

# Care Coordination to Increase Referrals to Smoking Cessation Telephone Counseling: A Demonstration Project

Scott E. Sherman, MD, MPH; Nancy Takahashi, MPH; Preeti Kalra, MS; Elizabeth Gifford, PhD;  
John W. Finney, PhD; James Canfield, BS; John F. Kelly, PhD;  
George J. Joseph, MS; and Ware Kuschner, MD

Smoking is the leading preventable cause of death in the United States and is a particular problem within the Veterans Health Administration (VA).<sup>1,2</sup> The VA has done an excellent job of identifying smokers and advising them to quit, with rates for asking and advising exceeding 90% nationwide for the last several years.<sup>3</sup> Unfortunately, although patients are interested in quitting, the prevalence of smoking has remained high, in part because treatment rates have remained low.<sup>4</sup> In a 1999 survey of VA patients, 60% had tried to quit in the prior year, but only 20% reported receiving the services they needed to help them quit.<sup>2</sup> In a recent survey of VA patients, Sherman et al<sup>5</sup> found that, while 45% of smokers tried to quit in the prior year, only 28% reported being referred to a smoking cessation program, and only 9% actually attended the program.

Increasing the rates of smoking cessation treatment is a challenge facing the VA and other healthcare systems. Primary care-based treatment is effective and would have broad reach, but the many competing demands on providers limit the time available for smoking cessation counseling.<sup>6,7</sup> Interdisciplinary in-person smoking cessation programs have the highest success rate, but most smokers cannot or will not attend them.<sup>6,8</sup> Telephone counseling for smoking cessation is another effective approach, merging the broad reach of primary care with the higher effectiveness of in-person smoking cessation programs.<sup>6,9</sup>

Although telephone counseling is effective, healthcare systems seldom use it. Among the reasons healthcare systems fail to use telephone counseling, the most important seems to be that telephone counseling requires significant changes to the usual system of care. For telephone counseling to be a viable option for increasing rates of smoking cessation treatment, there needs to be a way to systematically increase referrals. In this article, we describe the results of an evaluation of a system implemented at multiple VA sites to increase referrals to telephone counseling.

## METHODS

This demonstration project took place at 2 VA healthcare systems in California. We randomly assigned 10 of 18 sites within these 2 systems to receive the Telephone Care Coordination Program (TCCP). The remaining 8 sites served as usual-care control sites

**Objective:** To test the effectiveness of a care coordination program for telephone counseling in raising referral and treatment rates for smoking cessation.

**Study Design:** A demonstration project implementing a smoking cessation care coordination program offering telephone counseling and medication management to patients referred from primary care.

**Methods:** The study was performed at 18 Veterans Health Administration (VA) sites in California. Participants were VA patients receiving primary care. We randomly allocated 10 of 18 sites to receive the Telephone Care Coordination Program, which included simple 2-click referral, proactive care coordination, medication management, and 5 follow-up telephone calls. Each patient received a 30- to 45-minute counseling session from the California Smokers' Helpline. Patients at control sites received usual care.

**Results:** During 10 months, we received 2965 referrals. We were unable to reach 1156 patients (39%), despite at least 3 attempts. We excluded 73 patients (3%), and 391 patients (13%) were not interested. We connected the remaining 1345 patients (45%) to the Helpline. At 6-month follow-up, 335 patients (11% of all referrals and 25% of participating patients) were abstinent. Providers at intervention sites reported referring many more patients to telephone counseling than providers at control sites (15.6 vs 0.7 in the prior month).

**Conclusions:** The program generated a large number of referrals; almost half of the patients referred were connected with the Helpline. Long-term abstinence was excellent. These results suggest that managed care organizations may be able to improve tobacco control by implementing a similar system of care coordination.

(*Am J Manag Care.* 2008;14(3):141-148)

**In this issue**  
Take-away Points / p147  
[www.ajmc.com](http://www.ajmc.com)  
Full text and PDF

**For author information and disclosures, see end of text.**

(usual care comprised direct treatment by a primary care provider, referral to a VA smoking clinic, or informal referral to an outside resource such as a quitline). Our goal was to increase referrals to telephone counseling for smoking cessation. The project was approved by the institutional review boards at both healthcare systems and was exempted from informed consent requirements (because patients received routine clinical care and because research staff received aggregated data only). The intervention period was 10 months (mid May 2003 to mid March 2004).

