

**EVIDENCE-STATEMENT:**

**HEALTHY PREGNANCY (Screening, Testing, Counseling, Immunization, and Preventive Medication)**

**Tobacco Use Treatment (Screening and Counseling)**

**Clinical Preventive Service Recommendations**

**U.S. Preventive Services Task Force Recommendation**

The U.S. Preventive Services Task Force (USPSTF) recommends that clinicians screen all pregnant women for tobacco use and provide augmented pregnancy-tailored counseling to those who smoke.<sup>1</sup>

**Evidence Rating: A (Strongly Recommended/ Good Evidence)**

The USPSTF found good evidence that extended or augmented smoking cessation counseling (5 to 15 minutes) using messages and self-help materials tailored for pregnant smokers, compared with brief generic counseling interventions alone, substantially increases abstinence rates during pregnancy, and leads to increased birth weights. Although relapse rates are high in the postpartum period, the USPSTF concluded that reducing smoking during pregnancy is likely to have substantial health benefits for both the baby and the expectant mother. The USPSTF concluded that the benefits of smoking cessation counseling outweigh any potential harms.<sup>1</sup>

The American Academy of Family Physicians (AAFP)<sup>2</sup>, the American College of Preventive Medicine (ACPM)<sup>3</sup>, and the U.S. Surgeon General concur with the USPSTF recommendations.<sup>4</sup>

**Other Evidence-Based Recommendations American Academy of Family Physicians (AAFP)**

The American Academy of Family Physicians (AAFP) strongly recommends that clinicians counsel smoking parents with children in the house regarding the harmful effect of smoking and children's health.<sup>2</sup>

**Evidence Rating: SR (Strongly Recommended)**

Good quality evidence exists which demonstrates the substantial net benefit (compared with harm) of counseling to prevent exposure to secondhand smoke; the intervention is perceived to be cost-effective and acceptable to nearly all patients.<sup>2</sup>

**Information Sources**

The recommendations and supporting information contained in this document came from several sources, including the:

- American Academy of Family Physicians (AAFP)
- American College of Preventive Medicine (ACPM)
- Centers for Disease Control and Prevention (CDC)
- National Institutes of Health (NIH)
- Peer-reviewed research
- Smoke Free Families
- U.S. Public Health Service (USPHS)
- U.S. Surgeon General

The background and supporting information contained in this document is a compilation of research findings. All information presented in this document

should be attributed to its referenced source and should not be considered a reflection of other organizations cited in the text.

**Condition/Disease Specific Information**

**Epidemiology of Condition/Disease**

Twenty-one percent (21%) of all childbearing-aged women in the United States smoke.<sup>4</sup> Depending on demographic factors, between 11% and 20% of all pregnant women in the United States smoke.<sup>4</sup>

Tobacco use during pregnancy causes significant damage to the developing fetus, putting the future infant at risk for an array of severe short- and long-term health problems. Compared to non-smokers, women who smoke during their pregnancy are 83% more likely to deliver a low-birth-weight infant, 129% more likely to deliver an infant that will die of SIDS, 30% more likely to deliver an infant with respiratory distress syndrome, and 41% more likely to deliver an infant with a perinatal respiratory condition.<sup>5</sup> And children whose mothers smoked during pregnancy and/or smoke in the home shortly after birth are at increased risk of asthma, impaired lung function, stunted growth, ear infections, and upper respiratory problems.<sup>6-7</sup>

Prenatal tobacco use is a known risk factor for low birth weight, which itself is a significant risk factor for neonatal morbidity and mortality. In 2003, 12.4% of all women, 13% of Hispanic women, and 20.2% of black women who smoked during pregnancy delivered a low-birth-weight infant.<sup>8</sup>

**Table 1.0 Infant Deaths Resulting from Tobacco Use**

Health Problem	Percent of Cases Caused by Smoking	No. of Infants who Died as a Result of a Smoking Induced Health Problem (2001)	Years of Potential Life Lost due to Smoking Induced Health Problem	Estimated Cost per Case
Low birth weight (LBW)	9.1%	400	20,732	\$32,000-\$90,000*
Sudden infant death syndrome (SIDS)	13.4%	299	22,909	
Respiratory distress syndrome	3.5%	35	2,686	\$8,500 per day of intensive care**
Other respiratory problem	4.7%	71	5,444	

**Source:** Centers for Disease Control and Prevention. National Center for Chronic Disease Prevention and Health Promotion: Division of Reproductive Health. MCH health outcomes report. Maternal and Child Health Smoking-Attributable Mortality, Morbidity, and Economic Costs. Atlanta, GA: Centers for Disease Control and Prevention; 2005.

