

# Non-Smokers' Rights Association Smoking and Health Action Foundation

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## Second-hand Smoke in Homes and Cars

### *1. Current sources of exposure to second-hand tobacco smoke*

Second-hand smoke (SHS) refers to the mixture of smoke emanating from the lit end of a cigarette and the smoke exhaled by a smoker. The toxic mixture contains more than 4,000 substances in gaseous and particle form, and is a major source of indoor air pollution.<sup>1,2,3</sup> Two-thirds of the smoke emanating from a burning cigarette is not inhaled by the smoker, but is released into the ambient air, contaminating the air supply of others.<sup>4</sup> While some of the contaminants can be sensed because they irritate the eye, nose and throat, many of the chemicals in SHS are odourless and barely noticeable. Regardless of whether they are sensed or not, these toxic substances contaminate the air for hours and days after smoking has occurred.<sup>5</sup>

Over the years, exposure to SHS in homes and cars has decreased as smoking in the general population is in decline. However, there are still more than 4.6 million smokers in Canada.<sup>6</sup> According to Health Canada statistics for 2006, 15% of Canadian households reported that at least one person smoked regularly inside the home.<sup>6</sup> Of the remaining households, 87% forbid any smoking to take place inside the home.<sup>6</sup> **Despite nearly three-quarters (74%) of all households being smoke-free, 10% of children under the age of 12 (379,000 children) are still regularly exposed to SHS at home.<sup>7</sup> Approximately 26% of the population reports being exposed to SHS in a car or vehicle.<sup>7</sup> In 2004, half of all smoking parents lit up in their home, and 44% of them also frequently smoked in the car, even when children were present.<sup>8</sup>**

Though smoking rates are in decline and many Canadian jurisdictions have legislation making workplaces and indoor public places smoke-free, many Canadians, especially children living with smokers, are frequently exposed to SHS while at home and/or in cars. **Therefore, for many children, the primary source of SHS exposure is the home.<sup>9</sup>**

According to Health Canada, second-hand smoke kills more than 1,000 Canadians every year.<sup>10,11</sup> Independent studies and reports over the past 30 years have confirmed health concerns and the burden of morbidity/mortality caused by exposure to SHS. The message from all of these reports is clear and consistent: all exposure to tobacco smoke is harmful. Therefore, involuntary exposure should be eliminated — whether exposure happens to occur in a public place or a private home or car.

## *2. Opening windows, using air purifiers or oven hood fans will not reduce SHS to safe levels*

The health risks of SHS are influenced by the duration of the exposure to and the concentration of the chemicals in SHS. The concentration depends mainly on the number of smokers, the proximity of the smokers and the volume and ventilation of the room.<sup>12</sup>

Many Canadian smokers have opened a window (65%), turned on a fan (44%), smoked behind a closed door (33%) or used an air purifier (28%), mistakenly thinking that this will substantially reduce the amount of SHS in their homes.<sup>8</sup> **While increased ventilation can mask the presence of SHS, studies have shown that in order to reduce the toxins in SHS to harmless levels, one would need air exchange rates equivalent to tornado-force winds.** Indeed, considering the toxicity of substances found in SHS, experts in air quality estimate that an air flow of about 50,000 litres per second per occupant would be needed to reduce the risks of exposure to an acceptable level.<sup>13</sup>

SHS contaminants can settle on surfaces or remain in the air, thus contaminating carpets, walls, furniture and other household objects days and weeks after smoking has occurred.<sup>5</sup> In its most recent “Position Document” on SHS, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), an authority on the establishment of ventilation standards, states:

No other engineering approaches, including current and advanced dilution ventilation or air-cleaning technologies, have been demonstrated or should be relied on to control health risks from ETS [Environmental Tobacco Smoke or SHS] exposure in spaces where smoking occurs.<sup>14</sup>

Consequently, expensive air filtration systems will not achieve air quality objectives from a health perspective.

Nor will confining smoking to one room or to a certain area of the home reduce SHS to a safe level.<sup>15,16</sup> Children with asthma, who live in homes where indoor smoking is completely banned, as opposed to where it is allowed but restricted to some areas, suffer less severe asthma symptoms and require less acute medical care for their asthma.<sup>17</sup> However, when smoking is restricted to the outdoors, regardless of the number of cigarettes smoked, children’s exposure to SHS can be avoided.<sup>14,18</sup>

Cars are a particularly dangerous place for SHS exposure.<sup>5,19</sup> According to a recent study, smoking a single cigarette for only 5 minutes — even with the windows open — increased air pollutants (respirable suspended particles) to levels that are unsafe, especially for children.<sup>20</sup> Similarly, a study for the San Francisco Department of Public Health, SHS levels are 9 times greater in a car where smoking occurs and the window remains open, as compared to a smoke-free car.<sup>21</sup> By comparison, smoking with the window closed but with the ventilation on, increases SHS concentrations by a factor

of 70. When the same smoking occurs but with the window closed and the ventilation off, SHS levels increase by a factor of 200. The San Francisco Department of Public Health warns:

if five hours of exposure in a car are compared to five hours of exposure in a home — both with one smoker smoking two cigarettes per hour — the exposure in the car can be more than 25 times higher than that of a residence.<sup>21</sup>

**The only way to eliminate exposure to SHS in homes and cars is for smokers to smoke outside, away from door and window openings through which smoke could drift back inside.**

