# Treating Tobacco Use and Dependence : An Evidence-Based Clinical Practice Guideline for Tobacco Cessation

Jane E. Anderson, Douglas E. Jorenby, Walter J. Scott and Michael C. Fiore

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special report

# Treating Tobacco Use and Dependence*

## An Evidence-Based Clinical Practice Guideline for Tobacco Cessation

*Jane E. Anderson, MD, MS; Douglas E. Jorenby, PhD; Walter J. Scott, MD, FCCP; and Michael C. Fiore, MD, MPH*

**The prevention of tobacco-related morbidity and mortality through smoking cessation intervention is among the most vital missions of the chest clinician. This article summarizes the major findings and clinical recommendations of the US Department of Health and Human Services/ Public Health Service Guideline, *Treating Tobacco Use and Dependence*, which is a comprehensive, evidence-based blueprint for smoking cessation. By becoming fluent in the clinical interventions and by implementing the simple institutional changes described in this article and in the guideline, chest clinicians can more effectively intervene with their patients who smoke.**
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**Key words:** clinical guidelines; evidence-based medicine; pharmacotherapy; smoking cessation; tobacco dependence

**Abbreviations:** ACCP = American College of Chest Physicians; NRT = nicotine replacement therapy

The American College of Chest Physicians (ACCP) has been actively involved since 1960 in reducing the health burden caused by tobacco use. The ACCP, in conjunction with five other international organizations, released a report in 1995 entitled "Smoking and Health: Physician Responsibility." In this position statement, the ACCP recognized that "tobacco use is the single most important preventable risk to human health in developed countries and an important cause of premature death worldwide."[1]

*From the Center for Tobacco Research and Intervention (Drs. Anderson, Jorenby, and Fiore), University of Wisconsin Medical School, Madison, WI; and the School of Medicine (Dr. Scott), Creighton University, Omaha, NE.
Dr. Jorenby has given lectures or has conducted research sponsored by Ciba-Geigy, SmithKline Beecham, Lederle Laboratories, McNeil Consumer Products, Elan Pharmaceutical, Glaxo Wellcome, and Knoll Pharmaceutical. Dr. Scott has given lectures sponsored by Bristol-Myers Squibb. Dr. Fiore has served as a consultant for, given lectures sponsored by, or has conducted research sponsored by Ciba-Geigy, SmithKline Beecham, Lederle Laboratories, McNeil Consumer Products, Elan Pharmaceutical, Pharmacia, and Glaxo Wellcome.
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*Correspondence to: Michael C. Fiore, MD, MPH, University of Wisconsin Medical School, 1930 Monroe St, Suite 200, Madison, WI 53711-2027; e-mail: mcf@ctri.medicine.wisc.edu*

A principal goal of the ACCP is to reduce the prevalence of tobacco use through smoking cessation. Chest clinicians are well-positioned to intervene with their patients who smoke. Frequently, the comorbidity of smoking manifests itself in the form of angina, coronary artery disease, lung cancer, bronchitis, COPD, myocardial infarction, and asthma. Each year, > 70% of all smokers make at least one visit to a physician.[2] Approximately 35% of smokers report having made a serious attempt to quit smoking over the last year,[3] and 80% report an attempt to quit sometime in their past.[4] A population-based survey[5] found that < 15% of smokers who saw a physician in the past year were offered assistance in quitting smoking, and only 3% had a follow-up appointment to address tobacco use.

In countries that report deaths that are attributable to smoking, cigarettes were responsible for an estimated 21 million deaths from 1990 to 1999, with more than half of those deaths occurring in people 35 to 69 years of age.[1] The 1990 report of the Surgeon General differentiates smoking-related deaths in the United States by disease category. Cigarette smoking accounts annually for an esti-

