



World Health
Organization

PROTECTION FROM EXPOSURE TO SECOND-HAND TOBACCO SMOKE

Policy recommendations



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to second-hand tobacco smoke.
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Executive summary

Scientific evidence has firmly established that there is no safe level of exposure to second-hand tobacco smoke (SHS), a pollutant that causes serious illnesses in adults and children. There is also indisputable evidence that implementing 100% smoke-free environments is the only effective way to protect the population from the harmful effects of exposure to SHS.

Moreover, several countries and hundreds of subnational and local jurisdictions have successfully implemented laws requiring indoor workplaces and public places to be 100% smoke-free without encountering significant challenges in enforcement. The evidence from these jurisdictions consistently demonstrates not only that smoke-free environments are enforceable, but that they are popular and become more so following implementation. These laws have no negative impact – and often have a positive one – on businesses in the hospitality sector and elsewhere. Their outcomes – an immediate reduction in heart attacks and respiratory problems – also have a positive impact on health.

These experiences offer numerous, consistent lessons learnt, which policy-makers should consider to ensure the successful implementation of public policies that effectively protect the population from SHS exposure. These lessons include the following:

1. Legislation that mandates smoke-free environments – not voluntary policies – is necessary to protect public health;
2. Legislation should be simple, clear and enforceable, and comprehensive;
3. Anticipating and responding to the tobacco industry's opposition, often mobilized through third parties, is crucial;
4. Involving civil society is central to achieving effective legislation;
5. Education and consultation are necessary to ensure smooth implementation;

6. An implementation and enforcement plan as well as an infrastructure for enforcement are essential; and
7. Implementation of smoke-free environments must be monitored and, ideally, their impact measured and experiences documented.

In light of the above experience, the World Health Organization (WHO) makes the following recommendations to protect workers and the public from exposure to SHS:

1. Remove the pollutant – tobacco smoke – by implementing 100% smoke-free environments. This is the only effective strategy to reduce exposure to tobacco smoke to safe levels in indoor environments and to provide an acceptable level of protection from the dangers of SHS exposure. Ventilation and smoking areas, whether separately ventilated from non-smoking areas or not, do not reduce exposure to a safe level of risk and are not recommended;
2. Enact legislation requiring all indoor workplaces and public places to be 100% smoke-free environments. Laws should ensure universal and equal protection for all. Voluntary policies are not an acceptable response to protection. Under some circumstances, the principle of universal, effective protection may require specific quasi-outdoor and outdoor workplaces to be smoke-free;
3. Implement and enforce the law. Passing smoke-free legislation is not enough. Its proper implementation and adequate enforcement require relatively small but critical efforts and means.
4. Implement educational strategies to reduce SHS exposure in the home, recognizing that smoke-free workplace legislation increases the likelihood that people (both smokers and non-smokers) will voluntarily make their homes smoke-free.

WHO encourages Member States to follow these recommendations and apply lessons learnt to advance the goals of public health through legislated implementation of 100% smoke-free environments in workplaces and public places.

SECTION I – INTRODUCTION

Background and rationale

The last several years have seen a wealth of new evidence on the health effects of exposure to second-hand tobacco smoke (SHS), the benefits of smoke-free environments and best practice in implementing smoke-free policies. Compiling and disseminating this evidence is critical to raising awareness among decision-makers and public health advocates about the necessity for smoke-free environments to protect health and their broad acceptance and endorsement. It is for this reason that the World Health Organization (WHO) is now publishing policy recommendations on protection from SHS exposure.

A clear scientific consensus on SHS exposure's dangerous health effects has developed, based on accumulated evidence and copious new data, which show that SHS causes serious and fatal diseases in adults and children. Several current reports, including the 2004 monograph from the International Agency for Research on Cancer (IARC), the 2005 report from the California Environmental Protection Agency (Cal/EPA) in the United States of America and the 2006 report of the United States Surgeon General, have synthesized this evidence and reached unambiguous and solid conclusions on SHS exposure's adverse consequences. These conclusions provide a strong imperative for eliminating indoor SHS exposure.

In light of the accumulated evidence, local, subnational^a and national governments worldwide are increasingly implementing smoke-free policies in workplaces and public places to protect people from the dangers of SHS. Jurisdictions that have implemented smoke-free workplaces and public places have observed an immediate drop in levels of SHS, a decline in levels of SHS components in the population as well as significant and immediate

health improvements in workers previously exposed to SHS.

At the same time, smoke-free environments have been found to be very effective as a tobacco control policy by making it easier for smokers to cut down or quit and by reducing smoking initiation. Furthermore, smoke-free laws enjoy popular support and high levels of compliance when properly implemented; they forcefully deliver the message that smoking is not socially acceptable.

Recent progress has highlighted the feasibility of achieving smoke-free environments and heightened worldwide interest in promoting them. Developed and developing countries like Ireland, New Zealand, Scotland and Uruguay, as well as territories^b such as Bermuda, have built on the implementation of smoke-free laws at the local and subnational level that began in North America in the late 1970s. With almost universal success, they have since enacted and implemented laws to protect workers and the public from SHS in almost all indoor workplaces and public places (including bars and casinos), achieving strong popular support. Other countries are interested in learning from their experiences.

Since the 1970s, tobacco companies have considered smoke-free laws to be the "most dangerous development to the viability of the tobacco industry that has yet occurred."¹ The tobacco industry – usually working through front groups operating with its support – vigorously opposes the passage and implementation of smoke-free laws, whether at local, subnational or national level. Tobacco companies continue to misrepresent the evidence on the health effects of SHS exposure and even claim that WHO has concluded that SHS is not dangerous. In fact, WHO has consistently concluded the opposite: SHS kills.

^a Subnational level refers to all jurisdictions other than the local, municipal level and the national or federal level of a country. It may include states, provinces, cantons, departments or similar jurisdictions.

Finally, the obligations under WHO's Framework Convention on Tobacco Control (WHO FCTC), to which more than 140 WHO Member States and the European Community are Parties^c, are further driving the need for clearer guidance from WHO on protection from SHS. Article 8 of the WHO FCTC, *Protection from exposure to tobacco smoke*, requires Parties to:

*Adopt and implement in areas of existing national jurisdiction as determined by national law and actively promote at other jurisdictional levels the adoption and implementation of effective legislative, executive, administrative and/or other measures, providing for protection from exposure to tobacco smoke in indoor workplaces, public transport, indoor public places and, as appropriate, other public places.*²

At its first session in February 2006, the Conference of the Parties to the WHO FCTC decided to accord the highest priority to developing guidelines on Article 8, and to request the Convention Secretariat to initiate work on these guidelines. In the same decision, the Conference of the Parties also adopted a template for the elaboration of Article 8, which lists several resources for the guideline development, of which the present recommendations are one.³

In summary, these recommendations are a response to the unquestionable dangers of exposure to SHS, as well as to the opportunity to assist the WHO FCTC implementation process and provide guidance to the growing number of jurisdictions interested in becoming smoke-free.

Development of the recommendations

With the support of the WHO Collaborating Centre on Tobacco Control Surveillance and Evaluation at the Institute for Global Tobacco Control, Johns Hopkins Bloomberg School of Public Health,

WHO convened a consultation in Montevideo, Uruguay in November 2005. Its purpose was to gather experts to discuss the many aspects of SHS and smoke-free environments. The consultation addressed the health effects of SHS exposure and the toxic properties of SHS; SHS exposure's economic costs; the impact of smoke-free environments on tobacco consumption as well as business; policy development and implementation; and needs and available resources for making progress towards smoke-free environments.

These policy recommendations are based in part on the deliberations of the Uruguay consultation^d and have been amplified and reviewed by a broader group of experts from all of the WHO regions and within a variety of disciplines (Appendix 1 – List of participants and observers at the expert consultation on policy recommendations on second-hand tobacco smoke in Montevideo, Uruguay), including the WHO Collaborating Centre on Tobacco Control Policy at the University of California, San Francisco.

The recommendations aim to elucidate for WHO Member States the science on SHS exposure as well as the health and economic benefits of smoke-free laws and to guide decision-makers in developing and implementing evidence-based and enforceable smoke-free policies.

SECTION II – THE PROBLEM

Health effects of SHS exposure

Second-hand tobacco smoke is the combination of smoke emitted from the burning end of a cigarette or other tobacco products and smoke exhaled by the smoker. SHS contains thousands of known chemicals, at least 250 of which are known to be carcinogenic or otherwise toxic.⁴

b A territory is a geographical area distinct from a WHO Member State for which the United Nations makes no assumption regarding its political or administrative affiliation.

c 147 parties as of 1 June 2007.

d Participation in the Uruguay meeting does not necessarily imply endorsement of the recommendations.

Evidence on the adverse health effects of exposure to SHS has been accumulating for nearly 50 years. The first studies to appear in the 1950s and 1960s focused on the effects of SHS on children and on the impact of smoking by the mother on the fetus.^{5, 6, 7} As more and more studies in the ensuing decades have linked SHS exposure to a variety of serious diseases in children and adults, a solid scientific consensus has developed on the effects of SHS exposure. WHO, IARC, the United States Surgeon General, the United States Environmental Protection Agency (EPA), Cal/EPA, and numerous expert scientific and medical bodies worldwide have documented the adverse effects of SHS on the respiratory and circulatory systems, its role as a carcinogen in adults, and its impact on children's health and development.^{8, 9, 10, 11, 12, 13} The IARC review of the relationship between SHS exposure and cancer published in its 2004 monograph has been followed by updated comprehensive reviews of the health effects of SHS exposure released by Cal/EPA in 2005¹⁴ and the United States Surgeon General in 2006.¹⁵ The chronology of the accumulation of evidence and the summary of conclusions by the recent Cal/EPA and the United States Surgeon General's reports are found in Appendix 2 and Appendix 3.

Impact on adults

Coronary heart disease (CHD). There is convincing evidence from studies on a wide geographical and racial range of populations that SHS causes both fatal and non-fatal heart disease. Exposure to SHS causes acute adverse effects on the blood lipids, clotting systems (platelets) and arterial wall function within minutes, and many of these effects are nearly as large as those seen in active smokers.^{14, 15, 16}

The current consensus from agencies, including the American Heart Association,¹⁷ the United States Surgeon General,¹⁵ Cal/EPA¹⁴ and the United Kingdom Scientific Committee on

Tobacco and Health¹⁸ is that SHS exposure causes heart disease and increases the risk of death from heart disease by about 30%; recent evidence suggests that the effect could be more than twice as large.¹⁹

Lung cancer. SHS exposure has been linked to lung cancer in dozens of studies from around the world, beginning with studies in 1981 showing an increased risk of lung cancer in non-smoking women married to cigarette smokers.^{20, 21} The IARC, the United States Surgeon General and the United States EPA, among numerous other scientific bodies worldwide, have all concluded that SHS causes lung cancer in non-smokers.^{9, 10, 11, 12, 13, 14, 15}

Breast cancer. The 2005 Cal/EPA report, prepared as part of the process that led SHS to be listed by the state as a "toxic air contaminant," indicates that 13 out of 14 studies reviewed, which contained data on pre- versus postmenopausal status found an elevated risk of breast cancer in younger, primarily premenopausal women, leading to an overall estimate that SHS exposure was associated with a nearly 70% increased risk of breast cancer in this group. The Cal/EPA concluded that SHS causes breast cancer in younger, primarily premenopausal women based on this observed risk as well as the current state of knowledge on the biology of breast cancer and the fact that there are 20 known mammary carcinogens in SHS, which have caused detectable genetic damage in women's breasts.^{14, e} The United States Surgeon General's Report found the evidence to be suggestive of a causal relationship between SHS and breast cancer.¹⁵

Respiratory symptoms and illnesses. Data indicate that SHS exposure plays a role in the development of chronic respiratory symptoms and produces measurable decreases in pulmonary function.¹⁴ SHS also induces and exacerbates asthma in adults.¹⁴

e Cal/EPA concluded that evidence for an effect of SHS on breast cancer in postmenopausal women remains inconclusive.

Impact on children

Respiratory illnesses and symptoms. Both maternal and paternal smoking cause lower respiratory tract illnesses such as bronchitis and pneumonia, particularly during the first year of life.^{15, 22, 23} Numerous surveys also show a greater frequency of the most common respiratory symptoms – cough, phlegm and wheeze – in the children of smokers.^{24, 25} The highest levels of risk have been found in households where both parents smoke.

Asthma. Exposure to SHS exacerbates pre-existing asthma and causes new-onset asthma among children (as well as adults, as discussed above).^{14, 26, 27} Exposure to SHS in the home increases emergency room visits and medication use by asthmatic children.^{28, 29}

Lung growth and development. Since the United States Surgeon General concluded in 1986 that SHS reduces the rate of lung function growth during childhood, evidence has continued to accumulate to support this conclusion.^{11, 15, 30, 31} An effect has been associated both with maternal smoking during pregnancy and with exposure to SHS after birth.

Middle-ear disease (otitis media). SHS exposure causes otitis media, or middle ear disease, a common childhood illness that accounts for a large number of visits to physicians and, if untreated, can lead to hearing impairment.^{13, 15, 32}

Pre and postnatal effects

Exposure of non-smoking women to SHS during pregnancy causes low birth weight and preterm delivery.^{14, 33, 34, 35} SHS exposure also causes Sudden Infant Death Syndrome (SIDS or cot death).^{15, 36} Other perinatal health effects where there may be a link with SHS exposure are intrauterine growth retardation and spontaneous abortion (miscarriage).^{14, 37}

Magnitude of exposure to SHS

Exposure to SHS is widespread in most countries, even in health-care settings and among

health professionals. Data from the Global Youth Tobacco Survey (GYTS) indicate that SHS exposure is common among youth. Surveys of children in school, aged 13 – 15 years, conducted between 1999 and 2006 in 132 countries found that 44% had been exposed at home and 56% in public places during the 7 days prior to the survey.³⁸ A study of workers at Mexico's National Institute of Health showed that 91% were exposed to some degree to tobacco smoke.³⁹ A survey of third-year students in health professional schools in 10 countries found exposure to SHS at home ranging from 30% in Uganda to 87% in Albania, and exposure in public places from 53% in Uganda to 98% in Serbia.⁴⁰

While exposure to tobacco smoke in the United States has declined substantially over the past several years, studies of cotinine (a by-product of nicotine) reviewed in the 2006 United States Surgeon General's Report show that more than 40% of non-smoking adults and almost 60% of children aged 3 through 11 years are still exposed to SHS.¹⁵

Two recent studies of a variety of settings in 39 developed and developing countries found SHS in the great majority of the locations surveyed.^{41, 42} In seven Latin American countries SHS (measured by ambient nicotine levels) was detected in 94% of the locations surveyed, including hospitals, schools and government buildings.⁴¹ A study comparing levels of fine particulate matter in indoor environments, where smoking was or was not observed, concluded that among the 32 countries studied, only the two countries with national comprehensive smoke-free air policies – Ireland and New Zealand – had acceptable levels of indoor air quality.^{42, 43}

Widespread exposure translates into significant health consequences at the population level. For example, Cal/EPA estimates that in the United States SHS causes 3 400 lung cancer deaths and between 23 000 and 70 000 heart disease deaths annually. In children, SHS is

estimated to be responsible for the country's annual 430 cases of SIDS, 24 500 low-birth weight babies, 71 900 pre-term deliveries, 200 000 episodes of asthma and 790 000 medical visits due to middle-ear infection.^{13, 44} Estimates of deaths attributable to exposure to SHS are available for at least 27 other countries.^{45, 46, 47, 48, 49}

Economic costs of SHS exposure

Exposure to SHS imposes economic costs on individuals, businesses and society as a whole. Economic costs include primarily direct and indirect medical costs and productivity losses. In addition, workplaces where smoking is permitted incur higher renovation and cleaning costs, an increased risk of fire and may experience higher insurance premiums.⁵⁰

The costs of SHS exposure have been evaluated in Australia, Canada, Hong Kong Special Administrative Region (Hong Kong SAR), Ireland, the United Kingdom and the United States.⁵¹ Specific estimates of cost vary, depending on the factors included in the study. However, in all cases these costs are significant.