### ***3. The health risks from exposure to SHS***

**In adults**— SHS is carcinogenic and harmful in many other ways.<sup>2,22</sup> Exposure to SHS causes several illnesses and conditions including: eye and nose irritations, breathing problems, heart attacks and other heart disease, lung cancer, foetal growth impairment,<sup>23,24,25</sup> nasal sinus cancer,<sup>23</sup> breast cancer among younger pre-menopausal women,<sup>23,26</sup> in addition to the onset and worsening of asthma.<sup>23</sup> Evidence also suggests that SHS is likely to cause strokes, cervical cancer, miscarriages and exacerbation of pulmonary diseases such as cystic fibrosis.<sup>23</sup> More specifically, non-smoking spouses of people who smoke at home are 20-30% more likely to develop lung cancer,<sup>24,27</sup> at least 8 times out of 10 a terminal disease.<sup>28,29</sup>

The U.S. Environmental Protection Agency and the World Health Organization's International Agency for Research on Cancer have labelled SHS as a "Class A" or "Group 1" carcinogen – the highest risk category for which no known level of exposure is considered safe.<sup>4</sup> Other Class A/ Group 1 cancer-causing compounds include asbestos, arsenic, coal tars, benzene and radionuclides.

Moreover, exposure to SHS initiates cardio-vascular changes which are associated with heart disease and even heart attacks.<sup>10,23-25,30</sup> Consequently, studies have shown that non-smoking spouses living with people who smoke at home, are 25-30% more likely to die of heart attacks (ischemic heart disease) than those living with non-smokers.<sup>24,31,32,33</sup> Another study found the risk to increase by as much as 60%.<sup>34</sup>

**In children**— Smaller bronchial tubes and less developed immune systems make children more vulnerable to the contaminants in SHS. Children also breathe more rapidly than adults, and consequently breathe in more harmful chemicals per kilogram of their weight than an adult would in the same amount of time. Children are particularly vulnerable to SHS exposure in small confined spaces such as cars.<sup>22,35</sup>

Exposure to SHS can impact a child's health even before birth. A non-smoking mother exposed to SHS has a 38% higher risk of giving birth to a low-weight baby.<sup>15</sup> **The risk of Sudden Infant Death Syndrome (SIDS) in children exposed to SHS is almost twice that observed in non-exposed babies.**<sup>36</sup> As stated above, the primary source of an infant's exposure to SHS is in the home and in the car.

In addition to the many negative health effects experienced by adults, SHS causes the following symptoms or diseases in children: asthma onset and exacerbation, bronchitis, pneumonia, and middle ear infections.<sup>23-25</sup> Recent investigations have also revealed that postnatal exposure to SHS is associated with cognitive deficits, meaning that children exposed to SHS experience greater difficulty in reading, reasoning and comprehension.<sup>37</sup> Furthermore, a California study showed that these respiratory-related illnesses lead to increased school absenteeism,<sup>38</sup> which may, in turn, affect children's overall development and social behaviour.<sup>39</sup>

#### ***4. Philip Morris' ploys to misrepresent the risks of SHS in the home***

Surveys around the world show that as the public becomes more aware of the impact of SHS on children's health, smoking parents are more motivated to restrict smoking in their home or to quit smoking all together. Non-smokers, in turn, become determined to prevent anyone from smoking around their children. As popular knowledge of the risks from SHS becomes widespread, so does support for smoke-free practices and policies — even those making homes and cars smoke-free.<sup>7,40,41</sup>

Not surprisingly, given what we have learned from tobacco industry documents now in the public domain, the industry has tried to corrupt science and prevent such policies and practices from being implemented. Philip Morris (PM), the world's largest privately owned cigarette company, foresaw how concerns over SHS exposure in the home would favour smoke-free policies and practices, which would affect the industry's profitability. An internal document from PM outlines the need to address the threat of popular concern over SHS in the home in a 1993 proposal. The document warns:

The issues of maternal, spousal and work-place smoking all come together when considering pregnancy... Directly mobilizing such a significant segment of the adult population around such an emotional issue has the potential for providing tremendous impetus to all sorts of restrictive legislation in the home, in public areas as well as in the workplace. There is perhaps no other issue as powerful facing the industry [emphasis added].<sup>42</sup>

In line with the tobacco industry's long-running strategy to cast doubt on the actual hazards of SHS, the proposal sets out research opportunities to undermine the health community's message on the detrimental effects of SHS on newborns.<sup>43</sup>

The "Sullivan and Barlow literature review", a study<sup>44</sup> paid for and essentially scripted by Philip Morris, was published in a respected pediatric epidemiology journal in 2001.<sup>45</sup> The study has been cited at least 19 times in scientific journals.<sup>45</sup> Written communication between its main author (Frank Sullivan) and Ted Sanders, an executive working for Philip Morris Worldwide Scientific Affairs (WWSA), shows that a draft<sup>46</sup> was reviewed and edited to better serve tobacco industry interests.

As expressed by the following, the original draft confirmed that an infant's health was affected by SHS in the home:

The evidence for causality includes the consistent relationship between maternal/parental smoking and risk of SIDS and a strong dose-response relationship, together with limited evidence of a further increase in risk associated with smoking in the same room as the infant, and a reduction in risk associated with maternal cessation of smoking (whether before birth, after birth, or both).<sup>47</sup>

However, the version sent for publication following Philip Morris's intervention read as follows:

The evidence for causality includes the consistent relationship between maternal smoking and risk of SIDS and a clear dose-response relationship. Although the effects of pre- and postnatal smoke exposure are difficult to separate, the majority of the effects of smoking can be explained by prenatal smoking by the mother. The limited evidence of a further increase in risk from environmental tobacco smoke, such as that associated with smoking in the same room as the infant, and the presence of other smokers in the household is less well established.<sup>48</sup>

This final draft clearly attributes most of the risks to a mother's smoking before giving birth. To the extent that Philip Morris' editing changed the paper's conclusions, the company downplayed the positive impacts that a ban on smoking in the home would achieve.

