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Primary Care Physicians' Attitudes and Beliefs about Cancer Clinical Trials

Carma L Bylund[1,2,3], **Elisa S Weiss**[4], **Margo Michaels**[5], **Shilpa Patel**[6], **Thomas A D'Agostino**[1], **Emily B Peterson**[7], **Maria C Binz-Scharf**[8], **Natasha Blakeney**[9], and **M Diane McKee**[10]

[1]Memorial Sloan Kettering Cancer Center (New York, New York)

[2]Weill Cornell Medicine in Qatar (Doha, Qatar)

[3]Hamad Medical Corporation (Doha, Qatar)

[4]The Leukemia & Lymphoma Society (Rye Brook, New York)

[5]Health Care Access and Action Consulting (Boston, Massachusetts)

[6]Department of Population Health, NYU Medical Center, (New York, New York)

[7]Division of Cancer Control and Population Sciences, National Cancer Institute, Rockville, MD

[8]Colin Powell School of Civic and Global Leadership, City College of New York (New York, NY)

[9]Education Network to Advance Cancer Clinical Trials, (Bethesda, MD; ceased operations in March 2014)

[10]Department of Family and Social Medicine, Albert Einstein College of Medicine (Bronx, New York)

Abstract

Background/Aims—Cancer clinical trials give patients access to state-of-the art treatments and facilitate the translation of findings into mainstream clinical care. However, patients from racial and ethnic minority groups remain underrepresented in clinical trials. Primary care physicians are a trusted source of information for patients, yet their role in decision-making about cancer treatment and referrals to trial participation has received little attention. The aim of this study was to determine physicians' knowledge, attitudes, and beliefs about cancer clinical trials, their experience with trials, and their interest in appropriate training about trials.

Methods—613 physicians in the New York City area primarily serving patients from ethnic and racial minority groups were invited via email to participate in a 20-minute online survey. Physicians were asked about their patient population, trial knowledge and attitudes, interest in training, and personal demographics. Using calculated scale variables, we used descriptive statistical analyses to better understand physicians' knowledge, attitudes, and beliefs about trials.

Corresponding Author: Carma Bylund, Ph.D., Hamad Medical Corporation, P.O. Box 3050, Doha, Qatar, cab2037@qatar-med.cornell.edu, Phone: +974-6613-6173.

Declaration of conflicting interests

The Authors declare that there are no conflicts of interest.

Results—127 physicians completed the survey. Overall, they had low knowledge about and little experience with trials. However, they generally had positive attitudes toward trials, with 41.4% indicating a strong interest in learning more about their role in trials, and 35.7% indicating that they might be interested. Results suggest that Black and Latino physicians and those with more positive attitudes and beliefs were more likely to be interested in future training opportunities.

Conclusions—Primary care physicians may be an important group to target in trying to improve cancer clinical trial participation among minority patients. Future work should explore methods of educational intervention for such interested providers.

Keywords

Cancer clinical trials; primary care physicians; minority patients; clinical trials knowledge

Introduction

Although about 20 percent of cancer patients are medically eligible for a treatment clinical trial,[1] trial participation among adult cancer patients remains low. Only 3–5 percent of adults with cancer participate in cancer clinical trials.[2] Participation is even lower among patients from racial and ethnic minority groups and the medically underserved,[3] who often have higher cancer mortality rates than the population as a whole.[4] Low accrual rates to trials among minority and underserved populations have a significant effect on both the quality of research and the rate at which new scientific discoveries are made.[5] Enrollment among racial/ethnic minority, elderly, adolescent, and young adult populations in particular has not been adequate to understand aspects of care and treatment response unique to these populations.[6–8] The importance of racial and ethnic minority participation in clinical research has been well established, with implications that include, but are not limited to, generalizability of research findings,[9,10] equity in provision of health care,[11,12] and accuracy of racial- or ethnic-specific subgroup analyses.[13,14]

This low accrual rate also has a profound effect on the quality of care provided to underserved patients.[15] Patients' access to trials is often cited as a measure for delivery of quality cancer care. The National Comprehensive Cancer Network Clinical Practice Guidelines in Oncology state that "the best management for any cancer patient is in a clinical trial."[16] An Institute of Medicine committee stated that the "therapies offered through clinical trials should ideally be considered the preferred treatment choice for physicians and patients, if they are available," and recommended that all oncologists should "strive …to achieve… high accrual rates of 10 percent or more."[17] In recent years, the Commission on Cancer has increased its "minimum required accrual percentages to clinical research studies" for institutions seeking its accreditation for quality.[18]

The literature has cited numerous barriers at the system, individual, and interpersonal levels that influence the willingness and ability of patients from minority groups to participate in clinical trials. [19] Although trial locations and design, including eligibility criteria, may disproportionately affect minority enrollment, many barriers, although certainly not all, directly relate to lack of knowledge and underlying attitudes and beliefs on the part of both patients and health care providers, including primary care physicians. Interventions focused

on improving discussions about clinical trials in a clinical encounter may have the strongest impact on participation.[20] Yet, enhancing the trusted relationship between patient and referring physician is often overlooked. Primary care physicians often provide patients initial referral to potential cancer treatments; thus, their attitudes and beliefs may have considerable implications for patient access to clinical trial participation.

