

# Adult Smoking Cessation: Intervention Strategies for Primary Care Providers



FPEN



## Consensus Recommendations from an Expert Panel

Vol 5(4): April 2005

### Learning Objectives:

Upon completion of the program, the health care provider should be able to:

1. Assess an adult smoker's readiness to quit smoking
2. Implement the "5 A's" of intervention
3. Describe the effectiveness of FDA-approved first-line pharmacotherapies for smoking cessation (e.g., nicotine-replacement therapy, bupropion)
4. Recognize the efficacy of behavioral therapies for smoking cessation
5. Implement the basic elements of a counseling intervention for smoking cessation

### Sponsorship:

Sponsored by the Illinois Academy of Family Physicians/Family Practice Education Network (IAFP/FPEN).

### Accreditation:

The Illinois Academy of Family Physicians / Family Practice Education Network is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

### Credit Designation:

The Illinois Academy of Family Physicians / Family Practice Education Network designates this educational activity for a maximum of 2.0 category 1 credits towards the AMA Physician's Recognition Award. Each physician should claim only those hours of credit that he/she actually spent in the educational activity. Expiration: March 15, 2007

This activity has been reviewed and is acceptable for up to 4.0 Prescribed credit(s) by the American Academy of Family Physicians. 2.0 Prescribed credit(s) conform to AAFP criteria for evidence-based CME clinical content. The amount of EB CME has been doubled to reflect 2 for 1 credit for only the EB CME portion. Term of approval is for two-year(s) from beginning distribution date of 3/15/05, with option for yearly renewal. When reporting CME credit, AAFP members should report total Prescribed credit earned for this activity. It is not necessary for members to label credit as evidence-based CME Prescribed or Elective for CME reporting purposes.

### Support:

This medical education program, *Adult Smoking Cessation: Intervention Strategies for Primary Care Providers*, was made possible through an unrestricted educational grant from the Illinois Department of Public Health.

### Expert Panel

#### Carolyn Lopez, MD, Moderator

Chair, Department of Family Medicine  
John H. Stroger, Jr., Hospital of Cook County  
Chicago, IL

#### Luke Burchard, MD, MMM

Medical Director, Wellness and Oncology Disease Management  
Innovative Health Strategies  
Augusta, GA

#### David Goldberg, MD

Director, Section of Preventive Medicine  
Division of General Medicine  
John H. Stroger, Jr., Hospital of Cook County  
Chicago, IL

#### Tom Houston, MD

Professor, Public Health and Family Medicine  
Jim Finks Chair in Health Promotion  
Director, Louisiana Campaign for Tobacco-Free Living  
LSU School of Public Health  
New Orleans, LA

#### Carol Southard, RN, MSN

Smoking Cessation Specialist  
Smoking Cessation Initiative  
Project Manager  
American Dental Hygienists' Association  
Chicago, IL

#### LT Linda Lea, MSC, USNR

United States Navy  
Operational Health Support Unit  
Great Lakes, IL

### Faculty Disclosures:

The IAFP adheres to the conflict-of-interest policies of the AAFP and ANCC, respectively, as well as to the guidelines of the ACCME and the American Medical Association. Current guidelines state that participants in CME activities should be made aware of any affiliation or financial interest that may affect an author's article. Authors of this guideline have completed conflict of interest statements. Disclosures do not suggest bias but provide readers with information relevant to evaluation of the guideline contents.

Carolyn Lopez, MD; Luke Burchard, MD, MMM; David Goldberg, MD; Tom Houston, MD; Carol Southard, RN, MSN; and LT Linda Lea, MSC, USNR, report no conflicts of interest.

This guideline does not include any discussion or demonstration of any pharmaceuticals or medical devices that are not approved by the Food and Drug Administration (FDA) or that are considered "off-label."

### Disclaimer:

EB CME and the accompanying practice recommendations are considered to be the most current, with the strongest level of evidence available at the time of release of this EB CME activity. The American Academy of Family Physicians recommends a reconfirmation of the recommendations and source prior to implementation into practice.

Approval for AAFP credit does not confer or imply authorization to use the AAFP corporate seal or the registered family practice symbol on CME activity materials or otherwise in conjunction with CME activities, or to use AAFP's name in any association with the activity other than the credit statement.

## Introduction

In 1964, the U.S. Surgeon General's office issued its first report on the health effects of smoking, highlighting the relationship between active smoking and disease.<sup>1</sup> Since this groundbreaking publication, the Office of the Surgeon General has published more than two dozen reports that cover various aspects of smoking and health. The most recent, *The Health Consequences of Smoking* (2004; <http://www.surgeongeneral.gov/library/smokingconsequences/>), updates the evidence and methodology of the 1964 report to assess the effects of active smoking on disease through 2000.<sup>2</sup> The wealth of evidence linking tobacco exposure and use to adverse health outcomes has also supported publications on specific aspects of smoking and health by agencies such as the National Cancer Institute (NCI),<sup>3</sup> the U.S. Environmental Protection Agency,<sup>4</sup> the Institute of Medicine,<sup>5</sup> and the International Agency for Research on Cancer.<sup>6</sup>

In addition to these reports, several guidelines have been published on the treatment of tobacco use and dependence in the clinical setting. Among the most widely used is the 2000 clinical practice guideline, *Treating Tobacco Use and Dependence* (<http://www.surgeongeneral.gov/tobacco/clinpack.html>),<sup>7,8</sup> issued by the U.S. Public Health Service and co-sponsored by the Agency for Healthcare Research and Quality (AHRQ), the Centers for Disease Control and

\*Content meet criteria for Evidence-based CME.

Prevention (CDC), the NCI, the National Heart, Lung, and Blood Institute, the National Institute on Drug Abuse, the Robert Wood Johnson Foundation, and the University of Wisconsin Medical School Center for Tobacco Research and Intervention. Smokers who wish to quit may also utilize many online and telephone-based resources, which are listed in this guideline. In 2005, the *Family Practice Education Network* (FPEN), coordinated by the *Illinois Academy of Family Physicians* (IAFP), assembled a panel of smoking cessation experts to review the available literature and resources and utilize their own clinical experience to formulate recommendations for primary care providers regarding cessation interventions for adult smokers.

Most adult smokers are aware of the health benefits associated with smoking cessation, and primary care providers (PCPs) are uniquely positioned to discuss these benefits and counsel patients through the process of smoking cessation. However, recent surveys suggest that barriers prevent the routine use of cessation intervention. For example, the 2000 National Health Interview Survey of nearly 4000 adult smokers in a population-based national sample revealed that behavioral and pharmacological smoking-cessation treatments are under-utilized; only 22.4% of smokers who attempted to quit within the previous year reported using any type of cessation aid.<sup>9</sup> To help PCPs advise, counsel, support, and treat adult smokers as they attempt to quit, this FPEN publication reviews the current smoking cessation literature and guidelines, distilling key concepts and highlighting evidence-based recommendations. As such, this guideline offers the healthcare provider a succinct, stepwise, and proactive strategy to help tobacco-dependent adult patients stop smoking and remain smoke-free.

## Epidemiology and Impact of Smoking in U.S. Adults


Despite numerous high-profile public-awareness campaigns about the health risks associated with smoking, nicotine dependence and its sequelae continue to compromise the health of millions of people each year. More than 12 million premature deaths have been attributed to smoking since the publication of the first Surgeon General's report in 1964.<sup>2</sup> Resulting in more than 430,000 premature deaths per year in the U.S., smoking has become the nation's leading cause of disease and death.<sup>10</sup> Recent preliminary estimates have indicated that for every premature death caused by smoking each year, at least 20 smokers suffer a smoking-related disease.<sup>11</sup> The annual toll exacted by smoking on the nation's economy and health is staggering; the CDC estimates that annual costs attributable to smoking in the United States exceed \$157 billion dollars.<sup>10</sup> Although the overall proportion of adults who currently smoke has declined in the last 40 years, the rate of

decline in adult smoking prevalence has slowed in recent years,<sup>12</sup> suggesting a need for proactive intervention strategies on the part of healthcare professionals.

