

# Neighbors for a Smoke Free North Side: Evaluation of a Community Organization Approach to Promoting Smoking Cessation Among African Americans

## ABSTRACT

**Objectives.** This study evaluated a community organization approach that emphasized involvement of audiences in program planning and implementation in promoting nonsmoking among African American residents of low-income neighborhoods.

**Methods.** The quasi-experimental design involved a 24-month intervention in 3 low-income, predominantly African American neighborhoods in St. Louis. Intervention neighborhoods were compared with comparable, untreated neighborhoods in Kansas City.

**Results.** The program was successful in engaging audience members in its governance and in instigating numerous and diverse neighborhood activities to promote nonsmoking. The prevalence of smoking declined from 34% to 27% in program neighborhoods but only from 34% to 33% in comparison neighborhoods. This difference was apparent within all demographically defined subsamples, indicating that observed changes were consistent and not attributable to confounding by demographic characteristics.

**Conclusions.** A community organization approach emphasizing local authority for program decisions and involvement of informal networks may have an appreciable impact on smoking among residents of low-income, African American neighborhoods. (*Am J Public Health*. 1998;88:1658-1663)

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The heightened prevalence of smoking<sup>1,2</sup> is important among the numerous aspects of health and health care in which African Americans are disadvantaged.<sup>3-6</sup> Community organization approaches that involve intended audiences in planning, tailoring, and implementing programs<sup>7,8</sup> may be especially appropriate for reaching African Americans. First, low-income African Americans appear to be isolated from professional and formal channels of health information<sup>9-11</sup> but especially responsive to informal channels such as the extended kin network.<sup>12</sup> Community organization approaches emphasize audience members' roles in program planning and implementation, creating ties between the program and audience members' informal networks.<sup>13</sup>

A second advantage is connected to the importance of reaching informal networks. Research indicates that African Americans may be especially responsive to social support for disease management and risk reduction. In the baseline evaluation survey for this project, after control for age, education, income, and smoking status, African Americans indicated greater importance of social support for quitting than did Whites ( $\beta = 0.12, P < .002$ ).<sup>14</sup> By involving neighborhood residents in planning and implementing programs, community organizations may recruit important sources of peer support for program goals.

A third advantage of community organization is the inclusion of multiple change tactics—publicity campaigns, neighbor-to-neighbor appeals, classes, group programs—as opposed to reliance on a single intervention. Thus, individuals who may be isolated from one channel of information (e.g., by low literacy) may be reached by another.<sup>5,14</sup>

Unfortunately, results of several large community programs have been limited<sup>15</sup> or disappointing.<sup>16,17</sup> However, some of the findings from these large trials indicate

promising effects, including smoking cessation.<sup>18</sup> Also, broader trends in changes in risk factors show the importance of community-level influences, even if they are difficult to capture in time-limited trials.<sup>19</sup> Among reasons for disappointing results, the local initiative and flexibility that are often viewed as key advantages of the community organization approach<sup>7,8,20</sup> may be impeded by the scientific need to systematize implementation or by implementation in large communities and cities, as opposed to smaller communities and neighborhoods. Accordingly, the present study evaluated a community organization approach to smoking cessation that was implemented in St. Louis, Mo, at the neighborhood level and that emphasized involvement of neighborhood residents in both tailoring and implementing the program. Because of the emphasis on audience involvement in program planning, the ability of this approach to achieve adequate program implementation was evaluated along with program outcomes.

