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BRIEF REPORT

# Compliance with the smoking ban in Italy 8 years after its application

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**Abstract**
*Objectives* The aim of this paper is to report compliance with the smoking ban and the spread of smoke-free homes after 3–8 years since the Italian smoking ban implementation, according to the ongoing Italian surveillance system for behavioural risk factors (PASSI).
*Methods* PASSI is based on representative annual samples of the Italian population aged 18–69 years. We considered questions on smoking habits, self-reported compliance with the ban, and on smoke-free homes of 176,236 interviews conducted in 2008–2012.
*Results* Ninety percent of respondents in 2012 reported that the smoking ban was enforced in hospitality premises (HPs), with a significant 3 % increase from 2008. Similarly, 91.3 % in 2012 reported a high compliance in workplaces other than HPs, with a significant 5 % increase. Perception of compliance did not change among smokers and non-smokers. Seventy-eight percent of respondents in 2012 reported smoke-free homes, with a significant increase from 2008 to 2012.
*Conclusions* The high compliance with the ban that is still increasing even after 8 years since its implementation may partially have caused the concurrent increase in smoke-free homes.

**Keywords** Smoking ban · Second-hand smoke exposure · Italy · Hospitality premises · Workplaces · Smoke-free homes

On behalf of the PASSI Coordinating Group.

Members of the PASSI Coordinating Group are listed in the appendix.

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## Introduction

In Italy, the smoking ban in hospitality premises (HPs) and workplaces has become effective since January 2005 (President of Ministers' Council. Ordinance of the President of Ministers' Council, 23 December 2003). The law allows smoking in specifically dedicated areas, but <2 % of HPs have smoking rooms available because of the high costs and the difficulties in meeting the tight standards on air quality defined by the ban (Gorini et al. 2007).

Public opinion is a critical element for the successful implementation of the legislation (Braverman et al. 2010) and in the Italian context it was increasingly supportive (Gorini et al. 2007; Donnelly and Whittle 2008; Tang et al. 2003). A survey conducted in 2001 showed, in fact, that 83 % of Italians agreed with a smoking ban in public places (La Vecchia et al. 2001). According to similar post-ban surveys conducted in 2005 and 2006, respectively, 90 and 94 % of interviewees reported to be in favour of the smoking ban in HPs (Gallus et al. 2006, 2007. Furthermore, the Eurobarometer surveys found that within the European countries, Italy had the highest level of public support for smoking ban (90 %) (Eurobarometer 2006, 2009).

Immediately after the application of the smoking ban, several studies were carried out to evaluate the compliance

in HPs: in a 2005 survey, 87 % of respondents reported that customers complied with the ban (Gallus et al. 2007); another study showed a very limited proportion of cigarette smoking proofs (0.5 %) (Binkin et al. 2007). Four cross-sectional surveys, one before and three shortly after implementation of the law, were carried out amongst randomly selected samples of HPs owners: the percentages of smokers in HPs decreased from 31 % before the implementation of the law to 0.5 % afterwards (Ministry of Health, Center for Disease Control 2009).

In 2007, inspections by technicians of Italian local health units (LHUs) in about 300 public offices and almost 900 factories found people smoking, respectively, in 1.5 and 1.9 % of the site visits (Ministry of Health, Center for Disease Control 2009).

A survey on second-hand smoke (SHS) exposure in the workplaces was conducted in 2006 in two Italian cities, Florence and Belluno, reporting a percentage of 39 and 19 %, respectively, of workers who declared that smoking ban was not respected (Gorini et al. 2008a).

Other studies measuring concentrations of environmental nicotine or particulate matter in several Italian HPs were carried out before and after the ban. The results showed reductions in exposure to SHS ranging from 70 to 97 % (Gorini et al. 2008b; Valente et al. 2007; Protano et al. 2012).

