

**SECTION THREE**  
**SECONDHAND SMOKE**

## SECTION THREE SECONDHAND SMOKE

Secondhand smoke or environmental tobacco smoke refers to the inhalation of tobacco smoke by non-smokers. It is irrefutable that secondhand smoke is a major cause of disease in healthy non-smokers.

### DETRIMENTAL CONSEQUENCES OF SECONDHAND SMOKE EXPOSURE BEFORE, DURING, AND AFTER PREGNANCY<sup>1</sup>

#### Before Pregnancy:

- Secondhand smoke has adverse effects on male and female fertility.

#### During Pregnancy:


- Secondhand smoke exposure increases the risk of low birthweight and reduced fetal growth.
- The risk of sudden infant death syndrome (SIDS) more than doubles for babies if their mother is exposed to secondhand smoke.

#### During and After Pregnancy:

- Secondhand smoke exposure is associated with adverse effects on the baby's lung growth and development.

#### After Pregnancy:

- Babies exposed to secondhand smoke are more susceptible to respiratory diseases, asthma, and SIDS.



**There is no risk-free level  
of exposure to secondhand  
smoke.**

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As early as 1986, the U. S. Surgeon General concluded:

1. Involuntary smoking is a cause of disease, including lung cancer, in healthy nonsmokers.
2. 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 increased lung function as the lung matures.
3. The simple separation of smokers and non-smokers within the same air space may reduce, but does not eliminate the exposure of nonsmokers to environmental tobacco smoke.

The 2006 Report supported these conclusions:

### **6 Major Conclusions of the 2006 Surgeon General Report**

Smoking is the single greatest avoidable cause of disease and death. In this report, *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*, the Surgeon General has concluded that:

1. Many millions of Americans, both children and adults, are still exposed to secondhand smoke in their homes and workplaces despite substantial progress in tobacco control.

#### Supporting Evidence

- Levels of a chemical called cotinine, a biomarker of secondhand smoke exposure, fell by 70 percent from 1988-91 to 2001-02. In national surveys, however, 43 percent of U.S. nonsmokers still have detectable levels of cotinine.
- Almost 60 percent of U.S. children aged 3-11 years—or almost 22 million children—are exposed to secondhand smoke.
- Approximately 30 percent of indoor workers in the United States are not covered by smoke-free workplace policies.

2. Secondhand smoke exposure causes disease and premature death in children and adults who do not smoke.

#### Supporting Evidence

- Secondhand smoke contains hundreds of chemicals known to be toxic or carcinogenic (cancer-causing), including formaldehyde, benzene, vinyl chloride, arsenic, ammonia, and hydrogen cyanide.
- Secondhand smoke has been designated as a *known human carcinogen* (cancer-causing agent) by the U.S. Environmental Protection Agency, National Toxicology Program and the International Agency for Research on Cancer (IARC). The National Institute for Occupational Safety and Health has concluded that secondhand smoke is an occupational carcinogen.

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### 6 Major Conclusions of the 2006 Surgeon General Report, continued

3. Children exposed to secondhand smoke are at an increased risk for sudden infant death syndrome (SIDS), acute respiratory infections, ear problems, and more severe asthma. Smoking by parents causes respiratory symptoms and slows lung growth in their children.

#### Supporting Evidence

- Children who are exposed to secondhand smoke are inhaling many of the same cancer-causing substances and poisons as smokers. Because their bodies are developing, infants and young children are especially vulnerable to the poisons in secondhand smoke.
- Both babies whose mothers smoke while pregnant and babies who are exposed to secondhand smoke after birth are more likely to die from sudden infant death syndrome (SIDS) than babies who are not exposed to cigarette smoke.
- Babies whose mothers smoke while pregnant or who are exposed to secondhand smoke after birth have weaker lungs than unexposed babies, which increase the risk for many health problems.
- Among infants and children, secondhand smoke causes bronchitis and pneumonia, and increases the risk of ear infections.
- Secondhand smoke exposure can cause children who already have asthma to experience more frequent and severe attacks.

4. Exposure of adults to secondhand smoke has immediate adverse effects on the cardiovascular system and causes coronary heart disease and lung cancer.

#### Supporting Evidence

- Concentrations of many cancer-causing and toxic chemicals are higher in secondhand smoke than in the smoke inhaled by smokers.
- Breathing secondhand smoke for even a short time can have immediate adverse effects on the cardiovascular system and interferes with the normal functioning of the heart, blood, and vascular systems in ways that increase the risk of a heart attack.
- Nonsmokers who are exposed to secondhand smoke at home or at work increase their risk of developing heart disease by 25 - 30 percent.
- Nonsmokers who are exposed to secondhand smoke at home or at work increase their risk of developing lung cancer by 20 - 30 percent.

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### 6 Major Conclusions of the 2006 Surgeon General Report, continued

5. The scientific evidence indicates that **there is no risk-free level of exposure** to secondhand smoke.

#### Supporting Evidence

- Short exposures to secondhand smoke can cause blood platelets to become stickier, damage the lining of blood vessels, decrease coronary flow velocity reserves, and reduce heart rate variability, potentially increasing the risk of a heart attack.
- Secondhand smoke contains many chemicals that can quickly irritate and damage the lining of the airways. Even brief exposure can result in upper airway changes in healthy persons and can lead to more frequent and more asthma attacks in children who already have asthma.