The CDC estimates that approximately 25% of Americans ages 12 and older smoke cigarettes.<sup>12</sup> Among American ethnic groups, smoking rates are highest for American Indians and Alaskan Natives (37.1%) and persons reporting two or more races (35%) as compared to Caucasians (26.9%), African-Americans (25.3%), Hispanic-Americans (23.0%), and Asian-Americans (17%).<sup>12</sup> The prevalence of smoking among adults decreases with increasing levels of education; in 2001, college graduates were least likely to report smoking cigarettes (14.5%) compared to 35.2 percent of adults who lacked a high-school diploma.<sup>12</sup> Moreover, parents' attitudes toward smoking influence adolescent smoking habits; children whose parents smoke are more likely to smoke than their counterparts whose parents abstain from smoking.<sup>13</sup>

## Smoking-Related Health Risks and the Benefits of Quitting

The health risks associated with smoking are numerous and are supported by a large body of literature. The 2004 Surgeon General's report updates and expands the list of diseases caused by smoking, concluding that "smoking harms nearly every organ of the body."<sup>2</sup> According to the report, there is sufficient evidence to infer a causal relationship between smoking and a variety of cancers, cardiovascular diseases, respiratory disorders, reproductive effects, and other disorders (Table 1). In addition, smoking has been recently associated with losses in renal filtration rate, suggesting a deleterious effect on renal function that extends beyond populations that have primary or secondary renal disease.<sup>14</sup> Smoking's overall adverse health impact offers a sobering prognosis for the long-time smoker: an estimated 50% of current smokers will die of a smoking-related disease if they do not quit.<sup>15</sup> Prolonged cigarette use from early adult life triples age-specific mortality rates, which are fully normalized only through smoking cessation prior to age 35.<sup>16</sup>

**Practice Recommendation:** Clinicians should encourage patients with coronary heart disease who smoke to quit, since smoking cessation is associated with a substantial reduction in risk of all-cause mortality among patients with coronary heart disease. 

**EBM Source:** Cochrane Database of Systematic Reviews: Smoking cessation for the secondary prevention of coronary heart disease (Cochrane Review) *Cochrane Database Syst Rev* 2004. <http://www.cochrane.org/cochrane/revabstr/AB003041.htm>

**Strength of Evidence:** Results from 20 prospective cohort studies (12,600 patients) that measured smoking status on two or more occasions to ascertain those smokers who had quit, and followed-up on patients for 2 years or longer.


Smoking is involved in a cascade of adverse health effects, and cessation is associated with reduced mortality risk and numerous improvements in overall health. For example, cessation has been linked to a substantial

reduction in the risk of all-cause mortality among patients with coronary heart disease<sup>17,18</sup> and a significant decrease in mortality among patients who have experienced myocardial infarction.<sup>19</sup> Among middle-aged men, smoking cessation is also associated with a decreased risk of stroke, particularly in light smokers (<20 cigarettes/day).<sup>20</sup> Evidence also indicates that smokers with airflow obstruction benefit from quitting despite previous heavy smoking, advanced age, poor baseline lung function, or airway hyperresponsiveness.<sup>21</sup> Smoking cessation also substantially decreases cancer risk, returning to near-normal levels within 15 years for most cancers.<sup>15</sup>

**Table 1 Diseases and Adverse Health Effects of Which Smoking is a Cause**

<b>Cancer:</b>
<ul style="list-style-type: none"> <li>• Bladder</li> <li>• Cervical</li> <li>• Esophageal</li> <li>• Kidney</li> <li>• Laryngeal</li> </ul>
<b>Cardiovascular Diseases:</b>
<ul style="list-style-type: none"> <li>• Abdominal aortic aneurysm</li> <li>• Atherosclerosis</li> <li>• Stroke</li> <li>• Coronary heart disease</li> </ul>
<b>Respiratory Diseases:</b>
<ul style="list-style-type: none"> <li>• Chronic pulmonary obstructive disease</li> <li>• Pneumonia</li> <li>• Premature onset and accelerated age-related decline in lung function</li> <li>• Coughing, wheezing, phlegm, dyspnea</li> <li>• Poor asthma control</li> <li>• Impaired lung growth during childhood and adolescence (for smoking during childhood or adolescence)</li> </ul>
<b>Reproductive Effects:</b>
<ul style="list-style-type: none"> <li>• Reduced fertility in women</li> <li>• Sudden infant death syndrome</li> <li>• Low birth weight and fetal growth restriction</li> <li>• Pre-term delivery</li> <li>• Premature rupture of membranes, placenta previa, and placental abruption</li> <li>• Reduced fetal lung function <i>in utero</i></li> <li>• Earlier onset of menopause</li> </ul>
<b>Other Effects:</b>
<ul style="list-style-type: none"> <li>• Nuclear cataract</li> <li>• Adverse surgical outcomes related to wound healing and respiratory complications</li> <li>• Hip fractures (in women)</li> <li>• Low bone density (in post-menopausal women)</li> <li>• Peptic ulcer disease (in persons who are <i>Helicobacter pylori</i> positive)</li> <li>• Macular degeneration</li> </ul>

Source: The Office of the U.S. Surgeon General. *The Health Consequences of Smoking*. 2004 (Online at: <http://www.surgeongeneral.gov/library/smokingconsequences/>).

**Practice Recommendation:** Clinicians should encourage women who smoke to quit, since active smoking increases breast cancer risk; when women stop smoking the risk disappears. 

**EBM Source:** Bandolier: Does Exposure to Smoke Increase Risk of Breast Cancer? (Original Citation: Reynolds P, et al. *J National Cancer Inst* 2004). <http://www.jr2.ox.ac.uk/bandolier/booth/hliving/smobrca.html>

**Strength of Evidence:** Study of 116, 544 women (smoking statuses: never, former, and current) who had no diagnosis of breast cancer at the outset of study; follow-up of 5 years.

### Patient Evaluation in the Primary Care Setting

Because nicotine dependence is a chronic condition, smoking cessation is a process that requires behavioral modifications and lifestyle adjustments. Merely wanting to quit does not lead all smokers to attempt it; data suggest that slightly more than half of those who want to stop will actually attempt to do so in a given year.<sup>22</sup> Of those, only about 3% will remain abstinent for 12 months. Most smokers will attempt to quit several times before achieving success, cycling through several periods of remission and relapse.<sup>8, 23</sup> Thus, the primary care provider must initially assess a patient’s degree of addiction and readiness for change to tailor realistic, practical goals and interventions.

**Assessing Nicotine Addiction.** The cigarette provides a highly engineered vehicle to deliver nicotine, facilitating an addiction that is physical/biochemical, psychological, and repetitive. As part of taking a smoking patient’s history, the healthcare provider should ask three questions to assess the degree of nicotine addiction:

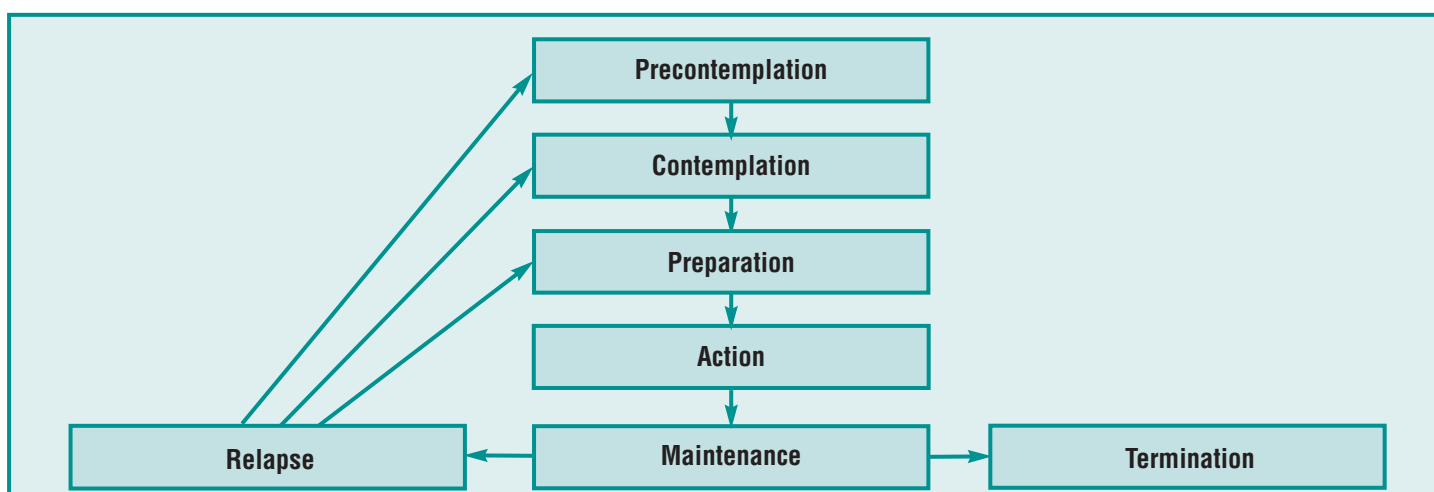
- How much do you smoke (e.g., how often, how many cigarettes/day)?
- When do you smoke your first cigarette of the day?
- What is the longest period of time between cigarettes before you crave another cigarette?

