



# GASP

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## Smoke-free Vehicles When Children are Present

The right to privacy is an important tenet of the American way of life. But certainly, when children are harmed from exposure to the class A carcinogen secondhand smoke (SHS), which is in the same class as asbestos and benzene, public health and safety take precedence over smoking in the presence of children. Smoke-free vehicles ensure that clean air is maintained within the vehicle, to fulfill a child's need to breathe healthful and clean air, and to reduce long-term impacts of exposure to SHS and thirdhand smoke.

Global Advisors on Smokefree Policy<sup>1</sup> ("GASP") has many health concerns regarding smoking in cars when children are present, which are documented in this paper. NJ already restricts smoking in the presence of children in private vehicles and in homes: NJ regulations require foster children to be in smokefree environments, and child custody matters are determined in part on whether the child is exposed to SHS. This paper is categorized as follows:

- I. Jurisdictions that ban smoking in vehicles with children
- II. Jurisdictions introduced legislation to ban smoking in cars with children
- III. Jurisdictions that ban smoking when transporting foster children
- IV. Reasons to support smokefree vehicles when children are present
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  - A. Health studies
    - SHS negatively impacts air quality in cars
    - SHS biomarkers in nonsmokers exposed to SHS in cars
    - Adverse health effects from SHS in a car
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  - C. Devaluation of cars where smoking took place
- VI. Conclusions and recommendations of health authorities
- VII. Judicial Notice of Adverse Health effects from SHS
- VIII. SHS exposure as a factor in NJ child custody matters

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<sup>1</sup> Global Advisors on Smokefree Policy (GASP) is a 40-year old nonprofit resource center, dedicated to promoting smokefree air and tobacco-free lives. GASP is funded by the New Jersey State Department of Health, private foundations and donations.

## **I. JURISDICTIONS THAT BAN SMOKING IN VEHICLES WITH CHILDREN**

### **United States:**

- Arizona, Tempe: under age 18, in effect 6/20/15
- Arizona, Kingman: under age 18, in effect 6/18/15
- Arkansas State: under age 14, in effect 3/30/11 (amended prior law from 7/21/06 for under age 6 or 60 pounds in weight)
- California State: under age 18, in effect 1/1/08
- California, Loma Linda: under age 18, in effect 7/24/08
- California, Martinez: under age 18, in effect 6/5/09
- California, Rohnert Park: under age 18, in effect 5/28/09
- Indiana, Monroe County (unincorporated cities): under age 14, in effect 4/8/09
- Hawaii, Hawaii County: under age 18, in effect 8/8/10
- Louisiana State: under age 13, in effect 8/15/06
- Maine State: under age 16, in effect 9/1/08
- Maine, Bangor: under age 18, in effect 1/19/07
- New Jersey, Keyport: under age 18, in effect April 2007
- New Jersey, West Long Branch: under age 18, in effect 6/20/07
- Oregon State, under age 18: in effect 1/1/14
- New York, Rockland County: under age 18, in effect 6/15/07
- Utah State: under age 16, signed into law 3/28/13, in effect 5/15/13
- Vermont State: under age 8, (bill H217) in effect 7/1/14, considered a first offense
- U.S. Territories:
  - o Guam: Bill 188, under age 18, Public Law 31-102 passed on 10/12/11
  - o Puerto Rico: under age 13, in effect in 3/2/07

### **Canada:**

- Alberta Province: under age 18, in effect 1/1/13
- Alberta, City of Athabasca: under age 18, in effect March 2011
- Alberta, City of Okotoks: under age 16, in effect 9/1/08
- Alberta, City of Alberta: under age 18, in effect 7/2/11
- Alberta, City of Medicine Hat: under age 16, in effect 9/1/11
- British Columbia Province: under age 16, in effect 4/7/09
- British Columbia, City of Surrey: under age 19, in effect 7/31/08
- British Columbia, City of Richmond: under age 19, in effect 11/30/08
- British Columbia, City of White Rock: under age 16, in effect 11/1/08
- Manitoba province: under age 16, in effect 7/15/10
- New Brunswick province: under age 16, in effect 1/1/10
- Newfoundland province: under age 16, in effect 7/1/11
- Nova Scotia province: under age 19, in effect 4/1/08
- Nova Scotia, City of Wolfville: under age 19, broad smoking definition, in effect 1/1/08
- Ontario province: under age 16, in effect 1/21/09
- Prince Edward Island province: under age 19, in effect 9/15/09
- Saskatchewan province: under age 16, in effect 10/1/10
- Yukon Territory province: under age 18, in effect 5/15/08
- Labrador province: under age 16, introduced 12/13/10, passed and in effect 7/1/14

### **Other global jurisdictions:**

- Australian States
  - o Capital Territory (ACT): under age 16, enacted October 2011, in effect 5/1/12
  - o New South Wales: under 16 in effect 7/1/09
  - o South Australia: under age 16, enacted 5/31/07

- o Queensland: under age 16, in effect 1/1/10
- o Tasmania: under age 18, in effect 1/1/08
- o Victoria: under age 18, in effect on 1/1/10
- o Western Australia: under age 17, in effect 9/23/10
- o Northern Territory: under 16, in effect 1/1/15
- Bahrain: private cars with accompanying children (not defined), in effect 4/13/09
- Cyprus: under age 16, in effect since 2004
- France: under age 16, October 2011
- Mauritius: while carrying passengers, in effect 3/1/09
- South Africa: under age 12, in effect 8/21/09
- United Arab Emirates: under age 12, in effect 1/21/14
- United Kingdom: 18 and under, in effect 10/1/16
- United Kingdom, Jersey: under age 18 (amended 1973 smoking law in July 2014, vote 42-4)
- Wales: under 18, in effect 10/1/16

## II. JURISDICTIONS INTRODUCED LEGISLATION TO BAN SMOKING IN CARS WITH CHILDREN

### United States:

- Connecticut State: 6 or younger, HB06285 introduced 1/22/15, passed the House on 5/30/15, awaiting Senate vote.
- Georgia State: 15 and under, SB130, passed the Senate 3/13/15, await House vote.
- Kentucky: SB112, under 6, introduced 2/6/15, referred to Senate Health and Human Services.
- Maryland: HB357, under 8, introduced 2/5/15, referred to House Environment and Transportation Committee.
- Nevada State: 18 or younger, AB322 introduced 3/16/15.
- New Jersey: under age 16, S828 introduced 1/14/14, referred to Senate Health, Human Services and Senior Services Committee. Primary offense, \$100 penalty, and fines to be deposited in the state's Smoking Cessation Fund, to be established upon passage of the bill. No insurance points or surcharges. Original bill filed in 2008, and re-introduced each legislative session.
- New York State: under age 14, S03155 and A01982. On 2/3/15, S03155 referred to Transportation Committee; on 1/13/15, A01982 referred to the Health Committee.
- Ohio: under age 6, SB89, referred on 3/4/15 to Senate Health and Human Services Committee.
- Pennsylvania State: under age 12, HB667 introduced 3/2/15, referred to Transportation Committee.
- Rhode Island State: SB253 passed Senate 5/26/15, awaiting vote in House; police officer can give verbal warning to a smoker in a car when a child is restrained or required to be restrained.
- Texas: HB 461, bill reported Out of House Committee 4/23/2015, Committee report sent to calendars and awaiting vote by House
- Virginia State, under age 8, HB2171 introduced 2/10/15 in Militia, Police, and Public Safety.