The aim of this paper is to report compliance with the smoking ban and prevalence of smoke-free homes in Italy from 2008 to 2012, using data of the Italian behavioural risk factors surveillance system PASSI. This piece of work updates a previous paper reporting compliance with the ban in the first 2 years since the implementation of the ban (Gorini et al. 2007).

## Methods

PASSI is an ongoing surveillance system, coordinated by the Italian National Institute of Health (ISS) and supported by the Italian Ministry of Health. It provides prevalence estimates for the main behavioural risk factors for chronic diseases and the adherence to some important preventive measures, allowing geographic differences and time trends to be evaluated. The characteristics of this system have been described elsewhere (Baldissera et al. 2011).

Briefly, the unit of data collection for PASSI is the local health unit (LHU). Each of the 20 Italian regions comprises 1–22 LHUs in charge to provide primary health care to the entire population. A sample of people aged 18–69 years, stratified by gender and age group, is randomly selected each month from the list of residents registered in the unit. The size of each age–gender specific stratum is proportional to the demographic composition of the local population. Specially trained personnel from the public health departments of the LHUs interview sampled people by telephone, using a standardized questionnaire. Health and prevention behaviours were investigated: self-perceived health and quality of life, self-reported depressive symptoms, smoking habits and exposure to SHS, alcohol consumption, diet and nutritional status, physical activity, cardiovascular risk factors, participation in national preventive programmes, i.e. cancer screening and vaccinations, road safety and domestic injuries. Socio-demographic variables are recorded too.

Exposure to SHS is obtained asking participants whether in their experience the smoking ban is fully/almost fully enforced (hereinafter: smoking ban implemented or enforced), partially/or not enforced at all in HPs and workplaces attended in the last 30 days. Exposure to SHS at home is investigated too, asking interviewees if smoking is allowed in their homes (totally or partially banned or no restrictions at all).

Data from the interviews are anonymized and electronically recorded in a national database. Since 2008 all the Italian regions have been participating in the surveillance system. The total number of involved LHUs increased from 84 % in 2008 to 92 % in 2012. The gender and age distribution of the respondents is comparable to that determined by the National Statistics Institute (ISTAT) (Baldissera et al. 2011).

Data quality is routinely monitored. PASSI adopted the American Association for Public Opinion Research (AAPOR) guidelines to calculate outcome rates (American Association for Public Opinion Research 2008). Since the beginning of data collection, the response rate calculated according to the AAPOR RR4 standard has remained above 80 % at the national level; it was 84 % in 2012.

Between 2008 and 2012 a total of 187,865 people have been interviewed (about 37,000 persons per year). For the current analysis only LHUs participating in the entire 5-year period were considered ($N = 176{,}236$).

Yearly proportions of the above-mentioned indicators and 95 % confidence intervals (95 % CI) were estimated overall, by geographical macro-areas (north, centre, south and major islands) and by smoking status. Temporal trends were evaluated through the Chi-square test for trend and percentage relative increases from 2008 to 2012 were also calculated. The software STATA 11 was used for the analyses.

## Results

The proportion of people reporting the smoking ban enforcement in HPs increased by 3 % ($p$ for trend $<0.0001$), from 86.9 % (95 % CI: 86.4–87.3 %) in 2008 to

89.8 % (95 % CI: 89.3–90.3 %) in 2012. This tendency is observable in all three Italian geographical macro-areas, with the highest increase in the south (6 %), compared to the centre (4 %) and to the north (2 %). However, a significant geographical gradient north–south was recorded each year, with the highest levels of compliance in HPs in the north (Table 1).

Smoking ban observance in workplaces grew overall by 5 % ($p$ for trend <0.0001), from 87.0 % (95 % CI: 86.4–87.6 %) in 2008 to 91.3 % (95 % CI: 90.7–91.9 %) in 2012. Considering the three macro-areas separately, the growth was more evident in the central and southern Italy (8 and 6 %, respectively) compared to the northern part (3 %). A significant north–south gradient was observed for this indicator as well, even if significant differences were not recorded between the central and southern regions (Table 1).