Patients who smoke more than 20 cigarettes per day, and those who smoke 10-20 cigarettes per day with the first cigarette within the first 30 minutes of waking, are likely to be addicted to nicotine. Those who smoke 10-20 cigarettes per day, with the first cigarette more than 30 minutes after waking, are less likely to be addicted. Fewer than ten cigarettes per day suggests social smoking rather than addiction, although patients in this category may demonstrate moderate amounts of addiction. Ascertaining the pattern of smoking during the course of the day may also provide insight into the level of addiction; *e.g.*, a person who smokes only during the evening is likely less addicted than a person who smokes a cigarette immediately upon waking.

**Stages of Change.** People who embark upon any process of behavioral change exhibit behavior that can be grouped into five successive stages: pre-contemplation, contemplation, preparation, action, and maintenance

(Figure 1).<sup>24-27</sup> These stages represent a continuum, and patients will arrive at the primary care provider’s office at various points along the pathway. Each stage features an associated decision balance, a limited number of strategies that the person may use to change his/her behavior, and changes in self-efficacy and confidence. However, once a person has reached the maintenance stage and successfully quit smoking, relapse may occur, returning the person to a preliminary stage, such as precontemplation, contemplation, or preparation.

Smokers in the precontemplation stage are not planning to quit smoking in the near future (*i.e.*, six months or less). Their attitudes will range from never planning to quit or cut down smoking to planning to quit within the next five years.<sup>28</sup> Smokers in the contemplation stage have progressed to thinking about quitting in the next six months, although they have taken no action to do so. Once a smoker has planned to quit smoking within the



**Figure 1 Stages of Change**

Adapted from: Knight J. *Contemp Pediatr.* 1997;14:45-72.

**Table 2 Stages of Change: Characteristics and Appropriate Actions**

Stage	Characteristics	Appropriate Action for Primary Care Provider
<b>Pre-contemplation</b>	<ul style="list-style-type: none"> <li>• Reasons to continue smoking dominate</li> <li>• Limited interest in change</li> </ul>	<ul style="list-style-type: none"> <li>• Discuss personalized health benefits of quitting</li> </ul>
<b>Contemplation</b>	<ul style="list-style-type: none"> <li>• Aware of problem</li> <li>• Conflicted about behavior</li> <li>• Considering change</li> </ul>	<ul style="list-style-type: none"> <li>• Consider small changes</li> <li>• Ask patient to build commitment</li> </ul>
<b>Preparation</b>	<ul style="list-style-type: none"> <li>• Realizes benefit of making changes</li> <li>• Building a commitment to change</li> </ul>	<ul style="list-style-type: none"> <li>• Begin teaching behavior modification</li> <li>• Help patient plan for tempting situations</li> <li>• Help to set a quit date</li> </ul>
<b>Action</b>	<ul style="list-style-type: none"> <li>• Taking active steps toward change</li> </ul>	<ul style="list-style-type: none"> <li>• Provide guidance and support</li> <li>• Consider pharmacotherapy</li> </ul>
<b>Maintenance</b>	<ul style="list-style-type: none"> <li>• Initial treatment goals reached</li> </ul>	<ul style="list-style-type: none"> <li>• Control relapse and monitor abstinence</li> </ul>

Adapted from: Velicer WF, *et. al. Addict Behav* 1995; 20:299-320; Goldberg D, *et.al. Dis Mon* 2002;48:445-485.

upcoming month, he or she has reached the preparation stage. Smokers who have quit smoking within the past six months or are in the process of quitting have attained the action stage. Those who have abstained from smoking for more than six months have entered the maintenance stage, which may lead to long-term abstinence or relapse.

Care providers should emphasize stage progression and change, rather than immediate cessation, to facilitate the patient’s efforts to quit smoking. Table 2 lists the characteristics of each stage and recommends the appropriate action for the primary care provider when working with patients in each stage.<sup>25, 27</sup>


## The 5 A’s of Intervention

Tobacco-cessation counseling by healthcare providers is effective in improving tobacco cessation rates among adults, and it has also been recommended by the U.S. Public Health Service for adolescents who smoke.<sup>8</sup> Therefore, the primary care provider should be prepared to use intervention techniques with patients who are ready to quit smoking. These techniques are not time-consuming and with practice can be integrated smoothly into routine office visits. The U.S. Public Health Service’s “5 A’s” – Ask, Advise, Assess, Assist, and Arrange (<http://www.surgeongeneral.gov/tobacco/5steps.pdf>) – offers an effective model for office intervention (Table 3).

Table 3 The 5 A’s: An Intervention Strategy to Help Patients Quit Smoking	
<b>Ask</b>	Identify and document tobacco use for every patient at every visit
<b>Advise</b>	Strongly urge all tobacco users to quit
<b>Assess</b>	Determine patient willingness to attempt to quit
<b>Assist</b>	Aid in developing a tailored quit plan
<b>Arrange</b>	Schedule follow-up contact and offer support

The first intervention step for smoking cessation is to **ask about** and document tobacco use for every patient at every visit. The primary care provider should recognize that assessing smoking status is a clinical priority, and he or she should inquire directly about smoking when taking a patient’s history. This inquiry can be enabled by including tobacco-use status (*e.g.*, current, former, or never) in the vital signs charts used for all patients or by placing tobacco-use status stickers on all patient charts. The second step—**advise**—requires the provider to urge every tobacco user to quit, using a clear, strong, and personalized manner. **Assessing** whether the tobacco user is willing to make a quit attempt is the third step in this process. **Assisting** the patient to develop a plan for quitting, which includes setting a quit date, involving the

support of family and friends, removing tobacco products, and anticipating the challenges to the quit attempt and the effects of withdrawal, constitutes the fourth intervention step. The fifth step is **arranging** a follow-up contact, either in person or by phone, to evaluate the quitting effort and provide personal encouragement. Contact should preferably be made within the first two or three days after the quitting date, and more frequent contact will increase the chances of success. Throughout this process, the primary care provider must provide guidance that addresses and anticipates the obstacles to quitting and potential relapse. Discussions should include the health risks associated with smoking, environmental factors that affect the desire to smoke, and recognition of the possibility for relapse.

**Practice Recommendation:** Clinicians should screen all adults for tobacco use and provide tobacco cessation interventions for those who use tobacco products. 

*EBM Source:* Agency for Healthcare Research and Quality: U.S. Preventive Services Task Force (USPSTF) Guideline: Tobacco Use and Counseling, 2003. <http://www.ahrq.gov/clinic/uspstf/uspstbac.htm>

**Strength of Evidence:** "A" Level of Evidence: The USPSTF found good evidence that [the service] improves important health outcomes and concludes that benefits substantially outweigh harms.

## Motivating and Counseling Patients Who are Ready to Quit Smoking

When a patient has reached the “preparation” stage of the stages-of-change model discussed previously, the primary care provider plays a key motivational role in helping him or her quit smoking. Preliminary results indicate that implementation of a guideline-driven smoking cessation intervention in primary care practice that focuses primarily on smokers who are interested in trying to quit is associated with increased abstinence.<sup>29</sup> Counseling is one part of an overall strategy for smoking cessation that also includes pharmacotherapy (see below). When health care providers counsel all smokers and recommend/prescribe pharmacotherapy when indicated (based on the heaviness of smoking and acceptability to patients), cessation rates may increase as much as six-fold over community-wide base rates (Table 4).

Table 4 Typical Long-Term Quit Rates			
	No Therapy	Brief Advice	Behavior Therapy
Placebo or No Medication	5%	10%	15%
First-Line Medication	10%	20%	30%

Source: Hughes JR. *CA Cancer J Clin* 2000;50:147.

