

Population Impact of Clinician Efforts to Reduce Tobacco Use

Jack F. Hollis

INTRODUCTION A large fraction of U.S. smokers visit a physician each year, creating an opportunity to alter their smoking behavior. This chapter examines 1) the proportion of U.S. smokers who are receiving recommended tobacco interventions during routine health care visits; 2) whether clinician intervention rates are increasing over time; and 3) what effect physician advice is having on cessation activity and success. We use Current Population Survey (CPS) data and meta-analyses on the efficacy of clinician interventions to estimate the number of smokers in the United States who quit each year as a direct result of current clinician counseling practices and also to determine what might be achieved through improved practice patterns. Finally, we consider office system strategies that appear necessary to integrate systematic tobacco support into routine care, making progress toward the year 2000 goals of reducing tobacco-use prevalence to 15 percent.

RATIONALE FOR CLINICIAN-DELIVERED TOBACCO INTERVENTIONS The rationale, methods, and outcomes for brief tobacco interventions during routine health and dental care visits have been widely discussed (Lichtenstein *et al.*, 1996a; Fiore *et al.*, 2000; NCI, 1994; Ockene *et al.*, 1997a; Abrams *et al.*, 1996). Physicians, nurses, dentists, hygienists, pharmacists, and others involved in the routine delivery of health care have the opportunity, legitimacy, and professional credibility to motivate and help patients quit tobacco use. The vast majority of smokers want to quit on their own, without attending specialized intensive programs (Fiore *et al.*, 1990), and few will act on clinician referrals to groups, even with systematic recruitment efforts and convenient free access (Lichtenstein and Hollis, 1992).

Evidence-based national clinical guidelines for tobacco intervention in routine care have been published (Fiore *et al.*, 2000) that, if widely implemented, would reach a high proportion of all tobacco users on a regular basis. Brief cessation advice is easy to deliver, and is both expected and appreciated by patients if done in a caring and respectful manner (Schauffler *et al.*, 1996). When delivered, brief interventions consistently increase quit rates (Fiore *et al.*, 2000; Kottke *et al.*, 1988; Law and Tang, 1995; Ockene *et al.*, 1997a) and are highly cost-effective in terms of both cost per quit and cost per year of life saved (Cromwell *et al.*, 1997; Law and Tang, 1995; Warner, 1993). Arguments for involving clinicians in brief counseling include the following:

- Tobacco is the most important cause of preventable disease,
- Most smokers see physicians (70 percent) and/or dentists (50 percent) each year,

- Smokers view clinicians as credible and persuasive,
- Clinic visits represent teachable moments when health concerns are salient,
- Satisfaction is higher among patients receiving tobacco advice and support,
- Meta-analyses show modest, but consistent positive effects of physician advice on cessation, and
- Tobacco interventions are highly cost-effective when compared to other medical services.

While clinicians agree that patients should quit smoking, many clinicians and health system leaders remain unconvinced that significant resources should be devoted to implementing recommended interventions as a part of routine care. Busy clinicians, pressured to squeeze more and more into the typical 10-minute encounter, question whether it makes sense to devote 10-30 percent of that time to smoking when only 5-10 percent quit rates can be expected. Health system and medical office managers are unsure how to implement tobacco treatment guidelines and question whether they are practical and sustainable and whether the impact on cessation rates justifies the effort and costs of implementation. Managers of capitated managed care organizations worry that successful ex-smokers will switch plans before the plan can realize a return on its investment in tobacco control. Common concerns and barriers include the following:

- Lack of time, funding, space, and support staff,
- Reluctance to “badger” patients about an issue of lifestyle choice,
- Beliefs that intervention benefits are too uncertain or delayed,
- Inadequate training, confidence, and comfort in discussing tobacco issues,
- Lack of reminders or prompts to cue action,
- Lack of performance feedback and peer/professional support, and
- Lack of reimbursement or other incentives for delivering tobacco intervention.

Given these challenges, it is perhaps not surprising that the U.S. health-care system has been slow to respond to calls for action in addressing tobacco during routine care. The U.S. Public Health Service Agency for Healthcare Research and Quality (AHRQ) guidelines powerfully summarized the situation by concluding, “it is difficult to identify a condition in the United States that presents such a mix of lethality, prevalence, and neglect, and for which effective interventions are so readily available” (Fiore *et al.*, 2000).

HOW MANY PATIENTS RECEIVE TOBACCO ADVICE AND ASSISTANCE, AND DO THEY QUIT?

A goal of Healthy People 2010 is to “increase to at least 75 percent the proportion of the population of primary care and oral health care providers who routinely advise cessation and provide assistance and follow-up for all of their tobacco-using patients” (U.S.DHHS, 2000). The AHRQ *Clinical Practice Guideline* recommends that clinicians identify smokers and encourage cessation as a routine part of virtually all medical and dental care contacts (Fiore *et al.*, 2000).

The frequency of physician-delivered advice to quit depends, in part, on whom one asks. When physicians are asked how they generally practice, the vast majority report that they regularly advise virtually all smokers. Patients report much lower rates of advice. The large discrepancies between clinician and patient reports are likely due to numerous factors, including incomplete patient recall, unclear or unmemorable clinician messages, and overreporting by clinicians. For example, Brink *et al.* (1994) found that 95 percent of physicians and 65 percent of dentists reported that they advised all or most of their smoking patients to quit. Their survey of patients, however, found that only 29 percent of those who had seen a physician and 7 percent of those who had seen a dentist reported receiving advice. Woller *et al.* (1995) surveyed a stratified random sample of 6,132 patients who had visits in one of 45 primary care practices in the upper Midwest. More than 90 percent of smokers said they were asked about smoking and 84 percent recalled advice to quit, but this was over a relatively long 3-year period. Only 60 percent received advice on *how* to quit, however, and only 27 percent said the clinician referred them to a stop-smoking program during the 3-year period.

It is possible that surveys understate actual practice because patients fail to recall the clinician’s advice, but a recent comparison of smokers’ reports of advice and tapes of clinical encounters suggests otherwise. Ward and Sanson-Fisher (1996) found that, if anything, smokers tend to over-report receipt of clinician advice to quit (sensitivity of 0.92, specificity of 0.82). Solberg (1996) notes that patient reports of advice not being delivered were quite accurate (negative predictive value of 99 percent) and that advice rates in surveys probably portray an overly optimistic picture. Even if recall of clinician advice were low, that would simply suggest that clinician interventions need to be more frequent, salient, and memorable. Data from physicians’ own post-visit summaries and patients’ post-visit reports are less susceptible to recall bias, and yet they confirm that most intervention opportunities are wasted.

As part of the COMMIT trial (Ockene *et al.*, 1997b), a random sample of 30 physicians in each of 11 treatment and 11 control communities were surveyed about office practices. A high percentage of treatment and control clinicians (79 percent and 80 percent, respectively) reported that they routinely ask established patients about smoking, and almost all (98 percent and 94 percent) reported that they advise smokers to quit “most or all of the time.” Relatively few, however, used stickers or other chart markers (28 percent and 26 percent), set quit dates (22 percent and 14 percent), devel-

oped cessation plans (38 percent and 37 percent), made referrals (22 percent and 22 percent), or arranged follow-up visits for smoker counseling (19 percent and 18 percent). Physicians were more likely to report recommending nicotine replacement therapy (NRT) (52 percent and 42 percent) and to report recording the results of the encounter in the clinical record (66 percent and 60 percent). In contrast, a survey of 20,347 smokers from these communities found that many fewer patients reported receiving advice (42-56 percent), pamphlets (21-31 percent), or encouragement to use NRT (20-31 percent).

