High Rates of Sustained Smoking Cessation in Women Hospitalized With Cardiovascular Disease

The Women's Initiative for Nonsmoking (WINS)

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Background—Although men hospitalized with cardiovascular disease (CVD) show high smoking-cessation rates, similar data for women are lacking. We tested the efficacy of smoking-cessation intervention in women hospitalized for CVD.

Methods and Results—In this randomized controlled trial conducted from 1996 to 2001, 277 women diagnosed with CVD (mean age 61±10 years) were randomly assigned within 1 of 12 San Francisco Bay Area hospitals to a usual-care group (UG; n=135) or intervention group (IG; n=142). Baseline histories were obtained, and interviews to ascertain self-reported smoking status occurred at 6, 12, 24, and 30 months after hospitalization. The UG received strong physician's advice, a self-help pamphlet, and a list of community resources. The IG received strong physician's advice and a nurse-managed cognitive behavioral relapse-prevention intervention at bedside, with telephone contact at intervals after discharge. The groups were similar demographically and had smoked cigarettes for a median of 38 (IG) or 40 (UG) years. Time to resumption of continuous smoking was assessed by Kaplan-Meier analysis, and risk differences between groups were determined. Time smoke-free was significantly greater for the IG than the UG ($P=0.038$). Point prevalence for nonsmoking at the interviews was somewhat greater for the IG than the UG ($P>0.15$ at all times).

Conclusions—Cognitive behavioral intervention resulted in longer average times to resumption of smoking, but in these 2 groups of older women with limited social and financial resources, long-term success rates were similar. Systematic identification of smokers and even the brief intervention afforded the UG yielded a high smoking-cessation rate over time. **(*Circulation*. 2004;109:587-593.)**

Key Words: smoking ■ women ■ sex ■ cardiovascular diseases

Cigarette smoking is hazardous for both women and men, but no studies have addressed smoking-cessation rates in women hospitalized with a diagnosis of cardiovascular disease (CVD). Little is known about interventions that help such women succeed with smoking cessation. Over the past 15 years, innovative smoking-cessation interventions for men have proved beneficial in some studies[1–3] but not others.[4,5] A series of studies conducted between 1996 and 2000[2,3,6] showed efficacy of an educational-behavioral intervention for men recovering from heart attacks and those hospitalized with a variety of medical and surgical diagnoses. Of those studies that included women, there were so few women studied as to preclude a separate gender-specific assessment of efficacy. Recent evidence suggests that women and men may respond differently to pharmacological and behavioral interventions.[7] Women may be more concerned about weight gain after stopping smoking, may need greater support to quit, may smoke more when stressed, and may be more susceptible to depression when they stop smoking.

The Women's Initiative for Nonsmoking (WINS) is a nurse-managed smoking-cessation and relapse-prevention program specifically addressing women with CVD.[8] This report details the short-term (6 and 12 months) and long-term (24 and 30 months) effectiveness of WINS in a randomized controlled trial.

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Methods

The design, protocol, and consent process for this randomized controlled trial was approved by the Committee on Human Research at the University of California San Francisco (UCSF) and the institutional review board for the study of human participants at each of the participating non-UCSF hospitals.

Setting and Sample

All women who had smoked cigarettes during the month before their admission to the coronary care unit, intensive care unit, or selected medical or surgical wards of any of the 12 hospitals in the San Francisco Bay Area were considered for recruitment into the WINS trial; of those 12 sites, 2 had no enrollment. The other 10 study sites were screened daily to determine each woman's eligibility for inclusion in WINS. Women hospitalized with a diagnosis of CVD or peripheral vascular disease were enrolled in the trial between October 1996 and December 1998. A 1-year follow-up evaluation was completed by December 1999 and a 30-month follow-up evaluation by June 2001. A detailed description of the methods and design,[9] the intervention,[8] the theory guiding the measurement and intervention,[10] and baseline demographic and clinical characteristics[11] of the population in WINS have been published.

