

section two

COUNSELING

54. Counseling to Prevent Tobacco Use

RECOMMENDATION

Tobacco cessation counseling on a regular basis is recommended for all persons who use tobacco products. Pregnant women and parents with children living at home also should be counseled on the potentially harmful effects of smoking on fetal and child health. The prescription of nicotine patches or gum is recommended as an adjunct for selected patients. Anti-tobacco messages are recommended for inclusion in health promotion counseling of children, adolescents, and young adults (see *Clinical Intervention*).

Burden of Suffering

Smoking accounts for one out of every five deaths in the U.S.¹ It is the most important modifiable cause of premature death, responsible annually for an estimated 5 million years of potential life lost.^{1,2} About 420,000 Americans die each year as a result of smoking.¹ Since early studies in the 1950s and 1960s, a large body of epidemiologic evidence has accumulated regarding the health effects of smoking. Major cohort studies, many case-control studies, and other data sources provide consistent, convincing evidence linking the use of tobacco with a variety of serious pulmonary, cardiovascular, and neoplastic diseases. The scope of this report does not permit an examination of each study of the health effects of smoking or the nature of the risk relationship (e.g., relative risk, dose-response relationship) between smoking and each disease. Detailed reviews of this extensive literature have been published elsewhere.¹⁻⁶ A number of consistent findings from this body of evidence are well established. First, tobacco is one of the most potent of human carcinogens, causing an estimated 148,000 deaths among smokers annually due to smoking-related cancers.¹ The majority of all cancers of the lung, trachea, bronchus, larynx, pharynx, oral cavity, and esophagus are attributable to the use of smoked or smokeless tobacco.^{2,6} Smoking also accounts for a significant but smaller proportion of cancers of the pancreas,^{3,7-9} kidney,² bladder,^{3,10} and cervix.^{3,11-13} Second, smoking promotes atherosclerosis and is a leading risk factor for myocardial infarction and coronary artery, cerebrovascular, and peripheral vascular disease.^{2,3} It is responsible for about 100,000 deaths from coronary heart disease and 23,000 deaths due to cere-

brovascular disease each year.¹ Third, smoking is an important risk factor for respiratory illnesses, causing 85,000 deaths per year from pulmonary diseases such as chronic obstructive pulmonary disease (COPD) and pneumonia.^{1,3} Children and adolescents who are active smokers have an increased prevalence and severity of respiratory symptoms and illnesses, decreased physical fitness, and potential retardation of lung growth.¹⁴ Fourth, the nicotine in tobacco is an addictive drug, and the pharmacologic and behavioral processes that determine nicotine addiction are similar to those that determine addiction to drugs such as heroin and cocaine.^{15,16} The initiation of tobacco use at an early age is associated with more severe addiction as an adult. Fifth, tobacco use may be associated with an increased risk of osteoporosis.^{17,18} Sixth, smoking affects the health of nonsmokers. Smoking during pregnancy causes about 5–6% of perinatal deaths, 17–26% of low-birth-weight births, and 7–10% of preterm deliveries,^{2,3} and it increases the risk of miscarriage and fetal growth retardation.³ It may also increase the risk for sudden infant death syndrome (SIDS).^{19,20} Passive smoking (or environmental tobacco smoke) increases the risk of lung cancer in nonsmokers,^{4,21} causing approximately 3,000 lung cancer deaths each year.⁴ It may also increase the risk of coronary heart disease in otherwise healthy nonsmokers.^{22–25} Environmental tobacco smoke exposure increases the frequency of middle ear effusions and lower respiratory infections in children, causing an estimated 150,000–300,000 cases of lower respiratory tract infections leading to 7,500–15,000 hospitalizations.⁴ In children, passive smoking is also associated with a small but measurable reduction in lung function⁴ and exacerbates asthma,^{4,26,27} causing symptoms in 200,000 to 1,000,000 asthmatics in addition to as many as 8,000–26,000 new cases of asthma a year.⁴ Passive smoking has also been associated with an increased risk of SIDS.^{19,20,27a} Finally, cigarettes are responsible for about 25% of deaths from residential fires, causing some 1,000 fire-related deaths and 3,300 injuries each year.²⁸ Estimated smoking-attributable costs for medical care in 1993 were \$50 billion,²⁹ and excess lifetime medical expenditures for the current cohort of smokers may be as high as \$500 billion.³⁰