**Table 1—*Key Clinical Practice Guideline Recommendations**

| Recommendation No. | Description |
|---|---|
| 1 | Tobacco dependence is a chronic condition that often requires repeated interventions; however, effective treatments exist that can produce long-term or even permanent abstinence. |
| 2 | Because effective tobacco-dependence treatments are available, every patient who uses tobacco should be offered at least one of these treatments:<br>Patients willing to try to quit tobacco should be provided with treatments that are identified as effective in the guideline; and<br>Patients unwilling to try to quit tobacco use should be provided with a brief intervention that is designed to increase their motivation to quit. |
| 3 | It is essential that clinicians and health-care delivery systems (including administrators, insurers, and purchasers) institutionalize the consistent identification, documentation, and treatment of every tobacco user who is seen in a health-care setting. |
| 4 | Brief tobacco-dependence treatment is effective, and every patient who uses tobacco should be offered at least brief treatment. |
| 5 | There is a strong dose-response relationship between the intensity of tobacco-dependence counseling and its effectiveness; treatments involving person-to-person contact (via individual, group, or proactive telephone counseling) are consistently effective, and their effectiveness increases with treatment intensity (*eg*, minutes of contact). |
| 6 | Three types of counseling and behavioral therapies were found to be especially effective and should be used with all patients who are attempting tobacco use cessation:<br>Provision of practical counseling (problem solving/skills training);<br>Provision of social support as part of treatment (intratreatment social support); and<br>Help in securing social support outside of treatment (extratreatment social support). |
| 7 | Numerous effective pharmacotherapies for smoking cessation now exist; except in the presence of contraindication, these should be used with all patients who are attempting to quit smoking.<br>Five first-line pharmacotherapies were identified that reliably increase long-term smoking abstinence rates:<br>Bupropion SR<br>Nicotine patch<br>Nicotine gum<br>Nicotine inhaler<br>Nicotine nasal spray |
| 8 | Tobacco-dependence treatments are both clinically effective and cost-effective relative to other medical and disease prevention interventions; as such, insurers and purchasers should ensure that:<br>All insurance plans include, as a reimbursed benefit, the counseling and pharmacotherapeutic treatments that are identified as being effective in this guideline; and<br>Clinicians are reimbursed for providing tobacco-dependence treatment just as they are reimbursed for treating other chronic conditions. |

*Table adapted from Fiore et al.[10]

mated 115,000 deaths from heart disease, 106,000 deaths from lung cancer, 32,000 deaths from other cancers, 57,000 deaths from COPD, and 27,500 deaths from strokes.[6] In addition to this extraordinary clinical toll, the annual direct burden of smoking is estimated to exceed $50 billion, which is about one tenth of all health-care costs in the United States each year.[7] Currently, 26.4% of adult men and 22.0% of adult women in the United States smoke, representing 47.2 million lives.[8]

In 1996, the Agency for Health Care Policy and Research released *Smoking Cessation: A Clinical Practice Guideline*.[9] This was the first comprehensive, evidence-based guideline for the clinical treatment of tobacco addiction, and it represented a review of > 3,000 articles on tobacco addiction that had been published from 1975 to 1994. The guideline was designed to provide clinicians and others with specific information regarding effective cessation treatments. The ACCP participated in the dissemination and implementation of the original guideline recommendations.

Since the publication of the original guideline, there has been a wealth of new research in the field of tobacco dependence. An additional 3,000 articles on tobacco were published between 1995 and 1999. As a result, an updated version of the guideline (*Treating Tobacco Use and Dependence: An Evidence-Based Clinical Practice Guideline for Tobacco Cessation*[10]) was released in 2000. The new guideline is based on a screening and review of a total 6,000 articles, with a smaller number of articles meeting select criteria for data analysis (primarily meta-analysis as discussed in the original guideline[9]) and panel opinion. A draft of the guideline was peer-reviewed, and the final publication incorporates the comments of 70 external reviewers.

