original contributions

# Definition and Coordination of Roles and Responsibilities Among Cancer Center Clinic and Research Personnel

Simon J. Craddock Lee, PhD[1]; Torsten Reimer, PhD[2]; Sandra Garcia[1]; Erin L. Williams, MBA[1]; Mary West, RN[1]; Tobi Stuart, RN[1]; and David E. Gerber, MD[1]

**QUESTION ASKED:** How do cancer center clinic and research personnel define, perceive, and coordinate their roles and responsibilities for the care of patients on clinical trials?

**SUMMARY ANSWER:** Knowledge, attitudes, and perception of care and responsibilities for patients on clinical trials differ substantially between and among clinic and research personnel.

**WHAT WE DID:** We developed a survey that incorporated modified components of the Survey of Physician Attitudes Regarding the Care of Cancer Survivors. Surveys were administered to clinic nursing staff and research personnel at a National Cancer Institute–designated comprehensive cancer center. In total, 105 staff members completed the survey. Results were analyzed using $\chi^2$-tests, *t* tests, and analyses of variance.

**WHAT WE FOUND:** Research staff were more likely to feel that they had the skills to answer questions, convey information, and provide education for patients on trials (all $P < .05$). Both clinic and research staff reported receiving communication about responsibilities in <30% of cases, although research staff reported provision of such information in more than 60% of cases. Among 20 tasks related to care of patients enrolled in trials, no single preferred model of responsibility assignment was selected by the majority of clinic staff for nine tasks (45%) or by research staff for three tasks (15%). Uncertainty about which team coordinates care was reported by three times as many clinic staff as research staff ($P = .01$). There was also substantial variation in the preferred model for delivery of care to patients in trials ($P < .05$).

**BIAS, CONFOUNDING FACTORS:** With a clinical research office of more than 100 staff members, our research operations may resemble those of other major academic centers but may be less generalizable to smaller community practices. Even among similarly sized programs, training, expertise, and assigned responsibilities of research staff may differ substantially. The study sample represented almost 90% survey completion rate among research personnel but less than 50% completion rate for clinic personnel. This cohort could contribute to sampling bias in our findings, because responding clinic staff represented a particularly motivated or concerned subset.

**REAL-LIFE IMPLICATIONS:** Similar to the provision of care for patients after completion of cancer treatment, care for patients in clinical trials requires high-level coordination within a complex multiteam system. Because every clinical trial has distinct requirements that may change with protocol amendments, individuals involved in the care of patients in trials must be highly adaptable and maintain open lines of communication. Yet, research and clinic teams have clear differences in knowledge, attitudes, and practices related to clinical trials. There is also considerable heterogeneity within each of these groups. These findings may be relevant not only to cancer trials but across clinical research settings.

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CARE DELIVERY

original contributions

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abstract

**PURPOSE** Effective enrollment and treatment of patients in cancer clinical trials require definition and coordination of roles and responsibilities among clinic and research personnel.

**MATERIALS AND METHODS** We developed a survey that incorporated modified components of the Survey of Physician Attitudes Regarding the Care of Cancer Survivors. Surveys were administered to clinic nursing staff and research personnel at a National Cancer Institute–designated comprehensive cancer center. Results were analyzed using $\chi^2$-tests, *t* tests, and analyses of variance.

**RESULTS** Surveys were completed by 105 staff members (n = 50 research staff, n = 55 clinic staff; 61% response rate). Research staff were more likely to feel that they had the skills to answer questions, convey information, and provide education for patients on trials (all $P < .05$). Both clinic and research staff reported receipt of communication about responsibilities in fewer than 30% of cases, although research staff reported provision of such information in more than 60% of cases. Among 20 tasks related to care of patients in trials, no single preferred model of responsibility assignment was selected by the majority of clinic staff for nine tasks (45%) or by research staff for three tasks (15%). Uncertainty about which team coordinates care was reported by three times as many clinic staff as research staff ($P = .01$). There was also substantial variation in the preferred model for delivery of care to patients in trials ($P < .05$).

**CONCLUSION** Knowledge, attitudes, and perception of care and responsibilities for patients on clinical trials differ between and among clinic and research personnel. Additional research about how these findings affect efficiency and quality of care on clinical trials is needed.