Initial Screening

All women recruited were evaluated according to the following initial criteria for inclusion: (1) they were admitted to the hospital for medical or surgical treatment of CVD or peripheral vascular disease; (2) they were 18 years of age or older; (3) they had a history of smoking cigarettes within the past 1 month; (4) they were willing to make a serious attempt to quit smoking and not to smoke after their discharge from the hospital; (5) they were medically stable and able to provide informed consent; and (6) they agreed to give written informed consent to participate in the trial, which required a commitment to 30 months of participation. Eligible women were also screened for potential alcohol abuse with the CAGE questionnaire[12]; women with a score >2 were excluded. The exclusion criteria were (1) an inability to read or speak English, (2) being medically unstable, (3) having a current diagnosis of alcohol or substance abuse, and (4) having dementia or schizophrenia.

Randomization and Groups

Randomization was by random permuted blocks, stratified by hospital, with an equal chance of assignment to the usual-care group (UG) or the intervention group (IG).

Usual-Care Group

These control-group participants received brief counseling from a physician regarding the need for and benefits of smoking cessation, a copy of the pamphlet *Calling It Quits* from the American Heart Association (AHA),[13] and a list of local smoking-cessation classes and programs in their communities.

Intervention Group

These participants received nurse-managed smoking-cessation and relapse-prevention intervention. The intervention provided the usual care plus intervention managed by nurses with a graduate education and/or extensive experience in cardiovascular nursing. All of the nurses had a 2-day orientation and training program that addressed intervention procedures and additional training in cognitive behavioral relapse-prevention intervention. This intervention included a 30- to 45-minute individualized counseling session with multimedia aids that study participants were given before their discharge from the hospital. During the session, the women viewed a 17-minute videotape from the AHA, which was given to them together with an 18-minute stress and relaxation audiotape and the AHA workbook and videotape on smoking cessation and relapse prevention from the *Active Partnership for the Health of Your Heart*.[14] After their discharge from the hospital, each woman received up to 5 structured telephone calls of 5 to 10 minutes each to continue the intervention; the follow-up calls were placed at 2, 7, 21, 28, and 90 days after their discharge. These calls were to assess smoking status, identify problems concerning smoking cessation, reinforce the benefits of remaining a nonsmoker, and boost the women's morale and sense of self-efficacy about remaining a nonsmoker. Details of the intervention have been described.[8]

Data Collection

Procedures and precautions were established to ensure unbiased data collection through efforts to attempt blinding: (1) Baseline data were collected after the participant signed the consent form and before she received her group assignment. (2) Interviewers were blinded to group assignment for follow-up outcomes data collection; the nurse doing the follow-up data-collection interviews had not recruited the participant and had no knowledge of the group assignment. (3) Weekly or biweekly meetings of the research group and nurses ensured consistency of the protocol across study sites. All protocol modifications were communicated to all study staff orally and in writing. (4) Interrater reliability of the quality of data entry was checked between the 2 data-entry staff on a random sample of 10% of all data-entry forms. Error rates were consistently below 0.8%. In addition, all variables related to smoking status were examined manually for all study participants, with particular attention given to those whose smoking status had changed over time or when there were differences between the self-reported and confirmation variables.

Measurements

Data from the following assessments were obtained identically in both groups. Baseline assessment of demographic data from each participant's medical record included age, ethnicity (verified by the participant), education, marital status, employment status, and income. Clinical data included the medical history and index admission diagnosis and comorbid conditions. The Charlson Comorbidity Index[15] was used to assess concurrent comorbidities.

The smoking history evaluation consisted of a 43-item instrument developed for WINS that assesses levels of addiction, ease of quitting smoking, years of smoking, average number of cigarettes smoked daily, intent to refrain from smoking cigarettes, and confidence in being able to remain off cigarettes and includes questions about the effects of alcohol consumption and living arrangements.