The ACCP position statement advocates as a

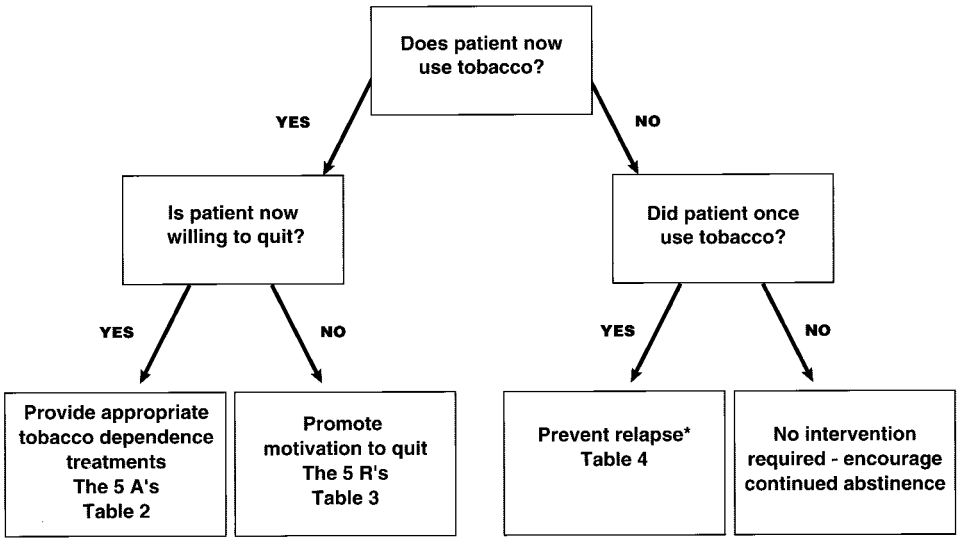


FIGURE 1. Algorithm to guide clinical tobacco intervention.

mandatory element of high-quality care for every patient, the "frank discussion of personal health risks, the benefits of smoking cessation, and available methods to assist in stopping smoking."[1] This article will highlight the key strategies and recommendations that are pertinent to the chest clinician in delivering effective interventions for tobacco cessation, which fulfills the mandate for high-quality patient care.

## SPECIFIC GUIDELINE RECOMMENDATIONS

*Treating Tobacco Use and Dependence* outlines specific strategies for clinicians, the steps necessary to effectively and efficiently identify smokers, to motivate them to make an attempt to quit, and to support them in quitting successfully through counseling, pharmacotherapy, and follow-up. The guideline panel provided key recommendations for all clinicians (Table 1). Select recommendations are discussed below.

### *Recommendation 1*

Tobacco dependence is a chronic condition that often requires repeated intervention. However, effective treatments exist that can produce long-term or even permanent abstinence.

One of the central tenets of the 2000 guideline is the recognition of tobacco dependence as a chronic disease. Tobacco addiction carries a vulnerability to relapse that persists over time and often requires repeated intervention. This places responsibility on the chest clinician to provide ongoing counseling, support, and appropriate pharmacotherapy, just as for other chronic diseases such as hypertension or hypercholesterolemia. While not every smoker who presents to a clinic setting is willing to commit to an attempt to quit smoking during that visit, treatments should be offered at every visit to maximize the patient's chance of success.

### *Recommendation 3*

It is essential that clinicians and health-care delivery systems institutionalize the consistent identification, documentation, and treatment of every tobacco user who is seen in a health-care setting.

The first step in treating tobacco use and dependence is to identify tobacco users. The effective identification of tobacco use status not only opens the doors for successful interventions but also guides clinicians to identify appropriate interventions based on a patient's willingness to quit. The guideline panel recommended the implementation of an office-wide protocol that systematically solicits and documents the tobacco-use status of each patient at every visit. This can be done effectively by expanding the number of vital signs to include smoking status or by placing an appropriate tobacco-use sticker on all patient charts. In clinical settings where tobacco use has been universally documented, the rate at which physicians then asked their patients about smoking and provided specific advice on quitting approximately doubled.[11]