Others have queried patients shortly after a specific visit in order to minimize recall bias. Heywood *et al.* (1996) randomly sampled and surveyed 7,160 patients from 230 general practitioners in Australia during 1989 and 1990 and found that 49 percent received advice during a specific recent visit. Advice was more likely to be given to younger smokers, those with smoking-related health conditions or other risk factors, and those who had been counseled previously. Kottke *et al.* (1997) surveyed 7,997 randomly selected patients following visits in 44 midwestern clinics and found that 47 percent of smokers reported receipt of advice at that visit. Hollis *et al.* (1998) surveyed 20,372 patients (76 percent response rate) shortly after their routine Family Practice and Internal Medicine visits within a staff-model HMO. While 59 percent of patients reported receiving advice to quit at the visit, few received either self-help (5 percent) or referral (12 percent) materials.

The National Ambulatory Medical Care Survey (NAMCS) provides information on national trends in advice rates at specific visits since 1991 as reported by physicians themselves (Thorndike *et al.*, 1998). Between 1991 and 1995, a random sample of 3,254 U.S. physicians (response rates of 70-73 percent) completed one-page after-visit reports on all patients seen during assigned 1-week periods. This survey yielded data on 145,716 patient visits. Over the 5 years, the proportion of visits at which smoking was known (or assessment occurred) remained constant at 67 percent. This was also true for new patient visits and for general medical examinations. Physicians reported counseling at only 22 percent of visits with known smokers. Counseling rates increased from 16 percent in 1991 to a peak of 29 percent in 1993, and then decreased to 21 percent in 1995. Primary care clinicians counseled more than specialists (33 percent versus 15 percent), and counseling was more likely at visits for smoking-related conditions (35 percent) and during general medical exams (37 percent). Counseling was less likely for those over age 65 and for those with conditions unrelated to smoking. Insurance status was unrelated to counseling rates. NRT was reported for about 1 percent of visits, with the number peaking in 1993.

The Health Plan Employer Data and Information Set (HEDIS 3.0) is a measure of the quality of care in participating health plans across the country (NCQA, 1997). As part of the HEDIS 3.0, health plans contracted for standardized mailed surveys of random samples of health-plan members. The smoking measures include:

1. Have you ever smoked at least 100 cigarettes in your entire life?
2. Do you now smoke every day, some days, or not at all?
3. How long has it been since you quit smoking cigarettes?
4. During the past 12 months, how many times have you visited a doctor or other health professional in your plan (do not count overnight hospital visits)? (This is coded *None* versus *Yes*)
5. On how many of these visits were you advised to quit smoking by a doctor or other health professional in your plan? (Those responding “one or more” are classified as smokers who have received medical advice to quit.)

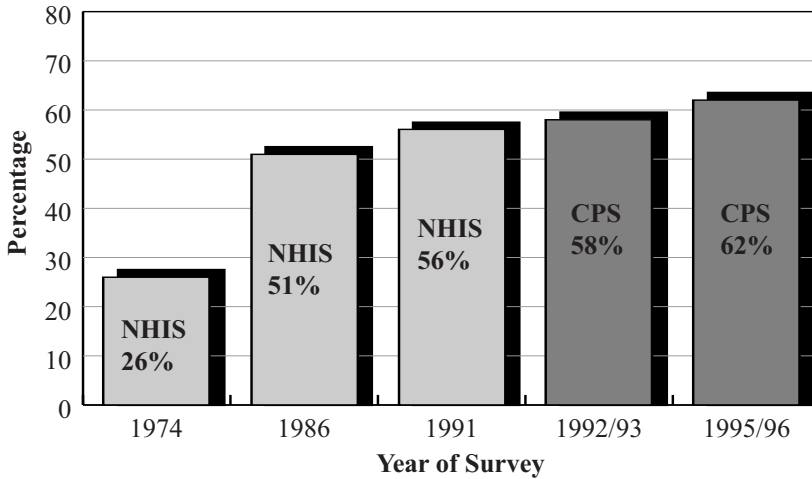
Among smokers who had seen a doctor or other health care professional in the health plan within the last year, 61 percent reported that they had received cessation advice on one or more occasions in the last year (see www.ncqa.org).

Two ongoing national population surveys provide the best picture of how patient perceptions of tobacco advice rates are changing over time (Figure 4-1). The first is the National Health Interview Surveys (NHIS), conducted periodically since the early 1970s. During each update, large national probability samples of the smokers in the U.S. population are interviewed at home. Response rates typically exceed 85 percent. Using NHIS data, Gilpin *et al.* (1992) reported that the percentage of smokers reporting that a physician had ever advised them to quit smoking rose dramatically from 26 percent in 1974 to 51 percent in 1987.

For 1991, the CDC (1993) used the NHIS to estimate that, of the 51 million smokers in the United States, 70 percent (36 million) had one or more outpatient visits with a physician or other health care professional. Most had multiple visits. About 37 percent (12.8 million) of smokers with visits reported receiving advice to quit smoking during the previous year, and a little more than half (56 percent) reported ever receiving cessation advice. Advice in the previous year was more common among those with four or more visits (45 percent) compared to those with one visit (28 percent). Rates were higher for older, non-Hispanic, and heavier smokers.

The 1992 NHIS survey asked separately about both physician and dentist visits within the previous year, and whether physicians and dentists had offered cessation advice within the previous year (U.S.DHHS, 1992). Among smokers who had physician visits (70 percent) in the previous year, 52 percent reported receiving cessation advice from physicians (Tomar *et al.*, 1996). The sharp increase from the 37 percent rate recorded for 1991 may be related to attention surrounding the marketing of NRT products. Among smokers with dentist visits (53 percent), about 24 percent reported advice from a dentist in the previous year. Those planning to quit within the next 6 months were also more likely to report having received advice to quit in the previous year. Advice was more likely for heavier and older smokers, in contrast to the lower rates of counseling for the elderly found in the NAMCS. Others have also shown that clinicians are more likely to advise heavier smokers (Cummings *et al.*, 1987) and those who are white, older,

Figure 4-1
**Percentage of Smokers Reporting Ever Having Received Physician Advice,
 Aged 18 and Over***



* NHIS is the National Health Interview Survey, and CPS is the Tobacco-Use Supplement of the Current Population Survey

and in poorer health (Hymowitz *et al.*, 1996; CDC, 1993; Frank *et al.*, 1991). In summary, it appears that while the proportion of patients reporting they had ever been advised increased sharply in the 1980s, progress has been slow more recently in spite of increased attention, national guidelines, and repeated calls for action.

A comparable source of national data is the Current Population Survey (CPS), which is designed to provide labor force indicators for the U.S. Bureau of Labor Statistics. The CPS uses household interviews to gather information from a national probability sample derived from census data. For both the 1992/93 and 1995/96 CPS, NCI appended a Tobacco Use Supplement that included items about physician and dentist visits and tobacco advice that were identical to those used in the NHIS survey. We present these data here for the first time.