\* March of Dimes. Perinatal statistics. [cited 2005 Jul 8]. Available from: [http://www.marchofdimes.com/aboutus/680\\_2203.asp](http://www.marchofdimes.com/aboutus/680_2203.asp).

\*\*Discovery labs (distributors of surfactant, a medicine used to treat RDS in infants. [cited 2005 Jul 8]. Available from: <http://www.discoverylabs.com/2002pr/071802-PR.pdf>.

<p><b>Condition/Disease Risk Factors</b></p>	<p>Women who smoke during pregnancy are likely to be young (18 to 24 years of age), have low levels of education, and be from racial or ethnic minorities. Level of education is highly correlated with prenatal smoking. For example, while only 2% of college-educated non-Hispanic white women smoke during pregnancy, 42.7% of non-Hispanic white women with only 9 to 11 years of education smoke during one or more of their pregnancies.<sup>9</sup></p>
<p><b>Value of Prevention</b></p>	
<p><b>Economic Burden of Condition/Disease</b></p>	<p>The economic burden of prenatal tobacco use is substantial. In 1996, maternal smoking accounted for 2.3% of all neonatal medical expenditures.<sup>10</sup> Each pregnant smoker incurs an additional \$704 in healthcare costs (in year 1996 dollars)<sup>5</sup> and, annually, smoking-attributable neonatal costs (defined as all costs related to labor /delivery and the care of infants within the first few months of life) are estimated to meet or exceed \$367 million in the United States.<sup>10-11</sup></p> <p>The direct costs of care for mothers and their children exposed to environmental tobacco smoke (ETS) (also known as secondhand smoke) also add to the overall cost of smoking, although exact cost figures are not known.</p>
<p><b>Workplace Burden of Condition/Disease</b></p>	<p>Smoking-attributable neonatal costs impose a heavy burden on employer-sponsored health insurance spending. Moreover, working parents are required to take additional time off from work to attend to the health care needs of children affected by neonatal smoke exposure. This results in productivity losses in the workplace.</p>
<p><b>Economic Benefit of Preventive Intervention</b></p>	<p>A smoking cessation program that could achieve an annual drop of 1 percentage point in smoking prevalence has been estimated to produce an economic benefit of \$21 million in (in year 1995 dollars) direct medical costs solely by reducing the number of low-birth-weight live births. In 7 years, the cumulative undiscounted saving in direct medical costs would become \$572 million through the prevention of 57,200 low-birth-weight infants.<sup>12</sup></p>
<p><b>Estimated Cost of Preventive Intervention</b></p>	<p>In 2004, the private-sector cost of tobacco risk assessment and prevention counseling averaged \$62; approximately 95% of all paid claims fell within the range of \$0 to \$139.<sup>13</sup> In 2004, the private-sector cost (per pregnant smoker) for tobacco use treatment averaged \$39 and approximately 95% of all paid claims fell within the range of \$0 to \$134.<sup>13</sup></p>
<p><b>Cost-Effectiveness and/or Cost-Benefit Analysis of Preventive Intervention</b></p>	<p>Tobacco cessation treatment for pregnant women is considered one of the most cost-saving preventive services.<sup>4,14</sup> Clinical trials have shown that \$6 are saved in healthcare costs for every \$1 invested in smoking cessation programs for pregnant women.<sup>15</sup></p>

**Preventive Intervention Information**

**Preventive Intervention:  
Purpose of Screening  
and Counseling**

Screening allows clinicians to identify smokers and offer them cessation services in order to improve their chances of quitting. Quitting smoking reduces the risk of serious smoking-related health problems for the individual and — with regards to pregnant smokers — reduces the fetus’s risk of smoking-related health problems such as pre-term birth, low birth weight, and SIDS.

**Benefits and Risks  
of Intervention**

The benefits of tobacco use screening and counseling are substantial. Tailored tobacco cessation programs that feature patient education and support have been proven to be effective in reducing the number of women who smoke during pregnancy. For example, one health plan’s tobacco cessation program saw a massive reduction in smoking among participants; 81% of participants reported that they stopped smoking altogether or cut the number of cigarettes they smoked each day in half. Women in the program who stopped smoking completely had fewer preterm deliveries and fewer low-birth-weight babies compared to the pregnant smokers who did not participate in the program.<sup>16</sup>

Counseling interventions (as compared to printed self-help materials) are especially effective for smokers at high risk of complications from smoking, such as pregnant women. Notably, 21% of pregnant women who receive physician counseling successfully quit, which is double the quit rate of their nonpregnant counterparts.<sup>3</sup>

There are no documented risks to screening pregnant women for tobacco use. Risks of tobacco cessation counseling are few but include the possibility of a negative self-perception and perceived feelings of discrimination.

