

## Effective Recruitment Strategies and Community-Based Participatory Research: Community Networks Program Centers' Recruitment in Cancer Prevention Studies

K. Allen Greiner<sup>1,3</sup>, Daniela B. Friedman<sup>4,5</sup>, Swann Arp Adams<sup>4,5,6</sup>, Clement K. Gwede<sup>7</sup>, Paula Cupertino<sup>2,3</sup>, Kimberly K. Engelman<sup>2,3</sup>, Cathy D. Meade<sup>7</sup>, and James R. Hébert<sup>4,5</sup>

### Abstract

**Background:** Community-based participatory research (CBPR) approaches that involve community and academic partners in activities ranging from protocol design through dissemination of study findings can increase recruitment of medically underserved and underrepresented racial/ethnic minority populations into biomedical research.

**Methods:** Five cancer screening and prevention trials in three National Cancer Institute (Bethesda, MD)-funded Community Networks Program Centers (CNPC), in Florida, Kansas, and South Carolina, were conducted across diverse populations. Data were collected on total time period of recruitment, ratios of participants enrolled over potential participants approached, selected CBPR strategies, capacity-building development, and systematic procedures for community stakeholder involvement.

**Results:** Community-engaged approaches used included establishing colearning opportunities, participatory procedures for community-academic involvement, and community and clinical capacity building. A relatively large proportion of individuals identified for recruitment was actually approached (between 50% and 100%). The proportion of subjects who were eligible among all those approached ranged from 25% to more than 70% (in the community setting). Recruitment rates were very high (78%–100% of eligible individuals approached) and the proportion who refused or who were not interested among those approached was very low (5%–11%).

**Conclusions:** Recruitment strategies used by the CNPCs were associated with low refusal and high enrollment ratios of potential subjects. Adherence to CBPR principles in the spectrum of research activities, from strategic planning to project implementation, has significant potential to increase involvement in biomedical research and improve our ability to make appropriate recommendations for cancer prevention and control programming in underrepresented diverse populations.

**Impact:** CBPR strategies should be more widely implemented to enhance study recruitment.

See all articles in this *CEBP Focus* section, "Community Network Program Centers."

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### Introduction

Recruitment into clinical and community trials remains a significant challenge for the advancement of cancer research (1–3). The numbers of racial/ethnic minorities recruited into cancer clinical trials have been, and continue to be, a concern (4–6). Though different from one another in important ways, cancer therapeutic, early-

detection, and primary prevention trials represent a challenge for recruiting racial/ethnic minorities as reflected in their lower-than-population-representation of age-eligible individuals. For example, in the Prostate, Colorectal, Lung, and Ovarian Cancer Screening Trial, enrollment was only 5.0% African American, 1.8% Hispanic, and 0.3% American Indian (7). For most early-detection studies, racial/ethnic minorities are either underrepresented (4, 8), or no data are reported on the racial/ethnic characteristics of those enrolled (2, 3).

Although the biomedical research community continues to struggle with recruitment into relevant studies, demographics in the United States show a rapid change in the proportional representation of minorities in the general population. Unfortunately, inadequate outreach to diverse and underserved communities by academic health science centers, health care provider communication, and mistrust of research and institutions (9, 10), all play a role in slowing recruitment. Education and

**Authors' Affiliations:** Departments of <sup>1</sup>Family Medicine and <sup>2</sup>Preventive Medicine, University of Kansas Medical Center; <sup>3</sup>University of Kansas Cancer Center, Kansas City, Kansas; <sup>4</sup>South Carolina Statewide Cancer Prevention and Control Program; <sup>5</sup>Arnold School of Public Health; <sup>6</sup>College of Nursing, University of South Carolina, Columbia, South Carolina; and <sup>7</sup>Moffitt Cancer Center and the University of South Florida, Tampa, Florida

**Corresponding Author:** K. Allen Greiner, University of Kansas Medical Center, Mailstop 3064, 4125 Rainbow Boulevard, Kansas City, KS 66160. Phone: 913-588-1956; Fax: 913-588-1956; E-mail: agreiner@kumc.edu

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awareness of clinical trials are needed focus areas, as African Americans (11, 12), Asian Americans (11, 13), and Hispanics (11, 12) have lower awareness of trials than non-Hispanic Whites.