### Outside U.S.:

- Chile: legislative health committee seeks to expand its March 2013 smokefree air law to smoking in cars ban when children present, 5/5/14
- Ireland: under age 18, enacted 12/25/2014
- Qatar: proposed ban on smoking in cars, 4/21/14
- Scotland: under age 18, introduced to Parliament 12/15/14; currently in progress in first stage of Parliament

### III. JURISDICTIONS THAT BAN SMOKING WHEN TRANSPORTING FOSTER CHILDREN

- 18 U.S. States ban smoking in cars that transport foster children: Alaska, Arizona, California, Colorado, Iowa, Kansas, Indiana, Maine, Maryland, Montana, **New Jersey** (all resource family children), Oklahoma, Oregon, Pennsylvania, Texas, Vermont, Washington and Wyoming. Maine also bans smoking in a vehicle within 12 hours of transporting a foster child. In addition, Arizona bans foster parents from smoking in ANY enclosed area with a foster child, implying a car, any public or private place.
- Monterey, San Luis Obispo, and Santa Cruz counties in California ban smoking in both foster care homes and cars that transport foster children. San Luis Obispo also bans smoking within 20 feet of the child in all other places that the foster parent controls; and cars that transport the children must be smoke-free for a minimum of 12 hours before a child enters.
  - Alberta, Canada's policy bans smoking in cars transporting foster children (Section 10.23 of Alberta's Children's Services Enhancement Act Policy Manual).
  - United Kingdom communities that ban smoking in both foster care homes and cars include Sheffield, Redbridge, Barnsley and Rotherham.

### IV. REASONS TO SUPPORT SMOKE-FREE VEHICLES WHEN CHILDREN ARE PRESENT

- Ethical/Moral: The government has an obligation and responsibility to ensure that children are in safe and healthful environments. Secondhand smoke, a class A carcinogen, causes many health problems for children.
- Practical: Children are not able to communicate, and not free to leave a car that is smoke-filled. Some are infants or toddlers that cannot communicate that the smoking is harming them, other than to cough, exhibit respiratory distress, and show other symptoms. Older children and teens, who can communicate verbally, but may not speak up, for fear of parental admonishment or peer pressure.
- In Practice: Child custody determinations can require no smoking in cars when transporting children.
- Complimentary: Laws require child seats in vehicles for health and safety reasons, similar to protecting children from secondhand smoke in vehicles.
- Reasonable: Smoke-free car laws do not require a parent to quit smoking, just to forego smoking in the car.
- Consistency: Children are taught in school and by other public education that smoking and secondhand smoke are harmful. Allowing smoking around children in cars sends inconsistent messages to children.
- Economic: Children who are exposed to secondhand smoke in cars may have increased medical and healthcare costs that are paid for by government. Smoking inside a vehicle reduces the resale value of those vehicles.
- Similarity to other restrictions on drivers' behaviors that are required for public health and safety: prohibitions on driving while impaired by alcohol or other causes, requirements that seat belts be used.

### V. SUPPORTING DATA FOR SMOKEFREE VEHICLES WHEN CHILDREN ARE PRESENT

#### A. HEALTH STUDIES

##### Secondhand smoke negatively impacts air quality in cars

1. A 2012 study published in Tobacco Control by UC Berkeley researchers found that the mean level of secondhand smoke exposure to children riding in cars with smokers is larger than concentrations measured in bars and restaurants. Researchers monitored SHS exposures in stationary vehicles with two different window configurations, finding that even short periods of exposure to secondhand smoke will make a significant difference to a child's level of harmful pollutants. A volunteer smoked three cigarettes in a one-hour period for twenty-two experiments; PM<sub>2.5</sub>, CO, nicotine and PAH levels were then measured in the backseat of the vehicle. The experiment revealed that 16 PAH compounds were measured in gas and particle phase, with real-time particle phase concentrations. The study supports restricting secondhand smoke exposure in vehicles, especially when carrying children.  
(Particulate mass and polycyclic aromatic hydrocarbons exposure from secondhand smoke in the back seat of a vehicle. November 22 2012).  
<http://tobaccocontrol.bmj.com/content/23/1/14.full.pdf+html>
2. A 2012 study published by PubMed found that the fine particulate levels in cars in which smoking occurs greatly exceed international indoor air quality guidance values, causing ill-health in children. For the study, 17 subjects (14 smokers) completed a total of 104 journeys (63 smoking journeys) averaging 27 min (range 5-70 min). PM<sub>2.5</sub> levels averaged 85 and 7.4 µg/m(3) during smoking and non-smoking car journeys, respectively. During smoking journeys, peak PM<sub>2.5</sub> concentrations averaged 385 µg/m(3), with one journey measuring over 880 µg/m(3). PM<sub>2.5</sub> concentrations were strongly linked to rate of smoking (cigarettes per minute). Use of forced ventilation and opening of car windows were very common during smoking journeys, but PM<sub>2.5</sub> concentrations were still found to exceed WHO indoor air quality guidance (25 µg/m(3)) at some point in the measurement period during all smoking journeys.  
(Secondhand smoke in cars: assessing children's potential exposure during typical journey conditions. November 21 2012).  
<http://tobacco.cleartheair.org.hk/wp-content/uploads/2012/10/UK-SHS-cars.-TC-12-11.pdf>
3. A 2012 article published in *Consumer Reports Health* reviewed a study conducted by British researchers, who found that even with windows open or air conditioning on, air pollution levels exceeded WHO's guidelines. PM<sub>2.5</sub> concentrations in cars where smoking takes place are high and greatly exceed international indoor air quality guidance values. Children exposed to these levels of fine particulate are likely to suffer ill-health effects. There are increasing numbers of countries legislating against smoking in cars and such measures may be appropriate to prevent the exposure of children to these high levels of secondhand smoke.  
(Secondhand smoke in cars: assessing children's potential exposure during typical journey conditions. January 4 2012).  
<http://tobaccocontrol.bmj.com/content/early/2012/01/04/tobaccocontrol-2011-050197.short>
4. A 2011 study conducted by the Institute for Environmental Health (CIEH) found that children who enter cars up to an hour after an adult has smoked cigarettes are at risk of health problems later in life, even if the windows were open. 'Parents should know that the only way to protect children from the negative effects of smoking in a car is not to smoke in it at all', shared Julie Barrett of CIEH. The study looked at cars belonging to a mother and two sets of grandparents who are smokers transporting children in their cars; they would not smoke while children were present in their cars, but would smoke before picking them up or when they were not present. The study showed that high levels of particulate matter peaked at 1,600 micrograms per cubic meter while a cigarette was being smoked, decreasing an hour later to 200 microgram per cubic meter; however the US Environmental Protection Agency regards exposure to PM levels of over 40 in a 24-hour period as unhealthy, and any figure more than 250 as hazardous to health. Researchers concluded that children who ride in vehicles during the 'danger period' could develop a range of breathing illnesses and lung disorders later in life. By fitting a measuring device to child seats in the back of different sized cars, tests measured the amount of smoke present in cars. The study further took into account whether the car was moving and if the windows were open.  
(Children at risk from cigarette smoke in cars 'up to an hour' after parents light up. March 30 2011).  
<http://www.dailymail.co.uk/news/article-1371421/Children-risk-cigarette-smoke-cars-hour-parents-light-up.html#ixzz1L7OTvP87>
5. A 2009 Johns Hopkins University study tested the air in 22 vehicles for a 24-hour period, finding higher concentrations of nicotine than in other indoor venues. At the end of the sampling period with 17 smokers and five non-smokers, airborne nicotine was analyzed by gas chromatography. After adjustment for vehicle size, window opening, air conditioning and sampling time, there was a

1.96-fold increase (95% CI 1.43 to 2.67) in air nicotine concentrations per cigarette smoked. Air nicotine concentrations in motor vehicles were much higher than air nicotine concentrations generally measured in public or private indoor places, and even higher than concentrations measured in restaurants and bars. These high levels of exposure to SHS support the need for education and legislation that regulate smoking in motor vehicles when passengers, especially children, are present.