The percentage of respondents living in smoke-free homes had a 9 % increase ($p$ for trend <0.0001), from 71.6 % (95 % CI: 71.0–72.2 %) in 2008 to 78.3 % (95 % CI: 77.6–78.9 %) in 2012. This rise was 7 % in the north and even higher in the centre and in the south (11 and 12 %, respectively). The highest and lowest proportions of smoke-free homes were observed in northern and central Italy, respectively (Table 1).

Smoking ban enforcement in HPs was reported differently according to the smoking status of respondents: smokers tend to recall the compliance with the ban more frequently than never and former smokers (92.3 %; CI 95 %: 91.3–93.2 % vs. 88.8 %; CI 95 %: 88.1–89.4 % in

**Table 1** Proportions (percentages and corresponding 95 % CI) of respondents reporting that the smoking ban was fully/almost fully implemented in hospitality premises and workplaces and that they lived in smoke-free homes, Italy, PASSI survey (Italian behavioural risk factor surveillance system), 2008–2012

| | 2008 | 2009 | 2010 | 2011 | 2012 | Relative increase (2008–2012) (%)[a] |
|---|---|---|---|---|---|---|
| Compliance with the ban in hospitality premises (% of respondents) | | | | | | |
| Northern Italy | 92.7 (92.2–93.2) | 93.6 (93.1–94.0) | 94.0 (93.5–94.4) | 94.4 (93.9–94.8) | 94.5 (94.1–94.9) | 2 |
| Central Italy | 87.1 (86.1–87.9) | 87.6 (86.3–88.8) | 87.6 (86.7–88.4) | 90.1 (89.4–90.9) | 90.6 (89.9–91.3) | 4 |
| Southern Italy and islands | 78.4 (77.2–79.6) | 77.6 (76.3–78.9) | 79.4 (78.2–80.7) | 80.9 (79.8–82.1) | 83.3 (81.9–84.6) | 6 |
| Italy overall | 86.9 (86.4–87.3) | 86.9 (86.3–87.4) | 87.6 (87.1–88.1) | 88.8 (88.3–89.3) | 89.8 (89.3–90.3) | 3 |
| Compliance with the ban in workplaces (% of respondents) | | | | | | |
| Northern Italy | 90.2 (89.5–90.9) | 91.0 (90.3–91.6) | 91.9 (91.3–92.5) | 92.1 (91.4–92.7) | 93.0 (92.4–93.6) | 3 |
| Central Italy | 84.5 (83.4–85.7) | 85.9 (84.1–87.6) | 88.6 (87.6–89.5) | 90.2 (89.3–91.1) | 91 (90.1–91.8) | 8 |
| Southern Italy and islands | 83.7 (82.1–85.2) | 85.6 (84.1–86.9) | 86.3 (84.9–87.6) | 87.1 (85.7–88.3) | 89.0 (87.3–90.4) | 6 |
| Italy overall | 87.0 (86.4–87.6) | 88.2 (87.5–88.8) | 89.5 (88.9–90.0) | 90.2 (89.6–90.7) | 91.3 (90.7–91.9) | 5 |
| Respondents living in smoke-free homes (%) | | | | | | |
| Northern Italy | 76.3 (75.5–77.1) | 78.2 (77.5–78.9) | 79.3 (78.5–80.0) | 80.0 (79.2–80.7) | 81.5 (80.8–82.2) | 7 |
| Central Italy | 67.2 (66.0–68.4) | 69.3 (68.1–70.5) | 71.4 (70.3–72.5) | 73.7 (72.6–74.7) | 74.3 (73.2–75.3) | 11 |
| Southern Italy and islands | 68.6 (67.3–69.9) | 70.1 (68.9–71.4) | 73.7 (72.4–75.0) | 75.4 (74.1–76.5) | 77.1 (75.7–78.5) | 12 |
| Italy overall | 71.6 (71.0–72.2) | 73.4 (72.7–74.0) | 75.5 (74.9–76.1) | 76.9 (76.3–77.4) | 78.3 (77.6–78.9) | 9 |
| Total number of interviews (only local health units participating annually in the surveys in 2008–2012) | 36,362 | 37,404 | 34,548 | 34,753 | 33,169 | 176,236 |