## Smoking Cessation in Special Adult Populations

**The 5 “R’s” of Quitting.** Analogous to the “5 A’s” of intervention are “5 R’s” of quitting – relevance, risks, rewards, roadblocks, and repetition – that the provider should discuss with each patient who is motivated to quit smoking. The “5 R’s” can also be used as a teaching tool for patients who are unmotivated to quit. For greatest success, the provider must tailor the message and quit strategy to the needs of the individual. Providers should discuss the **relevance** of quitting smoking in terms of its effects on the smoker’s lifestyle and health. This discussion can be supported by outlining the **risks** of smoking, including cosmetic and functional side-effects (*e.g.*, impotence, wrinkled skin, yellowed teeth). Physical, emotional, and financial **rewards** of quitting should be outlined. However, the provider must also prepare the patient for potential **roadblocks** associated with quitting, such as potential weight gain, nicotine withdrawal, and environmental pressures that encourage smoking. The act of smoking may be encouraged by numerous situations, including social settings, stressful time periods, and habitual patterns. To enable the patient’s development of practical strategies to overcome roadblocks, the health care provider should ask the patient to rate his/her confidence in withholding from smoking in each of these situations. Finally, the provider must explain that quitting is a process of relapse and **repetition** for most people; repeated attempts to quit smoking are a common and accepted pathway to abstinence.

**Relapse Prevention Strategies.** As noted previously, relapse is common among smokers as they attempt to quit. The critical timeframe for relapse is during the first three months of abstinence, with the first few days following the quit date being especially crucial.<sup>30</sup> To help prevent relapse, the primary care provider should counsel the patient about the benefits, milestones, and difficulties of quitting smoking and encourage continued abstinence for those who have quit. Unsuccessful attempts to quit should also be supported by the provider, as these forays indicate that the patient is willing to take action. Recent evidence also suggests that intervention strategies that enhance partner support as an adjunct to a smoking cessation program may increase the likelihood of success. A recently-published meta-analysis indicates that intervention strategies that focus on enhancing supportive behaviors and minimizing behaviors critical of smoking from live-in, married, and equivalent-to-married partners may enhance abstinence from six months to one year after treatment.<sup>31</sup>

**Pregnant Women.** Meta-analyses have demonstrated that smoking cessation programs during pregnancy reduce the proportion of women who continue to smoke.<sup>32</sup> Furthermore, smoking cessation interventions implemented during pregnancy reduce low birth weight and the incidence of pre-term birth. Because quitting bestows health benefits upon the mother and the fetus, the Expert Panel recommends the “5 A’s” of intervention for all pregnant women who smoke. Behavioral treatments should be used and nicotine replacement therapy (see below) should be considered for all pregnant women who smoke.<sup>33-35</sup>

**Hospitalized Persons.** Several studies have indicated that hospitalization offers a unique opportunity for smoking cessation, as individuals may find it easier to quit in an environment that restricts or prohibits smoking. A recent meta-analysis indicated that high-intensity behavioral interventions that include at least one month of follow-up contact are effective in promoting smoking cessation in hospitalized patients.<sup>36</sup> Multi-component smoking cessation programs that consist of provider advice; in-hospital, nurse-mediated counseling; and multiple post-discharge telephone contacts have proved consistently effective in increasing cessation rates among hospitalized smokers.<sup>37-40</sup>

**Persons in Substance Abuse Treatment or Recovery.** A recent meta-analysis of outcomes of smoking cessation interventions provided during treatment or recovery for addictions indicates that such interventions increase the likelihood of long-term abstinence from alcohol or illicit drugs.<sup>41</sup> However, intervention effects for smoking cessation were not significant at long-term follow-up.

### Intervention—Pharmacotherapy

Currently, there are six safe, FDA-approved first-line smoking cessation therapies for adults, which can be divided into two categories: nicotine replacement therapy (NRT) and the antidepressant bupropion (trade names: Zyban®, Wellbutrin®, Wellbutrin SR®, Wellbutrin XL®). NRT is available in five forms – gum, dermal patch, inhaler, nasal spray, and lozenge. All six first-line therapies are equally effective, doubling the chances that a quit attempt will be successful (Table 4).<sup>42</sup> Moreover, all help alleviate symptoms of nicotine withdrawal. In addition, several non-FDA-approved second-line therapies, including clonidine, mecamylamine, anxiolytics, opioid antagonists, and antidepressants other than bupropion, are available. The evidence to support use of each of these categories is discussed below.

**NRT.** A recent meta-analysis of 123 clinical trials that compared NRT to placebo or to no treatment with a follow-up of at least six months demonstrated that all commercially-available forms of NRT are effective as part of a strategy to promote smoking cessation.<sup>43</sup> Study authors conclude that NRT increases the odds of quitting approximately 1.5-fold to twofold, regardless of circumstances. Although the authors note that the effectiveness of NRT appears to be largely independent of the intensity of additional support programs, other analyses have suggested possible gender differences in the efficacy of combined NRT/nonpharmacologic support interventions.<sup>44</sup>

Nicotine gum, patches, and lozenges are available over-the-counter; nasal spray and inhaler (along with certain patch formulations) require a prescription. There is no evidence of significant side-effects associated with NRT,<sup>45</sup> although NRT is to be used with caution for patients who have had a recent (within two weeks) myocardial infarction, and those who have life-threatening arrhythmias, severe or worsening angina, active temporomandibular joint disease, or hypersensitivity to nicotine.<sup>7</sup> NRT is not contraindicated for pregnant women and is recommended for pregnant women who are otherwise unable to quit.<sup>33-35, 46</sup> All forms of NRT are in

the FDA Pregnancy Category “D.” In addition to its efficacy and amelioration of withdrawal symptoms, NRT allows the patient to control psychological withdrawal. NRT is compatible with all other interventions that facilitate attempts to quit.

The Expert Panel recommends NRT for all persons interested in quitting who smoke ten or more cigarettes per day. Persons in this category should be advised to quit smoking before starting NRT and should be encouraged to follow a regimen of regular, scheduled use rather than *ad lib* use.

**Bupropion.** As with NRT, meta-analysis of bupropion use in randomized trials that feature long-term follow-up indicates that the drug doubles the odds of cessation as compared to placebo.<sup>47</sup> While bupropion has been shown to be an effective cessation aid for both men and women, a recent meta-analysis suggests that women may have less success quitting smoking with bupropion than men.<sup>48</sup> (It must be noted that a similar observation has been made with NRT<sup>44</sup> and placebo<sup>48</sup>). Preliminary studies indicate that bupropion efficacy is undiminished by previous NRT use.<sup>49</sup> Treatment with bupropion alone results in higher long-term rates of smoking cessation than with NRT gum, patch, or inhaler alone, although results are comparable with nasal spray NRT alone (Figure 2).<sup>45</sup> A synergistic relationship between bupropion and the NRT patch has also been observed in clinical trials.<sup>50</sup> Patch/bupropion combination therapy results in increased abstinence rates in the short- and long-terms compared to bupropion alone, although this difference has not been shown statistically significant.