**Table 2—*Brief Strategies: Helping the Patient Willing to Quit**

| Action | Strategies for implementation |
|---|---|
| ***Ask—systematically identify all tobacco users at every visit*** | |
| Implement an office-wide system that ensures that, for every patient at every clinic visit, tobacco-use status is queried and documented† | Expand the vital signs to include tobacco use or use an alternative universal identification system.‡ |
| ***Advise—strongly urge all tobacco users to quit*** | |
| In a clear, strong, and personalized manner, urge every tobacco user to quit | Advice should be:<br>Clear—"I think it is important for you to quit smoking now and I can help you." "Cutting down while you are ill is not enough."<br>Strong—"As your clinician, I need you to know that quitting smoking is the most important thing you can do to protect your health now and in the future. The clinic staff and I will help you."<br>Personalized—Tie tobacco use to current health/illness, and/or its social and economic costs, motivation level/readiness to quit, and/or the impact of tobacco use on children and others in the household.<br>Encourage all clinical staff to reinforce the cessation message and support the patient's quit attempt. |
| ***Assess—determine willingness to make a quit attempt*** | |
| Ask every tobacco user if he or she is willing to make a quit attempt at this time (*eg*, within the next 30 d) | Assess patient's willingness to quit:<br>If the patient is willing to make an attempt to quit at this time, provide assistance.<br>If the patient will participate in an intensive treatment, deliver such a treatment or refer to an intensive intervention.<br>If the patient clearly states he/she is unwilling to make an attempt to quit at this time, provide a motivational intervention.<br>If the patient is a member of a special population (*eg*, adolescent, pregnant smoker, racial/ethnic minority), consider providing additional information. |
| ***Assist—aid the patient in quitting*** | |
| Help the patient with a plan to quit | A patient's preparations for quitting (STAR):<br>Set a quit date, ideally, the quit date should be within 2 wk.<br>Tell family, friends, and coworkers about quitting and request understanding and support.<br>Anticipate challenges to planned quit attempt, particularly during the critical first few weeks; these include nicotine withdrawal symptoms.<br>Remove tobacco products from your environment; prior to quitting, avoid smoking in places where you spend a lot of time (*eg*, work, home, car). |
| Provide practical counseling (problem solving/skills training) | Abstinence—total abstinence is essential; "not even a single puff after the quit date."<br>Past quit experience—review past quit attempts including identification of what helped during the quit attempt and what factors contributed to relapse.<br>Anticipate triggers or challenges in upcoming attempt—discuss challenges/triggers and how patient will successfully overcome them.<br>Alcohol—drinking alcohol is highly associated with relapse; the patient should consider limiting/abstaining from alcohol during the quit process<br>Other smokers in the household—the presence of other smokers in the household, particularly a spouse or partner, is associated with lower abstinence rates. Patients should encourage significant others to quit with them. If others continue to smoke they should be asked to smoke outdoors and not in the quitter's presence. |
| Provide intratreatment social support | Provide a supportive clinical environment while encouraging the patient in his or her quit attempt; "my office staff and I are available to assist you." |
| Help patient obtain extratreatment social support | Help patient develop social support for his or her attempt to quit in his or her environments outside of treatment: "ask your spouse/partner, friends and coworkers to support you in your quit attempt." |
| Recommend the use of approved pharmacotherapy except in special circumstances | Recommend the use of pharmacotherapies found to be effective in the guideline (see Table 5 for clinical guidelines); explain how these medications increase smoking cessation success and reduce withdrawal symptoms; the first-line pharmacotherapy medications include the following: bupropion SR, nicotine gum, nicotine inhaler, nicotine nasal spray, and nicotine patch. |
| Provide supplementary materials | Sources—federal agencies, nonprofit agencies, or local/state health departments<br>Type—culturally/racially/educationally/age appropriate for the patient<br>Location—readily available at every clinician's workstation |

(*Table 2 continues*)

**Table 2—*Continued***

| Action | Strategies for implementation |
|---|---|
| ***Arrange—schedule follow-up contact*** | |
| Schedule follow-up contact, either in person or via telephone | Timing—follow-up contact should occur soon after the quit date, preferably during the first week; a second follow-up contact is recommended within the first month; schedule further follow-up contacts as indicated. |
| | Actions during follow-up contact—congratulate success; if tobacco use has occurred, review circumstances and elicit recommitment to total abstinence; remind patient that a lapse can be used as a learning experience; identify problems already encountered and anticipate challenges in the immediate future; assess pharmacotherapy use and problems; consider use or referral to more intensive treatment. |

*Table adapted from Fiore et al.[10]

†Repeated assessment is not necessary in the case of the adult who has never used tobacco or has not used tobacco for many years, and for whom this information is clearly documented in the medical record. The following vital signs were documented: BP; pulse; weight; temperature; respiratory rate; tobacco use (circle one: current, former, never).

‡Alternatives to expanding the vital signs are to place tobacco-use status stickers on all patient charts or to indicate tobacco use status using electronic medical records or computer reminder systems.

*Recommendation 4*

Brief tobacco-dependence treatment is effective, and every patient who uses tobacco should be offered at least brief treatment.

The 2000 guideline documents that clinical interventions as brief as 3 min can substantially increase cessation success. These findings support the idea that a personalized clinician message meaningfully enhances the likelihood that a smoker will make a successful attempt to quit smoking. Therefore, it is essential to provide at least a brief intervention for all tobacco users at each clinic visit.