6. Eliminating smoking in indoor spaces fully protects nonsmokers from exposure to secondhand smoke. Separating smokers from nonsmokers, cleaning the air, and ventilating buildings cannot eliminate exposures of nonsmokers to secondhand smoke.

#### Supporting Evidence

- Conventional air cleaning systems can remove large particles, but not the smaller particles or the gases found in secondhand smoke.
- Routine operation of a heating, ventilating, and air conditioning system can distribute secondhand smoke throughout a building.
- The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), the preeminent U.S. body on ventilation issues, has concluded that ventilation technology cannot be relied on to control health risks from secondhand smoke exposure.

#### Citation

U.S. Department of Health and Human Services. *The Health Consequences of Involuntary Exposure to Tobacco Smoke: 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, 2006.

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### THE FACTS<sup>2</sup>

- Secondhand smoke contains at least 250 chemicals of which 50 are known carcinogens (cancer-causing agents).<sup>3</sup>
- Secondhand smoke exposure is a cause of lung cancer and coronary heart disease among women who are lifetime nonsmokers.<sup>4</sup>
- In the U.S., secondhand smoke causes approximately 3,000 lung cancer deaths annually among nonsmokers. Secondhand smoke exposure increases the risk for lung cancer by 30 percent in nonsmokers.<sup>5</sup>
- The risk of sudden infant death syndrome (SIDS) is 2.5 times greater for infants exposed to secondhand smoke.<sup>6</sup>
- In 2002, the infant death rate for infants in the U.S. whose mothers smoked was 68 percent higher than for those whose mothers did not smoke.<sup>7</sup>
- For children between two months and two years of age, exposure to secondhand smoke was found to be responsible for 40-60 percent of the cases of asthma.
- Among children with established asthma, secondhand smoke exposure causes additional episodes and increases its severity.
- In North Carolina, 47 percent of middle school students<sup>8</sup> and 47 percent of high school students<sup>9</sup> reported living in a home where others smoke.
- In the U.S., secondhand smoke exposure causes an estimated 150,000 - 300,000 annual cases of bronchitis and pneumonia in infants and young children and also causes middle ear infections.
- Separating smokers and nonsmokers within the same air space may reduce, but does not eliminate, exposure of nonsmokers to tobacco smoke.
- Parents should protect children from secondhand smoke exposure at home, in cars, day care centers, restaurants, etc. Secondhand smoke remains in the area even after the smoker has left.

Thirdhand smoke is "particles and gases given off by cigarettes that cling to walls, clothes and even hair and skin." Some early studies have shown that "babies of parents who smoke only outside had cotinine levels seven times higher than in the infants of non-smokers".

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### Potentially relevant exposure periods for reproductive and perinatal outcomes<sup>10</sup>

Outcome	<u>Relevant exposure periods</u>		
	Preconception	Prenatal	Postnatal
Fertility	X		
Spontaneous abortion	X	X	
Low birthweight, small for gestational age, intrauterine growth restriction	X	X	
Congenital malformations	X	X	
Infant death (including sudden infant death syndrome)	X	X	X
Cognitive development	X	X	X
Childhood behavior	X	X	X
Height/growth	X	X	X
Childhood cancer	X	X	X

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### COUNSELING SUGGESTIONS

The 5 A's counseling approach can also be applied to eliminating secondhand smoke exposure. Counseling for secondhand smoke exposure should be provided for both smokers and nonsmokers. Be sure to document all secondhand smoke counseling activities in her patient record.

### ASK

Ask her if anyone smokes around her and find out where (home, car, work, friend's house, etc.) she is exposed to secondhand smoke. Be sure to document the source and frequency of secondhand smoke exposure in her patient record.

### WHAT YOU MIGHT SAY/ASK:

"I want to talk to you briefly about how you are handling those who smoke around you (and your baby)."

- "Does anyone smoke around you?"
  - Spouse/Partner       Family member(s)       Friend(s)
  - Coworker(s)       Other
  
- "Where do you encounter the smoke of others?"
  - Your home       Car       Friend's home
  - Relative's home       Work       Restaurants       Other

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### ADVISE

Provide her with clear and strong advice to eliminate her exposure to secondhand smoke. Educate her on the risks of secondhand smoke exposure to her health and her baby's health, if she is pregnant. Provide her with educational materials on secondhand smoke, such as the workbook entitled "Oh Baby! We Want To Keep You Safe From Secondhand Smoke" (See "Section VII – Resources" for more information on secondhand smoke materials). Emphasize the benefits of eliminating her and her baby's (if she is pregnant) exposure to secondhand smoke, not just the health risks.

#### WHAT YOU MIGHT SAY:

- "I'm concerned about your health and the health of your baby when you breathe in secondhand smoke (from other people's cigarettes, cigars, pipes)."
- "Why do you think it is a good idea to avoid breathing in secondhand smoke?"
- "Your reasons for avoiding others' smoke are important because... (List some reasons)."

