

Smoking Cessation Approaches for Primary Care **CME/CE**

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Target Audience

This activity is intended for primary care providers, including physicians, nurses, and physician assistants.

Goal

The goal of this activity is to provide primary care physicians and their office staff with practical and comprehensive smoking cessation strategies for their patients who smoke.

Learning Objectives

Upon completion of this activity, participants will be able to:

1. Describe the brief 5A smoking intervention recommended by the US Public Health Service (USPHS) clinical practice guideline.
2. Describe the different stages along the continuum of a patient's readiness to quit smoking.
3. Describe treatment strategies, including both pharmacologic and behavioral approaches, that can facilitate smoking cessation.
4. Identify barriers to promoting smoking cessation within the office setting and list a strategy to address each potential barrier.

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Smoking Cessation Approaches for Primary Care

Introduction

Smoking is the leading preventable cause of morbidity and mortality in the United States, causing approximately 440,000 deaths annually and resulting in more than 5.6 million years of potential life lost each year. According to the 2004 Surgeon General's Report on the Health Consequences of Smoking, tobacco use costs the United States approximately \$157 billion annually in direct medical care and economic losses.^[1] The health benefits of quitting smoking are substantial, including decreasing the risk of heart attack, stroke, lung and other cancers, and chronic lung disease.^[2] Despite the enormous health consequences of smoking and benefits of stopping, 23% of adults in the United States continue to smoke.^[3]

1. Self-Assessment Question: Approximately what percentage of smokers see their primary care provider every year?	
<input type="checkbox"/>	25%
<input type="checkbox"/>	50%
<input type="checkbox"/>	70%
<input type="checkbox"/>	90%
Explanation: Answer: 70%. Approximately 70% of smokers are seen by a primary care provider each year and average between 3 and 4 visits annually, ^[4] making the primary care setting an excellent venue for routinely identifying smokers and providing treatment.	
2. Survey - How often do you, or a designee in your practice setting, offer any form of assistance for smoking cessation?	
<input type="checkbox"/>	At each visit
<input type="checkbox"/>	In connection with a routine physical examination or when evaluating a respiratory complaint
<input type="checkbox"/>	Only when requested by the patient
<input type="checkbox"/>	On other occasions not listed
<input type="checkbox"/>	Never

Introduction (Continued)

Unfortunately, only about half of smokers seen by a physician report receiving advice or counseling to quit,^[5] and even fewer -- 2% to 15% -- are offered any form of assistance, including provision of specific counseling on how to stop, referral to treatment programs, or prescription for smoking cessation medications.^[6]

Physicians and other health professionals working in the primary care setting are in a unique position to identify tobacco users and to provide effective intervention. First, physicians and other clinicians provide accessible and continuous care to their patients. Their long-term relationship with their patients offers many clinical opportunities and teachable moments to deliver intervention and provide crucial follow-up within the course of routine care. Second, physicians and other healthcare professionals are a credible source of health-related information and assistance. Finally, there is strong evidence from many clinical trials that brief smoking cessation counseling delivered by physicians, dentists, and other clinicians increases smoking cessation rates in their adult patients.^[7] Because smokers state that a physician's advice to quit is a strong motivator to make repeated quit attempts and to maintain abstinence,^[8,9] the impact that a health professional can have on a patient's smoking habit cannot be overestimated.

Addressing smoking is increasingly a component of how health plans and insurers will be measuring the quality of care that a physician provides. For instance, a new Health Plan Employer Data and Information Set (HEDIS) measure,

"Medical Assistance with Smoking Cessation" has been added to the most recent Consumer Assessment of Health Plans (CAHPS) 3.0H surveys. This measure will assess the proportion of smokers and recent quitters who were advised to quit and determine whether they were given information about medications to aid smoking cessation and strategies and methods to quit smoking. Such measures make healthcare providers and health plans more accountable to delivering quality care as it relates to smoking cessation

3. Self-Assessment Question: The combination of behavioral counseling and pharmacologic support is more effective than either approach by itself.	
<input type="checkbox"/>	True
<input type="checkbox"/>	False
Explanation: Answer: True. A combination of behavioral counseling and pharmacologic support is more effective than either approach used alone.	

Assessment and Treatment of Smoking

The efficacy of smoking cessation methods was systematically reviewed by a United States Public Health Services (USPHS) committee during the development of an evidence-based clinical practice guideline for physicians released in 2000.^[7] Based on meta-analyses of the existing data, the USPHS panel concluded that 2 smoking cessation methods had the best evidence of efficacy: behavioral counseling and pharmacotherapy (nicotine replacement products -- gum, patch, lozenge, oral inhaler, and nasal spray -- or the antidepressant bupropion, known as *Zyban* or *Wellbutrin SR*). A combination of counseling and pharmacotherapy produced the best results. There was no evidence to support the efficacy of other methods, such as hypnosis or acupuncture. An independent systematic review of this evidence, conducted by a global network of researchers (the Cochrane Collaboration), came to the same conclusions.^[10]

These meta-analyses also found that physician advice to quit improved adult cessation rates, and the addition of brief counseling (less than 3 minutes) was even more effective. Effectiveness further increases with greater counseling contact time, including proactive telephone counseling. The resulting USPHS clinical guideline recommends that clinicians routinely and consistently deliver a brief 5-step intervention in office practice. The key elements of the intervention are called the "5 A's":

- *Ask* about tobacco use at every visit;
- *Advise* all tobacco users to stop;
- *Assess* their willingness to make a quit attempt;
- *Assist* the patient in quitting; and
- *Arrange* follow-up contact to support their efforts.

Each of these elements will be described in more detail.

Ask

Have an office system in place to identify all smokers. Having a system in place that routinely screens for and documents smoking status for every patient at each visit has been found to triple the rate of intervention delivery by healthcare providers and double abstinence rates among smokers seen within a clinical setting.^[7] One way to routinely identify smokers is to expand the vital signs protocol to include smoking status (current, former, never). Another is to administer a brief questionnaire when the patient checks in. This can provide needed information on smoking status and history and about whether the patient is thinking about quitting. A simple questionnaire that has been used successfully in many

practices can be found in the [sidebar](#) (Right-click, save as to download PDF file) of this clinical update. Practice settings with an electronic medical record system can automatically flag a patient's smoking status and remind the clinician to address tobacco use at each visit.

The key to successfully implementing an office-wide system to identify all patients who smoke is to *keep it simple*. Systems that closely match what is already in place are best.