### Setting and Subjects

In southern California, the VA Greater Los Angeles Healthcare System provides care to approximately 79,000 patients across 5 ambulatory care centers and 5 community-based outpatient clinics. In northern California, the VA Palo Alto Healthcare System serves approximately 53,000 patients at 3 ambulatory care centers and 5 community-based outpatient clinics.

We do not have exact information on the characteristics of the providers in this study because our survey included only 4 questions on reported practice patterns. However, these sites were part of a larger VA study previously reported by Meredith et al,<sup>10</sup> and the characteristics of that study are reasonably similar to those of the present sample. Meredith et al found that 80% of the providers were at an academic setting, with 78% in an urban area; 87% were at a medical center, with the remainder at an ambulatory care center. Providers reported being in practice for a mean of 15 years since training, and 78% were women. Of the respondents, 67% were physicians, 26% were nurse practitioners, and 7% were physician assistants. Inferring patient characteristics from the same larger study, smokers were on average 57 years old, 93% were male, 41% were married, and 64% were of white race/ethnicity. Most smokers (55%) had at least some college education, and 66% reported an annual income of less than \$20,000.<sup>5</sup> The best estimate for smoking prevalence at these sites comes from the VA's External Peer Review Program, which performs structured explicit review on a large sample of medical records at every VA medical center, ambulatory care center, and community-based outpatient clinic. The prevalence of smoking among primary care patients at the VA Greater Los Angeles Healthcare System is about 27% (range across the individual sites, 17%-35%), while that at the VA Palo Alto Healthcare System is about 21% (range across individual sites, 7%-26%).

All sites use a fully electronic medical record system that includes progress notes, laboratory results, medications, and consults.<sup>11</sup> It also includes locally designed computerized clinical reminders on a wide range of diseases and problems.

Reminders are a means to increase adherence to VA nationally mandated practice guidelines. The level of guideline adherence is measured at all sites by an external peer review organization, and the results form part of the performance assessment for each facility's director.<sup>12,13</sup> In particular, smoking cessation is a mandated guideline and performance measure, and all sites use computer reminders to prompt providers to ask about smoking and to advise smokers to quit.

### Intervention

Our previous attempts to increase referrals to telephone counseling have had little or no success, and we hypothesized the following 3 main barriers: (1) there is a lack of knowledge about available telephone counseling resources, (2) referral to an outside resource generally takes more time than referral internally, and (3) difficulties inherent in prescribing, monitoring, and refilling medications are apparent when someone else is providing the counseling. We believed that the lack of knowledge could be easily addressed. However, the barriers about time and prescribing were not as easily solved, so we designed our demonstration project to address them.

To make providers aware of the new program, e-mail announcements were sent to all facility providers. The announcements described the program and the method to refer patients. In addition, a study physician (SES or WK) and a study coordinator (NT or PK) visited each clinic at the beginning of the intervention period to promote the program to clinic managers and to key providers.

The TCCP comprised the following 4 components:

**Simple Computerized Referral.** When completing computerized clinical reminders for tobacco use, a VA provider could easily refer a patient by 2 additional mouse clicks. The process of referring a patient to the TCCP was fully integrated into VistA, the VA's electronic health record, as part of routine clinical practice. A button was added to the existing clinical reminder treatment options to "refer to telephone counseling"; clicking the button led to a popup referral window. The provider answered 2 brief questions (identifying contraindications to nicotine patches or to bupropion hydrochloride) and submitted the referral. Before the intervention, referring a patient to a smoking clinic involved completing a multiquestion consult referral requiring a minute or longer to complete. We shortened the computerized referral to telephone counseling or to a smoking clinic to 2 brief questions requiring only a few seconds of provider time. Because of the way the VA's electronic health record is structured, we were unable to limit access to the new TCCP referral option to intervention sites only. We compensated by listing the clinics for which the pro-

## Increasing Referrals to Smoking Cessation Telephone Counseling

gram was available on the referral screen (eg, “This option is only available at...”). Clinicians at control sites could still refer patients directly to the quitline or choose to treat the patient directly with usual care.

**Proactive Recruitment Into Telephone Counseling.** The TCCP staff initially included only 1 full-time care coordinator for each facility, but 2 more full-time coordinators were added at each facility as the rate of referrals increased. Once the consult was received, the VA care coordinator proactively attempted to contact the patient by telephone up to 3 times. If the patient agreed, the coordinator then connected the patient with the California Smokers’ Helpline on a 3-way telephone call. We used the 3-way telephone call because in a prior study<sup>14</sup> more than half of the patients intending to call the Helpline did not follow through, despite multiple reminders.