Although cancer cases comprise a relatively small percentage of primary care physicians' practices, they do play an important role in many patients' cancer care. There are few studies specifically examining the care physicians provide to their patients who are diagnosed with cancer,[21] but those that have been conducted suggest that physicians serve a range of functions, which include providing referrals, pain management, and advice about treatment options, as well as psychosocial support for patients and their families.[21–26] Additionally, physicians sometimes have the responsibility of giving patients their cancer diagnosis,[21,27,28] and one study has shown that patients *prefer* to be told of a cancer diagnosis by a trusted physician, such as their primary care physician.[29] Continuing into treatment decisions, a number of studies have shown that a trusted physician's recommendation was the primary factor influencing patients' decisions to enroll in a clinical trial.[30–36] Physicians can thus play a critical role in making newly diagnosed cancer patients aware of cancer clinical trials as a potential option for care, preferably prior to referral to an oncologist.[22,37,38]

However, primary care physicians rarely discuss clinical trial options with patients, preferring to leave these discussions to oncologists.[22,38–41] Consequently, enhancing physicians' understanding of trials and improving their capacity to inform patients about the possibility of trial participation may help to ameliorate some patient confusion and/or concern. Previous research demonstrates conducting outreach and education to primary care providers can increase their capacity for referral to clinical trials;[22,35,38,40–44] and educational programs targeted to physicians have shown to increase their knowledge and positive attitudes about their role in clinical trial referrals.[45,46]

This purpose of this study was to determine physicians' knowledge, attitudes, and beliefs about and previous experience with cancer clinical trials, with the ultimate goal of guiding the development of an outreach intervention for physicians who serve a primarily minority and underserved population in the New York City area. The study also sought to assess physicians' interest in receiving educational training relevant to their role as referring providers.

Methods

Participants

For recruitment, we worked with three partner organizations in New York City that were selected to ensure access to a sufficient number of community-based physicians (in private offices or clinics) who serve predominantly minority patients. Initially, 621 names and email addresses were provided by these organizations: Metro Plus (a provider of Medicaid managed care in New York City), the Montefiore Medical Group (Bronx, NY), and the

Urban Health Plan (Bronx, NY). We excluded eight doctors who were not primary care physicians, resulting in 613 physicians that were invited to participate in the study.

Procedure

The physicians received an email from a medical lead within their organization that briefly described the survey, stated the results were confidential, expressed support for the survey, and explained that participants would receive a $25 gift card upon completion of the survey. We sent survey invitations by email, and up to four follow up emails as reminders to those who had not completed the survey.

Survey

Our research team developed the 65-item survey over several months based upon: a) Data from qualitative interviews conducted in an earlier phase of the study; [47,48] b) Review of the literature and previously developed instruments; c) Previously tested questionnaires by study investigators;[45] d) Expert opinion; and e) Pilot testing with four physicians. A consultant developed the online survey using Qualtrics survey software. All data were collected between April and July 2011. This study was approved by the appropriate Institutional Review Boards.

The survey was comprised of four sections that included questions about: medical practice and patient population, post-referral communication with cancer patients and oncologists, clinical trials and training, and demographic questions. The results of the questions on post-referral communication have been published elsewhere.[47] For this study, we developed two scale variables about cancer clinical trials. The first measured the physician's attitudes and beliefs about trials by asking their level of agreement on a 5-point scale (1 *Strongly Agree* to 5 *Strongly Disagree*) for six statements about clinical trials (as shown in Table 1). A scale variable that measured the strength of agreement across the six items was created by taking the mean of these six items ($M = 2.45$; $SD = .62$, $\alpha = .76$). We also developed a knowledge scale[45] based on the percent of correct answers across seven true/false items (as shown in Table 2).

The primary variable of interest for the present study was physician interest in training about trials, with a focus on how physicians can improve trial access for their patients. To measure this, we asked: "Would you be interested in participating in an educational training, with continuing medical education credit, that provides information about cancer clinical trials and informs you about how physicians can enhance patient access to these trials?" with possible answers of yes, maybe, and no.