Advise

Urge every smoker to quit. All current smokers should be provided clear, strong, and personalized advice to stop smoking. The evidence supporting the USPHS clinical practice guideline clearly demonstrates that brief physician advice to quit improves patient cessation rates. Physician or clinician advice that links a patient's illness or reason for visit to their smoking provides a stronger incentive for smokers to quit and to continue their efforts to maintain abstinence.

Assess Motivation and Readiness to Quit

Ask every smoker if he or she is interested in quitting smoking in the next 30 days. Once a smoker has been identified through the screening process and provided personalized advice to quit, the clinician should assess the person's motivation and readiness to quit. Nicotine dependence is a chronic, relapsing disorder, often requiring 5-7 attempts before maintained abstinence is achieved.^[2] Stopping smoking is therefore a long-term process of change that takes place in stages over time. Individuals typically proceed through the following stages of preparation to make this change:

- precontemplation -- not considering quitting;
- contemplation -- thinking about quitting but not ready to take action;
- preparation -- preparing to make a quit attempt;
- action -- making a quit attempt; and
- maintenance of tobacco abstinence.^[11]

The clinician needs to have a different approach for smokers at each of these stages, as described below.

Precontemplation. Approximately 40% of smokers are not even thinking about stopping smoking, placing them in the *precontemplation* stage of change.^[12] These smokers may be unaware of the risks of smoking or may not believe that these risks are personally applicable; they could be unwilling to consider making a change; or they may be discouraged about their ability to quit. For the precontemplator, the clinician's goal is to raise doubt about the desire to continue smoking by stimulating ambivalence, increasing the patient's perception of the risks and problems associated with his/her current behavior and the potential benefits of quitting. An effective approach with the precontemplator is exploring what the person perceives as the positive aspects of smoking (eg, "What do you like about smoking?"). Doing this can help overcome the natural defensiveness and resistance that can accompany this stage of change. Then, discuss their thoughts around quitting and concerns about continuing to smoke.

Contemplation. Another 40% of smokers express ambivalence regarding stopping smoking. These smokers are in the *contemplation* stage of change.^[12] They report thinking about quitting and may seek information about smoking and stopping, but are not ready to commit to quitting and express uncertainty regarding their desire or ability to stop. The clinician's goal with the contemplator is to help him/her identify the pros and cons of quitting and to resolve ambivalence by tipping the balance in favor of quitting. An effective approach with a contemplator is to explore both sides of the ambivalence through such questions as: "How might you be better off if you quit?", "What will you miss most about smoking?", and "What would be hard for you if you tried to quit?"

For both the precontemplators and contemplators who are unwilling to quit, the USPHS clinical practice guideline recommends a 5-step approach that has become known as the "5 R's." The components in this approach are:

- **Relevance** -- encouraging the patient to consider why quitting is personally important;
- **Risk** -- asking the patient to identify the personally salient negative consequences of continued tobacco use, such as personal and family health risks, financial cost, and concern regarding role model for children;
- **Rewards** -- asking the patient to identify the personally salient benefits of stopping tobacco use;
- **Roadblocks** -- asking the patient to identify barriers to quitting and noting elements of treatment that could address barriers, including reviewing past quit attempts to identify problems that led to relapse and successful coping skills used in the past which can be applied to a future quit attempt; and

- **Repetition** -- repeating the motivational intervention at each visit. Often, after exploring these issues, the individual may be ready to make a serious quit attempt or at least commit to an intermediate goal, such as reducing the number of cigarettes smoked or thinking about quitting.

Preparation. The final 20% of current smokers are ready to stop smoking in the next month and are in the *preparation* stage of change.^[12] Many of these individuals have made a serious quit attempt in the past year or have taken steps toward stopping, such as telling others of their intention to quit, cutting down on the number of cigarettes smoked, or imagining themselves as nonsmokers. The clinician's goal with the smoker in the preparation stage is to help the individual develop the best course of action to take and identify the strategies and skills needed to make a successful quit attempt.

Action/maintenance. Individuals in the *action* and *maintenance* stages of change are no longer smoking. Particularly in the action stage they are at risk for relapse, and the best approach is to use techniques that have been developed for relapse prevention. These techniques involve discussion of the following with the individual who has recently quit smoking: (1) the benefits they have noticed from stopping smoking; (2) the successes experienced, such as reduced withdrawal symptoms and the length of time abstinent, and (3) any problems encountered or anticipated in maintaining abstinence, such as weight gain, alcohol use, depression, or other smokers in the home, so that such concerns may be addressed.^[7]

Assisting the Smoker Who Is Ready to Quit

Help the patient develop a quit plan. For the smoker who is ready to make a quit attempt, the clinician's role is to provide assistance in developing a quit plan and arranging follow-up to support the individual through the quitting process. In developing an individual treatment plan, the physiologic, psychological, and social aspects of the patient's dependence need to be taken into consideration. The treatment plan should include the evidence-based strategies identified by the USPHS clinical practice guideline^[7] and summarized in Table 1.

Table 1. Strategies for Assisting Smokers Who Are Ready to Quit

Action	Strategies for Implementation
1. Help the patient develop a quit plan	<ul style="list-style-type: none"> • <i>Set a quit date</i>, preferably within the next week. • <i>Tell</i> family, friends, and coworkers of intention to quit and request understanding and support. • <i>Anticipate challenges</i> to planned quit attempt, particularly during the critical first few weeks, including nicotine withdrawal symptoms, and prepare to address them. • <i>Remove</i> cigarettes from environment.
2. Provide practical counseling (problem-solving/skills training)	<ul style="list-style-type: none"> • <i>Abstinence</i> -- Total abstinence is essential. "Not even a single puff after the quit date." • <i>Past quit experience</i> -- Review to identify high-risk situations and what helped and hurt. • <i>Anticipate triggers or challenges</i> -- Discuss challenges/triggers and how patient will successfully address them. • <i>Alcohol</i> -- Consider limiting or abstaining from alcohol during the quitting process because alcohol is highly associated with relapse. • <i>Other smokers in the household</i> -- Encourage patient to quit with housemates or ask that they not smoke in their presence.