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**TABLE 1—Characteristics of Neighbors for a Smoke Free North Side (St. Louis) Neighborhoods and Comparison (Kansas City) Zip Codes**

	St. Louis Neighborhood			Kansas City Control Zip Code			
	Grace Hill	Water Tower	West End	64109	64127	64128	64130
Total population	8149	14 162	15 495	13 769	22 583	18 249	30 330
Contributions to survey sample, <sup>a</sup> %							
1990	36.9	32.7	30.5	16.8	36.3	22.6	24.3
1992	44.0	31.1	24.9	13.1	30.2	29.6	27.1
Race, %							
African American	68.8	88.5	98.0	70.4	57.3	89.6	94.9
White	30.4	9.4	1.3	26.6	37.2	9.2	4.4
Other	0.8	2.1	0.7	3.0	5.5	1.2	0.7
Households below poverty level, %	43.2	42.5	34.3	32.0	34.9	30.3	25.8
Age, y, %							
14 and under	31.0	32.9	27.0	21.3	26.1	25.1	24.3
15 to 24	16.7	16.0	14.4	13.4	14.0	13.6	15.2
25 to 34	16.6	14.9	18.0	19.7	15.7	16.0	14.8
35 to 44	11.6	10.5	12.7	15.5	12.2	10.5	12.4
45 to 54	5.8	8.2	6.8	8.2	8.0	8.7	10.2
55 to 64	6.2	7.2	8.0	8.0	8.5	10.7	10.6
65 and over	12.1	10.3	13.1	13.7	15.3	15.3	12.3
Telephone in residence, %	83.8	86.5	89.7	86.2	89.0	91.4	94.8

Note. Figures are based on 1990 Census data.

<sup>a</sup>Percentage of all survey respondents in St. Louis residing in each neighborhood and percentage of all survey respondents in Kansas City residing in each zip code.

## Methods

### *Intervention: Neighbors for a Smoke Free North Side*

Neighbors for a Smoke Free North Side emphasized neighborhood-based governance and engagement of residents around the goal of encouraging nonsmoking as much as it emphasized specific program activities. Wellness councils in each program neighborhood organized and directed activities. Each council consisted of neighborhood volunteers and a paid staff member from Grace Hill Neighborhood Services who acted as liaison between the neighborhood and the program.

In addition to the wellness councils, a city-wide advisory council made up of representatives from major corporate, medical, religious, and community groups met monthly. The city-wide council, composed mostly of African Americans, provided linkages to key individuals in the community and gave advice about implementation. A "nuts and bolts committee" was composed of project staff from Washington University and Grace Hill and the staff representing each neighborhood wellness council. It served as a resource to the wellness councils and carried out central planning for the program. However, plans initiated by this group were not implemented without approval by wellness councils.

The program ran for 24 months and involved a wide range of activities, including

smoking cessation classes, billboards, door-to-door campaigns, and a "gospelfest."

### *Design and Research Setting*

In a quasi-experimental design, 3 predominantly low-income, African American neighborhoods in the city of St. Louis were assigned to receive the program. Comparison zip codes in Kansas City, Mo, 250 miles (400 km) west of St. Louis, were chosen for equivalent ethnicity, income, and education.

The neighborhoods in St. Louis were chosen for several reasons. First, they represent the underserved, low-income, urban minority settings the program was designed to address. Second, they are served by Grace Hill Neighborhood Services, chosen as the lead agency through which to implement the program.<sup>14,21</sup> Third, Grace Hill has a philosophy that is consistent with a community organization approach, emphasizing "neighbors helping neighbors" and neighborhood leadership.

Table 1 displays the demographic characteristics of the 3 neighborhoods—Grace Hill, Water Tower, and West End—and of the comparison zip codes in Kansas City. (Grace Hill Neighborhood Services' headquarters are located in the Grace Hill neighborhood, but the agency serves all 3 neighborhoods.)

### *Evaluation Survey*

As a means of evaluating changes in prevalence of smoking, random telephone

surveys of the neighborhoods receiving the program and the comparison community in Kansas City were completed over a 6.5-month period (March to September 1990) surrounding the start of the program in April 1990. Two years later, evaluation surveys were repeated over an 8-month period (January to September 1992), although program activities continued beyond that period out of interest in maintenance of the program and its benefits by Grace Hill. The survey instrument was a shortened version of the Behavioral Risk Factor Surveillance System (BRFSS)<sup>22</sup> measure with the addition of items on smoking and quitting history developed by smoking cessation research projects funded by the National Cancer Institute.