Analysis

We analyzed data only for those participants who completed all questions on the survey. Descriptive analyses examined the distribution of demographic characteristics and practice-related variables. Means and standard deviations were calculated for all continuous variables, while percentages were calculated for categorical variables. Descriptive cross-tabulations were used to try to better understand the relationship between interest in training

and respondents' race, ethnicity, and attitudes and beliefs about clinical trials. All analyses were carried out with SPSS Version 21.

Results

One hundred twenty-seven physicians completed the online survey (21% completion rate). As shown in Table 3, physicians were fairly well distributed across age, gender and ethnicity. The majority of respondents were affiliated with a medical school (74.0%), worked in the Bronx (51.2%), and were affiliated with an internal medicine practice (63.8%). Most (61.4%) worked in outpatient practices that were hospital-owned. They tended to see an older set of patients, with 57.4% of physicians estimating that at least half of their patients were 50 years or older. Nearly half (47.7%) reported that they personally recommend a specific oncologist or oncology practice to their patients needing referral.

Overall, physicians did not have a great deal of experience with cancer clinical trials (Table 4). About one third reported that they had referred patients to oncologists that participate in trials. About one-quarter had been asked by a patient for their opinion about enrolling in a trial, and few (11.8%) reported either personally ever participating in or knowing someone who had participated in a trial. Twenty-two percent reported ever being an investigator on a trial.

As shown in Table 2, knowledge levels about clinical trials were also low, with an average correct score of 49% across seven knowledge items. The knowledge item most frequently answered correctly was "all cancer treatment trials in the US are subject to federal regulations that protect patients' rights and safety," with 90.6% of physicians correctly answering "true." The item most frequently answered *incorrectly* was "About 15% of all US adults with cancer participate in cancer treatment trials," with only 8.7% of physicians correctly answering "false."

Despite low levels of past experience and knowledge, respondents had fairly positive attitudes toward trials (Table 1). The highest levels of agreement were given to statements about the importance of cancer treatment trials and the importance of cancer patients being given the option of participating in a trial. There was moderate interest in training, with 41.4% indicating "yes," they were definitely interested in learning more about the primary care provider role in trials, and another 35.7% replying maybe; 22.2% were definitely not interested. Of those who marked "yes," the majority (81.6%) was interested in online training; however 50% also reported being interested in in-person group training.

We explored the relationship between several variables and *interest in training* in order to identify which groups of physicians are likely to be most interested in participating in a training session on cancer clinical trials. Results suggested that minority primary care physicians were more interested. Specifically, Black physicians were more likely to indicate they were definitely interested in training (10/15), than White physicians (17/54). Additionally, Latino primary care physicians were more likely to have interest in training (9/19) than were non-Latino physicians (42/105).

Also, physicians who reported a definite interest in training had a more positive score on the attitudes and beliefs scale (M = 2.23, SD = .59) than those who said they may be interested (M=2.38, SD=.53) and those who said they were not at all interested (M=2.97, SD=.52).

Discussion

One way in which patients may be encouraged to participate in trials is through the involvement and endorsement of their primary care physicians, in whom patients often place a great deal of trust. Our study assessed physicians' knowledge, attitudes, and beliefs about cancer clinical trials, as well as experience with trials, and investigated factors related to openness to additional informative training about trials. Few studies have examined this issue among physicians who serve minority patient populations in urban areas.

Not surprisingly, the physicians in our study had little prior experience discussing trials with patients and families.[22] In addition, their knowledge level about trials was fairly low, with an average knowledge score of less than 50% correct. Despite little experience and low knowledge, physicians generally had positive attitudes and beliefs about trials. However, they were more likely to endorse items having to do with their beliefs about the importance of trials rather than their behaviors or intentions about trials. These results are consistent with past literature showing that physicians have mostly positive attitudes towards clinical trials but have little understanding of them or experience with referrals.[14,22,38,41]

Identifying characteristics of physicians most likely to be interested in targeted training could lead to identifying physicians willing to refer to trials, as well as optimize the training for their background, interests, and needs. Our descriptive analyses that showed Black and Latino physicians tended to be more interested in training than were White and Non-Latino physicians. One potential explanation for this finding is that Latino and African American physicians were more likely than White physicians to recognize that patients from ethnic and racial minority groups have been underrepresented in clinical trials, and are motivated to ameliorate ongoing racial/ethnic disparities in care and survival rates.