*Recommendation 5*

There is a strong dose-response relationship between the intensity of tobacco dependence counseling and its effectiveness. Treatments involving person-to-person contact (*ie*, via individual, group, or proactive telephone counseling) are consistently effective, and their effectiveness increases with treatment intensity (*eg*, the number of minutes of contact).

While even a brief intervention is effective in increasing quitting rates, there is a dose-response relationship between treatment duration and its effectiveness. Because clinicians frequently have limited time with patients, adjuvant staff may be utilized to maximize the impact of treatment.

Guideline analysis suggests that a wide variety of health-care professionals can effectively implement these brief strategies. Adjuvant staff (*eg*, physician assistants, nurses, and medical assistants) reinforce the brief clinician cessation message and provide follow-up and support services to patients attempting to quit.

*Recommendation 2*

Because effective tobacco-dependence treatments are available, every patient who uses tobacco should be offered at least one of the following treatments:

1. Patients willing to try to quit using tobacco should be provided with treatments that are identified as effective in the guideline; and
2. Patients unwilling to try to quit using tobacco should be provided with a brief intervention that is designed to increase their motivation to quit.

Based on the algorithm in Figure 1, there are the following three types of patients with regard to tobacco use: (1) current tobacco users who are now willing to make an attempt to quit smoking; (2) current tobacco users who are unwilling to make an attempt to quit; and (3) former tobacco users who have recently quit.

*For Patients Willing To Quit: The 5 As*

The "5As" are designed to be a brief and effective intervention for tobacco users now willing to make an attempt to quit smoking (Table 2). It is important for the clinician to ask patients whether they use tobacco, to advise them to quit in a clear, strong, and personalized manner, and to assess their willingness to make an attempt to quit at that time. If the patient agrees to attempt cessation, the clinician should then assist in making a quit attempt and should arrange for follow-up contacts to prevent a relapse.

*For Patients Unwilling to Quit: The 5 Rs*

For patients not willing to make an attempt to quit at the time, clinicians should provide a brief inter-

**Table 3—*Enhancing Motivation to Quit Tobacco: the 5 Rs**

| Motivation | Description |
|---|---|
| Relevance | Encourage the patient to indicate why quitting is personally relevant, being as specific as possible. Motivational information has the greatest impact if it is relevant to a patient's disease status or risk, family or social situation (*eg*, having children in the home), health concerns, age, gender, and other important patient characteristics (*eg*, prior quitting experience, personal barriers to cessation). |
| Risks | The clinician should ask the patient to identify potential negative consequences of tobacco use; the clinician may suggest and highlight those that seem to be the most relevant to the patient; the clinician should emphasize that smoking low-tar/low-nicotine cigarettes or use of other forms of tobacco (*eg*, smokeless tobacco, cigars, and pipes) will not eliminate these risks. Examples of risks are:<br>Acute risks: shortness of breath, exacerbation of asthma, harm to pregnancy, impotence, infertility, increased serum carbon monoxide<br>Long-term risks: heart attacks and strokes, lung and other cancers (larynx, oral cavity, pharynx, esophagus, pancreas, bladder, cervix), chronic obstructive pulmonary diseases (chronic bronchitis and emphysema), long-term disability and need for extended care<br>Environmental risks: increased risk of lung cancer and heart disease in spouses; higher rates of smoking by children of tobacco users; increased risk for low birth weight, SIDS, asthma, middle ear disease, and respiratory infections in children of smokers |
| Rewards | The clinician should ask the patient to identify potential benefits of stopping tobacco use, the clinician may suggest and highlight those that seem to be the most relevant to the patient. Examples of rewards follow:<br>Improved health<br>Food will taste better<br>Improved sense of smell<br>Save money<br>Feel better about yourself<br>Home, car, clothing, breath will smell better<br>Can stop worrying about quitting<br>Set a good example for kids<br>Have healthier babies and children<br>Not worry about exposing others to smoke<br>Feel better physically<br>Perform better in physical activities<br>Reduced wrinkling/aging of skin |
| Roadblocks | The clinician should ask the patient to identify barriers or impediments to quitting and note elements of treatment (*ie*, problem-solving, pharmacotherapy) that could address barriers. Typical barriers might include:<br>Withdrawal symptoms<br>Fear of failure<br>Weight gain<br>Lack of support<br>Depression<br>Enjoyment of tobacco |
| Repetition | The motivational intervention should be repeated every time an unmotivated patient visits the clinic setting; tobacco users who have failed in previous quit attempts should be told that most people make repeated quit attempts before they are successful. |

*Table adapted from Fiore et al.[10] SIDS = sudden infant death syndrome.

vention that is designed to promote the motivation to quit (the "5 Rs"; Table 3).