Surveys were conducted by the Missouri Department of Health using methodology from the BRFSS<sup>22</sup> modified slightly to allow simple random-digit dialing of adult residents (18 years of age or older) instead of 3-stage sampling. At least 4 attempts during each calling period were attempted for at least 5 different calling periods before a number was considered as involving a non-response. Neighborhoods in which the program was implemented in St. Louis were defined by block, while comparison neighborhoods in Kansas City were defined by zip code. Individuals were qualified by location of residence within these bounds and then selected at random within the household based on the number and sex of adult members of the household and the last digit of the telephone number.

**TABLE 2—Demographic Characteristics of Telephone Survey Respondents in Neighbors for a Smoke Free North Side (St. Louis) Neighborhoods and Comparison (Kansas City) Zip Codes, 1990 and 1992**

	St. Louis Neighborhoods			Kansas City Comparison Zip Codes			Comparisons Across Cities	
	1990 (n = 504)	1992 (n = 457)	Change <sup>a</sup> P	1990 (n = 1040)	1992 (n = 1034)	Change <sup>a</sup> P	1990 P	1992 P
Mean age, y (SD)	44.0 (19.2)	43.2 (18.7)	.505	47.2 (19.2)	48.8 (19.2)	.065	.002	<.0001
African American, %	86	84	.364	71	74	.177	<.0001	<.0001
Female, %	69	72	.261	66	66	.678	.262	.042
Female and ≤35 years of age, %	31	31	.863	21	23	.128	<.001	<.0001
Income <\$20 000 per year, %	64	65	.797	60	64	.120	.181	.707
Not working, %	45	48	.525	46	52	.003	.930	.091
Not married, %	76	75	.545	69	70	.459	.002	.080
Less than high school graduate, %	32	30	.592	27	29	.491	.060	.514
Aware of Grace Hill, %	54	59	.128	6	6	...	<.0001	<.0001

<sup>a</sup>For comparison of 1990 and 1992 within St. Louis and Kansas City samples, and between St. Louis and Kansas City samples in 1990 and 1992, all *P* values were obtained from chi-square tests of homogeneity with 1 degree of freedom, except for *P* values for age, obtained from analysis of variance.

### Survey Sampling

As shown in Table 1, telephone coverage exceeded 80% in all neighborhoods and zip codes. The overall response rates for the random phone surveys were 81% of eligible households with working telephones in 1990 (80% for St. Louis and 82% for Kansas City) and 78% in 1992 (82% in St. Louis and 73% in Kansas City). This resulted in 504 and 547 respondents in St. Louis in 1990 and 1992, respectively, and 1040 and 1034 in Kansas City. A fourth neighborhood in St. Louis had received the program, but misspecification of its neighborhood boundaries in the evaluation survey rendered its data unusable. This accounted for approximately 500 fewer surveys in St. Louis than in Kansas City.

As displayed in Table 2, differences between the 1990 baseline samples in St. Louis and Kansas City were significant in terms of mean age, percentage of the sample that was African American and unmarried, and percentage of women of childbearing age (35 years or younger). Significant differences were noted for the same variables in 1992. In addition, percentages of unemployed individuals increased in both groups between 1990 and 1992. However, both samples remained composed predominantly of African American and low-income respondents. Avoiding the observed differences between the samples would have required considerably more expensive survey procedures, such as sequential sampling and adjusting of quotas for respondents in specific subgroups. In the evaluations to follow, we examined results separately for subgroups defined by demographic variables (Table 3) and adjusted for age, race, sex, and marital status (Table 4). We also examined results separately for subgroups defined by

and adjusted for education, income, and employment, variables that several analyses<sup>2</sup> have indicated are primarily responsible for manifest differences in smoking between African Americans and Whites.