(Secondhand tobacco smoke concentrations in motor vehicles. August 25 2009).

<http://tobaccocontrol.bmj.com/content/early/2009/08/25/tc.2009.029942.abstract>

6. A 2008 study published by Oxford Journals found that tobacco smoke pollution reaches unhealthy levels when smoking occurs in cars, even with ventilation. Smoking just a single cigarette in a car generated extremely high average levels of PM<sub>2.5</sub>: more than 3,800 µg/m<sup>3</sup> in the condition with the least airflow (motionless car, windows closed). In moderate ventilation conditions (air conditioning or having the smoking driver hold the cigarette next to a half-open window), the average levels of PM<sub>2.5</sub> were reduced but still at significantly high levels (air conditioning = 844 µg/m<sup>3</sup>; holding cigarette next to a half-open window = 223 µg/m<sup>3</sup>).  
(An experimental Investigation of Tobacco Smoke Pollution in Cars. January 1 2009).  
<http://ntr.oxfordjournals.org/content/11/6/627.short>
7. A 2007 study by Stanford University found that the toxic exposures in being a car with smoker are extremely harmful, even with windows open. The extensive study, published in the *Journal of Exposure Science & Environmental Epidemiology*, measured pollutant levels in cars at different speeds and with different interior air flows. In a car with the windows up and the air conditioning on maximum, a passenger would be exposed to such a high particle concentration that his or her exposure averaged over 24 hours would be 21 µg/m<sup>3</sup> per cigarette. After just two cigarettes, the exposure of a passenger would exceed the 35 µg/m<sup>3</sup> EPA cutoff by 20 percent. Co-author Wayne Ott said "...even with a car's windows open, smoke particle concentrations were higher than the levels he measured in California bars during studies in the mid-1990s before the state banned smoking in taverns."  
(Stanford researchers measure secondhand smoke concentrations in automobiles. August 29 2007). <http://news.stanford.edu/news/2007/september12/smokecar-091207.html>  
<http://tobaccosmoke.exposurescience.org/secondhand-smoke-in-motor-vehicles>
8. A 2006 Harvard School of Public Health study published in the *American Journal of Preventive Medicine* found that smoking in private passenger cars may create unsafe levels of SHS contaminants. Researchers tested the air during 45 driving trials with a smoker smoking at different times along an hour-long route. The secondhand smoke level was 272 micrograms per cubic meter when the driver's window was opened slightly, and 51 micrograms when the windows were wide open. Both levels exceeded the Environmental Protection Agency's Air Quality Index, which states that levels greater than 40 micrograms are unhealthy for sensitive people, which can include children, and levels greater than 250 micrograms are hazardous to everyone. "There is the argument that even exposure for very short periods of time, perhaps even 10 seconds, can precipitate asthmatic episodes in children."  
(Measuring Air Quality to Protect Children from Secondhand Smoke in Cars. November 3 2006).  
<http://www.ncbi.nlm.nih.gov/pubmed/17046406>
9. A 2006 study conducted by the Waterloo and Roswell Park Cancer Institute study published in *Nicotine & Tobacco Research* tested the air during 30 minute driving trials, with a smoker smoking during those intervals. Exposure levels measured inside the cars exceeded background levels, at times rising to greater than 5900 micrograms per cubic meter in cars with the least airflow and exceeding 75 micrograms in cars with the greatest airflow.  
[http://www.njgasp.org/NRT\\_Sendzik\\_et\\_al\\_smoking\\_in\\_cars\\_6-2009.pdf](http://www.njgasp.org/NRT_Sendzik_et_al_smoking_in_cars_6-2009.pdf)
10. A 2006 Wellington School of Medicine study found that "being in a car with a smoker was equivalent to sitting in a smoky bar, even with the smoker's car window fully wound down." The exposure levels of secondhand smoke measured up to 2,926 micrograms per cubic meter when the windows were up, and were 199 micrograms when the window was down.  
(Smoking in cars is a danger to children, said researchers. October 27 2006).  
[http://m.nzherald.co.nz/health/news/article.cfm?c\\_id=204&objectid=10407879](http://m.nzherald.co.nz/health/news/article.cfm?c_id=204&objectid=10407879)
11. A 2005 study by the California Air Resources Board found that concentrations in vehicles with smoking and no ventilation were up to 60 times greater than that in a smoke-free home and, up to

27 times greater than in a smoker's home. Researchers compared a number of studies measuring secondhand smoke particle concentrations in different environments.

(Proposed Identification of Environmental Tobacco Smoke as a TAC. June 24 2005).

<http://www.arb.ca.gov/regact/ets2006/app3exe.pdf>

<http://www.arb.ca.gov/regact/ets2006/ets2006.htm>

12. Fact sheet indicating that significant increases in the presence of carbon monoxide—which can induce lethargy and loss of alertness among infants, even in small amounts—were also detected in the vehicles tested. 70 Additional studies from 2006 yielded similar results. In one study, researchers found unhealthy levels of secondhand smoke in cars under all conditions tested, including ventilation.

(Secondhand Smoke, Kids, and Cars June 2014).

<http://www.tobaccofreekids.org/research/factsheets/pdf/0334.pdf>

### **Secondhand smoke biomarkers**

1. A 2015 study by the Harvard School of Public Health concluded that smoking in cars increases both atmospheric and biological SHS markers. Increased ventilation and open windows may reduce but won't completely eliminate SHS levels, which indicates that regulation of cigarette smoking within cars is justified. (Raouf S, Agaku I, Vardavas C. A systematic review of secondhand smoke exposure in a car: Attributable changes in atmospheric and biological markers. *Chronic Respiratory Disease*. May 12 2015). <http://www.ncbi.nlm.nih.gov/pubmed/25758677>
2. A 2014 study provided by the *Cancer, Epidemiology, Biomarkers and Prevention* center observed fourteen nonsmokers who were individually exposed to biological SHS markers in the backseat, from a smoker seated in the driver's seat, who smoked three cigarettes in 20-minute intervals. The test setting was in a stationary car with windows opened 10 cm to measure the amount of secondhand smoke passengers consumed. The results showed a Baseline and 0- to 8-hour postexposure mercapturic acid metabolites of nine VOCs were measured in urine. Air-to-urine VOC ratios were estimated on the basis of respirable particulate matter PM<sub>2.5</sub> or air nicotine concentration, and lifetime excess risk (LER) of cancer death from exposure to acrylonitrile, benzene, and 1,3-butadiene was estimated for adults. Nonsmokers have significant intake of multiple VOCs from breathing SHS in cars, corresponding to health risks that exceed the acceptable level (Intake of toxic and carcinogenic volatile organic compounds from secondhand smoke in motor vehicles. December 23 2014). <http://www.ncbi.nlm.nih.gov/pubmed/25398951>
3. A 2014 study conducted by the University of California, San Francisco concluded that nonsmokers sitting in an automobile with a smoker for one hour had markers of significantly increased levels of carcinogens and other toxins in their urine, indicating that secondhand smoke in motor vehicles poses a potentially major health risk.  
(Nonsmokers In Automobiles Are Exposed to Significant Secondhand Smoke, UCSF Researchers Find Elevated Carcinogen Markers for First Time in Car Passengers. *Cancer, Epidemiology, Biomarkers & Prevention* by the American Association for Cancer Research. November 13 2014). <https://www.ucsf.edu/news/2014/11/120766/nonsmokers-automobiles-are-exposed-significant-secondhand-smoke>