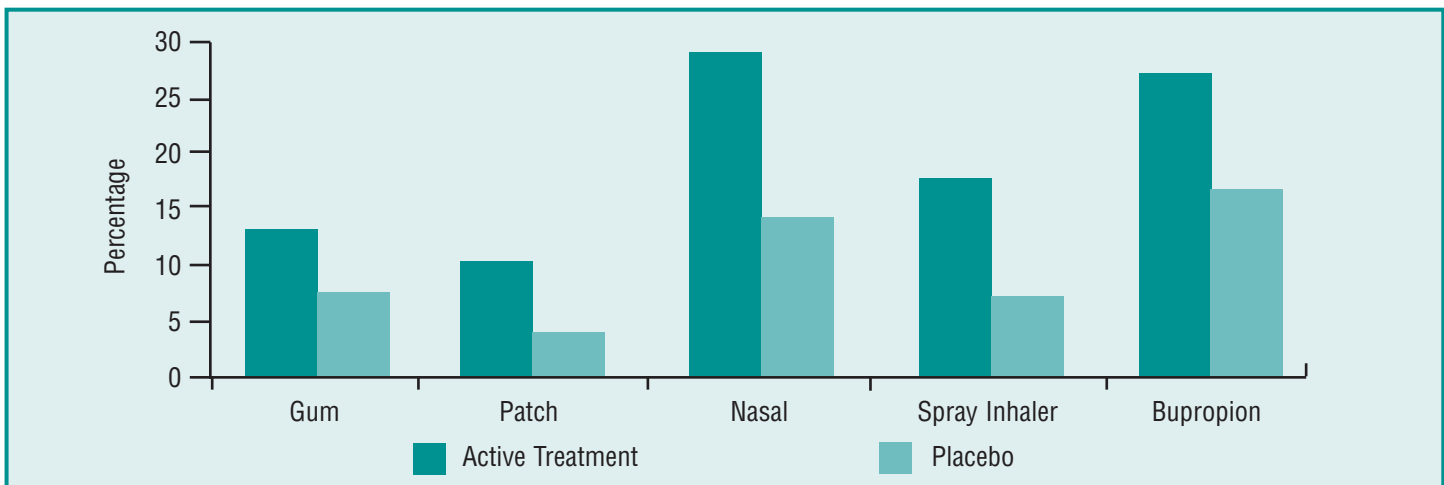
Bupropion is available by prescription. Side-effects are mild and include insomnia, dry mouth, tremor, and rash. Bupropion is contraindicated for patients with seizure disorders, monoamine oxidase inhibitor use,

**Practice Recommendation:** Healthcare providers should recommend nicotine-replacement therapy (NRT) to patients who wish to stop smoking, since all of the commercially-available forms of NRT are effective as part of a strategy to promote smoking cessation and increase the odds of quitting approximately 1.5 to 2-fold regardless of setting.

**EB CME**

**EBM Source:** Cochrane Database of Systematic Reviews: Nicotine Replacement Therapy for Smoking Cessation (Cochrane Review) *Cochrane Database Syst Rev* 2004. <http://www.cochrane.org/cochrane/revabstr/AB000146.htm>

**Strength of Evidence:** Results from 103 randomized clinical trials that compared NRT to placebo or no treatment for a follow-up period of 6 months or greater.



**Figure 2 Six-Month Quit Rate Percentages in Minimal Contact Studies of NRT and Bupropion**  
Adapted from Hughes JR, *et.al. JAMA* 1999;281:72-76.

anorexia, and bulimia.<sup>7</sup> Bupropion may be used in conjunction with NRT and is not contraindicated for pregnant women.

Bupropion may be used in conjunction with NRT and is not contraindicated for pregnant women (FDA Pregnancy Category: B). Smokers who plan to quit should begin taking bupropion one week prior to the quitting date.

**Practice Recommendation:** Healthcare providers should recommend bupropion to patients who wish to stop smoking, since bupropion aids in long-term smoking cessation and doubles the odds of quitting relative to alternative therapies.



**EBM Source:** Cochrane Database of Systematic Reviews: Antidepressants for Smoking Cessation (Cochrane Review) *Cochrane Database Syst Rev* 2004. <http://www.cochrane.org/cochrane/revabstr/AB000031.htm>

**Strength of Evidence:** Meta-analysis of 24 randomized clinical trials, each with a follow-up of 6 months or greater, that compared bupropion to an alternative therapy for smoking cessation.

**Second-line Therapies.** The following second-line therapies are not FDA-approved for smoking cessation, although each has been investigated to some extent as an agent to facilitate smoking cessation.

**Clonidine.** According to a recent meta-analysis, a small number of trials provide potential evidence that clonidine may be effective in promoting smoking cessation. However, the drug's prominent side-effects, including hypertension, drowsiness, and dizziness, limit its usefulness in smoking cessation interventions.<sup>51</sup>

**Mecamylamine.** Data are limited on the efficacy of the nicotine antagonist mecamylamine. While two small studies suggest that the combination of NRT with mecamylamine may be superior to NRT alone in smoking cessation, confirmation in larger studies is necessary before the treatment can be recommended clinically.<sup>52</sup>

**Opioid Antagonists (Naloxone, Naltrexone).** Limited data from trials that use opioid antagonists such as naloxone and naltrexone prohibit conclusions regarding clinical efficacy of these agents for smoking cessation.<sup>53</sup>

**Anxiolytics (Buspirone, Doxepin, Meprobamate, Propranolol, Oxprenolol, Metoprolol).** There is currently no consistent evidence that these anxiolytics aid in smoking cessation, although available evidence does not rule out a possible effect.<sup>54</sup>

**Antidepressants (Nortriptyline, Fluoxetine, Doxepin, Imipramine, Moclobemide, Paroxetine, Sertraline, Tryptophan, Venlafaxine).** While there is some evidence to suggest that nortriptyline aids long-term smoking cessation, there is no conclusive evidence of significant effects with the other antidepressants listed.<sup>47</sup> Nortriptyline is contraindicated in persons at risk for arrhythmias.

**Future Therapies.** Several drugs with potential to impact smoking cessation are currently in clinical trials, and these may become future options for those who wish to quit. While it is highly unlikely that tobacco users of the future will simply take a “smoking vaccine” or “cure-all” smoking pill, several new pharmacotherapies are being tested. For example, rimonabant, an endocannabinoid receptor antagonist, is designed to block the chemical reward system, thereby rendering smoking and other abusive behaviors less pleasurable. Similarly, the drug candidate varenicline binds to nicotine receptors in the brain. A third agent under development triggers the production of antibodies that bind to nicotine molecules, preventing them from reacting with receptors in the brain.

## Intervention— Non-pharmacologic/Behavioral Therapies

The primary care provider plays a key role in smoking cessation strategies by providing individualized tobacco-cessation counseling.<sup>55</sup> In addition, smokers who wish to quit may be offered a variety of alternate non-pharmacologic therapies, such as hypnosis and acupuncture. The evidence for the efficacy of these alternatives is presented in this section.

**Practice Recommendation:** Health care providers should recommend individual behavioral counseling to smokers who wish to quit, as such counseling has been shown to assist smokers who are trying to quit.



**EBM Source:** Cochrane Database of Systematic Reviews: Individual Behavioral Counselling for Smoking Cessation (Cochrane Review) *Cochrane Database Syst Rev* 2002. <http://www.cochrane.org/cochrane/revabstr/AB001292.htm>

**Strength of Evidence:** Meta-analysis of 18 clinical trials with a followup of 6 months or greater.

**Counseling.** According to the evidence presented in the Surgeon General's 2000 report, *Reducing Tobacco Use*, individual tobacco-cessation counseling by clinicians is effective in improving tobacco quit rates among adults,<sup>56</sup> a conclusion supported by the Cochrane Collaboration's 2002 meta-analysis of eighteen randomized and quasi-randomized trials.<sup>57</sup> Approximately 3% of smokers will quit per year without the benefit of counseling intervention from the healthcare provider. However, as few as three minutes of counseling from the provider is sufficient to enable 6% of smokers to quit for at least six months.<sup>56</sup> Telephone counseling has also been identified as an effective intervention, especially when multiple contacts are timed with the smoker's attempt to quit.<sup>58</sup> This evidence is supported by a recent randomized, controlled trial of 2163 adult smokers who received phone counseling as part of a holistic approach that included proactive phone counseling, an offer of free

nicotine-replacement therapy, use of a modified vital signs stamp, and tutorial and feedback for primary care providers.<sup>59</sup> Smokers who received this proactive smoking cessation intervention were more likely to be abstinent compared to controls at two-month (16.4% vs. 5.8% abstinent) and six-month intervals (15.4% vs. 9.8%).

Results from nearly 4000 adult smokers in the 2000 National Health Interview Survey also indicate that advice from a healthcare provider to quit smoking is a significant predictor of smoking-cessation treatment use (pharmacologic or behavioral).<sup>9</sup> However, survey results also indicated that behavioral counseling was under-utilized. Of smokers who tried to quit in the previous year, 22.4% reported using one or more types of cessation aid, although only 1.3% listed behavioral counseling, as compared to 21.7% who used pharmacotherapy. Counseling is also effective for smokers who are not interested in quitting; a recent study (n=616) indicates that basic advice to quit, when combined with either telephone-based motivational advice or reduction counseling plus NRT, increases the likelihood of future cessation compared to no treatment.<sup>60</sup>

**Elements of a Counseling Intervention.** The “5 A’s” and the “5 R’s” discussed in previous sections represent frameworks that must be tailored to the individual patient. However, all counseling interventions should contain a series of standard elements, including setting a quit date, discussing previous quit experience, anticipating challenges, and assessing the patient’s alcohol use and household environment (Table 5).