A recent study by the Society of Actuaries in the United States estimates that SHS exposure results in over US\$ 5 billion in direct medical costs and in over US\$ 5 billion in indirect medical costs (such as disability, lost wages and related benefits) annually in the United States.⁵² In Hong Kong SAR, the annual value of direct medical costs, long-term care and productivity loss due to SHS exposure is estimated to be US\$ 156 million.⁵³

SECTION III – THE SOLUTION

Effective protection strategies

100% indoor smoke-free environments

There is no safe level of exposure to SHS.^{14, 15, 54} Therefore, the elimination of smoking from indoor environments is the only science-based measure that adequately protects a population's

health from the dangerous effects of SHS. Smoke-free policies protect health; where they are introduced, exposure to SHS falls and health improves. They are also extremely cost-effective, especially compared with the ineffective "alternatives" promoted by the tobacco industry, generally through third parties, namely:⁵⁵

- separation of smokers and non-smokers within the same airspace; and
- increased ventilation and air filtration combined with "designated smoking areas".

Ineffective "alternatives"

Separation of smokers and non-smokers within the same airspace. Simply separating smokers and non-smokers within the same air space, absent any floor-to-ceiling barriers, does not eliminate – and in many cases does not even reduce – non-smokers' exposure to SHS.^{56, 57, 58, 59, 60} Exposure of non-smokers to SHS in such open air spaces is highly variable depending on local airflow patterns, dilution volume, distance between smokers and non-smokers and amount of smoking, among other elements. Heating, ventilating, and air conditioning (HVAC) systems, depending on their design, almost always re-circulate air from smoke-contaminated areas to non-smoking areas. One study of ambient nicotine levels (a marker for SHS) in Latin America showed higher levels of nicotine in non-smoking than the adjacent smoking sections in some settings.⁴¹ Moreover, studies of workers in non-smoking areas have shown that their exposure to SHS can be as high as that of workers in areas where smoking is permitted.^{61, 62}

Increased ventilation and filtration combined with "designated smoking areas". Neither ventilation nor filtration, alone or in combination, can reduce exposure levels of tobacco smoke from indoor spaces to levels that are considered acceptable, even in terms of odour, much less health effects.^{63, 64} While increasing the ventilation rate does reduce the concentration of indoor pollutants, including tobacco smoke, ventilation rates more than 100 times above common standards would be required just to

control odour,⁶³ which per se is not an indicator of the level of toxins in the air because these levels may be high even without a strong odour of tobacco smoke. Even higher ventilation rates would be required to eliminate toxins, which is the only safe option for health. These ventilation levels are neither physically practical nor economically feasible. In order to eliminate the toxins in SHS from the air, so many air exchanges would be required that it would be impractical, uncomfortable and unaffordable.⁶⁵

Similarly, neither central nor local air cleaning devices can reduce the levels of toxins from SHS in indoor air to safe levels. The performance of these devices also usually declines over time because they require high and expensive levels of maintenance, and they may even become sources of indoor air pollution. The “one pass” systems advocated by the tobacco industry and its allies do not re-circulate air and therefore are much more expensive to operate because outdoor air has to be continuously heated or cooled. In any case, these systems do not reduce tobacco smoke to safe levels.^{66, 67}

Despite decades of pressure from the tobacco industry,⁶⁸ the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE), the leading professional standards-setting organization in the United States on ventilation, no longer provides recommended standards for ventilation when tobacco smoking is present. In its 2005 *environmental tobacco smoke*^f (ETS) position document, ASHRAE concludes, “At present, the only means of effectively eliminating [the] health risk associated with indoor exposure is to ban smoking activity.”⁵⁹ The position document also states, “Because of ASHRAE’s mission to act for the benefit of the public, it encourages elimination of smoking in the indoor environment as the optimal way to minimize ETS exposure.”

The International Standards Organization (ISO) is drafting a recommended standard ISO 16814 on ventilation and tobacco smoke prepared by Technical Committee ISO/TC 205 on building environment design. However, policy-makers need to be aware that the ISO standards have been heavily influenced by tobacco industry lobbying in the past.⁶⁸ In addition, the present draft of ISO 16814, while recognizing that “no realistic combination of ventilation and filtration will provide a reasonably safe environment where smoking is permitted,”⁷⁰ creates the illusion that ventilation may prevent recirculation or movement of air from designated smoking areas into non-smoking areas. The 2005 ASHRAE position statement, not the present draft of the ISO 16814 standard, reflects the best available current scientific evidence on ventilation and SHS.

One particular ventilation-based approach promoted by tobacco companies, and which some jurisdictions have accepted in specific settings, particularly bars and restaurants, is the implementation of smoking areas separated from non-smoking areas by physical barriers and with separate ventilation systems. These so-called “designated smoking rooms,” (DSRs), with exhaust of air to the outside, isolated return air, and negative pressurization in relation to adjoining spaces, have been designed and tested for the degree of protection provided. Based on existing literature, such rooms may reduce but not eliminate the exposure to SHS inside the DSR. In addition, DSRs do not eliminate non-smokers’ exposure to second-hand smoke in adjacent spaces,^{71, 72} offer no protection to workers required to work in them, and may also intensify exposure of smokers to SHS, thus increasing risks to their health.⁷³ For example, the door to the designated smoking room can act as a pump moving smoke out of the room when people enter and leave the room.

^f The Cal/EPA used the term “environmental tobacco smoke” (ETS) in its report. WHO prefers the terms “second-hand tobacco smoke” or “involuntary smoking.” All three terms are synonymous.

DSRs are also difficult and costly to implement (Box 1). The problems encountered in implementing them have led some jurisdictions that had permitted DSRs to later change the law to eliminate them completely.⁷⁴ The tendency to create DSRs in the hospitality industry is particularly troubling from a worker's health perspective, because doing so leads to exceptionally high SHS exposure levels for employees. In addition, allowing – or even more problematic – mandating DSRs will encourage or require businesses to invest in expensive and ineffective ventilation systems, thus compromising future 100% smoke-free legislation because of the large investments that many institutions will have made in these systems.⁹

Outdoor and quasi-outdoor environments.

Research conducted and reviewed by the Cal/EPA in consideration of its decision to declare tobacco smoke a toxic air contaminant shows that outdoor SHS concentrations can be significant – sometimes reaching levels observed indoors – depending on the number of cigarettes smoked, location of adjacent walls, and meteorological conditions, such as wind speed and direction.¹⁴ However, levels of SHS are, on average, lower than in indoor environments where smoking is permitted.

For example, mean ambient concentrations of nicotine adjacent to an outdoor smoking area at an amusement park (2.4 µg/m³) were comparable to concentrations found indoors in the homes of smokers where 50 or fewer cigarettes were smoked per week (<3 µg/m³). Therefore, exposure to tobacco smoke outdoors can be significant for those who spend a considerable amount of time in outdoor environments with tobacco smoke, such as wait staff on covered or

Box 1. *Why not separately ventilate designated smoking rooms (DSRs)?*

- Smoking rooms are very difficult to insulate, expensive to install and maintain, are often not built or operated according to specifications and can expose smokers and workers to concentrated SHS.
- Air filtration and ventilation systems, even if independent from ventilation systems in non-smoking areas, can only be designed for comfort and are not effective in protecting health and removing toxins.
- In theory, the law may state that workers must not be required to work in DSRs but in practice, managers may pressure employees to serve these areas in order to please customers.
- Doors of DSRs are opened constantly to provide service to this area and may even be left open because rooms become too smoky (some smokers refuse to use them). The amount of SHS polluting non-smoking areas through doors to DSRs is significant.
- They add considerable costs and create enforcement difficulties for enforcement agencies.

Source: Adapted from Ontario Campaign for Action on Tobacco

semi-enclosed patios, where smoking is permitted as well as security and door staff.

Certain localities^{75, 76} and institutions do not allow smoking in outdoor areas such as on beaches,^{77, 78} in outdoor stadiums,⁷⁹ on patios (covered or outdoor)⁸⁰ or within a certain distance of building entrances.⁸¹ Often, these decisions are made in response to public demand once the indoor spaces are made smoke-free.

Problems can arise when smoking is permitted in outdoor areas immediately adjacent to or attached to indoor areas (e.g. patios) and where

⁹ New York City Mayor Michael Bloomberg referred to the problems created by legislation mandating ventilation systems in his testimony before the New York City Council Committee on Health, "The experience other cities and states have had with mandating such ventilation systems also is instructive. When legislators in those jurisdictions have realized that ventilation systems haven't solved the problem of eliminating second-hand smoke, and have proposed new action, what has been the result? Business owners protest – with some justification – that the money that government has encouraged them to invest in ventilation systems has been wasted." Testimony of Michael R Bloomberg, Mayor of New York City, before the New York City Council Committee on Health on Int. 256 in Relation to the Prohibition of Smoking in Public Places and Places of Employment. Thursday, 10 October 2002 City Hall, New York New York. (<http://www.nyc.gov/html/doh/html/testi/testi1010-bloomberg.shtml>, accessed 26 February 2007).

there are open doors and windows or intake vents. Smoking can also be problematic in “quasi-outdoor” environments, which are common in warm-climate countries and which are much less likely to have solid structures clearly delimiting indoor and outdoor space. Common problems include:

- Smoke drifting into indoor areas from outdoor smoking areas that lead directly into indoor spaces with open doors and windows. A study in Ireland that found that exposure to tobacco smoke had decreased significantly among hospitality sector workers following implementation of Ireland’s smoke-free law also discovered that bars with designated outdoor smoking areas had significantly higher concentrations of ambient nicotine than those without outdoor smoking areas.⁸²
- Difficulty in distinguishing between indoor and outdoor spaces for purposes of implementation and enforcement.^{83, 84, 85, 86} For example, business owners may build covered patios, partially enclosed tents or similar spaces to circumvent indoor smoking restrictions.
- Allowing smoking in quasi-outdoor areas where people have to work may expose them to significant levels of SHS and unacceptable risks to health. Under some conditions, levels of exposure may be comparable to those indoors.¹⁴

Experience in New South Wales, Australia, demonstrates the types of difficulties that may be encountered with “quasi-outdoor” areas. Its current law allows smoking in outdoor areas, which are defined as “maximum 75% enclosed.” As a result, many businesses are building “outdoor” seating areas, such as the one illustrated in Fig. 1, that meet this definition.

Universal effective protection from SHS may therefore require making certain outdoor or quasi-outdoor areas smoke-free, with workers’ health, equity and enforceability being the key



Fig. 1 The “outdoor” addition to a club in New South Wales, Australia where the law currently allows smoking in this type of outdoor area. (Photo courtesy of ASH Australia)

considerations. At the very least, these areas should not be specifically designated as smoking areas, which will make it simpler to deal with them when, after indoor areas have been smoke-free for long enough, the public demands that the adjacent outdoor areas be smoke-free.

Effects of smoke-free environments on health and tobacco use

Smoke-free environments drastically reduce toxins in the air and are associated with measurable rapid increases in health among workers previously exposed to SHS.

Immediate drops in pollution levels

In Irish bars, levels of fine particles in the air ($PM_{2.5}$), which reach deep into the lung and damage the lung and heart, dropped by 83% following the implementation of the smoke-free law. Nicotine in the air also fell by 83% and the median time per week of exposure to SHS reported by workers fell from 30 hours to 0 hours.⁸⁷

This reduced exposure to SHS led to lower amounts of the toxins in the smoke appearing in the bodies of non-smoking hospitality workers. Carbon monoxide in the breath of bar workers was also measured and was found to have decreased by 45% among non-smokers and by 36% among ex-smokers.⁸⁷ Cotinine concentrations in saliva, which indicate the level of smoke toxins people absorb into their bodies from the SHS exposure, fell by 69% in non-smoking hospitality sector workers following implementation of the law.

Better worker health

Self-reported respiratory symptoms among Irish bar workers decreased by 16.7% one year after implementation of its smoke-free law.⁸⁸

A study in California, United States showed a reduction of 59% in negative respiratory symptoms and a reduction of 78% in sensory irritation symptoms in bartenders within eight weeks after the implementation of the law requiring bars to be smoke-free, compared with symptoms reported prior to the smoke-free law.⁸⁹

In New Zealand, a 2002 study found that people working in smoke-free office environments were less likely to report respiratory and irritation symptoms than hospitality workers exposed to SHS in the workplace (smoke-free bars were not implemented until December 2004).⁹⁰

In Scotland, within three months of implementing smoke-free legislation in 2006, bar workers showed significant early improvements in respiratory symptoms, objective measures of lung function and systemic inflammation. Asthmatic bar workers also demonstrated reduced airway inflammation and improved quality of life.⁹¹

In the United States, in the communities of Helena, Montana and Pueblo, Colorado as well as in the Piedmont region of Italy, the number of hospital admissions for heart attacks (acute myocardial infarction) dropped by an average of 20%^h following implementation of strong smoke-free workplace and public place legislation. There was no decline in admissions in similar communities used as controls. However, when the smoke-free law in Helena was repealed under tobacco industry pressure, hospital admissions rose to levels seen prior to implementation of the law.^{93, 94}

Smoke-free environments are a highly effective smoking cessation intervention

Smoke-free environments not only protect the health of non-smokers, they also have a beneficial impact on reducing smoking. The World Bank has concluded that smoking restrictions can reduce overall tobacco consumption by 4 – 10%.⁹⁵ A more recent review of studies in Australia, Canada, Germany and the United States concluded that smoke-free workplaces result in a reduction in consumption of 29% by smokers.⁹⁶ The review estimated that, on average, smoke-free workplaces reduce consumption by 3.1 cigarettes per day per smoker and reduce smoking prevalence by 3.8%. This impact is greatly attenuated when smoking is allowed in designated rooms or areas.

While not required by any of the laws creating smoke-free environments, more people voluntarily make their homes smoke-free when workplace and public place laws are implemented.⁹⁷ Smoke-free homes protect workers' children and other family members from SHS and further increase the likelihood that the smokers will successfully quit smoking.