The Stanford Dependency Index[16] was used to measure degree of addiction to nicotine. This instrument, derived from the Fagerstrom Tolerance Questionnaire,[17] classifies addiction on the basis of 5 questions. Scores range from 0 to 25; test-retest correlations for the 5 questions ranged from 0.71 to 0.90.[16]

Smokers' beliefs and knowledge about health benefits of smoking cessation[18] were ascertained from 3 standardized questionnaire items developed and tested in more than 4000 smokers in 20 communities in the United States in 1989 by the National Cancer Institute's Community Intervention Trial for Smoking Cessation. Each item had 4 response choices: (1) How likely do you think it is that you will avoid or decrease serious health problems from smoking if you quit ("very likely" to "very unlikely")? (2) If a person has smoked for more than 20 years, there is little health benefit to quitting ("strongly agree" to "strongly disagree"). (3) My smoking is harming my health ("strongly agree" to "strongly disagree").

A Confidence Questionnaire[14] lists 14 high-risk situations likely to cause a relapse to smoking. Participants were asked to rank their confidence that they could resist the urge to smoke in each situation on a scale of 0% (not at all confident) to 100% (very confident). A score of less than 70% denoted a high risk of relapse. The Burnam screening instrument,[19] an 8-item screening tool for detecting depression, was also used.

Testing for cotinine, a breakdown product of nicotine, was performed at 6 and 12 months after participants' enrollment in the trial. All women in both groups who reported that they had not smoked in the past 7 days, "not even a puff," were asked for a saliva sample that was analyzed for cotinine to verify their nonsmoking status.[20]

Follow-up data were obtained in telephone calls made with a scripted interview, which were placed to all participants in both

groups at 6, 12, 24, and 30 months after enrollment in the trial. For questions about smoking status, categories were as follows: nonsmoker (had not smoked since discharge from the hospital or the latest telephone call); relapser (had smoked since discharge or the previous telephone call but had not smoked daily for the past 7 days); or continuous smoker (had smoked daily for the past 7 days). For each category, different questions were asked; for example, relapsers and continuous smokers were asked to identify the time and place of relapse, what triggered the relapse, and the number of cigarettes smoked. Participants were asked about withdrawal symptoms, exercise habits, use of pharmacological therapy to help them stop smoking, intention to remain or become a nonsmoker (scale of 1 to 7), and self-efficacy or confidence that they could do so (scale of 1 to 10).[21] The women were also asked to identify healthcare resources they had used since their latest contact with the study, including physician's office visits, emergency-room visits, hospitalizations, and allied health services such as physical therapy and nutrition or psychological counseling.[22]

Nicotine Replacement Therapy

The nurse assessed participants who relapsed to determine whether they would benefit from nicotine replacement therapy (NRT). Depending on a woman's preference, her smoking history, and the Stanford Dependency Index,[16] NRT was offered to selected women for 8 weeks in the form of a nicotine patch (Nicoderm, 14 mg or rarely 21 mg) or, in a few cases, nicotine gum (Nicorette, 2 or 4 mg).[23] An information sheet about NRT use was developed and distributed with the medication, together with verbal and written instructions on the proper use of NRT. Before NRT was prescribed, we obtained approval from each woman's physician. The Agency for Health Care Policy and Research guidelines of 1996 had cautioned against use of NRT by patients within 6 weeks of an acute coronary event,[24] but thereafter the safety of NRT was confirmed, even for such cardiac patients,[20] on the basis of a favorable risk-to-benefit ratio associated with NRT usage as opposed to the patient's continued smoking. NRT became available on an over-the-counter basis after the present study began, but some participants in both groups obtained NRT and, very late in the study, bupropion (an antidepressant and a non-nicotine aid to smoking cessation) from their personal physicians.

Management of Relapse

Women in the IG who resumed smoking during the first 90 days of enrollment were offered an additional counseling appointment with a nurse at home or over the telephone. During this appointment, the nurse reviewed the smoking-cessation materials presented in the hospital; offered problem solving for the woman regarding troublesome, high-risk situations for relapse; and reinforced the importance of quitting smoking permanently. The relapse was also reviewed with the woman as a means to help her learn how to handle future urges to smoke and to evaluate or reevaluate the indications for NRT.