Once connected to the California Smokers’ Helpline, patients were scheduled to receive a single 30- to 45-minute counseling session, generally within 7 days. The Helpline used a structured counseling protocol that has previously been shown to be efficacious and effective.<sup>15,16</sup> The content of the counseling addressed behavioral and cognitive issues that the individual smoker faced in his or her quit attempt.<sup>17</sup> Some of the topics addressed include motivation, self-efficacy, difficult situations, coping strategies, medication use, and relapse prevention.

**Medication Management.** The VA care coordinator gathered information on contraindications and monitored medications (nicotine patches or bupropion), which were prescribed by a designated smoking cessation clinician (SES or WK). Care coordinators asked questions about medication use during the follow-up counseling telephone calls; patients reporting problems were referred to the prescribing clinician or to the VA nurse advice telephone service. Each facility had 1 prescribing clinician (who was part of the facility’s primary care staff).

**Follow-up Contact.** The VA care coordinator followed up with the patient at 2, 4, 6, and 8 weeks after the quit date and again at 6 months. The care coordinators provided additional counseling and asked about smoking status during each follow-up telephone call.

Because this was a demonstration project, we were able to make some modifications to the study design as the intervention progressed. Our original goal was to compare program brochures given to patients, providers, and staff to determine which led to the most referrals. However, it soon became apparent that the system change itself (modifying the clinical reminder and making the TCCP available) dwarfed the effect of any individual brochure, and this comparison was dropped

from the analysis. In addition, we had planned to include a broad range of social marketing strategies (opinion leader, educational outreach, and audit and feedback),<sup>18,19</sup> but we had to drop these plans because of the high rate of referrals. A final modification was the increase in staff from 2 to 6 full-time care coordinators.

### Outcome Measures

Our primary outcome measure for the project was the number of referrals for smoking cessation telephone counseling. We had the following 3 secondary outcomes: the percentage of patients contacted who were abstinent 6 months later, the mean number of referrals that providers made to telephone counseling in the prior month, and the rate of smoking cessation medication prescribing at intervention and control sites.

### Data Sources

**Clinical Program Data.** Our primary source of data was clinical program data, which were provided by the VA care coordinators in aggregated form. These included data on the number of smokers referred and the number successfully contacted who agreed to start the program. It also included data on smoking status at 6 months from a follow-up telephone call made by the VA care coordinators. Patients were considered abstinent at 6 months if they reported no cigarette use within the prior 30 days. Patients were excluded from analysis if they were referred to the TCCP before or after the intervention data collection phase or if they were referred from a control site (although the electronic referral screen specified which clinics were eligible to refer patients, we received some referrals from control sites).

**Provider Survey.** At the beginning and end of the intervention period, we surveyed all primary care providers at intervention and control sites. The 4-item electronic mail survey included 1 question on telephone counseling (“In the last month, approximately how many patients have you referred for telephone counseling for smoking cessation?”). This unvalidated question was intended to give a semiquantitative estimate. The other 3 questions asked how often in the last month he or she had counseled patients about smoking cessation, referred to a smoking cessation clinic, or referred to Nicotine Anonymous. To be able to link preintervention and postintervention surveys, the surveys were identified by provider name.

**Administrative Pharmacy Data.** We used a 3-step approach to obtaining rates of smoking cessation medication use at each site. First, we used the VA Pharmacy Benefits Management database to obtain a list of all patients at the intervention and control sites receiving prescriptions for

smoking cessation medications during the 10-month study period and for the 10 previous months. The Pharmacy Benefits Management database includes all VA prescriptions nationwide since 1998 and records every drug or medical supply that is dispensed by a VA pharmacy in an outpatient setting, as well as all inpatient medication orders.<sup>20</sup> Second, we used the national VA Outpatient File to obtain a list of all patients receiving care at the VA Greater Los Angeles Healthcare System and at the VA Palo Alto Healthcare System. The median number of visits per patient during the 10-month study period and the 10 previous months at each intervention site was 5, while at control sites the median number of visits per patient was 6. Because smoking status was not stored in the VA's database, we are unable to determine what percentage of the visits was for smokers. Because many patients had primary care visits (defined as a visit in which a primary care progress note was created) at more than 1 site, we assigned each person to the site at which he or she had made the most primary care visits. Almost half of the patients (48%) had visited only 1 site during the interval, while an additional 36% had visited only 2 sites. The results are similar if we limit them to 2 visits or more to a site; 53% had at least 2 visits to only 1 site, while 36% had at least 2 visits to 2 sites. Third, we linked pharmacy data with outpatient utilization data, giving us a list of which patients at each site had received smoking cessation medications both during and before the study period.