Simply recruiting diverse groups into trials at rates equal to their representation in the population will not necessarily result in definitive scientific assessments of interventions or therapies. Relative to non-Hispanic Whites, African Americans, Latinos, and especially, American Indians/Alaska Native will need to be recruited into studies at percentages higher than their general population representation to provide data sufficiently robust for determining whether a therapy or intervention was effective in these minority groups. Therefore, it will be important to either "oversample" or design entirely new studies that thoughtfully outreach to diverse groups in meaningful ways as the primary focus of therapeutic and prevention trials is to improve health and eliminate disparities.

### Community-based participatory research

Researchers and policymakers have begun to recognize the role and value of community-based participatory research (CBPR) in addressing recruitment and retention challenges in clinical and community trials. CBPR methods show great promise in helping to bridge healthcare gaps and overcome barriers to bring scientific discovery to racial/ethnic minority and underserved communities (14–16). CBPR distinctly builds on the unique strengths and resources of communities that promote colearning and capacity building, sharing and dissemination of information, and trust building needed for long-term commitments (17, 18). CBPR differs from generic community research by emphasizing true partnerships between the academic institution and the community, equitable distribution of the research process, and a shared decision making and ownership of data (19, 20). CBPR has been successfully implemented to influence cancer screening outcomes (21–28) and treat tobacco use (29–31). The purpose of this article is to describe five studies, that is, three controlled intervention trials, referred to as full projects, and two formative pilot projects that are part of the National Cancer Institute's (NCI, Bethesda, MD) Center to Reduce Cancer Health Disparities-funded Community Networks Program Centers (CNPC).

### Materials and Methods

Five studies conducted at three CNPC sites in Florida, Kansas, and South Carolina were selected to illustrate how CBPR was utilized in their design and execution to recruit racial/ethnic minorities and medically underserved individuals into early detection and primary prevention studies. CBPR methods provided an overarching framework to reach targeted ethnic and racial minority and medically underserved populations. All of the studies were approved by the respective Institutional Review Boards (IRB) of the Moffitt Cancer Center/University of

South Florida (Tampa, FL), University of Kansas Medical Center (Kansas City, KS), and the University of South Carolina (Columbia, SC). We provide a systematic analysis with comparison of five studies and CBPR approaches common to all.

### Results

Three randomized controlled trials (RCT) and two pilot projects are presented.

#### Moffitt cancer center—full study 1

**Study design and description.** The Colorectal Cancer Awareness, Research, Education and Screening (CARES) is a clinic-based RCT designed to increase access to colorectal cancer screening (CRCS; ref. 32) among a demographically diverse population. Using a CBPR framework, the CARES study benefited from engagement of community partners from conceptualization of the study idea through development of intervention materials and implementation and includes a Community Advisory Board (CAB). The CAB helps to ensure practical procedures, salience of educational materials, relevant interpretations of data, and dissemination of findings. As background, the idea originated from the Tampa Bay Community Cancer Partner Network (TBCCN), a network of 23 collaborating organizations that uniformly expressed an interest in colorectal cancer because it affects both men and women in their community (33, 34). This focus aligns with the Florida Cancer Plan's Goal III, to ensure that "Floridians have access to appropriate health information and effective health services for the timely detection, diagnosis, and treatment of cancer" (35), and supports recent changes to uniform data system (UDS) prevention measures in primary care for 2012 (36).

The CARES trial, theoretically informed by the Preventive Health Model, tests the efficacy of a locally developed small media, client-centered CRCS intervention on uptake of the immunochemical fecal occult blood test (I-FOBT) among average-risk individuals age 50 to 75 years, who are not up-to-date with guideline-based screening. Four TBCCN partnership, community-based clinics agreed to serve as sites and facilitate recruitment using a CBPR orientation that offered added clinical value to their services. Individuals are randomized to either a targeted low-literacy English DVD and accompanying photo novella booklet or the Centers for Disease Control and Prevention "Screen for Life" brochure. The primary outcome is completion of I-FOBT verified by kit return with results being entered into the patient's medical record to facilitate UDS reporting.