Primary Outcome Measurements

Time to continuous smoking for the Kaplan-Meier survival analysis was defined as follows.[25,26] On cotinine testing, women with cotinine levels <14 ng/dL[27] were considered nonsmokers for their latest follow-up period. If a participant did not provide a saliva sample for cotinine verification, confirmation of her nonsmoking status was obtained from her family or friends instead; if they did not contradict her self-report of nonsmoking, then she was considered a nonsmoker for her latest follow-up period. If a participant's self-report of not smoking was contradicted by either cotinine testing or her family or friends, then we assumed she had started continuous smoking halfway into the follow-up period unless she provided an exact date when she resumed smoking. If the participant admitted to continuous smoking or to smoking during more than half of the days in the follow-up period, then we used the starting date she provided.

If neither cotinine verification nor verification from family or friends could be obtained, then the participant's status was considered "missing," and she was not considered a nonsmoker or a smoker. For time-to-smoking, this measure was censured at time of last known smoking status.

Of those women who claimed to be nonsmokers, 50% in each of the groups were confirmed by cotinine testing or by family's or friends' confirmation at the 6- and 12-month time points. The point prevalence determinations at 24 and 30 months were based on self-reported data and confirmation by family and friends.

Data Analysis

Data analysis was done by the intention-to-treat approach. Descriptive and summary statistics were computed and Kaplan-Meier survival analysis plots[26] prepared. Additionally, the intervention and control groups were described by estimating the risk difference, odds ratio (OR), or difference in proportions, with a 95% CI. Hypotheses were tested with the generalized Wilcoxon test for time to continuous smoking, and Fisher's exact test was used for point prevalence of smoking. A logistic regression analysis was used to test the effects of NRT, while controlling for group assignment.

Results

Of the 12 sites in the San Francisco Bay Area selected for the WINS trial, 2 (1 university and 1 community hospital) were excluded because they had no enrollment. Participants were enrolled from 10 hospitals providing a wide geographic area and a broad representation of healthcare systems. A review of 1028 medical records of women who smoked cigarettes before their hospital admission in the 10 hospitals yielded 277 women (ages 33 to 85 years; mean 61 ± 10 years) who met the study's eligibility criteria and gave their written informed consent to be enrolled in the trial.

Randomization resulted in the assignment of 142 women to the IG and 135 women to the UG (control group). The 2 groups were similar in important sociodemographic variables (Table 1); in clinical data including medical history, diagnosis at hospital admission, procedures and medical interventions, and CVD risk factors (Table 2); and in comorbidity (UG 1.8 ± 1.5; IG 2.1 ± 1.6). Participants with a history of depression made up 13% of the UG and 14% of the IG, whereas the Burnam instrument[19] indicated a probability of depression of 54% in the UG and 62% in the IG. Table 3 depicts participants' history and patterns of smoking, which were not significantly different between the 2 groups, and their knowledge and beliefs about the effects of smoking on health are shown in Table 4. Use of NRT (or bupropion prescribed by the woman's physician in either group), defined as any pharmacological therapy, was reported by 23% of the UG and 20% of the IG (Table 5).

Follow-up data were provided by 73% of participants at all 4 follow-up data collection points and by 12% at 3, 8% at 2, and 4% at 1 follow-up point; data for 4% were unavailable at all 4 follow-up points. Figure 1 shows the study sample, deaths, and loss to follow-up review over the 30 months of the study. Figure 2 depicts the survival probabilities, defined as time to continuous smoking, for the UG and IG over the 30 months of follow-up review. The more stringent conservative survival analysis showed that smoke-free time for the IG was significantly greater than for the UG ($P=0.038$). The 7-day point prevalence for nonsmoking at 6, 12, 24, and 30 months was somewhat greater for the IG than the UG, but not significantly so (Table 6); the point prevalence determinations at 24 and 30 months were not confirmed by cotinine testing. The UG showed a high cessation rate over time