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## INTRODUCTION

Clarification and coordination of roles and responsibilities in the evaluation, treatment, and follow-up of patients with cancer have emerged as critical factors in the provision of quality care. These considerations persist throughout the entire disease course.[1] During the evaluation of a suspected malignancy, primary care providers, pathologists, radiologists, surgeons, oncologists, nursing staff, clinic administrative staff, and patients must carry out distinct but interdependent tasks to ensure timely and accurate diagnosis, staging, and treatment planning.[2-6] For multimodality treatment regimens, various oncology disciplines must agree upon and synchronize treatment plans and schedules.[7-10] Throughout treatment, oncologists and primary care providers may comanage toxicities and comorbidities, and both may counsel patients through the process.[11-15] After treatment, oncologists and primary care providers face the tasks of transferring and assigning responsibilities, including clinical and radiographic surveillance and the management of treatment-related toxicities, preventive care, and psychosocial support.[16-21]

Coordination and definition of roles and responsibilities may be particularly critical in oncology clinical trials.[22] Screening, enrollment, and treatment require clear definition of responsibilities between team members and across teams.[23-25] These responsibilities include scheduling appointments, communicating with patients, and providing status updates to clinicians. Because patients may participate in numerous clinical trials during the course of their disease, their longitudinal clinic team may interact with different research teams, each of which may approach responsibility assignment differently. Furthermore, trials are becoming

ASSOCIATED CONTENT

Appendix

Author affiliations and support information (if applicable) appear at the end of this article.

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increasingly complex, with more numerous eligibility criteria and study-related procedures.[26,27] Added to the inherent complexities of modern-day combination cancer therapies, these requirements have resulted in increased demands on both clinic and research staff.[26,28] Over time, an institution's clinical trial portfolio changes, and ongoing trials undergo modifications. Clinic and research staff therefore must constantly adapt to these updates by adjusting expectations and practices.

The importance of explicit definition and understanding of team member roles and responsibilities has been demonstrated in multiple contexts, including corporate cultures and team sports.[29] In recent years, team function and coordination also have been evaluated in medical scenarios, including the emergency department, operating room, and longitudinal multidisciplinary care.[8,14,30-34] However, these issues remain poorly understood and essentially unstudied in the realm of clinical trials. In this study, we aimed to map this territory by understanding challenges in the definition and coordination of roles and responsibilities among clinic and research personnel. Specifically, we surveyed clinic and research staff at a National Cancer Institute–designated comprehensive cancer center to determine perceptions, preferences, and practices.

## MATERIALS AND METHODS

### Study Setting and Sample

The Harold C. Simmons Comprehensive Cancer Center at the University of Texas Southwestern Medical Center is a freestanding clinical, research, and educational facility in Dallas, Texas. Nursing clinic staff members are organized into hematology-oncology, radiation oncology, surgical oncology, and gynecologic oncology clinics. The Simmons Clinical Research Office is organized by cancer type and, at the time of this study, had 107 total staff members, who included clinical research coordinators, clinical research managers, protocol and regulatory team staff, administrative/compliance/financial support staff, and administrative managers.

In recent years, approximately 6,000 new adult patients with cancer have been seen annually within the Simmons Cancer Center. Of these, approximately 600 patients are enrolled in adult therapeutic clinical trials.

### Survey Development

To develop survey questions, we modified content from the Survey of Physician Attitudes Regarding the Care of Cancer Survivors (SPARCCS), which assessed differences between oncologists and primary care physicians' knowledge, attitudes, and practices related to care of patients after treatment.[16,20,35,36] Similar to SPARCCS, we developed two versions (clinic team and research team) of the questionnaire, which differed only in the referent group label within survey items. Most items were measured using seven-or five-point Likert scales that referred to agreement (agree strongly [7], agree [6], somewhat agree [5], undecided/I don't know [4], disagree somewhat [3], disagree [2], disagree strongly [1]) or frequency (always/almost always [5], often [4], sometimes [3], rarely [2], never [1]). Thus, higher scores indicated higher agreement with a statement or more frequent practice of a care model. Questions about care assignment provided a five-point scale: research team entirely responsible; research team mostly responsible; clinic team and research team share responsibility; clinic team mostly responsible; clinic team entirely responsible.

