Table 13. Efficacy of and cessation rates for various types of content relative to no-contact arms (*n* = 39 studies)

Content category	Number of arms	Estimated odds ratio (95% C.I.)	Estimated cessation rate (95% C.I.)
No contact (reference group)	25	1.0	8.8
Aversive smoking	9	2.1 (1.0–4.2)[a]	17.5 (7.6–27.2)
Intratreatment social support	21	1.8 (1.4–2.5)	15.2 (11.3–19.1)
Problem solving/ skills training	57	1.6 (1.2–2.2)	13.7 (10.3–17.1)
Quit day	30	1.3 (0.9–2.0)	11.5 (7.4–15.7)
Extratreatment social support	16	1.3 (0.8–2.0)	11.2 (7.0–15.5)
Motivation	40	1.1 (0.9–1.5)	9.8 (7.5–12.2)
Weight/diet/nutrition	17	1.1 (0.8–1.6)	9.8 (6.6–13.0)
Exercise/fitness	8	1.1 (0.6–1.8)	9.6 (4.8–14.3)
Contingency contract	13	1.0 (0.7–1.6)	9.1 (5.6–12.7)
Relaxation/ breathing	15	0.8 (0.5–1.3)	7.5 (4.3–10.7)
Cigarette fading	18	0.7 (0.4–1.1)	6.4 (3.6–13.3)

[a] Actual 95% lower confidence estimate equals 1.04.

ological problems and were based on small samples. Hence, at present it would be premature to evaluate cue exposure/extinction interventions.

Separate meta-analyses were conducted for the content categories of hypnosis and acupuncture. Only three acceptable studies examined hypnosis. Because the studies were of poor quality and their results were inconsistent, the evidence was insufficient to assess the effectiveness of hypnosis.

Similarly, evidence was inadequate to support the efficacy of acupuncture as a smoking cessation treatment. The acupuncture meta-analysis comparing "active" acupuncture with "control" acupuncture revealed no difference in efficacy between the two types of procedures, and the odds ratio for active acupuncture was actually smaller than that of control acupuncture. These results suggest that any effect of acupuncture might be produced by factors such as positive expectations about the procedure.

The six studies included in the analysis of acupuncture were examined individually in order to explore acupuncture efficacy further. Of these six studies, five involved nonacupuncture control conditions. Two of these showed acupuncture to be more effective than control conditions, and three showed no

General strategy 1. Common elements of problem-solving/ skills-training smoking cessation treatments

Problem-solving treatment component	Examples
Recognition of danger situations—Identification of events, internal states, or activities that are thought to increase the risk of smoking or relapse.	■ Being around other smokers ■ Being under time pressure ■ Getting into an argument ■ Experiencing urges or negative moo ■ Drinking alcohol
Coping skills—Identification and practice of coping or problem-solving skills. Typically, these skills are intended to cope with danger situations.	■ Learning to anticipate and avoid danger situations ■ Learning cognitive strategies that w reduce negative moods ■ Accomplishing lifestyle changes tha reduce stress, improve quality of lif or produce pleasure ■ Learning cognitive and behavioral activities that distract attention from smoking urges
Basic information—Provision of basic information about smoking and successful quitting.	■ The nature/timecourse of withdraw ■ The addictive nature of smoking ■ The fact that any smoking (even a single puff) increases the likelihood full relapse

difference. Therefore, active acupuncture was not consistently more effecti than either placebo/control acupuncture or nonacupuncture control conditio The panel concluded that there was relatively little evidence available regar ing acupuncture and that the existing evidence was inconclusive.

Person-to-Person Treatment: Duration and Number of Sessions

Recommendation: In general, the greater the number of weeks over which person-to-person counseling or treatment is delivered, the mor effective it is. Therefore, the duration of smoking cessation interventi should last as many weeks as is feasible given available resources. (Strength of Evidence = A)

Recommendation: Person-to-person treatment delivered over four to seven sessions appears especially effective in increasing cessation rate Therefore, if available resources permit, clinicians should strive to me at least four times with quitting smokers. (Strength of Evidence = A)

Duration of Treatment. Fifty-five studies met selection criteria for th analysis addressing the duration of smoking cessation interventions.

General strategy 2. Common elements of supportive smoking cessation treatments

Supportive treatment component	Examples
Encourage the patient in the quit attempt.	■ Note that effective cessation treatments are now available. ■ Note that half of all people who have ever smoked, have now quit. ■ Communicate belief in patient's ability to quit.
Communicate caring and concern.	■ Ask about how patient feels about quitting. ■ Directly express concern and willingness to help. ■ Be open to the patient's expression of fears of quitting, difficulties experienced, and ambivalent feelings.
Encourage the patient to talk about the quitting process.	**Ask about:** ■ Reasons the patient wants to quit ■ Difficulties encountered while quitting ■ Success the patient has achieved ■ Concerns or worries about quitting
Provide basic information about smoking and successful quitting.	■ The nature/timecourse of withdrawal ■ The addictive nature of smoking ■ The fact that any smoking (even a single puff) increases the likelihood of full relapse

Duration of treatment was categorized as less than 2 weeks, 2 weeks to less than 4 weeks, 4 weeks to 8 weeks, and greater than 8 weeks. Less than 2 weeks was used as the reference group. Results are shown in Table 14.

Because the duration of treatment was associated with the intensity of person-to-person contact (length of treatment sessions), an additional analysis examined the effect of duration after controlling for intensity of person-to-person contact. The trend for increasing efficacy with increasing duration remained after controlling for the intensity of person-to-person contact, but only the longest duration showed a significant effect (data not shown).

Evidence. The efficacy of a smoking cessation intervention increases with longer duration of treatment. The duration of treatment independently contributes to the efficacy of smoking cessation interventions over and above the contribution of the intensity of person-to-person contact. (Strength of Evidence = A)

Number of Treatment Sessions. Fifty-five studies involving at least some person-to-person contact met selection criteria for the analysis addressing the impact of number of treatment sessions. The number of treatment sessions

Table 14. Efficacy of and cessation rates for various durations of person-to-person treatment (*n* = 55 studies)

Duration	Number of arms	Estimated odds ratio (95% C.I.)	Estimated cessation r (95% C.I.)
< 2 w (reference group)	101	1.0	10.4
2 to < 4 w	14	1.6 (1.3–2.0)	15.6 (12.9–18.3)
4–8 w	12	1.6 (1.2–2.1)	16.1 (12.4–19.7)
> 8 w	15	2.7 (2.2–3.2)	23.8 (20.6–27.1)

was categorized as one or fewer sessions, two to three sessions, four to sev sessions, and greater than seven sessions. One or fewer sessions was used the reference group. Results are shown in Table 15.

Because number of treatment sessions was associated with the intens of person-to-person contact (length of treatment sessions), an additional analysis that examined the effect of the number of sessions after controlli for intensity of person-to-person contact was also conducted. Only four t seven sessions remained statistically significant after controlling for the intensity of person-to-person contact.

Evidence. Multiple treatment sessions increase smoking cessation rates over those produced by one or fewer sessions. The evidence suggests that f to seven sessions may be the most effective range. These results also sugge that the number of treatment sessions, at least four to seven sessions, contrib to the efficacy of smoking cessation interventions over and above the contri tion of the intensity of person-to-person contact. (Strength of Evidence = A

Smoking Cessation Pharmacotherapy

Evaluation of various pharmacotherapies for smoking cessation was c ducted using several sources of information. For transdermal nicotine an nicotine gum, several high-quality published meta-analyses were availabl

Table 15. Efficacy of and cessation rates for number of person-to-person treatment sessions (*n* = 55 studies)

Number of sessions	Number of arms	Estimated odds ratio (95% C.I.)	Estimated cessation r (95% C.I.)
≤ 1 session (reference group)	96	1.0	10.4
2–3 sessions	15	2.0 (1.6–2.4)	18.8 (15.8–21.9)
4–7 sessions	25	2.5 (2.2–2.9)	22.6 (19.9–25.3)
> 7 sessions	12	1.7 (1.2–2.5)	16.7 (11.4–22.0)

For clonidine, sources of information were an existing published meta-analysis, a meta-analysis conducted by guideline staff, and examination of individual studies. For all other pharmacotherapies, the source of information was examination of individual studies.

Recommendation: Patients should be encouraged to use nicotine replacement therapy (patch or gum) for smoking cessation except in the presence of special circumstances (see General Strategies 3 and 5). (Strength of Evidence = A)

Recommendation: Transdermal nicotine (the nicotine patch) is an efficacious smoking cessation treatment that patients should be encouraged to use. The nicotine patch is effective across diverse settings and populations and when used with a variety of psychosocial interventions. (Strength of Evidence = A)

Recommendation: Nicotine gum is an efficacious smoking cessation treatment that patients should be encouraged to use. (Strength of Evidence = A)

Transdermal Nicotine (the nicotine patch). Five meta-analyses of the efficacy of the nicotine patch have been published (Fiore, Smith, Jorenby, et al., 1994; Gourlay, 1994; Po, 1993; Silagy, Mant, Fowler, et al., 1994; Tang, Law, and Wald, 1994). The primary results of these meta-analyses are summarized in Table 16. Suggestions regarding clinical use of the nicotine patch are provided in General Strategies 3 and 4. General Strategy 4 suggests criteria for the use of nicotine replacement therapy.

Evidence. The following statements are based on published meta-analyses and panel opinion:

- Transdermal nicotine approximately doubles 6- to 12-month abstinence rates over those produced by placebo interventions. Five meta-analyses have concluded that the nicotine patch is a highly effective aid to smoking cessation. (Strength of Evidence = A)
- Transdermal nicotine is consistently more efficacious than placebo treatment regardless of the intensity of any adjuvant psychosocial interventions. However, intensive psychosocial interventions increase absolute abstinence rates among individuals given either placebo or active patch treatment. (Strength of Evidence = A)
- Patients are more likely to comply with transdermal nicotine instructions than with nicotine gum instructions. (Strength of Evidence = C)

Nicotine Gum. More than 50 studies on the efficacy of nicotine gum have been published, making nicotine gum by far the most extensively investigated pharmacologic treatment for smoking cessation. This body of research has now been summarized by four major meta-analyses (Cepeda-Benito, 1993; Lam, Sze, Sacks, et al., 1987; Silagy, Mant, Fowler, et al.,

Table 16. Summary of nicotine patch meta-analyses efficacy results (*n* = 5 meta-analyses)

Meta-analysis	Followup timepoint	Number of trials	Efficacy measur
Po (1993)	6 mo	8	O.R. = 2.3
Gourlay (1994)	6 mo	6	O.R. = 2.2
Tang, Law, and Wald (1994)	12 mo	6	S.I. = 9%
Silagy, Mant, Fowler, et al. (1994)	12 mo	9	O.R. = 2.1
Fiore, Smith, Jorenby, et al. (1994)	6 mo	16	O.R. = 2.6

[a] For all of the meta-analyses, the increase in cessation was reported using the odds ratio (O.R.) statistic, with the exception of the Tang meta-analysis, which used a success incre (S.I.) (active abstinence rate–control abstinence rate). All meta-analyses used an active versus placebo patch comparison.

