# Improving Enrollment in Cancer Clinical Trials

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**Purpose/Objectives:** To identify successful strategies for clinical trial recruitment.

**Design:** Survey research.

**Setting:** New Jersey institutions actively recruiting patients for clinical trials.

**Sample:** 84 clinical research nurses directly involved with patient recruitment were surveyed, and 50 responded (60% response rate).

**Methods:** Focus group; 34-item, direct mail questionnaire; follow-up telephone interviews; and descriptive statistics.

**Main Research Variables:** Strategies for patient recruitment and retention.

**Findings:** Respondents agreed most strongly about the importance of emphasizing to patients that treatment would not be compromised and keeping physicians informed of available protocols. Respondents felt the most effective strategies for increasing public awareness of clinical trials were to highlight participants in past trials and to stress the value of clinical trials through campaigns sponsored by nonprofit organizations. Compared to other respondents, those from cancer centers were significantly less concerned about educating physicians on the value of clinical trials. Focus group and telephone interview participants reported that patient retention in cancer trials was a lesser issue because enrollees tend to be motivated to continue.

**Conclusions:** Successful recruitment may depend on how a patient is approached about participation, keeping physicians abreast of available trials, and the level of awareness the public or a patient has about clinical research prior to considering it as a treatment option.

**Implications for Nursing:** Research nurses often are the first to interact with patients considering clinical trial participation and remain involved throughout the trial experience. Depending on the research setting, they are likely to be more informed about available protocols than physicians. Research nurses are in a position to build rapport with and advocate for patients. Strategies to increase enrollment and retention should actively involve these key personnel.

## Key Points . . .

- Cancer clinical trial participation, from research nurses' perspective, is influenced by how they are involved in the enrollment process and by physicians' and patients' attitudes toward and familiarity with clinical research.
- Research nurses are in a unique position to understand, address, and influence the attitudes of physicians and patients toward research.
- Research nurses offer a broad set of tactics that can be applied to clinical trial recruitment policies to increase enrollment.

The development of new cancer treatments depends on the expedient conduct of clinical trials. However, recruitment and retention of patients for clinical trials have been less than optimal (Joseph, 1994). The principal barriers to enrollment are fear, distrust, or misunderstanding of the clinical trial process or the standard of care offered therein; the perception that appropriate protocols are not available; and the perception of inconvenience (Collyar, 2000; Crosson, Slevin, & Keany, 1993; Ellis, 2000; Finn, 2000a, 2000b; Lara et al., 2001). Although enrollment barriers have been researched extensively, less information is available about strategies for successfully recruiting and retaining patients in clinical trials, particularly among traditionally underserved groups (e.g., ethnic minorities, the poor) (Roberson, 1994; Underwood & Alexander, 2000).

Nonphysician support staff members increasingly are recognized as having a pivotal role in successful recruitment (Ehrenberger & Aiken, 2003; Tattersall, 2002; Wright, Crooks, Ellis, Mings, & Whelan, 2002). Clinical research associates, research nurses, research coordinators, data managers, and administrators all are involved in some way with enrolling and following patients throughout the clinical trial process. All have a unique perspective (Barrett, 2002; Grunfeld, Zitzelsberger, Coristine, & Aspelund, 2002; Loh, Butow, Brown, & Boyle, 2002) and generally are seen as being able to relate complete, objective, and unhurried information to patients (Wright et al.). This pilot project identified successful recruitment strategies for the general population and the underserved from the perspective of the research nurse.

## Methods

Following approval of the study protocol by the institutional review board of Rutgers University in New Jersey, data were collected using three vehicles: a focus group, survey

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Digital Object Identifier: 10.1188/04.ONF.610-614

questionnaire, and follow-up telephone interview. First, six research nurses from institutions with large numbers of ongoing clinical trials were invited to participate in a two-hour focus group session at Rutgers' New Brunswick campus. The nurses provided informed consent, and no inducements were offered for participation. Discussion topics were based on findings from a literature search. The discussion was guided toward sharing enrollment and retention strategies used at the participants' institutions for the purpose of formulating survey questions.