### Survey Administration and Data Collection

One author (S.G.) distributed and collected surveys during a 2-week period. For research staff, the majority of surveys were distributed and completed individually and anonymously during regularly scheduled team meetings. For clinic nursing staff, surveys were completed anonymously and returned by individual staff members to a neutral party. Survey responses were entered into a Microsoft Excel (Microsoft, Redmond, WA) spreadsheet. Data accuracy was cross-checked with survey documents by two investigators (S.G. and D.E.G.).

### Statistical Analysis

Likert scale responses were consolidated into binary categories (agree/disagree or usually/rarely) or a composite score for each participant was computed by averaging answers across items that measured the same construct. Responses related to team responsibility were consolidated into three categories: research team; shared; clinic team. As in previous studies,[37-40] before an average score was computed across items assumed to measure the same construct, we determined Cronbach's $\alpha$ as a measure of internal consistency. We inspected descriptive statistics, such as the mean and standard deviations of scales, across all participants and separately for research and clinic teams. To test for systematic differences between responses from the clinic and research teams, we conducted $\chi^2$ tests, $t$ tests, and analyses of variance.

## RESULTS

In total, 105 staff members participated in the study (n = 55 research and n = 50 clinic staff). Although all clinic staff had clinical degrees and/or certifications, only six research staff (11%) had clinical degrees (n = 4 RNs, n = 2 MSNs). The mean age of respondents was 38 years (standard deviation [SD], 11 years), and 80% were women. On average, participants had 10.8 years of professional experience (SD, 8.8 years) and had been in their current position for 3.3 years (SD, 4.1 years). The mean reported number of patients in clinical trials with whom staff had interacted was 39.5 for research personnel and 35.6 for clinic personnel ($P = .70$). There was no significant difference in age, sex, or professional experience between research staff and clinical

staff. The response rate was 87% among research staff and was 46% among clinic nursing staff (61% overall). The higher response rate among research staff may reflect survey logistics. Research staff tended to complete surveys during weekly staff meetings, whereas clinic staff completed surveys individually.

### Research Team Qualifications and Responsibilities

Four survey items addressed perceptions of research team qualifications and responsibilities (Fig 1A). Cronbach's $\alpha$ was 0.75, which indicated acceptable internal consistency across the items. In assessment of their own skills, research team members were more confident in their skills than were their clinic counterparts (mean, 4.0 *v* 2.7; $P < .001$), and the greatest difference in perception was in the primary responsibility for scheduling diagnostics, referrals, and treatment of patients in trials.

### Delivery of Care to Patients in Clinical Trials

Six survey items addressed perceived delivery of care to patients in trials (Fig 1B). Both the research and clinic teams reported receiving information/updates from the other team in only a minority of cases, although the research team felt that it provided information/updates to the clinic team in almost two thirds of cases. A minority of respondents from both teams reported difficulties in assigning patient care responsibilities or having discussions with patients about care team responsibilities.

### Care Responsibilities for Patients in Clinical Trials

Respondents assigned primary responsibility (research team, clinic team, or shared) for 20 tasks related to the care of patients in clinical trials (Table 1). Tasks encompassed communicating with patients; reviewing and conveying test results; scheduling procedures; managing toxicities; understanding and communicating protocol requirements; and communicating with providers. In some cases, we observed lack of consensus within teams. For instance, for three tasks (15%), no single option (research team, clinic team, or shared) received more than 50% of responses from the research team. For nine tasks (45%), no single option received more than 50% of responses from the clinic team. Shared responsibility was the most common selection for eight tasks (40%) among research team responses and for eight tasks (40%) among clinic team responses. For tasks related to communicating with patients and providers and scheduling study-related procedures and tests, the research team was significantly more likely to assign responsibility to the research team. The clear majority of respondents from both teams felt that understanding and communicating study protocol requirements was the responsibility of the research team.