As a check on the overall validity of survey responses, the survey asked whether respondents were aware of Grace Hill, which has no activities and no public presence in Kansas City. As shown in Table 2, only 6% of Kansas City respondents indicated awareness of Grace Hill, as opposed to more than half of the St. Louis respondents.

The characteristics of target neighborhoods and control zip codes shown in Table 1, based on 1990 Census data, correspond well with the racial and economic characteristics of survey respondents. This supports the survey's representativeness.

### Results

#### *Community Organization as a Strategy for Program Development*

Because of its objective of active involvement of individuals who have many stressors in their lives, it is important to document the success of the community organization approach in program development and implementation. Engagement of audiences in program governance was the first objective of the approach. From program records, the numbers of meetings of each neighborhood council during the 24-month program period were as follows: Grace Hill, 43; Water Tower, 44; and West End, 24. Across the 3 neighborhoods, attendance at each of these council meetings averaged 8 neighborhood residents.

A second objective was to assess whether audience participation in governance

would generate a substantial level of program activity. Minutes and other records of the nuts and bolts committee documented 41 neighborhood activities (e.g., a youth choir "gospelfest" that featured antismoking songs, health fairs), 26 mass media stories or interviews, 30 neighborhood placements of 2 antismoking billboards, and distribution of more than 24 000 promotional materials (e.g., self-help brochures developed by the wellness councils). These did not include less formal activities such as individuals presenting information at a neighborhood or church meeting.

#### *Outcomes*

Analyses reported here were completed through SPSS, version 4.0. At baseline, smoking prevalences were similar in St. Louis and Kansas City (Table 3). Smoking prevalence declined by 7% in the St. Louis sample between 1990 and 1992 (*P* = .028) but only by 1% in Kansas City (*P* = .641). The resulting difference between Kansas City and St. Louis in 1992 was also significant (*P* = .028). The 7% decline within the St. Louis neighborhoods and the 6% difference in prevalence between St. Louis and Kansas City after the program suggest an appreciable impact of the program on smoking.

Small numbers within the subsamples corresponding to each neighborhood limit statistical comparisons. However, the reliability of the intervention was suggested by reduced smoking prevalences in each St. Louis neighborhood: Grace Hill (39% to 25%), Water Tower (37% to 31%), and West End (27% to 25%).

Table 3 includes the prevalence of smoking in program and control neighborhoods broken down by a variety of demographic factors previously related to prevalence of

**TABLE 3—Smoking Prevalences of Telephone Survey Respondents From Neighbors for a Smoke Free North Side (St. Louis) Neighborhoods and Comparison (Kansas City) Zip Codes, 1990 and 1992**

	St. Louis Neighborhoods			Kansas City Comparison Zip Codes			Comparisons Across Cities	
	1990 (n = 504), %	1992 (n = 457), %	Change <sup>a</sup> P	1990 (n = 1040), %	1992 (n = 1034), %	Change <sup>a</sup> P	1990 P	1992 P
All respondents	34	27	.028	34	33	.641	.953	.028
African Americans	33	28	.139	33	32	.643	.994	.201
Whites	40	24	.031	37	38	.967	.612	.033
Men	36	33	.581	41	40	.763	.230	.129
Women	33	25	.027	30	29	.764	.350	.167
Women, ≤35 years old	34	24	.053	32	35	.441	.707	.019
Income <\$20 000 per year	39	30	.036	34	34	.942	.151	.282
Income ≥\$20 000 per year	25	22	.473	34	33	.784	.049	.015
Not working	33	24	.028	32	29	.289	.738	.156
Working	34	30	.347	36	38	.525	.705	.059
Not married	35	29	.090	34	33	.836	.760	.145
Married	30	22	.138	34	31	.507	.467	.051
Less than high school graduate	33	27	.271	39	33	.179	.234	.196
High school graduate	34	28	.065	32	33	.773	.460	.100
Aware of Grace Hill	40	27	.001	...	...	...	...	...
Not aware of Grace Hill	27	29	.648	...	...	...	...	...