1994; Tang, Law, and Wald, 1994). Primary results of the three most rec nicotine gum meta-analyses are summarized in Table 17.

Evidence. The following statements are based on published meta-an ses and panel opinion:

- Nicotine gum improves smoking cessation rates by approximatel 40–60 percent compared with control interventions through 12 months of followup.

  Three meta-analyses found the gum to be efficacious in assisting smokers to quit, and this improvement is observed in both self-referred and unselected populations. (Strength of Evidence = A)

- Nicotine gum is consistently more efficacious than control intervent regardless of the intensity of any adjuvant psychosocial intervent although efficacy is greater when combined with an intensive psychosocial intervention. (Strength of Evidence = B)

- The 4-mg gum is more efficacious than the 2-mg gum as an aid t smoking cessation in highly dependent smokers. (Strength of Evidence = B)

Although nicotine chewing gum is an efficacious smoking cessation treatment, problems with compliance, ease of use, social acceptability, ar unpleasant taste have been noted by investigators. Because transdermal tine replacement is not associated with these problems, the patch may be more acceptable for most smokers. General Strategy 4 contains guidelin for the differential recommendation of the nicotine patch and nicotine gu

General strategy 3. Suggestions on the clinical use of the nicotine patch

Patient selection	Appropriate as a primary pharmacotherapy for smoking cessation. For suggestions regarding use in special populations, see General Strategy 4.
Precautions	*Pregnancy*—Pregnant smokers should first be encouraged to attempt cessation without pharmacologic treatment. The nicotine patch should be used during pregnancy only if the increased likelihood of smoking cessation, with its potential benefits, outweighs the risk of nicotine replacement and potential concomitant smoking. Similar factors should be considered in lactating women. *Cardiovascular diseases*—Although not an independent risk factor for acute myocardial events, the nicotine patch should be used only after consideration of risks and benefits among particular cardiovascular patient groups: those in the immediate (within 4 weeks) postmyocardial infarction period, those with serious arrhythmias, and those with severe or worsening angina pectoris. *Skin reactions*—Up to 50% of patients using the nicotine patch will have a local skin reaction. Skin reactions are usually mild and self-limiting, but may worsen over the course of therapy. Local treatment with hydrocortisone cream (5%) or triamcinolone cream (.5%) and rotating patch sites may ameliorate such local reactions. In less than 5% of patients do such reactions require the discontinuation of nicotine patch treatment.
Dosage	Treatment of 8 weeks or less has been shown to be as efficacious as longer treatment periods (Fiore, Smith, Jorenby, et al., 1994). Based on this finding, the following treatment schedules are suggested as reasonable for most smokers. Clinicians should consult the package insert for other treatment suggestions. Finally, clinicians should consider individualizing treatment based on specific patient characteristics, such as previous experience with the patch, amount smoked, degree of addictiveness, etc.[a] **Brand** — **Duration** — **Dosage** Nicoderm and Habitrol — 4 weeks — 21 mg/24 hours then 2 weeks — 14 mg/24 hours then 2 weeks — 7 mg/24 hours Prostep — 4 weeks — 22 mg/24 hours then 4 weeks — 11 mg/24 hours Nicotrol — 4 weeks — 15 mg/16 hours then 2 weeks — 10 mg/16 hours then 2 weeks — 5 mg/16 hours
Prescribing instructions	*No smoking* while using the patch. *Location*—At the start of each day, the patient should place a new patch on a relatively hairless location between the neck and waist. *Activities*—No restrictions while using the patch. *Time*—Patches should be applied as soon as patients waken on their quit day.

[a] These dosage recommendations are based on a review of the published research literature and do not necessarily conform to packet insert information.

General strategy 4. Clinical guidelines for prescribing nicotine replacement products

Who should receive nicotine replacement?	Available research shows that nicotine r generally increases rates of smoking c *Therefore, except in the presence of s medical precautions, the clinician should the use of nicotine replacement with p smoke.* Little research is available on nicotine replacement with light smokers smoking 10–15 cigarettes/day or less). replacement is to be used with light sm lower starting dose of the nicotine patc nicotine gum should be considered.
Should nicotine replacement therapy be tailored to the individual smoker?	Research does not support the tailoring patch therapy (except with light smoker above). Patients should be prescribed dosages outlined in General Strategy 3 Research supports tailoring nicotine gun Specifically, 4-mg gum, as opposed to 2 can be used with patients who are highl on nicotine (e.g., those smoking more th cigarettes/day, those who smoke within of awakening, and those who report tha to refrain from smoking where it is forbic Heatherton, Kozlowski, Frecker, et al., 1 Clinicians may also recommend the high dosage if patients request it or have fail using the 2-mg gum.
Should patients be encouraged to use the nicotine patch or nicotine gum?	Although both pharmacotherapies are nicotine patch therapy is preferable for clinical use. This preference is based following comparisons with nicotine gu ■ Nicotine patch therapy is assoc fewer compliance problems tha with effective use. ■ Nicotine patch therapy requires clinician time and effort to train its effective use. The following factors support the use nicotine gum: ■ Patient preference. ■ Previous failure with the nicotin ■ Contraindications specific to nic use (e.g., severe skin reactions

Most side effects of gum use are relatively mild and transient, a can be resolved by simply correcting the user's chewing technique. patients may desire to continue nicotine replacement therapy for per

Table 17. Summary of nicotine gum meta-analyses[a] (*n* = 3 meta-analyses)[b]

Meta-analysis	Percent abstinent (12 mo)		Odds ratio (95% C.I.)
	Active gum	Control[c]	
Cepeda-Benito (1993)	16.9	12.5	1.4 (1.4–1.4)[e]
Tang, Law, and Wald (1994)	17.9	12.8	1.5 (1.4–1.5)
Silagy, Mant, Fowler, et al. (1994)	18.2[d]	10.6	1.6 (1.5–1.8)

[a] In general, these meta-analyses reported treatment outcome effects as a function of control variables such as counseling intensity, patient recruitment methods, gum dosage, and nicotine dependence. One clear finding was that nicotine gum effect sizes are larger when gum is used in the context of intensive psychosocial therapy than when used with brief therapy. For ease of presentation, only overall effect sizes from each analysis are tabled. In cases where no overall value was presented in the original report, average effect sizes were estimated from data provided.

[b] Data from Lam, Sze, Sacks, et al. (1987) are omitted because this older meta-analysis included only nine nicotine gum studies, which were included in the later meta-analyses.

[c] Control groups are a mixture of placebo and no-gum conditions.

[d] This estimate includes data from seven studies involving the 4-mg gum and thus may be biased upward.

[e] (1.41–1.43).

than usually recommended. For instance, studies suggest that when patients are given free access to nicotine gum, 15–20 percent of successful abstainers continue to use the gum for a year or longer (Hajek, Jackson, and Belcher, 1988; Hughes, Wadland, Fenwick, et al., 1991). Although weaning should be encouraged, continued use of nicotine replacement is clearly preferable to a return to smoking with respect to health consequences. This is because, unlike smoking, nicotine replacement products do not (a) contain nonnicotine toxic substances (e.g., "tar"), (b) produce dramatic surges in blood nicotine levels, and (c) produce strong dependence (Henningfield, 1995). Suggestions regarding the clinical use of nicotine gum are provided in General Strategy 5.

Other Nicotine Replacement Interventions. Two new nicotine replacement interventions, a nicotine nasal spray and a nicotine inhaler, have been developed and tested. Published data on these products are limited, but studies demonstrate a significant benefit compared with placebo interventions (Hjalmarson, Franzon, Westin, et al., 1994; Sutherland, Stapleton, Russell, et al., 1992; Tonnesen, Norregaard, Mikkelsen, et al., 1993). At present, these products are not licensed for prescription use in the United States, and there are limited data regarding their use. Therefore, the panel drew no conclusions about their efficacy and made no recommendations regarding their use. [*As this guideline went to press, nicotine nasal spray was approved for use in the United States by the FDA.]*

General strategy 5. Suggestions for the clinical use of nicotine gum

Patient selection	Appropriate as a primary pharmacotherapy for smoking cessat For suggestions regarding use in special populations, see General Strategy 4.
Precautions	*Pregnancy*—Pregnant smokers should first be encouraged to attempt cessation without pharmacologic treatment. Nicotine gum should be used during pregnancy only if the increased likelihood of smoking cessation, with its potential benefits, ou weighs the risk of nicotine replacement and potential concomita smoking. *Cardiovascular diseases*—Although not an independent risk factor for acute myocardial events, nicotine gum should be us only after consideration of risks and benefits among particular cardiovascular patient groups: those in the immediate (within weeks) postmyocardial infarction period, those with serious arrhythmias, and those with severe or worsening angina pect *Side effects*—Common side effects of nicotine chewing gum include mouth soreness, hiccups, dyspepsia, and jaw ache. These effects are generally mild and transient, and can often alleviated by correcting the patients' chewing technique (see *Prescribing instructions* below).
Dosage	Nicotine gum is available in 2-mg and 4-mg (per piece) doses. Patients should be prescribed the 2-mg gum except in special circumstances outlined in General Strategy 4. The gum is mos commonly prescribed for the first few months of a quit attempt. Clinicians should tailor the duration of therapy to fit the needs o each patient. Patients using the 2-mg strength should use not more than 30 pieces/day, whereas those using the 4-mg streng should not exceed 20 pieces/day. (Information on tailoring the dose of nicotine gum is presented in General Strategy 4.)
Prescribing instructions	*No smoking* while using the gum. *Chewing technique*—Gum should be chewed slowly until a "peppery" taste emerges, then "parked" between cheek and gu to facilitate nicotine absorption through the oral mucosa. Gum should be slowly and intermittently "chewed and parked" for about 30 minutes. *Absorption*—Acidic beverages (e.g., coffee, juices, soft drink interfere with the buccal absorption of nicotine, so eating and drinking anything except water should be avoided for 15 minut before and during chewing. *Scheduling of dose*—Patients often do not use enough gum get the maximum benefit: they chew too few pieces per day a they do not use the gum for a sufficient number of weeks. Instructions to chew the gum on a fixed schedule (at least or piece every 1–2 hours) for at least 1–3 months may be more beneficial than ad lib use.