In fact, smoke-free environments can be more cost-effective than programmes targeted specifically at smoking cessation. One study showed that smoke-free environments are nine times more cost-effective per new non-smoker than providing smokers with free nicotine replacement therapy.⁹⁸ Indeed, several countries that have recently implemented comprehensive smoke-free laws report declines in tobacco consumption (as measured by tobacco sales data or by surveys of smoking prevalence) and/or a switch to smokeless tobacco following the implementation of the laws.^{99, 100} Some have also reported increases in call volume to national "quit lines" immediately after implementation, although call volume tends to return to normal after a few months.¹⁰¹

^h Stan A Glantz, personal communication of the result of a meta-analysis of the three studies.

Smoke-free workplaces reduce youth smoking initiation

There is some evidence that smoke-free policies lessen the likelihood that youth will become addicted to tobacco. Several studies have shown that smoke-free workplaces and community-wide, smoke-free by-laws are associated with a decreased likelihood of ever-smoking among teenagers. One study found that teenagers who worked in completely smoke-free work sites were, on average, 68% as likely to be ever-smokers compared to teenagers who worked in establishments with fewer smoking restrictions.¹⁰² Studies that have examined smoking prevalence and tobacco consumption among teenagers in communities with extensive smoke-free laws versus no laws show absolute reductions in prevalence of 2.3% to 46.0%, a relative reduction in prevalence of 17.2%, and a relative reduction in per capita cigarette consumption of 50.4%.¹⁰³

Smoke-free homes are also associated with reduced tobacco use among teenagers. Teenagers living in a smoke-free home were, on average, 74% as likely to be ever-smokers compared with those living in homes with no smoking restrictions, even after adjusting for demographics and smoking status of other household members.⁹⁸

Taken together, the evidence suggests that smoke-free environments play a powerful role in reducing the social acceptability of smoking, leading to decreased smoking initiation. Given that smoking has long been promoted by tobacco companies as an “adult choice”, it is logical to predict that the elimination of smoking in those establishments into which adolescents aspire to enter, such as bars and nightclubs, will lead to reducing the status of smoking as a rite of passage into adulthood.

In summary

Smoke-free environments achieve the goal of protecting non-smokers from exposure to

tobacco smoke while simultaneously having a positive impact on two other major tobacco control goals established by public health organizations: reducing smoking initiation and increasing smoking cessation.

Economic impact of smoke-free environments

It follows from the finding that SHS exposure carries economic costs that smoke-free policies carry economic benefits. These include:

- lower direct medical costs to care for conditions attributable to SHS exposure and reduced insurance costs (the higher insurance cost for smokers includes health, fire, accident and life insurance);
- increased productivity among those who quit smoking and among workers no longer exposed to second-hand smoke (time saved on smoking breaks and absenteeism due to illness);
- reduced hiring costs as less labour is lost to tobacco-related morbidity and mortality;
- lower building maintenance costs; and
- reduced employer liability for SHS exposure's effect on workers and for SHS's compounding effects on workers exposed to other toxins in the workplace.

These economic benefits can be substantial. It is estimated that smoke-free environments would save employers the equivalent of 0.515% to 0.77% of the GDP in Scotland¹⁰⁴ and between 1.1% and 1.7% of GDP in Ireland.¹⁰⁵ The United States Occupational Safety and Health Administration (OSHA) has estimated that clean air increases productivity by 3%.¹⁰⁶

There are some modest costs associated with the administrative capacity of governments to implement and enforce smoke-free laws (primarily

Box 2. *The impact of smoke-free environments – in the tobacco industry's own words*

- "...economic arguments often used by the [tobacco] industry to scare off smoking ban activity were no longer working, if indeed they ever did. These arguments simply had no credibility with the public, which isn't surprising when you consider our dire predictions in the past rarely came true." – Philip Morris, 1994, Cite:
<http://legacy.library.uscf.edutid/vnf77e00>
- "If our consumers have fewer opportunities to enjoy our products, they will use them less frequently and the result will be an adverse impact on our bottom line." – Philip Morris, 1994 Cite:
<http://legacy.library.uscf.edutid/vnf77e00>
- "Those who say they work under restrictions smoked about one-and-one-quarter fewer cigarettes each day than those who don't. That one-and-one-quarter per day cigarette reduction then, means nearly 7 billion fewer cigarettes smoked each year because of workplace smoking restrictions. That's 350 million packs of cigarettes. At a dollar a pack, even the lightest of workplace smoking restrictions is costing this industry 233 million dollars a year in revenue". – United States Tobacco Institute 1985, Cite:
<http://legacy.library.ucsf.edu/tid/owo03f00>

signs as well as educational and enforcement efforts during the initial implementation stage). However, these costs tend to decrease over time as public acceptance of the law grows and compliance increases (as it usually does). In any case, the World Bank notes that the benefits of making workplaces smoke-free far outweigh the costs.¹⁰⁷

It is often argued that smoke-free environments impose costs on businesses, especially those in the hospitality sector. In fact, evidence shows the opposite, including for this sector. In

direct contradiction to tobacco industry claims,¹⁰⁸ worldwide studies of sales and employment data before and after smoke-free policies are implemented have found either no impact or a positive impact within the hospitality sector.^{109, 110} Smoke-free policies do not drive away existing clientele in this sector; they, in fact, attract new clientele. They also appear to result in reduced maintenance^{111, 112} and insurance costs as well as decreased employee absenteeism both for this sector^{113, 114} and others.^{115, 116} Thus, the tobacco industry has a powerful incentive to oppose robust smoke-free laws since their impact on the workplace results in a major reduction in cigarette consumption (Box 2).

SECTION IV – EXPERIENCES AND BEST PRACTICES

Several countries and hundreds of subnational and local jurisdictions have successfully implemented laws that require almost allⁱ indoor workplaces and public places to be 100% smoke-free without significant difficulties in implementation and enforcement.^{88, 101, 117} These jurisdictions report immediate and considerable health benefits,^{87, 118} showing that smoke-free environments are feasible and realistic in a variety of contexts. Their experience also offers a number of consistent lessons learnt to facilitate passage and successful implementation and enforcement of smoke-free laws.

Smoke-free environments should be mandated by law, not by voluntary policies

Two main approaches have been used to create 100% smoke-free environments: legislation and voluntary policies or agreements.

i For example, most laws passed to date do not require hotel rooms to be smoke-free, even though cleaners and other staff are required to work in them. In addition, smoking rooms often feed into the same ventilation system as the rest of the hotel, meaning that workers in the hotel lobby, restaurants and other facilities will be exposed to SHS even if smoking is not permitted in their work areas. Even when legislation requires a specific percentage of hotel rooms to be smoke-free and for smoking rooms to have a separate ventilation system, all of the problems associated with designated smoking areas apply. This is an issue that legislation must eventually address.

Voluntary policies^j

Voluntary policies, where an establishment or a group of establishments willingly commits to implementing 100% smoke-free environments through an internal policy or through a written agreement with the government, can be useful as part of an initial public education programme to build public support for smoke-free environments before legislation is implemented. Argentina, Chile and Costa Rica, for example, have used this approach among community and business leaders to build awareness of the need for action, and institutions that voluntarily go smoke-free have been vital and credible advocates in campaigns for smoke-free laws.

However, even strong voluntary policies have major limitations that make them much less preferable to legislation. They are, by definition, legally non-binding, lack a mechanism of enforcement, and have weak penalties or no penalties at all for violations. In addition, voluntary agreements leave to the individual business owners and operators the decision to become smoke-free.

Since many businesses (typically in the hospitality sector) fear that they will lose clients to a competitor that permits smoking, only a small minority will go smoke-free voluntarily, even in the face of a strong clientele preference for smoke-free environments.¹¹⁹ As what is best for a business is also generally seen as what is best for its competitor, the self-regulatory approach usually is a recipe for inertia.¹²⁰

In Australia, a voluntary code of practice in the hospitality sector had no significant impact on the adoption of smoke-free policies, and compliance with the code was poor,¹²¹ with only 2% of restaurants in New South Wales, Australia opting to become totally smoke-free.¹²² In the

United Kingdom, less than 1% of pubs were smoke-free under a voluntary approach.^{123, 124} In Spain, a 2006 law gave bars and restaurants whose premises were less than 100 m² the option to decide whether to become smoke-free or not. Only around 10% of eligible establishments opted to become smoke-free.¹²⁵

As awareness of SHS exposure's health effects has increased, fear of worker litigation under occupational safety and health or related domestic law has compelled workplaces to become smoke-free in certain jurisdictions.^{126, 127} Although in some countries a number of workplaces such as shopping malls, cinemas and public transport have become smoke-free under a voluntary approach, this approach does not provide comprehensive and universal protection and leaves the majority of workers – particularly those in the hospitality sector – unprotected.

Legislation

Smoke-free workplace laws are far more effective than voluntary agreements in providing adequate and extensive protection from SHS exposure. Indeed, laws are the only acceptable public health and human rights approach for ensuring protection from exposure to SHS's lethal toxins because they:

- are binding;
- establish enforcement mechanisms;
- impose penalties for infringements; and
- level the playing field for business.

For instance, following a period of voluntary agreements, Finland introduced a law requiring that most workplaces be smoke-free. One year later, data clearly showed a remarkable decrease in employee exposure to SHS at work and an increase in the number of smoke-free workplaces.¹²⁸

j In this section we only consider voluntary policies that propose 100% smoke-free environments. However, policy-makers should be aware that voluntary agreements often do not propose 100% smoke-free environments, but merely restrict smoking in some areas to create the illusion that something is being done and to avoid strong legislation. [Saloojee Y, Dagli E. Tobacco industry tactics for resisting public policy on health. Bulletin of the World Health Organization, 2000, 78: 902-910.]

Jurisdictions that have carried out public information campaigns preparing the public for implementation and that have demonstrated their intent to enforce the law fairly but strictly have found that the laws quickly become self-enforcing, that compliance rates are high within a very short time period and that they grow over time. A recent review of compliance with 100% smoke-free laws found typical compliance rates of 94% – 99%.¹²⁹

Legislation should be simple, clear and enforceable, and comprehensive

Legislation will be more successfully implemented and enforced if it is:

Simple

The law should avoid complicated tests to determine when or where smoke-free settings are required (e.g. time of day or surface of the premise or designated smoking rooms), which will involve extensive and expensive enforcement efforts to determine compliance. It should simply require all indoor workplaces, public places and public transportation to be 100% smoke-free, all of the time.

Clear and enforceable

The law should provide clear definitions of settings covered by the law (such as a workplace or “enclosed” spaces); make clear who is responsible for enforcing and ensuring compliance (e.g. designation of inspectors as well as building owners and managers to ensure the law is obeyed on their premises); and plainly state other requirements that smoke-free premises are obligated to implement, including the removal of ashtrays from those facilities required to be smoke-free. The law should also establish a clear and simple ticketing system (or spot fines) for violations, similar to parking tickets in many countries, to avoid more administratively burdensome procedures like arrest and trial.

Specific signage

The law should require strong and clear “No smoking” signs that feature the universal symbol (Fig. 2) at every building entrance and throughout smoke-free buildings. These signs are inexpensive and key to effective implementation because they empower non-smokers to urge compliance with the law and inform smokers what areas are smoke-free. The signs should also contain information on how to report violations of the law. These simple signs can be supplemented or combined with more creative educational signs that reinforce the message (Fig. 2).



Fig. 2 The universal “No smoking” symbol as well as more novel smoke-free signs from Spain (Madrid), Uruguay, Sweden and Canada (Toronto)



Comprehensive and provides universal protection

The law should avoid exempting certain classes of premises. If some areas (such as bars) cannot be included because of inadequate political and public support, simply leave them out of the law; do not provide for specific exemptions that could be interpreted as sanctioning or requiring smoking areas. Reasonable phase-in periods (ideally no longer than one year) for bars and similar settings may be acceptable and can even facilitate implementation. In jurisdictions where implementing smoke-free policies may need to proceed incrementally for the respective settings, this intervening time period

should be used to build political and public support to achieve a comprehensive smoke-free law that includes all workplaces and public places in the shortest time period possible.

The law should afford protection to all. A focus on protecting “vulnerable” or other specific populations and settings wrongly implies that other populations and settings are not vulnerable and therefore do not need protection. The tobacco industry has successfully used laws designed to “protect children” to secure passage of ineffective legislation.¹³⁰

Consider which jurisdictional level(s) will afford the most progress

The question of what level of jurisdiction should be used to implement smoke-free legislation is an important one, and the answer will depend on local factors such as a country’s legal framework and traditions as well as the country’s size. Action should be taken at any and all levels where effective legislation can be achieved. If strong national legislation that meets the standards described in these WHO recommendations is politically feasible and can provide an effective implementation framework, it is preferable to local laws that may only build up protection of the entire population over a long period of time. National legislation has been an effective route to achieving protection for the greatest number of people in several countries. Ireland, Scotland and Uruguay, for example, achieved national legislation with minimal municipal restrictions in place.

If legislation that meets the standards described in these WHO recommendations cannot be advanced at the national level, then efforts can be focused on smaller jurisdictions where effective action may be possible. Precedents set at the local level consistently stimulate similar laws elsewhere, resulting in the synergistic or “domino” effect that the tobacco industry fears.

Smoke-free legislation in Australia, Canada and the United States has advanced the most at the

local level and, more recently, at the state/provincial level. Initially, public health advocates did not have the resources and political power to defeat the tobacco industry and secure passage of strong national – or even state – legislation in the United States. In these countries, it has been easier to enact and enforce strong smoke-free legislation at the local level for two reasons:

- Political leaders at the local level tend to be more sensitive to the wishes of the people who live in their jurisdictions than to tobacco company lobbyists (who are almost always from out of town). In Canada, local medical officers have proven to be effective advocates, enjoying strong credibility with the public and municipal councils.
- Public health advocates often have limited resources (especially compared to the tobacco industry); focusing these limited resources on local jurisdictions one at a time increases the chances of success.

The possibility that local laws will be pre-empted is of concern. For example, in the United States, the tobacco industry has worked consistently to push for ineffective and unenforceable state or national legislation that includes language prohibiting local jurisdictions from enacting stronger legislation.¹³¹ As the movement to implement strong smoke-free laws spreads worldwide, the tobacco industry can be expected to aggressively promote weak pre-emptive laws (represented as “a step forward” or “reasonable compromise”) in other countries.

To protect strong local legislation, laws approved at a higher jurisdictional level must not weaken it. On the contrary, where national jurisprudence allows, all legislation should contain a provision explicitly giving authority to lower jurisdictions to pass laws and granting precedence to any law containing more restrictive or comprehensive requirements. This is the case for some provincial laws in Canada that explicitly give precedence to stronger laws in the case of overlapping or conflicting obligations.^{132, 133}

Where federal authorities have limited jurisdiction to restrict smoking, national governments should provide technical, financial and administrative support to state/provincial and municipal jurisdictions to pass smoke-free legislation, as provided for in Article 8.2 of the WHO FCTC.