3. Provide intratreatment social support	<ul style="list-style-type: none"> • Provide a <i>supportive clinical environment</i> while encouraging the patient in his/her quit attempt, clearly stating the clinic staff's availability to assist the patient.
4. Help patient obtain extratreatment social support	<ul style="list-style-type: none"> • Encourage the patient to <i>ask spouse/partner, friends and coworkers to support</i> his/her quit attempt.
5. Recommend the use of pharmacotherapy, unless contraindicated	<ul style="list-style-type: none"> • Recommend the use of <i>nicotine replacement therapy or non-nicotine pill, bupropion</i> (see section on pharmacotherapy).
6. Provide supplementary materials	<ul style="list-style-type: none"> • Provide patient with <i>self-help materials</i> appropriate to his/her age, culture, race, and educational level.
7. Schedule follow-up contact, either in person or via telephone	<ul style="list-style-type: none"> • <i>Follow-up</i> should occur within the first week after the quit date. • <i>If abstinent at follow-up</i>, congratulate success, address problems encountered and challenges anticipated, and monitor pharmacologic aids used. • <i>If smoking occurred</i>, review circumstances leading to smoking, elicit recommitment to total abstinence, address problems encountered and challenges anticipated, review pharmacologic aid use and problems, and consider referral to more intensive, specialized treatment.

Source: Adapted from Fiore MC, Bailey WC, Cohen SJ, et al.^[7]

4. Survey - Which methods or approaches do you currently use to help patients who want to quit smoking? (Check all that apply)	
<input type="checkbox"/>	Provide brief advice or written information
<input type="checkbox"/>	Behavioral counseling
<input type="checkbox"/>	Nicotine replacement therapy
<input type="checkbox"/>	Non-nicotine medication
<input type="checkbox"/>	Referral to a quit-smoking program or telephone quitline
<input type="checkbox"/>	Other method or approach not listed
<input type="checkbox"/>	None of the above

Addressing Physiologic Dependence: Pharmacologic Approaches

Nicotine dependence is classified as a substance use disorder in *DSM-IV*.^[13] A prominent feature of dependence is nicotine withdrawal, which can include a variety of signs or symptoms experienced within 24 hours after abrupt cessation of nicotine use or a reduction in the amount of nicotine used. These may include:

- dysphoric or depressed mood;
- insomnia;
- irritability, frustration, or anger;
- anxiety;
- difficulty concentrating;
- restlessness;
- increased heart rate; and
- increased appetite or weight gain.^[13]

Nicotine withdrawal symptoms begin within a few hours of abstinence or significant reduction of tobacco use, increase over 2-3 days, and then gradually decrease over 1-3 weeks.^[14,15] Changes in appetite and problems with concentration appear to persist longer than do feelings of restlessness and irritability.

Persons who take in more nicotine typically have stronger withdrawal symptoms and a more difficult time stopping smoking, but considerable variability occurs.^[16] Because these symptoms are nonspecific, they are often not attributed to nicotine withdrawal by smokers or even by clinicians.

Smokers who are quitting also report intermittent cravings for cigarettes that become less frequent and less intense over time, but can persist longer than the other signs or symptoms. Signs and symptoms related to smoking cessation are uncomfortable, but unlike some other drug withdrawal syndromes, they are not life-threatening and can simply be endured. However, they definitely are a barrier to quitting smoking. Recognition of the nicotine withdrawal syndrome led to interest in developing pharmacologic agents to diminish the symptoms and improve the success of a quit attempt. Behavioral techniques have also been developed to help a smoker handle nicotine withdrawal syndromes.

The USPHS clinical practice guideline panel found strong evidence that 2 types of pharmacotherapy, nicotine replacement therapy and oral bupropion, are effective treatments for nicotine dependence and recommend that these be offered to all smokers who are interested in quitting, unless contraindicated.^[7] A formal evaluation of physiologic dependence is not necessary in order to recommend pharmacotherapy. If the smoker reports having had significant withdrawal symptoms during previous quit attempts, has a pattern of relapsing within a few hours or days, and reports having the first cigarette within 30 minutes of awakening, nicotine dependence probably plays an important role in maintaining his/her smoking behavior. For all smokers, and especially highly dependent persons, nicotine replacement therapy or non-nicotine medication (bupropion) should be recommended.

The clinician's role is to outline the benefits and drawbacks of the medications available, screen for contraindications, and instruct the smoker in the appropriate use of the method or product selected. In addition, the clinician can recommend tapering or reducing the number of cigarettes smoked per day and the use of behavioral strategies to further assist the individual in dealing with nicotine withdrawal symptoms (Table 2).

Table 2. Coping With Nicotine Withdrawal

Symptom	Cause	Duration	What to Do
Cough	Body is getting rid of mucus which has blocked airways	A few days	Drink plenty of fluids, use cough drops, hard candies, cough syrup at night to sleep
Lightheaded	Body is getting extra oxygen	1 or 2 days	Take extra caution, get up and change positions slowly, drink water
Headache	More oxygen in system and less carbon monoxide	1-2 weeks	Use pain relievers, drink plenty of water, do relaxation exercises, take warm bath
Constipation, gas, stomach pain	Intestinal movement decreases for a brief period	1-2 weeks	Drink plenty of fluids, add fiber to diet (fruit, vegetables, whole grains), exercise
Irritability	Body's craving for nicotine	2-4 weeks	Walk, cut down on caffeine, deep breathing, hot baths, know it will pass

Insomnia	Nicotine affects brain wave function	2-4 weeks	Cut down on caffeine and avoid after 6 PM, relaxation exercises, hot shower
Fatigue	Nicotine is a stimulant	2-4 weeks	Exercise, take naps, and get plenty of rest; do not push yourself
Difficulty concentrating	Body needs time to adjust to lack of stimulation from nicotine	A few weeks	Plan workload, avoid additional stress, allow extra time, make "to do" lists, relaxation exercises
Hunger, increased appetite	Craving for cigarettes may be confused with hunger pangs	A few weeks	Drink water or low-calorie drinks, have low-calorie snacks on hand
Dysphoric or depressed mood, emotional	Adjustment to life without nicotine and tobacco	A few weeks	Talk to a friend, take time out, get support
Craving for a cigarette	Withdrawal from nicotine, an addictive drug	A few weeks	Wait out the urge and remind yourself that they last only a few minutes, deep breathe, distract yourself, drink water, take a walk

Six pharmacologic aids have been approved by the United States Food and Drug Administration (FDA) for use in the treatment of nicotine dependence. These pharmacotherapies fall into 2 general categories: nicotine replacement therapies (NRT) that include gum, patch, lozenge, inhaler, and nasal spray, and a non-nicotine pill (bupropion). Both categories were considered to be first-line treatments in the USPHS guideline, and these drugs are all FDA-approved for smoking cessation. The USPHS panel also identified 2 other drugs with evidence of efficacy for smoking cessation, the tricyclic antidepressant nortriptyline and the antihypertensive clonidine. These were designated as second-line agents because of a smaller evidence base supporting their efficacy. Neither of them is FDA-approved for smoking cessation.