### Statistical Analysis

In most cases, the data are presented descriptively. We compared the intervention and control sites providers' estimates of the number of referrals for smoking cessation using Wilcoxon rank sum test. To compare the rates of medication

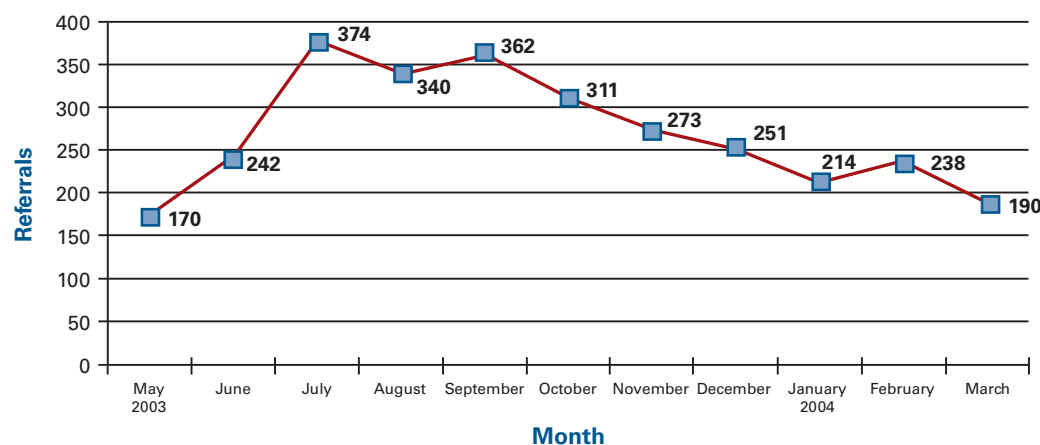
use between intervention and control sites, we conducted a patient-level logistic regression analysis, including age, baseline receipt of smoking cessation medications, clinic site (medical center or community-based outpatient clinic), and intervention status (intervention or control site) as independent variables. We first tried a Poisson distribution model, but the goodness-of-fit statistic indicated that it was not appropriate. Therefore, we used a negative binomial model, adjusting for the number of visits, baseline treatment rate, and intervention status.

## RESULTS

The results of the intervention are shown in the **Figure**. During the 10-month intervention period, we received 2965 referrals (1737 from the 6 VA Greater Los Angeles Healthcare System intervention sites and 1228 from the 4 VA Palo Alto Healthcare System intervention sites) for smoking cessation telephone counseling. We successfully contacted 1345 referred patients (45%), connected them directly to the California Smokers' Helpline, and followed up with them via regular telephone contact. We were unable to reach 1156 (39%), despite at least 3 attempts. We excluded 73 patients (3%), and 391 patients (13%) were not interested. Almost all patients who were connected to the Helpline completed their counseling session. Approximately 11% of all smokers (n = 335) referred to the TCCP were abstinent at the 6-month follow-up. This represents 25% of the smokers whom we connected to the Helpline.

We received baseline surveys from 103 of 136 providers (76% response rate) and follow-up surveys from 106 of 148 providers (72% response rate). Of 129 providers who completed any survey, 81 (63%) completed both the

■ **Figure.** Intervention Group Referrals to Telephone Care Coordination Program by Month (mid-May 2003 to mid-March 2004)



preintervention and postintervention surveys. The results of our provider survey are given in the **Table**. At baseline, most providers (85% intervention and 85% control) reported referring no patients to telephone counseling for smoking cessation in the prior month. Although

## Increasing Referrals to Smoking Cessation Telephone Counseling

■ **Table.** Self-reported Tobacco Control Practices of Providers at Intervention and Control Sites\*

"In the last month, approximately how many patients have you..."	Intervention Providers			Control Providers		
	Baseline	Follow-up	P <sup>†</sup>	Baseline	Follow-up	P <sup>†</sup>
Counseled about smoking cessation	39 (39)	42 (47)	.65	25 (31)	29 (31)	.73
Referred to a smoking cessation clinic	9.4 (15.6)	8.6 (21.3)	.02	3.6 (6.4)	2.3 (2.9)	.06
Referred to Nicotine Anonymous	0.2 (1.4)	0.8 (6.4)	.71	0.03 (0.17)	0.6 (3.2)	.28
Referred to telephone counseling	1.0 (3.5)	15.6 (22.8)	<.001	0.2 (0.5)	0.7 (1.5)	.04