The determinants of who receives physician advice have two components: first are the determinants of who sees a physician at all, and second, of those who see a physician, who receives advice to quit smoking? Among daily cigarette smokers age 25 years and older surveyed by the CPS in 1992/93, 71.3 percent reported visiting a physician in the last year and 50.8 percent reported visiting a dentist in the last year. In 1995/96, 72.5 percent saw a physician and 51.3 percent saw a dentist. Table 4-1 presents the results of multivariate regression analyses of the 1992/93 and 1995/96 CPS and identifies the demographic and smoking characteristics that predict which smokers were likely to visit a physician in the year prior to the sur-

Table 4-1

CPS 1992/93 and 1995/96—Multivariate Logistic Regressions of Visits to a Physician in the Last Year (Current Smokers 25+ Years of Age Who Were Daily Smokers 1 Year Ago)

Variable	1992/93		1995/96	
	OR	95% CI	OR	95% CI
Gender				
Male	1.00		1.00	
Female	2.11	(2.01 - 2.21)	2.14	(2.03 - 2.27)
Age (Years)				
25–44	1.00		1.00	
45–64	1.19	(1.13 - 1.25)	1.34	(1.26 - 1.42)
65+	2.45	(2.21 - 2.71)	2.42	(2.16 - 2.71)
Race/Ethnicity				
Non-Hispanic White	1.00		1.00	
Hispanic	0.84	(0.75 - 0.93)	0.68	(0.61 - 0.77)
African-American	1.06	(0.98 - 1.15)	0.97	(0.89 - 1.06)
Other	0.77	(0.67 - 0.89)	0.74	(0.64 - 0.86)
Education (Years)				
< 12	1.00		1.00	
12	1.03	(0.97 - 1.10)	1.13	(1.05 - 1.21)
13–15	1.34	(1.24 - 1.44)	1.34	(1.24 - 1.46)
16+	1.20	(1.09 - 1.33)	1.37	(1.23 - 1.52)
Household Income (Dollars)				
<10,000	1.00		1.00	
10,000–19,999	0.92	(0.86 - 0.99)	0.85	(0.78 - 0.93)
20,000–29,999	1.15	(1.06 - 1.25)	0.92	(0.84 - 1.01)
30,000–49,999	1.29	(1.19 - 1.39)	1.16	(1.06 - 1.27)
50,000–74,999	1.52	(1.38 - 1.68)	1.33	(1.20 - 1.48)
75,000+	1.73	(1.50 - 1.98)	1.41	(1.23 - 1.61)
Cigarettes Smoked per Day				
1–4	1.00		1.00	
5–14	1.10	(0.93 - 1.29)	0.98	(0.82 - 1.17)
15–24	1.01	(0.86 - 1.19)	0.89	(0.75 - 1.06)
25+	0.96	(0.81 - 1.13)	0.88	(0.73 - 1.05)

vey. Female smokers, older smokers, and smokers with higher levels of education and income were more likely to visit a physician, and Hispanic smokers were less likely to see a physician, as were smokers of Asian/Pacific Islander/Native American and other races. There was no relationship between number of cigarettes smoked per day and likelihood of seeing a physician.

The frequency of reporting physician advice to quit smoking in the last year among current daily smokers who were also daily smokers 1 year prior to the survey and who saw a physician in the last year is presented in Table 4-2a. In the 1992/93 CPS 54.7 ± 0.8 percent of current daily smokers over age 25 reported that they had been advised to quit in the last year. This measure is virtually identical to that from the 1992 NHIS estimate of 52 percent reported above (Tomar *et al.*, 1996). Reported advice rates increased slightly (59.2 ± 0.8 percent; Table 4-2b) in 1995/96. Approximately 65.8 ±

Table 4-2a

CPS 1992/93—Who Received Physicians' Advice (Current Smokers 25+ Years of Age Who Were Daily Smokers 1 Year Ago and Saw a Physician in the Last Year)

	Advised by Doctor to Quit Smoking							
	Current Smokers Who Saw Doctor in Last Year				All Current Smokers (Including Those Who Did Not See Doctor in Last Year)			
	Advised within Last Year		Pop. Size (N)	Samp. Size (n)	Advised Ever		Pop. Size (N)	Samp. Size (n)
	%	± CI			%	± CI		
Total	54.7	0.8	19,630,620	25,155	61.5	0.6	27,112,558	34,450
Gender								
Male	53.9	1.1	9,381,308	10,761	56.9	0.9	14,338,239	16,382
Female	55.5	1.0	10,249,312	14,394	66.6	0.9	12,774,319	18,068
Age (Years)								
25–44	51.4	1.0	11,226,836	14,138	57.7	0.8	16,047,944	20,004
45–64	59.4	1.3	6,338,781	8,195	66.8	1.1	8,620,121	11,086
65+	58.5	2.3	2,065,003	2,822	67.3	2.0	2,444,493	3,360
Race/Ethnicity								
Non-Hispanic White	55.5	0.8	16,165,195	21,639	63.8	0.7	22,112,500	29,502
Hispanic	51.1	4.9	871,213	764	47.7	4.0	1,354,387	1,172
African-American	49.9	2.3	2,130,272	2,067	50.9	2.0	2,947,187	2,788
Asian/PI	60.7	6.7	248,080	330	54.3	5.3	416,868	512
Native American	53.8	7.5	206,805	342	61.8	6.4	269,919	459
Other	.	.	9,055	13	.	.	11,697	17
Education (Years)								
<12	56.3	1.7	4,088,973	5,077	58.5	1.4	5,867,024	7,181
12	53.1	1.2	8,465,219	11,087	59.4	1.0	11,918,478	15,506
13–15	54.5	1.5	4,955,501	6,347	65.0	1.3	6,499,453	8,290
16+	58.7	2.3	2,120,927	2,644	68.2	1.9	2,827,603	3,473
Cigarettes per Day								
1–4	43.3	4.9	467,277	569	46.4	4.2	646,372	743
5–14	49.8	1.6	4,480,652	5,540	55.8	1.4	5,956,525	7,301
15–24	54.9	1.1	9,721,488	12,677	62.1	0.9	13,365,158	17,354
25+	60.0	1.5	4,961,202	6,369	66.4	1.2	7,144,503	9,052
Household Income (Dollars)								
<10,000	55.3	1.8	3,396,384	4,303	57.8	1.5	4,783,781	5,979
10,000–19,999	52.4	1.7	3,980,854	5,282	57.6	1.4	5,848,297	7,630
20,000–29,999	53.3	1.8	3,685,840	4,740	60.6	1.5	5,134,816	6,566
30,000–49,999	55.2	1.5	5,047,152	6,472	63.4	1.2	6,843,463	8,735
50,000–74,999	56.9	2.1	2,464,475	3,076	68.0	1.8	3,179,898	3,940
75,000 +	58.9	3.2	1,055,915	1,282	69.7	2.7	1,322,303	1,600
By State								
Alabama	53.3	6.6	352,618	371	59.4	5.6	476,460	498
Alaska	53.5	6.9	36,363	304	53.6	5.3	60,870	468
Arizona	54.4	6.6	272,862	247	66.6	5.3	384,055	334
Arkansas	44.3	6.3	220,617	405	57.0	5.2	321,249	567
California	56.4	2.9	1,671,505	1,275	62.2	2.4	2,294,715	1,723

Table 4-2a (continued)