### **Secondhand smoke negatively impacts health in a car setting, especially for children**

1. A 2015 study in the *Journal of Physics Special Topics* showed that the University's Department of Physics and Astronomy of University of Leicester suggests that smoking 15 cigarettes for over an hour in a closed car could cause loss of consciousness. The study is based on a series of theoretical calculations using applied physics. (Smoking for 75 minutes in a car could render you unconscious, study suggests. University of Leicester. February 23 2015). [www.sciencedaily.com/releases/2015/02/150223084253.htm](http://www.sciencedaily.com/releases/2015/02/150223084253.htm)
2. A 2015 UK fact sheet suggests that the "Children and Families act of 2014 gave the Secretary of State for Health power to legislate against smoking in private vehicles when children are present. Regulations were approved in February 2015 and the law will enter into force on October 1st 2015". The study found that PM<sub>2.5</sub> concentrations where smoking took place, exposure greatly exceeded international indoor air quality guideline values. (Action on Smoking and Health; Smoking in Cars. February 2015). [http://ash.org.uk/files/documents/ASH\\_714.pdf](http://ash.org.uk/files/documents/ASH_714.pdf)



3. A 2015 University of Kentucky study found that there are positive associations between secondhand smoke exposure (SHSe) and smoking status, susceptibility, initiation and nicotine dependence and a negative association with smoking cessation. The review found that SHSe from the home and car corresponded with an early age of initiation. (A systematic review of secondhand tobacco smoke exposure and smoking behaviors: Smoking Status, susceptibility, initiation, dependence, and cessation. March 24 2015)  
<http://www.ncbi.nlm.nih.gov/pubmed/25863004>
4. A 2006 Australian study found that exposing 14 year-old asthmatics to secondhand smoke in cars doubled their risk of wheezing. (Smoking in Cars. *ASH (Action on Smoking and Health) Fact Sheet*. July 2007). [http://ash.org.uk/files/documents/ASH\\_714.pdf](http://ash.org.uk/files/documents/ASH_714.pdf)

### **Thirdhand smoke adverse health effects**

1. A 2014 study published by Lawrence Berkeley National Laboratory scientists observed the dangers of third hand smoke, which absorbs into indoor surfaces and continues to have harmful effects long after cigarettes are extinguished. Scientists found that third hand smoke can cause genetic damage to human cells, through dermal intake, ingestion of dust, and inhalation. The total integrated harm rises sharply after cigarettes have been smoked and does not begin leveling off until 10 hours later. (Thirdhand Smoke: Toxic Airborne Pollutants Linger Long After the Smoke Clears (Berkeley Lab). *Environmental Science & Technology* online journal. November 3, 2014).  
<http://newscenter.lbl.gov/2014/11/03/thirdhand-smoke-toxic-airborne-pollutants-linger-long-after-the-smoke-clears/>
2. A 2009 study published in the *Proceedings of the National Academy of Sciences of the United States of America* concluded that thirdhand smoke forms rapidly on indoor surfaces due to high absorption of nicotine, creating a health hazard. Residual nicotine from tobacco smoke reacts with ambient nitrous acid (HNO), resulting in the quick formation of carcinogenic tobacco-specific nitrosamines (TSNAs). Residual nicotine absorbs in indoor surfaces, including clothing and skin, and substantial TSNA levels were found on the surfaces of a smoker's vehicle. Through dermal exposure, ingestion, and dust inhalation, thirdhand smoke poses yet another danger to health. (Formation of carcinogens indoors by surface-mediated reactions of nicotine with nitrous acid, leading to potential *thirdhand* smoke hazards. *PNAS* 2010 107 (15) 6576-658, published ahead of print February 8 2010). <http://www.pnas.org/content/107/15/6576.full>
3. *Pediatrics Journal*, January 2009. Study by Professor Jonathan Winickoff, Center for Child and Adolescent Health Policy, Massachusetts General Hospital in Boston, surveyed 1,500 households to assess health beliefs of adults regarding thirdhand smoke exposure of children and whether smokers and nonsmokers differ in those beliefs. The study found that increasing awareness of how third-hand smoke harms the health of children may encourage home smoking bans. It also will be important to incorporate knowledge about third-hand smoke contamination into current tobacco control campaigns, programs, and routine clinical practice. Professor Winickoff is also concerned about new mothers who smoke, saying: 'When you're near your baby, even if you are not smoking, the child comes into contact with those toxins. And if you breastfeed, the toxins will transfer to your baby in the breast milk.' (Thirdhand Smoke: Another Reason to Quit Smoking, *Massachusetts General Hospital*, December 29 2008) See press release on study at <http://www.massgeneral.org/about/pressrelease.aspx?id=1091>.
4. The study referenced the dangers of third-hand smoke whichs linger beyond extinguishing a cigarette or cigar on upholstery, carpeting, clothing, hair, skin, etc. The concern is that carcinogens and toxins in third-hand smoke may affect brain development in babies and young children. Young children crawl on carpeting and suck on clothing, upholstery, skin, etc. that has third-hand smoke residue. See NY Times January 3, 2009 news clip is at [http://nigasp.org/third-hand\\_smoke\\_2009.pdf](http://nigasp.org/third-hand_smoke_2009.pdf), and Daily Mail news clip at <http://www.dailymail.co.uk/health/article-1211825/How-cigarette-smoke-carpet-harm-baby.html>

### **Behavioral effects of voluntary and mandated policies to ban smoking in cars with children**

1. A 2015 article examines policy options for promoting smokefree environments. Children spend more time in unregulated venues such as the home, the car, and school; thus, they have relatively less protection from SHS. Article suggests a ban on smoking with children in private vehicles, which



are the second-highest source of SHS exposure among children. Article recalls that smoking is not a constitutional right, and that the government can regulate behaviors for the protection of public health and safety (i.e. car seats, seatbelt laws, etc). (Current Problems in Pediatric and Adolescent Health Care Journal; Policy Options to Promote Smokefree Environments for Children and Adolescents. May 29 2015).