Anticipate the opposition

Successful campaigns to implement smoke-free laws must anticipate the industry's arguments and tactics along with those of its allies and be prepared to counter them. Most opposition tactics and arguments are predictable:

- The tobacco industry will claim that smoke-free laws are not necessary, not feasible, will have a negative impact on business (particularly restaurants, bars and casinos), and that ventilation is an acceptable alternative. These claims are unproven and should not be factored into policy-making decisions. The evidence, based on the experience of hundreds of jurisdictions, shows exactly the opposite: smoke-free laws are popular, enforceable and have no effect or have a positive impact on business (except, of course, the tobacco business, which loses sales because smoke-free environments make it easier for smokers who wish to cut down or quit to do so). Policy-makers and advocates should familiarize themselves with this evidence and promote it to counter the opposition's arguments, examples of which are found throughout this publication and in Appendix 4 in Section VI.
- The tobacco industry will often use a third party, such as hotel and restaurant associations or gambling interests, to promote its arguments, with the tobacco industry doing its best to stay out of the public debate. In some cases, these parties may have previously existed and the industry will provide them with funding or strategic support; in other cases the tobacco industry may create the organizations solely to oppose a smoke-free law. For this reason, it is critical that public policy-makers and health advocates investigate the sources of support of opposition groups and expose those that are industry-affiliated to the media and the public. A great deal of research has been done on industry front groups showing how the industry uses third parties and describing the chain of connections between various international front organizations.¹⁰⁸ This research is a valuable tool to help policy-makers and public health advocates distinguish between legitimate opposition and industry-created opposition.
- Although most opposition comes from tobacco industry sources, legitimate local opposition to laws may arise from surprising quarters. For example, nursing homes and other residences for older people have opposed smoke-free laws with considerable public sympathy.¹³⁴ Because the tobacco industry has been misinforming the hospitality industry for so long, it is also common for restaurateurs and other people with hospitality businesses to be genuinely concerned about the impact of the law on their businesses. It is important that legitimate opposition views are heard so that opponents cannot claim that a law was rushed through without consultation. When possible, work to provide these people with the evidence, which demonstrates that their fears are unfounded. Among the most effective advocates are those in the business sector, especially those who may have initially opposed smoke-free laws but

k Tim Zagat, founder of the world-renowned Zagat Survey guides, recently wrote an invaluable advocacy piece in the lead trade journal for the United States restaurant industry: Opponents of smoke-free laws argue that these laws would hurt small businesses. The opposite is true. I spent three years as the chairman of NYC & Company, the official marketing, promotion and tourism arm of New York City. In that capacity I watched New York transition into a smoke-free city and witnessed the positive impact the law had on our restaurants and nightlife. After the law took effect, our 2004 New York City survey found that 96% of New Yorkers were eating out as much, or more, than before. Moreover, business receipts and employment increased for restaurants and bars, the number of liquor licenses increased and virtually all establishments were complying with the law. Nation's Restaurant News, 7 August 2006.

became convinced of their popularity (Fig. 3, Appendix 4, statement by Barry Vogel, the nominal head of the Beverly Hills Restaurant Association).^k It is also important for policy-makers to keep in mind the cost of exemptions to the law as these relate to public health, public perception of SHS exposure's harm, the ease of enforcement and potential legal actions against the law that could focus on inconsistency of application.

Involve civil society

Civil society involvement is critical to creating a political climate in which to successfully implement 100% smoke-free laws. Civil society has access to networks to which governments may not and may have greater freedom of communication, making it better positioned to debate opposition. Governments should support and facilitate civil society's participation in developing and implementing smoke-free laws. To maximize effectiveness, the following elements should be considered:

- The public health community must present a strong, consistent message, in partnership with a broad coalition of organizations from all sectors, in support of smoke-free legislation.
- The campaign should engage one or more committed political or civil society champions willing to promote and engage in the issue on a long-term basis.
- Governments and civil society should develop a plan to facilitate support for smoke-free laws and their implementation. However, in many jurisdictions political opportunities arise that greatly accelerate implementation.¹³⁵ Therefore, governments and civil society should prepare for the opportunity to "seize the moment" and capitalize on it.
- While broader coalitions can be desirable, it is not required that all public-health organizations participate, particularly if some

members would substantially weaken the message and political will for insisting on strong, enforceable legislation. Organizations should not be pressured to join the effort if the cost is substantial weakening of the coalition. Some campaigns have ended in failure due to insistence that all the major health groups participate. This means that the effort goes at the speed of the slowest and strength of the weakest organization. The effort needs *leadership* from credible public voices but does not need to include all public voices.

Educate and consult to ensure smooth implementation

One of government's critical tasks, in partnership with civil society, is to raise awareness among the public and opinion leaders on the risks of SHS through ongoing information campaigns to ensure that the public understands and supports legislative action. Broad consultation with stakeholders is essential to further educate the community and facilitate support for implementation of legislation. Public education campaigns can also target settings for which legislation is neither feasible nor advisable, such as the home.

Key messages should focus on the harm caused by SHS exposure in the home and in the workplace and public places, the fact that elimination of smoke indoors is the only science-based solution, the right of all workers to be equally protected by law, and the fact that there is no trade-off between health and economics because smoke-free environments benefit both.

This educational effort should begin well before introducing the legislation. An education campaign leading up to implementation of the law and information packages delivered in advance to business owners and building managers outlining the law and their responsibilities will increase compliance and ensure that governments can counter arguments that a law was

“rushed through” or that insufficient preparation was provided.

Develop an implementation and enforcement plan and ensure infrastructure for enforcement

An implementation and enforcement plan and organized strategy for enforcement are critical for successful implementation.

- Information packages for business as mentioned above can assist greatly with implementation and enforcement. In addition to clear information outlining the business owner’s responsibilities under the law, signs required by law should be included.
- It is critical to designate one or more groups as inspectors (e.g. public health inspectors backed up by other authorities, if necessary) who are well-trained and supported, particularly during the first weeks and months after the law goes into force.
- There should be a reasonable “grace period” (not more than a few months) during which violators are warned and provided an opportunity to comply with the law voluntarily before formal enforcement actions are taken. This grace period is important because experience has shown that most “violations” are due to lack of knowledge of the law, not wilful violation.
- There should be a procedure for the public to report violations, such as a toll-free telephone line. This information should be promoted widely and should appear on all no-smoking signs.
- Enforcement of the law should communicate to the public that enforcement will be

fair and that policy-makers are serious about it. Following the grace period, firm and well-publicized enforcement actions should be taken, particularly with establishments that repeatedly violate the law. This effort is particularly important because the tobacco industry sometimes encourages and publicizes violations as part of its effort to create the impression that the law is not being respected.^{136, 137}

Monitor implementation and, ideally, measure impact and document experiences

While no further research and evaluation is needed to justify smoke-free policy implementation, an evaluation strategy is very useful to monitor the success of implementation, public support for the law¹ as well as the health and economic impacts. In this way, ongoing public and political support for the legislation can be sustained. Local pre- and post-implementation data are usually more effective than statistics from other countries in convincing politicians to act. This information should be a critical component of a communication’s strategy and should also be made available to other jurisdictions to support their efforts to introduce and implement effective legislation successfully. Documenting experiences is important for the success of others; precedent-setting laws and experiences should be recorded, studied and promoted to show that the achievement of smoke-free policies can be generalized and to learn from successful experiences. The similarities in these laws – and how they are combated by the tobacco industry – are much greater than the differences between different countries. The most successful efforts, such as those of Ireland, were based on careful consideration by Irish authorities of experiences in California and elsewhere.

¹ Smoke-free laws enjoy strong public support and are rarely opposed by anyone other than groups funded by or misinformed by the tobacco industry. Public polls demonstrating this have been useful in countering opposition claiming that laws will not be obeyed and in isolating the tobacco industry.

SECTION V – RECOMMENDATIONS

In light of the deleterious health effects and the frequency of exposure to SHS (an exposure that carries significant social and economic costs); the cost-effectiveness, feasibility and popularity of smoke-free policies; and the successful experience of a rapidly growing number of jurisdictions worldwide, WHO makes the following recommendations to protect workers and the public from exposure to SHS.

Recommendation 1: 100% smoke-free environments, not ventilation

Remove the pollutant – tobacco smoke – through implementation of 100% smoke-free environments. This is the only effective strategy to reduce exposure to tobacco smoke in indoor environments to safe levels and to provide an acceptable level of protection from the dangers of SHS exposure. Ventilation and smoking areas, whether separately ventilated from non-smoking areas or not, do not reduce exposure to a safe level of risk and are not recommended.

Second-hand tobacco smoke causes serious and fatal diseases in adults and children. There is no safe level of exposure to SHS. Ventilation and health experts agree that ventilation is not a solution to this significant health issue. In 2006, the United States Surgeon General's report concluded (Conclusions 3 and 10 on page 649), "Establishing smoke-free workplaces is the only effective way to ensure that second-hand smoke exposure does not occur in the workplace. Exposure of non-smokers to second-hand smoke cannot be controlled by air cleaning or mechanical air exchange."

Recommendation 2: Universal protection by law

Enact legislation requiring all indoor workplaces and public places to be 100% smoke-

free environments. Laws should ensure equal protection for all. Voluntary policies are not an acceptable response to protection. Under some circumstances, the principle of universal, effective protection may require specific quasi-outdoor and outdoor workplaces to be smoke-free.

There is no scientific basis for exempting particular types of spaces or categories of the population from protection; all individuals are vulnerable to the harm caused by SHS exposure. The critical principle bearing on universal application of smoke-free legislation is the protection of human rights. The right to the highest attainable standard of health, the right to life and the right to a healthy environment are found within international human rights laws and many national constitutions. Exposure to SHS clearly hinders the exercise of these and other fundamental rights and freedoms found within human rights law.¹³⁸

Legislation protecting all workers is necessary to safeguard these rights. Voluntary policies are incompatible with the responsibility of governments to protect public health and are not effective. Just three months after Ireland implemented its smoke-free legislation, 97% of pubs were smoke-free. Five years into a voluntary agreement in the United Kingdom, less than 1% of pubs were smoke-free.

Recommendation 3: Proper implementation and adequate enforcement of the law

Passing smoke-free legislation is not enough. Its proper implementation and adequate enforcement require relatively small but critical efforts and means.

All governments – whether in high- or low-income jurisdictions – must be prepared to invest reasonable resources in achieving and enforcing smoke-free laws. Investment in tobacco control is an explicit obligation under

Article 26 of the WHO FCTC.^m Costs for implementing smoke-free laws may include promotional campaigns to build support for the law, commissioning public opinion polls, educational materials on implementation, compliance monitoring systems, staffing a phone number to respond to public complaints and a temporary increase in the number of inspectors assigned to monitor initial implementation.

Governments should also be prepared to face challenges to the law even after successful implementation. These may include lobbying campaigns by tobacco industry front groups to roll back the law or a legal challenge in the courts. While legal challenges to smoke-free laws have been upheld only in rare circumstances (usually based on inadequate consultation prior to implementation of a law or pre-emption of a law by a superseding jurisdiction), governments should take actions before and after implementation of the law to ensure the sustainability of the law.¹³⁹ These actions include a comprehensive public education campaign, consultation with stakeholders, assurance that the law is consistent in protecting public health, and providing data showing that the law is being enforced fairly.

Recommendation 4: Public education to reduce SHS exposure in the home

Implement educational strategies to reduce SHS exposure in the home, recognizing that smoke-free workplace legislation increases the likelihood that people (both smokers and non-smokers) will voluntarily make their homes smoke-free

All individuals have the right to be informed about the risks of SHS exposure, how to exercise their right to a healthy environment and

how to protect their families from SHS harm.¹³⁸ Since the home is often the highest source of SHS exposure for children and for adults who do not work outside the home, policies need to be developed to address this setting if public health is to be adequately protected. Education can be an effective strategy in promoting protection from SHS in the home.^{140, 141}

Smoke-free workplaces result in lower levels of tobacco consumption among smokers and are associated with a greater likelihood of workers implementing smoke-free policies in their homes.^{142, 143, 144} Therefore, smoke-free workplace legislation should be a primary strategy in protecting individuals from SHS in the home.

Education to promote smoke-free homes can be part of campaigns implemented to build public support for smoke-free legislation, which have included messages informing smokers, particularly as parents, of the impact of SHS exposure in the home and have urged them to make their homes smoke-free.^{145, 146, 147, 148}

To complement mass media campaigns, health warnings on tobacco packages are a very cost-effective public education medium that are guaranteed to reach all smokers. Most countries with picture-based warnings include warnings related to SHS. In Canada, more than one fourth of smokers reported that picture warnings implemented in 2000 motivated them to smoke less inside the home.¹⁴⁹

^m Article 26 provides that "each Party shall provide financial support in respect of its national activities intended to achieve the objective of the Convention" and that Parties shall promote "the utilization of bilateral, regional, subregional and other multilateral channels to provide funding for the development and strengthening of multisectoral comprehensive tobacco control programmes of developing country Parties and Parties with economies in transition."

SECTION VI – APPENDICES

Appendix 1

List of participants and observers at the Expert Consultation on Policy Recommendations on Second-hand Tobacco Smoke in Montevideo, Uruguay, 1-3 November 2005 and additional reviewers of policy recommendations

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Appendix 2

Twenty years of scientific consensus

Major consensus reports on health consequences of exposure to second-hand tobacco smoke

- (2006)** *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*. Atlanta, The United States Department of Health and Human Services, Centers for Disease Control and Prevention, Coordinating Center for Health Promotion, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.
(<http://www.surgeongeneral.gov/library/second-handsmoke/report/fullreport.pdf>, accessed 27 March 2007)
- (2005)** *Proposed Identification of Environmental Tobacco Smoke as a Toxic Air Contaminant. Tobacco Control. Surveys and Program Evaluations from Outside UCSF*. Paper CALEPA2005. (<http://repositories.cdlib.org/tc/surveys/CALEPA2005>, accessed 27 March 2007)
- (2004)** Tobacco Smoke and Involuntary Smoking. IARC *Monographs on the Evaluation of Carcinogenic Risks to Humans*. Volume 83. Geneva, World Health Organization and Lyon, International Agency for Research on Cancer (IARC).
(<http://monographs.iarc.fr/ENG/Monographs/vol83/volume83.pdf>, accessed 27 March 2007)
- (2004)** Scientific Committee on Tobacco and Health. *Secondhand Smoke: Review of evidence since 1998. Update of evidence on health effects of second-hand smoke*. London, Department of Health.
(www.advisorybodies.doh.gov.uk/scoth/PDFS/scothnov2004.pdf, accessed 27 March 2007)
- (2000), (2002), (2005)**
United States National Toxicology Program, ninth, tenth and eleventh Reports on Carcinogens. Atlanta, United States Department of Health and Human Services.
(<http://ntp.niehs.nih.gov/ntp/roc/eleventh/profiles/s176toba.pdf>, accessed 27 March 2007)
- (1998)** Scientific Committee on Tobacco and Health. *Report of the Scientific Committee on Tobacco and Health*. London, Department of Health, Department of Health And Social Services, Northern Ireland, The Scottish Office Department of Health Welsh Office.
(<http://www.archive.official-documents.co.uk/document/doh/tobacco/contents.htm>, accessed 27 March 2007)