It is important to emphasize to smokers that pharmacotherapies are not "magic bullets." Rather, they are used to help minimize or dampen nicotine withdrawal symptoms while smokers work to break the psychological "habit" element that maintains smoking (eg, the connections between smoking and the activities and emotions of their daily lives), and to develop coping skills to replace the many functions of smoking. Table 3 provides a summary of the pharmacologic aids currently available

Table 3. Pharmacologic Aids for Smoking Cessation

Product	Dose	Treatment Duration	Common Side Effects	Instructions
Nicotine-Replacement Therapies				
Transdermal patch*† 24 hr (eg, <i>Nicoderm CQ</i>) 16 hr (eg, <i>Nicotrol</i>)	7-, 14-, or 21-mg patch worn for 24 hrs 15-mg patch worn for 16 hrs	8 wk	Skin irritation, insomnia	Every morning, place a fresh patch on a relatively hairless area of skin between the waist and neck. If sleep disruption occurs, remove the patch at bedtime. Use a hydrocortisone cream for minor skin reactions.
Nicotine polacrilex gum (<i>Nicorette</i>)*† 2 mg (< 25 cigarettes/day) 4 mg (>= 25 cigarettes/day)	1 piece/1-2 hrs (wks 1-6); 2-4 hrs (wks 7-9); 4-8 hrs (wks 10-12); up to 24 pieces/day	8-12 wk	Mouth irritation, sore jaw, dyspepsia, hiccups	Chew the gum slowly until mint or pepper is tasted. Then park the gum between the cheek and gum to permit absorption through the oral mucosa. Repeat when taste subsides and continue for approximately 30 minutes. Avoid eating or drinking for 15 minutes before and during use.
Vapor inhaler (<i>Nicotrol Inhaler</i>)*	6-16 cartridges/day (delivered dose, 4 mg/cartridge); taper use in last 6-12 wks of therapy	3-6 mo	Mouth and throat irritation, cough, dyspepsia	Avoid eating or drinking for 15 minutes before and during use.

Nasal spray (<i>Nicotrol NS</i>)*	1-2 doses/hr (1 mg total; 0.5 mg in each nostril); minimum treatment: 8 doses/day; maximum treatment: 40 mg/day	3-6 mo	Nasal irritation, sneezing, cough, teary eyes, runny nose	Do not sniff, inhale, or swallow during administration because this increases irritating effects. Tilt the head back slightly during administration.
Lozenge (<i>Commit Lozenge</i>)*†	1 lozenge/1-2 hrs (weeks 1-6); 2-4 hrs (weeks 7-9); 4-8 hrs (weeks 10-12)	12 wk	Insomnia (less than 5% of users), nausea, hiccups, coughing, heartburn, and headache	Suck on the lozenge until it dissolves. Do not bite or chew it like a hard candy, and do not swallow it. Avoid eating or drinking for 15 minutes before use.
Non-nicotine Therapies				
Sustained-release bupropion (<i>Zyban</i> or <i>Wellbutrin SR</i>)*	150 mg/day for 3 days, then 150 mg twice a day; treatment started 1 week before quit date.	7-12 wk (up to 6 mo to maintain abstinence)	Insomnia, dry mouth, agitation	Limit alcohol intake.
Nortriptyline**	75-100 mg/day‡	12 wk	Dry mouth, sedation, dizziness, blurred vision, shaky hands	Use may cause sedation, a driving hazard. Risk of overdose should be considered carefully; produces cardiotoxic effects.
Clonidine**	0.1-0.3 mg twice a day; treatment started on quit date or up to 3 days before quit date	3-10 wk	Dry mouth, sedation, dizziness, drowsiness, constipation	Clonidine lowers blood pressure in most patients and so should be monitored when using. Use of either oral or transdermal form may cause sedation, a driving hazard. Do not stop using abruptly as rebound hypertension may result.

* Approved by the FDA as a smoking cessation aid.

† Over-the-counter medication.

** Not approved by the FDA as a smoking cessation aid. The USPHS clinical guideline recommends as a second-line drug for smoking cessation.^[7]

‡ Treatment should be started 10-28 days before the quit date at a dose of 25 mg per day, and the dose should be increased as tolerated.

5. Self-Assessment Question: Compared with no nicotine replacement, the chances of quitting smoking with nicotine replacement therapy are about:

The same

25% higher

2 times as high

3 times as high

Explanation:
Answer: 2 times as high. All 5 forms of nicotine replacement therapy have been found to be equally efficacious, approximately doubling quit rates compared with placebo.

Addressing Physiologic Dependence: Pharmacologic Approaches (Continued)

The purpose of the NRTs is to prevent or minimize the symptoms of withdrawal or cravings by replacing some of the nicotine that would otherwise be obtained from smoking. This allows the individual to focus on the behavioral and emotional aspects of stopping smoking. Nicotine replacement is then gradually reduced so as to minimize withdrawal symptoms experienced. In the single randomized controlled trial that directly compared 4 of these products (gum, patch, inhaler, and nasal spray), all produced similar cessation rates.^[17]

In most studies, concomitant supportive or behavior therapy has produced substantially higher quit rates than either behavior therapy or nicotine replacement alone,^[18,19] and should be strongly encouraged but not required.^[20]

The nicotine transdermal patch became available in 1992 and has been sold since 1996 exclusively as a nonprescription product. It provides the most continuous delivery of nicotine of all nicotine replacement products, is easiest for a smoker to use properly, and is unobtrusive to use. However, the patch does not provide the smoker with any capacity for adjusting nicotine exposure over the course of the day in order to respond to variations in nicotine withdrawal symptoms. The patch is simply applied daily to the upper torso in the morning and, depending on the formulation of the patch used, it is either removed at bedtime (16-hour patch) or on waking (24-hour patch). Starting doses are 21 mg for the 24-hour patch and 15 mg for the 16-hour patch, with the dose gradually reduced over time. Six to 8 weeks of treatment is sufficient for most smokers, and tapering has not been found to be necessary.^[7,21]

Three other nicotine replacement products deliver nicotine to the circulation by absorption through the oral mucosa: nicotine gum, inhaler, and lozenge. These allow the smoker to adjust the delivery of nicotine over the course of a day. Oral absorption of nicotine requires 20 minutes to achieve its peak effect, which is much longer than the very rapid peak blood level of nicotine produced by smoking a cigarette. Nicotine inhaled in the lungs by smoking also produces much higher nicotine levels than are achieved by any nicotine replacement product.