The benefits of screening and counseling, including early identification and early treatment, far outweigh the risks associated with screening and counseling.

**Initiation, Cessation,  
and Interval of  
Screening and  
Counseling**

All adults, including pregnant women, should be screened for tobacco use at every preventive care visit or as deemed appropriate by the clinician.<sup>1,3</sup> Pregnant women who screen positive for tobacco use should be advised to quit at every medical encounter and referred to 1-800-Quit-Now, the national portal number that refers callers to their state’s quitline service. All pregnant women who screen positive for tobacco use should be counseled.

**Intervention Process  
Screening**

The USPSTF recommends the use of the “5-A” behavioral counseling framework for tobacco screening and counseling. This framework is composed of 5 steps aimed at engaging the patient in a discussion about their tobacco use and their intention to quit:

- Ask about tobacco use
- Advise to quit through clear and personalized messages
- Assess the patient’s willingness to quit
- Assist to quit
- Arrange for follow-up and support services

**Counseling**

The USPSTF further recommends that clinicians provide problem-solving guidance for smokers to develop a quit plan and to overcome common barriers to quitting. Practices that complement the “5-A” framework include motivational interviewing or other methods of intensive counseling, referral for quitters that may need extra help, and referral to quitlines for adjunct counseling.<sup>1,5</sup>

Effective counseling interventions for pregnant smokers include individual face-to-face, group, and telephone counseling.<sup>17</sup> The most effective type of smoking cessation interventions for pregnant women are multi-component programs that feature: 1) healthcare provider reinforcement, 2) printed self-help materials, and 3) follow-up in-person or telephone counseling.<sup>11</sup> Physician counseling has been shown to increase quit rates among patients in primary care. The more intensive the counseling is (as measured by length of counseling session) the higher the quit rate. For example, 10.5% of patients who receive less than 3 minutes of physician counseling quit smoking, 12.1% of patients who receive 3 to 10 minutes quit, and 18.7% of patients who receive over 10 minutes of counseling quit.<sup>3</sup>

Pharmacologic therapy can enhance the effectiveness of tobacco-cessation interventions and can be used when the physician and patient concur that medication use would be beneficial. Because there have not been adequate studies to ensure the safety of tobacco cessation medications among pregnant women, patient education and provider counseling remain the primary methods of tobacco use treatment. Postpartum women who are not breastfeeding may want to consider using medication to enhance their likelihood of a successful quit attempt.<sup>17</sup>

**Treatment Information**

Please refer to the “Intervention Process” section.

**Strength of Evidence for the Clinical Preventive Service**  
The level of evidence supporting the recommendations contained in this section is described below.

***Evidence-Based Research:***

The U.S. Preventive Services Task Force (USPSTF)

Strength of Evidence: A (Strongly Recommended/Good Evidence)

- The USPSTF found good evidence that extended or augmented smoking cessation counseling (5 to 15 minutes) using messages and self-help materials tailored for pregnant smokers, compared with brief generic counseling interventions alone, substantially increases abstinence rates during pregnancy, and leads to increased birth weights.<sup>1</sup>

This recommendation is supported by the:

- American Academy of Family Physicians (AAFP)
- American College of Preventive Medicine (ACPM)
- The U.S. Surgeon General

- U.S. Public Health Service (USPHS)

The American Academy of Family Physicians (AAFP)  
Strength of Evidence: SR (Strongly Recommended)

- AAFP strongly recommends that clinicians counsel smoking parents with children in the house regarding the harmful effect of smoking and children's health.<sup>2</sup> Good quality evidence exists which demonstrates the substantial net benefit of counseling to prevent exposure to secondhand smoke; the intervention is perceived to be cost-effective and acceptable to nearly all patients.<sup>2</sup>

#### Authored by:

Campbell KP, Rosenthal AC, Chattopadhyay S. Tobacco use treatment during pregnancy evidence-statement: screening and counseling. In: Campbell KP, Lanza A, Dixon R, Chattopadhyay S, Molinari N, Finch RA, editors. *A Purchaser's Guide to Clinical Preventive Services: Moving Science into Coverage*. Washington, DC: National Business Group on Health; 2006.

#### Tobacco Use Treatment (Screening and Counseling)

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