Patients may be unwilling to make an attempt to quit for a variety of reasons. They may lack information about the harmful effects of tobacco, they may not realize how these effects are relevant to their personal health history, they may lack the required financial resources, they may have fears or concerns about quitting, or they may be demoralized because of previous relapse experiences.[12] These patients may, however, respond to a motivational intervention that provides the clinician an opportunity to educate and reassure the patient by means of the following 5 Rs: relevance, risks, rewards, roadblocks, and repetition. This is most likely to be successful when the clinician is empathic, promotes patient autonomy, avoids arguments, and supports the patient's self-efficacy.[13,14]

### *For the Patient Who Has Recently Quit*

Because of the chronic relapsing nature of tobacco dependence, clinicians should promote relapse prevention among their patients who have recently quit. Specifically, the clinician should reinforce the decision to quit, should review the benefits of quitting, and should assist in resolving any residual problems. This can be accomplished during scheduled clinic visits or proactive telephone calls.

Because most relapses occur within the first 3

**Table 4—*Components of Relapse Prevention**

| Intervention | Responses |
|---|---|
| Interventions that should be part of every encounter with a patient who has quit recently | |
| Every ex-tobacco user undergoing relapse prevention should receive congratulations on any success and strong encouragement to remain abstinent. | |
| When encountering a recent quitter, use open-ended questions designed to initiate patient problem-solving (*eg*, "How has stopping tobacco use helped you?"). | |
| The clinician should encourage the patients' active discussion of the benefits the patient may derive from cessation, success the patient has had in quitting, problems encountered or anticipated threats to maintaining abstinence. | |
| Problems | |
| Lack of support for cessation | Schedule follow-up visits or phone calls with the patient |
| | Help the patient identify sources of support within his/her environment |
| | Refer the patient to an appropriate organization that offers cessation counseling or support |
| Negative mood or depression | If significant, provide counseling, prescribe appropriate medications, or refer the patient to a specialist |
| Strong or prolonged withdrawal symptoms | If the patient reports prolonged craving or other withdrawal symptoms, consider extending the use of an approved pharmacotherapy or adding/combining pharmacologic medications to reduce strong withdrawal symptoms |
| Weight gain | Recommend starting or increasing physical activity; discourage strict dieting |
| | Reassure the patient that some weight gain after quitting is common and appears to be self-limiting |
| | Emphasize the importance of a healthy diet with plenty of fruits and vegetables |
| | Maintain the patient on pharmacotherapy known to delay weight gain (*eg*, bupropion SR, NRTs, particularly nicotine gum) |
| | Refer the patient to a specialist or program |
| Flagging motivation/feeling deprived | Reassure the patient that these feelings are common |
| | Recommend rewarding activities |
| | Probe to insure that the patient is not engaged in periodic tobacco use |
| | Emphasize that beginning to smoke (even a puff) will increase urges and make quitting more difficult |

*Table adapted from Fiore et al.[10]

months after quitting, particularly during the first 2 weeks, clinicians (or their staff) should arrange for follow-up visits and should provide relapse prevention during this critical time period. It should be noted that relapses may occur months or even years after quitting, however, so all former tobacco users may benefit from support and encouragement. Table 4 outlines components that should be part of all relapse-prevention contacts.

### *Recommendation 7*

Numerous effective pharmacotherapies for smoking cessation now exist. Except in the presence of contraindication, these should be used with all patients who are attempting to quit smoking.

The treatment of tobacco dependence, like the treatment of other chronic diseases, requires the use of multiple modalities. Pharmacotherapy is an essential element of a multicomponent approach. The clinician should encourage all patients who are initiating an attempt to quit to use one or a combination of the recommended pharmacotherapies. Select patient groups (*eg*, those with medical contraindications, those smoking < 10 cigarettes a day, pregnant/breastfeeding women, and adolescent smokers) require special consideration before the recommendation of pharmacotherapy. A more detailed discussion of pharmacotherapy use for select populations is available in the guideline.