### Communication Practices

Four survey items addressed communication about responsibility for patients on trials (Fig 1C) and focused on discussing with patients and with the other team who will observe patients for cancer care and for other medical issues. For all items, the majority (64% to 73%) of research team members reported discussing these topics, whereas only a minority (39% to 44%) of clinic team members did. The research team tended to have these discussions more often with patients than with the clinic team; however, the clinic team reported having these discussions with the clinic team more often than with patients.

### Problems Encountered in Clinical Trials

Seven survey items addressed perceived delivery of care of patients on trials (Table 2). These items related to patient adherence, coordination of care, patient contact, duplicated or missed care, and inadequate knowledge. None of the items was reported by a majority of respondents from either team. The particularly low rate (6%) of reported patient nonadherence may reflect the relatively motivated and informed population treated on clinical trials.[41,42] Uncertainty about which team is coordinating care was reported by three times as many clinic team respondents as research team respondents ($P = .01$). Both research and clinic team respondents were more than twice as likely to report that patients contacted them for problems more appropriate for the other team than that patients contacted the other team for problems more appropriate for their own team.

### Preferred Model for Care Delivery

We surveyed research and clinic team members on their preferred model of care delivery for patients in clinical trials (Fig A1, online only). Options included (1) clinic team has primary responsibility, (2) research team has primary responsibility, (3) shared responsibility, (4) specialized clinics with physicians focused on trials, and (5) specialized clinics with registered nurses and advance practice providers focused on trials. There were significant differences between research team and clinic team preferences ($P = .003$ for first choice; $P = .004$ for first or second choice); the most common first choice among the research team was a specialized physician-run clinic, and the most common choice among the clinic team was a shared responsibility model. Among the research team, the most common second choice was "research team has primary responsibility," whereas, among the clinic team, the most common second choice was a specialized physician-run clinic. Notably, neither the clinic nor research team had a single preferred model selected by the majority of respondents.

## DISCUSSION

The challenges of clinical trial activation and enrollment have received considerable focus in recent years. These include increasingly complex and stringent eligibility criteria, escalating research costs, and lack of available trials.[27,28] Yet, relatively little attention has been placed on study procedures after patients are enrolled. We previously