Nicotine gum, approved in 1984, became available for sale as a nonprescription product in the United States in 1995. Nicotine in the gum is absorbed through the buccal mucosa. The 2-mg gum is recommended for individuals who smoke fewer than 25 cigarettes per day, while the 4-mg gum is recommended for individuals who smoke at least 25 cigarettes per day. Scheduled dosing of 1-2 pieces per hour has been found to be more efficacious than ad lib use.^[22] Proper chewing technique ("chew and park") is important to maximize the nicotine actually absorbed by the smoker and minimize side effects. If the smoker chews too rapidly, not all of the nicotine in the gum can be absorbed orally. The nicotine that is swallowed is not absorbed and only increases side effects like dyspepsia or heartburn. Acidic beverages reduce the absorption of nicotine, and therefore should be avoided for 30 minutes before and during use. The gum cannot be used while eating or drinking and is difficult for denture wearers to use. Properly used, the gum is chewed slowly for about 1 minute, until the smoker tastes the nicotine, is then parked between the cheek and gum for a minute or 2 until the taste subsides, and is then slowly chewed and parked in the same manner for 30 minutes before the gum is discarded. Recommended length of treatment is 3 months.

The nicotine lozenge is the newest form of NRT available and is sold without a prescription. As with the gum, it comes in 2-mg and 4-mg doses, and is mint-flavored. Unlike the gum, the proper dose is determined by how quickly a person smokes his or her first cigarette in the morning. Those who wait at least 30 minutes should use the lower dose; those who smoke within half an hour of waking should use the higher dose. The dosing schedule is similar to that of the gum, 1-2 lozenges per hour for the first 6 weeks, then tapering down over the final 6 weeks. The manufacturer recommends 12 weeks of treatment, but most likely it can be used like other NRT products, that is, for 8 weeks. The lozenge should not be chewed or swallowed but allowed to dissolve in the mouth over 20-30 minutes. Lozenges may be recommended to individuals who cannot use nicotine gum because they have dentures or dental problems.

The nicotine inhaler delivers nicotine buccally only to the mouth and throat through nicotine vapor inhaled from a plastic cartridge containing a nicotine plug. The inhaler addresses not only physical dependence, but also the behavioral and sensory aspects of smoking. The recommended dose is 6-16 cartridges per day for the first 6-12 weeks, followed by gradual reduction of dose over the next 6-12 weeks. One dose is equivalent to frequent, continuous puffing for 20 minutes.

The nasal spray differs from the other products in that the nicotine is absorbed through the nasal mucosa. The nasal spray delivers nicotine to the bloodstream more rapidly than any other NRT (though less rapidly than cigarettes do), with peak blood levels occurring within 10 minutes of use.^[23] Concern was raised that the nasal spray may have a significant dependency potential due to the rapid delivery of nicotine,^[24] but more recent studies have not found significant abuse liability.^[25,26] The nasal spray has been found to be the most irritating NRT to use, though tolerance to local side effects typically develops during the first week of use. Starting dose is 1-2 doses per hour (1 dose = 2 sprays), with treatment for up to 8 weeks, then stopping or tapering dose for 4-6 weeks.

Bupropion SR (sustained-release) is an atypical antidepressant believed to work on the neurochemistry of addiction by enhancing dopamine and norepinephrine release in the brain. These are the neurotransmitters believed to be involved in nicotine dependence.^[27] Recent research using PET scanning has shown that brain cells in the drug craving region of the

brain, the anterior cingulate cortex, are not activated in response to cigarette-related cues when bupropion is present.^[28] This may help explain why many smokers experience a reduced urge to smoke when using the drug. As with the NRTs, bupropion has been found to consistently double quit rates compared with placebo. Because it takes 5-7 days to reach steady-state blood levels, the drug is begun 1 week prior to smoking cessation. The recommended dose is 150 mg/day for the first 3 days, followed by a dose increase to 150 mg twice a day. The 150-mg/day dose was as effective as the 300-mg/day dose in a clinical trial and can be used by smokers who are unable to tolerate the full dose.^[29] The drug is well tolerated, with the most common side effects being agitation, insomnia, dry mouth, and headache.

The most serious side effect is seizure, because bupropion reduces the seizure threshold. In clinical trials the risk of seizure was 0.1%. Minimizing fluctuations in bupropion blood levels, as is achieved by a dose interval of at least 8 hours, is recommended to reduce the possibility of seizures. Recommended duration of treatment is 7-12 weeks. If the smoker has not made significant progress toward abstinence by the seventh week of therapy, he or she is unlikely to quit during this attempt and treatment should be discontinued. However, if a smoker is successful in quitting, the drug is approved for up to 6 months' use for relapse prevention based on the findings of one trial.^[30]

Comparison of Pharmacologic Therapies

So, which medication is most effective for smoking cessation? In a randomized trial in which bupropion was compared directly with the nicotine patch, patients using bupropion had significantly higher quit rates at 1 year than those using either the patch or placebo.^[31] However, nicotine replacement products and bupropion are considered fairly equivalent by most experts, so patient preference and medical conditions should dictate choice of therapy.^[7] The USPHS clinical practice guideline states that combining the patch with other forms of NRT resulted in higher quit rates than use of the patch alone, and recommends that combining nicotine replacement products be encouraged if the patient has failed on monotherapy.^[7] Ad lib use of nicotine gum or lozenge with the patch may help to reduce acute cravings. Bupropion SR may also be used in combination with nicotine replacement products, although as mentioned above, combining the patch and bupropion has not resulted in significantly higher rates than bupropion alone.^[31] More research is warranted in this area.

Two other medications, nortriptyline and clonidine, are recommended as second-line medications for smoking cessation in the USPHS guideline. A second-line agent is recommended when first-line agents are not effective or are contraindicated. Neither nortriptyline nor clonidine is approved by the FDA for the indication of aiding smoking cessation.