Subsequently, a 34-question survey instrument was developed that reflected the input of focus group participants. Part I asked respondents how strongly they agreed or disagreed with statements about the importance or effectiveness of certain approaches toward enrollment using a five-item Likert-type scale (1 = strongly agree to 5 = strongly disagree). Three main dimensions were targeted: the role of the research nurse during the initial consultation when a patient first considers participating in a clinical trial, physicians' familiarity or interest level regarding clinical research in general and specific available protocols, and the degree of public awareness about the nature and importance of clinical trials. Part II was intended to ascertain whether a variety of strategies would improve enrollment using a three-item Likert-type scale (1 = would not improve enrollment at all, 2 = would improve enrollment somewhat, and 3 = would greatly improve enrollment). Part III elicited demographic information from respondents. Qualitative information also was needed; therefore, at the end of the survey, the authors asked whether the nurses would be willing to participate in a follow-up telephone interview.

The New Jersey State Commission on Cancer Research, a state agency created to promote and support cancer research, developed a list of research nurses for all institutions involved in cancer clinical trials in New Jersey. Eighty-four individuals were identified. To be eligible to participate in the survey, individuals must have worked as a research nurse or in a similar capacity actively enrolling patients for at least one year and must not have participated in the focus group. The survey was mailed. Nonresponders received a second mailing two weeks later, and subsequent nonresponders were contacted by telephone and sent a third copy of the survey.

A follow-up telephone interview was conducted. The principal investigator attempted to contact all participants who consented to the call on their surveys. The interview consisted of seven open-ended questions (see Figure 1) and lasted 10–15 minutes.

- What do you think is the most important point to get across when first talking with a patient about the option of participating in a clinical trial?
- What is the most important point to get across with regard to educating physicians on the importance of clinical trials?
- What successful strategies do you know of to make physicians more aware of available protocols?
- What successful strategies do you know of to educate the public on the importance of clinical trials?
- What successful strategies do you know of to educate other healthcare professionals (other than physicians)?
- What successful strategies do you know of to increase the level of trust between researchers and potential research patients?
- What would you say is the single most important factor in successfully enrolling a patient into a clinical trial?

**Figure 1. Follow-Up Telephone Interview Questions**

### Data Analysis

Focus group discussions were tape-recorded and later summarized into a report. Questionnaire data were entered into SPSS® Version 9.0 (SPSS Inc., Chicago, IL) and analyzed using descriptive statistics. Responses from cancer and noncancer centers were compared using an independent, two-tailed t test. Telephone interview responses were typed as the interview proceeded and later summarized according to common themes.

## Results

### Focus Group Findings

Discussions concentrated on successful strategies for enrolling patients into clinical trials, definitions of the underserved, and successful steps to overcome barriers specific to that group. Findings indicated that, from the research nurse's perspective, enrollment is influenced by three main factors: the role of the research nurse, the physician's attitude toward research, and the patient's familiarity with clinical research prior to considering it as a treatment option. This group felt that retaining patients in cancer clinical trials was less of an issue than enrolling them because patients who do enroll generally are highly motivated to continue.

### Survey Results

Of the 84 surveys that were mailed, 50 were returned (response rate = 60%). Nine nonresponders indicated reasons for their refusal to participate: They were on a leave of absence (n = 3), changed their place of employ (n = 2), were not involved with cancer trials (n = 2), or did not want to participate (n = 2).

Table 1 presents the characteristics of responders. They most often indicated that their professional title was either clinical research nurse (36%) or clinical research coordinator (34%). Other titles were data manager (14%) and other (16%), including all of the above (6%), administrator (4%), research secretary (2%), and physician (2%). (Although not from this target population, the one physician's responses were retained in the analysis; the authors believed the data would not adversely influence results.) Most of the respondents (92%) had worked in their current capacity for more than a year. When asked to estimate the average number of new patients per year that they personally addressed about participating in a clinical trial, respondents indicated 0–100 patients ($\overline{X}$ = 33, SD = 29.1, median = 27.5). Although five participants said that they did not personally address any new patients (four were data managers and one was a research secretary), they were included in the analysis because the authors were interested in anyone who was involved in the enrollment process.