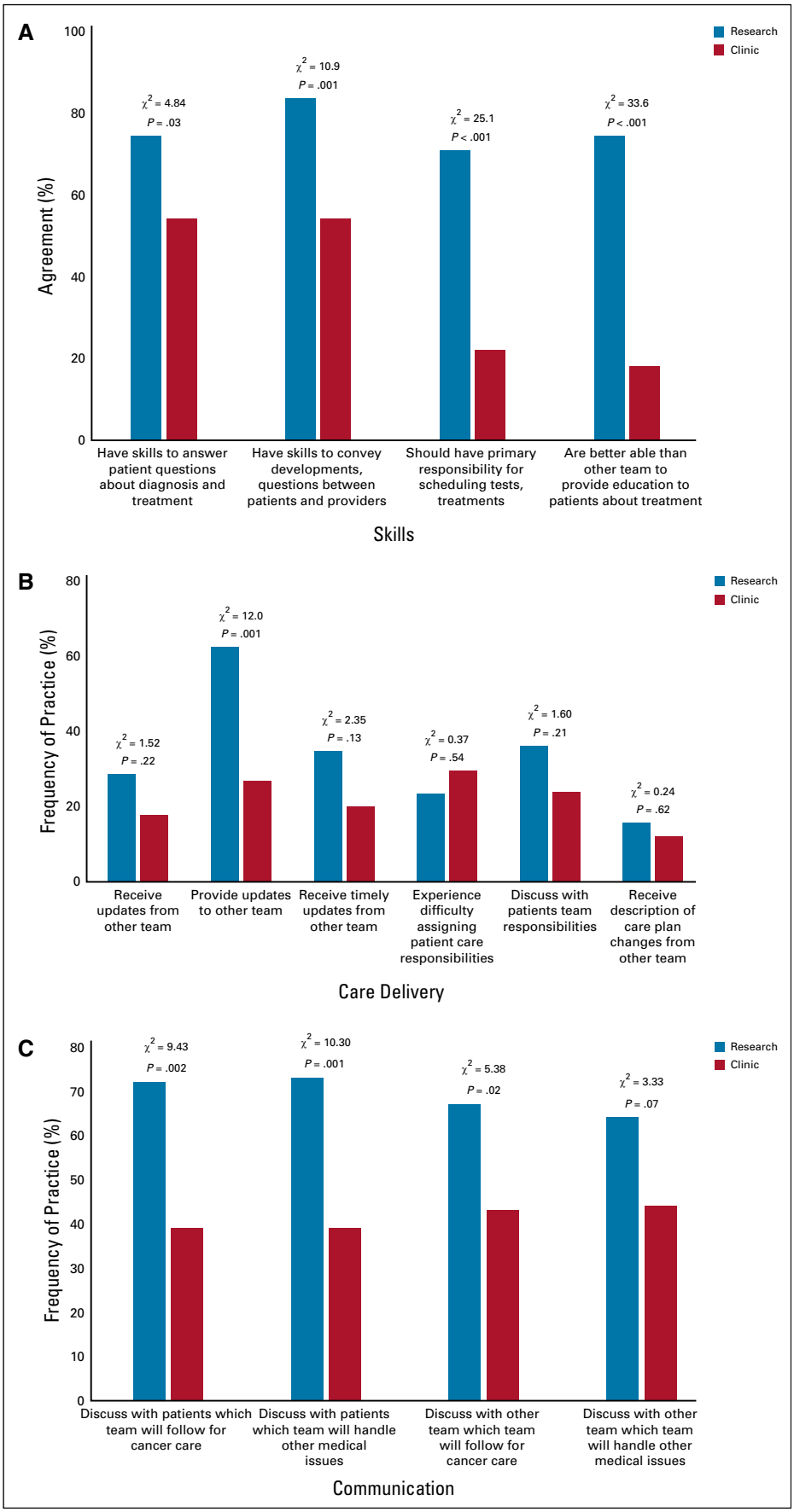


**FIG 1.** (A) Perceived skills and responsibilities of members of respondents' own team. (B) Perceived delivery of care to patients on clinical trials. (C) Perceived communication practices. *P* value refers to 2 × 2 $\chi^2$.