TABLE 1. Sociodemographic Data for Women Hospitalized With CVD Diagnoses in UG and IG

	UG (n=135); Age Range, 39–83 y (60.9±9.78*)		IG (n=142); Age Range, 33–85 y (60.56±10.42*)	
	%	n	%	n
Education				
Less/some high school	17	23	17	25
High school graduate	31	41	30	43
Some college	32	43	40	57
College/postgraduate	20	27	11	16
Marital status				
Single	4	5	6	9
Married	39	52	41	58
Widowed	26	35	24	34
Divorced/separated	31	42	28	41
Living alone	30	41	37	52
Ethnicity				
White	76	102	76	108
All other	24	32	25	35
Work status‡				
Employment full-time/part-time	38	52	36	52
Retired	43	57	33	47
Homemaker	5	7	12	17
Other§/disabled	16	22	20	28
Annual household income‖				
<$19 999	34	44	37	53
$20 000–34 999	19	25	12	18
$35 000–69 999	25	33	22	31
$70 000 or more	7	9	10	14
Don't know/refused	16	22	17	25

*Mean±SD.
‡Not mutually exclusive.
§Self-employed, volunteer, drug recovery, unemployed.
‖Median $30 000–34 999; mode $5000–9999.

TABLE 2. Clinical Data Including Medical History, Admitting Diagnosis, Procedures, Medical Interventions, and Risk Factors for Women Hospitalized With CVD in UG and IG

	UG		IG	
	%	n	%	n
Hospital admission diagnosis: primary cardiac diagnosis				
Myocardial infarction*	29	39	25	35
Angina/chest pain	53	72	49	69
Heart failure	13	17	15	22
Other†	33	45	32	45
Medical procedures and interventions				
Angiogram	54	72	50	71
Percutaneous coronary intervention	36	47	17	24
CABG surgery	33	44	27	38
Other procedures‡	28	37	27	38
History of depression	13	17	14	19
Depression screen§	54	71	62	86
CVD risk factors				
Family history	58	78	55	78
Hypertension	57	76	61	87
Physical inactivity	50	67	49	70
Lipid abnormality	52	70	45	64
Diabetes				
Type 1	8	11	10	15
Type 2	21	28	15	21
Overweight/obesity	48	64	46	66

*Myocardial infarction location: anterior 5.1%, inferior 11.2%, lateral 0.4%, combination 7.6%; MI criteria met: chest pain 22.7%, ECG changes 17.6%, increase in enzymes 23.4%.
†Examples include arrhythmias, AAA, aortic stenosis, hypertension, and peripheral vascular disease (not inclusive).
‡AAA repair, aortofemoral bypass, pacemaker insertion, prosthetic valve insertion (not inclusive).
§Burnam depression screening tool administered in hospital at baseline.

(Table 6). A very small proportion of the women in each group used NRT (Table 5). The logistic regression estimate of the effect of NRT on point prevalence of smoking at 6 months, controlled for treatment group, was significant (OR 3.7; 95% CI 1.6 to 8.7; $P=0.003$). This analysis does not include bupropion, which was not a part of our pharmacological intervention but was prescribed for a few patients by their personal physicians late in the study. From information that both groups provided during follow-up interviews regarding the extent to which bupropion was obtained outside the study, we ascertained that it did not have a confounding effect on our results.

Discussion

This randomized controlled trial of women smokers hospitalized with CVD was designed to test the efficacy of a smoking cessation intervention in terms of no relapse to smoking or short-term (6 and 12 months) and long-term (24 and 30 months) time to continuous smoking. The trial yielded 4 particularly important findings. First, the women assigned to the IG were significantly more likely to remain nonsmokers continuously than were those in the UG ($P=0.038$). Second, both groups had high nonsmoking point prevalence at 6, 12, 24, and 30 months. Third, although the protocol included NRT for all eligible IG participants who resumed smoking, few reported using it. Conversely, a number of participants in the UG obtained NRT from their personal physician or when it became available over the counter. Fourth, survival analysis indicated that continuous nonsmoking rates after 12 months remained relatively unchanged at 24 and 30 months, supporting the view that 12 months is an adequate follow-up period.