Over-the-Counter Nicotine Replacement Therapy. The FDA approved nicotine gum for over-the-counter (OTC) use in April 1996, and the nicotine patch may be approved for OTC use by the end of 1996. Although the OTC status of these medications will no doubt increase their availability, this does not reduce the clinician's essential responsibility to intervene with smokers. Once OTC nicotine replacement products are available, the clinician will also continue to have specific responsibilities regarding these products, such as encouraging their use when appropriate, providing counseling, and offering instruction on appropriate use. In addition, the clinician may advise patients regarding the use of an OTC product versus a non-OTC product such as a new nicotine replacement treatment or antidepressant therapy.

Clonidine. Evidence for the efficacy of clonidine as a smoking cessation intervention was derived from an examination of individual studies, a published meta-analysis, and a fixed-effect meta-analysis conducted by guideline staff that examined clonidine use in women only. The use of a fixed-effects model, opposed to a random-effects model, is a departure from the typical guideline analytic strategy. The fixed-effects meta-analysis was used because of the very small number of studies available for analysis and the different statistical assumptions of the two models (see the technical report).

Evidence. There is little support for the use of clonidine either as a primary or as an adjunctive pharmacologic treatment for smoking cessation. (Strength of Evidence = B)

Seven clinical trials on clonidine were identified in the initial literature review, but only two fulfilled selection criteria for meta-analysis. Based on these two studies, the guideline meta-analysis suggested that clonidine may be effective with female patients (odds ratio = 3.0, 95 percent C.I. = 1.5–5.9). However, no recommendations were made with respect to clonidine because of the following concerns. First, of the seven trials examining the effectiveness of clonidine for smoking cessation, only two provided adequate long-term followup information. Second, only three of the seven clonidine studies presented results by gender, and only two of these three met meta-analytic selection criteria. Thus, the success of clonidine among women may be the reason for the presentation of results by gender in these studies; that is, there may be a selection bias. Finally, side effects are common with clonidine use, and as many as 25 percent of patients may discontinue clonidine therapy for this reason.

Antidepressants. Smoking is significantly more prevalent among individuals with a history of depression, and these individuals have more difficulty quitting smoking than do smokers without a history of depression (Anda, Williamson, Escobedo, et al., 1990; Breslau, Kilbey, and Andreski, 1992; Glassman, Helzer, Covey, et al., 1990). Some trials have investigated the use of antidepressants for smoking cessation, but no published articles met selection criteria for review. Because of a paucity of data, the panel drew no conclusions about antidepressant therapy for smoking cessation.

Anxiolytics/Benzodiazepines. A few trials have evaluated anxiolytic as a treatment for smoking cessation. Individual trials of propranolol (a be blocker) and diazepam did not reveal a beneficial effect for these drugs compared with control interventions. Only one study using an anxiolytic (buspirone) revealed evidence of efficacy in smoking cessation. Because c lack of data, no conclusion was drawn regarding the efficacy of anxiolytic: smoking cessation.

Silver Acetate. The three randomized clinical trials of silver acetate tl met selection criteria revealed no beneficial effects for smoking cessation.

Evidence. The use of silver acetate as either a primary or an adjunctive treatment for smoking cessation was not supported. (Strength of Evidence =

Followup Assessment and Procedures

Recommendation: All patients who receive an intervention should be assessed for abstinence at the completion of treatment or during subse quent clinic visits. (1) for abstinent patients, all should receive relapse prevention treatment (see section in Chapter 4, Relapse Prevention). (2) For patients who have relapsed, assess their willingness to quit (Strength of Evidence = C):

- **If willing to quit, provide or arrange an additional interventior (see section in Chapter 3, Interventions).**
- **If not willing to quit at the current time, provide an interventic designed to promote the motivation to quit (see section in Chapter 4, Promoting the Motivation to Quit).**

All patients should be assessed with respect to their smoking status at least at the completion of treatment. Additional assessments within the firs 2 weeks of quitting should also be considered (Kenford, Fiore, Jorenby, et al., 1994). Abstinent patients should receive relapse prevention treatment (see General Strategy 8) including reinforcement for their decision to quit, congratulations on their success at quitting, and encouragement to remain abstinent. Clinicians should also inquire about current and future threats tc abstinence and provide appropriate suggestions for coping with these threa

Patients who have relapsed should be assessed for their willingness to quit. Patients who are currently motivated to make another quit attempt should be provided with an intervention (see section in Chapter 3, Interventions). Clinicians may wish to increase the intensity of psychosoci treatment at this time or refer the patient to a smoking cessation specialist/ program for a more intensive treatment if the patient is willing. In additior nicotine replacement should be offered to the patient. If the previous cessa tion attempt included nicotine replacement, the clinician should review whether the patient used these medications in an effective manner and consider use of another form (see General Strategies 3 and 5).

Patients who are unwilling to quit at the current time should receive a brief intervention designed to promote the motivation to quit (see General Strategy 6).

Reimbursement for Smoking Cessation Treatment

Recommendation: Smoking cessation treatments (both pharmacotherapy and counseling) should be provided as paid services for subscribers of health insurance/managed care. (Strength of Evidence = C)

Recommendation: Clinicians should be reimbursed for delivering effective smoking cessation treatments. (Strength of Evidence = C)

Primary care clinicians frequently cite insufficient insurance reimbursement as a barrier to the provision of preventive services such as smoking cessation treatment (Henry, Ogle, and Snellman, 1987; Orleans, Schoenbach, Salmon, et al., 1989). Insurance coverage has been shown to increase rates of cessation services utilization and therefore increase rates of quitting. For example, the presence of prepaid or discounted prescription drug benefits increases patients' receipt of nicotine gum, the duration of gum use (Johnson, Hollis, Stevens, et al., 1991), and smoking cessation rates (Cox and McKenna, 1990; Hughes, Wadland, Fenwick, et al., 1991). In addition, an 8-year insurance industry study found that reimbursing physicians for provision of preventive care resulted in reported increases in exercise, seat belt use, and weight loss, as well as decreased alcohol use and a trend (because of small sample size) toward decreased smoking (Logsdon, Lazaro, and Meier, 1989).

4 Promoting the Motivation To Quit and Preventing Relapse

Promoting the Motivation To Quit

Recommendation: For patients not willing to initiate a quit attempt at the time of their health care visit, clinicians should engage in a brief intervention designed to promote motivation to quit. (Strength of Evidence = C)

Enhancing the motivation to quit requires some initial steps described in detail earlier in this guideline. Specifically, patients entering a health care setting should have their smoking status assessed regularly. As a result of a systematic, institutionalized assessment of smoking status, clinicians should advise all smokers to quit and assist those willing to make a quit attempt.

Despite receiving a clinician's advice to quit smoking, many patients are not willing to make a commitment to quit. These patients may be uninformed, concerned about the effects of quitting, or demoralized because of previous relapse. Such patients may respond to a motivational intervention. Motivational interventions are characterized by the "4 Rs": relevance, risks, rewards, and repetition. Clinical components of the 4 Rs are shown in General Strategy 6. Finally, some patients may be discouraged by previous relapses. These patients should be informed that most smokers make repeated cessation attempts before achieving long-term abstinence.

Relapse Prevention

Recommendation: When clinicians encounter a recent quitter, they should reinforce the patient's decision to quit, review the benefits of quitting, and assist the patient in resolving any residual problems arising from quitting. (Strength of Evidence = C)

Although most relapse occurs early in the quitting process (Kenford, Fiore, Jorenby, et al., 1994), some relapse occurs months or even years after the quit date (Hatziandreu, Pierce, Lefkopoulou, et al., 1990). Therefore, clinicians should engage in relapse prevention interventions designed to reduce the long-term risks of relapse (Brandon, Tiffany, and Baker, 1986). Interventions should be delivered to former smokers who no longer consider themselves actively engaged in the quitting process. (For information on how to reduce relapse risk among those actively engaged in quitting, see General Strategies 1 and 2.)

Relapse prevention interventions can be delivered by means of either prearranged telephone calls or clinic visits, or any time the clinician encounters an ex-smoker. It is vital that a systematic, institutionalized mechanism be in place to identify ex-smokers, because that is a necessary first step in delivering relapse prevention messages.

General strategy 6. Components of clinical interventions designed to enhance motivation to quit smoking: the "4 Rs"

Relevance	Motivational information given to a patient has the greatest impact if is relevant to a patient's disease status, family or social situation (e.g having children in the home), health concerns, age, gender, and othe important patient characteristics (e.g., prior quitting experience).
Risks	The clinician should ask the patient to identify the potential negative consequences of smoking. The clinician may suggest and highlight those that seem most relevant to the patient. The clinician should emphasize that smoking low-tar/low-nicotine cigarettes or use of oth forms of tobacco (e.g., smokeless tobacco, cigars, pipes) will not elimi nate these risks. Examples of risks follow: ■ *Acute risks:* Shortness of breath, exacerbation of asthma, impotence, infertility, increased serum carbon monoxide. ■ *Long-term risks:* Heart attacks and strokes, lung and other cancers (larynx, oral cavity, pharynx, esophagus, pancreas, bladder, cervix, leukemia), chronic obstructive pulmonary diseases (chronic bronchitis and emphysema). ■ *Environmental risks:* Increased risk of lung cancer in spouse and children; higher rates of smoking by children of smokers; increased risk for SIDS, asthma, middle ear disease, and respiratory infections in children of smokers.
Rewards	The clinician should ask the patient to identify the potential benefits quitting smoking. The clinician may suggest and highlight those tha seem most relevant to the patient. Examples of rewards follow: ■ Improved health ■ Food will taste better ■ Improved sense of smell ■ Save money ■ Feel better about yourself ■ Home, car, breath will smell better ■ Can stop worrying about quitting ■ Set a good example for kids ■ Have healthy babies and children ■ Not worry about exposing others to smoke ■ Feel better physically ■ Freedom from addiction ■ Perform better in sports
Repetition	The motivational intervention should be repeated every time an unmotivated patient visits the clinic setting.