Table 5 Elements of a Counseling Intervention
<ul style="list-style-type: none"> <li>• Set a quit date</li> <li>• Discuss previous quit experience</li> <li>• Anticipate challenges in the upcoming quit attempt</li> <li>• Discuss limiting or abstaining from alcohol during quit attempt</li> <li>• Discuss patient’s housemates’ attitudes toward smoking</li> </ul>

Among these elements, setting a firm quitting date is the first step. This date should preferably be within two weeks of the counseling session, and the PCP must stress that total abstinence is essential once this date arrives. Providers should also provide support on the quitting date by calling the patient and encouraging him or her to begin the abstinence process.

When discussing individual strategy with a patient, the provider should identify elements that aided and discouraged the smoker during previous attempts to quit. The provider should discuss challenges that may trigger the desire for a cigarette during the patient’s upcoming quit attempt and ways that the patient will overcome them.

Since alcohol can promote relapse, the provider should suggest that the patient consider limiting or abstaining from alcohol while quitting. Finally, quitting is more challenging when other smokers are in the household, and patients should encourage housemates either to quit with them or not to smoke in their presence during the attempt to quit.

**Alternative Therapies—Hypnotherapy and Acupuncture.** While anecdotal evidence is available for the success of hypnotherapy and acupuncture, such reports have not been supported in rigorously-designed clinical trials.<sup>61-63</sup> No reliable conclusions can therefore be drawn at present regarding the effectiveness of these approaches. Smokers who preferentially choose one of these interventions should not be discouraged, but the provider must clearly inform them of the limitations of the supporting evidence.

## Costs and Reimbursement for Smoking Cessation Strategies

**Costs.** Bupropion costs approximately \$3.50 per day; NRT currently costs \$5 - \$10/day, depending on choice of form. Fees for behavioral therapy vary considerably, from free services to those that cost several hundred dollars per course. Many cost-benefit analyses have been conducted to compare cost effectiveness of the first-line pharmacologic treatments. A recent review of the literature suggests that, as compared with advice or counseling alone, the incremental cost-per-life-years saved is approximately \$1440-\$3460 for NRT, \$920-\$2150 for bupropion SR, and \$1280-\$2840 for NRT plus bupropion SR.<sup>64</sup>

**Coding.** While aspects of tobacco dependence treatment may be reimbursable through some insurance plans, there is no current universal standard for intervention reimbursement. Where counseling is a covered benefit, providers can code for it using the ICD-9 diagnostic code, 305.1 (Tobacco Dependence). Many smoking-related comorbidities and related medical procedures may also be coded for third-party reimbursement. For more detailed information on coding for smoking cessation and treatment, see the Professional Assisted Cessation Therapy’s online guideline, *Reimbursement for Smoking Cessation Therapy* (<http://www.endsmoking.org/resources/reimbursementguide/pdf/reimbursementguide-3rd-edition.pdf>).

**Reimbursement.** Despite the publicized benefits of smoking cessation, considerable variation exists between health plans with regard to coverage for cessation interventions. The Addressing Tobacco in Managed Care program has conducted three surveys of tobacco control practices and policies in health plans in 1997, 2000, and 2002. Results from the 2002 survey indicate that a greater number of health plans provide full coverage for first-line pharmacotherapies and telephone counseling for smoking

cessation as compared to previous survey results.<sup>65</sup> Moreover, a greater percentage of plans now employ strategies to address smoking cessation during the postpartum period and during pediatric visits.

States currently offer variable reimbursements for their employees who utilize smoking cessation interventions. A recent survey of 45 state administrators revealed that only seven states require smoking cessation treatment coverage for all state employees that is fully consistent with the US PHS guideline recommendations (*e.g.*, some form of group or individual counseling and at least one FDA-approved medication for smoking cessation treatment).<sup>66</sup> An additional ten states required US PHS-consistent coverage for at least some of their state employees.

In April 2005, the Centers for Medicare & Medicaid Services (CMS) announced that Medicare will immediately begin to cover tobacco cessation counseling for Medicare beneficiaries who have a smoking-related illness or take medications whose mechanism of activity is affected by tobacco use. Under current guidelines, Medicare covers minimal counseling (less than three minutes) at each evaluation and management visit. The new policy also covers two cessation attempts per year. Each attempt can include a maximum of four intermediate sessions (of three to 10 minutes) or intensive sessions (of more than 10 minutes), for a total benefit of up to eight sessions in a 12-month period.

## Smoking Cessation Resources

Fortunately for patients (and providers), there is a wealth of online and telephone-based resources for smoking cessation. Table 6 lists smoking cessation resources for use by healthcare providers and smokers.

## Conclusion

The health benefits of smoking cessation are well established, yet the process remains challenging for those who wish to quit. Primary care providers are uniquely positioned to educate, counsel, and support patients who smoke, whether or not those patients are prepared to quit at the time of visit. To support those who are contemplating a quitting attempt, the primary care provider should use the “5 A’s” – ask, advise, assist, arrange, and provide anticipatory guidance. A proactive intervention strategy that includes counseling and/or pharmacotherapy, each of which improves quitting rates when used alone or in combination, should be tailored to the patient. While relapse is common among smokers who are trying to quit, the PCP can support and guide patients through these episodes and help them ultimately to kick their habits, thereby improving their health outlook and quality of life.

**Table 6 Tobacco Cessation Resources**

Sponsoring Organization	URL	Phone
National Cancer Institute	<a href="http://www.smokefree.gov">www.smokefree.gov</a>	1-800-QUITNOW (784-8669); 1-800-332-8615 (deaf and hard-of-hearing callers)
National Institute on Drug Abuse	<a href="http://www.nida.nih.gov">www.nida.nih.gov</a>	1-888-644-6432; 1-888-889-6432 (deaf and hard-of-hearing callers)
Centers for Disease Control and Prevention, Office on Smoking and Health	<a href="http://www.cdc.gov/tobacco">www.cdc.gov/tobacco</a>	1-800-232-1311
Office of the U.S. Surgeon General	<a href="http://www.surgeongeneral.gov/tobacco">www.surgeongeneral.gov/tobacco</a>	
American Cancer Society	<a href="http://www.cancer.org">www.cancer.org</a>	1-800-227-2345
American Heart Association	<a href="http://www.americanheart.org">www.americanheart.org</a>	1-800-242-8721
American Lung Association	<a href="http://www.lungusa.org">www.lungusa.org</a>	1-800-586-4872
Center for Tobacco Cessation	<a href="http://www.ctcinfo.org">www.ctcinfo.org</a>	1-202-585-3200
Tobacco News	<a href="http://www.tobacco.org">www.tobacco.org</a>	
QuitNet	<a href="http://www.quitnet.com">www.quitnet.com</a>	
Addressing Tobacco in Managed Care	<a href="http://www.atmc.wisc.edu">www.atmc.wisc.edu</a>	1-608-265-4601
University of Massachusetts Medical School Center for Tobacco Prevention and Control	<a href="http://www.umassmed.edu/behavmed/tobacco">www.umassmed.edu/behavmed/tobacco</a>	1-505-856-4099

## Acknowledgements

The Illinois Academy of Family Physicians developed this program for the Family Practice Education Network. We also thank Charles A. Goldthwaite, Jr., Ph.D., for his writing and editorial expertise in developing this document.