The high confirmed smoking-cessation rate in the UG was unexpected, because usual-care groups in most smoking trials[2,3,6] have consistently shown sustained cessation rates lower than those noted in the WINS (rates ranging from 21% to 40%).[6,28,29] Several explanations are plausible. First, because of societal trends since the 1980s, the effect size of smoking-cessation interventions has decreased from 26%[2] to 7%.[29] The

TABLE 3. Smoking History, Patterns of Smoking and Nicotine Withdrawal, and Knowledge and Health Belief Questions

	UG		IG	
	Mean (SD)	Median	Mean (SD)	Median
Pack-years smoked	39.9 (26.3)	35	34.7 (26.4)	30
No. of cigarettes smoked per day in past 6 months	19.7 (11.5)	20	17.5 (12.4)	20
Age began smoking, y	17.8 (5.9)	16	19.2 (7.9)	17
Years smoked regularly	39.9 (10.3)	40	39.4 (12.4)	38
Serious quit attempts	1.9 (2.1)	1	2.6 (3.4)	2
Range	0–12		0–25	
Stanford Dependency Index	14.3 (4.2)	15	13.9 (3.7)	4
Confidence score	62.8 (21)	62	63.2 (17)	62
Withdrawal symptoms (yes/no)	32%	N=43	31%	N=44

Data are mean (SD) except in final row.

report of an effect size of 26%[2] was from a study done with men who were hospitalized in a health maintenance organization for treatment of an infarction at a time when hospitals had few if any no-smoking policies and when the prevalence of smoking was higher than it is today. More recent studies in population samples that include men and women and have occurred since the introduction of no-smoking policies in hospitals beyond health maintenance organizations reflect social stipulations as well as interventions by government and businesses and demonstrate markedly reduced effect sizes. Such social factors may have influenced the smaller effect size found in the WINS. Second, the systematic identification of smokers, the brief intervention with a physician's advice, and the written materials provided to women in the UG, together with the consent procedures and the process of data collection for the trial, may have had an impact beyond that which would have resulted with routine hospital care, particularly considering that these study groups consisted in large part of older women with limited social and financial resources. Third, that the use of NRT was actually slightly higher in the UG (23%) than in the IG (20%) suggests that the patients in the UG may inadvertently have been encouraged to stop smoking more aggressively during their participation in the WINS trial than in the past.

Our findings confirm that in women with CVD, a relapse to smoking continues to be a serious challenge for healthcare professionals. Although the WINS intervention protocol, designed in 1995, was a state-of-the-art behavioral intervention validated by US Public Health Service guidelines,[30] advances since the study began argue for the possibility of higher levels of continued smoking cessation in women. These advances include the use of pharmacological therapies like NRT, even in the acute phase after myocardial infarction, and the use of bupropion. Such pharmacological interventions appear important in supporting women in smoking-cessation efforts. Consideration of future interventions must include all of the evidence-based strategies delineated in the 2000 tobacco dependence and use guidelines published by the US Public Health Service,[30] which include appropriate identification of all smokers and a strong message issued by healthcare providers—including physicians, nurses, dentists, and others—about the hazards of smoking. These strategies will add to the proven benefits and efficacy of behavioral counseling and the use of multimedia strategies, pharmacotherapy, and follow-up review for at least 4 to 8 encounters.[30]

TABLE 4. Knowledge and Health Belief Questions

	UG		IG	
Knowledge and Health Belief Question	%	n	%	n
1. How likely are you to avoid future health problems if you quit smoking now?				
Very likely/likely	90	121	84	120
Uncertain	8	11	8	11
Unlikely/very unlikely	2	3	8	11
2. If you have smoked more than 20 years, there is little benefit for quitting.				
Strongly disagree/disagree	85	115	77	108
Neither disagree/agree/don't know	5	7	12	18
Agree/strongly agree	9	13	12	16
3. My smoking is harming my health.				
Strongly agree/agree	95	128	89	126
Neither disagree/agree/ disagree/strongly disagree	4	7	11	16