Through Philip Morris, a key player on matters of policy for the tobacco industry, cigarette manufacturers likely succeeded in misleading many physicians, parents, researchers and decision-makers regarding the importance of eliminating the exposure of children, especially newborns, to SHS in homes and cars. Indeed, the industry revealed internally that it was pursuing such deceitful machinations as recently as 1998, by writing:

**Impact Assessment** [original emphasis]

Should provide the necessary scientific background for a policy on the acceptability of smoking around children.<sup>49</sup>

Philip Morris Worldwide Scientific Affairs, 1998.

**5. What can be done to reduce SHS risks in homes and cars?**

At the moment, the prevention of exposure to SHS is left almost entirely to the discretion of individuals. Even though the health effects from SHS are significant, parents, whether smokers or non smokers, have virtually an unrestricted right to expose their children to SHS. And they do. After all, if many smokers engage in the psychological denial of the risks from their own smoking, it is unlikely that they will accept that their SHS is a health risk for their children.

Similarly, owners of multiple housing units are largely free to ignore concerns about ambient tobacco smoke in their properties. In the interplay between the right to be free of exposure to a recognized health hazard and the right to be free of legislative or regulatory interventions within the home, at the moment, public health clearly comes out the loser.

**Public education**— Many adults are still unaware or unable to accept the nature and magnitude of the health risks of SHS. Public education efforts are therefore a crucial step towards achieving the social norm that smoking in homes and cars is unacceptable.

Through public education, society must be encouraged to understand that:

- minors, especially young children, are vulnerable to SHS;
- SHS remains in the air, long after smoking has occurred;
- oven hood fans, filters, air purifiers and open windows do not reduce SHS to safe levels;
- landlords have the legal right to ban smoking in their rental units.

By adopting the measures below, homes and cars would no longer be significant sources of exposure to SHS:

- both non-smokers and smokers should ensure that if smoking takes place, it should be done outside, away from windows and doors;
- given that SHS remains long after smoking has occurred, parents and caregivers should make certain that childcare providers and others do not smoke at any time in childcare facilities or in vehicles used to transport children;
- car owners should prohibit smoking in their cars;
- non-smokers should demand “smoking-prohibited” apartments, condominiums, hotel rooms and taxis.

**Governments and public health departments**— Many governments have established smoking bans in most indoor public places such as bars, restaurants and taxis. However, for fear of being perceived as too intrusive, governments have been reluctant to extend smoking restrictions to people's homes and cars. Because they represent the principal source of SHS exposure for children, who are likely less able to remove themselves from such environments, current public health measures do not adequately protect their health.<sup>50</sup> Despite political opposition from the tobacco industry and libertarian groups, governments should not turn a blind eye to a public health issue which creates unsafe environments for those unable to protect themselves.

Tobacco industry lobbying has been successful in preventing legislative attempts at the local level (in the state of Colorado, Georgia, New Hampshire and California) to ban smoking in cars when young children are present. However, a law adopted in April 2006 makes Arkansas the first state to ban smoking in cars. Since July 2006, smoking is banned in all motor vehicles carrying a child who is younger than 6 and weighs less than 60 pounds.<sup>51</sup> Similarly, Louisiana (August 2006),<sup>52</sup> Texas (January 2007)<sup>53</sup> and Puerto Rico (March 2007)<sup>54</sup> have made it illegal to smoke in private cars carrying children under 13. The municipality of Bangor in Maine has gone further by making private vehicles carrying anyone under 18 smoke-free since January 2007.<sup>55</sup> These successful inroads are likely to spread to other American states and across the world.

Law reform in Canada is now being recommended by Ontario physicians. In its landmark report dealing with the lack of measures protecting children from SHS, the Ontario Medical Association (OMA) recommends that:

Caregivers should not be permitted to smoke in vehicles while transporting children, and ... the provincial government [should] take steps to ensure the protection of children from SHS while travelling in vehicles through the introduction of legislation banning the use of tobacco inside vehicles used to transport children.<sup>56</sup>

**Considering that a recent survey<sup>57</sup> shows that only 37% of Canadian smokers make their vehicles smoke-free, the OMA's recommendations deserve serious consideration.**

For too long, tobacco industry interference and the sheer number of smokers in the population lead to an inappropriate, almost blind tolerance of SHS. As social norms are evolving and many people are banning smoking inside their homes, the government has a responsibility to protect the population as a whole, and especially the children that do not benefit from living in smoke-free homes. It is quite unfeasible for some type of authority to be going from household to household checking for the presence of SHS. Enforcement of a ban on smoking in the home is as expensive and complicated as it is controversial. Furthermore, it is important to bear in mind the real dilemma which single parents

highly addicted to nicotine will face: going outside to smoke means leaving young children unattended.