- (1997)** *Health effects of exposure to environmental tobacco smoke*. Sacramento, California Environmental Protection Agency.
[http://www.oehha.ca.gov/air/environmental_tobacco/finalets.html#download, accessed 27 March 2007]
Published in 1999 as *National Cancer Institute Smoking and Health Monograph 10: Health Effects of Environmental Tobacco Smoke: The Report of the California Environmental Protection Agency. Smoking and Tobacco Control Monographs*.
[http://cancercontrol.cancer.gov/tcrb/monographs/10/m10_complete.pdf, accessed 27 March 2007]
- (1997)** *The health effects of passive smoking*. Canberra, Australia, National Health and Medical Research Council.
- (1992)** *Respiratory health effects of passive smoking: Lung cancer and other disorders*. Washington, DC, Office of Health and Environmental Assessment. Office of Research and Development, United States Environmental Protection Agency
[<http://cfpub.epa.gov/ncea/cfm/ets/etsindex.cfm>, accessed 27 March 2007]
- (1991)** Environmental Tobacco Smoke in the Workplace: Lung Cancer and Other Health Effects. *Current Intelligence Bulletin 54*. Atlanta, United States National Institute for Occupational Safety and Health
[http://www.cdc.gov/niosh/91108_54.html, accessed 27 March 2007]
- (1986)** *United States Surgeon General Report: The Health Consequences of Involuntary Smoking*. Atlanta, United States Department of Health and Human Services. Public Health Service. Centers for Disease Control. Office on Smoking and Health.
[<http://profiles.nlm.nih.gov/NN/B/C/P/M/>, accessed 27 March 2007]
- (1986)** National Research Council. Board on Environmental Studies and Toxicology. Committee on Passive Smoking. *Environmental Tobacco Smoke: Measuring Exposures and Assessing Health Effects*. Washington, DC, National Academy Press.
[<http://www.nap.edu/books/0309037301/html/>, accessed 27 March 2007]

Appendix 3

Health effects associated with exposure to Second-hand Tobacco Smoke

Summary of findings of the California Environmental Protection Agency, 2005

Effects causally associated with SHS exposure

Developmental effects

- Fetal growth: Low birth weight and decrease in birth weight
- Sudden Infant Death Syndrome (SIDS)
- Pre-term delivery

Respiratory effects

- Acute lower respiratory tract infections in children (e.g. bronchitis and pneumonia)
- Asthma induction and exacerbation in children and adults
- Chronic respiratory symptoms in children
- Eye and nasal irritation in adults
- Middle-ear infections in children

Carcinogenic effects

- Lung cancer
- Nasal sinus cancer
- Breast cancer in younger, primarily premenopausal women

Cardiovascular effects

- Heart disease mortality
- Acute and chronic coronary heart disease morbidity
- Altered vascular properties

Effects with suggestive evidence of a causal association with SHS exposure

Reproductive and developmental effects

- Spontaneous abortion, intrauterine growth retardation
- Adverse impact on cognition and behaviour
- Allergic sensitization
- Decreased pulmonary function growth
- Adverse effects on fertility or fecundability

Cardiovascular and haematological effects

- Elevated risk of stroke in adults

Respiratory effects

- Exacerbation of cystic fibrosis
- Chronic respiratory symptoms in adults

Carcinogenic effects

- Cervical cancer
- Brain cancer and lymphomas in children
- Nasopharyngeal cancer
- All cancers – adult and child

Summary of findings of the United States Surgeon General, 2006

Reproductive and developmental effects from exposure to SHS

Sudden Infant Death Syndrome

The evidence is sufficient to infer a causal relationship between exposure to SHS and sudden infant death syndrome.

Preterm delivery

The evidence is suggestive but not sufficient to infer a causal relationship between maternal exposure to SHS during pregnancy and preterm delivery.

Low birth weight

The evidence is sufficient to infer a causal relationship between maternal exposure to SHS during pregnancy and a small reduction in birth weight.

Childhood cancer

The evidence is suggestive but not sufficient to infer a causal relationship between prenatal and postnatal exposure to SHS and childhood cancer.

The evidence is suggestive but not sufficient to infer a causal relationship between prenatal and postnatal exposure to SHS and childhood leukaemias.

The evidence is suggestive but not sufficient to infer a causal relationship between prenatal and postnatal exposure to SHS and childhood lymphomas.

The evidence is suggestive but not sufficient to infer a causal relationship between prenatal and postnatal exposure to SHS and childhood brain tumours.

Respiratory effects in children from exposure to SHS

Lower respiratory illnesses in infancy and early childhood

The evidence is sufficient to infer a causal relationship between SHS exposure from parental smoking and lower respiratory illnesses in infants and children.

The increased risk for lower respiratory illnesses is greatest from smoking by the mother.

Middle-ear disease and Adenotons illectomy

The evidence is sufficient to infer a causal relationship between parental smoking and middle-ear disease in children, including acute and recurrent otitis media and chronic middle-ear effusion.

The evidence is suggestive but not sufficient to infer a causal relationship between parental smoking and the natural history of middle-ear effusion.

Respiratory symptoms and prevalent asthma in school-age children

The evidence is sufficient to infer a causal relationship between parental smoking and cough, phlegm, wheeze and breathlessness among school-age children.

The evidence is sufficient to infer a causal relationship between parental smoking and ever having asthma among school-age children.

Childhood Asthma Onset

The evidence is sufficient to infer a causal relationship between SHS exposure from parental smoking and the onset of wheeze illnesses in early childhood.

The evidence is suggestive but not sufficient to infer a causal relationship between SHS exposure from parental smoking and the onset of childhood asthma.

Lung growth and pulmonary function

The evidence is sufficient to infer a causal relationship between maternal smoking during pregnancy and persistent adverse effects on lung function across childhood.

The evidence is sufficient to infer a causal relationship between exposure to SHS after birth and a lower level of lung function during childhood.

Cancer among adults from exposure to SHS

Lung cancer

The evidence is sufficient to infer a causal relationship between SHS exposure and lung cancer among lifetime non-smokers. This conclusion extends to all SHS exposure, regardless of location.

The pooled evidence indicates a 20% to 30% increase in the risk of lung cancer from SHS exposure associated with living with a smoker.

Breast cancer

The evidence is suggestive but not sufficient to infer a causal relationship between SHS and breast cancer.

Nasal sinus cavity and nasopharyngeal carcinoma

The evidence is suggestive but not sufficient to infer a causal relationship between SHS exposure and a risk of nasal sinus cancer among non-smokers.

Cardiovascular diseases from exposure to SHS

The evidence is sufficient to infer a causal relationship between exposure to SHS and increased risks of coronary heart disease morbidity and mortality among both men and women.

Pooled relative risks from meta-analyses indicate a 25 to 30% increase in the risk of coronary heart disease from SHS exposure.

The evidence is suggestive but not sufficient to infer a causal relationship between SHS exposure and an increased risk of stroke.

Studies of SHS and subclinical vascular disease, particularly carotid arterial wall thickening, are suggestive but not sufficient to infer a causal relationship between SHS exposure and atherosclerosis.

Respiratory effects in adults from SHS exposure

Odour and irritation

The evidence is sufficient to infer a causal relationship between SHS exposure and odour annoyance.

The evidence is sufficient to infer a causal relationship between SHS exposure and nasal irritation.

The evidence is suggestive but not sufficient to conclude that people with nasal allergies or a history of respiratory illnesses are more susceptible to developing nasal irritation from SHS exposure.

Respiratory symptoms

The evidence is suggestive but not sufficient to infer a causal relationship between SHS exposure and acute respiratory symptoms, including cough, wheeze, chest tightness and difficulty breathing among people with asthma.

The evidence is suggestive but not sufficient to infer a causal relationship between SHS exposure and acute respiratory symptoms including cough, wheeze, chest tightness, and difficulty breathing among healthy people.

The evidence is suggestive but not sufficient to infer a causal relationship between SHS exposure and chronic respiratory symptoms.

Lung function

The evidence is suggestive but not sufficient to infer a causal relationship between short-term SHS exposure and an acute decline in lung function in people with asthma.

The evidence is suggestive but not sufficient to infer a causal relationship between chronic second-hand smoke exposure and a small decrement in lung function in the general population.

Asthma

The evidence is suggestive but not sufficient to infer a causal relationship between SHS exposure and adult-onset asthma.

The evidence is suggestive but not sufficient to infer a causal relationship between SHS exposure and a worsening of asthma control.

Chronic obstructive pulmonary disease

The evidence is suggestive but not sufficient to infer a causal relationship between SHS exposure and risk for chronic obstructive pulmonary disease.

Appendix 4

Countering the opposition

While effective smoke-free laws are popular, policy-makers must be prepared to respond to many, often-made arguments aimed at dissuading their passage and implementation. These arguments generally involve ideological issues; challenges to science on the health effects of SHS exposure; proposals for alternatives to smoke-free laws; the economic and other negative effects of smoke-free laws as well as the feasibility of implementation and enforcement.

Previous sections provide background information that can be used to refute many of these arguments. Below are other common arguments not found in these sections with their responses.

The risks of involuntary" smoking are trivial, particularly compared to other health issues

This claim has often been made respecting lung cancer. The increase in risk for a never smoker married to a smoker is about 20% compared to that for a never smoker married to a never smoker. As many scientific publications have shown, a 20% increase in risk is substantial, both at the individual and population levels for an exposure that is so widespread. Highly exposed individuals, such as bar and restaurant workers, may have far higher risks than the population average. The risks associated with heart disease are even larger and more immediate than for lung cancer.

The levels of toxic emissions from cigarettes are low compared to other air contaminants

On the contrary, they are exceptionally high compared with most other environmental and workplace toxins.¹⁴ The air pollution emitted by cigarettes is 10 times greater than diesel car exhaust.¹⁵⁰ Moreover, a recent study of fine particulate matter $PM_{2.5}$ exposure in indoor smoking and smoke-free settings in 24 countries found an average level of $PM_{2.5}$ of $317 \mu g/m^3$ in locations where there was tobacco smoking

compared to $36 \mu g/m^3$ in premises where smoking was not observed during the monitoring period.⁴² This level is more than 12-fold the WHO general air quality guidelines that recommend maximum 24-hour mean exposures of $25 \mu g/m^3$.¹⁵¹ In fact, workers in the United States exposed to tobacco smoke on a regular basis during their working life have a risk of cancer that is between 7 and 700 times higher than levels established as *de minimus* for exposures to contaminants other than SHS.¹³⁸

Epidemiology, the basis for risk estimates of exposure to SHS, is "junk science"

Use of the pejorative term "junk science" to describe the scientific method of epidemiology can be traced back to the tobacco industry and other industries, which are fearful of the implications that epidemiological research may have for their products. Tobacco industry documents have left an extensive trail showing an organized effort to discredit it. A well-established, fundamental science of public health, epidemiology is the scientific method for directly gathering information on the health effects of exposures as received in natural settings. The same approaches employed successfully for studying SHS have been used over decades for infectious diseases and for major acute and chronic diseases. Epidemiological evidence is the foundation for public policy in many areas, such as infection control and management of air and water pollution.

Smoke-free laws are unconstitutional and violate the personal rights and liberties of smokers.

This argument states that smoking is a personal choice for adults and that legislation requiring smoke-free environments victimizes and stigmatizes smokers and sets a dangerous precedent about the reach of the state. However, smoke-free legislation does not say that smokers cannot smoke; it only limits where smoking is permissible to prevent smokers from harming others.

In addition, there is no “right to smoke” in any national constitution or international human rights law.¹⁵² Conversely, the right to life, the right to the “enjoyment of the highest attainable standard of health,” the right to a healthy environment and other rights relevant to protection from exposure to tobacco smoke are found in numerous international human rights laws.¹³⁸

Universal application of smoke-free laws is not realistic or appropriate for developing countries.

The goal of universal protection is also equally valid in high- and low-income jurisdictions, although the means for achieving it may differ. There may be a perception that developing countries cannot afford to implement smoke-free laws, but in reality modest resources are needed to implement these laws; costs go down dramatically following implementation of the laws and improved public health will reduce health-care costs.

Comprehensive smoke-free laws are culturally inappropriate in many places

National, provincial and local governments in varied cultural and ethnic settings and in developed and developing countries have shown that comprehensive smoke-free laws are feasible and successful regardless of a country’s income level, language or ethnic background. In Ireland it was argued that smoking was an essential component of the pub atmosphere, yet Ireland has been smoke-free for more than two years with overwhelming public support. Spanish- and French-speaking countries are often cited as places that could never become smoke-free because smoking is such an integral part of their culture. Yet Uruguay is smoke-free, a majority of the French population supports smoke-free bars and restaurants, and the French-speaking province of Quebec in Canada became smoke-free (including in bars and restaurants) on 31 May 2006.

Universal application can only be achieved gradually

When smoke-free environments became increasingly widespread in North America and other developed countries throughout the 1980s and 1990s, the pace was incremental, with smoke-free environments being introduced gradually on a sector-by-sector basis. This was usually necessary because the public was less aware of the damage caused by SHS exposure and because smoke-free environments were not a familiar part of the public consciousness. An incremental approach may be the only practical initial option for some countries, but it may not be required in others. The benchmark for smoke-free environments is now far higher than when policies first began to be implemented, and this has made rapid change far more feasible. The many case studies now available show that jurisdictions can go and have gone from virtually no smoke-free legislation to comprehensive 100% smoke-free legislation in a single step. Scotland and Uruguay are just two significant examples of this.

Smoke-free environments cannot be implemented unless combined with support to help smokers quit

The success of smoke-free laws is not dependent upon providing cessation programmes in smoke-free settings. Programmes to help smokers quit in settings that become smoke-free can send a supportive message to smokers reminding them that smoke-free policies are not meant to isolate them but to protect everyone’s health. However, experience shows that they are not necessary for smooth implementation of smoke-free laws. While smoking cessation programmes can be a useful ancillary intervention to smoke-free environments if resources are available, lack of resources for smoking cessation programmes should not delay implementation of smoke-free environments. Protection of public health is the primary goal of smoke-free environments.

n Also known as passive smoking

o PM2.5 are harmful fine particles that are easily inhaled deep into the lungs and are emitted in large quantities from burning cigarettes

What if they passed a law that took away 30% of your business?

What happens if your state legislature or city council bans smoking in restaurants?

You'll lose business. Maybe as much as 30 percent of your business, according to restaurant owners who have experienced such bans. Before a smoking ban was repealed in Beverly Hills, restaurants were expecting to lose a total of \$12 million in 1987 as a result. Here's the real news, though. In a recent Gallup poll almost 20 percent of the U.S. population said they would not visit

a restaurant that prohibits smoking. Can you risk closing your doors to 20 percent of your customers?

The Tobacco Institute can help you make sure this never happens. Write us and we'll send you information on how other restaurant groups have fought smoking bans. We'll help you develop ways to accommodate all your customers—smokers and non-smokers alike. And we'll help you ensure that your voice is heard when government takes up the issue.