Limitations of the Study

Three limitations in the WINS study became apparent. First, under utilization of NRT as an initial adjuvant to behavioral

TABLE 5. Pharmacological Intervention by Group

	UG		IG	
	%	n	%	n
Nicotine gum*	6	8	4	5
Nicotine patch*	11	15	14	20
Bupropion†	9	12	3	4
Any NRT/pill	23	31	20	28

*Nicotine replacement therapy (patch and, in rare instances, nicotine gum) was part of the study protocol.

†Bupropion was prescribed by the women's physicians independent of the study, but data were collected on its use.

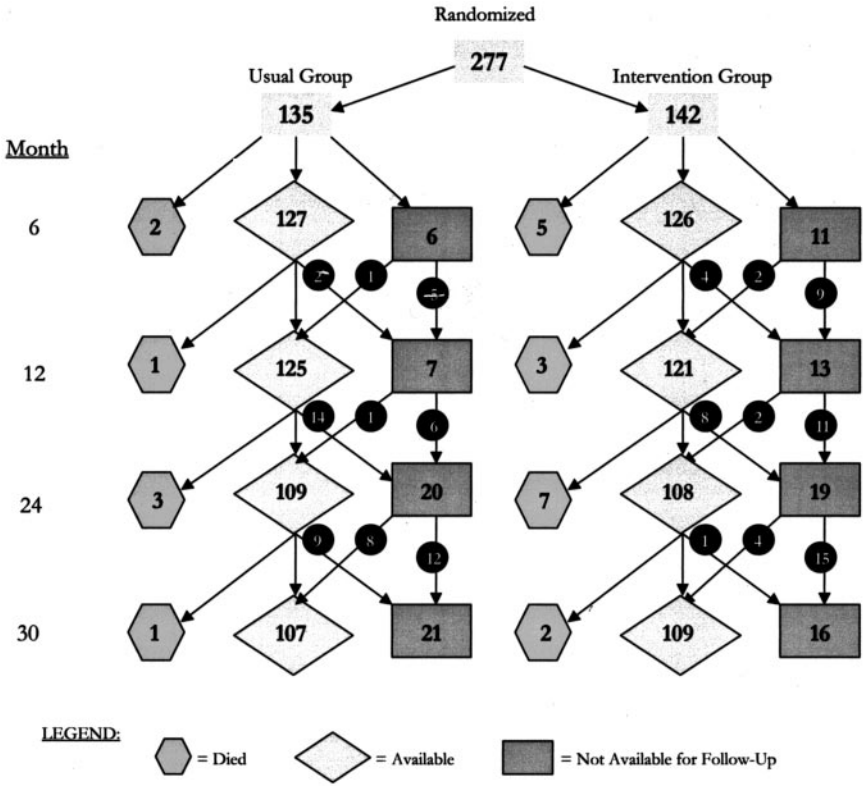

Figure 1. Study sample, deaths, and loss to follow-up over 30 months in WINS randomized controlled trial of smoking cessation in women hospitalized with CVD.

therapy in the IG may account for a small effect size, and it is not clear to what extent the women's perception of NRT and their lack of understanding about its safety and positive risk-to-benefit ratio may have influenced their acceptance of our recommendation that they use it.[23] Moreover, it is likely that NRT use is a confounder by indication in WINS; that is, rather than offering NRT as an aid to smoking cessation from the beginning of the intervention, NRT was offered by WINS nurses only to women who relapsed to smoking. It is therefore likely that in the present study, use of NRT was a predictor of relapse rather than a predictor of smoking cessation. Second, the short hospital stay for some participants may have reduced the duration of the planned personal intervention. Third, although scheduled telephone contacts were based on prior assumptions about the physiology of withdrawal, both the number and the timing of contacts may not have been optimal for every woman participating.