**TABLE 1.** Perceived Care Responsibilities for Patients on Clinical Trials

| | No./Total No. (%) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Research Team | | | Clinic Team | | | | |
| Task | Researchers | Shared | Clinicians | Researchers | Shared | Clinicians | $\chi^2$ | *P* |
| Explain standard treatment to patients | 6/51 (12) | 12/51 (24) | 33/51 (65) | 7/43 (16) | 14/43 (33) | 22/43 (51) | 1.76 | .41 |
| Explain trial treatment to patients | 34/52 (65) | 17/52 (33) | 1/52 (2) | 25/47 (53) | 19/47 (40) | 1/47 (2) | 2.24 | .33 |
| Respond to patient messages about clinical updates | 7/51 (14) | 29/51 (57) | 15/51 (29) | 7/46 (15) | 21/46 (46) | 18/46 (39) | 1.30 | .52 |
| Respond to patient messages about appointment questions | 18/51 (35) | 27/51 (53) | 6/51 (12) | 4/48(8) | 22/48 (46) | 22/48 (46) | 18.49 | < .001 |
| Respond to patient requests for refills | 6/50 (12) | 19/50 (38) | 25/50 (50) | 3/47 (6) | 14/47 (30) | 30/47 (64) | 2.12 | .35 |
| Review results of tests | 6/50 (12) | 29/50 (58) | 15/50 (30) | 3/44 (7) | 23/44 (52) | 18/44 (41) | 1.59 | .45 |
| Communicate test results to providers | 8/50 (16) | 33/50 (66) | 9/50 (18) | 5/46 (11) | 25/46 (54) | 16/46 (35) | 3.60 | .17 |
| Notify support teams of patient needs | 3/51 (6) | 26/51 (51) | 22/51 (43) | 1/48 (2) | 19/48 (40) | 28/48 (58) | 2.72 | .26 |
| Schedule study-related procedures, tests | 43/51 (84) | 7/51 (14) | 1/51 (2) | 23/48 (48) | 16/48 (33) | 9/48 (19) | 15.91 | < .001 |
| Schedule routine care procedures, tests | 12/51 (24) | 12/51 (24) | 27/51 (53) | 3/47 (6) | 15/47 (32) | 29/47 (62) | 5.65 | .06 |
| Communicate test results to patients | 3/50 (6) | 25/50 (50) | 22/50 (44) | 2/46 (4) | 22/46 (48) | 22/46 (48) | 0.23 | .89 |
| Manage acute treatment-related toxicities (eg, infusion reactions) | 4/50 (8) | 20/50 (40) | 26/50 (52) | 3/46 (7) | 16/46 (35) | 27/46 (59) | 0.44 | .80 |
| Understand study protocol requirements | 45/52 (87) | 7/52 (13) | 0/52 (0) | 29/48 (60) | 18/48 (38) | 1/48 (2) | 9.15 | .01 |
| Communicate study protocol requirements to providers | 47/52 (90) | 5/52 (10) | 0/42 (0) | 38/48 (79) | 9/48 (19) | 1/48 (2) | 2.94 | .23 |
| Communicate study protocol requirements to patients | 46/52 (88) | 6/52 (12) | 0/52 (0) | 35/47 (74) | 10/47 (21) | 2/47 (4) | 4.25 | .12 |
| Take “the lead” for patient needs while patient receives study treatment | 39/52 (75) | 13/52 (25) | 0/52 (0) | 16/48 (33) | 20/48 (42) | 12/48 (25) | 23.0 | < .001 |
| Take “the lead” for patient needs after patient discontinues study treatment | 6/52 (12) | 16/52 (31) | 30/52 (58) | 5/47 (11) | 16/47 (34) | 26/47 (55) | 0.12 | .94 |
| Communicate with provider about study drug dose adjustment | 28/50 (56) | 17/50 (34) | 5/50 (10) | 22/44 (50) | 16/44 (36) | 6/44 (14) | 0.46 | .79 |
| Communicate with provider about study drug supportive care | 12/50 (24) | 25/50 (50) | 13/50 (26) | 13/46 (28) | 21/46 (46) | 12/46 (26) | 0.26 | .88 |
| Communicate with provider about future schedule changes | 19/50 (38) | 28/50 (56) | 3/50 (6) | 8/46 (17) | 22/46 (48) | 16/46 (35) | 13.95 | .001 |

framed the interface and interactions between clinic and research teams in cancer clinical trials as multiteam systems,[22] which arise in situations in which members clearly identify with different teams when they collaborate on a joint task.[43]

The SPARCCS assessed how primary care providers and oncology specialists perceive the assignment of care responsibilities for patients who had completed cancer treatment.[16,18] In this study, we modified the SPARCCS to address care assignments for patients in cancer clinical trials. We targeted clinic nursing staff and research coordinators, because they serve as front-line first responders in the care of patients on clinical trials. We found multiple differences between clinic and research team perceptions and preferences. In general, the majority of research staff reported proficiency at education of and communication with patients on trials, assumption of responsibility for ordering tests and procedures for patients in trials, and

**TABLE 2.** Problems Encountered on Clinical Trials

| Problem | No./Total No. (%) | | $\chi^2$ | *P** |
|---|---|---|---|---|
| | Research | Clinic | | |
| Patients refuse or do not adhere to recommended treatment | 3/50 (6) | 3/47 (6) | 0.006 | .94 |
| Uncertainty about which team is coordinating patient care | 5/47 (11) | 15/46 (33) | 6.65 | .01 |
| Patients contact the other team for problems that should be addressed by my team | 4/47 (9) | 3/38 (8) | 0.19 | .67 |
| Patients contact me for problems that should be addressed by the other team | 15/47 (32) | 8/40 (20) | 1.58 | .21 |
| Concerns about duplicated care by both teams | 5/48 (10) | 5/40 (13) | 0.09 | .76 |
| Concerns about care/procedures missed by both teams | 10/48 (21) | 8/42 (19) | 0.05 | .83 |
| Inadequate knowledge or training to manage patient problems | 5/44 (11) | 4/40 (10) | 0.04 | .84 |

*$P$ value refers to $2 \times 2$ $\chi^2$.

management of clinical developments and questions between patients on trials and providers. By contrast, only a minority of clinic staff reported such skills. These observations are notable because (1) in contrast to clinic staff, many research staff may not necessarily have formal medical training; (2) depending on the trial, components or even the entirety of treatment may entail standard-of-care therapies; and (3) at some centers, recent regulatory changes, such as Medicare Meaningful Use requirements,[44] have limited the ability of non-nurse research personnel to place orders in the electronic health record and have instead required them to depend on clinic staff to perform these tasks.