Although smoking has declined in the past three decades, 25% of adults in the U.S. continue to smoke.³¹ Among adults, cigarette smoking is more common among men, Native Americans and Alaska Natives, and persons of low socioeconomic status or with 9–11 years of education.³¹ Due to an increase in smoking by women during the period between 1940 and the early 1960s, lung cancer mortality in females has risen steadily since the mid-1960s; lung cancer is now the leading cause of cancer death in women.³² Two thirds of female smokers continue to smoke during pregnancy.³³ Most smokers begin tobacco use as teenagers.¹⁴ Currently, 19% of all high school seniors smoke on a regular basis; among black high school

seniors, however, only 4% smoke regularly.^{33a} Of persons aged 18–24, 26% are current smokers.³¹ Smokeless tobacco is regularly used by 3% of adults (5.3 million persons)³⁴ and by about 20% of male high school seniors.¹⁴

Efficacy of Risk Reduction

There is a large body of evidence from prospective cohort and case-control studies showing that many of these health risks can be reduced by smoking cessation. Smokers who quit smoking before the age of 50 have up to half the risk of dying in the next 15 years that continuing smokers have; evidence suggests that the risk of dying is reduced substantially even among persons who stop smoking after age 70.³ After 10 years of abstinence, the risk of lung cancer is 30–50% lower than that of continuing smokers; the risk of oral and esophageal cancer is halved as soon as 5 years after cessation.^{3,7–9,35} Compared to current smokers, former smokers also have a lower risk of cervical and bladder cancer.^{3,13} One year after quitting, the risk of myocardial infarction and death from coronary heart disease is reduced by one half, and after 15 years it approaches that of nonsmokers.^{3,35a} The risk and complications of peripheral artery disease decrease after smoking cessation.³ As early as 2 years after quitting, the risk of stroke starts to decrease, and within 5–15 years it returns to (or near to) that of persons who have never smoked.^{3,36,36a} Relative to continuing smokers, smokers who quit have decreased COPD mortality rates; respiratory symptoms such as cough, sputum production, and wheezing; and infections such as bronchitis and pneumonia.³ Pregnant women who stop smoking by the 30th week of gestation have infants with higher birth weights than infants born to women who smoke throughout pregnancy.³

Effectiveness of Counseling

Clinicians have both the opportunity and the means to modify smoking behavior and address nicotine dependency in their patients. It has been estimated that about 70% of the 46 million adult smokers in the U.S. could be counseled by clinicians during the course of ongoing medical care.^{31,37} The effectiveness of tobacco cessation counseling in improving clinical outcomes has been demonstrated in several studies in pregnant women. In two randomized controlled trials, smoking cessation counseling with self-help materials significantly increased mean birth weight and decreased the incidence of intrauterine growth retardation.^{38,39} For nonpregnant individuals, evidence of improved clinical outcomes is more limited. Among otherwise healthy middle-aged smokers with spirometric evidence of early COPD, an intensive smoking cessation program combining behavior modification and nicotine gum significantly reduced the age-related decline in forced expira-

tory volume in 1 second (FEV1).^{39a} In middle-aged men, smoking cessation counseling alone⁴⁰ or in combination with dietary advice and/or hypertension management^{41,42} decreased coronary heart disease morbidity and mortality, although results were statistically significant in only one trial.⁴¹