Relapse prevention interventions can be divided into two categories: minimal practice and prescriptive interventions.

Minimal Practice

Minimal relapse prevention interventions should be part of every prim care encounter with a patient who has recently quit (General Strategy 7).

General strategy 7. Components of *minimal practice* relapse prevention interventions

1. Every ex-smoker undergoing relapse prevention should receive congratulations, encouragement, and a statement of concern on the part of the clinician that the patient remain abstinent.
2. The clinician should encourage the patient's active discussion of the topics listed below. The clinician should ask the patient open-ended questions designed to initiate the patient's problem solving on these topics (e.g., How has stopping smoking helped you?):
   - The benefits, including potential health benefits, the patient may derive from cessation.
   - Any success the patient has had in quitting (duration of abstinence, reduction in withdrawal, etc.).
   - The problems encountered or anticipated in maintaining abstinence (e.g., depression, weight gain).
   - Anticipated problems or threats to maintaining abstinence.

Because most relapse occurs within the first 3 months after quitting, relapse prevention is especially appropriate during this period (DHHS, 1994). Relapse prevention activities can easily be incorporated into cessation treatments such as problem-solving counseling (see General Strategy 1).

Prescriptive Interventions

These relapse prevention components are individualized based on information obtained about problems the patient has encountered in maintaining abstinence (General Strategy 8). These more intensive relapse prevention interventions may be delivered through primary care or through a specialized clinic or program.

General strategy 8. Components of *prescriptive* relapse prevention interventions

During relapse prevention, an inquiry about problems encountered in maintainin abstinence might lead the clinician to make recommendations or offer treatment designed to address specific problems reported by the patient. Specific problem likely to be reported by patients and potential responses follow:

Weight gain—The clinician might make dietary, exercise, or lifestyle recommend tions, or might refer the patient to a specialist or program. The patient can be reassured that some weight gain after quitting is common and that significant dietary restrictions soon after quitting may be counterproductive.

Negative mood or depression—If significant, the clinician might prescribe appro ate medications or refer the patient to a specialist.

Prolonged withdrawal symptoms—If the patient reports prolonged craving or oth withdrawal symptoms, the clinician might consider extending nicotine replaceme therapy.

Lack of support for cessation—The clinician might schedule followup phone call with the patient, help the patient identify sources of support within his/her enviro ment, or refer the patient to an appropriate organization that offers cessation counseling or support.

5 Special Populations and Topics

Background

Many factors could potentially affect the choice, delivery, and efficacy of cessation interventions. This possibility raises numerous questions. For instance, should interventions be tailored or modified on the basis of gender, age, or hospitalization status? Should pregnant smokers receive nicotine replacement therapy? Do smoking cessation interventions work with smokeless tobacco users? How do cessation and intervention affect weight, and should treatment be modified with those effects in mind? These special issues are considered in this chapter. It is important to note that many health care specialties can have a key role in addressing these issues (e.g., obstetrics and family practice for pregnant smokers; gynecology and family practice for preconceptional counseling and general health maintenance; pediatrics for children and adolescents; internal medicine (including cardiology, pulmonology, and oncology) and family practice for hospitalized patients; and dentistry and orthodonture for smokeless tobacco users).

Gender

Recommendation: The same smoking cessation treatments are effective for both men and women. Therefore, the same interventions can be used with both sexes. (Strength of Evidence = B)

One important question regarding quitting smoking is whether men and women should receive different cessation interventions. Smoking cessation clinical trials reveal that the same treatments benefit both men and women. Moreover, epidemiologic studies do not show a consistent gender difference in quit attempts and success rates. Few studies have examined programs specifically tailored to one gender, however. Although research suggests that women benefit from the same interventions as do men, women may face different stressors and barriers to quitting that may be addressed in treatment. These include greater likelihood of depression, weight control concerns, and issues surrounding child care.

Evidence. There is no consistent evidence of gender differences in response to smoking cessation treatments. (Strength of Evidence = B)

Racial and Ethnic Minorities

Recommendation: Members of racial and ethnic minorities should be provided smoking cessation treatments shown to be effective in this guideline. (Strength of Evidence = B)

Recommendation: Whenever possible, smoking cessation treatments should be modified or tailored to be appropriate for the ethnic or racial populations with which they are used. (Strength of Evidence = C)

Ethnic and racial minority groups in the United States—African Americans, American Indians/Native Americans, Alaskan Natives, Asian and Pacific Islanders, Hispanics—experience higher mortality in a number of disease categories compared with the white majority. For example, African Americans experience substantial excess mortality from cancer, cardiovascula disease, and infant death, all of which are directly affected by tobacco use (CDC, 1987). American Indians and Alaskan Native subgroups have some o the highest documented rates of infant mortality caused by sudden infant deat syndrome (Coultas, Gong, Grad, et al., 1994). Therefore, there is a critical need to deliver effective smoking intervention to ethnic and racial minorities.

There are well-documented differences between racial and ethnic mino ties and the white majority in smoking patterns and in smoking and quitting prevalence (Orleans, Schoenbach, Salmon, et al., 1989; Stotts, Glynn, and Baquet, 1991). In addition, smoking prevalence and patterns vary substantially among minority subgroups (Coultas, Gong, Grad, et al., 1994). Racia and ethnic minorities also differ from whites in awareness of health effects smoking (Brownson, Jackson-Thompson, Wilkerson, et al., 1992) and a sen of fatalism that may affect disease prevention efforts. On the other hand, both nicotine addiction and desire to quit appear to be prevalent across all racial and ethnic groups (Orleans, Schoenbach, Salmon, et al., 1989; Royce Hymowitz, Corbett, et al., 1993; Stotts, Glynn, and Baquet, 1991).

Few studies have examined interventions specifically tailored to particu lar ethnic or racial groups, and there is no consistent evidence that tailored cessation programs result in higher quit rates in these groups. Moreover, smoking cessation interventions developed for the general population have been effective with racial and ethnic minority participants. Therefore, clini cians who see minority group patients should offer them treatments identifi as effective in this guideline. Clinicians should remain sensitive, however, individual differences and health beliefs that may affect treatment acceptan and success (see section in Chapter 3, Specialized Assessment).

Because of the small amount of research on this topic, there is currentl little support for the obligatory tailoring of cessation treatments for minorit populations. Logically, however, tailoring may be necessary at times for effective intervention. For instance, cessation counseling or self-help materia must be conveyed in a language understood by the smoker. Additionally, culturally appropriate models or examples may increase the smoker's accep tance of treatment. Certainly, practices with multiethnic or multiracial populations should make culturally appropriate materials available whenev resources permit.

Among subgroups of racial and ethnic minorities, some smoke at excep tionally high rates and suffer high rates of smoking-attributable morbidity

and mortality (Coultas, Gong, Grad, et al., 1994; Sugarman, Warren, Oge, at al., 1992). Yet, there is relatively little extant research on optimal interventions or on the specific barriers or impediments to successful cessations for these populations (e.g., relatively low educational attainment, inadequate access to medical care). These are important topics for future research.

Evidence. The following statements support the above recommendations:

- Smoking cessation treatments identified as effective in this guideline increase smoking cessation rates among members of ethnic and racial minorities. (Strength of Evidence = B)
- Smoking is especially prevalent among some racial and ethnic minority subgroups and results in mortality and morbidity. (Strength of Evidence = A)
- Although little research has been done on the effectiveness of treatment tailoring for ethnic and racial minority populations, some types of tailoring such as the use of language-appropriate materials should increase treatment effectiveness. (Strength of Evidence = C)

Pregnancy

Recommendation: Pregnant smokers should be strongly encouraged to quit throughout pregnancy. Because of the serious risks of smoking to the pregnant smoker and fetus, pregnant smokers should be offered intensive counseling treatment. (Strength of Evidence = A)

Recommendation: Minimal interventions should be used if more intensive interventions are not feasible. (Strength of Evidence = C)

Recommendation: Motivational messages regarding the impact of smoking on both the pregnant smoker and fetus should be given. (Strength of Evidence = C)

Recommendation: Nicotine replacement should be used during pregnancy only if the increased likelihood of smoking cessation, with its potential benefits, outweighs the risk of nicotine replacement and potential concomitant smoking. (Strength of Evidence = C)

Smoking in pregnancy imparts risks to both the woman and the fetus. Many women are motivated to quit during pregnancy, and health care professionals can take advantage of this motivation by reinforcing the notion that cessation will be best for the fetus, with postpartum benefits for both mother and children. On the other hand, clinicians should be aware that some pregnant women may try to hide their smoking status.

Quitting smoking prior to conception or early in the pregnancy is most beneficial, but health benefits result from cessation at any time. Therefore, a pregnant woman who still smokes should continue to be encouraged and helped

to quit. Women who quit smoking during pregnancy have a high rate of relapse in the postpartum period. Relapse is common in the postpartum period even among women who have maintained total abstinence from tobacco for 6 or more months during pregnancy. Relapse postpartum may be decreased by continued emphasis on the relationship between maternal smoking and poor health outcomes (sudden infant death syndrome, respiratory infections, asthma, and middle ear disease) in infants and children. General Strategy 9 outlines clinical factors to address when counseling pregnant women about smoking.

No clinical trials have assessed the benefits and risks of nicotine replacement therapy as an aid to smoking cessation in pregnant women. In a review of this topic, Benowitz (1991) concluded that, for pregnant women, the benefits of nicotine replacement therapy outweigh the risks of both continued smoking and nicotine replacement itself. Benowitz limited this conclusion, however, to those pregnant women who cannot stop without replacement therapy and suggested that benefits would be the greatest for heavy smokers.