	Advised by Doctor to Quit Smoking							
	Current Smokers Who Saw Doctor in Last Year				All Current Smokers (Including Those Who Did Not See Doctor in Last Year)			
	Advised within Last Year		Pop. Size (N)	Samp. Size (n)	Advised Ever		Pop. Size (N)	Samp. Size (n)
	%	± CI			%	± CI		
Colorado	54.8	6.8	280,054	322	63.6	5.7	369,239	420
Connecticut	64.8	6.6	280,356	264	69.8	5.6	366,233	343
Delaware	67.5	6.2	59,948	211	70.5	5.2	80,090	284
District of Columbia	53.7	8.3	37,600	150	57.0	7.3	48,097	190
Florida	52.3	3.1	1,080,141	1,101	60.0	2.5	1,512,187	1,515
Georgia	57.3	6.3	537,762	278	60.2	5.2	765,068	395
Hawaii	62.5	6.8	78,484	194	72.0	5.5	102,581	251
Idaho	49.7	6.4	78,591	336	58.6	5.2	114,059	486
Illinois	54.1	3.6	817,274	898	59.2	3.0	1,169,281	1,266
Indiana	54.2	6.3	488,551	337	63.5	5.3	643,568	432
Iowa	56.0	6.5	215,431	381	58.7	5.4	307,484	543
Kansas	46.6	6.0	214,808	411	58.5	5.2	286,841	541
Kentucky	48.1	5.7	403,600	406	51.4	4.7	601,593	599
Louisiana	49.0	6.9	331,114	266	54.1	5.8	457,409	370
Maine	57.9	5.7	128,319	360	65.3	4.6	181,243	503
Maryland	62.6	6.3	409,321	256	67.9	5.2	549,267	342
Massachusetts	61.8	3.3	472,564	916	67.9	2.8	620,611	1,194
Michigan	56.6	3.1	854,047	1,241	64.4	2.6	1,183,763	1,704
Minnesota	55.8	6.5	364,871	341	65.6	5.3	489,873	454
Mississippi	47.3	6.7	213,835	392	53.5	5.6	303,055	545
Missouri	55.5	6.3	457,069	370	57.5	5.3	639,137	509
Montana	54.5	6.8	61,175	360	62.9	5.5	87,186	505
Nebraska	45.2	6.8	101,985	324	56.8	5.7	146,246	454
Nevada	52.7	5.9	123,239	342	55.9	4.7	187,585	513
New Hampshire	56.3	7.0	90,836	207	68.7	5.7	123,012	276
New Jersey	54.5	3.6	511,973	810	63.1	3.0	695,800	1,089
New Mexico	46.1	6.9	106,412	262	55.9	5.6	157,322	381
New York	58.4	2.7	1,250,852	1,434	63.9	2.2	1,679,636	1,908
North Carolina	50.3	3.0	618,572	1,220	56.4	2.6	845,241	1,648
North Dakota	47.3	6.8	43,955	329	61.1	5.7	60,764	455
Ohio	53.8	3.1	960,316	1,267	60.2	2.6	1,349,921	1,762
Oklahoma	51.2	6.1	291,434	387	61.1	5.1	394,828	516
Oregon	59.5	7.1	217,078	275	65.4	5.6	319,448	396
Pennsylvania	56.2	3.2	972,134	1,167	62.0	2.7	1,317,262	1,573
Rhode Island	58.9	7.0	76,052	216	62.9	5.9	103,363	292
South Carolina	52.6	5.9	294,520	368	55.8	4.9	418,887	511
South Dakota	52.8	6.4	50,703	373	64.8	5.2	68,680	507
Tennessee	52.6	5.7	490,221	426	59.3	4.8	669,209	570
Texas	50.9	3.6	1,229,339	1,039	58.0	3.0	1,761,601	1,481
Utah	50.8	8.2	80,470	186	62.1	6.6	114,801	261

Table 4-2a (continued)

	Advised by Doctor to Quit Smoking							
	Current Smokers Who Saw Doctor in Last Year				All Current Smokers (Including Those Who Did Not See Doctor in Last Year)			
	Advised within Last Year		Pop. Size (N)	Samp. Size (n)	Advised Ever		Pop. Size (N)	Samp. Size (n)
	%	± CI			%	± CI		
Vermont	59.7	6.4	53,801	242	64.5	5.3	73,440	324
Virginia	58.2	5.4	564,504	414	65.7	4.6	738,659	532
Washington	57.5	6.0	460,778	335	74.2	4.7	576,018	412
West Virginia	53.5	5.7	204,358	465	57.7	4.8	280,174	636
Wisconsin	53.5	6.4	379,021	417	63.6	5.1	559,828	611
Wyoming	58.1	7.2	39,185	257	67.7	5.7	55,621	361

Note: CI = 95% confidence interval; "." = insufficient data.

Table 4-2b

CPS 1995/96—Who Received Physicians' Advice (Current Smokers 25+ Years of Age who were Daily Smokers 1 Year Ago and Saw a Physician in the Last Year)

	Advised by Doctor to Quit Smoking							
	Current Smokers Who Saw Doctor in Last Year				All Current Smokers (Including Those Who Did Not See Doctor in Last Year)			
	Advised within Last Year		Pop. Size (N)	Samp. Size (n)	Advised Ever		Pop. Size (N)	Samp. Size (n)
	%	± CI			%	± CI		
Total	59.2	0.8	20,501,925	21,147	65.8	0.6	28,261,736	28,771
Gender								
Male	57.7	1.1	9,736,220	8,823	60.6	0.9	14,867,079	13,427
Female	60.5	1.1	10,765,705	12,324	71.6	0.9	13,394,657	15,344
Age (Years)								
25–44	55.9	1.1	11,278,521	11,354	62.1	0.9	16,286,194	16,137
45–64	63	1.3	7,174,430	7,468	70.6	1.1	9,521,098	9,854
65+	63.7	2.4	2,048,974	2,325	71.6	2.1	2,454,444	2,780
Race/Ethnicity								
Non-Hispanic White	60.3	0.9	16,869,070	18,124	68.6	0.7	22,876,535	24,441
Hispanic	53	5.1	922,541	715	48.6	4	1,499,043	1,128
African-American	53.9	2.5	2,146,619	1,744	55.4	2.1	3,019,621	2,339
Asian/PI	57.6	6.5	307,782	278	52.4	5.1	512,109	440
Native American	57.9	7.1	255,914	286	65.2	5.8	354,427	423
Education (Years)								
<12	59.8	1.8	3,889,887	3,906	61.4	1.5	5,678,909	5,561
12	58.2	1.2	8,745,200	9,108	64.7	1	12,222,380	12,606
13–15	59.7	1.5	5,515,483	5,725	69.3	1.2	7,304,957	7,517
16+	60.9	2.3	2,351,356	2,408	69.9	1.9	3,055,491	3,087
Cigarettes per Day								
1–4	46.1	4.9	540,665	534	48.6	4.2	735,301	695
5–14	54.6	1.6	4,807,801	4,887	60.6	1.4	6,406,319	6,407
15–24	58.8	1.1	10,077,733	10,499	66.2	0.9	13,916,785	14,326
25+	65.8	1.5	5,075,726	5,227	71.4	1.2	7,203,331	7,343
Household Income (Dollars)								
<10,000	61	2	3,042,358	3,139	62.8	1.7	4,233,242	4,278
10,000–19,999	58.1	1.8	3,771,029	3,964	62.2	1.5	5,500,596	5,655
20,000–29,999	57.6	1.8	3,731,948	3,897	63.9	1.5	5,361,238	5,486
30,000–49,999	58.7	1.5	5,412,723	5,625	66.3	1.3	7,327,333	7,550
50,000–74,999	60.4	2	2,981,838	3,004	71.8	1.6	3,863,464	3,897
75,000 +	61.5	2.8	1,562,029	1,518	73.9	2.2	1,975,863	1,905
By State								
Alabama	56.8	6.4	340,690	305	61.4	5.4	469,368	414
Alaska	62.7	6.2	46,316	198	65.9	5.1	67,767	287
Arizona	54.5	6.7	288,696	293	65.3	5.3	418,367	418
Arkansas	49.9	6.2	214,149	300	60.3	5	321,117	441
California	61.4	3.1	1,673,921	1,029	66.9	2.5	2,397,307	1,463