Restrictions on smoking in vehicles are a different matter all together. The State already regulates various aspects related to driving a car, such as making seat belts mandatory. People's cars are considered more of the public domain than a person's home. A smoke ban in cars would also be easier to enforce: police would not require a search warrant to uncover offenders. Finally, the high levels of SHS found in cars when people smoke make cars a preferred target for any legislative measure attempting to reduce children's exposure to SHS.

**Given the magnitude of the health risks associated with SHS exposure, especially to children, governments and public health authorities have an obligation to educate the public not only on the risks of SHS, but more appropriately, on the means by which it can be resolved, short of quitting smoking — smoking outside. Given the straightforward solution, public support for government intervention is likely to increase, even amongst smokers.**

Furthermore, messages communicating the indirect benefits of having smoke-free homes are crucial in preventing smoking and reducing the disease and death attributable to tobacco industry products. Indeed, smokers living in smoke-free homes generally smoke less (6 cigarettes less) per day and are more inclined to quit than smokers who smoke in their home.<sup>58</sup> Reducing daily cigarette consumption facilitates and often leads to quitting for good.<sup>59</sup> In addition, children with non-smoking parents are less likely to become smokers themselves. Hence, public education, policies and legislation to curb smoking in cars and at home support health promotion and disease prevention objectives.

**Litigation**— Historically speaking, rulings from cases where a few determined individuals have taken SHS issues to court have contributed to the public's and decision-makers' increased understanding of the risks of SHS exposure.<sup>60</sup> Backed by scientific evidence, the courts have confirmed that restrictions on smoking are a necessary intervention to prevent behaviour that would otherwise “*jeopardize the health of those [non-smokers] who must remain around him [the smoker]*”.<sup>61</sup> With respect to smoking restrictions in the home, precedents have been set through child-custody cases. These have been heard before North American courts, and have involved — but have not been limited to — children with underlying conditions exacerbated by SHS.

Generally the law recognizes that:

- no individual is free to commit legal wrongdoing (torts) against another, and that includes members of the same family;
- a minor is guaranteed a duty and level of care by his or her parent(s) or guardian(s);
- pleading to a lack of knowledge of the risks of SHS does not constitute a valid defence.<sup>62</sup>



The courts have expressed a wide range of responses involving SHS, which include lack of concern and child abuse.<sup>63</sup> A father was granted custody of his child who had been repeatedly hospitalized for pulmonary illnesses exacerbated by the mother's smoking, when the judge qualified the mother's smoking in the presence of the child as "*no less child abuse than if you had deprived him [the child] of food or medical treatment*".<sup>64</sup> In another case, a minor's exposure to SHS was considered "a failure of the court's mandate to protect the children under its jurisdiction"—regardless of whether the exposure was due to the parents or other people smoking at home or in places regularly visited by the child.<sup>65</sup>

The vast majority of parents undeniably take their children's health to heart. However, their addiction to nicotine is just as indisputable and, too often, prevents some of them from acknowledging the health risks their smoking brings to their children. The court rulings on SHS should serve as a reminder that even without laws which formally ban smoking in homes and cars, authorities, whether civic, medical, legal or child welfare, have the obligation to communicate the risks incurred by persons exposed to SHS, especially where children are concerned. **That is to say, a judge, a family doctor, nursing or any other health agency personnel should remind parents, guardians and child providers of their ability to prevent many diseases and conditions children develop when exposed to SHS.** Even without legislation specifically dealing with these issues, it is well within the court's mandate to deal with cases of SHS exposure brought to its attention by health and other agencies.

## **6. Concluding remarks**

### *Public education*

Governments and health agencies need to support initiatives promoting the public's understanding of SHS risks in homes and cars. Such messages are likely to further the already mounting public support for certain smoking restrictions, namely a smoking ban in cars transporting children. More importantly, such messages are likely to modify smoking patterns in manners which prevent SHS exposure and reduce the overall prevalence of smoking in society.

### *Ban smoking in vehicles*

Though the notion of restricting certain behaviours in the home and in private cars causes much controversy, governments have the responsibility to set health standards, especially for those who are unable to care for themselves. Just as many governments have banned smoking to protect the non-smoking public and workforce, they also need to take action to protect minors who are exposed to SHS in homes and cars. The high levels of SHS contaminants readily found in cars and the parallel with safety belts should facilitate smoking bans in cars, without monopolizing law enforcement resources or infringing into people's private lives.

## *Reducing tobacco-use among the whole population is the ultimate solution*

The decline in the social acceptability of smoking and smoking prevalence, in conjunction with increased knowledge of SHS health risks have resulted in fewer Canadians allowing smoking in their home. While policy makers may be tempted to focus on changing individual behaviour through public education alone, they must continue to use measures known to be the most effective tobacco control strategies from a total population perspective. This includes the use of taxation policy, smoking bans in indoor and some outdoor public places, effective health warnings, the elimination of all tobacco promotion and telling the public the truth<sup>66</sup> about the tobacco industry's role in the evolution and maintenance of the tobacco epidemic.