Those who already had positive attitudes about trials were also more interested in attending a training. Findings also suggest an opportunity to increase this pool of likely trainees. It may be possible to enhance interest in training among physicians with less experience and poorer attitudes by encouraging key opinion physician "ambassadors" to share their experiences and positive perspectives with other physicians.[15]

Limitations of this study included the use of a convenience sample drawn from selected institutions in one large city, as well as a low response rate, despite the use of an incentive.[49] This rate was likely due to the competing time priorities that physicians in the community face, but also in part because many (about 40%) don't view talking to patients about trials as part of their role, as our data indicate. The low response rate led to small sub-samples of some racial and ethnic groups, and more robust studies should continue to explore and confirm the key contrasts found in this study. Another implication of the low response rate could be that this self-selected group has greater interest in participation than do physicians as a whole. The findings suggest that trying to influence physician behavior, after they form

their beliefs, will be both important and challenging. Future research should focus on improving knowledge and changing attitudes and beliefs in medical school and residency training, to make thinking about clinical trials as a treatment option more normative and routine. However, a recent study of medical school curricula about oncology makes no mention of clinical trials.[50] We believe that this approach would have a greater chance of bringing about a paradigm shift – one that would change physicians' perceptions of their role and would lend support to increasing minority groups' participation in cancer clinical trials.

The next phase of our research will be to implement and evaluate a training program on cancer clinical trials for primary care physicians, focusing: on a) addressing knowledge and attitudinal barriers; b) the importance of the physician role in preparing patients for the oncology referral, in particular for minority patients; and c) simple messages to introduce concepts of clinical research participation. A similar program recently received positive evaluations among Hawaiian primary care physicians.[43] Our program focuses on physicians serving urban, underserved minorities in the New York City region.

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Table 1

Cancer Clinical Trials Attitudes and Beliefs (n=127)

	Full Sample (n = 127)	Race (n = 125)					Ethnicity	
		White (n = 55)	African-American (n = 15)	Asian (n = 34)	Mixed Race (n = 7)	Other Race (n = 14)	Latino (n = 19)	Non-Latino (n = 106)
I believe patients should be told about the option of receiving treatment through a cancer treatment trial.	1.69 (.66)	1.71 (.74)	1.60 (.74)	1.68 (.59)	1.71 (.49)	1.50 (.52)	1.63 (.76)	1.70 (.66)
I believe that cancer treatment trials are important to finding better ways to care for cancer patients.	1.63 (.66)	1.55 (.60)	1.53 (.64)	1.76 (.70)	1.43 (.54)	1.86 (.86)	1.58 (.69)	1.63 (.67)
Healthcare providers like me have an important role in informing cancer patients that a cancer treatment trial may be a quality treatment option.	2.24 (.93)	2.29 (.98)	2.07 (1.0)	2.15 (.82)	2.71 (.76)	2.21 (1.05)	2.16 (.90)	2.25 (.94)
Before referring a patient (to an oncologist, surgeon or other medical practice), I consider if the practice participated in cancer treatment trials.	3.31 (.94)	3.42 (.85)	3.33 (.90)	3.09 (1.08)	3.86 (.69)	3.14 (.95)	3.42 (1.07)	3.29 (.93)
I am willing to initiate a conversation about cancer treatment trials with a patient I am referring for diagnostic testing.	3.08 (1.1)	3.05 (1.1)	2.87 (1.30)	3.06 (1.10)	3.71 (1.3)	3.00 (1.24)	3.05 (1.3)	3.08 (1.12)
I am willing to initiate a conversation about cancer treatment trials with a patient who has been diagnosed with cancer.	2.75 (1.04)	2.64 (1.1)	2.80 (1.1)	2.79 (.91)	2.71 (1.1)	2.93 (1.14)	2.63 (1.17)	2.76 (1.02)
Mean Attitude/Belief Score	2.45 (.62)	2.42 (.65)	2.37 (.65)	2.42 (.63)	2.69 (.42)	2.44 (.65)	2.41 (.65)	2.45 (.62)

Note: All Likert items scored on a scale of 1 (*Strongly Agree*) to 5 *(Strongly Disagree)*

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Table 2

Cancer Clinical Trials Knowledge Items (n=127)