Table 4-2b (continued)

	Advised by Doctor to Quit Smoking							
	Current Smokers Who Saw Doctor in Last Year				All Current Smokers (Including Those Who Did Not See Doctor in Last Year)			
	Advised within Last Year		Pop. Size	Samp. Size	Advised Ever		Pop. Size	Samp. Size
	%	± CI	(N)	(n)	%	± CI	(N)	(n)
Colorado	62	6.4	295,562	311	69.2	5.3	382,076	393
Connecticut	66.2	6.6	271,134	200	76.2	5.3	337,897	245
Delaware	58.7	6.3	66,015	244	64.2	5.4	83,984	309
District of Columbia	51.1	7.3	43,672	203	66.2	6.3	52,512	239
Florida	57.9	3.3	1,066,392	877	61.6	2.7	1,555,314	1,244
Georgia	55.5	6.3	496,628	301	59.4	5.2	723,657	428
Hawaii	64.2	6.9	86,935	163	68.9	5.9	111,134	208
Idaho	62.1	6.5	79,583	281	69.4	5.1	115,450	402
Illinois	59.1	3.6	944,323	878	63.5	2.9	1,341,309	1,211
Indiana	56.1	5.6	601,058	371	64.8	4.7	802,909	494
Iowa	57.8	6.3	237,604	312	68	5.2	311,972	408
Kansas	55.1	6.3	221,783	331	67.1	5.1	299,636	440
Kentucky	56.9	5.2	457,874	387	66.7	4.3	605,785	512
Louisiana	54	6.5	318,972	242	59.9	5.3	465,292	343
Maine	67.2	5.9	116,971	275	74.4	4.6	168,770	394
Maryland	64.1	6.5	396,517	235	77.9	5	491,520	290
Massachusetts	66.3	4.1	462,298	538	70.5	3.4	606,617	694
Michigan	64	3.4	862,118	906	69.2	2.8	1,150,884	1,196
Minnesota	59.9	6.4	367,772	328	73.3	5	488,620	430
Mississippi	50.1	6.7	199,585	238	54.4	5.4	299,663	350
Missouri	53.9	6.2	474,933	316	65	4.9	693,826	451
Montana	57.8	6.3	70,104	327	69.2	4.8	104,079	477
Nebraska	54	6.5	123,342	293	63.2	5.5	163,531	382
Nevada	59.5	5.9	143,846	272	57.9	4.8	227,701	414
New Hampshire	70.8	6.1	104,853	240	77.1	4.9	140,290	316
New Jersey	58.7	4	562,267	601	64.3	3.3	754,241	790
New Mexico	63.7	6.2	123,751	282	66.2	5.1	174,629	393
New York	62.2	2.8	1,275,860	1,135	65.8	2.4	1,660,597	1,468
North Carolina	60	4	656,409	785	65.2	3.3	914,716	1,082
North Dakota	50.4	7	44,662	279	61.2	5.5	67,502	414
Ohio	58.4	3.4	1,023,708	986	65.3	2.8	1,393,787	1,326
Oklahoma	53.4	6	292,183	390	64.6	4.8	409,168	535
Oregon	56.8	6.8	240,543	254	70.1	5.4	328,361	343
Pennsylvania	62.6	3.2	1,066,331	1,063	68.1	2.7	1,395,358	1,377
Rhode Island	76.4	5.3	98,514	249	75.1	4.9	122,217	306
South Carolina	54.4	6	336,467	262	60.4	5.1	456,079	352
South Dakota	52.7	6.6	49,533	285	61.3	5.3	74,318	431
Tennessee	57.3	5.5	537,979	342	68.2	4.5	716,126	446
Texas	55.4	3.5	1,319,024	897	60.4	2.9	1,916,107	1,269
Utah	56.9	8.2	84,733	169	72.9	6.2	118,589	234

Table 4-2b (continued)

	Advised by Doctor to Quit Smoking							
	Current Smokers Who Saw Doctor in Last Year				All Current Smokers (Including Those Who Did Not See Doctor in Last Year)			
	Advised within Last Year		Pop. Size (N)	Samp. Size (n)	Advised Ever		Pop. Size (N)	Samp. Size (n)
	%	± CI			%	± CI		
Vermont	65	6.1	56,914	274	74.3	4.9	74,293	355
Virginia	56	5.8	570,775	372	64	4.8	783,004	500
Washington	62.2	6.7	417,863	261	72.3	5.4	557,968	346
West Virginia	68.3	5	195,029	417	72.1	4.1	269,846	573
Wisconsin	58.9	6.2	438,829	358	69.3	4.9	620,298	499
Wyoming	56.5	6.9	36,903	292	62.3	5.5	56,178	439

Note: CI = 95% confidence interval.

0.6 percent of all smokers (including those who had not seen a physician in the last year) reported ever being told by a physician to quit smoking in the 1995/96 CPS. Also in the 1995/96 CPS, Massachusetts was significantly higher than the national norm with 66.3 ± 4.1 percent of daily smokers over age 25 who had seen a physician in the last year reporting physician advice to quit within the last year, an increase from 61.8 ± 3.3 percent in 1992/93 CPS. However, California was not significantly different from other states in either survey.

Reports of tobacco advice in the previous year from patients seeing dentists also increased, from 21.9 ± 0.7 percent in 1992/93 to 26.5 ± 0.8 percent in 1995/96, and the ever-advised rate (including smokers without dental visits) rose from 19.4 ± 0.5 percent to 23.0 ± 0.6 percent.

Multivariate logistic regression analyses of the determinants of who received advice to quit smoking among those daily smokers who saw a physician in the last year (Table 4-3) reveal that women and older smokers were more likely to receive physician advice to quit smoking, as were smokers of higher number of cigarettes per day. African-American smokers were less likely to receive physician advice to quit. Level of education and household income did not influence the likelihood of receiving physician advice to quit smoking once their effect on likelihood of seeing a physician was taken into account by limiting the analyses to those who had visited a physician in the last year.

The CPS did not ask former smokers whether they had received advice to quit smoking from a physician in the last year, but the 1996 California Tobacco Survey (CTS) did. The characteristics that predicted who would receive physician advice to quit were similar in both the CPS and CTS. Measures of cessation activity and success were estimated for those who had been daily smokers 1 year prior to the survey for the 1996 CTS (Table 4-4). Those estimates show 50.0 ± 2.54 percent of those current daily smokers who were advised to quit smoking by their physician made an attempt to

quit, in comparison to 41.2 ± 3.4 percent of those smokers who did not report receiving physician advice to quit. However, the percentages of daily smokers 1 year prior to the survey who were former smokers, or former smokers of 3+ months duration, were almost identical for those who did and did not report receiving advice to quit. Table 4-5 presents the results of a multivariate logistic regression analysis of the cessation measures from the 1996 CTS with report of advice to quit by a physician in the last year included as a term in the analysis. Daily smokers who received physician advice to quit were 1.5 times more likely to make some change in their smoking behavior and 1.6 times more likely to make a cessation attempt, but they were no more likely to be a former smoker at the time of the survey (OR = 1.0) or to have quit for 3 or more months at the time of the survey (OR = 0.91). These associations may reflect both the benefits of clinician intervention and a tendency for clinicians to raise the issue with more motivated patients. Similar results were obtained for a multivariate logistic regression of the CPS data controlling for any cessation activity or cessation attempts, but no data on cessation success were available because former smokers were not asked whether they had received advice to quit.