The Tobacco Institute
1615 17th Street, Northwest
Washington, DC 20006

Fig. 3 The Tobacco Institute ran this ad in California in the late 1980s. The president of the Beverly Hills Restaurant Association, Barry Fogel, later testified that, "There was no Beverly Hills Restaurant Association before the smoke-free ordinance. We were organized by the tobacco industry. The tobacco industry repeatedly claimed that Beverly Hills restaurants suffered a 30% decline in revenues during the five months that the [original] smoke-free ordinance was in effect. Figures from the State Board of Equalization using sales tax data, however, showed a slight increase in restaurant sales." Vogel went on to say that he regretted his participation in opposing the law. The chart below shows the industry's claim versus actual sales in Beverly Hills.

Smoke-free laws will reduce business in the hospitality sector and harm tourism.

The impact of smoke-free legislation on employment and business has been studied in dozens of jurisdictions. Not a single study using objective data and sound research methodology has found an overall negative impact of smoke-free legislation association.^{45, 153} The effects are uniformly neutral or positive, with little short-term effect on the hospitality business and some positive effects in the long-term as non-smokers start going to bars and other venues that they once avoided because of second-hand smoke.

Studies quoted by opposition groups indicating dire economic effects from smoke-free laws normally rely on subjective data or do not evaluate objective data with acceptable scientific methods. Data may also be reported out of context. For example, opponents of Ireland's smoke-free law noted that receipts for beer and spirits in pubs declined following implementation of the law. What they failed to mention is that this trend began before the law came into effect, and did not worsen as a result of the law.¹⁵⁴

Tobacco industry front groups have released many studies presenting as data the predictions or opinions of a select group of bar owners. These predictions always turn out to be wrong, as the tobacco industry itself has admitted (Figs. 3, 4).

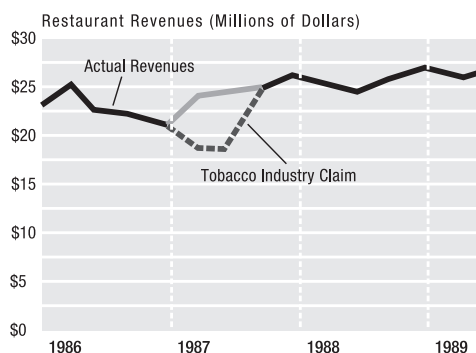


Fig. 4 Actual revenues vs tobacco industry claim

Some places have promoted smoke-free environments in their tourism campaigns, recognizing that many visitors will value the opportunity to enjoy entertainment without tobacco smoke (Fig. 5).



Fig. 5 Norway's tourist promotions highlight its smoke-free policies.

Smoke-free workplaces will cause smokers to smoke more in the home, thus increasing children's exposure to SHS.

There is no evidence that smoke-free workplaces will increase children's exposure to tobacco smoke at home. Indeed, a growing body of evidence suggests that legislation banning smoking in public places and workplaces leads to a reduction in smoking in the home. Smoke-free workplaces encourage smokers to quit. The reduction in smoking among adults means that fewer children are likely to be exposed to smoke at home. Smoke-free workplaces are associated with a greater likelihood of workers implementing smoke-free policies in their homes.¹⁵⁵

100% smoke-free environments are not enforceable: people will not obey the laws.

The reality is just the opposite. Unclear laws that designate square footage or percentages for non-smoking and smoking sections; prohibit smoking only during certain hours in specific establishments; or set requirements for DSRs create confusion for institutions implementing the law, and for employees and customers and inspectors enforcing the law.

On the other hand, if the law simply requires a certain type of institution (such as schools or retail establishments) to be 100% smoke-free, building managers and owners know that they cannot permit any smoking in their building, employees and customers know that they cannot smoke in the establishment, and inspectors know immediately if an institution is complying with the law: either someone is smoking inside or no one is smoking inside.

Appendix 5

Resources

Smoke-free experiences

- **Multiple case studies**

Global Smokefree Partnership

(<http://www.globalSmokefreePartnership.org/evidence.php>, accessed 27 March 2007)

- **Bermuda**

Tobacco Products (Public Health) Amendment Act 2005

(<http://www.fortknnox.bm/NXT/gateway.dll?f=templates&fn=default.htm>, accessed 27 March 2007) or search under <http://www.bermudalaws.bm/>

- **California State, USA**

Eliminating Smoking in Bars, Taverns, and Gaming Clubs: The California Smoke-free Workplace Act

(http://www.smokefreeengland.co.uk/files/smokefreeworkplacecasestudy_califonia.pdf accessed 27 March 2007).

- **Ireland**

Office of Tobacco Control – Smoke-free workplaces

(http://www.otc.ie/communication_smoke-free.asp, accessed 27 March 2007)

Research and publications describing and evaluating the law

(http://www.otc.ie/comm_pub.asp#annual.asp, accessed 27 March 2007)

- **Italy**

Ministry of Health

(<http://www.ministerosalute.it/dettaglio/phPrimoPiano.jsp?id=247>, accessed 27 March 2007)

- **New Zealand**

Ministry of Health – Smoke-free Law home page

(<http://www.moh.govt.nz/smoke-freelaw>, accessed 27 March 2007)

Going Smoke free in New Zealand, Lessons from the Battlefield. ASH New Zealand.

(<http://www.ash.org.nz>, accessed 27 March 2007)

Research and publications describing and evaluating the law

(http://www.moh.govt.nz/moh.nsf/wpg_Index/About-smoke-freelaw-research, accessed 27 March 2007)

- **Norway**

The introduction of smoke-free hospitality venues in Norway. Impact on revenues, frequency of patronage, satisfaction and compliance. The Norwegian Institute for Alcohol and Drug Research (SIRUS) (<http://www.sirus.no/cwobjekter/SIRUSskrifter0206eng.pdf>, accessed 27 March 2007)

- **Scotland**

Scottish Executive

(<http://www.clearingtheairscotland.com/index.html>, accessed 27 March 2007)

ASH Scotland: The Unwelcome Guest (case study)

(http://www.ashscotland.org.uk/ash/ash_display.jsp?pContentID=4366&p_applic=CCC&pElementID=462&pMenuID=11&p_service=Content.show&, accessed 27 March 2007)

- **Sweden**

Government of Sweden

(<http://www.sweden.gov.se/sb/d/5625;jsessionid=azTLvs7yq3b8>, accessed 27 March 2007)

Swedish National Institute of Public Health

(http://www.fhi.se/templates/Page____5623.aspx, accessed 27 March 2007)

- **Uruguay**

Ministry of Public Health Tobacco Control Programme

(http://www.msp.gub.uy/categoria_46_1_1.html, accessed 27 March 2007)

Ministry of Public Health – link to campaign materials

(http://www.msp.gub.uy/noticia_546_1.html, accessed 27 March 2007)

- **New York State, USA**

(http://www.health.state.ny.us/nysdoh/tobacco/reports/docs/nytcp_eval_report_final_11-19-04.pdf, accessed 27 March 2007)

- **Victoria, Canada**

British Columbia capital regional district 100% smoke-free bylaw: a successful public health campaign despite industry opposition

(<http://tc.bmjournals.com/cgi/content/abstract/12/3/264>, accessed 27 March 2007)

Smoke-Free: How One City Successfully Banned Smoking in All Indoor Public Places.

Contact Dr Richard Stanwick, Chief Medical Officer of Health, Capital Regional District at: rstanwick@caphealth.org or order from:

(<http://www.amazon.com/gp/product/1894694317/002-4803431-6852064?v=glance&n=283155>, accessed 27 March 2007)

- **El Paso, USA**

PowerPoint presentation: El Paso, Star of Texas: Mobilizing a community of color; the passage of a smoke-free ordinance

(<http://www.smoke-freeamericas.org/ppt/El%20Paso%20Smoke-Free%20Experience.PPT>, accessed 27 March 2007)

Clean Indoor Air in El Paso, Texas: A case study

(http://www.cdc.gov/pcd/issues/2005/jan/04_0065.htm, accessed 27 March 2007)

- **Countering the opposition**

Americans for Non-smokers' Rights (ANR) What to expect from the tobacco industry, November 2004. (<http://www.no-smoke.org/document.php?id=271>, accessed 27 March 2007)

Tobacco Scam (focus on restaurants and bars)
(www.tobaccoscam.ucsf.edu, accessed 27 March 2007)

Lifting the smokescreen: Tobacco industry strategy to defeat smoke-free policies and legislation (companion to the smoke-free Europe report, cited below)
(http://www.ersnet.org/ers/show/default.aspx?id_attach=13552, accessed 27 March 2007)

- **Ventilation**

American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. Environmental Tobacco Smoke. Position Paper. Approved by ASHRAE Board of Directors 30 June 2005. Available at:
(http://www.ashrae.org/content/ASHRAE/ASHRAE/ArticleAltFormat/20058211239_347.pdf, accessed 27 March 2007)

Ontario Coalition for Action on Tobacco (OCAT) – facts on designated smoking rooms
(<http://www.ocat.org/onlegislation/designated.html>, accessed 27 March 2007)

- **Package warnings**

Pan American Health Organization (WHO Regional Office of the Americas)
http://www.paho.org/English/AD/SDE/RA/Tob_pack_warnings.htm (English)
http://www.paho.org/spanish/ad/sde/ra/tab_paq_advertencias.htm (español)

- **General**

Tobacco Control Legal Symposium (TCLS), Legal Authority to Regulate Smoking and Common Threats and Challenges
(<http://www.wmitchell.edu/tobaccolaw/resources/Sbarra.pdf>, accessed 27 March 2007)

Lifting the smokescreen: 10 reasons for a smoke-free Europe
(http://www.ersnet.org/ers/show/default.aspx?id_attach=13509, accessed 27 March 2007)

Smoke free Europe makes economic sense: A report on the economic aspects of Smoke free policies by the Smoke Free Europe partnership. May 2005.
(<http://www.smokefreeeurope.com/assets/downloads/smoke%20free%20europe%20-%20economic%20report.pdf>, accessed 27 March 2007)

Enacting strong smoke-free laws. The advocate's guide to legislative strategies 2006. American Cancer Society/UICC Tobacco Control Strategy Planning Guide #3 2006.
(<http://www.globalSmokeFreePartnership.org/files/129.pdf?PHPSESSID=0319ee133dffcdc25cb84f9c5fcebce#search=%22Enacting%20strong%20smoke-free%20laws%20advocate's%20guide%20legislative%20UICC%20%22>, accessed 27 March 2007)

Enforcing Strong Smoke-free Laws. The advocate's guide to enforcement strategies. American Cancer Society/UICC Tobacco Control Strategy Planning Guide #4 2006. (<http://www.globalSmokefreePartnership.org/files/143.pdf?PHPSESSID=de8533cfd74e60f10340183a49e29548#search=%22Enacting%20strong%20smoke-free%20laws%20advocate's%20guide%20UICC%20%22>, accessed 27 March 2007)

- **Additional resource organizations**

Numerous case studies, research investigations, guidelines, capacity-building tools, and organizations are available to assist WHO Member States in implementation of smoke-free environments. Here are some key organizations to consult about available resources.

- **Government and intergovernmental**

World Health Organization

(<http://www.who.int/tobacco>, accessed 27 March 2007)

- **Smoke Free Americas**

(<http://www.smokefreeamericas.org>, accessed 27 March 2007)

Centers for Disease Control and Prevention Media Campaign Resource Center

(<http://www.cdc.gov/tobacco/mcrc/index.htm>, accessed 27 March 2007)

Health Canada

(http://www.hc-sc.gc.ca/hl-vs/tobac-tabac/second/index_e.html, accessed 27 March 2007)

- **Nongovernmental**

Global Smoke free Partnership

(<http://www.globalSmokefreePartnership.org>)

Americans for Nonsmokers' Rights

(<http://www.no-smoke.org/>, accessed 27 March 2007)

Physicians for a Smoke-Free Canada

(<http://www.smoke-free.ca/>, accessed 27 March 2007)

Smoke-free Thailand

(<http://www.smokefreezone.or.th>, accessed 27 March 2007)

Smoke-free Europe

(http://www.smoke-freeeurope.com/date_and_venue.htm, accessed 27 March 2007)

SECTION VII – REFERENCES

- ¹ *A study of public attitudes toward cigarette smoking and the tobacco industry in 1978*. Roper Organization, Volume 1. Prepared for the Tobacco Institute, 1978.
[<http://legacy.library.ucsf.edu/tid/yuf92f00>, accessed 4 January 2007].
- ² *WHO Framework Convention on Tobacco Control*, Article 8.2. Geneva, World Health Organization, 2003.
- ³ Conference of the Parties to the *WHO Framework Convention on Tobacco Control*. Decision A/FCTC/COP1(15). Documents A/FCTC/COP1/DIV/8, pp. 45-48 and A/FCTC/COP1/DIV/8/Corr.1, pp. 2-4.
- ⁴ *Report on Carcinogens*, Eleventh Edition. Washington DC, United States Department of Health and Human Services, National Institutes of Health, National Institute of Environmental Health Sciences, National Toxicology Program, 2005
[<http://ntp.niehs.nih.gov/ntp/roc/eleventh/profiles/s176toba.pdf>, accessed 4 January 2007].
- ⁵ Simpson WJ. A preliminary report on cigarette smoking and the incidence of prematurity. *American Journal of Obstetrics & Gynecology*, 1957, 73:808-815.
- ⁶ Cameron P. The presence of pets and smoking as correlates of perceived disease. *The Journal of Allergy and Clinical Immunology*, 1967, 40:12-15.
- ⁷ Cameron et al. The health of smokers' and non-smokers' children. *The Journal of Allergy and Clinical Immunology*, June 1969, 43(6):336-41.
- ⁸ *International Consultation on Environmental Tobacco Smoke (ETS) and Child Health*. Consultation Report. Geneva, World Health Organization, 1999.
- ⁹ *Tobacco smoke and involuntary smoking: summary of data reported and evaluation*. Lyon, International Agency for Research on Cancer, 2004 (IARC Monographs, Vol. 83).
- ¹⁰ *The Health Consequences of Smoking: A Report of the Surgeon General*. Atlanta, United States Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2004.
- ¹¹ *Health effects of exposure to environmental tobacco smoke*. The report of the California Environmental Protection Agency. Bethesda, United States Department of Health and Human Services, National Institutes of Health, National Cancer Institute, Smoking and Tobacco Control, 1999 (Monograph 10, NIH Pub. No. 99-4645).
- ¹² UK Scientific Committee on Tobacco and Health, HSMO. *Report of the Scientific Committee on Tobacco and Health*. The Stationary Office, 1998.
- ¹³ *Respiratory Health Effects of Passive Smoking: Lung Cancer and Other Disorders*. Washington DC, United States Environmental Protection Agency, Office of Research and Development, Office of Health and Environmental Assessment. December 1992 (EPA/600/6-90/006F)
[<http://www.epa.gov/smoke-free/healtheffects.html>, accessed 4 January 2007].