[a] Percent relative increase from 2008 to 2012 $(\text{proportion}_{2012} - \text{proportion}_{2008})/\text{proportion}_{2008}$

2012), while the smoking status of interviewees is not associated with the recalled smoking ban enforcement in workplaces (91.1 %; CI 95 %: 90.0–92.1 % of smokers vs. 91.4 %; CI 95 %: 90.7–92.1 % of non-smokers in 2012).

Never and former smokers reported to live in smoke-free homes more frequently than smokers (87.7 %; 95 % CI: 87.1–88.3 % vs. 54.1 %; 95 % CI: 52.7–55.6 % in 2012). From 2008 to 2012, a statistically significant increase of smoke-free homes was observed both among smokers (14 %) and non-smokers (6 %) (Table 2).

## Discussion

The results from PASSI surveillance system showed a high and increasing compliance with the ban, both in HPs and workplaces even 8 years after the smoking ban implementation, as well as an increase of the percentage of smoke-free homes, higher in smokers than in non-smokers.

These results are fairly consistent with the DOXA surveys and the discrepancies could be explained by differences in survey design and characteristics, such as different age distribution of the interviewed population. The 2005–2008 DOXA surveys showed percentages of enforced smoking ban in HPs and workplaces smaller than PASSI. Moreover, DOXA registered a significant reduction of compliance in HPs from 90.5 to 83.9 % and an unchanged proportion of people reporting the smoking ban enforcement in workplaces (about 75 % in all 2005–2008 surveys) (Tramacere et al. 2009).

Findings from the 2010 DOXA survey are more similar to those from PASSI: DOXA reported, in fact, 10.2 % of non-smokers exposed to SHS in public places (Martínez-Sánchez et al. 2012), which was a value congruent with PASSI 2010 (ban compliance was 88 % in HPs and 90 %in workplaces) (Table 1). Our figures show also a higher compliance in northern and central Italy compared to the south and this geographical pattern occurred in the 2005–2011 DOXA surveys too (Tramacere et al. 2009; Martínez-Sánchez et al. 2012, 2013).

PASSI data are coherent with the 2012 Eurobarometer survey, which reported 9 and 11 % of interviewed Italians who noticed people smoking, respectively, in HPs and workplaces in the last 6 months (Eurobarometer 2012).

The results of inspections and site visits for the enforcement of the smoking ban are roughly consistent with the data reported above. A recent study of the Italian Centre for Disease Control (CCM) monitored the compliance with the smoking ban in 1,298 HPs, 693 workplaces, and 2,404 areas in hospitals and medical centres in nine Italian regions from 2010 to 2012 (Russo et al. 2012). People smoking cigarettes were found in 2 % of hospitals, medical centres and workplaces, and in 1 % of HPs. Moreover, in 2012, the Health Investigation Department of the Italian Police (NAS) carried out 3,575 random site visits for monitoring the smoking ban compliance in public places (airports, train stations, schools and universities, HPs, hospitals, museums, penny arcades): 1.5 % of the sites were found to have people smoking and 3.0 % not complaining with the required no-smoking signs.

**Table 2** Proportions (percentages and corresponding 95 % CI) of respondents by smoking status reporting that the smoking ban was fully/almost fully implemented in hospitality premises and workplaces and that they lived in smoke-free homes, Italy, PASSI survey (Italian behavioural risk factor surveillance system), 2008–2012