<http://www.ncbi.nlm.nih.gov/pubmed/26032229>

2. A study published in 2015 by the *Journal Of Pediatric Oncology Nursing* examined whether an intervention designed to reduce secondhand smoke exposure (SHSe) among children being treated for cancer had effects in the specific setting of a motor vehicle. The parents or guardians of children being treated for cancer were randomized to either a behavioral secondhand smoke (SHS) reduction program or a standard care control group. The standard care control group showed greater reductions in car exposure in comparison with the behavioral secondhand smoke (SHS) reduction group after 3 month. (Reductions on secondhand smoke exposure in the cars of children with cancer. February 3, 2015). <http://www.ncbi.nlm.nih.gov/pubmed/25650378>
3. A 2014 study found that parents want to be informed of the risks specific to the perioperative period, that many are already trying to reduce SHSe, and that they are more receptive to recommendations to reduce SHSe than to quit smoking entirely. (Reducing secondhand smoking for children undergoing surgery. *American Journal Of Health Behavior*. November 2014). <http://www.ncbi.nlm.nih.gov/pubmed/25207517>
4. In a 2014 study by the University of Glasgow, researchers monitored the increased news reporting on the harms of secondhand smoke exposure to children in vehicles and recent policy debates indicate that scientific and public interest in this issue has grown over the past decade mainly in the UK. Legislative action to prohibit smoking in vehicles carrying children was largely reported as necessary, enforceable and presented as having public support. It was commonly reported that while people were aware of the general harms associated with second-hand smoke, drivers were not sufficiently aware of how harmful smoking around children in the confined space of the vehicle could be. (Newsprint coverage of smoking in cars carrying children: a case study of public and scientific opinion driving the policy debates. NCBI PubMed.gov. October 29 2014). <http://www.ncbi.nlm.nih.gov/pubmed/25351408>
5. A 2014 study conducted in the UK regarding children's views and experiences with secondhand smoke found that many children actively attempt to stop their parents and other relatives from smoking, but are restricted by their lack of power in the household. The study geared to explore children's experiences of family members smoking in the home and car and the effects of their socio-economic circumstances. (Neneh Rowa-Dewar, Amanda Amos, & Sarah Cunningham-Burley. Addiction Research Report; Children's resistance to parents' smoking in the home and car: a qualitative study. April 1 2014). <http://www.ncbi.nlm.nih.gov/pubmed/24304201>
6. Published by the US National Library of Medicine, National Institutes of Health in 2014, data from self-reported full coverage' and 'partial coverage' smokefree legislation is associated with an increased likelihood of having voluntary home and car smokefree rules compared with 'no coverage'. There is a positive association between the adoption of smokefree rules in homes and cars. Results conclude that smoking bans at home and in the car were positively associated with greater likelihood of smoking cessation. (Brook, J.S., Zhang, C., Brook, D.W., Finch, S.J. Psychological Reports: Voluntary Smoking Bans at Home and In The Car and Smoking Cessation, Obesity, and Self-Control. April 29 2014). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4003495/>
7. A 2013 study published by the *Journal of Health* concluded that legislation that bans smoking in cars reduces exposure to secondhand smoke inside cars for children. (Nguyen, Hai V. Do smoke-free car laws work? Evidence from a quasi-experiment. January 2013). <http://www.ncbi.nlm.nih.gov/pubmed/23202259>
8. A 2006-2012 study showed that youth SHS exposure rates in-vehicle and in-home trended down slightly over time ( $p < 0.0001$  for both) with 23% exposed in-vehicle in the previous week in 2012; however, inequalities in exposure persisted among ethnic groups and school-based socioeconomic positions. The strongest association with SHS exposure was parental smoking (eg, for both parents versus neither smoking in 2012: in-vehicle SHS exposure adjusted OR: 7.4; 95% CI: 6.5 to 8.4). After adjusting for seven other factors associated with initiation, logistic regression analyses revealed statistically significant associations of in-vehicle SHS exposure with susceptibility

to initiation and smoking. Association between clean indoor air laws and voluntary smokefree rules in homes and cars. (Youth exposure to in-vehicle secondhand smoke and their smoking behaviors: trends and associations repeated national surveys. NCBI PubMed.gov. March 24 2015).

<http://www.ncbi.nlm.nih.gov/pubmed/24046210>

<http://www.ncbi.nlm.nih.gov/pubmed/24114562>

9. A study conducted in 2007-2010 showed that the prevalence of smoke-free car and home rules among Maine adults was significantly higher after the passage of a statewide smoke-free vehicle law. The data was published in the Peer review journal in the *Preventing Chronic Disease: Public Health Research, Practice, and Policy* journal, provided by the Centers for Disease Control and Prevention. This apparent change in smoke-free rule prevalence may be indicative of changing social norms related to the unacceptability of secondhand smoke exposure. (Murphy-Hoefer R, Madden P, Maines D, Coles C. Prevalence of Smoke-Free Car and Home Rules in Maine Before and After Passage of a Smoke-Free Vehicle Law, 2007-2010. January 16 2014).  
<http://dx.doi.org/10.5888/pcd11.130132>
10. On June 27, 2006 The U.S. Surgeon General issued "The Health Consequences of Involuntary Exposure to Tobacco Smoke", a document compiled of studies highlighting the negative effects of tobacco smoke. The section on Secondhand Smoke Exposure in the Home concluded that smoke-free rules in vehicles and homes can reduce secondhand smoke exposure among children and nonsmoking adults. (See Section IV, for additional conclusions from the U.S. Surgeon General, on secondhand smoke exposure to children.) (The Health Consequences of Involuntary Exposure to Tobacco Smoke. June 27 2006).  
<http://www.surgeongeneral.gov/library/reports/secondhandsmoke/fullreport.pdf>

#### **Prevalence of exposure to secondhand smoke in deprived populations**

1. A 2006 New Zealand study observed 16,055 vehicles, finding that, in cars where smoking occurred, 23.7% had other occupants being exposed to secondhand smoke, and that smoking in cars appeared to occur at a higher rate in deprived populations. Observed smoking in cars: a method and differences by socioeconomic area. (Observed smoking in cars: a method and differences by socioeconomic area. *Tobacco Control*. October 2006). <http://www.ncbi.nlm.nih.gov/pubmed/16998177>
2. A 2005 study of 1,770 parents and guardians in New Jersey and New York found that children were exposed to secondhand smoke in more than 50% of family cars and 40% of homes, despite health warnings about the hazards of secondhand smoke. (Families, Systems & Health, Spring 2005. American Psychological Association. *Medical Research News*. April 5 2005). <http://www.news-medical.net/news/2005/04/05/8975.aspx>

#### **Fact Sheet**

1. Policy options brief gives information on the dangers to secondhand and thirdhand smoke in cars, legal authority, and policies in effect. (William Mitchel College of Law; Susan R. Weisman, Public Health Law Center. *Kids, Cars and Cigarettes: Policy Options for Smoke-Free Vehicles*. December 2010).  
[http://publichealthlawcenter.org/sites/default/files/resources/phlc-policybrief-kidscarssmoke-2010\\_0.pdf](http://publichealthlawcenter.org/sites/default/files/resources/phlc-policybrief-kidscarssmoke-2010_0.pdf)

## **B. SURVEYS**

#### **Public support for protecting children from secondhand smoke in vehicles**

1. In March 2015, a survey by Motorpoint shows that more than 90 percent of motorists supported the UK government's plans to ban smoking in cars. Under the new provisions set out in the Children and Families Act, parents, caregivers or anyone else caught smoking in a car with children present can expect to receive a fine of 60 Euros and potentially 5 points on their license. (Motorists ban smoking in cars with children, says survey. March 12 2015).  
<http://www.staffordshirenewsletter.co.uk/Motorists-ban-smoking-cars-children-says-survey/story-26161329-detail/story.html>
2. In New Jersey, The Star Ledger Editorial Board points out the public support for smokefree vehicles when carrying children. Their October 26, 2013 editorial begins, "Nearly 90 percent of Americans

would ban smoking in cars with children 13 and younger, including 60 percent of smokers" and concludes, "Adults have a right to smoke in their own vehicles. But when children are present, the freedom to fill a car with smoke should take a back seat."

(Ban smoking with kids in the car in N.J.: Editorial. October 26 2013).

[http://blog.nj.com/njv\\_editorial\\_page/2013/10/ban\\_smoking\\_with\\_kids\\_in\\_the\\_c.html](http://blog.nj.com/njv_editorial_page/2013/10/ban_smoking_with_kids_in_the_c.html)

[http://www.njgasp.org/StarLedger\\_sf\\_cars\\_kids\\_editorial\\_10-26-13.pdf](http://www.njgasp.org/StarLedger_sf_cars_kids_editorial_10-26-13.pdf)

3. On July 23, 2013, the University of Michigan released the survey results of their C.S. Mott Children's Hospital National Poll on Children's Health. The poll surveyed U.S. adults regarding whether children should be protected from secondhand smoke in cars, in homes and in public places where children are permitted. The results are:
  - a. 82% of American adults support banning smoking in cars when children younger than 13 years old are present; 60% of adult current smokers support it; 84% of adult former smokers support it.
  - b. 87% support banning smoking at businesses that allow children.
  - c. 75% support banning smoking in homes where there are children with asthma or other lung diseases.