## References

- 1 U.S. Department of Health, Education, and Welfare. *Smoking and Health: Report of the Advisory Committee to the Surgeon General of the Public Health Service*. Washington: U.S. Department of Health, Education, and Welfare, Public Health Service, Center for Disease Control; 1964.
- 2 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. *The Health Consequences of Smoking: A Report of the Surgeon General*. Washington D.C.: U.S. Government Publishing Office; 2004.
- 3 National Cancer Institute. *Changes in Cigarette-Related Disease Risks and Their Implication for Prevention and Control*. Bethesda, MD: U.S. Department of Health and Human Services; 1997.
- 4 U.S. Environmental Protection Agency. *Respiratory Health Effects of Passive Smoking: Lung Cancer and Other Disorders*. Washington: Environmental Protection Agency, Office of Research and Development, Office of Air and Radiation; 1992.
- 5 Institute of Medicine. *Clearing the Smoke: Assessing the Science Base for Tobacco Harm Reduction*. Washington: National Academy Press; 2001.
- 6 International Agency for Research on Cancer. *IARC Monographs on the Evaluation of Carcinogenic Risks to Humans: Tobacco Smoke and Involuntary Smoking*. Vol 83. Lyon: International Agency for Research on Cancer; 2002.
- 7 Fiore MC, Bailey WC, Cohen SJ, et al. *Treating Tobacco Use and Dependence. Clinical Practice Guideline*. Rockville: U.S. Department of Health and Human Services, Public Health Service; 2000.
- 8 US Public Health Service. A clinical practice guideline for treating tobacco use and dependence: a US Public Health Service report. The Tobacco Use and Dependence Clinical Practice Guideline Panel, Staff, and Consortium Representatives. *JAMA*. 2000;283:3244-3254.
- 9 Cokkinides VE, Ward E, Jemal A, Thun MJ. Under-use of smoking-cessation treatments: results from the National Health Interview Survey, 2000. *Am J Prev Med*. 2005;28:119-122.
- 10 Centers for Disease Control and Prevention. Annual smoking-attributable mortality, years of potential life lost, and economic costs—United States, 1995-1999. *MMWR*. 2002;51:300-303.
- 11 Centers for Disease Control and Prevention. Cigarette smoking-attributable morbidity—United States, 2000. *MMWR*. 2003;52:842-844.
- 12 Centers for Disease Control and Prevention. Cigarette smoking among adults—United States, 2001. *MMWR*. 2003;52:953-956.
- 13 Kandel D, Wu P. The contributions of mothers and fathers to the intergenerational transmission of cigarette smoking in adolescence. *J Res Adolescence*. 1995;5:225-252.
- 14 Orth SR. Effects of smoking on systemic and intrarenal hemodynamics: influence on renal function. *J Am Soc Nephrol*. 2004;15:S58-S63.
- 15 U.S. Department of Health and Human Services. *Health Benefits of Smoking Cessation*. A Report of the US Surgeon General. Rockville, MD: U.S. Department of Health and Human Services; 1990.
- 16 Doll R, Peto R, Boreham J, Sutherland I. Mortality in relation to smoking: 50 years' observations on male British doctors. *BMJ*. 2004;328:1519.
- 17 Critchley J, Capewell S. Smoking cessation for the secondary prevention of coronary heart disease. *Cochrane Database Syst Rev*. 2004(1):CD003041.
- 18 Critchley JA, Capewell S. Mortality risk reduction associated with smoking cessation in patients with coronary heart disease: a systematic review. *JAMA*. 2003;290:86-97.
- 19 Wilson K, Gibson N, Willan A, Cook D. Effect of smoking cessation on mortality after myocardial infarction. *Arch Intern Med*. 2000;160:939-944.
- 20 Wannamethee SG, Shaper AG, Whincup PH, Walker M. Smoking cessation and the risk of stroke in middle-aged men. *JAMA*. 1995;274:155-160.
- 21 Scanlon PD, Connett JE, Waller LA, et al. Smoking cessation and lung function in mild-to-moderate chronic obstructive pulmonary disease. *Am J Resp Crit Care Med*. 2000;161:381-390.
- 22 Giovino GA, Henningfield JE, Tomar SL, Escobedo LG, Slade J. Epidemiology of tobacco use and dependence. *Epidemiol Rev*. 1995;17:48-65.
- 23 Hughes JR. Motivating and helping smokers to stop smoking. *J Gen Intern Med*. 2003;18:1053-1057.
- 24 DiClemente C, Prochaska J, Fairhurst S, Velicer W, Elesquez M, Rossi J. The process of smoking cessation: an analysis of precontemplation, contemplation, and preparation stages of change. *J Consult Clin Psychol*. 1991;59:295-304.
- 25 Velicer WF, Hughes SL, Fava JL, Prochaska JO, DiClemente CC. An empirical typology of subjects within stage of change. *Addict Behav*. 1995;20:299-320.
- 26 Goldberg D, Hoffman A, Anel D. Understanding people who smoke and how they change: a foundation for smoking cessation in primary care, part 1. *Dis Mon*. 2002;48:385-439.
- 27 Goldberg D, Hoffman A, Anel D. Understanding people who smoke and how they change: a foundation for smoking cessation in primary care, part 2. *Dis Mon*. 2002;48:445-485.
- 28 Dijkstra A, DeVries H. Subtypes of precontemplating smokers defined by different long-term plans to change their smoking behavior. *Health Educ Res*. 2000;15:423-434.
- 29 Katz DA, Muehlenbruch DR, Brown RB, Fiore MC, Baker TB, AHRQ Smoking Cessation Guideline Study Group. Effectiveness of a clinic-based strategy for implementing the AHRQ Smoking Cessation Guideline in primary care. *Prev Med*. 2002;35:293-301.
- 30 Kenford SL, Fiore MC. Promoting tobacco cessation and relapse prevention. *Med Clin North Am*. 2004;88:1553-1574, xi-xii.
- 31 Park EW, Tudiver F, Schultz JK, Campbell T. Does enhancing partner support and interaction improve smoking cessation? A meta-analysis. *Ann Fam Med*. 2004;2:170-174.
- 32 Lumley J, Oliver SS, Chamberlain C, Oakley L. Interventions for promoting smoking cessation during pregnancy. *Cochrane Database Syst Rev*. 2004;3(CD001055 pub 2).
- 33 Windsor R, Oncken C, Henningfield J, Hartmann K, Edwards N. Behavioral and pharmacological treatment methods for pregnant smokers: issues for clinical practice. *J Am Med Womens Assoc*. 2000;55:304-310.