Communication practices differed considerably between teams. Both teams felt that they provided updates more often than they received them. We also observed clear differences in perceptions of the same process. For instance, more than 60% of research staff reported that they provided updates to the clinic team, but fewer than 20% of clinic staff reported receipt of these—a finding that stresses the relevance of perception in multiteam systems. Nevertheless, only approximately one third of respondents reported difficulty in assigning team responsibilities. The discussion of team responsibilities with patients and with the other team occurred significantly more frequently among research staff than among clinic staff. One possible explanation is that research staff members interact exclusively with patients in (or being screened for) clinical trials. Conversely, patients in trials may represent only a small minority of the total caseload for clinic staff. Therefore, research staff could incorporate mention of team responsibilities universally into patient discussions, whereas clinic staff would need to modify their discussion depending on whether patients were enrolled in trials. Clinic team members were three times as likely as research staff to report uncertainty about which team is coordinating care for their patients in trials, which perhaps also reflects less familiarity with trial requirements and structure.

In addition, we observed considerable heterogeneity within teams. For almost half of the specific tasks for patients in trials, no single responsibility model (clinic, research, or shared) received a majority response from members of the clinic team. Furthermore, shared responsibility was selected for almost half of tasks, an option that inherently requires more discussion and clarification. These tasks included highly clinically oriented responsibilities, such as handling patient clinical updates, appointment questions, and refill requests; reviewing test results; and communicating with providers about schedule changes. How these and other tasks are best shared among clinic and research teams requires careful consideration to avoid duplication or overlooking of effort.

Ideally, cancer centers could clearly outline responsibility assignments for tasks, such as responding to patient questions, scheduling study-related tests, and communicating with providers. Determination of the most effective, appropriate, and efficient model will require additional study. Moreover, for cancer clinical trials, there may not be a one-size-fits-all template applicable across trials, because protocol requirements differ widely among studies and may change over time. Therefore, staff may not be able to develop, evaluate, and disseminate standard operating processes for clinical trials to the extent that they might for standard clinical care.

Divergent team perspectives of a preferred model of care delivery raise important concerns about how cancer centers organize the care of patients in clinical trials. First, it is noteworthy that no single model was the first choice for a majority of respondents, which suggests heterogeneous opinions among and between teams. The preference for specialized clinics expressed by the research team suggests a closed model, as used by some cancer centers for phase I clinical trials. However, the feasibility of such an approach is not clear when the entire spectrum of clinical research (eg, phase I to III trials, nontherapeutic studies) is considered. Second, preference for these closed clinics could imply isolation of research efforts from a larger institutional effort toward integrated, high-quality cancer

care, which echoes our earlier findings that research staff perceive greater within-group identification but less identification with the cancer center compared with clinic staff.[45] Finally, divergences also point to opportunities for training and education. Onboarding for new team members in both clinical and research roles could establish and increase alignment with site leadership expectations for care of patients in trials. Future research opportunities could test optimal implementation strategies for onboarding and team building to enhance these practices across the larger clinical trial enterprise.

The main limitations of this study are the nature of the study site and the heterogeneity of cancer clinical research programs nationally. With a clinical research office of more than 100 staff (many of whom work within a single disease group), our research operations may resemble those of other major academic centers but may be less relevant to smaller community practices. Furthermore, even among similarly sized programs, training, expertise and assigned responsibilities of research staff may differ substantially. Although we did collect data about the educational background of research staff, the numbers are too small to correlate (cross-tab) credentials with survey responses to indicate any interpretable trends. Nevertheless, because the interactions between clinic and research personnel have been essentially unstudied previously, by applying established tools to this new context, this cross-sectional study provides preliminary findings for future, multicenter, observational studies and interventions. Another limitation is the study sample, which represented almost 90% survey completion rate among research personnel but less than 50% completion rate for clinic personnel. This cohort could contribute a sampling bias to our findings, as responding clinic staff may represent a particularly motivated or concerned subset. At the same time, because they completed surveys in group settings, it seems plausible that some research personnel may have recorded more positive responses than they might have individually. Last, our sampling of clinic staff did not include input from physicians, whose practice patterns and preferences are likely to affect decisions about clinical trials.