**Recruitment strategies.** At each clinic, study coordinators posted an IRB-approved recruitment flyer in the registration area and collaborated with clinic staff to identify potentially eligible age-appropriate patients whom they approached in the waiting rooms before their clinic appointment. The recruitment log data collected by the study coordinators included (i) number of scheduled

and walk-in patients that met age and language criteria, (ii) number of patients approached to assess interest and study eligibility, (iii) reasons for nonapproach, (iv) number of ineligible patients, (v) number of patients declining, and (vi) reasons for ineligibility or declining, were entered into Excel for summarization.

**Results.** In Table 1, recruitment yield is described over the initial 6-month period. Of 858 patients eligible, 430 (50.1%) were approached to assess study interest and eligibility. Of 428 (49.9%) patients not approached, 209 (48.8%) were missed because the coordinators were evaluating other patients and 191 (44.6%) were either clinic no shows, or cancelled or rescheduled their clinic visit. Of the 430 patients approached, 162 (37.7%) were eligible for the study, and among the eligible patients, 127 (78.4%) enrolled in the study.

**Summary.** The TBCCN community partners and CAB members provided overarching study guidance, and participating clinic staff and administrators suggested adjustments in the day-to-day implementation of the study. As such, recruitment data suggest that the mutually beneficial CBPR strategies of TBCCN set the stage for recruitment success. By adding value to the clinics involved in the study through enhancement of UDS performance data, TBCCN built a partnership that resulted in significant clinic study buy-in. As a result, approached and eligible participants were open to study enrollment and largely agreed to participate.

**Kansas breast health program—full study 2**

**Study design and description.** The Healthy Living Kansas (HLK) Breast Health program is a community-based RCT designed to test an intervention to promote breast cancer screening uptake. A computerized

program (offered in English and Spanish) is designed to assist Latina and American Indian women to formulate and state "implementation intentions" and address potential barriers to screening test completion. The implementation intentions intervention is based on the Theory of Planned Behavior (37, 38) and an accumulating body of research indicating that defining when, where, and how a specific behavior will be performed could help one advance to screening (39). Screening mammography uptake at 120 days postintervention is the study's primary outcome.

The Breast Health program was codeveloped, reviewed, and tested by Latino and American Indian community members (CAB and lay community members). The program relied on community members to serve as the front-line research project recruiters at community health events.

**Recruitment strategies.** The Breast Health project is being carried out in (i) a Latino community in southwest Kansas and (ii) in a large American Indian community region in northeast Kansas. All project recruitment is conducted by lay community members who have been trained by the HLK team to be effective community health promoters (CHP). In the Latino community, the CHPs are called "Promotores de Salud." Each of 12 CHPs received 15 hours of training from academic research project staff. A local community coordinator (a paid research staff member), in concert with Academic research staff, schedules the CHPs for each event. Academic research staff travels to the community health event sites to participate with set up, troubleshooting, and oversight. CHPs serve as front-line recruiters for the project. Once at a computer station, CHPs sit with the community member to guide them through the HLK Breast Health program. Each

**Table 1.** Recruitment and enrollment yield by individual full project

	<b>Study 1: Moffitt CARES</b>	<b>Study 2: Healthy Living Kansas</b>	<b>Study 3: South Carolina SISTAS</b>
	<b>N (%)</b>	<b>N (%)</b>	<b>N (%)</b>
Total number identified for recruitment	858	1,129	458
Number approached (among identified)	430 (50.1)	1,129 (100)	428 (93.4)
Number not approached (among identified)	428 (49.9)	0	30 (6.6)
Number eligible (among approached)	162 (37.7)	279 (25.6)	304 (71.0)
Number ineligible (among approached)	206 (47.9)	749 (66.3)	124 (29.0)
Number refused/not interested (among approached)	46 (10.7)	101 (8.9)	22 (5.1)
Number still considering study (unresolved—among approached)	16 (3.7)	0	45 (10.5)
Number enrolled (among eligible)	127 (78.4)	279 (100)	237 (78.0)
Reasons for nonapproach			
Missed	209 (48.8)	0	30 (100.0)
No show/rescheduled/cancelled	191 (44.6)	0	0
Previously approached	18 (4.2)	0	0
Ineligible	11 (2.6)	0	0
Reasons for ineligibility (among approached and not approached)			
Up-to-date with screening	167 (77.3)	480 (64.1)	NA
Other reasons	60 (22.7)	269 (35.9)	124 (100.0)

Abbreviation: NA, not applicable.

community research participant receives a \$25 gift card upon completion.