Nortriptyline, a tricyclic antidepressant, has been found to be effective for smoking cessation in randomized placebo-controlled clinical trials.^[32,22] Medication in the trials was started 2 weeks before the target quit date, with an initial dose of 25 mg that was increased to 75 mg over 1-2 weeks, then maintained for a total treatment duration of 3 months. Nortriptyline is categorized as a second-line medication for smoking cessation in the USPHS clinical guideline because of the less extensive evidence of efficacy than for bupropion or NRT. It should be used cautiously by patients with coronary heart disease.

Clonidine, a centrally acting adrenergic blocker used as an antihypertensive agent, also reduces withdrawal symptoms from drugs of abuse, including nicotine. Meta-analyses of several clinical trials have demonstrated the efficacy of clonidine for smoking cessation, but its use is limited by the side effects of sedation, hypotension, and dry mouth.

Addressing Psychological and Social Dependence

Practical counseling approaches for smoking cessation have been developed from cognitive and behavioral treatment techniques used to treat a wide range of behavioral and addictive disorders,^[34,35] and have been found to typically double quit rates compared with control groups.^[36-38] These strategies, which are recommended by the clinical practice guideline, can be incorporated into the clinician's assessment and intervention as appropriate and should be used in any formal group or individual treatment program to which patients are referred.

First, past quit attempts are reviewed to identify the reasons why the quit attempts were made, what methods the smoker used (eg, cold turkey, tapering, pharmacologic aids), problems experienced (including withdrawal symptoms), strategies that helped, and what led to relapse. The key is to assist the patient in reframing past efforts to stop smoking as learning experiences and to apply what was learned to the current quit attempt. Second, current smoking patterns are assessed. Information elicited should include descriptions of situations and/or responses to feelings or emotions that cause the patient to feel most like smoking. Asking the smoker to rate the level of need for each cigarette on a scale of 1 (low need) to 5 (high need) is often helpful. Behavioral self-monitoring, which involves having the patient record the time, place, situation, mood, thoughts, and need level associated with each cigarette smoked, can be very informative to both the patient and clinician at this stage to identify specific areas needing attention.

Once anticipated problems and triggers are identified through a review of past quit attempts and an assessment of current smoking patterns, the patient can be helped to develop specific cognitive behavioral coping strategies to address these problems and triggers. These may include: (1) how to anticipate and avoid high-risk situations and cues that trigger an urge to smoke whenever possible; (2) how to remove oneself from the trigger situation; (3) substituting other behaviors

incompatible with smoking cigarettes when urges arise (eg, taking a walk, going to a smoke-free environment, deep breathing or other relaxation exercise); (4) use of assertiveness, refusal, and other skills to manage socially related triggers; and (5) use of cognitive restructuring to reshape positive beliefs about smoking or to counteract irrational thinking, allowing replacement of maladaptive thoughts with more constructive thoughts.

Table 4 provides an overview of treatment components of practical counseling for smoking cessation.

Table 4. Treatment Components of Practical Counseling (Problem-Solving/Skills Training)

Practical Counseling (Problem-Solving/Skills Training) Treatment Component	Examples
<i>Recognize danger situations</i> -- Identify events, internal states, or activities that increase the risk of smoking or relapse.	<ul style="list-style-type: none"> ● Negative affect. ● Being around other smokers. ● Drinking alcohol. ● Experiencing urges. ● Being under time pressure.
<i>Develop coping skills</i> -- Identify and practice coping or problem-solving skills. Typically, these skills are intended to cope with danger situations.	<ul style="list-style-type: none"> ● Learning to anticipate and avoid temptation. ● Learning cognitive strategies that will reduce negative moods. ● Accomplishing lifestyle changes that reduce stress, improve quality of life, or produce pleasure. ● Learning cognitive and behavioral activities to cope with smoking urges (eg, distracting attention).
<i>Provide basic information</i> -- Provide basic information about smoking and successful quitting.	<ul style="list-style-type: none"> ● The fact that any smoking (even a single puff) increases the likelihood of a full relapse. ● Withdrawal typically peaks within 1-3 weeks after quitting. ● The addictive nature of smoking.

Source: Fiore MC, Bailey WC, Cohen SJ, et al.^[7]

In addition to these general problem-solving and skill-building strategies, 2 additional types of counseling and behavioral therapies have been found to result in higher abstinence rates and are recommended by the guideline. These are providing social support as part of treatment (ie, intratreatment social support), and helping the smoker to obtain social support outside of treatment from their spouse or significant other, coworkers, and friends (ie, extratreatment social support).^[7]

The primary clinician and staff can establish a supportive clinical environment in the following ways:

- encouraging the patient in his/her quit attempt by reviewing the availability of effective treatments, noting that half of all those who have ever smoked have stopped, and communicating confidence in the patient's ability to quit;
- communicating caring, concern, and willingness to help by asking how the patient feels about quitting and being open to discussing his/her ambivalence, fears about quitting, and difficulties experienced, and

- encouraging the patient to talk about the quitting process, including concerns, successes achieved, and difficulties encountered.^[7]

They can also help the individual increase social support for their efforts to quit from friends, family, and coworkers, and inform them of community resources available, such as quitlines and Web sites.

Arranging Follow-up

Schedule follow-up contact either in person or via telephone. It is important to ensure follow-up within the clinical setting. The patient should be contacted as soon after their quit date as possible and then again within the first month, with further follow-ups scheduled as needed. During the follow-up contact, the patient should be congratulated for success and encouraged to maintain abstinence. If a slip or relapse back to smoking has occurred, have a conversation about the circumstances that caused the slip or relapse and about using the lapse as a learning experience; assess use of pharmacotherapy for appropriateness and effectiveness; and ask for a recommitment to total abstinence. If available, consider referral to more intensive treatment, including in-person treatment services as well as to telephone counseling and Web sites.

A number of Web sites are available that provide resources and assistance to individuals wanting to quit smoking. A listing of these is provided in the [sidebar](#) (Right-click, save as to download word doc) to this Clinical Update. Smoking-related resources are also available on the Internet for healthcare providers; these are also included in the Clinical Update [sidebar](#) (Right-click, save as to download word doc).

The 5A intervention model provides clinicians with a step-by-step method for assessing and treating nicotine dependence. To facilitate use of the 5A intervention, download the card that summarizes the intervention from the [sidebar](#) (Right-click, save as to download PDF file) to this Clinical Update.



To view a short video that demonstrates the use of the 5A intervention, click [here](#).