## **7. Cited References**

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- <sup>1</sup> **National Research Council (NRC), 1986.** *Environmental Tobacco Smoke. Measuring Exposures and Assessing Health Effects.* National Academy Press, Washington, DC, 1986.
  - <sup>2</sup> **U.S. Environmental Protection Agency (EPA), 1992.** *Respiratory Health Effects of Passive Smoking: Lung Cancer and Other Disorders.* EPA/600/6-90/006F. U.S. Environmental Protection Agency, Office of Air and Radiation, Washington, DC., 1992.
  - <sup>3</sup> **California Environmental Protection Agency, 2005.** *Proposed Identification of Environmental Tobacco Smoke as a Toxic Air Contaminant, Part A (Exposure Assessment).* Air Resources Board, Office of Environmental Health Hazard Assessment, California Environmental Protection Agency, June 2005. [www.oehha.ca.gov/air/environmental\\_tobacco/pdf/app3parta2005.pdf](http://www.oehha.ca.gov/air/environmental_tobacco/pdf/app3parta2005.pdf). (Accessed Aug. 2006)
  - <sup>4</sup> **U.S. Department of Health, Education and Welfare, 1979.** *Smoking and Health: A Report of the Surgeon General.* U.S. Department of Health, Education and Welfare, Public Health Service, Office of the Assistant Secretary for Health, Office on Smoking and Health, Rockville, Maryland, 1979.
  - <sup>5</sup> **Matt GE, et al., 2004.** Households contaminated by environmental tobacco smoke: sources of infant exposures *Tobacco Control* 2004;13:29-37. <http://tc.bmjournals.com/cgi/content/full/13/1/29>
  - <sup>6</sup> **Health Canada, 2007.** *Canadian Tobacco Use Monitoring Survey (CTUMS) 2006: results from first wave (Feb.-June).* Canadian Control Programme, January 2007. [www.hc-sc.gc.ca/hl-vs/tobac-tabac/research-recherche/stat/ctums-esutcl/2006/wave-phase-1\\_summary-sommaire\\_e.html](http://www.hc-sc.gc.ca/hl-vs/tobac-tabac/research-recherche/stat/ctums-esutcl/2006/wave-phase-1_summary-sommaire_e.html) (Accessed February 2007)
  - <sup>7</sup> **Health Canada, 2006.** *Canadian Tobacco Use Monitoring Survey (CTUMS): Annual results for 2005.* Canadian Control Programme, January 2006. [www.hc-sc.gc.ca/hl-vs/tobac-tabac/research-recherche/stat/ctums-esutcl/2005/index\\_e.html](http://www.hc-sc.gc.ca/hl-vs/tobac-tabac/research-recherche/stat/ctums-esutcl/2005/index_e.html) (Accessed August 2006)
  - <sup>8</sup> **Health Canada, 2005.** Relevant research: Second-hand smoke in the home (EKOS survey of March 15-31, 2004), News release, February, 2005. [www.hc-sc.gc.ca/ahc-asc/media/nr-cp/2005/2005\\_03bk2\\_e.html](http://www.hc-sc.gc.ca/ahc-asc/media/nr-cp/2005/2005_03bk2_e.html) (Accessed Dec. 2005)
  - <sup>9</sup> **Ontario Tobacco Research Unit (OTRU), 2005.** *Second Hand Smoke in Ontario Homes: Findings from a National Study.* Toronto, Ontario: OTRU Special Report Series October, 2005. p.26
  - <sup>10</sup> **Health Canada, 2004.** "Cigarette Smoke: It's Toxic." Second-hand Smoke: FAQs & Facts. 2004. [www.hc-sc.gc.ca/hl-vs/tobac-tabac/second/fact-fait/tox/index\\_e.html](http://www.hc-sc.gc.ca/hl-vs/tobac-tabac/second/fact-fait/tox/index_e.html) (Accessed Jan. 2006)
  - <sup>11</sup> **Makomaski-Illing EM and Kaiserman MJ, 1999.** Mortality attributable to tobacco use in Canada and its regions- 1998. *Canadian Journal of Public Health* 1999; 95(1):38-44. [www.cpha.ca/shared/cjph/archives/abstr04.htm#38-44](http://www.cpha.ca/shared/cjph/archives/abstr04.htm#38-44) (Accessed Dec. 2005)