- 14 *Proposed Identification of Environmental Tobacco Smoke as a Toxic Air Contaminant, SRP Approved Version. Part B: Health Effects.* California Environmental Protection Agency, 24 June 2005 (<http://www.arb.ca.gov/toxics/ets/finalreport/finalreport.htm>, accessed 4 January 2007).
- 15 *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General.* Atlanta, United States Department of Health and Human Services, Centers for Disease Control and Prevention, Coordinating Center for Health Promotion, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2006 (<http://www.cdc.gov/tobacco/sgr/sgr2006/index.htm>, accessed 4 January 2007).
- 16 Barnoya J, Glantz SA. Cardiovascular Effects of Second-hand Smoke: Nearly as Large as Smoking. *Circulation*, 2005, 111:2684-2698.
- 17 Taylor AE, Johnson DC, Kazemi H. Environmental tobacco smoke and cardiovascular disease. A position paper from the Council on Cardiopulmonary and Critical Care, American Heart Association. *Circulation*, 1992, Vol. 86, 699-702.
- 18 *Secondhand Smoke: Review of evidence since 1998. Update of evidence on health effects of secondhand smoke.* London, Scientific Committee on Tobacco and Health. (SCOTH), United Kingdom Department of Health, 2004.
- 19 Whincup PH et al. Passive smoking and risk of coronary heart disease and stroke: prospective study with cotinine measurement. *British Medical Journal*, 2004, 329(7459):200-5.
- 20 Hirayama T. Non-smoking wives of heavy smokers have a higher risk of lung cancer: a study from Japan. *British Medical Journal*, [Clin Res Ed], 1981, 282(6259):183-5.
- 21 Trichopoulos D et al. Lung cancer and passive smoking. *International Journal of Cancer*, 1981, 27:1-4.
- 22 Yue Chen BM, Wan-Xian LI, Shunzhang Y. Influence of passive smoking on admissions for respiratory illness in early childhood. *British Medical Journal*, 1986, 293:303-6.
- 23 Strachan D, Cook D. Health effects of passive smoking. Parental smoking and lower respiratory illness in infancy and early childhood. *Thorax*, 1997, 52:905-914.
- 24 Samet JM, Wang SS. *Environmental tobacco smoke.* In: Lippmann M, ed. *Environmental toxicants: human exposures and their health effects.* New York, Van Nostrand Reinhold Co, Inc, 2000:319-75.
- 25 Strachan D, Cook D. Health effects of passive smoking. Parental smoking childhood asthma: longitudinal and case-control studies. *Thorax*, 1998, 53:204-212.
- 26 Samet JM, Tager IB, Speizer FE. The relationship between respiratory illness in childhood and chronic airflow obstruction in adulthood. *American Review of Respiratory Disease*, 1983, 127:508-23.
- 27 Tager IB. Passive smoking-bronchial responsiveness and atopy. *American Review of Respiratory Disease*, 1988, 138:507-9.

- 28 Evans D et al. The impact of passive smoking on emergency room visits of urban children with asthma. *American Review of Respiratory Disease*, 1987, 135 (3):567-72.
- 29 Weitzman M et al. Maternal smoking and childhood asthma. *Pediatrics*, 1990, 85(4):505-11.
- 30 *The Health Consequences of Involuntary Smoking: A Report of the Surgeon General*. Rockville, United States Department of Health and Human Services, Centers for Disease Control and Prevention, 1986.
- 31 Samet JM, Lange P. Longitudinal studies of active and passive smoking. *American Journal of Respiratory and Critical Care Medicine*, 1996, 154:S257-65.
- 32 California Environmental Protection Agency, Office of Environmental Hazard Assessment. *Health Effects of Exposure to Environmental Tobacco Smoke*. Final Report, September 1997. (<http://www.oehha.org/air/environmentaltobacco/finalets.html>, accessed 15 March 2007)
- 33 Martin and Bracken. Association of low birth weight with passive smoke exposure in pregnancy. *American Journal of Epidemiology*, 1986, 124:633-42.
- 34 Rubin D et al. Effect of passive smoking on birth-weight. *Lancet*, 1986, 2:415-417.
- 35 *Reducing the Health Consequences of Smoking: 25 Years of Progress: A Report of the Surgeon General*. Washington, DC, United States Department of Health and Human Services, Centers for Disease Control and Prevention, 1989.
- 36 *Smoking and reproductive life: the impact of smoking on sexual, reproductive and child health*. London, Board of Science and Education and Tobacco Control Resource Centre, February 2004.
- 37 *Smoking and Women's Health: A Report of the Surgeon General*. Atlanta, United States Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2001.
- 38 The GTSS collaborative group. A cross-country comparison of exposure to second-hand smoke among youth. *Tobacco Control*, 2006, 15(Suppl. II):ii4-ii9.
- 39 Sansores RH et al. Exposición pasiva al humo de tabaco en los Institutos Nacionales de Salud en México. *Revista del Instituto Nacional de Enfermedades Respiratorias*, 2000, 13(2):96-100 (<http://www.imbiomed.com.mx/INER/Inv13n2/espanol/Win002-03.html>, accessed 4 January 2007).
- 40 Warren CW et al. *Tobacco use and cessation counseling: Cross-country data from the Global Health Professionals Survey (GHPS)*. Atlanta, Centers for Disease Control internal report, 2006.
- 41 Navas-Acien A et al. Secondhand Tobacco Smoke in Public Places in Latin America, 2002-2003. *Journal of the American Medical Association*, 2004, 291: 2741-2745.

- 42 Hyland A et al. *A 24-Country Comparison of Levels of Indoor Air Pollution in Different Workplaces*. September 2006.
(http://www.tobaccofreeair.org/downloads/GAMS%20report.v7Sept_06.pdf, accessed 26 March 2007).
- 43 Travers MJ et al. *A 32-Country Comparison of Workplace Tobacco Smoke Exposure*. Abstract presented to the SRNT's *13th Annual Meeting* 21–24 February 2007. Austin, Texas.
- 44 California Environmental Protection Agency. *Proposed Identification of Environmental Tobacco Smoke as a Toxic Air Contaminant, SRP Approved Version. Executive Summary. Appendix III*, 24 June 2005
(http://www.arb.ca.gov/toxics/id/summary/ETS_execsum.pdf, accessed 15 March 2007).
- 45 The Smoke Free Partnership. *Lifting the smokescreen: 10 reasons for a smoke-free Europe*. February 2006 (http://www.ersnet.org/ers/show/default.aspx?id_attach=13509, accessed 4 January 2007)
- 46 Annual Smoking-Attributable Mortality, Years of Potential Life Lost, and Economic Costs – United States, 1995–1999. *Morbidity Mortality Weekly Report*, 12 April 2002, 51(14):300–3.
- 47 Jamrozik K. Estimate of deaths attributable to passive smoking among UK adults: data-base analysis. *British Medical Journal*, 2 March 2005.
- 48 Woodward A, Hill S, Blakely T. Deaths caused by second-hand smoke: estimates are consistent. *Tobacco Control*, 2004, 13:319–320.
- 49 Wigle DT et al. Deaths in Canada from lung cancer due to involuntary smoking. *Canadian Medical Association Journal*, 1987, 136(9):945–951.
- 50 Ross H. Economics of smoke-free policies. In: *The Smoke Free Europe partnership. Smoke free Europe makes economic sense: A report on the economic aspects of Smoke free policies*, May 2005. (<http://www.ehnheart.org/files/SmokefreeEurope-102853A.pdf>, accessed 26 Feb 2007).
- 51 Adams K. Magnitude of Smoking Attributable Costs. Rollins School of Public Health, Emory University, Atlanta, Ga. Background Paper to the *International Consultation on Environmental Tobacco Smoke (ETS) and Child Health* 11–14 January 1999 Geneva, Switzerland (WHO Technical Document WHO/NCD/TFI/99.11).
- 52 Behan D, Eriksen M, Yijia Lin. *Economic effects of environmental tobacco smoke*. Society of Actuaries, 31 March 2005.
(<http://www.soa.org/ccm/content/areas-of-practice/life-insurance/research/economic-effects-of-environmental-tobacco-smoke-SOA/>, accessed 24 November 2006).
- 53 McGhee SM et al. Cost of tobacco-related diseases, including passive smoking, in Hong Kong. *Tobacco Control*, 2006, 15:125–130.
- 54 *Report on Carcinogens*, Eleventh Edition. Washington, DC, Department of Health and Human Services, 2005 (<http://ntp.niehs.nih.gov/ntp/roc/eleventh/profiles/s176toba.pdf>, accessed 24 November 2006).

- 55 Drope J, Aguinaga-Bialous S, Glantz S. Tobacco industry efforts to present ventilation as an alternative to smoke-free environments. *Tobacco Control*, 2004, 13 (Suppl I):i41-i47.
- 56 Alevantis L et al. Effectiveness of Ventilation in 23 Designated Smoking Areas in California Office Buildings. *Proceedings: IAQ 94 - Engineering Indoor Environments*, American Society of Heating, Refrigerating and Air-Conditioning Engineers, 30 October–2 November 1994.
- 57 Liu K, Alevantis L, Offermann F. A Survey of Environmental Tobacco Smoke Controls in California Office Buildings. *Indoor Air*, 2001, 11:26-34.
- 58 Alevantis L et al. 2003. Designing for Smoking Rooms. *ASHRAE Journal*, 2003, 45(7): 26-32.
- 59 Wagner J et al. Environmental Tobacco Smoke Leakage from Smoking Rooms. *Journal of Occupational and Environmental Hygiene*, 2004, 1(2): 110-118.
- 60 Repace J, Kawachi I, Glantz S. Fact Sheet on Secondhand Smoke. *Second European and First Iberoamerican Conference on Tobacco or Health*. Canary Islands, 23-27 February 1999. (<http://www.repace.com/factsheet.html>, accessed 20 November 2006).
- 61 Nebot M et al. Environmental tobacco smoke exposure in public places of European cities. *Tobacco Control*, 2005;14:60-63.
- 62 Fong GT et al. *The impact of the Smoke-Free Ontario Act on air quality and biomarkers of exposure in casinos: A quasi-experimental study*. Oral presentation given at the Ontario Tobacco Control Conference, Niagara Falls, Ontario. December 2006 (<http://www.arts.uwaterloo.ca/~gfong/smokefree/Fong-Casino-OTCC-Dec2006-R.pdf>, accessed 26 February 2007).
- 63 Glantz S, Schick S. Implications of ASHRAE's guidelines for ventilation in smoking-permitted areas. *ASHRAE Journal*, 2004, 46(3):54-61.
- 64 Junker MH et al. Acute Sensory Responses of Nonsmokers at Very Low Environmental Tobacco Smoke Concentrations in Controlled Laboratory Settings. *Environmental Health Perspectives*, 2001, 109:1045-1052.
- 65 Repace J. Controlling tobacco smoke pollution. *IAQ Applications*, 2005, 6(3):11-15 (<http://www.repace.com/pdf/iaqashrae.pdf>, accessed 20 November 2006).
- 66 Jenkins R et al. Environmental tobacco smoke in the nonsmoking section of a restaurant: a case study. *Regulatory Toxicology and Pharmacology*, 2001, 34:313-20.
- 67 Repace J. *Can Ventilation Control Second-hand Smoke in the Hospitality Industry? An Analysis of the Document "Proceedings of the Workshop on Ventilation Engineering Controls for Environmental Tobacco Smoke in the Hospitality Industry"*, sponsored by the Federal Occupational Safety and Health Administration and the American Conference of Governmental Industrial Hygienists. Repace Associates, Inc. Second-hand Smoke Consultants, June 2000.
- 68 Bialous SA, Glantz SA. ASHRAE Standard 62: tobacco industry's influence over national ventilation standards. *Tobacco Control*, 2002, 11:315-328.

- 69 ASHRAE. *Environmental Tobacco Smoke, Position Document*, June 2005. (<http://www.ashrae.org>, accessed 20 November 2006).
- 70 ISO/DIS 16814 draft reviewed by ISO/TC 205/WG 4 N175 rev2 of 18 October 2006.
- 71 Wagner J et al. Environmental Tobacco Smoke Leakage from Smoking Rooms. *Journal of Occupational and Environmental Hygiene*. Vol. 1, No. 2, February 2004 , 1:110-118.
- 72 Pion, M, Givel MS. Airport smoking rooms don't work. *Tobacco Control*, 2004, 13:i37. (http://tobaccocontrol.bmj.com/cgi/content/abstract/13/suppl_1/i37, accessed 27 March 2007)
- 73 Lam T-H et al. Secondhand smoke and respiratory ill health in current smokers. *Tobacco Control*, 2005, 14:307-314; doi:10.1136/tc.2005.011775.
- 74 Toronto Staff Report. Toronto's No Smoking By-law (Municipal Code Chapter 709-Smoking) – Final Phase Implementation Update. Memorandum from Dr David McKeown, Medical Officer of Health to Board of Health, 14 November 2005. (<http://www.toronto.ca/legdocs/2005/agendas/committees/hl/hl051128/it003.pdf>, accessed 20 November 2006).
- 75 Ordinance no. 2006-217 an ordinance of the city of Calabasas regulating second-hand smoke and amending the Calabasas municipal code. (<http://www.cityofcalabasas.com/pdf/agendas/council/2006/021506/item2-02006-217.pdf>, accessed 27 March 2007).
- 76 Nakahara S. Smoking brings another danger to children in Japan. *Injury Prevention*, 2005, 11:318; doi:10.1136/ip.2005.009613.
- 77 Queensland Government Health tobacco laws: Outdoor public areas (<http://www.health.qld.gov.au/atods/tobaccolaws/outdoor/default.asp>, accessed 26 February 2007).
- 78 Anon. Goa to ban smoking in public from Oct 2. *Deccan Herald* (India), 12 September 1999.
- 79 Stadia Football fans facing smoking ban. *BBC News*. (<http://news.bbc.co.uk/1/hi/england/derbyshire/4512829.stm>, accessed 26 March 2007).
- 80 *The Tobacco Control Environment: Ontario and Beyond*. Ontario Tobacco Research Unit. November 2006. (http://www.otru.org/pdf/12mr/12mr_no1_final.pdf, accessed 26 March 2007).
- 81 For example, Saskatoon, Canada (http://www.saskatoon.ca/org/clerks_office/bylaws/8286.pdf, accessed 20 November 2006) and Hawaii beginning in November 2006.
- 82 Mulcahy M et al. Second-hand smoke exposure and risk following the Irish smoking ban: an assessment of salivary cotinine concentrations in hotel workers and air nicotine levels in bars. *Tobacco Control*, 2005, 14(6):384-8.
- 83 *Clarification - Outdoor dining and drinking areas. Issues relating to outdoor dining and drinking areas and enclosed (sections 5A and 5C of the Tobacco Act 1987 from 1 July 2007)*. State Government of Victoria, Australia, Department of Human Services. May 2006 (<http://www.health.vic.gov.au/tobaccoreforms/outdoor.htm>, accessed 24 March 2007).

