking cessation programmes in prisons ? *BMJ, 330*, 852.

Baker, A., Ivers, R. G., Bowman, J., Butler, T., Kay-Lambkin, F. J., Wye, P., et al. (2006). Where there's smoke, there's fire: high prevalence of smoking among some sub-populations and recommendations for intervention. *Drug Alcohol Rev, 25*(1), 85-96.

Bern. (2009). [Order against second-hand smoking, Bern] Ordonnance sur la protection contre le tabagisme passif (OPTP).

Binswanger, I. A., Krueger, P. M., & Steiner, J. F. (2009). Prevalence of chronic medical conditions among jail and prison inmates in the USA compared with the general population. *J Epidemiol Community Health, 63*(11), 912-919.

Bryant, J., Bonevski, B., Paul, C., O'Brien, J., & Oakes, W. (2010). Delivering smoking cessation support to disadvantaged groups: a qualitative study of the potential of community welfare organizations. *Health Educ Res, 25*(6), 979-990.

Cropsey, K., Eldridge, G., Weaver, M., Villalobos, G., Stitzer, M., & Best, A. (2008). Smoking cessation interventions for female prisoners : adressing an urgent public health need. *Am J Public Health, 98 (10)*, 1894-1901.

Cropsey, K. L., Jones-Whaley, S., Jackson, D. O., & Hale, G. J. (2010). Smoking characteristics of community corrections clients. *Nicotine Tob Res, 12*(1), 53-58.

Department of Health and HM Prison Service. (2007). Department of Health and HM Prison Service, Acquitted - Best practice guidance for developing smoking cessation services in prisons. London. . from Retrieved 23. April 2010 from http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4005383

Douglas, N., Plugge, E., & Fitzpatrick, R. (2009). The impact of imprisonment on health: what do women prisoners say? *J Epidemiol Community Health, 63*(9), 749-754.

Eldridge, G. D., & Cropsey, K. L. (2009). Smoking bans and restrictions in U.S. prisons and jails: consequences for incarcerated women. *Am J Prev Med, 37*(2 Suppl), S179-180.

Elger, B. S. (2008). Towards equivalent health care of prisoners: European soft law and public health policy in Geneva. *J Public Health Policy, 29*(2), 192-206.

Etter, M., Khan, A. N., & Etter, J. F. (2008). Acceptability and impact of a partial smoking ban followed by a total smoking ban in a psychiatric hospital. *Prev Med, 46*(6), 572-578.

Eytan, A., Haller, D. M., Wolff, H., Cerutti, B., Sebo, P., Bertrand, D., et al. (2010). Psychiatric symptoms, psychological distress and somatic comorbidity among remand prisoners in Switzerland. *Int J Law Psychiatry, 34*(1), 13-19.

Falkin, G. P., Strauss, S. M., & Lankenau, S. E. (1998). Cigarette smoking policies in American jails. *American Jails 12*(3), 9-14.

Hammond, S. K., & Emmons, K. M. (2005). Inmate exposure to secondhand smoke in correctional facilities and the impact of smoking restrictions. *J Expo Anal Environ Epidemiol, 15*(3), 205-211.

Hartwig, C., Stöver, H., & Weilandt, C. (2008). Report on tobacco smoking in prison, Final report Work Package 7, Drug Policy and harm reduction, Universität Bremen.

Huynh, C., Moix, J., & Dubuis, A. (2008). [Development and application of the passive smoking monitor MoNIC] Développement et application du moniteur de tabagisme passif MoNic. *Rev Med Suisse, 6*, 430-433.

Kauffman, R. M., Ferketich, A. K., Murray, D. M., Bellair, P. E., & Wewers, M. E. (2010). Measuring tobacco use in a prison population. *Nicotine Tob Res, 12*(6), 582-588.

Kauffman, R. M., Ferketich, A. K., Murray, D. M., Bellair, P. E., & Wewers, M. E. (2011). Tobacco Use by Male Prisoners Under an Indoor Smoking Ban. *Nicotine Tob Res*.

Kauffman, R. M., Ferketich, A. K., & Wewers, M. E. (2008). Tobacco policy in American prisons, 2007. *Tob Control, 17*(5), 357-360.

Lincoln, T., Tuthill, R. W., Roberts, C. A., Kennedy, S., Hammett, T. M., Langmore-Avila, E., et al. (2009). Resumption of smoking after release from a tobacco-free correctional facility. *J Correct Health Care, 15*(3), 190-196.

MacAskill, S. (2008). Social marketing with challenging target groups: Smoking cessation in prisons in England and Wales. *International Journal of Nonprofit and Voluntary Sector Marketing, 13(3)*(Special issue: Social marketing), 251-261.

National Offender Management Service. (2004). Reducing Re-offending National Action Plan (NOMS).

O'Neill, B. (2010). Health Trainers in the Criminal Justice System A Strategy for Offender Health in the South West.

OFSP. (2008). Programme national tabac 2008 – 2012.

OFSP. (2012). Prison Health. *Sectra* (91).

Papadodima, S. A., Sakelliadis, E. I., Sergentanis, T. N., Giotakos, O., Sergentanis, I. N., & Spiliopoulou, C. A. (2010). Smoking in prison: a hierarchical approach at the crossroad of personality and childhood events. *Eur J Public Health, 20*(4), 470-474.

Patrick, S., & Marsh, R. (2001). Current tobacco policies in U.S. adult male prisons. *Soc Sci J, 38*, 27-37.

Proescholdbell, S. K., Foley, K. L., Johnson, J., & Malek, S. H. (2008). Indoor air quality in prisons before and after implementation of a smoking ban law. *Tob Control, 17*(2), 123-127.

Richmond, R., Butler, T., Wilhelm, K., Wodak, A., Cunningham, M., & Anderson, I. (2009). Tobacco in prisons: a focus group study. *Tob Control, 18*(3), 176-182.

Ritter, C., Huynh, C. K., Etter, J. F., & Elger, B. S. (2011). Exposure to tobacco smoke before and after a partial smoking ban in prison: indoors air quality measures. *Tob Control*.

Ritter, C., Stover, H., Levy, M., Etter, J. F., & Elger, B. (2011). Smoking in prisons: the need for effective and acceptable interventions. *J Public Health Policy, 32*(1), 32-45.

Sieminska, A., Jassem, E., & Konopa, K. (2006). Prisoners' attitudes towards cigarette smoking and smoking cessation: a questionnaire study in Poland. *BMC Public Health, 6*, 181.

Stuart, G. L., Meehan, J., Moore, T. M., Hellmuth, J., Morean, M., & Follansbee, K. (2006). Readiness to quit cigarette smoking, violence and psychopathology among arrested domestically violent men. *Am J Addict, 15*(3), 256-257.

Ordonnance sur la protection contre le tabagisme passif., 818.311 C.F.R. (2010).

Vaughn, M. S., & Del Carmen, R. V. (1993). Legal and policy issues from the Supreme Court's decision on smoking in prisons. *Federal Probation, 57*(3), 34-39.

WHO. (2007a). THE EUROPEAN TOBACCO CONTROL REPORT 2007. Geneva, World Health Organization. .

WHO (Producer). (2007b, 7. January 2010) Protection from exposure to second hand smoke, Policy recommendations. retrieved from http://whqlibdoc.who.int/publications/2007/9789241563413_eng.pdf

WHO (Producer). (2009, 7. January 2011) WHO FRAMEWORK CONVENTION ON TOBACCO CONTROL Guidelines for implementation

Article 5.3; Article 8; Article 11; Article 13. retrieved from http://whqlibdoc.who.int/publications/2009/9789241598224_eng.pdf