### ASSESS

Assess if she is willing to make an effort to eliminate her exposure to secondhand smoke. In order to eliminate her exposure, she may need to make changes to her daily activities and be willing to talk to smokers about not smoking around her.

#### WHAT YOU MIGHT ASK:

- "Would you be willing to talk to the people who smoke around you (spouse, family members, friends, etc.) and ask them not to smoke in your home and car?"
- "Would you be willing to avoid places that allow smoking (restaurants, clubs, bowling alleys, etc.)?"

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### ASSIST

Help her to think of ways she could avoid situations where she might be exposed to secondhand smoke. Discuss how she could talk to her spouse/family member/friend about not smoking around her (refer to "Section One - Getting Support").

#### WHAT YOU MIGHT ASK/SAY:

- "What do you think makes it difficult for you to avoid being exposed to secondhand smoke?"
- "What makes it difficult for you to avoid places where smoking is allowed?"
- "Does talking to your spouse/partner about their smoking create a difficult situation for you?"
- "What would make it easier for you to talk to your spouse/partner about not smoking around you? Do you think there is something that I could do to help you with this?"

#### **Suggestions on how you might avoid being exposed to secondhand smoke inside your home:**

- Ask others to smoke outside.
- Keep a "No Smoking" sign in the house.
- Ask your health care provider, friend or family member to talk to the smoker about not smoking around you.
- Ask the smoker to read a brochure about the effects of secondhand smoke on pregnancy/the baby.
- Do not allow others to smoke around you and the baby.
- Ask others not to smoke in the room(s) where you and your baby spend time and sleep.
- Do not allow a baby sitter or child-care worker to smoke when caring for your baby/child.

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### Suggestions on how you might avoid being exposed to secondhand smoke outside of your home:

- Try to avoid places where smoking is allowed.
- Go to smoke-free restaurants and/or ask to sit in the non-smoking section in places where smoking is allowed.
- Ask those who are smoking around you to stop, for your and the baby's health.
- Talk or write a letter to the management of your workplace, restaurants, stores, etc. about making them smoke-free.
- Do not allow a child-care worker to smoke when caring for your baby/child.

### ARRANGE

Taking the time to **Arrange Follow-up** with her shows that eliminating secondhand smoke exposure is very important for her health and her baby's health, if she is pregnant. Ask about her exposure to secondhand smoke at every visit. Be sure to document all secondhand smoke counseling activities in her patient record.

- A. If she is not willing or not ready** to make the changes that are necessary to eliminate her exposure to secondhand smoke, give her a brochure on secondhand smoke to review at home. Ask her what she thought about the brochure at her next visit. See if she is willing to discuss how she can avoid secondhand smoke.
- B. If she is willing and ready** to make the changes necessary to eliminate her and her baby's exposure to secondhand smoke, then you should discuss how she has been able to eliminate her exposure during follow-up visits.

### WHAT YOU MIGHT SAY:

- "Here is some information on secondhand smoke for you to review at home. If you'd like, we'll talk about it at your next visit."
- "What we discussed today is very important. I'll make a note in your chart so that I can follow-up with you at your next visit."
- "Here is the list of what you said you wanted to do to eliminate your exposure to secondhand smoke. Please keep it handy as a reminder."

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<sup>1</sup> U.S. Department of Health and Human Services. *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Coordinating Center for Health Promotion, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2006.

<sup>2</sup> Unless otherwise cited, all information is from:

U.S. Department of Health and Human Services. *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Coordinating Center for Health Promotion, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2006.

<sup>3</sup> Available at [http://www.cdc.gov/tobacco/data\\_statistics/Factsheets/SecondhandSmoke.htm](http://www.cdc.gov/tobacco/data_statistics/Factsheets/SecondhandSmoke.htm)

<sup>4</sup> U.S. Department of Health and Human Services. *Women and Smoking: A Report of the Surgeon General*. Rockville, Maryland: U.S. Department of Health and Human Services, Public Health Service, Office of the Surgeon General, 2001.

<sup>5</sup> National Cancer Institute. Cancer Progress Report 2003. Public Health Services, National Institutes of Health, U.S. Department of Health and Human Services, 2004.

<sup>6</sup> U.S. Department of Health and Human Services. *Women and Smoking: A Report of the Surgeon General*. Rockville, Maryland: U.S. Department of Health and Human Services, Public Health Service, Office of the Surgeon General, 2001.

<sup>7</sup> Mathews, TJ, Menacker, F, MacDorman, MF. "Infant Mortality Statistics from the 2002 Period: Linked Birth Infant Death Data Set." National Vital Statistics Reports 2004; 53(10): 1-32.

<sup>8</sup> NC Tobacco Prevention and Control Branch. "North Carolina 2005 Youth Tobacco Survey: Middle School Fact Sheet." Division of Public Health. NC Department of Health and Human Services, February 2006.

<sup>9</sup> NC Tobacco Prevention and Control Branch. "North Carolina 2005 Youth Tobacco Survey: High School Fact Sheet." Division of Public Health. NC Department of Health and Human Services, February 2006.

<sup>10</sup> Ibid.