A number of clinical trials have demonstrated the effectiveness of certain forms of clinician⁴³⁻⁴⁸ and group^{47,49,50} counseling in changing the smoking behavior of patients. In pregnant women, randomized controlled trials have reported improvements in abstinence rates of 5–23% between intervention and control groups.^{38,39,51-53} The intervention groups received individual counseling sessions at the time of the first prenatal visit, self-help manuals that targeted pregnant women, and mail or phone follow-up, while control groups received advice alone. A meta-analysis of 39 clinical trials in nonpregnant adults examined different types of clinical smoking cessation techniques involving various combinations of counseling, distribution of literature, and nicotine replacement therapy. It found higher cessation rates in the intervention compared to the control groups, with the differences in cessation rates averaging 6% after 1 year.⁴⁷ Subsequent published trials have demonstrated increases in abstinence rates of 3–7% in patients receiving clinician counseling^{43-46,48} and of 8–25% with group counseling, compared to controls.^{49,50} The key elements of effective counseling seem to be providing reinforcement through consistent and repeated advice from a team of providers to stop smoking, setting a specific “quit date,” and scheduling follow-up contacts or visits. Using additional modalities, such as self-help materials, referral to group counseling, advice from more than one clinician, or chart reminders identifying patients who smoke, seems to further enhance effectiveness.^{47,48,54-56}

One controlled trial that evaluated the effectiveness of counseling in changing smokeless tobacco use found significantly higher abstinence rates at 12-month follow-up in patients receiving personalized advice and explanation of oral lesions by dental hygienists, self-help materials, and encouragement to set a quit date, compared to those receiving usual care.^{57,57a} Another controlled trial in professional baseball team players found that compared to those receiving usual care, patients who received counseling (similar to that in the trial cited above) plus nicotine gum, and who were shown photographs of oral cancer-associated facial disfigurement had significantly higher smokeless tobacco cessation rates.⁵⁸

As adjuncts to counseling, the prescription of nicotine products can facilitate smoking cessation.^{59-71a} Randomized controlled trials have found that 12-month cessation rates after brief clinician counseling and multiple follow-up visits double from 4–9% with placebo to 9–25% with the nicotine patch.^{64,65,69,71} When used correctly and in combination with clinician advice to stop smoking, nicotine gum increases long-term smoking cessation rates by about one third.^{72,73} The higher dose nicotine gum (4 mg) has

proven to be more effective than the 2 mg dose in highly nicotine-dependent subjects.⁷³ (Nicotine dependence is commonly measured by the number of cigarettes smoked daily or by the Fagerström Test for Nicotine Dependence.⁷⁴) Nicotine inhalers and nasal sprays are new modalities that have been found to be effective in clinical trials, but studies in primary care settings are needed before widespread use can be recommended.^{75-76a} No trials have directly compared the effectiveness of the various adjuncts. Two meta-analyses of controlled trials of nicotine replacement therapies found a significant benefit for all modalities with no modality being significantly better than another.^{73,77} Nicotine gum, however, was found to be effective in patients with high but not low nicotine dependence, while there was no difference in the efficacy of the nicotine patch by severity of nicotine dependence.⁷³ The evidence suggests that nicotine products are most effective as adjuncts to ongoing smoking cessation counseling.^{77,78} Furthermore, patients need proper instruction on how to use the nicotine replacement therapies. Patients have been reported to use nicotine patches and gum without discontinuing smoking, thus increasing the risk of nicotine toxicity.^{79,80} The most common adverse effects of nicotine gum include hiccups, flatulence, nausea, and indigestion, while the nicotine patch commonly causes local skin reactions and insomnia.^{73,78} The nicotine inhaler and nasal spray are associated with irritation of the throat and coughing, and with nasal soreness, respectively.^{75,76}