| | 2008 | 2009 | 2010 | 2011 | 2012 | Relative increase (2008–2012) (%)[a] |
|---|---|---|---|---|---|---|
| Compliance with the ban in hospitality premises (% of respondents) | | | | | | |
| Smokers | 90.8 | 90.2 | 90.2 | 91.0 | 92.3 | 2 |
| | (90.0–91.5) | (89.4–91.0) | (89.3–91.0) | (90.1–91.8) | (91.3–93.2) | |
| Never and former smokers | 85.2 | 85.5 | 86.5 | 87.9 | 88.8 | 4 |
| | (84.5–85.8) | (84.7–86.2) | (85.9–87.1) | (87.3–88.5) | (88.1–89.4) | |
| Compliance with the ban in workplaces (% of respondents) | | | | | | |
| Smokers | 87.0 | 87.5 | 88.7 | 89.5 | 91.1 | 5 |
| | (85.9–88.0) | (86.4–88.5) | (87.6–89.7) | (88.5–90.5) | (90.0–92.1) | |
| Never and former smokers | 87.0 | 88.5 | 89.9 | 90.5 | 91.4 | 5 |
| | (86.3–87.8) | (87.6–89.3) | (89.2–90.5) | (89.8–91.1) | (90.7–92.1) | |
| Respondents living in smoke-free homes (%) | | | | | | |
| Smokers | 46.5 | 48.7 | 50.9 | 51.3 | 54.1 | 14 |
| | (45.2–47.7) | (47.5–49.9) | (49.6–52.2) | (50.1–52.6) | (52.7–55.6) | |
| Never and former smokers | 82.3 | 83.3 | 85.3 | 87.2 | 87.7 | 6 |
| | (81.7–82.9) | (82.7–83.9) | (84.7–85.9) | (86.6–87.7) | (87.1–88.3) | |

[a] Percent relative increase from 2008 to 2012 $(\text{proportion}_{2012} - \text{proportion}_{2008})/\text{proportion}_{2008}$

Since 2005 within the over 25,000 site visits conducted by NAS, a high compliance with the smoking ban was detected. Fines for not respecting smoking ban ranged between a maximum of 5.6 % in 2009 and a minimum of 3.0 % in 2012. Similarly, the proportions of fines for lack or incorrect use of no-smoking signs ranged between a maximum of 3.6 % in 2009 and a minimum of 1.5 % in 2012 (Diomeda 2012).

As already demonstrated in literature (Moore et al. 2012), the perceived compliance with the ban in HPs and workplaces is similar between smokers and non-smokers. In the 2008–2012 PASSI, this finding was verified only for the smoking ban enforcement in workplaces; on the contrary, recalling compliance with the ban in HPs differed according to the smoking status of respondents (Table 2).

After the implementation of the nation-wide smoking ban, the prevalence of smoke-free homes increased substantially (Gallus et al. 2011; IARC Handbooks of Cancer Prevention, Tobacco Control 2009). As highlighted in the Eurobarometer 2008 survey, there was a strong correlation between the proportion of respondents exposed to SHS at work and the proportion of those exposed to SHS at home (Eurobarometer 2009). PASSI surveillance showed that 78.3 % of the respondents adopted smoke-free homes in 2012, and this percentage showed a 9 % increase since 2008 (Table 1). Also these results are consistent with those from DOXA surveys where the proportion of people reporting indoor smoking allowed only to guests decreased from 43.1 % in 2006 to 22.9 % in 2012 (Martínez-Sánchez et al. 2012).

One limitation of the study based on self-reported data is a potential bias that could affect the validity and reliability of the information gathered. Anyway, surveillance systems like PASSI have been shown to be reliable for making comparisons between different sub-populations and geographical areas and for highlighting temporal trends (Pierannunzi et al. 2013). PASSI design, modelled after the American BRFSS (Behavioural Risk Factor Surveillance System), has ensured the implementation of a structured system with some strengths, such as a sampling frame assuring a high coverage of the population, a large sample size, standardized methods, continuous data collection and monitoring of data quality and performances (Baldissera et al. 2011). Because of these features, PASSI has been able to record even swift changes in behaviours and attitudes of the population (Ferrante et al. 2011).