<sup>a</sup>For comparison of 1990 and 1992 within St. Louis and Kansas City samples, and between St. Louis and Kansas City samples in 1990 and 1992, all *P* values were obtained from  $\chi^2$  tests of homogeneity with 1 degree of freedom.

smoking and/or on which the St. Louis and Kansas City neighborhoods differed. For each of the groups identified, the decline in smoking prevalence from 1990 to 1992 in the St. Louis program neighborhoods was greater than that observed in the Kansas City control zip codes. The one exception involved non-high school graduates. The decline from 33% to 27% within this group in St. Louis was equaled within the Kansas City sample (39% to 33%). This is of note since non-high school graduates represent an important component of the low-income, African American group targeted by the program. We also explored statistical interactions between the intervention and these demographic variables. The results of these analyses were consistent with those reported here.

To assess whether Neighbors for a Smoke Free North Side reached and influenced its intended audience, we evaluated the change in prevalence among those in the St. Louis sample who reported they had "heard of" Grace Hill. The decline in prevalence from 40% to 27% in this group was highly significant ( $P = .001$ ).

Logistic regression analyses (see Table 4) controlled for factors on which the St. Louis and Kansas City samples differed (Table 2) or that previous findings had linked to smoking status. Statistically significant effects emerged for age, race, sex, income, employment status, and education. After control for these effects, the nearly significant City  $\times$  Time interaction ( $P = .064$ , 2-tailed) reflects the change in St. Louis relative to the change in Kansas City.

## Discussion

Neighbors for a Smoke Free North Side, based on a community organization model, established a wide range of programs and activities promoting nonsmoking, did so with extensive involvement of audience members—neighborhood residents—in program planning and implementation, and saw a decline in smoking prevalence that was substantial, consistent across subgroups defined by socioeconomic variables related to smoking, and greater than that observed in a comparison community.

The quasi-experimental design and analytic strategy leave doubt as to whether the differences observed may have been due to other, uncontrolled differences between the program community and the comparison community.<sup>23</sup> Clearly, the present findings should not be taken as conclusive. However, several factors encourage some confidence in these findings. As indicated in Table 2, the samples were quite comparable. No other major programs addressed smoking in the African American neighborhoods of St. Louis during the study period (1990–1992). Also, recent reviews of community programs indicate that intraclass correlations within communities may be quite modest, ranging from 0.002 to 0.012.<sup>24</sup> This may be especially true for reported behavior as opposed to knowledge and attitudes.<sup>25</sup> These modest intraclass correlations indicate that extraneous, community-specific effects are not necessarily major confounders of designs such as the present one.

The program's focus at the neighborhood level, as opposed to the city level, may have contributed to the observed results. In contrast, several of the major community programs that yielded disappointing results were organized at the community level in small to moderate-sized cities (e.g., the Community Intervention Trial for Smoking Cessation [COMMIT] and the Minnesota Heart Health Program).<sup>16,17</sup> Through a focus on smaller groups, neighborhood organizations such as Neighbors for a Smoke Free North Side may involve greater portions of audience members in program planning and, thereby, better recruit informal networks to support program themes.

The program's impact was reflected in a substantial smoking prevalence reduction from 40% to 27% ( $P = .001$ ) among those in the St. Louis sample who reported having "heard of Grace Hill." Skepticism might suggest that this represents greater smoking cessation among those with greater education and greater knowledge of local agencies. However, among those in St. Louis (1990 sample) who were aware of Grace Hill, 83% were African American (vs 86% for the entire 1990 St. Louis sample), 68% reported incomes of less than \$20 000 per year (vs 64%), and 31% reported less than a high school education (vs 32%). The modest percentage difference of 83% vs 86% African American reflects that those living in the Grace Hill neighborhood were both most likely to be aware of Grace Hill (66% vs 48% in other neighborhoods) and most likely to be White (20% vs 6% in other neighborhoods). Thus, those who were aware of Grace Hill fell