Clonidine has also been investigated as an adjunct to smoking cessation counseling. Four of five randomized trials with follow-ups of 3–12 months have reported improved abstinence rates of 8–21%.⁸¹⁻⁸⁵ Only one result was statistically significant,⁸³ but sample sizes may have been inadequate in the other three trials that showed nonsignificant benefits.^{82,84,85} Side effects, including drowsiness and dry mouth, occurred in 5–25% of those receiving clonidine, resulting in significantly higher rates of discontinuation of clonidine compared to placebo.^{81,83,84}

The prevention of initiation of tobacco use by children and adolescents is an important role for the clinician. Nearly all current initiation of tobacco use occurs before high school graduation.¹⁴ Approximately 25% of 12–13-year-old children report having experimented with cigarettes, and 4% are regular smokers.⁸⁶ There have been no published trials that have adequately evaluated interventions by clinicians in preventing tobacco use initiation. Since the mid-1970s, however, over 90 controlled trials of school-based tobacco use prevention interventions have been published.¹⁴ School-based programs reduce the incidence^{87,88} and prevalence⁸⁹⁻⁹¹ of tobacco use in adolescents at 2–4-year follow-up. Longer follow-up has shown little long-term benefit, however, suggesting that program effects need to be reinforced.^{92,93} The most successful of these programs involve teaching the skills to resist social pressures to use tobacco, along with the

short- and long-term consequences of using tobacco (see *Clinical Intervention*).⁹⁴

Recommendations of Other Groups

All major health care organizations and authorities recommend routine clinician counseling of adults, pregnant women, parents, and adolescents to avoid or discontinue smoking and use of smokeless tobacco.⁹⁵⁻¹⁰⁸

Discussion

Although the significant health hazards of tobacco use and the benefits of cessation are well established, studies suggest that many clinicians fail to counsel patients (or their parents) who smoke to stop tobacco use.^{37,109,110} This reluctance to intervene may be the result of a number of variables, including lack of confidence in the ability to provide adequate counseling, lack of patient interest, lack of financial reimbursement or personal reward, insufficient time, and inadequate staff support.¹¹¹ As described above, however, a number of studies have shown that clinician counseling can change behavior, even when the intervention is relatively brief. Nearly 50% of all living individuals who have ever smoked have stopped,³¹ and 30% of quitters report being urged to quit by a physician.¹¹³ Approximately 90% of successful quitters have quit without intensive counseling but by stopping abruptly or with the help of quitting manuals.¹¹³ Moreover, even a modest decrease in smoking rates can have significant public health implications when multiplied by the more than 30 million smokers seen annually by U.S. clinicians.³⁷ A cost-effectiveness study supports the clinical value of offering smoking cessation counseling during the routine office visit of patients who smoke.¹¹⁴

Although there are no data on the effectiveness of clinician counseling in preventing the initiation of tobacco use by children, school-based programs are effective in reducing the prevalence of smoking among children for up to 4 years. Clinicians can provide leadership and support that may enhance both school-based programs and community-based efforts such as restrictions on tobacco advertising, enforcement of laws that prevent minors' access to tobacco, and tax increases on tobacco products to decrease the demand among children.¹⁴

CLINICAL INTERVENTION

A complete history of tobacco use, and an assessment of nicotine dependence among tobacco users, should be obtained from all adolescent and adult patients. Tobacco cessation counseling is recommended on a regular basis for all patients who use tobacco products ("A" recommendation). Pregnant women and parents with children living at home also should be

counseled on the potentially harmful effects of smoking on fetal and child health (“A” recommendation). The optimal frequency for performing counseling to prevent tobacco use has not been determined with certainty, but repeated messages over long periods of time are associated with the greatest success in helping patients achieve abstinence.⁴⁷ The prescription of nicotine patches or gum is recommended as an adjunct for selected patients (“A” recommendation). There is insufficient evidence to recommend for or against clonidine as an effective adjunct to tobacco cessation counseling (“C” recommendation).