## Conclusions

This paper shows a high and increasing compliance with the ban, both in HPs and in workplaces even 3–8 years after the smoking ban implementation. The high compliance with the ban may induce the increase of smoke-free homes, as recorded by 2008–2012 PASSI both for smokers and non-smokers homes. These encouraging results demonstrate that appropriate regulatory measures, like the smoking ban, have important and long-lasting effects on people's behaviours, giving support to the efforts of governments and public health agencies to promote healthy lifestyles.

## Appendix

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## References

American Association for Public Opinion Research (2008). Standard definitions: final dispositions of case codes and outcome rates for surveys. In: 5th edn. Lenexa (KS). http://www.aapor.org/AM/Template.cfm?Section=Standard_Definitions&Template=/CM/ContentDisplay.cfm&ContentID=1273. Accessed 30 July 2013

Baldissera S, Campostrini S, Binkin N et al (2011) Features and initial assessment of the Italian behavioral risk factor surveillance system (PASSI), 2007–2008. Prev Chronic Dis 8:A24

Binkin N, Perra A, Aprile V, D'Argenzio A, Lopresti S, Mingozzi O, Scondotto S (2007) Effects of a generalised ban on smoking in bars and restaurants, Italy. Int J Tuberc Lung Dis 11:522–527

Braverman MT, Aarø LE, Bontempo DE, Hetland J (2010) Bar and restaurant workers' attitudes towards Norway's comprehensive smoking ban: a growth curve analysis. Tob Control 19:240–247. doi:10.1136/tc.2009.033845

Diomeda A. 2012. Seminario conclusivo del progetto "Definizione e implementazione di un sistema di monitoraggio del rispetto della normativa sul fumo in Italia". L'attività del Comando Carabinieri per la tutela della Salute per il monitoraggio dell'art. 51 Legge 16 gennaio 2003 http://www.salute.gov.it/imgs/C_17_newsAree_2405_listaFile_itemName_3_file.pdf. Accessed 30 July 2013

Donnelly P, Whittle P (2008) After the smoke has cleared reflections on Scotland's tobacco control legislation. Public Health 122:762–766. doi:10.1016/j.puhe.2008.03.003

Eurobarometer (2006). Attitudes of Europeans towards tobacco. Special Eurobarometer 239. http://ec.europa.eu/health/ph_information/documents/ebs_239_en.pdf. Accessed 30 July 2013

Eurobarometer (2009) Survey on Tobacco. Analytical report. http://ec.europa.eu/public_opinion/flash/fl_253_en.pdf. Accessed 30 July 2013

Eurobarometer (2012). Attitudes of Europeans towards tobacco. Special Eurobarometer 385. http://ec.europa.eu/public_opinion/archives/ebs/ebs_385_en.pdf. Accessed 30 July 2013

Ferrante G, Baldissera S, Moghadam PF, Carrozzi G, Trinito MO, Salmaso S (2011) Surveillance of perceptions, knowledge, attitudes and behaviors of the Italian adult population (18–69 years) during the 2009–2010 A/H1N1 influenza pandemic. Eur J Epidemiol 26:211–219. doi:10.1007/s10654-011-9576-3

Gallus S, Zuccaro P, Colombo P, Apolone G, Pacifici R, Garattini S, La Vecchia C (2006) Effects of new smoking regulations in Italy. Ann Oncol 17:346–347 Epub 2005 Nov 7

Gallus S, Zuccaro P, Colombo P, Apolone G, Pacifici R, Garattini S, Bosetti C, La Vecchia C (2007) Smoking in Italy 2005–2006: effects of a comprehensive National Tobacco Regulation. Prev Med 45:198–201 Epub 2007 Mar 31

Gallus S, Tramacere I, Boffetta P, Fernandez E, Rossi S, Zuccaro P, Colombo P, La Vecchia C (2011) Temporal changes of underreporting of cigarette consumption in population-based studies. Tob Control 2011(20):34–39