\*Data are given as mean (SD). Providers were not asked to provide precise numbers but rather were asked to give an estimate.  
<sup>†</sup>Baseline vs follow-up, Wilcoxon rank sum test.

there was a small increase (from 0.2 to 0.7) in the mean estimated number of referrals made in the prior month among control providers, there was a much larger increase (from 1.0 to 15.6) among intervention providers. Similarly, more providers reported referring at least 1 patient to telephone counseling in the intervention group compared with the control group (80% intervention and 31% control). As summarized in the Table, there was a small decrease in the number of referrals reported to smoking cessation clinics, and this occurred at intervention and control sites.

The most important predictor of receiving a smoking cessation prescription during the intervention period was having received a prescription at baseline (odds ratio [OR], 36.8; 95% confidence interval [CI], 34.5-39.2). Age was also statistically significant, with each additional year of age leading to a 2% decrease in the probability of receiving a smoking cessation medication during the intervention period (OR, 0.982; 95% CI, 0.980-0.984). After adjusting for baseline levels of smoking cessation prescriptions and age, the odds of receiving a smoking cessation prescription were 6% higher among patients at intervention sites during the intervention period, but this was statistically nonsignificant (OR, 1.06; 95% CI, 1.00-1.13). When analyzed at the site level, there was no difference in the medication prescription rate between intervention and control sites.

## DISCUSSION

Our goal was to increase referrals to telephone counseling for smoking cessation, and during 10 months we received almost 3000 referrals. This increase is supported by our brief provider survey, which showed a dramatic increase in referrals to telephone counseling among providers at intervention sites but little or no change in rates of referral to the smoking cessation clinic or to Nicotine Anonymous. When analyzed at the patient level, pharmacy data suggest that patients at inter-

vention sites were slightly more likely than patients at control sites to receive a smoking cessation medication prescription during the intervention period; however, when analyzed at the site level, pharmacy data did not show a difference in prescription rates between intervention and control sites. As a measure of our success, this project accounted for about 8% of all counseling telephone calls provided by the California Smokers' Helpline, despite the fact that the 2 healthcare systems represent only about 0.4% of California's population.

Our success in increasing referrals stands in contrast to previous findings that showed at best a modest effect on the use of telephone counseling for smoking cessation. A previous study<sup>21</sup> used evidence-based quality improvement to increase adherence to smoking cessation practice guidelines. All intervention sites were advised to increase their use of telephone counseling, but no site made this a part of their plan. At follow-up, fewer than 1% of patients reported being referred to telephone counseling in the prior 6 months. In another study,<sup>14</sup> an on-call counselor was provided to a primary care team for an entire year. During the year, more patients on the intervention team reported being counseled about smoking cessation and being referred to a program. Unfortunately, most of those referred to telephone counseling did not actually follow through with the referral. Therefore, an intervention as intense as having a dedicated smoking cessation counselor on call had much less effect than the present care coordination intervention on the use of telephone counseling.<sup>9</sup>

What accounts for the success in this project and the minimal effect in previous ones? We believe that 2 main features account for the results observed. The first feature is that it was easy for providers to refer, easier in fact than referring the patient to an on-site program or counseling the patients themselves. Providers could rely on our program to provide counseling and medication management, much as we relied on the California Smokers' Helpline for in-depth smoking cessation counseling. We estimate that providers were able to accom-



plish their counseling and referral in only 1 to 2 minutes, an important concern given the many competing demands on primary care providers.<sup>7</sup> However, although we added additional staff to handle the volume of referrals after the intervention began, the total number of referrals each month dropped after the first 5 months. We do not know for certain why this was the case, but we see 2 likely explanations. First, providers may have referred most of their eligible and interested patients in the first months of the program. Second, because we did not conduct directed social marketing efforts to periodically remind providers about the program, it is also possible that over time providers' interest and awareness of the program may have flagged. The second feature explaining our results is the proactive approach to recruitment, which worked well. We called the patients repeatedly until we reached them; if they agreed, we immediately connected the patients to the Helpline on a 3-way telephone call. We did this because of the low follow-through rate already mentioned in a previous study.<sup>14</sup> Only about 22% of those we reached were not ready to quit. Most smokers referred were in the contemplation stage, indicating a significant degree of ambivalence about quitting.<sup>22,23</sup> We believe that many were also ambivalent about using telephone counseling and that their ambivalence represented another barrier to actually making a call to request telephone counseling as part of a quit attempt. By making a proactive 3-way telephone call, we bypassed this barrier, with good results.