**TABLE 4—Multivariate Logistic Regression Analysis Testing Effects of Neighbors for a Smoke Free North Side From 1990 to 1992 in St. Louis Relative to Comparison Zip Codes in Kansas City**

	Odds Ratio	95% Confidence Interval	P <sup>a</sup>
Age increase of 10 years	0.89	0.85, 0.94	<.0001
Race			
White	1.27	1.04, 1.54	.016
African American	1.00		
Sex			
Male	1.59	1.33, 1.89	<.0001
Female	1.00		
Income			
Less than \$20 000 per year	1.39	1.16, 1.67	.0004
\$20 000 per year or more	1.00		
Marital status			
Not married	1.11	0.92, 1.35	.281
Married	1.00		
Employment status			
Employed	1.24	1.03, 1.50	.023
Unemployed	1.00		
Education			
Less than high school graduate	1.33	1.10, 1.61	.003
High school graduate	1.00		
City			
St. Louis	0.98	0.77, 1.25	.882
Kansas City	1.00		
Year			
1990	1.01	0.83, 1.23	.907
1992	1.00		
City and year interaction			
St. Louis—1992	0.71	0.50, 1.02	.064
All other	1.00		

Note. Variables related to smoking prevalence in previous literature and on which samples differed in 1990 were controlled (see Table 2)

<sup>a</sup>Based on Wald statistics from model containing all of the listed variables.

within the program's intended low-income audience, and the program appears to have been especially successful in reaching this group.

The clientele of Grace Hill includes many single women with children. Thus, the reduction in prevalence (34% to 24%) among women less than 35 years of age in the St. Louis neighborhoods probably represents success in reaching Grace Hill's clientele. This impact among women of child-bearing age is also worth noting.

The reduction in prevalence was significant in Whites (40% to 24%) but not African Americans (33% to 28%) in program neighborhoods. This reflects the fact that effects were greatest in the Grace Hill neighborhood, that with the largest proportion of White residents. Although it emphasized African Americans in program materials, Neighbors for a Smoke Free North Side was open to all neighborhood residents. Consistent with other Grace Hill activities, most neighborhood program events were attended by Whites as well as African Americans.

The program's neighborhood organization strategies emphasized members of

intended audiences planning and implementing the program.<sup>14</sup> In contrast, for example, the Community Advisory Board of the Richmond Quits Smoking project<sup>26</sup> included 30 members representing 11 segments of the community (e.g., hospitals, businesses, voluntary health organizations). This board "was created to oversee and coordinate the project" so that, for instance, "an ad hoc media task force composed of Community Advisory Board members and staff reviewed and participated in creating all media campaigns and activities." Whether program direction is by community leaders or members of intended audiences may be an important distinction. For instance, production values may be enhanced by the community leader approach, but involvement of informal networks may be enhanced through an emphasis on audience members participating in planning. Similarly, organizing through members of intended audiences may enhance their skills and participation in their own community, but a leadership coalition may facilitate recruitment of support from those who control important resources. As we have noted elsewhere, the literature on

community approaches to health promotion should articulate strengths and weaknesses of different strategies in different circumstances, not which strategy is "best."<sup>20</sup> For influencing socially determined behavior such as smoking, organizing at the neighborhood level and around audience members themselves may have advantages. But, for example, organizing to address inequities in access to care would probably best include representatives of organizations that provide such access.

Another distinction in community organization is suggested by the results of COMMIT.<sup>27,28</sup> In COMMIT, community-based committees implemented an intervention that was principally designed at the national level. This raises a distinction<sup>20</sup> between community implementation of a centrally developed program, as in COMMIT, vs audience members and communities choosing program strategies and tactics, as in Neighbors for a Smoke Free North Side. Again, attention should focus on advantages and disadvantages in different situations.

The present results were based on reported smoking prevalences. We included no biochemical validation of smoking status. Recent reviews indicate that self-reports are generally valid, especially for population surveys in which there is no salient connection between the survey and any particular intervention activity.<sup>29-31</sup> □

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