- 84 *Clean air on patios in the capital region. Part A: an overview of the proposed amendment to the CRD clean air bylaw requiring all patio spaces of businesses where food and beverages are served to be smoke free.* Capital Regional District of British Columbia, Canada, 7 March 2007 (<http://www.crd.bc.ca/cleanair/documents/background.pdf#view=Fit>, accessed 24 March 2007).
- 85 *One-Year Review of the Massachusetts Smoke-Free Workplace Law. M.G.L. Chapter 270, Section 22. July 5, 2004 – June 30, 2005.* Massachusetts Tobacco Control Program, Massachusetts Department of Public Health (http://www.mass.gov/dph/mtcp/legal/workplacelaw_review_20042005.pdf accessed 24 March 2007).
- 86 Pollard R. Pubs and clubs see loophole in smoking rules. *Health Reporter*, 25 February 2005. (<http://www.smh.com.au/news/National/Pubs-and-clubs-see-loophole-in-smoking-rules/2005/02/24/1109180044015.html>, accessed 24 March 2007)
- 87 *Smoke-free workplaces in Ireland: A one-year review.* Clane, Ireland, Office of Tobacco Control, March 2005.
- 88 Allwright S et al. Legislation for smoke-free workplaces and health of bar workers in Ireland: before and after study. *British Medical Journal*, 2005, 331(7525):1117.
- 89 Eisner M, Smith A, Blanc P. Bartenders' respiratory health after establishment of smoke-free bars and taverns. *Journal of The American Medical Association*, 1998, 280:1909-1914.
- 90 Bates M et al. Exposure of hospitality workers to environmental tobacco smoke. *Tobacco Control*, 2002, 11:125-129.
- 91 Menzies D et al. Respiratory Symptoms, Pulmonary Function, and Markers of Inflammation Among Bar Workers Before and After a Legislative Ban on Smoking in Public Places. *Journal of the American Medical Association*, 2006, 296(14):1742-48.
- 92 Barone-Adesi F et al. Short-term effects of Italian smoking regulation on rates of hospital admission for acute myocardial infarction. *European Heart Journal*, 2006, [Epub ahead of print] doi:10.1093/eurheartj/ehl201.
- 93 Sargent RP, Shepard RM, Glantz SA. Reduced incidence of admissions for myocardial infarction associated with public smoking ban: before and after study. *British Medical Journal*, 2004, 328(7446):977-80.
- 94 Bartecchi C et al. Reduction in the Incidence of Acute Myocardial Infarction Associated with a Citywide Smoking Ordinance. *Circulation*, 2006, 114:1490-1496.
- 95 Jha P. *Curbing the epidemic: governments and the economics of tobacco control: development in practice.* Washington, DC, The World Bank, 1999.
- 96 Fichtenberg C, Glantz S. Effect of smoke-free workplaces on smoking behaviour: systematic review. *British Medical Journal*, 2002, 325:188.
- 97 Borland R et al. Trends in environmental tobacco smoke restrictions in the home in Victoria, Australia. *Tobacco Control*, 1999, 8: 266-271.

- ⁹⁸ Ong M, Glantz S. Free nicotine replacement therapy programmes vs implementing smoke-free workplaces: a cost-effectiveness comparison. *American Journal of Public Health*, 2005, June 95(6):969-75.
- ⁹⁹ Gallus S et al. Effects of new smoking regulations in Italy. *Annals of Oncology*, Advance Access published online on 7 November 2005, doi:10.1093/annonc/mdj070.
- ¹⁰⁰ National Institute for Alcohol and Drug Research, Research Centre for Health Promotion. *Smoke-free bars and restaurants in Norway*. Oslo, National Institute for Alcohol and Drug Research (SIRUS) and Research Centre for Health Promotion (HEMIL), 2005.
- ¹⁰¹ *The smoke is clearing: Anniversary Report 2005*. Wellington, New Zealand Ministry of Health, 2005.
- ¹⁰² Farkas AJ et al. Association between household and workplace smoking restrictions and adolescent smoking. *Journal of the American Medical Association*, 2000, 284:717-722.
- ¹⁰³ Wakefield MA et al. Effect of restrictions on smoking at home, at school and in public places on teenage smoking: cross sectional study. *British Medical Journal*, 2000, 321:333-337.
- ¹⁰⁴ Parrott S, Godfrey C, Raw M. Costs of employee smoking in the workplace in Scotland. *Tobacco Control*, 2000, 9:187-192.
- ¹⁰⁵ Madden D. Setting the appropriate tax on cigarettes in Ireland. Working paper series, Wp02/05, Centre for Economic Research, October 2002.
- ¹⁰⁶ United States Occupational Safety and Health Administration. *Indoor Air Quality*, 1994, 59:15968-16039.
- ¹⁰⁷ *Smoke-free workplaces at a glance*. Washington DC, World Bank (<http://www1.worldbank.org/tobacco/AAG%20SmokeFree%20Workplaces.pdf>, accessed 24 March 2007).
- ¹⁰⁸ Dearlove JV, Bialous SA, Glantz SA. Tobacco industry manipulation of the hospitality industry to maintain smoking in public places. *Tobacco Control*, 2002, June, 11(2):94-104.
- ¹⁰⁹ Scollo M et al. Review of the quality of studies on the economic effects of smoke-free policies on the hospitality industry. *Tobacco Control*, 2003, 12:13-20.
- ¹¹⁰ Alamar BC, Glantz SA. Smoke-free ordinances increase restaurant profit and value. *Contemporary Economic Policy*, 2004, 22:520-525.
- ¹¹¹ Swart JC. An Overlooked Cost of Employee Smoking. *Personnel*, August 1990.
- ¹¹² *The Costs and Benefits of Smoking Restrictions: An Assessment of the Smoke-Free Environmental Act of 1993* (H.R. 3434). Washington, DC, Environmental Protection Agency, Office of Air and Radiation, April 1994.
- ¹¹³ Durkan J, Macdowell M. *Smoke-free Policies: Market Research and Literature Review On Economic Effects On The Hospitality Sector*. The impact of smoke-free policies on the hospitality sector. A review of the literature. Clane, Office of Tobacco Control, 2003.

- ¹¹⁴López-Nicolás A, Pinilla-Domínguez J. *Evaluación del impacto de la ley de medidas sanitarias contra el tabaquismo en el sector hostelero: bares y restaurants*. A report of the National Committee for the prevention of tobacco use. Spain, January 2006 (http://www.cnpt.es/docu_pdf/Informeimpacto2_final.pdf, accessed 24 March 2007).
- ¹¹⁵Ludbrook A et al. *International Review of the Health and Economic Impact of the Regulation of Smoking in Public Places*. NHS, Scotland, January 2005 (<http://www.cymru.gov.uk/keypubassemoking/content/0105-paper1-w.pdf>, accessed 24 March 2007).
- ¹¹⁶López-Nicolás A, Pinilla-Domínguez J. *Evaluación del impacto de la ley de medidas sanitarias contra el tabaquismo sobre los costes empresariales y los costes sanitarios*. A report of the National Committee for the prevention of tobacco use. Spain, December 2005 (http://www.cnpt.es/docu_pdf/Informe_fiscalidad_01.pdf, accessed 24 March 2007).
- ¹¹⁷*First annual independent evaluation of New York State's tobacco control program. Final report*. Research Triangle Park, RTI International, November 2004.
- ¹¹⁸Repace J. *An Air Quality Survey of Respirable Particles and Particulate Carcinogens in Delaware Hospitality Venues Before and After a Smoking Ban*. Bowie, Maryland, Repace Associates, Inc, 7 February 2003 (<http://www.tobaccoscam.ucsf.edu/pdf/RepaceDelaware.pdf>, accessed 4 January 2007).
- ¹¹⁹Crémieux PY, Ouellette P. Actual and perceived impacts of tobacco regulation on restaurants and firms. *Tobacco Control*, 2001, 10:33-37.
- ¹²⁰Shiell A, Chapman S. The inertia of self-regulation: a game-theoretic approach to reducing passive smoking in restaurants. *Social Science and Medicine*, 2000, 51, 7:1111-1119[9].
- ¹²¹Jones M, Wakefield M, Turnbull DA. Attitudes and experiences of restaurateurs regarding smoking bans in Adelaide, South Australia. *Tobacco Control*, 1999, 8:62-66.
- ¹²²Schofield MJ et al. Smoking control in restaurants: the effectiveness of self-regulation in Australia. *American Journal of Public Health*, 1993, 83:9:1284-1288.
- ¹²³*Smoke-free world: doctors' notes on clean air laws*. London, British Medical Association, 2005 (http://www.kup.no/asset/24948/2/24948_2.pdf?PHPSESSID=3197b109ebfaf083add160587917b9f0, accessed 4 January 2007).
- ¹²⁴*Smoking in public places. An evidence report*. Edinburgh, Scottish Executive Social Research, 2004.
- ¹²⁵*Un año de Ley del Tabaco*. Sociedad Española de Medicina Familiar y comunitaria, 7 February 2007 (<http://www.semfyec.es/www/semfyec/es/noticias/normativa/noticia.html?title=%20-%20Un%20a%C3%B1o%20de%20Ley%20del%20Tabaco¶m10=699>, accessed 27 March 2007).
- ¹²⁶Sweda EL. Lawsuits and secondhand smoke. *Tobacco Control*, 2004, 13:i61 (http://tc.bmjournals.com/cgi/content/abstract/13/suppl_1/i61, accessed 4 January 2007).

- ¹²⁷ *Legislating for smoke-free workplaces*. Copenhagen, WHO Regional Office for Europe, 2006.
- ¹²⁸ Heloma A et al. The Short-Term Impact of National Smoke-Free Workplace Legislation on Passive Smoking and Tobacco Use. *American Journal of Public Health*, 2001, 91:9:1416-1418.
- ¹²⁹ Weber MD et al. Long-term compliance with California's smoke-free workplace law among bars and restaurants in Los Angeles County. *Tobacco Control*, 2003, 12:269-273.
- ¹³⁰ Tsoukalas T, Glantz SA. The Duluth clean indoor air ordinance: Problems and success in fighting the tobacco industry at the local level in the 21st century. *American Journal of Public Health*, 2003, 93:1214-1221.
- ¹³¹ Siegel M et al. Pre-emption in tobacco control. Review of an emerging public health problem. *Journal of the American Medical Association*, 1997, 278(10):858-63.
- ¹³² Tobacco Control Act, 1994 (Ontario), Art. 12.
- ¹³³ The Non-Smokers Health Protection Act (Manitoba), Art. 6.
- ¹³⁴ McLintock B. *Smoke-free: how one city successfully banned smoking in all indoor public places*. Vancouver, British Columbia, Granville Island Publishing, 2004.
- ¹³⁵ Reynolds J et al. Clean Indoor Air in El Paso, Texas: A Case Study. *Preventing Chronic Disease: Public Health Research, Practice and Policy*. 2:1, January 2005.
- ¹³⁶ Drope J, Glantz SA. British Columbia Capital Regional District 100% smoke-free bylaw: A successful public health campaign despite industry opposition. *Tobacco Control*, 2003, 12:264-268.
- ¹³⁷ Magzamen S, Charlesworth A, Glantz SA. Print media coverage of California's smoke-free bar law. *Tobacco Control*, 2001, 10(2):154-60.
- ¹³⁸ Selin H, Vasquez J. *Exposure to second-hand smoke in the Americas: A human rights perspective*. Washington, DC, Pan American Health Organization, May 2006.
- ¹³⁹ Nixon M, Mahmoud L, Glantz SA. Tobacco industry litigation to deter local public health ordinances: The industry usually loses in court. *Tobacco Control*, 2004, 13:65-73.
- ¹⁴⁰ *International consultation on environmental tobacco smoke and child health, 11-14 January 1999*. Geneva, World Health Organization, 1999 (WHO/NCD/TFI/99.10).
- ¹⁴¹ Thompson G, Wilson N, Howden-Chapman P. Population level policy options for increasing the prevalence of smokefree homes. *Journal of Epidemiology and Community Health*, 2006, 60:298-304.
- ¹⁴² Borland R et al. Determinants and consequences of smoke-free homes: findings from the International Tobacco Control (ITC) Four Country Survey. *Tobacco Control*, 2006, 15(Suppl. 3):iii50; doi: 10.1136/tc.2005.012492.

- ¹⁴³Merom D, Rissel C. Factors associated with smoke-free homes in NSW: results from the 1998 NSW health survey. *Australian And New Zealand Journal of Public Health*, Aug. 2001, 25(4): 339-45.
- ¹⁴⁴Borland R et al. Trends in environmental tobacco smoke restrictions in the home in Victoria, Australia. *Tobacco Control*, 1999, 8:226-271.
- ¹⁴⁵Health Canada. *Health Canada National Campaigns: Second-hand Smoke*. Ottawa, Ontario, 2006.
[http://www.hc-sc.gc.ca/hl-vs/tobac-tabac/res/media/camp/index_e.html, accessed 27 March 2007]
- ¹⁴⁶Program Training and Consultation Centre. Smoke-free Homes and Asthma Pilot Sites: Media Campaigns. Ontario, Canada, 2002.
[<http://www.ptcc-cfc.on.ca/bpt/intervention-details.cfm?IntID=31>, accessed 27 March 2007].
- ¹⁴⁷*Take the Smoke-free Home Pledge*. Washington, DC, United States Environmental Protection Agency, 2006 (May 2006 last update).
[<http://www.epa.gov/smokefree/pledge/index.html>, accessed 27 March 2007].
- ¹⁴⁸New South Wales Cancer Council. *Car and Home Smoke Free Zone - give your child a healthy future*. New South Wales, Australia, 2003.
[http://www.smokefreezone.org/index.cfm/page_id/1118, accessed 27 March 2007].
- ¹⁴⁹EnviroNics Research Group. *Evaluation of the new warnings on cigarette packs*. Toronto, Ontario, January 2002.
- ¹⁵⁰Invernizzi G et al. Particulate matter from tobacco versus diesel car exhaust: an educational perspective. *Tobacco Control*, September 2004, 13:219 - 221.
- ¹⁵¹WHO Air quality guidelines for particulate matter, ozone, nitrogen dioxide and sulfur dioxide. *Global update 2005. Summary of risk assessment*. Geneva, World Health Organization, 2006 (WHO/SDE/PHE/OEH/06.02).
- ¹⁵²Graff SK. There is no constitutional right to smoke. *Tobacco Control Legal Consortium Law Synopsis*. Tobacco Control Legal Consortium, July 2005.
[<http://www.tobaccolawcenter.org/resources/No+Constitutional+Right+to+Smoke.pdf>, accessed 24 March 2007].
- ¹⁵³Joossens L. Economic impact of a smoking ban in bars and restaurants. In: *Lifting the Smokescreen: 10 reasons for a smoke-free Europe*. European Respiratory Society, 2006.
[<http://www.ersnet.org/ers/default.aspx?id=4524>, accessed 4 January 2007].
- ¹⁵⁴Jones S, Muller T. Public attitudes to smoke-free policies in Europe. In: *Lifting the Smokescreen: 10 reasons for a smoke-free Europe*. European Respiratory Society, 2006.
[<http://www.ersnet.org/ers/default.aspx?id=4524>, accessed 4 January 2007].
- ¹⁵⁵Use Borland et al. Decrease in the prevalence of environmental tobacco smoke exposure in the home during the 1990s in families with children. *American Journal of Public Health*, 2004, 94(2): 314-320.

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