To assess the effectiveness of smoking cessation during pregnancy, the panel used both a published meta-analysis (Mullen, Ramirez, and Groff, 1994) and a meta-analysis conducted by panel staff (Table 18). The meta-analysis conducted by panel staff was based on six studies evaluating the effectiveness of smoking cessation counseling in pregnant smokers. The effectiveness of counseling interventions in these studies was compared with either "no treatment" or "usual care" conditions. The latter usually consisted of a recommendation to stop smoking that was often supplemented by provision of self-help material or referral to a stop-smoking program. Because of the small number of studies available for analysis, only the impact of counseling (greater than 10 minutes of person-to-person contact) was examined in the meta-analysis. Less intense interventions, such as those involving "minimal contact" or "brief counseling" (see subsection in Chapter 3, Intensity of Person-to-Person Clinical Intervention), were not examined because of a lack of relevant studies. Both the panel meta-analysis and the published meta-analysis yielded essentially the same finding—smoking cessation interventions during pregnancy are effective and should be used to benefit both the woman and the fetus.

Evidence. The following statements support the above recommendations:

- A published meta-analysis and a meta-analysis conducted by panel staff (n = 14 studies) suggest that counseling interventions during pregnancy increase quit rates above those of pregnant women who do not receive such interventions. (Strength of Evidence = A)
- Because of the small number of studies examining minimal counseling in pregnant smokers, no focused statistical tests were possible on this topic. However, the panel concluded that minimal counseling has a beneficial effect and should be used if more intensive counseling is not feasible. (Strength of Evidence = C)

General strategy 9. Clinical issues when assisting a pregnant patient in smoking cessation

Clinical issues	Rationale
Quit early in pregnancy if possible.	Early quitting provides the greatest benefit to the fetus.
Quit anytime during pregnancy.	Fetus benefits even when quitting later in pregnancy.
Stress early benefits to quitting.	Both woman and fetus will benefit immediately.
Provide pregnancy-related motivational messages.	These are associated with higher quit rates.
Be alert to patients' minimizing or denying tobacco use.	Minimizing or denying smoking is common among pregnant women who smoke.
Assess for relapse and use relapse prevention.	Postpartum relapse rates are high even if a woman maintains abstinence throughout pregnancy (see General Strategies 6 and 7). Relapse prevention may start during pregnancy.

Table 18. Efficacy of counseling intervention with pregnant smokers

Level of contact	Number of arms	Estimated odds ratio (95% C.I.)	Estimated cessation rate (95% C.I.)
No contact/usual care (reference group)	11	1.0	7.9
Counseling	8	2.0 (1.3–2.9)	14.7 (9.8–19.5)

Hospitalized Smokers

Recommendation: For every hospitalized patient, the following steps should be taken: (a) ask each patient on admission if he/she smokes and document smoking status; (b) for current smokers, list smoking status on the admission problem list and as a discharge diagnosis; (c) assist all smokers with quitting during the hospitalization, using treatments identified as effective in this guideline, including nicotine replacement therapy if appropriate; and (d) provide advice and assistance on how to remain abstinent after discharge. (Strength of Evidence = C)

It is vital that hospitalized patients attempt to quit smoking, because smoking may interfere with their recovery. Among cardiac patients, second

heart attacks are more common in those who continue to smoke (Multiple Risk Factor Intervention Trial Research Group, 1990). Lung, head, and neck cancer patients who are successfully treated, but who continue to smoke, are at elevated risk for a second cancer (Browman, Wong, Hodson, et al., 1993). Smoking negatively affects bone and wound healing (Jones, 1985).

Every hospital in the United States must now be smoke free if it is to be accredited by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). As a result, hospitalized patients may be particularly motivated to make a quit attempt for two reasons. First, the illness resulting in hospitalization may have been caused or exacerbated by smoking, highlighting the patient's personal vulnerability to the health risks of smoking. Second, motivation may be enhanced during hospitalization because the smoker is temporarily housed in a smoke-free environment. For these reasons, clinicians should use hospitalization as an opportunity to promote smoking cessation in their patients who smoke (Hurt, Lauger, Offord, et al., 1991; Stevens, Glasgow, Hollis, et al., 1993). Patients in long-term care facilities should also receive cessation interventions identified as efficacious in this guideline.

Specifically, clinicians and hospital administrators should collaborate to ensure that systems are in place that identify the smoking status of all patients admitted to a hospital and that provide at least a brief clinical intervention to every hospitalized patient who smokes.

Finally, smokers may experience nicotine withdrawal symptoms during a hospitalization. Clinicians should consider providing temporary nicotine patch therapy during a hospitalization to reduce such symptoms.

Efficacy of Inpatient Hospital Smoking Cessation Treatment

Five studies met selection criteria for analyses examining the effectiveness of inpatient hospital smoking cessation treatment compared with usual care. Because of the limited number of studies, no attempt was made to separate the level or type of treatment. Results are shown in Table 19.

Evidence. Smoking cessation interventions among hospitalized patients increase rates of smoking cessation. (Strength of Evidence = A)

Smokers With Psychiatric Comorbidity

Recommendation: Smokers with comorbid psychiatric conditions should be offered smoking cessation treatments identified as effective in this guideline. (Strength of Evidence = C)

Recommendation: Although it is not necessary to assess for psychiatric comorbidity prior to initiating smoking treatment, such assessment may be helpful in that it allows the clinician to prepare for an increased likeli

Table 19. Efficacy of inpatient smoking cessation treatment (*n* = 5 studies)

Type of treatment	Number of arms	Estimated odds ratio (95% C.I.)	Estimated cessation rate (95% C.I.)
No inpatient smoking cessation treatment (reference group)	5	1.0	18.0 (10.1–27.5)
Inpatient smoking cessation treatment provided	5	1.4 (1.1–1.7)	23.1 (19.2–27.0)

hood of smoking relapse or for exacerbation of the comorbid condition in response to nicotine withdrawal. (Strength of Evidence = C)

The term "psychiatric comorbidity" refers to the co-occurrence of smoking with another psychiatric disorder. Psychiatric comorbidity is important to the assessment and treatment of smokers for several reasons:

- Psychiatric disorders are more common among smokers than in the general population. For instance, as many as 30–50 percent of patients seeking smoking cessation services may have a history of depression, and 20 percent or more may have a history of alcohol abuse or dependence (Brandon, 1994; Glassman, Stetnes, Walsh, et al., 1988; Hall, Munoz, Reus, et al., 1993; also cf. Breslau, 1995; Breslau, Kilbey, and Andreski, 1994).
- Smoking cessation or nicotine withdrawal may exacerbate a patient's comorbid condition. For instance, smoking cessation may elicit or exacerbate depression among patients with a prior history of affective disorder (Glassman, 1993; Glassman, Covey, Dalack, et al., 1993).
- As noted in the Specialized Assessment section in Chapter 3, smokers with psychiatric comorbidities have heightened risk for relapse to smoking after a cessation attempt (Brandon, 1994; Glassman, Covey, Dalack, et al., 1993; Hall, Munoz, Reus, et al., 1993).

Although psychiatric comorbidity places smokers at increased risk for relapse, there is also evidence that such smokers can be helped by smoking cessation treatments (Breckenridge, 1990; Burling, Marshall, and Seidner, 1991; Hall, Munoz, and Reus, 1994; Hartman, Jarvik, and Wilkins, 1989; Hartman, Leong, Glynn, et al., 1991). There is currently too little evidence to determine whether smokers with psychiatric comorbidity benefit more from specialized or tailored cessation treatments than from standard treatments (e.g., Hall, Munoz, and Reus, 1994; Zelman, Brandon, Jorenby, et al., 1992). Even though some smokers may experience exacerbation of a comorbid condition upon quitting smoking, most evidence suggests that cessation entails little adverse impact. For instance, patients in inpatient psychiatric

units are able to stop smoking with few adverse effects (e.g., little increase i aggression, or nonadherence to treatment; Hurt, Eberman, Slade, et al., 199 Resnick, 1993). Additionally, there is little evidence that patients with othe chemical dependencies relapse to other drug use when they stop smoking (Hurt, Eberman, Slade, et al., 1993). Finally, stopping smoking may affect the pharmacokinetics of certain psychiatric agents (e.g., Hughes, 1993). Therefore, clinicians may wish to monitor closely the actions or side effects of psychiatric medications in smokers making a quit attempt.

Weight Gain After Smoking Cessation

Recommendation: The clinician should inform smokers that they are likely to gain weight when they stop smoking. The clinician should recommend that smokers not take strong measures (e.g., strict dieting) to counteract weight gain during a quit attempt. Moreover, ex-smokers should wait until they are confident that they will not return to smoking before trying to reduce their weight. (Strength of Evidence = C)

Recommendation: For smokers who are greatly concerned about weight gain, the clinician may prescribe or recommend nicotine gum, which has been shown to delay weight gain after quitting. (Strength of Evidence = A

Key facts about smoking, smoking cessation, and weight gain follow:

- The majority of smokers who quit smoking gain weight. Most will gain fewer than 10 pounds, but there is a broad range of weight gain, with as many as 10 percent of quitters gaining as much as 30 pounds (Williamson, Madans, Anda, et al., 1991).
- Women tend to gain slightly more weight than men, and for both sexes, African Americans, people under age 55, and heavy smokers (those smoking more than 25 cigarettes/day) are at elevated risk for major weight gain (Emont and Cummings, 1987; Williamson, Madans, Anda, et al., 1991).
- For many smokers, especially women, concerns about weight or fears about weight gain are motivators to start smoking or continue smoking (Gritz, Klesges, and Meyers, 1989; Klesges and Klesges, 1988; Klesges, Meyers, Klesges, et al., 1989).
- Weight gain that follows smoking cessation is a negligible health threat compared with the risks of continued smoking (DHHS, 1990; Williamson Madans, Anda, et al., 1991).
- No experimentally validated strategies or treatments are effective in preventing postcessation weight gain. In fact, some evidence suggests that attempts to prevent weight gain (e.g., strict dieting) may undermine the attempt to quit smoking (Hall, Tunstall, Vila, et al., 1992; Perkins, 1994; Pirie, McBride, Hellerstedt, et al., 1992).