6. Survey - What office systems do you currently have in place to support smoking cessation intervention? (Check all that apply)	
<input type="checkbox"/>	A method to screen for and document tobacco use for every patient
<input type="checkbox"/>	A prompt or cue to remind provider to conduct a smoking intervention
<input type="checkbox"/>	A method to document each smoking cessation encounter
<input type="checkbox"/>	Self-help material for patients
<input type="checkbox"/>	A list of community resources to help patients stop smoking
<input type="checkbox"/>	A feedback system for staff to let them know how well they are performing
<input type="checkbox"/>	None of the above

Office Approach to Facilitating Smoking Cessation

Although the benefits of providing smoking cessation advice and support to patients are many and varied, physicians often cite a number of barriers to providing this help, including time pressures of practice, lack of confidence in counseling skills, and the unavailability of practice supports.^[39-43] Some may worry that they will alienate smokers, particularly those not ready to quit, by addressing tobacco use during office visits.^[44,45] There are, however, strategies that have been found to be effective in overcoming these barriers.

Addressing Time Constraints

Recent studies have demonstrated that clinical assistants such as nurses, licensed practical nurses, and medical assistants can effectively assume a significant portion of the tobacco intervention.^[46-48] The clinician's core task is to address the patient's smoking briefly by providing clear advice to quit and help motivate the patient to make a quit attempt. Other tasks, such as identifying a patient's smoking status, reminding the clinician to address a patient's smoking habit, providing educational materials, and facilitating referral to more intensive counseling, can be effectively delegated to other staff members. With appropriate support, the time required of the clinician can be very brief.

Strategy: Identify names or positions responsible for specific tasks in order to distribute the workload and encourage accountability.

More intensive counseling requires significant time that may not be practical within an office setting. Other resources may be available in your community, and studies have shown that patients are receptive to referral, especially when the enrollment is facilitated by a clinical assistant.^[47,48]

Strategy: Develop and have readily available a list of community resources to help patients stop smoking, including face-to-face treatment services (individual and group) as well as quitlines and Web sites available to provide more intensive treatment options. If located in Massachusetts, consider enrollment in the QuitWorks program (see below, "Example of a Model Program -- QuitWorks").

Increasing Practice Support

There are clear recommendations regarding office systems that help support smoking cessation.^[7,49] An Action Plan form can be used to help facilitate the implementation of key USPHS recommendations within the practice and personnel responsible for each step. This form can be downloaded from the [sidebar](#) (Right-click, save as to download word doc) to this Clinical Update.

Strategy: Complete an Action Plan for your practice.

An example of a completed Action Plan is included in Table 5 to illustrate how this plan may be developed.

Table 5. Office System Action Plan: Key Components for Office System to Support Smoking Cessation Intervention

WHAT	HOW	WHEN	WHO
USPHS Recommendations	Implementation Suggestions		Person Responsible
1. Routine screening and documentation of smoking status.	<ul style="list-style-type: none"> use vital sign stamp that includes tobacco use revise encounter forms use patient questionnaire at every visit 	<ul style="list-style-type: none"> at start of visit 	<ul style="list-style-type: none"> nurse or medical assistant who measures vital signs at start of visit receptionist distributes questionnaire

<p>2. Cueing/prompting provider to conduct smoking intervention.</p>	<ul style="list-style-type: none"> • presence of smoking status on problem list for the visit • electronic MR requiring entry from provider 	<ul style="list-style-type: none"> • at start of each visit 	<ul style="list-style-type: none"> • office manager
<p>3. Method for documenting each smoking cessation encounter.</p>	<ul style="list-style-type: none"> • check boxes on encounter form or medical record 	<ul style="list-style-type: none"> • at end of each visit 	<ul style="list-style-type: none"> • office manager or • quality assurance manager <ul style="list-style-type: none"> ○ revise forms • provider records encounter
<p>4. Self-help material</p> <p>System for:</p> <ul style="list-style-type: none"> • Distribution • Maintaining supply 	<ul style="list-style-type: none"> • central file at nurses station • materials in waiting room • posters in each exam room • material in exam rooms 	<ul style="list-style-type: none"> • at end of each visit 	<ul style="list-style-type: none"> • designate one person to maintain material, eg, nurse, medical assistant
<p>5. Follow-up system</p> <ol style="list-style-type: none"> to ensure patients are followed up at each visit between clinic visits referral to Quitline or local services 	<ul style="list-style-type: none"> • tickler file for patients who set quit date • care to patient near quit date • written information to patients about local services • enrollment in proactive services if available 	<ul style="list-style-type: none"> • at end of visit 	<ul style="list-style-type: none"> • provider introduces options • nurse or medical assistant gives information or completes enrollment • nurse or medical assistant makes call at quit date
<p>6. Feedback system for staff.</p>	<ul style="list-style-type: none"> • check for tobacco counseling during any routine record review • post percentage of smokers who received counseling • engage "friendly" competition among provider groups or offices 	<ul style="list-style-type: none"> • quarterly • biannually 	<ul style="list-style-type: none"> • quality-assurance manager

When developing your Action Plan, you may require support from staff who are tobacco users. This may result in resistance to participating in the office smoking-intervention efforts.

Strategy: Consider making smoking treatment services and support available to office staff who smoke.

Improving Skills

Provider education is recommended as an integral part of a multicomponent effort to address smoking in a clinical setting.^[49] It is most effective when combined with routine reminders to conduct brief interventions, such as the 5 A's.

Strategy: Encourage all providers in your practice to participate in training models such as this offering, and implement the Action Plan for your practice.

Lack of experience with counseling skills and medications used to treat tobacco use can have an impact on confidence. Having easy access to clear intervention guidelines can save time and effort when working with a smoker who is ready to quit.

Strategy: Keep the 5A model and information about nicotine dependence pharmacotherapy in every exam room and/or on computerized systems for easy reference.

Avoiding Patient Dissatisfaction

Several studies have found that smokers who receive tobacco counseling are more satisfied with their physician's care than are smokers who are not counseled.^[46, 50-52] By understanding the stages of change that smokers go through in working toward quitting, providers can tailor their intervention to the level of motivation of each smoker.

Strategy: Refer to the section entitled "Assess Motivation and Readiness to Quit" for strategies to use with smokers at various stages of change.