We were discouraged to find no difference in the rate of prescribing smoking cessation medications among patients at the intervention sites, while we had anticipated a significant difference. In 2002, there were 3880 patients across our 18 project sites who received smoking cessation medications. This is equivalent to 180 patients receiving medications at each site during a 10-month period (the duration of our intervention). We treated 1345 patients at 10 sites, which should have resulted in a 75% increase, from 180 to 315 patients.

There are 4 possible reasons why we found no difference in prescribing rates between patients at intervention vs control sites. First, there could have been no difference, but this seems unlikely given the magnitude of the change already noted. Second, there could have been a corresponding decrease in referrals to existing in-person smoking cessation programs. Although the provider survey responses suggested a decrease in smoking cessation clinic referrals, this was small and was comparable between intervention and control providers. More likely is a third possibility that there may have been significant misclassification. By necessity, we used a multistep approach to allocate prescriptions, first determining which patients received these medications and then determining at which site each patient received most of his or her primary

care. Our database did not allow us to determine which site actually prescribed the medication. Approximately one half of the patients attended only 1 site and by definition are classified correctly. More than one third of patients (36%) had at least 2 visits to 2 sites, suggesting that there may be considerable misclassification of prescribing location. Therefore, if a patient received primary care from 2 sites and obtained the medication from the less visited site, it would incorrectly be counted toward the site that the patient attended more often. This misclassification would tend to decrease the size of any difference found and the likelihood of in fact finding a difference. Fourth, we also believe it is likely that our finding a difference in prescription rates when analyzing the data at the patient level, but not at the site level, reflects the limited power of site-level analyses with a small number of sites ( $n = 18$ ) compared with our patient-level analyses ( $n = 3880$ ). We are conducting a longer follow-up to this project that will allow us to more accurately address this question.

**Our study has several limitations.** First, the intervention occurred at 10 VA sites in California, and results may vary in other populations or settings. Nevertheless, we see no reason why the general features should not work equally well elsewhere. Patients using the VA are older, sicker, and have less social support than the general population, so it is possible that they represent a tougher test case than patient populations in other managed care organizations.<sup>24</sup>

A second limitation is that our intervention started with simple electronic referral as part of computerized clinical reminders, but many healthcare systems do not have fully integrated electronic medical record systems. However, all indications suggest that these systems will become increasingly common during the next decade. Furthermore, the referral could be performed by other methods such as the fax-based smoking cessation referral services available to providers in Wisconsin<sup>25</sup> and in Massachusetts.<sup>26</sup>

A third limitation is that we relied on patient self-report for our 6-month follow-up data and did not attempt to biochemically validate smoking status. Previous findings suggest that misreporting is low in general but is higher among adolescents, pregnant women, and patients participating in intervention studies.<sup>27</sup> Patients were not research subjects in this study but rather were receiving routine clinical care from the TCCP. Therefore, it is not clear whether our misreporting rate would be low (as among smokers in general) or moderate (as in intervention studies). Our goal for this demonstration project was not to show that the success rate was better than that with other approaches; rather, it was to show that the abstinence rate was reasonable. Therefore, even if the abstinence rate was 22% rather than 25% (representing a moderately

## Increasing Referrals to Smoking Cessation Telephone Counseling

high 12% rate of misreporting) for patients who participated in the TCCP, this still represents an acceptable rate of success.

A fourth limitation concerns our provider surveys. We asked providers to estimate the number of referrals in the prior month and did not verify their recollections through medical record entries. We believe that providers are able to give reasonably accurate estimates about their referral practices and that these estimates allow important observations about practice patterns. Yet, someone who reports referring 15 smokers in the prior month may well have referred more or fewer than 15 in actual practice. Therefore, these self-reported numbers should be viewed as semiquantitative estimates rather than as exact figures.

In summary, our approach of simple referral, proactive recruitment, and centralized medication management and follow-up generated a large number of referrals and a good rate of abstinence from smoking. Using a 5% annual quit rate among smokers in a healthcare setting, we would have expected approximately 148 successful nonsmokers if our 2965 referrals received usual care. Therefore, our program probably led to an additional 187 nonsmokers during the 10-month intervention period.