- Nicotine replacement—in particular, nicotine gum—appears to be effective in delaying postcessation weight gain. Moreover, there appears to be a dose–response relation between gum use and weight suppression (i.e., the greater the gum use, the less weight gain occurs). However, once nicotine gum use ceases, the quitting smoker gains an amount of weight that is about the same as if she or he had never used gum (Emont and Cummings, 1987; Gross, Stitzer, and Maldonado, 1989; Nides, Rand, Dolce, et al., 1994).
- Postcessation weight gain appears to be caused both by increased intake (e.g., eating, alcohol consumption) and by metabolic adjustments. The involvement of metabolic mechanisms suggests that even if quitting smokers do not increase their caloric intake, they will still gain some weight (Hatsukami, LaBounty, Hughes, et al., 1993; Hofstetter, Schutz, Jequier, et al., 1986; Klesges and Shumaker, 1992; Moffatt and Owens, 1991; Schwid, Hirvonen, and Keesey, 1992).
- Once a quitting smoker relapses and begins smoking at precessation levels, he or she will usually lose some or all of the weight gained during the quit attempt (Moffatt and Owens, 1991; Noppa and Bengtsson, 1980; Stamford, Matter, Fell, et al., 1986).

The research evidence reviewed above illustrates why weight gain is an important impediment to smoking cessation. Many smokers (especially women) are very concerned about their weight and fear that quitting will produce weight gain. Many also believe that they can do little to prevent postcessation weight except to return to smoking. These beliefs are especially difficult to address clinically because they are congruent with research findings; that is, the beliefs have some basis in fact.

Recommendations To Address Weight Gain

How should the clinician deal with concerns about weight gain? First, the clinician should neither deny the likelihood of weight gain nor minimize its significance to the patient. Rather, the clinician should inform the patient about the likelihood of weight gain and prepare the patient for its occurrence. However, the clinician should counter exaggerated fears about weight gain given the relatively moderate weight gain that typically occurs. Certain types of information may help prepare the patient for postcessation weight gain (see General Strategy 10).

Second, before and during the quit attempt the clinician should stress that quitting smoking is the patient's primary, immediate priority, and that the patient will be most successful in the long run if he or she does not take strong measures (e.g., strict dieting) to counteract weight gain during a quit attempt (see General Strategy 10).

Third, during the quit attempt, the clinician should offer to help the patient address weight gain (either personally or via referral) once the patient

General strategy 10. Clinician statements to help a patient prepare for and cope with, postcessation weight gain

"The great majority of smokers gain weight once they quit smoking. However, even without special attempts at dieting or exercise, weight gain is usually limited to less than 10 lbs."

"There is evidence that smokers will gain weight once they quit smoking even if they do not eat more. Weight gain appears to be a natural part of quitting smoking."

"The amount of weight you will likely gain from quitting will be a minor health risk compared with the risks of continued smoking."

"Try to put your concerns about weight on the back burner. You are most likely to be successful if you first try to quit smoking, and then later take steps to reduce your weight. Tackle one problem at a time! After you have quit smoking successfully we can talk about how to reduce your weight."

"I know weight is important to you, and that you don't want to gain a lot of weight. However, temporarily—just until you are confident that you have quit smoking for good—let's focus on strategies to get you healthy rather than on weight. Think about eating plenty of fruit and vegetables, getting regular exercise, getting enough sleep, and not eating a lot of fats. Right now, this is probably the best thing you can do for both your weight and your smoking. Eat plenty of healthy foods—don't starve yourself!

"While you may gain some weight after quitting smoking, compare the importance of this with the added years of healthy living you will gain, your better appearance (less wrinkled skin, whiter teeth), fresher breath, and good feelings about quitting."

has successfully quit smoking. Specifically, the clinician should recommend that intensive weight control strategies be avoided until the patient is no longer experiencing withdrawal symptoms and is confident that he or she wi not return to smoking. Certainly, however, the patient should be encouraged to maintain or adopt a healthy lifestyle, including engaging in moderate exer cise, eating plenty of fruits and vegetables, and limiting alcohol consumptior

Smokeless Tobacco Use

Recommendation: Smokeless tobacco (chewing tobacco and snuff) use should be identified and strongly encouraged to quit. (Strength of Evidence = C)

Recommendation: Smokeless tobacco users should be treated with the same psychosocial cessation interventions recommended for smokers. (Strength of Evidence = B)

Like cigarette smoking, the use of smokeless tobacco, such as chewing tobacco and snuff, produces addiction to nicotine and has serious health cor sequences. Consumption of smokeless tobacco products has increased in recent years (Glover and Glover, 1992; Marcus, Crane, Shopland, et al., 1989), especially among young males. Clinicians should offer quitting advice and assistance to their patients who use smokeless tobacco.

There is a need for smokeless tobacco information and assistance, but currently little research-based information is available on these topics. A small number of studies have evaluated both multicomponent and brief psychosocial interventions for smokeless tobacco cessation. Results of these evaluations suggest that the same cessation interventions that are effective with smokers are effective with smokeless tobacco users. Currently, there is little evidence on the effectiveness of pharmacologic treatments for smokeless tobacco use. However, nicotine replacement may help smokeless tobacco users just as it does smokers. This is an important area for further research.

Evidence. There is limited evidence that nonpharmacologic treatments used for smoking cessation are also effective in smokeless tobacco cessation. (Strength of Evidence = B)

Children and Adolescents: Primary Prevention of Tobacco Addiction

Recommendation: Clinicians should provide their pediatric and adolescent patients, and the parents of these patients, with a strong message regarding the importance of totally abstaining from tobacco use. (Strength of Evidence = C)

Recommendation: Cessation interventions shown to be effective with adults should be considered for use with children and adolescents. The content of these interventions should be modified to be developmentally appropriate. Nicotine replacement should be considered only when there is clear evidence of nicotine dependence and a clear desire to quit tobacco use. (Strength of Evidence = C)

The onset of tobacco use is a pediatric concern. Among adult daily smokers, 90 percent tried their first cigarette and 70 percent were daily users at or before age 18. Among high school seniors who had used smokeless tobacco, 79 percent had first done so by the ninth grade (DHHS, 1994). Young people begin to smoke or use tobacco for a variety of reasons related to social norms, advertising, peer pressure, parental smoking, and curiosity, but evidence suggests that nicotine addiction is established rapidly (CDC, 1995).

About three out of every four adolescent smokers have made at least one serious attempt to quit smoking and have failed (Moss, Allen, Giovino, et al., 1992). About 20 percent of high school seniors smoke daily (Green, 1979; Johnston, O'Malley, and Bachman, 1995). Among seniors who smoke daily and expect that they will not be smoking in 5 years, 73 percent are still smoking when surveyed 5–6 years after their senior year (DHHS, 1994).

Prevention of Tobacco Use

Efforts to prevent tobacco use should be conducted by many types of individuals and groups (e.g., parents, teachers, clergy, government officials,

medical societies) and in diverse venues (e.g., home, school, church, youth group). The clinician can target children and adolescents both inside and outside the clinical setting. In the clinical setting, discussion of tobacco-related issues should begin before the onset of adolescence, and preferably before entry into junior high school. These efforts should continue through out high school. Patient charts should clearly reflect that tobacco has been discussed, and should indicate the smoking status of the patient and parents or caretakers. Clinical prevention activities are listed in General Strategy 1 Prevention strategies useful in more general settings can be found in the recent Institute of Medicine Report, "Growing Up Tobacco Free" (Lynch, Bonnie, and Institute of Medicine Committee on Preventing Nicotine

General strategy 11. Suggested interventions for clinicians to preven the initiation of tobacco use

- Begin in the early elementary school grades to discuss tobacco use and its negative effects—especially the short-term negative effects.
- Ask the child if s/he has experimented with tobacco.
- Identify the advantages of not smoking, including those most appropriate for the patient's age and developmental stage.
- Discuss the fact that the child eventually will encounter peers who smoke, and discuss ways in which the child might resist peer pressure to try tobacco produc

For youngsters approaching middle school/junior high school age, provide the following information:

- Most kids don't smoke or use smokeless tobacco.
- All forms of tobacco (snuff, cigarettes, dip, etc.) are extremely addictive, and most teens who use tobacco are addicted to nicotine.
- Addiction to tobacco takes away one's independence.
- Smokeless tobacco is not a safe alternative to smoking, because it is addicting and causes oral cancer.
- Smoking makes a person smell bad, stains teeth and skin, causes shortnes of breath, decreases athletic performance, ruins clothes, and is a major cau of fires and deaths.
- Smoking causes health problems in many young people, including chronic cough and sore throat.
- Smoking won't make a person rugged, sexy, "cool," or successful.
- Tobacco use is a gateway to other drug use, and addiction to nicotine may make a person more susceptible to trying other dangerous drugs.
- Tobacco is expensive—spending money on tobacco will mean less money f other things (e.g., books, clothes, make-up, music, movies, sports).
- There are other ways of being different without taking up a habit that is addicting and has such severe, long-term consequences.

Addiction in Children and Adults, 1994) and *Healthy People 2000: National Health Promotion and Disease Prevention Objectives* (DHHS, 1991).

Tobacco Use Cessation in Children and Adolescents

Little research evidence exists regarding either the effectiveness of psychosocial cessation interventions with children and adolescents or the safety and efficacy of pharmacological interventions with this population. Because there is no evidence that nicotine replacement is harmful for children and adolescents, clinicians should consider its use when nicotine dependence is obvious. However, because of the psychosocial and behavioral aspects of smoking in adolescents, clinicians should be confident of the patient's genuine nicotine dependence and desire to quit before instituting pharmacotherapy. Factors such as degree of dependence and body weight should be considered when selecting nicotine replacement therapy dosage.

Children and adolescents may benefit from community- and school-based intervention activities designed especially for these age groups. The messages delivered by these programs should be reinforced by the clinician (DHHS, 1994). Treatment of adolescents and children who smoke is an important research area. Along with clinical trials of interventions, studies of the "experimenters" or occasional tobacco users in this population are needed.

Evidence. Most adolescent tobacco users are addicted to nicotine and report they want to quit but are unable to do so; they experience relapse rates and withdrawal symptoms similar to those reported by adults. Little intervention research involves children and adolescent tobacco users. (Strength of Evidence = C)

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Glossary

All-comers. Individuals included in a smoking cessation study regardless of whether they sought to participate. For example, if cessation treatment was delivered to all smokers visiting a primary care clinic, the treatment population would be coded as "all-comers." Presumably, individuals who seek to participate in smoking cessation studies are more likely motivated to quit, and studies limited to these individuals may produce higher quit rates.