**Results.** Over a 9-month time spanning the latter part of 2012 and into the first quarter of 2013, 1,129 community members were approached by CHPs to participate in the HLK Breast Health program (see Table 1). A total of 279 (26% of those approached and 80% of all eligible) were enrolled as participants and completed the program. A large proportion were ineligible to participate due to up-to-date breast cancer screening status ( $N = 480$ , 43%), age ineligibility ( $N = 223$ , 20%), or high-risk breast cancer status ( $N = 46$ , 4%). Refusals represented 6% of those approached by the CHPs and 3% had already completed the program at a prior event.

A total of 226 participants who completed the Breast Health computer program were due for the 120-day follow-up survey at the time of this writing. A bilingual academic research project staff member and one community coordinator are completing these calls. To date, 62% ( $N = 141$ ) of these calls have been completed successfully. Of the remaining calls, one person has refused to participate in the follow-up survey, 19% ( $N = 23$ ) could not be reached because of out of service telephone numbers, and 18% have yet to be reached. Up to 10 call attempts on different days of the week and at different times of the day are made to reach each participant.

**Summary.** This study used CBPR in the development, testing, and deployment to promote mammography uptake. Without community collaboration, the recruitment likely would have lagged, especially in hard-to-reach rural/minority communities. The involvement of lay community CHPs and a training approach that enhanced community member skills lay the groundwork for sustained community health efforts.

### University of South Carolina—full study 3

**Study design and description.** Using principles of CBPR, the "Sistas Inspiring Sistas Through Activity and Support (SISTAS)" Study was designed as a randomized clinical trial of a 1-year dietary and physical activity breast cancer prevention intervention in African American women ages  $\geq 30$  years. Participants were randomized to either intervention or no-treatment control. At the community's request, those women randomized to control were waitlisted for one year for the intervention, which consisted of 12 weekly 2-hour classes followed by 9 monthly booster sessions. Control participants did not attend any classes, but received weekly correspondence (including educational materials unrelated to diet or physical activity) for the first 12 weeks and monthly thereafter. All participants were scheduled for data collection (clinics) at three times: baseline, 12 weeks and 1-year postbaseline. The primary outcome was inflammation as measured by C-reactive protein, TNF- $\alpha$ , and interleukin 2 receptor.

**Recruitment strategies.** Recruitment was conducted in and around Florence, South Carolina. One full-time and one part-time employee were hired from the African-

American community in Florence and maintained study offices in their homes. A centralized study coordinator (based in Columbia, SC) oversaw all recruitment activities.

A community-wide marketing campaign was developed by a Community Advisory Panel and a Professional Advisory Panel (both part of the project's CBPR methodology). Materials produced included SISTAS' logo, brochures, fliers, and posters. Recruitment venues were compiled by the advisory panels and included churches, employee listservs of local businesses, health fairs, hair salons, support groups, the local chapter of an African American sorority, the local public library, and the mammography clinic of the largest local hospital. The field staff formed partnerships with local African-American churches and conducted brief presentations during key church events such as bible studies or worship services. A social marketing campaign also was developed and included Facebook and Twitter connected to a centralized e-mail address.

Recruitment was conducted by SISTAS staff and volunteers and included an eligibility screener that recruiters were required to complete for each potential participant. This form was then scanned by the field staff and sent to the central study site, where staff conducted a second review of the screener to verify eligibility. Because the intervention was a group-based format, recruitment was conducted in "waves" of 40 participants every 3 months. After all baseline data were collected, participants were contacted and informed as to the study condition to which they had been randomized. Those in the intervention began the classes the week following the baseline clinic.

**Results.** At the time of this analysis (12 months postintervention delivery initiation), the first 3 waves of participants had completed the 12-week postbaseline assessment. Percentages were computed for all key points during study recruitment, enrollment, and follow-up.