Cancer centers and small, medium, and large hospitals all were represented evenly, as were numbers of patients per year estimated to participate in clinical trials. Regardless of the research setting, respondents indicated that they most often became aware of a potential research participant through referral from a physician (54%). Five respondents (10%) indicated that they located potential participants via a means not listed ("other"). These methods included tumor boards, conferences, or review of newly diagnosed patients. Although respondents were asked to indicate only the method by which they most often became aware of potential research

**Table 1. Demographic Characteristics**

| Characteristic | n | % |
|---|---|---|
| **Professional title** | | |
| Clinical research nurse | 18 | 36 |
| Data manager | 7 | 14 |
| Clinical research coordinator | 17 | 34 |
| Other | 8 | 16 |
| **Years in occupation** | | |
| < 1 | 4 | 8 |
| > 1–3 | 17 | 34 |
| > 3–5 | 10 | 20 |
| > 5–10 | 8 | 16 |
| > 10 | 11 | 22 |
| **Description of institution** | | |
| Hospital (< 250 beds) | 10 | 20 |
| Hospital (250–500 beds) | 13 | 26 |
| Hospital (> 500 beds) | 6 | 12 |
| Cancer center | 3 | 6 |
| Cancer center and hospital | 11 | 22 |
| Other (oncology clinic, physician office, breast center) | 6 | 12 |
| Missing | 1 | 2 |
| **Estimated patients enrolled per year at host institution** | | |
| ≤ 10 | 9 | 18 |
| > 10–25 | 12 | 24 |
| > 25–50 | 9 | 18 |
| > 50–100 | 7 | 14 |
| > 100 | 11 | 22 |
| Missing | 2 | 4 |
| **Common methods of identifying new patients (more than one method may apply)** | | |
| Reviewing pathology reports | 2 | 4 |
| Referral from a physician | 27 | 54 |
| Referral from another healthcare professional | – | – |
| Potential patient contacts you | 3 | 6 |
| Other (new patient screening, active recruitment, discussion at multidisciplinary conference) | 5 | 10 |
| Multiple methods indicated[a] | 12 | 24 |
| Missing | 1 | 2 |

N = 50

[a] These most often included reviewing pathology reports and getting referrals from a physician.

participants, 24% indicated multiple methods, such as reviewing pathology reports and getting referrals from a physician.

Table 2 presents the results from Part I of the survey, intended to ascertain which strategies were considered most important for successful enrollment. With regard to the role of the research nurse during the initial consultation, respondents agreed most strongly with the statement that assuring patients that participating in a clinical trial would not compromise their treatment was important ($\overline{X}$ = 1.20, SD = 0.41). Less important to respondents was conveying that clinical trial participation would not be inconvenient ($\overline{X}$ = 2.30, SD = 1.04).

Respondents strongly agreed that physician familiarity with and interest in clinical research were most important to provide physicians with an easy way of knowing which trials are available ($\overline{X}$ = 1.16, SD = 0.37). Similarly, respondents agreed about the importance of devising a way for research nurses to partner with oncologists in the recruitment process ($\overline{X}$ = 1.30, SD = 0.51), educating physicians on the value of clinical research ($\overline{X}$ = 1.45, SD = 0.68), and identifying study candidates for physicians ($\overline{X}$ = 1.48, SD = 0.71).

Respondents agreed most strongly with the idea that people would be most receptive to a public awareness campaign sponsored by a nonprofit or patient advocacy organization ($\overline{X}$ = 1.62, SD = 0.78) as opposed to private industry ($\overline{X}$ = 2.73, SD = 1.04). Respondents also agreed that a campaign would be most effective if it highlighted participants in cancer clinical trials ($\overline{X}$ = 1.28, SD = 0.50) and advances in treatment

