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Smoking bans: let's be comprehensive and not compromise health!

Carole Clair

Policlinique Médicale Universitaire, Lausanne, Switzerland

Exposure to second-hand smoke (also known as environmental tobacco smoke or passive smoke) has been well documented to have harmful effects on health, such as lung cancer, cardiovascular disease, respiratory disease, asthma or low birth weight in children of nonsmoking parents [1]. It is estimated that exposure to second-hand smoke is responsible for 1% of mortality worldwide and 47% of these deaths occur in women, 28% in children and 26% in men [2].

Individual and public health measures are known to be effective in decreasing smoking prevalence and its consequences on health. In 2003, the World Health Organization adopted the WHO Framework Convention on Tobacco Control (WHO FCTC) [3]. This treaty contains tobacco control measures and directives aimed at decreasing the offer of and demand for tobacco products, such as control of price and taxes, protection from second-hand smoke, and regulation of tobacco product disclosures, packaging and marketing. Along with price control, smoking bans are among the most effective measures.

Smoking bans aim to protect the public and employees from the harmful effects of second-hand smoke. They also have the potential to influence social norms and help smokers quit by making smoking less available. A recently updated Cochrane review, including 77 studies from 21 countries, assessed the effects of legislative smoking bans on morbidity and mortality from exposure to second-hand smoke, as well as on smoking prevalence [4]. The results showed a consistent positive impact of national smoking bans on cardiovascular health outcomes, in particular on admissions for acute coronary syndrome and on mortality from associated smoking-related illnesses. Effects on respiratory and perinatal health, as well on smoking prevalence, were less consistent.

Vicedo-Cabrera and colleagues have published in *Swiss Medical Weekly* a nationwide study assessing the impact on cardiorespiratory hospitalisation and mortality of the implementation of smoking bans in Switzerland [5]. They used a quasi-experimental design and interrupted time-series analyses, taking advantage of the Swiss federalist system. On May 2010, a national smoking ban was approved by the Swiss parliament. The ban covered indoor public places and workplaces, but was not a strict ban in the sense that it authorised several exceptions, such as dedicated smoking rooms or small smoking establishments. Before the ban was enforced, however, many cantons had already introduced their own, more or less restrictive smoking bans (the canton of Ticino was the first to apply a smoking ban, in 2007). After the federal law was enacted some cantons chose to adopt stricter bans, whereas some others only applied the less restrictive federal law. Therefore, the differential implementation of the smoking bans in Switzerland is a good opportunity to assess its effect on health outcomes for each canton separately, at different time points, controlling for existing time trends. The results for respiratory mortality are unequivocal with an 8.2% decrease in mortality associated with smoking bans for chronic obstructive pulmonary disease (COPD) and a 13.9% decrease for asthma. However, no significant changes in mortality for cardiovascular disease were observed. For hospitalisation, the results are disappointing at a first sight, as total rates of hospitalisation due to cardiovascular and respiratory diseases did not significantly change after the introduction of smoking bans. However, if we look closer at the results, the data suggest that hospitalisations for ischaemic heart disease decrease by 2.5% for all adults and 5.5% for the middle-aged group. Regarding children's health, the authors did not observe significant decrease in infant mortality and hospital admissions for respiratory disease after the smoking bans. Analyses also suggested that more restrictive bans have a greater effect on hospitalisation for ischaemic heart disease, and on hospitalisation and mortality from COPD than the federal law.

This study was based on health statistics from the Federal Office and only captures emergency hospital admissions, missing consultations for chronic diseases or health issues, such as asthma in children, not necessarily leading to a hospitalisation. Furthermore, it is difficult to measure precisely the effect of the smoking bans, owing to their progressive implementation in each canton. Finally, smoking bans might incompletely reflect exposure to second-hand smoke. Indeed, many individuals such as retired people, domestic workers or children might be exposed to SHS at home or in institutions. Because of these limitations, the analyses might underestimate the real impact of smoking bans on health.

The study clearly shows the impact of smoking bans on respiratory mortality. However, regarding cardiovascular mortality and hospitalisation for cardiopulmonary disease the impact of a smoking ban was less significant. So what conclusion should we draw? Do methodological issues bias the results toward the null or is the Swiss smoke-free legislation not restrictive enough, which explains why a lesser health impact than expected was observed in this study? Studies have suggested that comprehensive smoking bans have a greater impact on health [4, 6]. Switzerland voted for smoking bans with exceptions. Indeed, only 8 of the 26 cantons have nearly comprehensive smoking bans. In 2012,

the Swiss Pulmonary League, with many national activists for tobacco control, launched a constitutional initiative asking for a simple and comprehensive national indoor smoking ban. Unfortunately, 66% of Swiss citizens rejected this initiative [7]. If we hypothesise that the initiative had passed and that all cantons had implemented restrictive smoking bans, we could potentially have a further decrease in hospitalisations for acute myocardial infarct, from 2.5% (estimate based on this article) to 14% (estimate for places with comprehensive smoking bans [8]). This would represent approximately 2000 additional hospitalisations for acute myocardial infarction avoided in Switzerland per year. Switzerland has the potential to perform better in the field of tobacco control.

As a reminder, Switzerland is one of the few countries that has signed but not ratified the WHO FCTC treaty. At a European level, Switzerland is one of the poorer-performing countries the in application of public health policies [9]. It ranked 28/34 for smoke-free public places in 2013. And the story is about to be repeated. A new law proposal aimed at protecting the population from harmful effects of smoking (LpTab) includes, among others, measures to strengthen legislation on the sales and marketing of tobacco products. Even if the proposed law were considered as not comprehensive enough according to most national anti-tobacco experts, it has been rejected by the federal assembly, who asked for a revision of the law.

Moving toward comprehensive applications of public health measures along with easily accessible and affordable help for smoking cessation has the potential to decrease further tobacco use and its burden on health. Smoking prevalence, and morbidity and mortality attributable to smoking are still important in Switzerland. There is room for improvement in Swiss tobacco control measures.

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Correspondence:
Carole Clair, M.D., MSc, PD-MER
Policlinique Médicale Universitaire
Rue du Bugnon 44
CH-1011 Lausanne
carole.clair[at]hospvd.ch

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