Certain strategies can increase the effectiveness of counseling against tobacco use (also see published guidelines^{104,105,107,115–118}):

- | Direct, face-to-face advice and suggestions. The most effective clinician message is a brief, unambiguous, and informative statement on the need to stop using tobacco. If possible, the clinician should also review the short- and long-term health, social, and economic benefits of quitting and foster the tobacco user’s belief in his or her ability to stop. The message should address the patient’s concerns and any barriers presented by age, social environment, nicotine dependence, and general health. If the patient is not contemplating cessation, then the clinician should try to motivate the patient again at the next visit. If the patient is contemplating stopping, then the clinician should try to get agreement on a specific “quit date” and should prepare the patient for withdrawal symptoms. Patients who have experienced a relapse after previous quit attempts should be reassured that most smokers achieve long-term cessation only after several unsuccessful attempts.
- | Reinforcement. Schedule “support visits” or follow-up telephone calls, especially during the first 2 weeks when relapse is common.¹¹⁹
- | Office reminders. Use a register system or chart stickers for tobacco users to increase the probability that an anti-tobacco message is delivered at each visit.
- | Self-help materials. Dispense a variety of effective self-help packages to motivate and aid the majority of tobacco users who quit on their own. These materials are listed in reference works¹²⁰ and are available from voluntary organizations in most communities.
- | Community programs for additional help in quitting. Local hospitals, health departments, community health centers, work sites, commercial services, and voluntary organizations frequently offer smoking cessation programs to which patients can be referred. Clinicians should not, however, refer patients to programs providing treatment of unproven efficacy (e.g., electric shock therapy).¹²¹
- | Drug therapy. The prescription of nicotine products as adjuncts to counseling may facilitate cessation by relieving withdrawal symptoms. Persons using the nicotine patch or gum should be advised to stop all tobacco use completely before starting the medication and to carefully store and dispose of products to prevent accidental ingestion by children or pets. The patch should be used on clean, dry, non-hairy skin sites that are alternated daily. A skin site should not be used more frequently than once a week.¹²² The patch

is generally prescribed for 6–8 weeks over which time the dosage of nicotine is weaned.⁷⁸ Those using nicotine gum should be instructed to chew the gum slowly and intermittently to allow proper absorption by the buccal mucosa. While using nicotine gum, patients should not drink or eat acidic substances such as coffee, colas, or citrus juices, which impair nicotine absorption.¹²³ Nicotine gum is used as needed for up to 3 months, when the risk of relapse is greatest, and then tapered over the next 3 months.¹²² In pregnant or nursing patients or patients with a recent myocardial infarction, severe or worsening angina, serious arrhythmias, or vasospastic or endocrine disorders, the potential risks of nicotine adjuncts must be weighed carefully against the known adverse effects of tobacco. Nicotine adjuncts should also be used with caution in persons with peptic ulcer disease, claudication, renal or hepatic insufficiency, or accelerated hypertension. Nicotine gum is contraindicated in patients with active temporomandibular joint disease.¹²²

Anti-tobacco messages should be included in health promotion counseling of children, adolescents, and young adults based on the proven efficacy of risk reduction from avoiding tobacco use (“A” recommendation), although the evidence for the effectiveness of clinical counseling to prevent the initiation of tobacco use is less clear (“C” recommendation).

Because school-based programs have been shown to delay initiation of tobacco use, clinicians should support such programs in their communities. Effective school-based programs teach children skills to recognize and resist social pressure to smoke, dip, or chew tobacco as well as to understand the short-term (e.g., bad breath, cost, decreased athletic ability, cough, phlegm production, and shortness of breath) and long-term adverse consequences of tobacco use. Examples of support that clinicians can provide include: becoming aware of programs already in place in local schools and reinforcing their messages with patients and their parents, alerting parents to the existence of such programs, and encouraging parental participation and involvement; serving as a consultant to local schools that implement such programs; developing a list of referrals for tobacco cessation programs for youths; and serving as a community advocate to keep effective programs in place (L.A. Maiman and D. Haynie, National Institutes of Health, personal communication, March 1994).

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