- 
- <sup>12</sup> **US Department of Health and Human Services, 1986.** *The Health Consequences of Involuntary Smoking. A Report of the Surgeon General.* Public Health Service, Centers for Disease Control, Rockville, Maryland, 1986. p.139  
[www.cdc.gov/tobacco/sgr/sgr\\_1986/](http://www.cdc.gov/tobacco/sgr/sgr_1986/) (Accessed Feb. 2006)
- <sup>13</sup> **Repace JL, et al, 1998.** Air nicotine and saliva cotinine as indicators of workplace passive smoking exposure risk. *Risk Analysis* 1998; 18: 71–83.
- <sup>14</sup> **ASHRAE, 2005.** ETS position document advises compliance with local codes. *ASHRAE Insights* 2005;20(8), August 2005.  
[www.ashrae.org/template/AssetDetail/assetid/46104.jsessionid=aaabN2CpPoBeab](http://www.ashrae.org/template/AssetDetail/assetid/46104.jsessionid=aaabN2CpPoBeab) (Accessed Jan. 2006)
- <sup>15</sup> **Spencer N, et al., 2005.** Parent reported home smoking bans and toddler (18–30 month) smoke exposure: a cross-sectional survey. *Child: Care, Health and Development*, 2005; 31(6):744-745.
- <sup>16</sup> **Lofroth G, 1993.** Environmental tobacco smoke: Multicomponent analysis and room-to-room distribution in homes. *Tobacco Control* 1993; 2:222-225.
- <sup>17</sup> **Martinez-Donate A, et al., 2003.** Association between residential tobacco smoking bans, smoke exposure, and pulmonary function: A Survey of Latino Children with Asthma. *Pediatric Asthma, Allergy & Immunology* 2003; 16(4):305-317.
- <sup>18</sup> **Winkelstein ML, et al., 1997.** Parental smoking behavior and passive smoke exposure in children with asthma. *Annals Allergy Asthma & Immunology* 1997; 78:419–23.
- <sup>19</sup> **California Environmental Protection Agency, 2005.** *Proposed Identification of Environmental Tobacco Smoke as a Toxic Air Contaminant*, Part A (Exposure Assessment). Air Resources Board, Office of Environmental Health Hazard Assessment, California Environmental Protection Agency, June 2005. page v-59  
[www.oehha.ca.gov/air/environmental\\_tobacco/pdf/app3parta2005.pdf](http://www.oehha.ca.gov/air/environmental_tobacco/pdf/app3parta2005.pdf) (Accessed Aug. 2006)
- <sup>20</sup> **Rees VW, Connolly GN, 2006.** Measuring air quality to protect children from secondhand smoke in cars. *American Journal of Preventive Medicine* 31(5), 2006. <http://www.ajpm-online.net/webfiles/images/journals/amepre/1751.pdf> (consulté en oct. 2006)
- <sup>21</sup> **San Francisco Department of Public Health, 2001.** "Smoking in Cars Especially Harmful to Children, World No Tobacco Day Features Live Demonstration on Second Hand Smoke". Press release, City and County of San Francisco, May 31, 2001.  
[www.dph.sf.ca.us/press/2001PR/pr053101c.htm](http://www.dph.sf.ca.us/press/2001PR/pr053101c.htm) (Accessed Jan. 2006)
- <sup>22</sup> **Non-Smokers' Rights Association, 2002.** "But Does SHS Actually Cause Diseases?" Second-hand Smoke Fact sheet, 2002.  
[www.nsr-aadnf.ca](http://www.nsr-aadnf.ca) (Accessed Jan. 2006)
- <sup>23</sup> **California Environmental Protection Agency, 2005.** *Proposed Identification of Environmental Tobacco Smoke as a Toxic Air Contaminant*, Part B (Health Risks). California Environmental Protection Agency, Air Resources Board, Office of Environmental Health Hazard Assessment, June 2005. [www.oehha.ca.gov/air/environmental\\_tobacco/pdf/app3partb2005.pdf](http://www.oehha.ca.gov/air/environmental_tobacco/pdf/app3partb2005.pdf) (Accessed Aug. 2006)
- <sup>24</sup> **U.S. Department of Health and Human Services, 2006.** *The Health Consequences of Involuntary Exposure to Secondhand Smoke: A Report of the Surgeon General.* Executive Summary. U.S. 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, Washington DC, 2006. [www.cdc.gov/tobacco/sgr/sgr\\_2006/index.htm](http://www.cdc.gov/tobacco/sgr/sgr_2006/index.htm) page 13 (Accessed June 2006)
- <sup>25</sup> **U.K. Scientific Committee on Tobacco and Health (SCOTH), 2005. Department of Health, 2004.** Secondhand Smoke: Review of evidence since 1998. Update of evidence on health effects of secondhand smoke, Department of Health, 2004.  
[www.dh.gov.uk/assetRoot/04/10/14/75/04101475.pdf](http://www.dh.gov.uk/assetRoot/04/10/14/75/04101475.pdf) (Accessed Jan. 2006)
- <sup>26</sup> **Johnson KC, 2005.** Accumulating evidence on passive and active smoking and breast cancer risk. *International Journal of Cancer* 2005; 117:619-628
- <sup>27</sup> **U.S. Department of Health, Education and Welfare, 1979.** *Smoking and Health: A Report of the Surgeon General.* Department of Health, Education and Welfare, Public Health Service, Office of the Assistant Secretary for Health, Office on Smoking and Health, Rockville, Maryland, 1979.