The guideline panel identified five first-line medications with an established empirical record of efficacy in smoking cessation. These medications include the following: bupropion SR (Zyban; Glaxo SmithKline; Research Triangle Park, NC); the nicotine patch (various manufacturers); nicotine gum (various manufacturers); nicotine inhaler (Nicotrol Inhaler; Pharmacia; Helsingborg, Sweden); and nicotine nasal spray (Nicotrol NS; Pharmacia). These medications should be considered first as part of tobacco-dependence treatment (except in cases of contraindications). Each of these medications has been documented to increase significantly the rate of long-term smoking abstinence, and each has been approved as safe and efficacious by the US Food and Drug Administration. General guidelines for prescribing these pharmacotherapies are shown in Tables 5 and 6.

Combining the nicotine patch with a self-administered form of nicotine replacement therapy (NRT), utilizing the gum, the inhaler, or the nasal spray, is

**Table 5—*Clinical Guidelines for Prescribing Pharmacotherapy for Smoking Cessation****

| Question | Answer |
|---|---|
| Who should receive pharmacotherapy for smoking cessation? | All smokers trying to quit except in the presence of special circumstances; special consideration should be given before using pharmacotherapy with selected populations: those with medical contraindications; those smoking < 10 cigarettes/d, pregnant and adolescent smokers |
| What first-line pharmacotherapies are recommended? | All five of the FDA-approved pharmacotherapies for smoking cessation are recommended including bupropion SR, nicotine gum, nicotine inhaler, nicotine nasal spray, and the nicotine patch |
| What factors should a clinician consider when choosing among the five first-line pharmacotherapies? | Because of the lack of sufficient data to rank-order these five medications, choice of a specific first-line pharmacotherapy must be guided by factors such as clinician familiarity with the medications, contraindications for selected patients, patient preference, previous patient experience with a specific pharmacotherapy (positive or negative), and patient characteristics (*eg*, history of depression, concerns about weight gain) |
| Are pharmacotherapeutic treatments appropriate for lighter smokers (*eg*, 10–15 cigarettes/d)? | If pharmacotherapy is used with lighter smokers, clinicians should consider reducing the dose of first-line pharmacotherapies |
| What second-line pharmacotherapies are recommended? | Clonidine and nortriptyline |
| When should second-line agents be used for treating tobacco dependence? | Consider prescribing second-line agents for patients unable to use first-line medications because of contraindications or for patients for whom first-line medications are not helpful; monitor patients for the known side effects of second-line agents |
| Which pharmacotherapies should be considered with patients particularly concerned about weight gain? | Bupropion SR and nicotine replacement therapies, in particular nicotine gum, have been shown to delay, but not prevent, weight gain |
| Which pharmacotherapies should be considered with patients with a history of depression? | Bupropion SR and nortriptyline appear to be effective with this population |
| Should nicotine replacement therapies be avoided in patients with a history of cardiovascular disease? | No. Nicotine replacement therapies are safe and have not been shown to cause adverse cardiovascular effects; however, the safety of these products has not been established for the immediate (2-wk) post-MI period, with serious arrythmias, or in patients with severe or unstable angina |
| May tobacco dependence pharmacotherapies be used long-term (*eg*, 6 months or more)? | Yes. This approach may be helpful with smokers who report persistent withdrawal symptoms during the course of pharmacotherapy or who desire long-term therapy; a minority of individuals who successfully quit smoking use ad libitum NRT medications (*ie*, gum, nasal spray, inhaler) long-term; the use of these medications long-term does not present a known health risk; additionally, the FDA has approved the use of bupropion SR for a long-term maintenance indication |
| May nicotine replacement pharmacotherapies ever be combined? | Yes. There is evidence that combining the nicotine patch with either nicotine gum or nicotine nasal spray increases long-term abstinence rates over those produced by a single form of NRT |

*Table adapted from Fiore et al.[10] FDA = Food and Drug Administration; MI = myocardial infarction.

more efficacious than a single form of nicotine replacement. Patients should be encouraged to use such combined treatments if they are unable to quit using a single type of first-line pharmacotherapy. One study[15] has examined combining bupropion SR with NRT. There was a nonsignificant trend toward improved outcome. More research is needed in the realm of combination therapies.