The data suggest that physicians are effective motivators for cessation activity; but that physician advice alone, at least as it is currently being practiced in the United States, does not have a substantive effect on the likelihood of population-level cessation success. This observation is in contrast to a substantial number of well-controlled clinical trials of physician intervention that have demonstrated a modest effect on long-term smoking cessation rates, an effect that was significant both statistically and in terms of public health. The difference may reflect the quality of the advice provided in these two settings. In research settings, even minimal intervention approaches are provided in a structured way and commonly include components designed to enhance longer term success. In the real-world setting surveyed by the CTS, physician intervention may be more frequently limited to simple advice to quit without any offers of assistance or follow-up.

Even in the absence of an intervention sufficient to influence long-term cessation rates, physician advice to quit smoking does increase cessation activity by 50 to 60 percent, demonstrating the potential of physician advice as a tobacco control intervention channel. The gap represented by the absence of an effect on long-term cessation in the CTS data and the clear demonstration of a long term-effect in clinical trials define what is achievable if the AHRQ clinical practice guidelines were implemented for those patients who are currently receiving advice to quit.

Effects of current practice patterns on cessation rates in the United States

How many smokers might be influenced to quit each year if the clinical practice guidelines were implemented? We assumed that 35 million smokers, or 70 percent of the roughly 50 million U.S. smokers, see a physician each year, and that 3 percent (Hughes *et al.*, 1992) of these smokers (1,050,000) will become long-term quitters each year without clinician intervention. We further assumed that 60 percent of smokers seen by clinicians each year receive minimal advice (*i.e.*, <3 minutes), and very few receive more extensive intervention and assistance.

Table 4-3

CPS 1992/93 and 1995/96—Multivariate Logistic Regressions of who Received Physicians' Advice (Current Smokers 25+ Years of Age who were Daily Smokers 1 Year Ago and Saw a Physician in the Last Year)

Variable	1992/93		1995/96	
	OR	95% CI	OR	95% CI
Gender				
Male	1.00		1.00	
Female	1.14	(1.09 - 1.20)	1.19	(1.13 - 1.26)
Age (Years)				
25–44	1.00		1.00	
45–64	1.34	(1.27 - 1.42)	1.31	(1.23 - 1.39)
65+	1.40	(1.28 - 1.52)	1.44	(1.31 - 1.59)
Race/Ethnicity				
Non-Hispanic White	1.00		1.00	
Hispanic	0.96	(0.85 - 1.09)	0.88	(0.77 - 1.01)
African-American	0.91	(0.84 - 0.99)	0.86	(0.78 - 0.94)
Other	1.18	(1.00 - 1.40)	0.99	(0.84 - 1.17)
Education (Years)				
<12	1.00		1.00	
12	0.90	(0.84 - 0.96)	0.98	(0.90 - 1.06)
13–15	0.96	(0.89 - 1.04)	1.06	(0.97 - 1.16)
16+	1.11	(1.00 - 1.23)	1.10	(0.98 - 1.23)
Household Income (Dollars)				
<10,000	1.00		1.00	
10,000–19,999	0.89	(0.82 - 0.96)	0.87	(0.79 - 0.96)
20,000–29,999	0.93	(0.85 - 1.01)	0.85	(0.77 - 0.94)
30,000–49,999	1.00	(0.92 - 1.09)	0.89	(0.81 - 0.98)
50,000–74,999	1.05	(0.95 - 1.16)	0.94	(0.85 - 1.05)
75,000+	1.05	(0.92 - 1.20)	0.95	(0.83 - 1.09)
Cigarettes Smoked per Day				
1–4	1.00		1.00	
5–14	1.33	(1.12 - 1.58)	1.43	(1.19 - 1.70)
15–24	1.65	(1.39 - 1.95)	1.69	(1.42 - 2.01)
25+	2.04	(1.71 - 2.42)	2.31	(1.93 - 2.77)

An AHRQ meta-analysis found that minimal advice of 1-3 minutes yields a 30 percent increase in the spontaneous quit rate. With current practice patterns (Scenario 1, Table 4-6), we estimate that clinicians are responsible for helping an additional 189,000 smokers quit each year. If clinicians delivered minimal advice to 90 percent of the smokers they saw at least once over the course of a year (Scenario 2, Table 4-7), they would help an additional 283,500 smokers quit, over and above the background cessation rate. In Scenario 3 (Table 4-8), we assumed that clinicians (or their staff) would advise 90 percent of all smokers they saw at least once per year and would provide 10 minutes or more of cessation counseling and/or follow-up to the half who were considering quitting. Nationally, this would yield 756,000 clinician-generated long-term quitters each year. Thus, providing

Table 4-4
CTS 1996—Measures of Cessation Activity and Success among Current and Former Smokers 25+ Years of Age who were Daily Smokers 1 Year ago and Saw a Physician in the Last Year

Variable	Any Change ¹ % CI	Attempt ² % CI	Occasional ³ % CI	Former Smoker % CI	Former 3+ Months % CI	Population Size (N)	Sample Size (n)
Physician's Advice							
Not Advised	43.01	41.22	5.27	11.00	6.08	722,315	1,628
Advised	50.25	50.03	3.34	10.80	5.57	1,022,300	2,286
Total	47.25	46.38	4.14	10.88	5.78	1,744,616	3,914
Gender							
Male	47.81	47.25	3.51	10.75	5.56	850,010	1,721
Female	46.72	45.56	4.74	11.01	5.99	894,605	2,193
Age							
25-44	52.07	50.87	4.87	11.08	5.55	981,419	2,171
45-64	41.21	40.82	3.07	9.70	5.69	602,613	1,402
65+	40.49	39.84	3.70	14.16	7.55	160,583	341
Race/Ethnicity							
Non-Hispanic White	44.63	43.87	3.61	11.23	5.88	1,223,967	3,006
Hispanic	53.82	52.59	6.23	12.22	6.47	220,963	356
African-American	54.42	53.32	5.98	5.61	3.97	140,871	246
Asian/PI	51.06	49.59	3.88	12.89	6.60	87,442	166
Native American	53.07	52.62	3.42	8.84	4.60	71,373	140
Education (Years)							
<12	49.59	48.94	3.39	9.77	4.98	345,937	379
12	42.73	41.82	2.96	9.02	5.10	547,340	1,381
13-15	47.65	46.65	5.34	10.55	5.08	527,748	1,335
16+	51.75	50.93	4.98	15.77	8.94	323,589	819

Table 4-4 (continued)

Variable	Any Change ¹ % CI	Attempt ² % CI	Occasional ³ % CI	Former Smoker % CI	Former 3+ Months % CI	Population Size (N)	Sample Size (n)
Household Income							
≤10,000	47.31	46.25	3.44	8.90	4.83	214,655	390
10,001–20,000	50.46	50.31	4.57	10.43	5.56	243,502	491
21,000–30,000	44.67	44.20	3.28	9.37	4.32	287,691	631
30,001–50,000	45.62	44.66	4.36	10.66	5.06	449,586	1,044
50,001–75,000	49.96	48.37	5.66	11.40	7.55	309,943	733
75,000+	46.62	45.79	2.98	14.72	7.69	239,237	625
Cigarettes per Day							
1–4	59.83	57.45	10.76	17.76	8.21	54,352	122
5–14	57.41	55.86	6.27	11.83	6.43	484,224	993
15–24	45.32	44.64	3.51	9.68	5.08	782,071	1,822
25+	37.61	37.35	2.03	11.15	6.02	423,967	977

¹Any Change: Includes those who have made a quit attempt, have become occasional smokers, or have become former smokers.