We believe that managed care organizations may be able to use a similar care coordination approach to increase smoking cessation treatment rates by connecting patients to telephone counseling programs, thus improving the effectiveness of their tobacco control efforts. We believe that our approach merits testing across a wider range of sites and in other healthcare systems. It would also be helpful to see how the care coordination approach outlined in this article compares with other effective approaches such as fax referral or audit and feedback.

### Acknowledgments

We thank Laura York, MA, for editorial assistance; the California Smokers' Helpline for its collaboration; and all of the telephone care coordinators for their dedication to this project.

**Author Affiliations:** From the Veterans Affairs Health Services Research and Development Center of Excellence for the Study of Healthcare Provider Behavior, Sepulveda (SES, NT, GJJ), the Department of Medicine, University of California, Los Angeles (SES), the Veterans Affairs Palo Alto Healthcare System, Palo Alto (PK, EG, JWF, JC, JFK, WK), and the Department of Medicine, Stanford University, Stanford (WK). Dr Sherman is now with the Veterans Affairs New York Harbor Healthcare System, New York, NY.

**Funding Sources:** This study was funded by grant SUDCC 3.10 from the Veterans Affairs Substance Use Disorders Quality Enhancement Research Initiative and by grant HFP 94-028 from the Veterans Affairs Health Services Research and Development Center of Excellence for the Study of Healthcare Provider Behavior.

**Author Disclosure:** The authors (SES, NT, PK, EG, JWF, JC, JFK, GJJ, WK) report no relationship or financial interest with any entity that would pose a conflict of interest with the subject matter of this article.

### Take-away Points

This demonstration project tested the effectiveness of a telephone care coordination program for smoking cessation. The structure of the program is summarized below.

- The program generated a large number of referrals; almost half of the patients referred were connected with the California Smokers' Helpline. Long-term abstinence was excellent.
- The Veterans Health Administration care coordinator attempted to contact each referral by telephone up to 3 times. If the patient agreed, the coordinator then connected the patient with the Helpline on a 3-way telephone call.
- Once connected to the Helpline, patients were scheduled to receive a single 30- to 45-minute counseling session, generally within 7 days.

This study was presented in part at the annual sessions of the Veterans Affairs Health Services Research and Development Service National Meetings, Washington, DC, March 9, 2004, and Baltimore, MD, February 16, 2005; the Society for Research on Nicotine and Tobacco Annual Meetings, Scottsdale, AZ, February 20, 2004, and Prague, Czech Republic, March 20, 2005; and the American Public Health Association Annual Meeting, Washington, DC, November 9, 2004.

**Authorship Information:** Concept and design (SES, NT, JWF, JFK); acquisition of data (SES, NT, EG, JWF, JFK, GJJ, WK); analysis and interpretation of data (SES, PK, GJJ); drafting of the manuscript (SES, PK, EG); critical revision of the manuscript for important intellectual content (SES, PK); statistical analysis (SES, PK, GJJ); provision of study materials or patients (SES, JWF, JC, JFK); obtaining funding (SES, JWF, JFK); administrative, technical, or logistic support (SES, NT, EG, JC, JFK, WK); and supervision (SES, JC, JFK, WK).

**Address correspondence to:** Scott E. Sherman, MD, MPH, Veterans Affairs New York Harbor Healthcare System, 423 E 23rd St (Rm 111), New York, NY 10010. E-mail: scott.sherman@va.gov.

## REFERENCES

1. Mokdad AH, Marks JS, Stroup DF, Gerberding JL. Actual causes of death in the United States, 2000. *JAMA*. 2004;291:1238-1245.
2. Office of Quality and Performance, Veterans Health Administration. *Health Behaviors of Veterans in the VHA: Tobacco Use: 1999 Large Health Survey of Enrollees*. Washington, DC: Office of Quality and Performance, Veterans Health Administration; October 2001.
3. US Department of Veterans Affairs Web site. Office of Quality and Performance (OQP): VA/DoD clinical practice guidelines. <http://www.oqp.med.va.gov/cpg/cpg.htm>. Accessed December 31, 2007.
4. Jonk YC, Sherman SE, Fu SS, Hamlett-Berry KW, Geraci MC, Joseph AM. National trends in the provision of smoking cessation aids within the Veterans Health Administration. *Am J Manag Care*. 2005;11:77-85.
5. Sherman SE, Yano EM, Lanto AB, Simon BF, Rubenstein LV. Smokers' interest in quitting and services received: using practice information to plan quality improvement and policy for smoking cessation. *Am J Med Qual*. 2005;20:33-39.
6. Fiore MC, Bailey WC, Cohen SJ, et al. *Treating Tobacco Use and Dependence: Clinical Practice Guideline*. Rockville, Md: Public Health Service, US Dept of Health and Human Services; 2000.
7. Chernof BA, Sherman SE, Lanto AB, Lee ML, Yano EM, Rubenstein LV. Health habit counseling amidst competing demands: effects of patient health habits and visit characteristics. *Med Care*. 1999;37:738-747.
8. Stead LF, Lancaster T. Group behaviour therapy programmes for smoking cessation. *Cochrane Database Syst Rev*. 2002;3:CD001007.
9. Stead LF, Lancaster T, Perera R. Telephone counseling for smoking cessation. *Cochrane Database Syst Rev*. 2003;1:CD002850.
10. Meredith LS, Yano EM, Hickey SC, Sherman SE. Primary care provider attitudes are associated with smoking cessation counseling and referral. *Med Care*. 2005;43:929-934.