		Fall Sample (n = 127)	Race (n = 125)					Ethnicity[1]	
	Correct Answer	Correct N (%)	White (n = 55)	African-American (n = 15)	Asian (n = 34)	Mixed Race (n = 7)	Other Race (n = 14)	Latino (n = 19)	Non-Latino (n = 106)
In a cancer treatment trial, patients will receive a placebo or the new treatment being tested	False	45 (35.4%)	28 (50.9%)	6 (40%)	7 (20.6)	3 (42.9%)	1 (7.1%)	5 (26.3%)	40 (37.7%)
The new approach being tested in a cancer treatment trial is superior to the standard treatment.	False	60 (47.2%)	34 (61.8%)	4 (26.7%)	16 (47.1)	3 (42.9%)	3 (21.4%)	8 (42.1%)	52 (49.1%)
About 15% of all U.S. adults with cancer participate in cancer treatment trials.	False	11 (8.7%)	5 (9.1%)	1 (6.7%)	2 (5.9)	1 (14.3%)	2 (14.3%)	1 (5.3%)	10 (9.4%)
The rate of U.S. adults who participate in cancer treatment trials is lower among minority groups and the medically underserved.	True	88 (69.3%)	38 (69.1%)	14 (93.3)	20 (58.8%)	7 (100%)	7 (50%)	15 (78.9%)	73 (68.9%)
Most cancer patients are told about the option of receiving care through a treatment trial, but they decide not to do so.	False	39 (30.7%)	20 (36.4%)	6 (40%)	8 (23.5%)	1 (14.3%)	3 (21.4%)	2 (10.5%)	37 (34.9%)
Cancer treatment trials are best reserved as the last resort for patients who have no other treatment options.	False	78 (61.4%)	39 (70.9%)	12 (80%)	17 (50%)	4 (57.1%)	4 (28.6%)	10 (52.6%)	67 (63.2%)
All cancer treatment trials in the U.S. are subject to federal regulations that protect patients' rights and safety.	True	115 (90.6%)	48 (87.3%)	15 (100%)	30 (88.2%)	7 (100%)	13 (92.9%)	18 (94.7%)	96 (90.6%)
Total Percent Correct (M, SD)		49% (23)	56% (24)	55% (12)	42% (24)	53% (23)	33% (18)	44% (18)	50% (.24)

[1]Two missing data

Clin Trials. Author manuscript; available in PMC 2018 October 01.

Table 3

Sample characteristics (n=127)

Primary Care Physician Characteristics	
Mean age (SD) (n=115)	45.7 years (10.62)
Gender	
Male	65 (51.2%)
Female	62 (48.8%)
Medical school affiliation	
Yes	94 (74.0%)
No	33 (26.0%)
Race (n=125)	
White	55 (44%)
Asian	34 (27.2%)
African-American	15 (12%)
Mixed Race	7 (5.6%)
Other Race	14 (11.2%)
Latino (n=125)	
Yes	19 (15.2%)
No	106 (84.8%)
Medical Practice Characteristics	
Practice Borough	
Brooklyn	22 (17.3%)
Bronx	65 (51.2%)
Manhattan	22 (17.3%)
Queens	16 (12.6%)
Staten Island	2 (1.6%)
Practice Type	
Family practice	24 (18.9%)
Internal medicine	81 (63.8%)
Geriatric medicine	7 (5.5%)

Obstetrics and Gynecology	4 (3.1%)
Other	11 (8.7%)
Practice Structure*	
Privately owned by responding physician	2 (1.6%)
Privately owned by multiple physicians (i.e., group practice)	1 (0.8%)
Part of a multi-site practice that is corporate-owned	12 (9.4%)
A hospital-owned out-patient practice	78 (61.4%)
Federally Qualified Health Center (FQHC)	35 (27.6%)
Health and Hospitals Corporation	7 (5.5%)
Patient Population Characteristics	
Patient load per week (n = 113)	
<50 patients per week	48 (42.5%)
≥50 patients per week	65 (57.5%)
Percent of patients who are older than 50: Mean (SD)	57.4 (21.58)
Percent of patients who have Medicare: Mean (SD)	28.5 (18.2)
Percent of patients who have Medicaid: Mean (SD)	45.2 (22.5)
Cancer Referral Practices*	
Personally recommends a specific oncologist or oncology practice	60 (47.7%)
Sends the patient to support staff for list of possible oncologists/practices	45 (35.4%)
Recommends the patient use their insurance company's referral system	15 (11.8%)
Other	26 (20.5%)

* Indicates a category where providers could check all that apply, so may total to more than 100%.

Table 4

Experience with Clinical Trials (n=127)

Prior involvement in cancer clinical trials *	
Referred patients to oncologists who participate in cancer clinical trials	47 (37.0%)
Patient has asked their opinion on whether they should enroll in a cancer treatment trial	30 (23.6%)
Patient has informed them of enrolling in a clinical trial without the PCP's knowledge	29 (22.8%)
Personally has or has known someone who has participated in a cancer treatment trial	15 (11.8%)
Referred patients to cancer clinical trials	9 (7.1%)
Prior history as an investigator for any kind of clinical trial	
Yes	28 (22.2%)
No	98 (77.8%)

* Could choose more than one answer.