- 34 Benowitz N, Dempsey D. Pharmacotherapy for smoking cessation during pregnancy. *Nicotine Tob Res.* 2004;6 Suppl 2:S189-S202.
- 35 Ershoff D, Ashford TH, Goldenberg R. Helping pregnant women quit smoking: an overview. *Nicotine Tob Res.* 2004;6 Suppl 2:S101-S105.
- 36 Rigotti NA, Munafo MR, Murphy MF, Stead LF. Interventions for smoking cessation in hospitalised patients. *Cochrane Database Syst Rev.* 2003;1:CD001837.
- 37 Miller NH, Smith PM, DeBusk RF, Sobel DS, Taylor CB. Smoking cessation in hospitalized patients. Results of a randomized trial. *Arch Intern Med.* 1997;157:409-415.
- 38 Smith PM, Reilly KR, Houston Miller N, DeBusk RF, Taylor CB. Application of a nurse-managed inpatient smoking cessation program. *Nicotine Tob Res.* 2002;4:211-222.
- 39 Taylor CB, Miller NH, Herman S, *et al.* A nurse-managed smoking cessation program for hospitalized smokers. *Am J Public Health.* 1996;86:1557-1560.
- 40 France EK, Glasgow RE, Marcus AC. Smoking cessation interventions among hospitalized patients: what have we learned? *Preventive Med.* 2001;32:376-388.
- 41 Prochaska JJ, Delucchi K, Hall SM. A meta-analysis of smoking cessation interventions with individuals in substance abuse treatment or recovery. *J Consult Clin Psychol.* 2004;72:1144-1156.
- 42 Hughes JR. New treatments for smoking cessation. *CA Cancer J Clin.* 2000;50:143-151.
- 43 Silagy C, Lancaster T, Stead L, Mant D, Fowler G. Nicotine replacement therapy for smoking cessation. *Cochrane Database Syst Rev.* 2004;3:CD000146.
- 44 Cepeda-Benito A, Reynoso JT, Erath S. Meta-analysis of the efficacy of nicotine replacement therapy for smoking cessation: differences between men and women. *J Consult Clin Psychol.* 2004;72:712-722.
- 45 Hughes JR, Goldstein MG, Hurt RD, Shiffman S. Recent advances in the pharmacotherapy of smoking. *JAMA.* 1999;281:72-76.
- 46 Talwar A, Jain M, Vijayan VK. Pharmacotherapy of tobacco dependence. *Med Clin North Am.* 2004;88:1517-1534.
- 47 Hughes J, Stead L, Lancaster T. Antidepressants for smoking cessation. *Cochrane Database Syst Rev.* 2004;18:CD000031.
- 48 Scharf D, Shiffman S. Are there gender differences in smoking cessation, with and without bupropion? Pooled- and meta-analyses of clinical trials of Bupropion SR. *Addiction.* 2004;99:1462-1469.
- 49 Durcan MJ, White J, Jorenby DE, *et al.* Impact of prior nicotine replacement therapy on smoking cessation efficacy. *Am J Health Behav.* 2002;26:213-220.
- 50 Jorenby DE, Leischow SJ, Nides MA, *et al.* A controlled trial of sustained-release bupropion, a nicotine patch, or both for smoking cessation. *N Engl J Med.* 1999;340:685-691.
- 51 Gourlay SG, Stead LF, Benowitz NL. Clonidine for smoking cessation. *Cochrane Database Syst Rev.* 2004(3):CD000058.
- 52 Lancaster T, Stead LF. Mecamylamine (a nicotine antagonist) for smoking cessation. *Cochrane Database Syst Rev.* 1998(2):CD001009.
- 53 David S, Lancaster T, Stead LF. Opioid antagonists for smoking cessation. *Cochrane Database Syst Rev.* 2001(3):CD003086.
- 54 Hughes JR, Stead LF, Lancaster T. Anxiolytics for smoking cessation. *Cochrane Database Syst Rev.* 2000(4):CD002849.
- 55 Richards JW Jr, Houston TP, Blum A. The health professional's responsibility in smoking cessation: strategies for office and community. *Smoking and Tobacco Control Monograph 5: Tobacco and the Clinician: Interventions for Medical and Dental Practice:* National Cancer Institute; 1994.
- 56 U.S. Department of Health and Human Services. *Reducing Tobacco Use. A Report of the Surgeon General.* Atlanta: 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; 2000.
- 57 Lancaster T, Stead LF. Individual behavioural counselling for smoking cessation. *Cochrane Database Syst Rev.* 2002(3):CD001292.
- 58 Stead LF, Lancaster T, Perera R. Telephone counselling for smoking cessation. *Cochrane Database Syst Rev.* 2003(1):CD002850.
- 59 Katz DA, Muehlenbruch DR, Brown RL, Fiore MC, Baker TB, AHRQ Smoking Cessation Guideline Study Group. Effectiveness of implementing the Agency for Healthcare Research and Quality Smoking Cessation Clinical Practice Guideline: a randomized, controlled trial. *J Natl Cancer Inst.* 2004;96:594-603.
- 60 Carpenter MJ, Hughes JR, Solomon LJ, Callas PW. Both smoking reduction with nicotine replacement therapy and motivational advice increase future cessation among smokers unmotivated to quit. *J Consult Clin Psychol.* 2004;72:371-381.
- 61 Abbot NC, Stead LF, White AR, Barnes J. Hypnotherapy for smoking cessation. *Cochrane Database Syst Rev.* 1998(2):CD001008.
- 62 Villano LM, White AR. Alternative therapies for tobacco dependence. *Med Clin North Am.* 2004;88:1607-1621.
- 63 White AR, Rampes H, Ernst E. Acupuncture for smoking cessation. *Cochrane Database Syst Rev.* 2002(2):CD000009.
- 64 Song F, Raftery J, Aveyard P, Hyde C, Barton P, Woolacott N. Cost-effectiveness of pharmacological interventions for smoking cessation: a literature review and a decision analytic analysis. *Med Decis Making.* 2002;22:S26-S37.
- 65 McPhillips-Tangum C, Bocchino C, Carreon R, Erceg C, Rehm B. Addressing tobacco in managed care: results of the 2002 survey. *Prev Chronic Dis.* 2004;1:A04.
- 66 Burns ME, Bosworth TW, Fiore MC. Insurance coverage of smoking cessation treatment for state employees. *Am J Public Health.* 2004;94:1338-1340.

# **IAFP Course Evaluation and CME Post-test**

## **Adult Smoking Cessation: Intervention Strategies for Primary Care Providers**

### **Learning Objectives**

Upon completion of the program, the health care provider should be able to:

1. Assess an adult smoker's readiness to quit smoking
2. Implement the "5 A's" of intervention
3. Describe the effectiveness of FDA-approved first-line pharmacotherapies for smoking cessation (e.g., nicotine-replacement therapy, bupropion)
4. Recognize the efficacy of behavioral therapies for smoking cessation
5. Implement the basic elements of a counseling intervention for smoking cessation

### **Accreditation**

The Illinois Academy of Family Physicians / Family Practice Education Network is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

### **Credit Designation**

The Illinois Academy of Family Physicians / Family Practice Education Network designates this educational activity for a maximum of 2.0 category 1 credits towards the AMA Physician's Recognition Award. Each physician should claim only those hours of credit that he/she actually spent in the educational activity. Expiration: March 15, 2007

This activity has been reviewed and is acceptable for up to 4.0 Prescribed credit(s) by the American Academy of Family Physicians. 2.0 Prescribed credit(s) conform to AAFP criteria for evidence-based CME clinical content. The amount of EB CME has been doubled to reflect 2 for 1 credit for only the EB CME portion. Term of approval is for two-year(s) from beginning distribution date of 3/15/05, with option for yearly renewal. When reporting CME credit, AAFP members should report total Prescribed credit earned for this activity. It is not necessary for members to label credit as evidence-based CME Prescribed or Elective for CME reporting purposes.

---

For a CME certificate, please complete the test and evaluation forms on the reverse side, and send to:

**Illinois Academy of Family Physicians**  
**4756 Main Street**  
**Lisle, IL 60532**  
**Phone: 630-435-0257**  
**Fax: 630-435-0433**



# IAFP Course Evaluation and CME Post-test

## Adult Smoking Cessation: Intervention Strategies for Primary Care Providers

### Accreditation

In order to receive the credit for this activity, please comply with the following requests:

1. Indicate the number of credits hours for which you are applying.
2. Check the appropriate box if you would like to receive a certification of competition.
3. Complete the session evaluation and the post-program test.\*

\*You must score 70% or higher on your post-test. CME applicants are allowed two (2) attempts to earn this score.

To obtain AMA PRA category 1 credit, please indicate the number of credits claimed (in quarter-hour increments) \_\_\_\_.

To obtain AAFP Prescribed credit, please indicate the number of credits claimed (in quarter-hour increments) \_\_\_\_.

Please check here to receive a CME certificate of completion \_\_\_\_.

#### Circle one rating for each category.

Strongly agree = 5, Agree = 4, Neutral = 3, Disagree = 2, Strongly disagree = 1

Content was useful, relevant, and timely to my profession	5	4	3	2	1
Material format was clear and informative	5	4	3	2	1
Objectives were met	5	4	3	2	1
Material avoided commercial bias or influence	5	4	3	2	1
Overall, this CME course was beneficial to me	5	4	3	2	1

I studied this medical education program, Adult Smoking Cessation: Intervention Strategies for Primary Care Providers, and completed the CME Post-test.

Signature \_\_\_\_\_ Name (print) \_\_\_\_\_

Degree \_\_\_\_\_ Specialty \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Email \_\_\_\_\_

#### In the space provided, indicate whether each item is True (T) or False (F).

- \_\_\_\_\_ 1. According to evidence-based sources, smoking cessation is associated with reduced mortality risk and reductions in risk for coronary heart disease, chronic obstructive pulmonary disease, and many types of cancer.
- \_\_\_\_\_ 2. The majority of smokers who try to quit will succeed after two or three attempts.
- \_\_\_\_\_ 3. Even if the adult smoker expresses no desire to quit, the health care provider should remind him or her of the health risks of smoking and of the benefits of quitting.
- \_\_\_\_\_ 4. All six FDA-approved first-line therapies for smoking cessation (nicotine replacement therapies and bupropion) help alleviate symptoms of nicotine withdrawal, and all are equally effective, doubling the chances that a quit attempt will be successful.
- \_\_\_\_\_ 5. Counseling, like other non-pharmacologic strategies such as hypnotherapy and acupuncture, has not been shown to be effective in evidence-based studies of smoking cessation.
- \_\_\_\_\_ 6. The health care provider should use the “5 A’s” – *Ask, Advise, Assess, Assist, Arrange* – as an intervention model for adult patients who are ready to quit smoking.

Thank you for filling out this post-test.