## ■ MANAGERIAL ■

11. **Perlin JB, Kolodner RM, Roswell RH.** The Veterans Health Administration: quality, value, accountability, and information as transforming strategies for patient-centered care. *Am J Manag Care.* 2004;10(11, pt 2):828-836.
12. **Halpern J.** The measurement of quality of care in the Veterans Health Administration. *Med Care.* 1996;34(suppl 3):MS55-MS68.
13. **Jha AK, Perlin JB, Kizer KW, Dudley RA.** Effect of the transformation of the Veterans Affairs Health Care System on the quality of care. *N Engl J Med.* 2003;348:2218-2227.
14. **Sherman SE, Estrada M, Lanto AB, Farmer MM, Aldana I.** Effectiveness of an on-call counselor at increasing smoking treatment. *J Gen Intern Med.* 2007;22:1125-1131.
15. **Zhu SH, Anderson CM, Tedeschi GJ, et al.** Evidence of real-world effectiveness of a telephone quitline for smokers. *N Engl J Med.* 2002;347:1087-1093.
16. **Zhu SH, Tedeschi G, Anderson CM, et al.** Telephone counseling as adjuvant treatment for nicotine replacement therapy in a "real-world" setting. *Prev Med.* 2000;31:357-363.
17. **Zhu SH, Tedeschi G, Anderson CM, Pierce JP.** Telephone counseling for smoking cessation: what's in a call? *J Couns Dev.* 1996;75:93-102.
18. **Oxman AD, Thomson MA, Davis DA, Haynes RB.** No magic bullets: a systematic review of 102 trials of interventions to improve professional practice. *CMAJ.* 1995;153:1423-1431.
19. **Grimshaw JM, Shirran L, Thomas R, et al.** Changing provider behavior: an overview of systematic reviews of interventions. *Med Care.* 2001;39(8 suppl 2):II2-II45.
20. **Smith MW, Joseph GJ.** Pharmacy data in the VA health care system. *Med Care Res Rev.* 2003;60(3 suppl):92S-123S.
21. **Sherman SE, Yano EM.** *Implementing Smoking Cessation Guidelines: A Randomized Trial of Evidence-Based Quality Improvement: Final Report.* Washington, DC: Dept of Veterans Affairs, VA Health Services Research and Development Service (Project # CPG-97-002); May 2003.
22. **Prochaska JO, DiClemente CC, Norcross JC.** In search of how people change. *Am Psychol.* 1992;47:1102-1104.
23. **DiClemente CC, Prochaska JO, Fairhurst S, Velicer WF, Velasquez MM, Rossi JS.** The process of smoking cessation: an analysis of precontemplation, contemplation, and contemplation/action. *J Consult Clin Psychol.* 1991;59:295-304.
24. **Agha Z, Lofgren RP, VanRuiswyk JV, Layde PM.** Are patients at Veterans Affairs medical centers sicker? A comparative analysis of health status and medical resource use. *Arch Intern Med.* 2000;160:3252-3257.
25. **Perry RJ, Keller PA, Fraser D, Fiore MC.** Fax to quit: a model for delivery of tobacco cessation services to Wisconsin residents. *WMJ.* 2005;104:37-40, 44.
26. **QuitWorks, Massachusetts Department of Public Health.** QuitWorks: a solution for providers to help patients quit smoking. <http://www.quitworks.org>. Accessed January 10, 2006.
27. **Velicer WF, Prochaska JO, Rossi JS, Snow MG.** Assessing outcome in smoking cessation studies. *Psychol Bull.* 1992;111:23-41. ■