CVD is projected to be the leading cause of death and disability among women until at least 2030. Smoking is clearly a risk factor in this epidemic. Physicians and nurses caring for

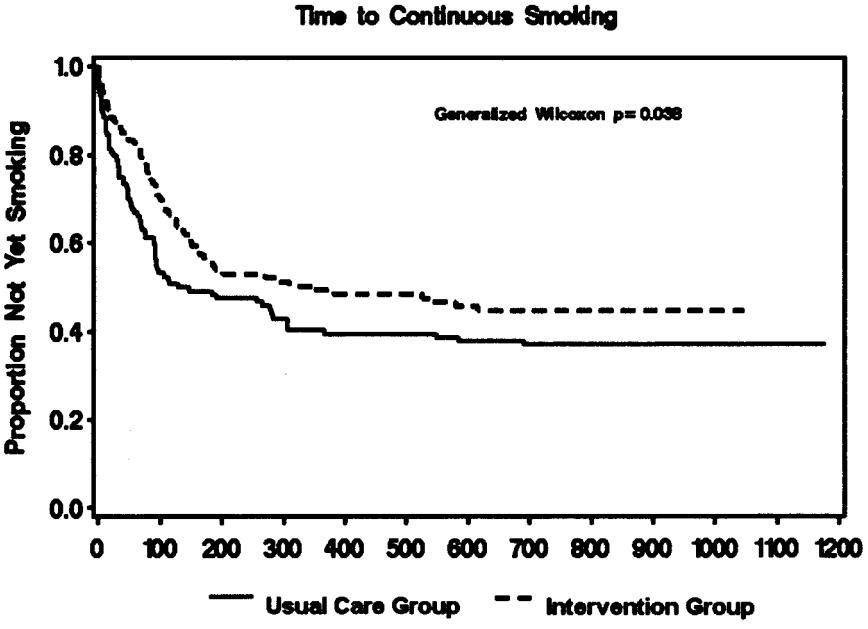

Figure 2. Survival probability for time to continuous smoking for UG and IG over 30 months in WINS randomized controlled trial of smoking cessation in women hospitalized with CVD.

TABLE 6. Point Prevalence in Percent for Short-Term (6 and 12 Months) and Long-Term (24 and 30 months) Effectiveness of Intervention

Follow-Up Time, mo	NS in UG, %	NS in IG, %	RD, %	95% LB	95% UB	Fisher's
6	40.8	51.5	10.7	−3.1	24.5	0.15
12	41.7	47.6	5.9	−7.5	19.3	0.40
24	46.2	48.5	2.3	−12.0	16.6	0.77
30	50.0	50.0	0.0	−14.7	14.7	1.00

NS indicates nonsmokers; RD, risk difference; LB, lower bound of 95% CI; and UB, upper bound of 95% CI.

Intention-to-treat analysis RD: estimate of difference between groups. For example, in first entry, 10.7 % percent more of the IG subjects were nonsmokers compared with subjects in the UG.

patients with CVD in all healthcare settings must make smoking cessation a high priority. In the hospital, physicians and nurses need to identify every smoker, assess them for withdrawal symptoms, and determine the appropriateness of pharmacological therapy. There is some evidence from the WINS and other studies that a planned approach to smoking cessation that includes follow-up contact calls offering relapse prevention may lengthen the time to relapse or improve cessation rates. The combination of such a program and pharmacological therapy may be especially important in helping patients who relapse and those who have not succeeded in quitting smoking in the past. A plan for discharge from the hospital should include active involvement of the patient's family in maintaining a smoking-free environment and the patient's referral to cardiac rehabilitation programs and community resources, such as the programs offered by the American Lung Association, the American Cancer Society, and Nicotine Anonymous groups. These resources are especially important when clinic or office practice staff cannot offer systematic smoking-cessation interventions.

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