Out of the 458 individuals who contacted study staff expressing interest in the study (Table 1), 93.4% (428) were able to be interviewed to ascertain interest and eligibility. A total of 71.0% were deemed eligible (304). Only 5.1% (22) have declined participation after being found eligible, and 78.0% ( $n = 237$ ) were ultimately enrolled to date in the study.

**Summary.** This study demonstrates the value of CBPR strategies in racial/ethnic minority participant accrual. In addition, the study highlights how a CBPR approach can facilitate randomization procedures that can often cause problems for studies in medically underserved communities. By building trust and involving advisory panels from the study's earliest stages, recruitment was successful.

### University of South Carolina—pilot study 1

**Study design and description.** This pilot study assessed knowledge and attitudes of African-American male/female dyads toward participation in prostate



cancer screening and research and developed an educational program for enhancing informed prostate cancer-related decision making. All phases were developed collaboratively by the research team with the community (UsTOO International Prostate Cancer Education & Support Network affiliates and an advisory council) and clinical (Gibbs Cancer Center & Research Institute, a NCI-funded Community Cancer Centers Program) partners. Our CBPR approach included a formative, qualitative inquiry with African American men and women to discover what they already knew and needed to learn about prostate cancer and cancer-related clinical trials.

**Recruitment strategies.** We worked with clinical and community partners to conceptualize and develop a research and recruitment plan (40, 41). Specific strategies included, but were not limited to, partnering with a prostate nurse navigator at the clinical site, multimedia promotion, and word of mouth (40–43). The navigator served as the lead recruiter at the clinical site, maintaining consistent contact with university-based coordinators who managed recruitment and eligibility verification at the academic site. Recruitment techniques included conducting a live radio segment, and informal dissemination at churches, barber/beauty shops, and health fairs. Prospective participants also were asked to recruit friends and family when they enrolled (40, 42).

**Results.** One hundred and eighty nine individuals expressed interest in participating in phase I of our pilot study (76 couples, 37 singles). A total of 81 men and women (22 couples, 37 singles; 43% participation rate of the total expressing interest) were available to participate in one of the 22 focus groups (40, 42, 43). This included 43 men (mean age 51.0 years) and 38 women (mean age 50.3 years). In addition, 18 couples and 13 singles ( $n = 49$  or 61% of those participating in focus groups) completed all aspects of the study, including the focus group sessions, 4-week education program, and pre-/postsurveys. During phase II of the pilot project (which included younger and older males based on the needs and request from the African American community during phase I (42), we reached out to 83 individuals, some of whom were on our original phase I recruitment list. We also worked with our partners who distributed flyers and used word-of-mouth recruitment at local events, barber and beauty shops, and at the cancer center. Ultimately, 30 participants (15 dyads) were recruited, and 28 (14 dyads) participants, average age 46.3 years, completed the educational sessions and the pre-/posttest surveys.

**Summary.** We proposed to recruit 120 African-American men and women for all qualitative and quantitative aspects of this pilot study. As of September 2013, 116 individuals participated in qualitative components (including advisory council interviews and partnership assessment) and 134 individuals in quantitative data collection (multiple surveys). Working collaboratively with community and clinical partners in the planning, recruitment, implementation, and evaluation of this pros-

tate cancer program was critical for building trust within the community and encouraging participation.

### University of Kansas Medical Center—pilot study 2

**Study design and description.** The objective of this pilot study was to develop, implement, and evaluate a theory-based and culturally relevant training program to advance awareness and interest in cancer clinical trials among rural Latinos. Our central hypothesis was that a culturally sensitive, language- and literacy-appropriate program would improve knowledge and attitudes toward participating in clinical research.

We began with the formation of a CAB that guided program development and helped to mobilize the community at large. *Promotores de Salud* were then trained using a skill-building curriculum to enhance leadership, organization, interpersonal skills, and promote community health event implementation. In the last phase, *promotores* were trained to conduct outreach to promote community cancer trials awareness, by executing a Cancer 101 and Cancer Research Studies Training program for *Promotores de Salud*. As part of this outreach, trained *promotores* provided one-on-one education to community members and conducted pre- and posteducation knowledge/attitude assessments. *Promotores* were both research participants as well as participant recruiters.