(Broad public support for banning smoking in vehicles with kids present. July 22, 2013).

<http://mottnpch.org/reports-surveys/broad-public-support-banning-smoking-vehicles-kids-present>

4. In September 2011, more than 15,000 people in Wales submitted a petition calling for government action. The latest July 2011 poll shows that 83% of Welsh adults support a ban on smoking in cars with children, with 65% of them strongly supporting it.  
(Wales car smoke child protection considered, BBC News UK, July 13 2011)  
<http://www.bbc.com/news/uk-wales-14133762>  
(Welsh Government Need to Be Bold to Protect Public Health, ASH (action on smoking and health). Wales Cymru. July 13 2011).  
<http://ashwales.org.uk/en/whats-new/welsh-government-need-to-be-bold-to-protect-public-health>  
<http://www.google.com/hostednews/ukpress/article/ALeqM5iCUieZxGOSvVDaaUslyjGvUCvF7g?docId=N0223251315310098329A>
5. In December 2010, The American Lung Association in Minnesota contracted with the Public Health Law Center to publish "Kids, Cars and Cigarettes: A Policy Overview". Pollution levels generated by secondhand smoke in vehicles reach concentrations far greater than in many other smoking environments, generating a need for legislation to protect children.  
(Kids, Cars and Cigarettes: A Policy Overview. December 2010).  
[http://publichealthlawcenter.org/sites/default/files/resources/phlc-fs-kidscarssmoke-2010\\_0.pdf](http://publichealthlawcenter.org/sites/default/files/resources/phlc-fs-kidscarssmoke-2010_0.pdf)
6. Even smokers support a ban of smoking in cars with kids. In a study published June 21, 2010 in the *European Journal of Public Health*, the majority of U.S. smokers support bans (60%). The other 3 countries studied had a higher level of support: Australia (83%), UK (75%) and Canada (74%).  
(Support and correlates of support for banning smoking in cars with children: findings from the ITC Four Country Survey. July 14 2010).  
<http://eurpub.oxfordjournals.org/content/early/2010/07/14/eurpub.ckq097.abstract>
7. 89% of 588 people surveyed online from 2007-2008, by the Queensland (Australia Health), supported a ban on smoking in cars with children present.  
(Bligh Govt toughens anti-smoking legislation. May 26 2008).  
<http://www.cabinet.qld.gov.au/MMS/StatementDisplaySingle.aspx?id=58227>
8. 73% of 1,015 Arkansas voters surveyed, support a ban on smoking in cars with kids, as per an Arkansas Department of Health study conducted in January 2008.  
(Arkansas DOH – Act 13 Awareness Research, 2008 Final Report. January 2008).  
<http://www.healthy.arkansas.gov/programsServices/tobaccoprevent/Documents/EducationalCampaigns/SmokeFreeCars/PressReleaseTemplateEnglish.pdf>
9. 82% of 2,032 Canadians polled supported banning smoking in cars when children are present. 69% of smokers polled, also wanted smoking banned in cars when children are present. National poll conducted by the Canadian Cancer Society from December 2007 – January 2008.  
(Canadians support ban on smoking in cars with kids. January 19 2008).  
<http://www.healthnewstrack.com/health-news-149.html>

10. An Ontario survey of 1314 residents found that 81% of nonsmokers and 66% of smokers support banning smoking in vehicles with children under 18. 2007 Ontario Tobacco-Free Network survey. "Our results show substantial and increasing public support in Ontario for banning smoking in motor vehicles carrying children." (The Smoke-Free Ontario Act: Extend Protection to Children in Vehicles. *The Ontario Tobacco Research Unit Update*. August 2006).  
[http://otru.org/wpcontent/uploads/2012/06/update\\_aug2006.pdf](http://otru.org/wpcontent/uploads/2012/06/update_aug2006.pdf)
11. 2007 Wave of the International Tobacco Control Four Country Survey showed that in Australia (83%), UK (75%), Canada (74%), and in the USA (60%), the majority of smokers supported banning smoking in cars with children. Controlling for demographics, heaviness of smoking, smoking health knowledge/beliefs and quit intentions, they compared support and correlates of support for banning smoking in cars with children across the four countries. Findings conclude that the majority of smokers support bans on smoking with children in cars. (Support and correlates of support for banning smoking in cars with children: findings from the ITC Four Country Survey. June 21 2011). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3098896/>  
<http://eurpub.oxfordjournals.org/content/21/3/360.long>
12. A western Australian survey found support for banning smoking in vehicles with children under 18: 87% of nonsmokers, and 80% of smokers supported protection. "Enforcement of legislation banning smoking in vehicles would be far easier than enforcing such legislation in homes, following precedents such as policing of seat belt, baby restraints, etc." Less than 5% of 3000 people surveyed (smokers and nonsmokers) by the Cancer Council Victoria found it acceptable to smoke in a car with a child present. (Smoking ban sought in cars. July 25 2007). [www.theage.com.au/news/national/smoking-ban-sought-in-cars/2007/07/24/1185043115567.html](http://www.theage.com.au/news/national/smoking-ban-sought-in-cars/2007/07/24/1185043115567.html)  
<http://www.theage.com.au/news/national/smoking-ban-sought-in-cars/2007/07/24/1185043115567.html>

#### **Prevalence of youth exposed to SHS in cars**

1. A 2015 survey shows that the percentage of children who reported that smoking was allowed in their family vehicle fell from 18% to 9% in 2014. The percentage living in homes where smoking was allowed decreased from 37% to 26%. Among children with a parent who smoked, one in five and one in two continued to report that smoking was allowed in their car and home, respectively. The percentage reporting SHS exposure in a car or home the previous day also fell. Children from poorer families remained less likely to report smoking restrictions. (Prevalence of smoking restrictions and child exposure to secondhand smoke in cars and homes: a repeated cross-sectional survey of children aged 10-11 years in Wales. January 30 2015).  
<http://www.ncbi.nlm.nih.gov/pubmed/25636793>
2. According to a 2013 survey by Léger on smoking in Quebec, one-quarter of smokers light up in the presence of minors, and one in five smoke in the car with children present. (Tens of thousands of Quebec children exposed to secondhand smoke in the car. September 9 2013). <http://www.newswire.ca/en/story/1221367/tens-of-thousands-of-quebec-children-exposed-to-second-hand-smoke-in-the-car>
3. The percentage of children under 16 who reported being in a car with a smoking adult fell from 43% in 2005 to 28% in 2010, according to the Canadian Tobacco Use Monitoring Survey. New research published in the Cancer Advocacy Coalition of Canada's annual report card suggests the decline by province during that period mirrored the sequential adoption of bans across Canada. (Policies that protect kids from secondhand smoke proving effective. July 11 2013).  
<http://www.theglobeandmail.com/life/health-and-fitness/health/policies-that-protect-kids-from-second-hand-smoke-proving-effective/article13177455/>
4. A 2006-2012 survey by University of Otago researchers wanted to extend the limited international evidence on youth in-vehicle second-hand smoke (SHS) exposure by examining trends in New Zealand, in order to expand restrictions on smoking. Data was collected in a series of five annual national surveys of over 25,000 Year 10 school students (14-15-year olds) for a 7-year period (2006-2012), with questions covering smoking behavior, exposure to smoking and demographics. To further inform considerations of this issue, we analyzed unpublished data from the national-level annual ASH survey of New Zealand's Year-10 students from 2006-2012. In these school-based surveys, 14 and 15 year olds were asked whether, in the past week, others had smoked around them in a car or van.