²Attempt: Includes those who have made a quit attempt or have become former smokers (CTS algorithm).

³Occasional: Includes those who reduced from smoking everyday, to smoking some days.

Note: CI = 95% confidence interval.

Table 4-5
CTS 1996—Multivariate Logistic Regression Analysis of Measures of Cessation Activity and Success among Current and Former Smokers 25+ Years of Age who were Daily Smokers 1 Year Ago and Saw a Physician in the Last Year

Variable	Any Change ¹ OR	95% CI	Attempt ² OR	95% CI	Occasional ³ OR	95% CI	Former Smoker OR	95% CI	Former 3+ Months OR	95% CI
Physician's Advice										
Not Advised	1.00									
Advised	1.50	(1.31, 1.71)	1.60	(1.40, 1.83)	0.67	(0.49, 0.93)	1.00	(0.81, 1.23)	0.91	(0.69, 1.20)
Gender										
Male	1.00									
Female	0.90	(0.78, 1.02)	0.87	(0.76, 1.00)	1.33	(0.95, 1.85)	1.07	(0.87, 1.32)	1.15	(0.87, 1.52)
Age										
25-44	1.00									
45-64	0.68	(0.59, 0.79)	0.70	(0.60, 0.80)	0.74	(0.51, 1.08)	0.85	(0.68, 1.07)	1.03	(0.76, 1.40)
65+	0.68	(0.53, 0.85)	0.68	(0.54, 0.86)	0.98	(0.54, 1.78)	1.37	(0.98, 1.92)	1.49	(0.95, 2.33)
Race/Ethnicity										
Non-Hispanic White	1.00									
Hispanic	1.18	(0.96, 1.46)	1.17	(0.95, 1.44)	1.55	(0.98, 2.46)	1.17	(0.84, 1.61)	1.25	(0.81, 1.91)
African-American	1.18	(0.93, 1.52)	1.18	(0.92, 1.51)	1.35	(0.79, 2.31)	0.48	(0.29, 0.79)	0.69	(0.38, 1.27)
Other	1.08	(0.86, 1.36)	1.08	(0.86, 1.36)	0.82	(0.45, 1.50)	0.92	(0.64, 1.32)	0.92	(0.57, 1.50)
Education (Years)										
<12	1.00									
12	0.77	(0.64, 0.94)	0.77	(0.63, 0.93)	0.89	(0.52, 1.51)	0.89	(0.65, 1.23)	1.00	(0.65, 1.54)
13-15	0.93	(0.77, 1.14)	0.92	(0.76, 1.12)	1.67	(1.01, 2.75)	1.09	(0.79, 1.50)	1.00	(0.65, 1.56)
16+	1.10	(0.88, 1.39)	1.10	(0.88, 1.39)	1.58	(0.90, 2.80)	1.57	(1.11, 2.22)	1.71	(1.08, 2.72)

Table 4-5 (continued)

Variable	Any Change ¹		Attempt ²		Occasional ³		Former Smoker		Former 3+ Months	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Household Income (Dollars)										
≤10,000	1.00									
10,001–20,000	1.19	(0.92, 1.53)	1.23	(0.95, 1.58)	1.45	(0.76, 2.78)	1.11	(0.73, 1.80)	1.10	(0.62, 1.92)
21,000–30,000	0.90	(0.70, 1.15)	0.92	(0.72, 1.18)	0.94	(0.48, 1.84)	0.99	(0.65, 1.50)	0.84	(0.47, 1.50)
30,001–50,000	0.92	(0.73, 1.16)	0.92	(0.73, 1.16)	1.34	(0.73, 2.48)	1.10	(0.75, 1.63)	0.98	(0.58, 1.66)
50,001–75,000	1.07	(0.84, 1.38)	1.05	(0.81, 1.34)	1.65	(0.88, 3.10)	1.19	(0.79, 1.81)	1.51	(0.88, 2.58)
75,000+	0.98	(0.74, 1.28)	0.98	(0.74, 1.28)	0.89	(0.42, 1.89)	1.47	(0.96, 2.25)	1.37	(0.78, 2.43)
Cigarettes per Day										
1–4	1.00									
5–14	0.92	(0.62, 1.36)	0.95	(0.64, 1.40)	0.66	(0.35, 1.25)	0.68	(0.41, 1.13)	0.89	(0.44, 1.79)
15–24	0.59	(0.40, 0.87)	0.62	(0.42, 0.91)	0.39	(0.20, 0.76)	0.52	(0.31, 0.87)	0.68	(0.34, 1.38)
25+	0.44	(0.29, 0.65)	0.46	(0.31, 0.69)	0.27	(0.12, 0.58)	0.63	(0.37, 1.07)	0.84	(0.40, 1.75)

¹Any Change: Includes those who have made a quit attempt, have become occasional smokers, or have become former smokers.

²Attempt: Includes those who have made a quit attempt or have become former smokers (CTS algorithm).

³Occasional: Includes those who reduced from smoking everyday, to smoking some days.

Table 4-6

Scenario 1: Additional Quitters per Year with a 60% Minimal Advice Rate

60% receive simple advice to quit	21,000,000
Effect of minimal advice on probability of cessation	1.3
Expected quits for those with minimal advice (21,000,000 x 0.03 x 1.2)	819,000
Expected spontaneous quits without advice (21,000,000 x 0.03)	630,000
Expected increase in quits due to current practice (756,000 – 630,00)	189,000

Table 4-7

Scenario 2: Additional Quitters per Year with a 90% Minimal Advice Rate

90% receive simple advice to quit	31,500,000
Effect of minimal advice on probability of cessation	1.3
Expected quits for those with minimal advice (31,500,000 x 0.03 x 1.2)	1,228,500
Expected spontaneous quits without advice (31,500,000 x 0.03)	945,000
Expected increase in quits with 90% advice rate (1,134,000 – 945,000)	283,500

Table 4-8

Scenario 3: Additional Quitters per Year with 90% Minimal Advice Plus 10 Minutes of Counseling for 50% who Are Planning to Quit

45% receive simple advice to quit	15,750,000
Effect of minimal advice on probability of cessation	1.3
45% receive 10 minutes or more of cessation counseling	15,750,000
Effect of counseling on probability of cessation	2.3
Expected quits for those with minimal advice (15,750,000 x 0.03 x 1.3)	614,250
Expected quits for those with counseling (15,750,000 x 0.03 x 2.3)	1,086,750
Total expected quits for advised plus counseled patients	1,701,000
Expected spontaneous quits without advice (31,500,000 x 0.03)	945,000
Expected increase in clinician-generated quits (1,701,000 – 945,000)	756,000

brief cessation assistance to interested patients, rather than just simple advice, would increase the number of long-term quitters that can be attributed to clinicians' efforts from 189,000 per year currently to 756,000 per year—a 4-fold increase.