**Table 2. Importance of Recruitment Strategies**

| Statement | $\overline{X}$ | SD |
|---|---|---|
| **Role of the research nurse** | | |
| • When patients initially are presented with the option of participating in a cancer clinical trial, the most important thing is to | | |
| – Have a research nurse present. | 1.57 | 0.74 |
| – Not use the word "experiment." | 1.96 | 1.21 |
| – Emphasize that advances in treatment would not be possible were it not for research. | 1.73 | 0.73 |
| – Emphasize that treatment will not be compromised with participation. | 1.20 | 0.41 |
| – Emphasize that clinical trial participation will not be inconvenient. | 2.30 | 1.04 |
| – Emphasize that treatment through a clinical trial can occur locally. | 1.67 | 0.80 |
| – Emphasize that clinical trial participation will not delay treatment. | 1.66 | 0.77 |
| **Physician interest and familiarity** | | |
| • To encourage physicians to consider clinical trials as a treatment option for their patients, the most important thing is to | | |
| – Provide physicians with an easy way of knowing which trials are available. | 1.16 | 0.37 |
| – Educate physicians on the value of clinical research. | 1.45 | 0.68 |
| – Identify potential patients for the physician. | 1.48 | 0.71 |
| – Devise a way for the research nurse to be a partner in the recruitment process. | 1.30 | 0.51 |
| **Public awareness** | | |
| • People would be most receptive to a campaign to raise public awareness of cancer clinical research if it were sponsored by | | |
| – A federal agency. | 1.92 | 0.89 |
| – A nonprofit or patient advocacy organization. | 1.62 | 0.78 |
| – Private industry. | 2.73 | 1.04 |
| • A public awareness campaign would be most effective if it highlighted | | |
| – People who have participated in cancer clinical trials. | 1.28 | 0.50 |
| – How treatment for cancer is not compromised by clinical trials. | 1.54 | 0.71 |
| – How advances in treatment for cancer would not be possible if not for research. | 1.24 | 0.43 |
| • A public awareness campaign would be most effective if it targeted people who | | |
| – Already are diagnosed with cancer. | 1.64 | 0.66 |
| – Have not been diagnosed with cancer. | 1.90 | 0.89 |

*Note.* Mean scores were based on a Likert-type scale. Participants were asked to rate their agreement with each statement on a scale of 1 (strongly agree) to 5 (strongly disagree).

resulting from clinical research ($\overline{X}$ = 1.24, SD = 0.43). They felt less strongly that a campaign needed to highlight how treatment for cancer would not be compromised by participation in a clinical trial ($\overline{X}$ = 1.54, SD = 0.71). Respondents felt that those already diagnosed with cancer would be a more effective audience for a public awareness campaign ($\overline{X}$ = 1.64, SD = 0.66), as opposed to those who did not have cancer ($\overline{X}$ = 1.90, SD = 0.89).

Table 3 presents the results from Part II of the study. Of those presented, respondents indicated that the following strategies would be the most effective: a public awareness campaign that focused on participants in past clinical trials ($\overline{X}$ = 2.60, SD = 0.61), a public awareness campaign that highlighted the value of clinical trials ($\overline{X}$ = 2.52, SD = 0.58), and a public awareness campaign sponsored by a nonprofit organization or patient advocacy group ($\overline{X}$ = 2.48, SD = 0.65). Also considered effective was an education campaign that targeted physicians and focused on the value of clinical trials ($\overline{X}$ = 2.50, SD = 0.65); however, when respondents who indicated an affiliation with a cancer center were compared to those who did not indicate such an affiliation, a significant difference in responses was apparent. Compared to the others, respondents from cancer centers felt less strongly that a physician-targeted education campaign would increase enrollment ($\overline{X}$ = 2.21, SD = 0.70 versus $\overline{X}$ = 2.62, SD = 0.60, p = 0.50, two-tailed t test). The least effective strategy of those presented was considered to be a public awareness campaign sponsored by a pharmaceutical company ($\overline{X}$ = 1.86, SD = 0.67).

### Telephone Interview Results

Of the 50 surveys returned, 33 respondents indicated a willingness to be contacted for a telephone interview. All 33 were contacted, and 14 completed the interview. Many themes were mentioned repeatedly, not necessarily in response to the same questions. For example, the issue of effective communication was referred to many times regardless of the question posed. Stressing that participation is voluntary and just one treatment option arose as important for two issues: how best to build trust and how best to introduce the clinical trial opportunity to patients. Other common themes included stressing that patient care may be better monitored for clinical trial participants versus nonparticipants (the research nurse acts as a liaison between patient and physician, and the patient benefits from team expertise) and stressing altruism (how trials benefit treatment development). Many believed that nurses should stress to physicians that administrative help is available and make user-friendly protocol lists accessible to physicians in a variety of ways. Figure 2 lists common suggestions for increasing enrollment.