(Youth exposure to in-vehicle second-hand smoke and their smoking behaviors: trends and association in repeated national surveys (2006-2012). *Tobacco Control*. September 17 2013). <http://tobaccocontrol.bmj.com/content/early/2013/09/17/tobaccocontrol-2013-051124>  
(The important persisting problem of smoking in cars with children: new data from a multi-year national survey of young people. February 15 2013). <https://www.nzma.org.nz/journal/read-the-journal/all-issues/2010-2019/2013/vol-126-no-1369/letter-healey>

### C. DEVALUATION OF CARS WHERE SMOKING TOOK PLACE

- A July 2008 study published in *Tobacco Induced Diseases* found that smokers' cars have lower asking prices than comparable nonsmokers' cars. Given a particular Kelley Blue Book value and model of car, "the value decreased by 7.7% if it had been smoked in compared to a car that was smokefree."  
(Tobacco use and asking prices of used cars: prevalence, costs, and new opportunities for changing smoking behavior. July 31 2008). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2547891/>
- Vehicles are devalued from the smell, discoloring and scorch marks in the ashtray caused from smoking within the vehicle, according to British Car Auction's Public Relations manager. <http://www.motorstoday.co.uk/SMOKEDIN-CARS-WORTH-LESS-SAYS-BCA.2020.news>

## VI. CONCLUSIONS AND RECOMMENDATIONS OF HEALTH AUTHORITIES

1. **The U.S. Centers for Disease Control and Prevention** discourage exposure of children to any secondhand smoke (SHS) and advises to "Make your home and car completely smoke-free. Opening a window does not protect you or your child from secondhand smoke."  
[http://www.cdc.gov/media/matte/2011/06\\_tobaccosmoke.pdf](http://www.cdc.gov/media/matte/2011/06_tobaccosmoke.pdf)
2. **The U.S. Surgeon General issued his report on June 27, 2006**, entitled, *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General, U.S. Department of Health and Human Services*. The section on Secondhand Smoke Exposure in the Home concluded that although secondhand smoke exposure among children has declined over the past 15 years, children remain more heavily exposed to secondhand smoke than adults.
  - Almost 60 percent of U.S. children aged 3-11 years—or almost 22 million children—are exposed to secondhand smoke.
  - About 25 percent of children aged 3-11 years live with at least one smoker, as compared to only about 7 percent of nonsmoking adults.

**Smoke-free rules in vehicles and homes can reduce secondhand smoke exposure among children and nonsmoking adults.** Some studies indicate that these rules can also help smokers quit and can reduce the risk of adolescents becoming smokers:

- "The home remains the most serious venue for secondhand smoke exposure." Ch. 10, p. 350. <http://surgeongeneral.gov/library/secondhandsmoke/report/chapter10.pdf>
  - "... the home tends to be a greater source of secondhand smoke exposure than the workplace." Ch. 5, p. 170. <http://surgeongeneral.gov/library/secondhandsmoke/report/chapter5.pdf>
  - U.S. Surgeon General's June 2006 report lists the health effects of ETS on sudden infant death syndrome, preterm delivery, low birth weight, and childhood cancer risks. Ch. 5, pp. 242-243.
  - U.S. Surgeon General's June 2006 report also lists the reasons to have smokefree homes: to protect children from ETS, protect pregnant women, protect nonsmoking adults in the home, especially those with health conditions, to set a good example for children, etc. Ch. 10, p. 616.
  - The U.S. Surgeon General website: Fact Sheet #4 lists the most recent data on how ETS affects children (updated on June 27, 2006; excellent resource; see last page of this document for copy). <http://www.surgeongeneral.gov/library/secondhandsmoke/factsheets/factsheet4.html>
3. **Canadian Medical Association** approved of a recommendation to call for a nationwide ban on



smoking in cars that transport children at their 2007 annual general meeting held in Vancouver in August.

#### 4. Published studies show the harmful effects of ETS on children:

- A 2015 Finnish study by Reuters Health found that kids exposed to secondhand smoke were four times more likely to develop plaque in their carotid arteries than young adults. The findings indicate that secondhand smoke affects not only respiratory or developmental health, but may also lead to a long-term impact on cardiovascular health. Melbourne Hovell of San Diego State University advises parents with young children not to allow smoking in the house or in the car, and to avoid buying used cars that have been smoked in. (Kids exposure to secondhand smoke tied to clogged arteries. March 23 2015). <http://www.reuters.com/article/2015/03/23/us-secondhand-smoke-kids-arteries-idUSKBN0MJ2DZ20150323>
- A 2011 study in *Archives of Pediatrics and Adolescent Medicine* found a correlation between secondhand smoke exposure and mental illness in children, including major depressive disorder, generalized anxiety disorder, panic disorder, attention-deficit/hyperactivity disorder, and conduct disorder. (Secondhand Smoke Health Among Children and Adolescents. April 13 2011). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3075798/>
- *Circulation: Cardiovascular Quality and Outcomes*, A Journal published by the American Heart Association, March 2010. Children exposed to secondhand smoke between ages 8 to 13 are more likely to show thickening of blood vessel walls, a precursor to hardening and clogging of arteries. Children exposed to the most SHS had higher levels of apolipoprotein B, which contributes to "bad" cholesterol, another heart disease risk factor. The findings suggest that children should not be exposed to SHS at any level; even small amounts of SHS exposure may be harmful for blood vessels. The researchers concluded that children need to be provided with a smokefree environment. (Arterial Intima-Media Thickness, Endothelial Function, and Apolipoproteins in Adolescents Frequently Exposed to Tobacco Smoke, *Circulation: Cardiovascular Quality and Outcomes*, March 2010) <http://circoutcomes.ahajournals.org/content/3/2/196.full>
- Matt, G.E., Quintana, P.J.E., Hovell, M.F., Bernert, J.T., Song, S., Novianti, N., Juarez, T., Flora, J., Gehrman, C., Garcia, M. and Larson, S. Households contaminated by environmental tobacco smoke: sources of infant exposures. *Tobacco Control*, 13:29-37, 2004. Parents who smoke outside the home still subject their children to passive smoking. San Diego State University researchers studied 49 households, and found that secondhand smoke can contaminate a house even if cigarettes are smoked outside. Nicotine, a major ingredient of secondhand smoke, can be detected in the dust and air inside the homes of smokers who deliberately go outside for a puff. Children in such homes have up to eight times more nicotine in their bodies than the offspring of non-smokers. Moreover, nicotine levels in babies who live in houses where people smoke outside are much higher than in babies who live with non-smokers.
  - Babies who live with smokers may be exposed to contaminated particles from secondhand smoke in several ways. First, infants may inhale the smoke from a cigarette or the exhaled air from a smoker. Even if cigarettes are not smoked near a baby, cigarette fumes may contaminate dust that settles in carpets, on toy and furniture surfaces and on the floor. Because babies spend a lot of time crawling on the floor and putting toys in their mouths, they are especially at risk of ingesting this contaminated dust. Smokers may also contaminate their homes by bringing in clothing exposed to smoke. Cited from <http://faculty.washington.edu/chudler/shs.html>.
  - Although all smoking was outdoors, children had nicotine in their hair and urine, and mothers who smoked away from their children were found to have nearly as much nicotine on their hands as smokers who made no special effort. Cited from [http://www.thestressoflife.com/smoking\\_outside\\_may\\_not\\_protect\\_.htm](http://www.thestressoflife.com/smoking_outside_may_not_protect_.htm).
- *Pediatrics Journal*, Volume 117, Number 5, May 2006 – Environmental Tobacco Smoke Exposure: Prevalence and Mechanisms of Causation of Infections in Children. The report concluded that ETS plays a role in causing infections in children. <http://pediatrics.aappublications.org/cgi/content/abstract/117/5/1745>