Implications for practice and policy

While cessation advice rates have increased substantially over the last 20 years, progress of physicians and dentists toward implementing the AHRQ guidelines or toward achieving the Healthy People Year 2010 objectives regarding tobacco services remains slow. Given multiple contacts with most patients each year, this tobacco control channel remains one where the potential effect outweighs the achieved effect. Currently, even when smokers are advised to quit, they are unlikely to receive meaningful cessation assistance in the form of self-help materials, encouragement to set a quit date, follow-up support, or pharmacotherapy; so improvement in the effectiveness of current physician-delivered cessation assistance is likely to be more important than increasing the frequency of physician-delivered advice.

Simply offering minimal, but effective, advice to 90 percent, rather than 60 percent, of smokers each year would increase the number of clinician-generated quitters to 283,500 per year. What would make a far greater difference, however, would be for clinicians and their staff to provide cessation assistance to the half of smokers who are considering quitting. Assistance goes beyond simple advice. It also includes brief discussion of quitting strategies and how to overcome barriers, encouragement to set a quit date, referral options, NRT, and follow-up support. Office staff, with the help of videos and other tools, can help clinicians offer this type of brief (10 minutes) support within an organized office system. Assistance of this sort, if delivered routinely to interested smokers, could increase clinician-generated quitters four-fold to 756,000 per year. Implementing this type of intervention should be a high priority for all routine care settings.

What does it take to improve tobacco counseling during routine care?

Altering the practice patterns of busy clinicians is never easy, but the problems appear to be particularly acute when it comes to tobacco-control efforts. Most of the studies showing positive effects on practice patterns and patient quit rates have been conducted in smaller groups of willing clinicians who are participating in a short-term study. Usually, the researchers provide high-quality training, careful monitoring, and often external support (*e.g.*, research assistants) that are rarely available in real-world practice. Under these relatively ideal conditions, patients do indeed receive more and better services, which translates to improved cessation outcomes. As the research team leaves, however, or as others disseminate the intervention in new settings, compliance drops dramatically (Kottke *et al.*, 1989; Solberg, 1996; Solberg *et al.*, 1996).

The problem may be that dissemination efforts for proven clinical interventions are inadequate. The most common implementation strategies include distributing clinical practice guidelines and offering continuing medical education (CME). In isolation, however, these approaches have little lasting effect on tobacco intervention practices or on other clinical

improvement targets. Changes in practice patterns, if they occur at all, tend to fade quickly as initial enthusiasm succumbs to the crush of patient-care demands, competing new initiatives, and administrative burdens.

Realistically, changing routine clinical practice requires both an office systems approach to delivering care, and a sustained organizational commitment to maintaining long-term success (Kottke *et al.*, 1990; Elford *et al.*, 1994; Fiore *et al.*, 1997 & 2000; Hollis *et al.*, 1993; Leininger *et al.*, 1996; Lichtenstein *et al.*, 1996a; McAfee *et al.*, 1998; Solberg *et al.*, 1990 & 1997; Ockene *et al.*, 1997a). An office systems approach includes the following elements: 1) a system for identifying and documenting smokers; 2) clinician prompts to deliver advice; 3) a means to provide assistance to smokers interested in quitting (*e.g.*, support staff); 4) appropriate training for clinicians and support staff; 5) a convenient way for staff to document the delivery of tobacco interventions; 6) clear performance objectives for all staff members; and 7) a mechanism for regular performance reporting at the individual, team, and organizational levels. Preferably, tobacco intervention quality measures should be tied to annual performance reviews and other incentive mechanisms.

Involving support staff appears essential, both to prompt clinicians to advise and to reduce demands on clinicians struggling with 10-minute encounters. For example, having staff document smoking status in the chart note has been shown to double the rate of smokers reporting that they received advice (Fiore *et al.*, 1995). Cohen *et al.* (1989) found that chart reminders increased advice rates from 41 percent to 75 percent and 1-year patient quit rates from 1.5 percent to 7.9 percent, though maintaining staff documentation efforts over time can be challenging (Cummings *et al.*, 1989). Defining specific roles for support staff (*e.g.*, assessing smoking and prompting clinicians), for clinicians (*e.g.*, advising and staging), and for nurses (*e.g.*, assisting smokers) nearly doubles the long-term quit rate over brief clinician advice alone (Hollis *et al.*, 1993). Telephone outreach systems can provide effective assistance and follow-up to patients ready to take action on smoking (Lichtenstein *et al.*, 1996b; McAfee *et al.*, 1998).

Of course, it is much easier to identify the components of a good systems approach than to actually incorporate them into real-world clinical settings. Berwick (1992) provides a model for how to conceptualize the clinical quality improvement process, but these ideas have not been systematically applied to tobacco intervention. Organized health care systems, particularly staff-model HMOs, would seem to have both the incentive and the tools to achieve systematic and lasting changes in the policies, norms, and practices of clinicians. First, they have a vested interest in reducing tobacco use and tobacco-related disease in their members and in doing well on quality performance measures (*e.g.*, HEDIS 3.0). As patients, employer groups, and purchasers intensify calls for action, the incentive for organizational change efforts will also increase. HMOs also have the ability to define system-level policies, norms, and targets; to monitor performance; and to provide feedback and incentives to staff. Indeed, many health care systems are considering or piloting approaches for systematically implementing the

Four A's—Ask, Advise, Assist, and Arrange. Success will depend on whether their organizational change efforts include the following components:

- Maintenance of a tobacco-services taskforce with high level stakeholders
- Adoption of performance quality targets for the delivery of tobacco advice and assistance
- Creation of an office system with explicit accountabilities for staff
- Development of convenient documentation procedures
- Measurement of performance and providing feedback to teams across the entire organization
- Recognition of performance and celebration of progress

The underlying challenge for most preventive interventions, particularly behavioral interventions requiring education and problem solving rather than tests, drugs, or surgery, is that they fall outside the traditional medical paradigm (Vogt *et al.*, 1998). Overcoming this last barrier will require a re-evaluation of the role of clinicians and health care systems. In short, we need to move from a health care delivery model, in which we primarily diagnose and treat presenting complaints, toward a public health model (Greenlick, 1995) with the objective of maintaining optimal health in a defined population.

SUMMARY The frequency with which smokers in the United States report receiving physician advice to quit smoking has increased substantially over the last 20 years, and in the 1995/96 CPS, approximately 60 percent of current daily smokers reported receiving advice to quit smoking from their physician in the last year. Older smokers and smokers of higher numbers of cigarettes per day are more likely to receive physician advice to quit smoking, and African-American smokers are slightly less likely to receive physician advice to quit.

Studies in research settings have demonstrated that minimal interventions by physicians and dentists can increase cessation attempt rates and long-term cessation success as well. Data from the most recent CPS suggest that physician advice to quit, as it is currently being delivered in the United States, increases cessation attempts but does not improve long-term cessation success rates.

Successful dissemination and implementation of the AHRQ clinical practice guidelines could increase the number of smokers who quit by increasing the frequency with which smokers are advised to quit, but a more effective approach might be to increase the effectiveness of interventions already provided by the physician or dentist. Enhancing the quality of the intervention provided, focusing on those smokers who are ready to quit, and implementing changes in the care delivery system that promote and support physician-based cessation interventions are all methods by which physician- and dentist-based cessation interventions can be enhanced as a tobacco control channel.

The substantial effect of physician advice on cessation attempts, with minimal or absent effects on long-term cessation rates, also suggests that strategies to improve the frequency with which physicians advise their patients should be coupled with other tobacco control channels that improve cessation success among those who make a quit attempt. Programs that link physician advice to quit with telephone counseling or other proven cessation modalities may create synergies across these separate tobacco-control intervention channels.

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