

Tobacco Outcomes and Cost Consequences— Synthesis of Research Findings

OVERVIEW

Cigarette smoking is the leading cause of preventable death in the US¹ resulting in more than 440,000 deaths each year.² Approximately 21 percent of all adults,³ 23 percent of high-school students,⁴ and 8 percent of middle school students smoke.⁵ In addition, an estimated 43 to 50 percent of children are exposed to secondhand smoke by household members,^{6,7} and approximately 13 percent of pregnant women report that they smoke during pregnancy.⁸

From conception through adulthood, tobacco use has significant consequences at every stage of life. Prenatal exposure to cigarette smoking is associated with the risk of preterm delivery, premature rupture of membranes, placenta previa, low birth weight, spontaneous abortion, ectopic pregnancy, and Sudden Infant Death Syndrome (SIDS).^{9,10} Exposure to secondhand smoke among young children also can lead to health consequences that include respiratory symptoms (including cough, wheeze, and breathlessness), acute lower respiratory infections, asthma, more frequent and severe asthma attacks, and ear infections.^{11,12}

The effects of parental smoking extend well beyond the years of childhood. Among White and Hispanic adolescents, parental smoking significantly predicts both lifetime and current dependence on nicotine.¹³ As children model the behaviors of their smoking parents, they put their own health and the health of future children at risk.

ECONOMIC IMPACT

The economic consequences of smoking are significant. In 1998, the total cost of smoking among adults was estimated to be more than \$167 billion due to direct medical expenses and lost productivity.¹⁴ It has been estimated that smokers cost their employers an extra \$960 each per year and have 30 percent more absenteeism than their non-smoking colleagues.¹⁵ The costs associated with prenatal smoking are substantial as well: Nationally, smoking attributable costs of neonatal care are estimated to be \$1.8 billion¹⁶ and the costs of complicated births attributable to smokers are \$1.4 billion.¹⁷ In addition, the cost to treat childhood illnesses caused by parental smoking is estimated to be \$4.6 billion with costs due to loss of life as high as \$8 billion.¹⁸

INTERVENTIONS

There is strong evidence that many interventions to prevent and treat cigarette smoking are effective and can improve population health and save healthcare dollars. Interventions aimed at pregnant women can be highly effective in reducing negative birth outcomes. Smoking cessation programs implemented during pregnancy have been shown to reduce maternal smoking, low birth weight, and preterm birth while increasing birth weight.¹⁹ The economic impact of smoking cessation during pregnancy varies, but one study estimates that if smoking prevalence among pregnant women dropped by 1 percent, \$21 million dollars in direct medical costs would be saved in the first year. If the prevalence continued dropping by 1 percent annually, over 7 years \$572 million in direct medical costs would be saved.²⁰

Contrary to the assumption that experimentation leads to regular use and then to addiction, a recent study of 7th grade students found that nicotine addiction develops early in the course of an

adolescent's exposure to cigarettes.²¹ For some adolescents, the signs of addiction develop even after a single first puff, and many youth report symptoms of addiction and cravings long before becoming a daily smoker.²²

One of the most effective strategies to counter the effects of cigarette smoking is to prevent youth from becoming smokers. Preventing youth smoking will have life long health benefits for the individual, and ultimately will lead to healthier families by decreasing exposure of children and infants to secondhand smoke. Results on the effectiveness of school based programs are mixed, but one review found that there is sufficient evidence to show that school based programs can reduce youth smoking in the short term.²³ Other proven efforts to prevent youth smoking include community mobilization efforts,²⁴ increasing the price of tobacco,^{25,26} and mass media campaigns.²⁷ In fact, media campaigns are an intervention used by many states, and an evaluation of states with established anti-tobacco campaigns found these states had significantly greater declines in youth smoking rates than those with newer or non-existent campaign initiatives (P<0.05).²⁸

STATE ACTIVITIES

State MCH programs play a critical role in implementing smoking prevention and cessation activities either on their own, or as joint efforts with outside agencies and community organizations. By initiating programs to decrease the prevalence of smoking among pregnant women and youth, state MCH departments are helping create healthier families through cost effective programming. Examples of these programs include:

- example
- example
- example
- example

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² Centers for Disease Control and Prevention. (2003). Cigarette smoking-attributable mortality— United States, 2000. *Morbidity and Mortality Weekly Report*, 52(35):842-844.

³ Centers for Disease Control and Prevention. (2006). Tobacco use among adults—United States, 2005. *Morbidity and Mortality Weekly Report*, 55(42): 1145–8.

⁴ Centers for Disease Control and Prevention. (2006). Cigarette use among high school students — United States, 1991–2005. *Morbidity and Mortality Weekly Report*, 55(26); 724–6.

⁵ Centers for Disease Control and Prevention. (2004). Tobacco use, access, and exposure to tobacco in media among middle and high school students—United States, 2004. *Morbidity and Mortality Weekly Report*, 4(12);297–301.

⁶ Pirkle JL, Flegal KM, Bernert JT, Brody DJ, Etzel RA & Maurer KR. (1996). Exposure of the US population to environmental tobacco smoke: The Third National Health and Nutrition Examination Survey, 1988 to 1991. *JAMA*. 275:1233–1240.

⁷ Gergen PJ. (2001). Environmental tobacco smoke as a risk factor for respiratory disease in children. *Respiration Physiology* 128: 39–46.

⁸ US Department of Health and Human Services. (2001). *Women and Smoking: A Report of the Surgeon General*. Washington, DC: Government Printing Office.

⁹ US Department of Health and Human Services. (2001). *Women and Smoking: A Report of the Surgeon General*. Washington, DC: Government Printing Office.

¹⁰ Carl E. Hunt CE & Hauck FR. (2006). Sudden infant death syndrome. *CMAJ*, 174(13): 1861–9.

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- ¹¹ US Department of Health and Human Services. (2006). *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A Report of the Surgeon General*. Washington, DC: Government Printing Office.
- ¹² Cook DG & Strachan DP. (1999). Summary of effects of parental smoking on the respiratory health of children and implications for research. *Thorax*, 54:357–366.
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- ¹⁵ Bertera RL. (1991). The effects of behavioral risks on absenteeism and health-care costs in the workplace. *Journal of Occupational Medicine*, 33(11): 1119–1124.
- ¹⁶ Centers for Disease Control and Prevention. (no date). Smoking-Attributable Mortality, Morbidity, and Economic Costs (SAMMEC) Online Application. Accessed January 31, 2007 at <http://apps.nccd.cdc.gov/sammec/index.asp>.
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- ¹⁹ Lumley J, Oliver SS, Chamberlain C & Oakley L. (2004). Interventions for Promoting Smoking Cessation during Pregnancy. *Cochrane Database Syst Rev*, 4: CD001055.
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