- *American Journal of Respiratory and Critical Care Medicine*, June 2006. Study by Medical University in Vienna, Austria, studied more than 20,000 children, and concluded that "exposure to cigarette smoke before and after birth impairs their lung function and that parental smoking remains a serious public health issue."  
<http://ajrccm.atsjournals.org/cgi/content/short/173/11/1255>
  - *American Journal of Respiratory and Critical Care Medicine*, August 2006. Study by UC Davis shows how ETS damages babies' lungs. This study was done with rhesus macaque monkeys.  
[http://www.news.ucdavis.edu/search/printable\\_news.lasso?id=7836&table=news](http://www.news.ucdavis.edu/search/printable_news.lasso?id=7836&table=news)
  - *Clinical Infectious Diseases*, Vo. 42, April 1, 2006. This Ben Gurion University study showed that children who live with smokers carry *Streptococcus pneumonia* more often than children in smokefree homes.  
<http://www.journals.uchicago.edu/CID/journal/issues/v42n7/37523/37523.web.pdf#search=%22streptococcus%20smoking%22>
5. Prior to the most recent Surgeon General's report, other recognized health authorities have documented the hazards of secondhand smoke effects on children:
- 1986 U.S. Surgeon General's report that cites the EPA findings. "The children of parents who smoke, compared with the children of nonsmoking parents, have an increased frequency of respiratory infections, increased respiratory symptoms, and slightly smaller rates of increase in lung function as the lungs mature." Cited in the 2006 U.S. Surgeon General's Report, Ch. 10, p. 571.
  - July 1997 study published in *Archives of Pediatrics and Adolescent Medicine* shows that parental smoking kills at least 6,200 children per year, and causes 5.4 million serious ailments such as ear infection and asthma. <http://archpedi.ama-assn.org/cgi/content/abstract/151/7/648>
  - The California Dept. of Health Services 2001 report states that, "recent data also suggest that smokefree homes are associated with lower smoking initiation rates in adolescents, even in homes where parents smoke." Gilpin, E.A.; Emery, S.L.; Farkas, A.J.; Distefan, J.M.; White, M.M.; Pierce, J.P., "The California Tobacco Control Program: a decade of progress, results from the California Tobacco Survey, 1990-1999 - final report," Sacramento: California Department of Health Services, Tobacco Control Section (TCS) La Jolla: University of California, San Diego, December 26, 2001, footnote 9. <http://www.no-smoke.org/document.php?id=262>
  - Ontario Medical Association 2004 Position Paper, *Exposure to second-hand smoke: Are we protecting our kids?* "The OMA recommends that caregivers should not be permitted to smoke in vehicles while transporting children, and that the provincial government takes steps to ensure the protection of children from SHS while traveling in vehicles through legislation banning the use of tobacco inside vehicles used to transport children." (page 6)

## VII. JUDICIAL NOTICE OF THE HARMFUL EFFECTS OF SECONDHAND SMOKE

Since the harmful effects of SHS are well documented by health authorities, some courts have taken judicial notice of SHS, especially in child custody matters. Giving judicial notice means that the court no longer considers it a question of certainty; the hazards of SHS to children are deemed to be an undisputed fact.

In many of these cases, the courts rely on the veracity of the source of the information, which is usually a governmental public health organization. In fact, the U.S. Supreme Court has held that: "*the views of public health authorities, such as the U.S. Public Health Service, CDC, and the National Institutes of Health, are of special weight and authority.*" See *Bragdon v. Abbott*, 524 U.S. 624, 650, 118 S.Ct. 2196, 2211 (1998)(emphasis added).

Consequently, many courts now consider a parent's smoking when making child time sharing decisions. <http://www.digitaljournal.com/pr/674876>. Several examples of child custody cases that granted judicial notice on SHS are found in a *British Medical Journal* research paper entitled *Lawsuits and Secondhand Smoke*, by Edward L. Sweda, Jr., Senior Attorney, Tobacco Control Resource Center, Northeastern University



School of Law, Boston, Massachusetts. [http://tc.bmijournals.com/cgi/content/full/13/suppl\\_1/i61](http://tc.bmijournals.com/cgi/content/full/13/suppl_1/i61). Two examples are:

- *In Re. Julie Anne, A Minor Child*, 121 Ohio Misc. 2d 20 (Ohio Court of Common Pleas 2002), the court wrote a thorough analysis on why it granted judicial notice relating to facts that ETS effects are harmful, dating back to the World Health Organization, from 1989. It concluded that, "The overwhelming authoritative scientific evidence leads to the inescapable conclusion that a family court that fails to issue court orders restraining people from smoking in the presence of children under its jurisdiction is failing the children whom the law has entrusted to its care." The court granted a restraining order that the parents not allow any person, including themselves, to smoke tobacco in the presence of their child. <http://216.239.51.104/search?q=cache:KpLG7XusSpoJ:www.sconet.state.oh.us/rod/documents/98/2002/2002-ohio-4489.doc+%22judicial+notice%22+ets+harm&hl=en>
- *In re. Guardianship of a Minor Child*, Probate and Family Court Dept., No. 01P1072 (Hampden (MA) Division, 2003), the paternal grandparents of a seven-year-old child were appointed as the child's guardians. The court granted the maternal grandmother's request to remove the paternal grandparents as guardians, and appoint her instead, on the grounds that the child "is constantly exposed to dangers of secondhand smoke" while in the guardians' home. The court took "judicial notice of current research that shows second-hand smoke or environmental tobacco smoke (ETS) can cause respiratory problems, including asthma and reactive airway disease, in children" and made a finding that exposing this child "to a smoking environment is contrary to his best interest".

## VIII. SHS EXPOSURE AS A FACTOR IN NEW JERSEY CHILD CUSTODY MATTERS

New Jersey Family Courts are required to review a checklist when determining child custody and visitation matters, to determine what is "in the best interest of the child". One category on that checklist concerns the health and welfare of the child. New Jersey courts have decided that whether a parent or grandparent smokes is a factor in determining child custody and visitation.

New Jersey courts set two precedent-setting cases, that are relied upon by other courts:

- In 1994, *Unger v. Unger* modified a consent order and required that smoking be stopped in the home or vehicle when the children were present, with no one smoking in the home or vehicle at least 10 hours before the children were present. *Unger v. Unger*, 644 A.2d 691, 9.4 TPLR 2.145, 63 U.S.L.W. 2132 (Sup. Ct. Ch. Div. 1994), NJ Super. Ct., Burlington Cty., Chancery Division, No. FM-03-103-93, (1994).
- In 2003, the judge in *Montufar v. Montufar* ordered the mother to keep the child free of all secondhand smoke in the mother's home, car and the grandparent's home. *Montufar v. Montufar*, No. FM-04-02187-89 (Camden Cty. (NJ) Ct. 1993).

New Jersey State Statute N.J.S.A. 9:2-4 on child custody refers to the checklist for determining custody and visitation. See Notes of Decisions #8.5 "Health and Safety", which states that a court may consider the effects of environmental tobacco smoke in custody determinations, citing the *Unger v. Unger*.

### DISCLAIMER:

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