Anxiolytic. A pharmacologic agent used to reduce anxiety symptoms.

Aversive smoking. Several types of therapeutic techniques that involve smoking in an unpleasant or concentrated manner. These techniques pair smoking with negative associations or responses. Notable examples include rapid smoking, rapid puffing, focused smoking, and satiation smoking.

Biochemical confirmation. The use of assays of smoking-related biochemical compounds such as thiocyanate, cotinine, nicotine, and carboxyhemoglobin to verify smokers' reports of abstinence.

Cessation percentage. The percentage of smokers who achieve long-term abstinence from smoking. The major cessation measure for this guideline was the percentage of smokers in a group or treatment condition who were abstinent at a followup point that occurred at least 5 months after treatment.

Cigarette fading/smoking reduction prequit. Interventions that reduce the number of cigarettes smoked or nicotine intake prior to a patient's quit date. This may be accomplished through advice to cut down or by systematically restricting access to cigarettes. This category includes interventions using computers and/or devices to accomplish nicotine reduction prequit.

Clinician. A professional directly providing health care assistance.

Clinic screening system/system intervention. The strategies used in clinics and practices for the delivery of clinical services. Clinic screening system interventions involve changes in staff protocols designed to enhance the identification of and intervention with patients who smoke. Examples include affixing smoking status stickers to patients' charts, expanding the vital signs to include smoking, and incorporating smoking status items into patient questionnaires.

Clonidine. An alpha-2-adrenergic agonist typically used as an antihypertensive agent, but also used as a pharmacotherapy for smoking cessation. The Food and Drug Administration has not approved clonidine as a smoking cessation aid.

Contingency contracting/instrumental contingencies. Interventions where individuals earn rewards for cigarette abstinence and incur costs or unpleasant consequences for smoking. To receive this classification code, actual,

tangible consequences had to be contingent upon smoking or abstinence. Thus, simple agreements about a quit date, or other agreements between treatment providers and patients without specifiable consequences, were not included in this category. Deposits refunded based on study attendance and/or other incentives that are not contingent upon smoking abstinence or relapse did not receive this code.

Cue exposure/extinction. Interventions that repeatedly expose patients to smoking-related cues in the absence of nicotine reinforcement in an attempt to extinguish affective/motivational responding to such cues. This includes treatments where patients are encouraged to perform the smoking self-admir istration ritual, excepting inhalation.

Diazepam. A benzodiazepine anxiolytic.

Exercise/fitness component. Includes any intervention that contains a component related to exercise/fitness. The intensity of interventions falling within this category varied from the mere provision of information/advice about exercise/fitness to the classes.

Extratreatment social support component. Interventions or elements of an intervention wherein patients are provided with the tools to find social suppo on their own outside of treatment. This category is distinct from intratreatment social support, in which social support is delivered by treatment staff.

Formats. Refers to the context in which a smoking cessation intervention is delivered. May be either self-help, individual counseling, or group counseling

Hotline/helpline. A telephone line dedicated to over-the-phone smoking intervention. A hotline/helpline treatment occurs when a hotline/helpline number is provided or a referral to a hotline/ helpline is made.

Intent-to-treat analysis. Treatment outcome analyses where abstinence percentages are based on all subjects randomized to treatment conditions, rathe than on just those subjects who completed the intervention or who could be contacted at followup.

Intratreatment social support. Refers to an intervention component that provides support, help, or encouragement as part of the treatment.

Logistic regression. Statistical technique to determine the statistical association or relation between/among two or more variables, and where one of the variables, the dependent variable, is dichotomous (has only two levels of magnitude) (e.g., abstinent vs. smoking).

Meta-analysis. A statistical technique that estimates the impact of a treatment or variable across a set of related investigations.

Minimal contact. Minimal contact refers to interventions that involved very brief contact between clinicians and patients. It was coded based on the

length of contact between clinicians and patients (3 minutes or less). If that information was unavailable, it was coded based on the content of the contact between clinicians and patients.

Motivation. Includes interventions designed to bolster patients' resolve to quit through manipulations such as setting a quit date, use of a contract with a specified quit date, reinforcement correspondence (letters mailed from clinical/study staff after initial contact congratulating patient on decision to quit or on early success), providing information about the health risks of smoking, and so on.

Negative affect/depression component. Interventions in this category are designed to train patients to cope with negative affect after cessation. The intensity of the interventions in this category may vary from prolonged counseling to the simple provision of information about postquit mood and suggestions for dealing with it. To receive this code, interventions targeted depressed mood, not simply stress. Interventions aimed at teaching subjects to cope with stressors were coded as problem solving. When it was unclear whether an intervention was directed at negative affect/depression or at psychosocial stress, problem solving was the default code.

Nicotine replacement therapy. Refers to nicotine pharmacotherapy for smoking cessation. The two nicotine replacement therapy delivery systems currently approved for use in the United States are nicotine chewing gum and the nicotine patch.

Odds ratio. The odds of an outcome on one variable, given a certain status on another variable(s). This ratio expresses the increase in risk of a given outcome if the variable is present.

Oral mucosa. The mucous membranes that line the mouth.

Person-to-person intervention. In-person contact between a clinician and a patient(s) for the purpose of smoking intervention or assessment.

Primary care provider. Practitioner in one of the health professions (e.g., medicine, nursing, psychology, dentistry/oral health, physical and respiratory therapy) who provides health care services for problems other than smoking per se. Primary care providers are encouraged to identify smokers and to intervene with them, regardless of whether smoking cessation is the patient's presenting problem.

Problem solving/skills training. Refers to a smoking cessation intervention in which smokers are trained to identify and cope with events or problems that increase the likelihood of their smoking. For example, quitters might be trained to anticipate stressful events and to use coping skills such as distraction or deep breathing to cope with an urge to smoke. Related and similar interventions are coping skill training, relapse prevention, and stress management.

Purchaser. A corporation, company, or other consortium that purchases health care benefits for a group of individuals.

Propranolol. A beta-adrenergic blocker often used as an antihypertensive agent

Quit day. The day of a given cessation attempt during which a patient tries to abstain totally from smoking. Also refers to a motivational intervention whereby a patient commits to quit tobacco use on a specified day.

Randomized controlled trial. For the purposes of this guideline, a study in which subjects are assigned to conditions on the basis of chance, and where at least one of the conditions is a control or a comparison condition.

Reference group. In meta-analyses, refers to the group against which other groups are compared.

Relaxation/breathing. Interventions in which patients are trained in relaxation techniques. Interventions using meditation, breathing exercises, and so on, fit this category. This category should be distinguished from the category of problem solving, which includes a much wider range of stress-reduction/management strategies.

Self-selected. Refers to a patient population that sought out or agreed to participate in a study of smoking cessation.

Serum cotinine. Blood levels of cotinine, nicotine's major metabolite. This is often used to estimate a patient's tobacco/nicotine self-administration prior to quitting, and to confirm abstinence self-reports during followup.

Serum nicotine. Blood levels of nicotine. This is often used to assess a patient's tobacco/nicotine self-administration prior to quitting, and to confirm abstinence self-reports during followup.

Silver acetate. Silver acetate reacts with cigarette smoke to produce an unpleasant taste and has been investigated as a deterrent to smoking.

Specialized assessments. Refers to assessment of patient characteristics such as nicotine dependence and motivation for quitting that may allow clinicians to tailor interventions to the needs of the individual patient.

Starter kits. Self-help materials and/or programs provided by a pharmaceutical company to assist patients in successfully quitting smoking while using a pharmaceutical agent.

Stepped-care. The practice of initiating treatment with a low-intensity intervention and then referring treatment failures to successively more intense interventions.

Transdermal nicotine. Refers to delivery of nicotine by diffusion through the skin. Often used as a synonym for "nicotine patch."

Treatment matching. Differential assignment of patients to treatments based on their pretreatment characteristics. Treatment matching is based on the notion that particular types of smokers are most likely to benefit from particular types of treatments.

Weight/diet/nutrition component. Any program dealing with weight issues. Interventions that teach nutrition/diet/weight management strategies, incorporate daily/weekly weight monitoring (for reasons other than routine data collection), require or suggest energy intake maintenance/reduction, and/or convey nutritional information/tips/counseling receive this code.

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Dr. Fiore completed medical school at Northwestern University and his internal medicine training at Boston City Hospital. His postgraduate education included a Masters of Public Health in Epidemiology from Harvard University and a fellowship in pulmonary medicine and occupational health at the University of Perugia in Italy. Dr. Fiore received additional training in epidemiology as an Epidemic Intelligence Service (EIS) Officer for the Centers for Disease Control, where he also completed a Preventive Medicine residency program. Dr. Fiore worked as a medical epidemiologist at the Office on Smoking and Health, where he contributed to a wide range of national research, educational, and policy projects to control the epidemic of tobacco-related diseases. Dr. Fiore is Director of the Center for Tobacco Research and Intervention at the University of Wisconsin Medical School and an Associate Professor in the Department of Medicine. At the University of Wisconsin, he is clinically active, treating patients both in internal medicine and for smoking cessation. He is also a consultant to the National Cancer Institute and continues to collaborate with the Office on Smoking and Health. Dr. Fiore is a nationally recognized expert on tobacco. He has written numerous articles, chapters, and books on cigarette smoking and is a coauthor of *Reducing the Health Consequences of Smoking: 25 Years of Progress–Report of the Surgeon General.*

William C. Bailey, MD
Professor of Medicine
Director, Lung Health Center
University of Alabama at Birmingham
Birmingham, Alabama

Dr. Bailey is clinically active in the treatment of patients with pulmonary disease. He is the Principal Investigator of research projects in the areas of asthma, tuberculosis, and smoking cessation and is the author of numerous articles, chapters, and books on these topics. In addition to his positions at the University of Alabama at Birmingham, he currently serves as the Tuberculosis Control Officer at the Veterans Affairs Medical Center in Birmingham. From 1989 to 1992, Dr. Bailey served as the Chairman of the

National Heart, Lung, and Blood Institute (NHLBI) Task Force on the Prevention of Asthma. He received the NHLBI Preventive Pulmonary Academic Award from 1989 through 1994.