In conclusion, like the provision of care for patients after completion of cancer treatment, care for patients in clinical trials requires high-level coordination within a complex multiteam system. Because every clinical trial has distinct requirements that may change with protocol amendments, individuals involved in the care of patients in trials must be highly adaptable and must maintain open lines of communication. Yet, research and clinic teams have clear differences in knowledge, attitudes, and practices related to clinical trials. There is also considerable heterogeneity within each of these groups. These findings may be relevant not only to cancer trials but across clinical research settings.


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## AUTHOR CONTRIBUTIONS

**Conception and design:** Simon J. Craddock Lee, Torsten Reimer, Sandra Garcia, David E. Gerber
**Collection and assembly of data:** Simon J. Craddock Lee, Sandra Garcia, Erin L. Williams, Mary West, Tobi Stuart, David E. Gerber
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## AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

**Definition and Coordination of Roles and Responsibilities Among Cancer Center Clinic and Research Personnel**

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## APPENDIX

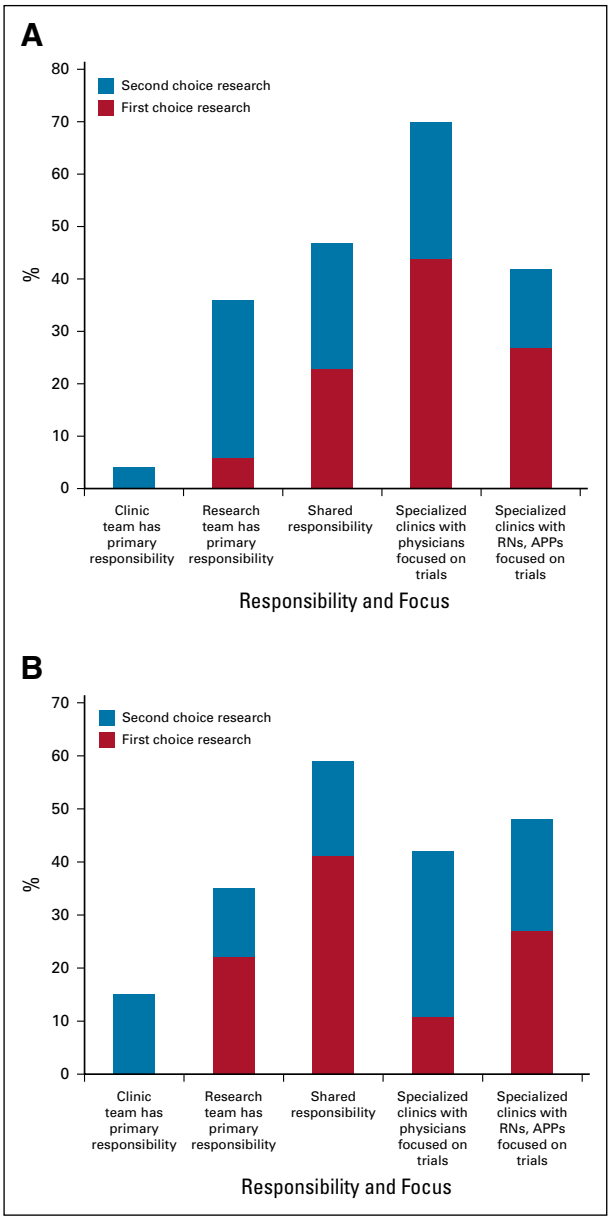


**FIG A1.** Most preferred model for care delivery among (A) research personnel and (B) clinic personnel. Differences between research team and clinic team responses for first choice ($P = .003$) and for first or second choice ($P = .004$) were statistically significant. APP, advance practice provider; RN, registered nurse.