- 
- <sup>28</sup> U.S. Department of Health and Human Services, 2004. *The Health Consequences of Smoking: A Report of the Surgeon General*. U.S. 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, Washington DC, 2004. p.42 [www.cdc.gov/tobacco/sgr/sgr\\_2004/chapters.htm](http://www.cdc.gov/tobacco/sgr/sgr_2004/chapters.htm)
- <sup>29</sup> American Cancer Society, 2003. "Cancer Facts & Figures 2003". American Cancer Society, Atlanta, 2003. p.14 [www.cancer.org/downloads/STT/CAFF2003PWSecured.pdf](http://www.cancer.org/downloads/STT/CAFF2003PWSecured.pdf) (Accessed Feb. 2006)
- <sup>30</sup> Otsuka R, *et al.*, 2001. Acute effects of passive smoking on the coronary circulation in healthy young adults. *Journal of the American Medical Association (JAMA)* 2001 25; 286(4):436-441.
- <sup>31</sup> Barnoya J and Glantz S, 2005. Cardiovascular Effects of Secondhand Smoke Nearly as Large as Smoking. *Circulation* 2005; 111:2684-2698. <http://circ.ahajournals.org/cgi/content/abstract/111/20/2684>
- <sup>32</sup> Kawachi I, 1997. A Prospective Study of Passive Smoking and Coronary Heart Disease. *Circulation* 1997; 95:2374-2379. <http://circ.ahajournals.org/cgi/content/abstract/95/10/2374>
- <sup>33</sup> Hill S, *et al.*, 2004. Mortality among "never smokers" living with smokers: two cohort studies, 1981-4 and 1996-9. *British Medical Journal (BMJ)* 2004; 328(7446):988-989. <http://bmj.bmjournals.com/cgi/content/full/328/7446/988>
- <sup>34</sup> Humble C, *et al.*, 1990. Passive smoking and 20-year cardiovascular disease mortality among nonsmoking wives of Evans County, Georgia. *American Journal of Public Health* 1990; 80:599-601. [www.ajph.org/cgi/content/abstract/80/5/599?ijkey=0ea84609ac5387807097497d2851774923bd3bf3&keytype2=tf\\_ipsecsha](http://www.ajph.org/cgi/content/abstract/80/5/599?ijkey=0ea84609ac5387807097497d2851774923bd3bf3&keytype2=tf_ipsecsha)
- <sup>35</sup> Ontario Medical Association (OMA), 2004. *Exposure to Second-hand Smoke: Are we Protecting our Kids?* A Position Paper by the Ontario Medical Association, 2004. p. 32 [www.oma.org/phealth/smoke2004.pdf](http://www.oma.org/phealth/smoke2004.pdf) (Accessed Nov. 2005)
- <sup>36</sup> Anderson HR and Cook DG, 1997. Passive smoking and sudden infant death syndrome: review of the epidemiological evidence. *Thorax* 1997; 52(11):1003-1009.
- <sup>37</sup> Yolton *et al.*, 2005. Exposure to environmental tobacco smoke and cognitive abilities among U.S. children and adolescents. *Environ Health Perspectives* 2005; 113:98-103. <http://ehp.niehs.nih.gov/docs/2004/7210/abstract.html> (Accessed Jan. 2006)
- <sup>38</sup> Gilliland FD, *et al.*, 2003. Environmental tobacco smoke and absenteeism related to respiratory illness in schoolchildren. *American Journal of Epidemiology* 2003; 157(1):861-869.
- <sup>39</sup> Maughan B, *et al.*, 2001. Pregnancy smoking and childhood conduct problems: A causal association? *Journal of Child Psychology and Psychiatry and Allied Disciplines* 2001; 42:1021-1028.
- <sup>40</sup> Levy DT, *et al.*, 2004. Recent trends in home and work smoking bans. *Tobacco Control* 2004; 13(3):258-63. <http://tc.bmjournals.com/cgi/content/full/13/3/258> (Accessed Jan. 2006)
- <sup>41</sup> Thomson G, *et al.*, 2005. Attitudes to, and knowledge of, secondhand smoke in New Zealand homes and cars. *New Zealand Medical Journal* 2005; 118(1213):U1407. [www.nzma.org.nz/journal/118-1213/1407](http://www.nzma.org.nz/journal/118-1213/1407) (Accessed Jan. 2006)
- <sup>42</sup> Office of Helmut Reif a Philip Morris Executive, 1993. "Research Project 930000 ETS and Pregnancy.", 1993. Bates No. 2028366099/6100. <http://legacy.library.ucsf.edu/tid/wfd24e00> (Accessed Dec. 2005).
- <sup>43</sup> Office of Helmut Reif a Philip Morris Executive, 1992. "Global ETS program S&T Neuchatel EEC EEMA regions." 1992. Bates No. 2028366072/6082. <http://legacy.library.ucsf.edu/tid/zgh56e00> (Accessed Dec. 2005)
- <sup>44</sup> Sullivan S and Barlow SM, 2001. Review of risk factors for sudden infant death syndrome. *Paediatric & Perinatal Epidemiology* 2001; 15:144-200. <http://www.blackwell-synergy.com/toc/ppe/15/2> (Accessed Dec. 2005)
- <sup>45</sup> Tong EK, *et al.*, 2005. Changing conclusions on secondhand smoke in a sudden infant death syndrome review funded by the tobacco industry. *Pediatrics* 2005; 115(3):e356-e366 <http://pediatrics.aappublications.org/cgi/content/full/115/3/e356> (Accessed Dec. 2005)
- <sup>46</sup> Sullivan S and Barlow SM, 1996. "Review of risk factors for sudden infant death syndrome [first draft]." 1996. Bates No. 2505644845/4945. <http://legacy.library.ucsf.edu/tid/oaz15c00> (Accessed Dec. 2005)
- <sup>47</sup> Sullivan S and Barlow SM, 1996. "Review of risk factors for sudden infant death syndrome [first draft]." 1996. Bates No. 2505644845/4945. p.75 <http://legacy.library.ucsf.edu/tid/oaz15c00> (Accessed Dec. 2005)