Stuart J. Cohen, EdD
Director, Health Services Research Center
Professor, Departments of Public Health Sciences and Internal Medicine
Bowman Gray School of Medicine
Winston-Salem, North Carolina
Dr. Cohen received his doctorate in Educational Foundations/Psychology from the University of Rochester. For the past 18 years, he has received grants to improve the quality of ambulatory primary care from the National Institutes of Health, the Centers for Disease Control and Prevention, and the Agency for Health Care Policy and Research. In addition, a National Cancer Institute grant on developing methods to improve physician and dentist interventions in smoking cessation served as the basis for establishing the importance of having an office system include reminders for delivery of preventive services.

Sally Faith Dorfman, MD, MSHSA
Gynecologist, Public Health Consultant
Cornwall and New York, New York
Dr. Dorfman holds degrees in economics from Harvard/Radcliffe Universities, a master's degree in Health Services Administration and an M.D. from Stanford University, and trained in reproductive health epidemiology at the Centers for Disease Control and Prevention. She is board certified both in obstetrics and gynecology and in public health/general preventive medicine. Dr. Dorfman has consulted for state, regional, national, and international organizations and was Commissioner of Health for Orange County, NY, from 1988–1994. She also has published and presented extensively for professional and lay audiences, serves as reviewer for several peer review journals, and is the recipient of numerous honors and awards. Dr. Dorfman maintains a limited office-based practice of ambulatory gynecology in Manhattan, which is affiliated with Cornell University Medical Center.

Michael G. Goldstein, MD
Assistant Psychiatrist-in-Chief
The Miriam Hospital
Associate Professor, Psychiatry and Human Behavior
Brown University School of Medicine
Providence, Rhode Island
Dr. Goldstein is board certified in Internal Medicine and Psychiatry and currently serves as Medical Director of the Center for Behavioral and Preventive Medicine at The Miriam Hospital in Providence, Rhode Island. Dr. Goldstein's primary research interests include developing interventions to enhance the delivery of smoking cessation and other preventive services in primary care

settings. He has also received grant support to test combined behavioral and pharmacologic interventions for smoking cessation. Dr. Goldstein is a member of the Task Force on Nicotine Dependence of the American Psychiatric Association and serves as an Associate Editor of the *Annals of Behavioral Medicine.* He has published extensively in the areas of behavioral medicine, smoking cessation, and patient education and counseling.

Ellen R. Gritz, PhD
Professor and Chair
Department of Behavioral Science
University of Texas
M.D. Anderson Cancer Center
Houston, Texas
Dr. Gritz is a licensed psychologist and an established leader in cancer prevention and control research. She has published extensively on cigarette smoking behavior, including prevention, cessation, pharmacologic mechanisms, effects on weight, and special issues of women and other high risk groups, e.g., ethnic minorities, adolescents, and medical populations. Other areas of interest include adherence to cancer control regimens, chemoprevention, and psychosocial aspects of cancer. Dr. Gritz is an Associate Editor for *Cancer Epidemiology, Biomarkers & Prevention*, and serves on several editorial boards. She was the first recipient of the Joseph W. Cullen Memorial award for distinguished research in smoking.

Richard B. Heyman, MD
Chairman, Committee on Substance Abuse
American Academy of Pediatrics
Cincinnati, Ohio
A graduate of the Columbia University College of Physicians and Surgeons, Dr. Heyman practices pediatric and adolescent medicine and serves on the faculty of the Division of Adolescent Medicine at Children's Hospital Medical Center in Cincinnati, Ohio. He is a consultant to several adolescent chemical dependency programs and lectures widely in the area of substance abuse. As chairman of the Committee on Substance Abuse of the American Academy of Pediatrics, he is responsible for overseeing the creation of the Academy's educational programs and materials, as well as the development of policy in the area of alcohol, tobacco, and other drug abuse.

John Holbrook, MD
Professor of Medicine
University of Utah School of Medicine
University Hospital
Salt Lake City, Utah
Dr. Holbrook is a general internist who served as the Medical Director of the National Clearinghouse for Smoking and Health of the U.S. Department of

Health, Education, and Welfare. He was an editor for more than fifteen of the Reports of the Surgeon General on smoking and health. He has written the chapter on tobacco (nicotine addiction) in six editions of *Harrison's Principles of Internal Medicine*. He is active as a clinician, educator, and health care administrator in multiple aspects of smoking cessation.

Carlos Roberto Jaén, MD, PhD
Assistant Professor, Family Medicine,
and Social and Preventive Medicine
Director, Center for Urban Research in Primary Care
State University of New York at Buffalo
Buffalo, New York

Dr. Jaén is a family physician and epidemiologist. He is an Assistant Professor of Family Medicine, and of Social and Preventive Medicine, at the University of Buffalo. A Robert Wood Johnson Generalist Physician Faculty Scholar, his research activities focus on prevention, particularly of tobacco use, and on health issues affecting poor urban residents. The Center for Urban Research in Primary Care brings together scholars and community residents to evaluate and intervene on health issues affecting residents of central city communities. He has been a member of the New York State Public Health Council since 1995.

Thomas E. Kottke, MD, MSPH
Professor, Division of Cardiovascular Diseases
Department of Internal Medicine
Mayo Clinic and Foundation
Rochester, Minnesota

Dr. Kottke is a clinical cardiologist, epidemiologist, and health services researcher whose primary interest is describing, defining, and overcoming the barriers to the delivery of clinical preventive services. He has published widely on the evidence that clinical support systems are necessary for physicians and other health care professionals to provide preventive services to the patients they serve. Dr. Kottke was a member of the first United States Preventive Services Task Force.

Harry A. Lando, PhD
Professor, Division of Epidemiology
School of Public Health
University of Minnesota
Minneapolis, Minnesota

Dr. Lando has worked in the field of smoking cessation since 1969. He has published extensively in this area and was a scientific editor of the 1988 *Report of the Surgeon General: Nicotine Addiction.* His research has focused primarily on the development of effective multicomponent behavioral programs for smoking cessation. He has received numerous awards for his work and has consulted actively with Federal and voluntary agencies,

including the National Cancer Institute, the Centers for Disease Control, the American Cancer Society, the American Lung Association, the National Heart, Lung, and Blood Institute, and the National Institute on Drug Abuse.

Robert Mecklenburg, DDS, MPH
Dental Coordinator
National Cancer Institute
Smoking and Tobacco Control Program
Potomac, Maryland
Dr. Mecklenburg organized and manages dental affairs for the National Cancer Institute's Smoking and Tobacco Control Program. He chairs the National Dental Tobacco-Free Steering Committee and is vice-chairman of the World Dentistry Against Tobacco section of the Federation Dentaire Internationale. He chaired the committee on non-cancer oral effects of tobacco for the first Surgeon General's report on smokeless tobacco. He is the principal author of the NCI publications, *Tobacco Effects in the Mouth* and *How to Help Your Patients Stop Using Tobacco: A Manual for the Oral Health Team.* Dr. Mecklenburg has published and lectured widely in the United States and abroad about dental professionals' involvement in the creation of a tobacco-free society.

Patricia Dolan Mullen, DrPH
Professor and Deputy Director
Center for Health Promotion Research and Development
School of Public Health
University of Texas
Houston, Texas
Dr. Mullen received her doctorate in Public Health from the University of California at Berkeley. She has received many research grants to study smoking cessation during pregnancy. She has served on the Expert Panel on the Content of Prenatal Care and on numerous research advisory panels and boards for the National Institutes of Health, the Centers for Disease Control and Prevention, the American Cancer Society, and other national and international organizations, and was invited to write the section on smoking cessation during pregnancy for the 1997 *Surgeon General's Report on Women and Smoking.*

Louise M. Nett, RN, RRT
Research Associate
PSL/Health ONE
Clinical Research Division
Center for Health Sciences Education
Denver, Colorado
Ms. Nett currently is a research associate at the HealthONE Center for Health Sciences Education in Denver, Colorado, and focuses on the early detection of chronic obstructive lung disease and lung cancer and smoking cessation. Her early work focused on critical care, pulmonary rehabilitation, and oxygen

therapy. She is a member of the American Thoracic Society, the American Association for Respiratory Care, the Society for Research on Nicotine and Tobacco, and the American College of Chest Physicians. She is also active at the local level in Colorado. Ms. Nett has published and taught extensively and is the editor of the newsletter NICO-NOTES. She has received numerous awards and has consulted and lectured internationally.

Lawrence Robinson, MD, MPH
Deputy Health Commissioner
Philadelphia Department of Public Health
Philadelphia, Pennsylvania
As Deputy Commissioner for Health Promotion/Disease Prevention for the Philadelphia Department of Public Health, Dr. Robinson is responsible for development, planning, coordination, and evaluation of various programs delivering comprehensive medical, preventive, and health education services. He is a member of State and area antitobacco coalition groups and the Early Education Tobacco Prevention Project, chairman of the Philadelphia smoke-free task force, and clinical director of the Pro-Step nicotine patch program for city employees. He is also a board member of various groups, organizations, and agencies in the community.

Maxine L. Stitzer, PhD
Professor, Department of Psychiatry and Behavioral Sciences
Behavioral Biology Research Center
Johns Hopkins/Bayview Medical Center
Baltimore, Maryland
Dr. Stitzer received her Ph.D. in Psychology and training in psychopharmacology from the University of Michigan. At Johns Hopkins, she has developed a varied and extensive grant-supported research program focusing on both pharmacological and behavioral approaches to the treatment of substance abuse. Her many publications reflect active research interests in both illicit drug abuse and tobacco dependence. She has been president of the Division on Psychopharmacology and Substance Abuse of the American Psychological Association and currently serves on the Board of Directors of the College on Problems of Drug Dependence.

Anthony C. Tommasello, MS
Director, Office of Substance Abuse Studies
University of Maryland at Baltimore
School of Pharmacy
Baltimore, Maryland
Mr. Tommasello, a pharmacist, is an Associate Professor of Clinical Pharmacy at the University of Maryland School of Pharmacy, and Director, Office of Substance Abuse Studies, which he founded. He has worked in the