**Recruitment strategies.** Two community leaders recruited all CAB members. The CAB guided all recruitment strategies for the *Promotores de Salud* program. Recruitment of *promotores de salud* was also conducted using word of mouth, brochures, and a radio campaign.

*Promotores* utilized a map of their own social network developed during training sessions to begin communication with lay community and schedule one-on-one education sessions. *Promotores* and research team staff held weekly meetings to support and troubleshoot efforts with a goal of 20 one-on-one sessions per *Promotore*. In meetings, *promotores* shared experiences and strategies with each other.

All *Promotores* kept a simple, interactive daily contact log. They recorded names of all persons contacted; first contact/recurring contact, address, email, telephone, and referral type (previously known, casual contact, etc.). *Promotores* also noted what was discussed, whether printed material was distributed, whether these materials related to clinical trials, and their satisfaction with the encounter.

**Results.** Following initial meetings with the CAB, research staff recruited an initial group of 27 *promotores*, of whom 22 (81% participation rate) completed all training activities and participated in graduation activities. Cancer 101 and Cancer Research Studies Course were completed with a smaller group of five *promotores*. This smaller group was selected because of their desire to be engaged in promotion of cancer clinical trials recruitment and awareness outreach efforts. Following these training, the five *promotores* recruited 120 community members over 30 days to receive one-on-one education as community participants in the project. All 120 of these community participants completed a pre- and posttest on cancer research

**Summary.** This cancer clinical trials project began with assistance from two community leaders in southwest Kansas. CBPR approaches led to rapid recruitment of a CAB, 27 *promotores*, and 120 community member study participants. *Promotores* received valuable leadership training and were empowered to independently perform all one-on-one educational sessions and pre-/posttests. Skill building and continual involvement of community partners resulted in extremely efficient sequential outreach through social networks. The project also established a framework for ongoing outreach and two-way partnership to address new health concerns and minority health disparities.

## Discussion

Although some prevention and early detection studies have had great success with recruiting high rates of diverse groups (44, 45), overall enrollment of racial/ethnic minorities and the underserved into all studies, including cancer early-detection and primary prevention trials, remains relatively low. Nonetheless, research projects from Community Network Program Centers suggest that involvement of community members in all phases of research, from concept development, through planning, recruitment, intervention delivery, analysis, and dissemination leads to improved timeliness of recruitment and high enrollment ratios for potential participants, as was observed in studies reported here.

The five studies (both full RCTs and pilot) presented here addressed a wide range of cancer topics (colon, breast, prostate) and used varied methods to reach diverse groups (African Americans, European Americans, Latinos, American Indians). They all used fundamental CBPR strategies and adhered to its nine principles (16). Two studies utilized skill-building training activities to add value for community partners and assure engagement and empowerment. The CARES project deployed a program that gave back to clinical partners by addressing a health care measurement benchmark (CRCS uptake) and assisted partners in expanding their clinical capacity to track and improve this metric. SISTAS and the HLK Breast Health program also delivered interventions that were seen as highly desirable and mutually valuable to both community and clinical partners.

Consistent with the participatory underpinnings of the work that had been conducted in the previous cycle of the Community Network Program, all of the studies reported here continued to (i) define and recognize the community as a distinct identity, (ii) build on the unique strengths and resources within entity, (iii) facilitate collaborative, equitable partnerships in all research phases in a manner consistent with equitable sharing of power to reduce social inequalities, (iv) engage communities in learning and capacity building, (v) achieve the balance between generating data and intervening that was mutually beneficial to both the community and academic partners, (vi) focus on the local relevance of public health problems and

a recognition of multiple determinants of health, (vii) develop systems in a cyclical and iterative manner, (viii) put in place plans to disseminate results to all those involved, and (ix) commit to long-term process related to sustainability (16, 17). As an indicator of successful community engagement, recruitment and retention rates in the five studies compare favorably with those found in the literature for racial/ethnic minorities (5, 6, 46). The rates of participation of those eligible in the five studies ranged from 43% to 81% with four of the five studies clustering between 78% to 81% participations.