**Table 3. Likelihood of Improving Enrollment**

| Strategy | $\overline{X}$ | SD |
|---|---|---|
| • The research nurse being present when the patient initially is approached with the option of participating in a clinical trial | 2.44 | 0.64 |
| • Public awareness campaigns that highlight the value of clinical trials | 2.52 | 0.58 |
| • Public awareness campaigns that highlight participants in past clinical trials | 2.60 | 0.61 |
| • Public awareness campaigns sponsored by government institutions (e.g., National Institutes of Health) | 2.32 | 0.59 |
| • Public awareness campaigns sponsored by pharmaceutical companies | 1.86 | 0.67 |
| • Public awareness campaigns sponsored by cancer support groups or nonprofit organizations (e.g., patient advocacy groups) | 2.48 | 0.65 |
| • An educational campaign that targets physicians and highlights the value of clinical trials | 2.50 | 0.65 |
| • An educational campaign that targets physicians and focuses on the clinical trial process | 2.46 | 0.65 |
| • An education campaign using the Internet | 2.18 | 0.63 |

*Note.* Mean scores were based on a Likert-type scale. Participants were asked to rate their agreement with each statement on a scale of 1 (would not improve enrollment at all) to 3 (would greatly improve enrollment).

- Supply lists of available trials at conferences and meetings, in hospital newsletters, or in regularly disseminated lists.
- Provide electronic access to protocol-tracking Web sites through electronic handheld devices or personal computers.
- Offer incentives for physicians to become familiar with protocol lists.

**Figure 2. Suggestions for Increasing Enrollment**

Two themes were notably inconsistent among telephone respondents: issues of trust between researchers and patients and the need to educate physicians about the value and importance of clinical trials. Some participants felt that trust was not an issue; that is, trust was preestablished by the physician. Others (more often those who work with minority groups) felt that trust was an important issue. For these respondents, gaining access to the targeted community and building support by making nurses available outside of their role in conducting clinical trials are extremely important. Some research nurses build community trust by conducting screening programs or holding informational meetings in a community setting. Further, participants said that understanding the cultural norms of various ethnic groups is critical to educating and building trust. For example, Hispanic men often associate the prostate with sexuality and therefore are reluctant to seek treatment, and African American men often need to be encouraged by their partners to seek treatment.

Whether physicians need to be educated about the value or process of clinical trials also varied widely. Some telephone respondents said that physicians need a greater awareness of clinical trials, but others worked with principal investigators or oncologists who already were very knowledgeable in that regard.

## Discussion

The strategies identified in this study can be used as indicators of general issues that should be addressed in any recruitment campaign. Although the roles of research nurses vary across institutions, their involvement with patients, concurrent contact with physicians, and expertise in clinical research are common enough so as to distinguish them as opportune adjudicators and a rich source of information.

Results from this study support research nurses' participation in the enrollment process. Critical to success are emphasizing to potential patients that their treatment will not be compromised, that involvement in a clinical trial is just one of their

available treatment options, that their treatment may be even more closely monitored than if they did not participate in a trial, and that they will have the benefit of a research nurse as their advocate. Research nurses effectively present these themes to potential enrollees during the initial consultation when the clinical trial option initially is discussed.

For those working with physicians who are less familiar with clinical research, improving physician familiarity and interest involves keeping them informed of available protocols and providing them with as much assistance as possible with patient identification and administrative tasks. Research nurses find ways to effectively promote available protocols with physicians and need to disseminate available protocol lists in user-friendly ways. Furthermore, physicians need to be made aware of the support systems, including staff, that are available to lessen the burden of conducting a clinical trial.

Enrollment is easier when potential participants have some knowledge of the clinical trials process. Public awareness campaigns about clinical trials that are sponsored by nonprofit agencies rather than by private industry may be more likely to be heard and trusted. These campaigns should target people already diagnosed with cancer, highlight participants in cancer clinical trials, and emphasize how treatment advances depend on clinical research. Respondents mentioned SELECT (Selenium and Vitamin E Cancer Prevention Trial), a large, prostate cancer prevention study begun in August 2001 to examine the protective effects of selenium and vitamin E, as a prime example of a study that focused on these points.

Although the issue of trust was somewhat important to most of the responding research nurses, it seemed to be much more important to those who work with minority groups. This highlights the need of research nurses to discern the ethnic makeup of their patient population and help orient physicians to successful strategies that will improve clinical trial involvement. In general, this pilot project demonstrated that research nurses can have a positive role in the recruitment of patients for studies and represents an untapped resource in improving patient accrual in clinical trials. Clearly, strategies aimed at increasing enrollment in cancer clinical trials depend on the involvement of these key personnel.

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