Gorini G, Chellini E, Galeone D (2007) What happened in Italy? A brief summary of studies conducted in Italy to evaluate the impact of the smoking ban. Ann Oncol 18:1620–1622. doi:10.1093/annonc/mdm279

Gorini G, Gasparrini A, Tamang E et al (2008a) Prevalence of second-hand smoke exposure after introduction of the Italian smoking ban: the Florence and Belluno survey. Tumori 94:798–802

Gorini G, Moshammer H, Sbrogiò L et al (2008b) Italy and Austria before and after study: second-hand smoke exposure in hospitality premises before and after 2 years from the introduction of the Italian smoking ban. Indoor Air 18:328–334. doi:10.1111/j.1600-0668.2008.00534.x

IARC Handbooks of Cancer Prevention, Tobacco Control (2009). Evaluating the effectiveness of smoke-free policies, vol 13. International Agency for Research on Cancer, Lyon, France. http://www.iarc.fr/en/publications/pdfs-online/prev/handbook13/handbook13.pdf. Accessed 30 July 2013

La Vecchia C, Garattini S, Colombo P et al (2001) Attitudes towards smoking regulation in Italy. Lancet 358:245

Martínez-Sánchez JM, Gallus S, Zuccaro P, Colombo P, Fernández E, Manzari M, La Vecchia C (2012) Exposure to secondhand smoke in Italian non-smokers 5 years after the Italian smoking ban. Eur J Public Health 22:707–712. doi:10.1093/eurpub/ckr156

Martínez-Sánchez JM, Blanch C, Fu M, Gallus S, La Vecchia C, Fernández E (2013) Do smoke-free policies in work and public places increase smoking in private venues? Tob Control. doi:10.1136/tobaccocontrol-2012-050877

Ministry of Health, Center for Disease Control (2009). Attività per la prevenzione del tabagismo. Rapporto 2009. http://www.ccm-network.it/documenti_Ccm/pubblicazioni/fumo_ministero_09.pdf. Accessed 30 July 2013

Moore K, Borland R, Yong HH, Siahpush M, Cummings KM, Thrasher JF, Fong GT (2012) Support for tobacco control interventions: do country of origin and socioeconomic status make a difference? Int J Public Health 57:777–786

Pierannunzi C, Hu SS, Balluz L (2013). A systematic review of publications assessing reliability and validity of the Behavioral Risk Factor Surveillance System (BRFSS), 2004–2011. BMC Medical Research Methodology 13:49. http://www.biomedcentral.com/1471-2288/13/49. Accessed 30 July 2013

President of Ministers' Council. Ordinance of the President of Ministers' Council, 23 December 2003. http://www.salute.gov.it/imgs/C_17_normativa_446_allegato.pdf. Accessed 30 July 2013

Protano C, Andreoli R, Manini P, Vitali M (2012) How home-smoking habits affect children: a cross-sectional study using urinary cotinine measurement in Italy. Int J Public Health 57:885–892

Russo F, Michieletto F, Tagliapietra L, Marcolina D, Bino E (2012). Monitoraggio dell'osservanza della normativa inerente il divieto di fumare negli ambienti di vita e di lavoro. Risultati. http://www.salute.gov.it/imgs/C_17_pubblicazioni_1898_allegato.pdf. Accessed 30 July 2013

Tang H, Cowling DW, Lloyd JC et al (2003) Changes of attitudes and patronage behaviors in response to a smoke-free bar law. Am J Public Health 93:611–617

Tramacere I, Gallus S, Fernandez E, Zuccaro P, Colombo P, La Vecchia C (2009) Medium-term effects of Italian smoke-free legislation: findings from four annual population-based surveys. J Epidemiol Community Health 63:559–562. doi:10.1136/jech.2008.084426

Valente P, Forastiere F, Bacosi A et al (2007) Exposure to fine and ultrafine particles from secondhand smoke in public places before and after the smoking ban, Italy 2005. Tob Control 16:312–317. doi:10.1136/tc.2006.019646