Example of a Model Program -- QuitWorks

If your practice serves Massachusetts residents, you have access to an innovative and easy-to-implement resource that will support your efforts to help your patients who smoke. The QuitWorks program (Figure) is an evidence-based tobacco treatment resource for providers to use with any Massachusetts patient, regardless of health insurance. Developed and funded by the Massachusetts Department of Public Health in collaboration with all major commercial and Medicaid health plans in Massachusetts, QuitWorks features a universal enrollment form and links providers and their patients who smoke to proactive telephone counseling and a full range of the state's tobacco treatment services, including targeted Web sites and in-person smoking cessation services.

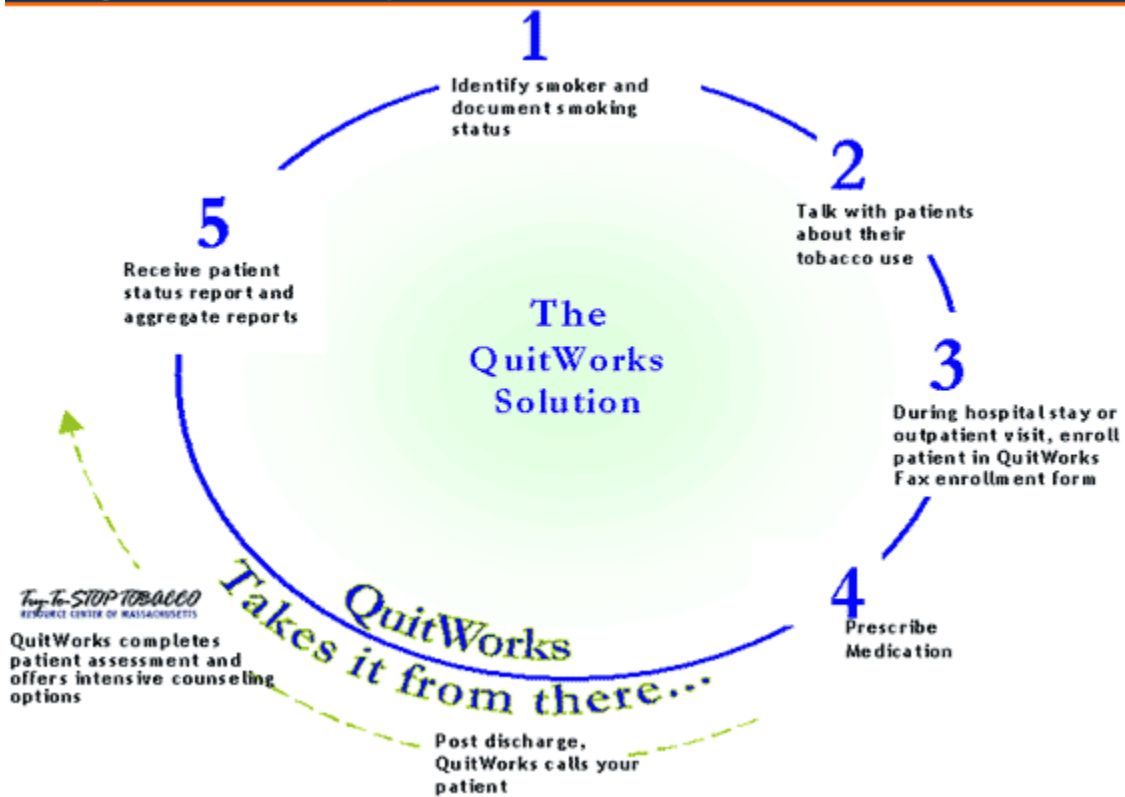


Figure. The QuitWorks model.

Implementing QuitWorks in your practice involves just a few simple steps:

1. **Identify smoking status** at the beginning of every visit.
2. **Talk with patients about smoking** during the office visit following the 5A model. QuitWorks provides a patient education pamphlet, "Think About It," that can be placed in waiting rooms or handed to patients.
3. **Complete the enrollment form** for all patients interested in quitting at this time. Give your patient the QuitWorks "Welcome" pamphlet. Fax the form to the toll-free line and file the enrollment form in the medical record.
4. **Prescribe pharmacotherapy**, if appropriate, for relief of withdrawal symptoms and to aid in smoking cessation.
5. **Receive status reports** that will be faxed a few days after the referral and 6 months later.

QuitWorks takes it from there and does the following:

- **Calls the patient** and conducts a 10-minute telephone assessment, offers counseling options and mails a customized Quit Kit.
- **Provides intensive counseling services** on the phone (5 free proactive telephone sessions) or through referral to in-person services.
- **Provides online help.**
- **Faxes report to the referring provider** several days after the referral.
- **Sends a 6-month patient quit status report.**

QuitWorks has been implemented in a variety of settings, including private practices, hospitals, and community health centers:

Private practices have implemented a variety of systems to identify smokers. The enrollment form is used as a prompt for the clinician to discuss smoking, medications, and enrollment in QuitWorks. The enrollment form and status reports are filed in the patient's medical record to serve as a reminder to follow up at the next visit.

Hospitals identify smokers at intake and identify a clinician responsible to discuss enrollment in QuitWorks. Enrollment occurs during the hospital stay or at discharge and the patient is called soon after discharge. Some hospitals include standing orders for pharmacotherapy. Status reports are sent to the hospital or the primary care provider. Documentation of referral to QuitWorks supports compliance with JCAHO requirements.

Community health centers have placed QuitWorks enrollment forms in every exam room. Identification of smoking status occurs during the vital sign check, and is documented on the encounter form. The enrollment form and status reports are filed in the patient's medical record.

The enrollment form for QuitWorks and all patient materials are currently available in English and Spanish and can be downloaded from the Web site (www.quitworks.org). Other language translations are in process. If you are in Massachusetts, call 1-800-TRYTOSTOP (1-800-879-8678) to learn more about the program and to receive assistance in implementing QuitWorks in your practice. Clinicians outside of Massachusetts can contact quitworksinfo@jsi.com for additional information.

Conclusion

Smoking is the leading preventable cause of illness and death in the United States, and should be considered a chronic disease requiring long-term management, similar to the treatment of hypertension and hyperlipidemia. Evidence-based motivational and cessation treatment is available and should be provided to all individuals who smoke. For those interested in quitting, both brief provider intervention as well as more intensive intervention should be offered. Pharmacotherapy with NRT or bupropion is effective and should be considered for every quit attempt unless contraindicated. Effective intervention requires the systematic identification of smokers and appropriate practice supports to help busy physicians manage this important problem.

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