- 
- 48 **Sullivan S and Barlow SM, 1999.** "Review of risk factors for sudden infant death syndrome. [final draft]." 1999. Bates No. 2505934106/4209. p.78 <http://legacy.library.ucsf.edu/tid/vjn43a00> (Accessed Dec. 2005)
- 49 **Philip Morris Worldwide Scientific Affairs.** "WWSA project descriptions: review of the literature on ETS in childhood." August 1998. Bates No. 2060565652 <http://legacy.library.ucsf.edu/tid/tyd13e00> (Accessed Dec. 2006)
- 50 **Ferrence R and Ashley MJ, 2000.** Protecting children from passive smoking — The risks are clear and a comprehensive strategy is now needed (Editorials). *British Medical Journal (BMJ)* 2000; 321:310-311. <http://bmj.bmjournals.com/cgi/reprint/321/7257/310>
- 51 **Arkansas State General Assembly, 2006.** Protection from Secondhand Smoke for Children Act of 2006 (Act 13), April 2006. [www.arkleg.state.ar.us/ftproot/acts/2006S1/public/act13.pdf](http://www.arkleg.state.ar.us/ftproot/acts/2006S1/public/act13.pdf) (Accessed June 2006)
- 52 **Louisiana Public Health Institute, 2006.** Smoke-free policies: Act 838. [www.tobaccofreeliving.org/home/section/3/1201/](http://www.tobaccofreeliving.org/home/section/3/1201/) (Accessed Oct. 2006)
- 53 **USA Today, 2006.** Laws prohibit smoking around children. [www.usatoday.com/news/health/2006-11-27-smoking-bans\\_x.htm?csp=34](http://www.usatoday.com/news/health/2006-11-27-smoking-bans_x.htm?csp=34) (Accessed Dec. 2006)
- 54 **Associated Press 2006.** Puerto Rico's Smoking Ban Is Caribbean's Toughest, Las Vegas Sun, March 3, 2006. [www.lasvegassun.com/sunbin/stories/w-sa/2006/mar/03/030308019.html](http://www.lasvegassun.com/sunbin/stories/w-sa/2006/mar/03/030308019.html) (Accessed March 2006)
- 55 **City of Bangor, 2007.** Ordinance, Adopting a New Article IX, Sections 291-70 and 291-71, of the Code of the City of Bangor – Smoking in Motor Vehicles. [www.bangormaine.gov/documents/SmokinginVehicles\\_Amended.doc](http://www.bangormaine.gov/documents/SmokinginVehicles_Amended.doc) (Accessed February 2007)
- 56 **Ontario Medical Association (OMA), 2004.** *Exposure to second-hand smoke: are we protecting our kids?* A Position Paper by the Ontario Medical Association, 2004. p.2 [www.oma.org/phealth/smoke2004.pdf](http://www.oma.org/phealth/smoke2004.pdf) (Accessed Nov. 2005)
- 57 **Canadian Cancer Society, 2006.** "Majority of Canadians are making their homes and cars smoke-free." News release, Jan. 12, 2006. [www.cancer.ca/ccs/internet/mediareleaselist/0,,3172\\_615815452\\_629160309\\_langId-en.html](http://www.cancer.ca/ccs/internet/mediareleaselist/0,,3172_615815452_629160309_langId-en.html) (Accessed Jan. 2006)
- 58 **Statistics Canada, 2005.** *A Step Forward, a Step Back: Smoking Cessation and Relapse* by Margot Shields. Healthy today, healthy tomorrow? Findings from the National Population Health Survey, (82-618-MWE), *Statistics Canada* (Issue no. 1), May 2005. [www.statcan.ca/english/research/82-618-MIE/82-618-MIE2004001.htm#4](http://www.statcan.ca/english/research/82-618-MIE/82-618-MIE2004001.htm#4) (Accessed Jan. 2006)
- 59 **Gilpin EA, et al., 1999.** Home smoking restrictions: Which smokers have them and how they are associated with smoking behavior. *Nicotine and Tobacco Research* 1999; 1(2):153-162.
- 60 **Richmond JB, et al., 2004.** Public health and the power of individual action. *Tobacco Control* 2004; 13(Suppl 1):i1-2. [http://tc.bmjournals.com/cgi/content/full/13/suppl\\_1/i1](http://tc.bmjournals.com/cgi/content/full/13/suppl_1/i1)
- 61 *Shimp v. New Jersey Bell Telephone Co., 368 A.2d 408* (New Jersey Superior Court 1976) as cited in **Sweda EL, 2004.** [http://tc.bmjournals.com/cgi/reprint/13/suppl\\_1/i61](http://tc.bmjournals.com/cgi/reprint/13/suppl_1/i61)
- 62 **Non-Smokers' Rights Association, 1998.** "Smoking in the home: Social and legal implications." [www.nsr-a-dnf.ca/news\\_info.php?news\\_id=69](http://www.nsr-a-dnf.ca/news_info.php?news_id=69) (Accessed Jan. 2006)
- 63 *In Re. Julie Anne, A Minor Child*, 121 Ohio Misc. 2d 20 (Ohio Court of Common Pleas 2002) as cited in **Sweda EL, 2004.** [http://tc.bmjournals.com/cgi/reprint/13/suppl\\_1/i61](http://tc.bmjournals.com/cgi/reprint/13/suppl_1/i61)
- 64 **Sweda EL, 2004.** Lawsuits and secondhand smoke. *Tobacco Control* 2004; (Suppl 1):i61-6. [http://tc.bmjournals.com/cgi/content/abstract/13/suppl\\_1/i61](http://tc.bmjournals.com/cgi/content/abstract/13/suppl_1/i61)
- 65 *Skidmore-Shafer v. Shafer*, 770 So.2d 1097 (Court of Civil Appeals of Alabama 1999) as cited in **Sweda EL, 2004.** [http://tc.bmjournals.com/cgi/reprint/13/suppl\\_1/i61](http://tc.bmjournals.com/cgi/reprint/13/suppl_1/i61)
- 66 **Non-Smokers' Rights Association, 2004.** Campaign for Tobacco Industry Denormalization: A letter to Health Minister Ujjal Donsanjh. November, 2004. [www.nsr-a-dnf.ca/news\\_info.php?cPath=25\\_44&news\\_id=238](http://www.nsr-a-dnf.ca/news_info.php?cPath=25_44&news_id=238) (Accessed Jan. 2006)