## Special Note: Use of NRT in Cardiovascular Patients

Cardiovascular risk and the use of NRT has been systematically studied since the nicotine patch was released in 1991. Separate analyses have documented the lack of an association between use of the nicotine patch and acute cardiovascular events,[16–18] even in patients who continue to smoke intermittently while using the nicotine patch.[19]

Because of inaccurate media coverage in the past, it may be important to inform patients who are reluctant to use NRTs that there is no evidence of increased cardiovascular risk with these medications.

## Summary

Chest clinicians are ideally positioned to intervene with their patients who smoke. The guideline provides a comprehensive review of the extant literature and offers clinicians practical, evidence-based advice to assist patients who are addicted to tobacco. Tobacco use represents the leading cause of disease

**Table 6—*Summary Table for Pharmacotherapy**

| Factor | Bupropion SR | Patch | Gum | Inhaler | Nasal Spray |
|---|---|---|---|---|---|
| Treatment period | 7–12 wk<br>Take for 1–2 wk before quitting smoking<br>May use for maintenance for up to 6 mo | 6–8 wk | Up to 12 wk<br>May use for longer time as needed | 3–6 mo<br>Taper use over last few weeks | 3–6 mo<br>Taper use over last few weeks |
| Dosage | Days 1–3: 150-mg tablet each morning<br>Days 4–end: 150-mg tablet in morning and evening | One patch each day<br>Taper dose if using:<br>21 mg for 4 wk<br>14 mg for 2 wk<br>7 mg for 2 wk<br>No taper if using 15 mg for 8 wk<br>Light smokers (10 cigarettes/d) can start with lower dose | 2 mg<br>4 mg (heavy smokers)<br>Chew one piece every 1–2 h (10–15 pieces/d)<br>Many people do not use enough gum—chew gum whenever you need it! | 6–16 cartridges/d<br>Need to inhale about 80 times to use up cartridge<br>Can use part of cartridge and save the rest for later that day | One dose equals one squirt to each nostril<br>Dose 1–2 times/h as needed<br>Minimum = 8 doses/d<br>Maximum = 40 doses/d |
| Pros | Easy to use<br>Reduces urges to smoke | Easy to use<br>Steady dose of nicotine | Can control your own dose<br>Helps with predictable urges (*eg*, after meals)<br>Keeps mouth busy | Can control your own dose<br>Helps with predictable urges<br>Keeps hands and mouth busy | Can control your own dose<br>Fastest acting for relief of urges |
| Cons | May disturb sleep<br>May cause dry mouth | May irritate skin<br>May disturb sleep<br>Can not adjust amount of nicotine in response to urges | Need to chew correctly—"chew and park"<br>May stick to dentures<br>Should not drink acidic beverages while chewing gum | May irritate mouth and throat (improves with use)<br>Does not work well < 40°<br>Should not drink acidic beverages while using inhaler | Need to use correctly (do not inhale it)<br>May irritate nose (improves with use)<br>May cause dependence |
| Caution | Do not use if you have a seizure disorder, an eating disorder, or are already taking a monoamine oxidase inhibitor | Do not use if you have severe uncontrolled eczema or psoriasis | Caution with dentures | | Do not use if you have severe reactive airway disease (asthma) |
| Availability | Prescription only | Over the counter (regular/mint/orange flavors) | Over the counter | Prescription only | Prescription only |
| Cost per day for average use† | $3.50 | Brand name, $3.50; store brand, $2.11 | Brand name: $4.54 for 10 2-mg pieces; $5.00 for 10 4-mg pieces<br>Store brand: $3.00 for 10 2-mg pieces; $3.70 for 10 4-mg pieces | $10.95 for 10 cartridges | $5.64 for 12 doses |

*Table adapted from Fiore et al.[10]
†Updated information based on January 2001 data from a chain pharmacy.

that brings patients to chest clinicians. By adopting a guideline-based approach to universally identify and intervene with patients who use tobacco, clinicians can reduce the rates of smoking and its consequences among their patients.

*To Obtain Guideline Materials*

Printed copies of the *Clinical Practice Guideline: Treating Tobacco Use and Dependence* by the US Public Health Service and additional materials include the following: quick reference guide; consumer guide; health systems guide; quit-smoking posters; and packets of tear sheets for clinicians.

These are available from the following US Public Health Service clearinghouses: the Agency for Healthcare Research and Quality (phone, 800-358-9295); the Centers for Disease Control and Prevention (phone, 800-CDC-1311); and the National Cancer Institute (phone, 800–4-CANCER).

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