Although overall cancer mortality rates have begun to decline in the last decade, racial/ethnic minority groups still have consistently high cancer incidence and mortality rates (47–49). African Americans, for example, suffer from the highest incidence and highest mortality rates for colorectal, esophageal, lung, and prostate cancers. American Indians experience the highest incidence rates of renal cell carcinoma and the highest mortality rates for lung cancer. Asian Americans suffer from the highest incidence and highest mortality rates for liver and stomach cancers of all groups (50). If we expect to make major inroads into lowering incidence and downstaging of disease, it is essential that we engage high-risk populations early in the disease process, with an aim toward either primary prevention or more aggressive secondary prevention (51).

Involvement of racial/ethnic minorities in cancer clinical research also is important now that cancer therapeutics are moving into an era of personalization. The same personalized approaches may soon move to early detection and prevention efforts as well (52). Furthermore, as more variables inform decisions about treating cancer, racial/ethnic information could yield novel insights or shift decisions about methods and regimens used to detect, prevent, or treat different cancers. Information on racial/ethnic minorities could very well lead to new discoveries of value to all populations (53). Because cancer research should offer cutting-edge prevention and treatment strategies to high-risk and vulnerable populations, there are ethical implications from not accruing racial/ethnic minorities to these trials in percentages reflective of their representation in the population (54).

The examples of CBPR-focused initiatives described herein provide evidence that efficient recruitment of racial/ethnic minorities into cancer prevention clinical trials is possible. Although this report provides case studies from three CNPCs, minority groups represented and cancer topics addressed vary considerably. Rapid accrual was made possible, in large part, through community involvement.

Our projects' successes also suggest that community involvement in the research process is of added value far beyond recruitment. Direct and significant involvement of racial/ethnic minority communities in the cancer research process enhances cancer awareness, advocacy, and brings attention to early-detection and prevention programs. In addition, it builds a valuable and skilled group of community allies for general health promotion

activities as well. Investments in the infrastructure and programs of the CNPCs should be further promoted and utilized to expand the reach of trials in a changing and ever more diverse nation.

## Conclusions

Across diverse populations, study designs, and cancer prevention control topics in different regions of the United States, the CBPR recruitment approaches used by the five CNPC projects were associated with low refusal and high enrollment ratios of potential subjects. Adherence to CBPR principles in the spectrum of research activities underlines the potential to increase involvement in biomedical research and improve health outcomes in underrepresented minority populations. CBPR works because of community buy-in from identifying problems to devising means for their solution. It is hard to conceive of another approach that would lead to such high recruitment rates necessary to advance the science and improve population health. Inherent to this process is the formation of mutually beneficial community-academic partnerships that support colearning, capacity-building growth, and sustainability of innovative practices.

## Disclosure of Potential Conflicts of Interest

No potential conflicts of interest were disclosed.

## Authors' Contributions

**Conception and design:** K.A. Greiner, S.A. Adams, C.K. Gwede, P. Cupertino, K. Engelman, J.R. Hébert

**Development of methodology:** K.A. Greiner, D.B. Friedman, S.A. Adams, C.K. Gwede, P. Cupertino, K. Engelman, J.R. Hébert

**Acquisition of data (provided animals, acquired and managed patients, provided facilities, etc.):** K.A. Greiner, D.B. Friedman, S.A. Adams, C.K. Gwede, P. Cupertino, K. Engelman, J.R. Hébert

**Analysis and interpretation of data (e.g., statistical analysis, biostatistics, computational analysis):** K.A. Greiner, D.B. Friedman, S.A. Adams, C.K. Gwede, P. Cupertino, K. Engelman, J.R. Hébert

**Writing, review, and/or revision of the manuscript:** K.A. Greiner, D.B. Friedman, S.A. Adams, C.K. Gwede, K. Engelman, C.D. Meade, J.R. Hébert

**Administrative, technical, or material support (i.e., reporting or organizing data, constructing databases):** K.A. Greiner, S.A. Adams, C.D. Meade

**Study supervision:** C.K. Gwede, K. Engelman

## Disclaimer

All opinions expressed herein are the sole responsibility of the authors and do not reflect the views of the NIH.

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# Cancer Epidemiology, Biomarkers & Prevention

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K. Allen Greiner, Daniela B. Friedman, Swann Arp Adams, et al.

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