



Published in final edited form as:

Cancer. 2005 December 15; 104(12 Suppl): 3006–3014.

Participation of Asian-American Women in Cancer

Chemoprevention Research:

Physician Perspectives

Tung T. Nguyen, M.D.¹, Carol P. Somkin, Ph.D.², and Yifei Ma, M.A., M.S.³

1 Division of General Internal Medicine, University of California–San Francisco, San Francisco, California.

2 Division of Research, Kaiser Permanente Northern California, Oakland, California.

3 Department of Adolescent Medicine, University of California–San Francisco, San Francisco, California.

Abstract

To the authors' knowledge, little is known regarding the participation of Asian Americans in cancer prevention research. In 2002, the authors mailed surveys to primary care physicians in Northern California to assess their knowledge, attitudes, behaviors, and barriers concerning the participation of Asian-American women in breast cancer chemoprevention research. The response rate was 52.3% ($n = 306$ physicians). For physician barriers, most respondents selected lack of study knowledge (73%) and effort required to establish eligibility (75%) and to explain risks and benefits (68%). For patient barriers, most physicians chose the following: physicians did not inform patients about trials (76%), limited English proficiency (78%), researcher-participant language discordance (74%), and complex protocols (69%). Significantly more Asian-American physicians than non-Asian-American physicians (but a majority of each) selected as patient barriers a lack of culturally relevant information on breast cancer, a lack of knowledge about research concepts, and fear of experimentation. A majority of Asian-American physicians also selected the following patient barriers: lack of knowledge of preventive care or breast cancer, work concern, misperception that experimental treatment is inferior, personal modesty, and lack of personal benefit. In multivariate analyses, physicians who were in practice longer, who spent more time with patients, or who knew of tools to estimate breast cancer risk were more likely to discuss such trials with Asian-American women; whereas male physicians and those who believed that Asian-American women's deference to physicians was a barrier were less likely to have discussed such trials with Asian-American women. Efforts to increase research participation among Asian Americans should include physician education and linguistically appropriate recruitment efforts.

Address for reprints: Tung T. Nguyen, M.D., Division of General Internal Medicine, Box 0320, University of California–San Francisco, San Francisco, CA 94143; Fax: (415) 476-7964; E-mail tung@itsa.ucsf.edu.

Presented at Asian American Network for Cancer Awareness, Research, and Training (AANCART): Fifth Asian American Cancer Control Academy, Sacramento, California, October 22–23, 2004.

Supported by an Administrative Supplement to the Cancer Research Network (CRN; with funding from the National Cancer Institute [NCI] grant U19/CA 79689), which consists of the research programs, enrollee populations, and databases from 10 health maintenance organizations (HMOs) that are members of the Network.

The authors thank the physicians at Asian Health Services, Oakland, California, for pilot testing the survey; Kevin Nguyen, M.D., Chris Nguyen, M.D., and Emily Huang for their help in data collection; and Ed Wagner, M.D., M.P.H., for his support.

Dr. Nguyen also was supported by grants from the Asian American Network for Cancer Awareness, Research, and Training (NCI grant U01/CA 86322) and by an American Cancer Society Cancer Control Career Development Award.

Keywords

Asian American Network for Cancer Awareness; Research, and Training; Asian; cancer; chemoprevention; research participation

Ethnic minorities, including Asian Americans, are underrepresented in cancer prevention and treatment research.^{1–4} The inclusion of ethnic minorities in such research is critical, because it insures the generalizability of results, generates new hypotheses, and equalizes the distribution of benefits and risks of research participation.⁵ Despite the fact that cancer is the leading cause of death in Asian-American women,⁶ with breast cancer the prevalent diagnosis,^{7,8} very few Asian Americans have enrolled in chemoprevention studies that use tamoxifen and raloxifene for breast cancer prevention.^{9–12} Few studies have examined the barriers to cancer research participation for Asian Americans.¹³

Physician recommendation is crucial to patients' decisions to participate in research. In the general population, women who had primary care physicians who recommended enrollment were 13 times more likely to participate in a trial of breast cancer chemoprevention.¹⁴ Asian Americans value physician recommendations highly in their health care,¹⁵ and identifying barriers that prevent physicians from broaching the subject of research participation with these patients may yield increased enrollment. Physicians who provide care to Asian Americans may be key informants who know the patient barriers to research participation, with additional insights provided by Asian-American physicians, some of whom share a common language and culture with these patients. In addition, Asian-American patients who have Asian-American primary care physicians behave differently in their cancer screening practices compared with patients who have non-Asian-American providers.^{16,17} To understand the factors that influence the participation of Asian-American women in cancer prevention research, we surveyed primary care physicians, both Asian American and non-Asian American, to elicit the barriers that prevented them from discussing breast cancer chemoprevention research with their female Asian patients as well as the physicians' perception of other barriers that prevented Asian-American women from research participation.

MATERIALS AND METHODS

In 2002, we mailed anonymous surveys to primary care physicians in 2 counties in the San Francisco Bay Area in California. The survey and protocols were approved by the Institutional Review Boards of the University of California–San Francisco (UCSF) and Kaiser Permanente Northern California.

Sampling Frame

We sampled physicians from San Francisco County and Santa Clara County, where the Asian-American populations are 32.6% and 25.6%, respectively, of each county's total population.¹⁸ We based the sampling frame on the American Medical Association Masterfile for January 2002. We added physician lists from an Asian-American provider organization (San Francisco Chinese Community Health Care Association), an Asian-American medical society (Vietnamese Physician Association of Northern California), 2 university medical centers (UCSF and Stanford University Medical Centers), 2 county health departments, and the region's major integrated health care delivery system (Kaiser Permanente).

Eligibility

Eligible physicians practiced in General Medicine, Family Practice, or Obstetrics-Gynecology. Eligible physicians practiced at university medical centers, the county health departments, and

Kaiser Permanente. Physicians in other practice settings were included only if they identified themselves as Asian on the Masterfile or were on ethnic physician organization lists. We excluded non-Asian-American physicians who were in solo or group private practice, because they were unlikely to have many Asian-American patients. For example, 86% of Vietnamese women in Santa Clara County reported that they had a Vietnamese physician in 2000.¹⁵ Of 837 physicians, 585 met the eligibility criteria. Reasons for exclusion from the study included wrong addresses, not in area, not in clinical practice, still in training, wrong specialty, or non-Asian-American physicians in private practice.

Survey Development and Administration

We developed and revised the survey after pretesting with 20 physicians who had practices with high proportions of Asian-American patients and who did not practice in the areas to be surveyed. A small incentive (\$5 movie ticket) was included with the first mailing to the 585 physicians. A second mailing was sent within 6 weeks and was followed by a reminder card 6 weeks later.

We collected physician sociodemographic data, including age, gender, ethnicity, country of birth, languages spoken other than English, and country of medical education. Practice variables were specialty and years in specialty; type of practice; teaching hospital affiliation; distribution of patients by age, gender, ethnicity, language, and health insurance; number of hours per week allotted to practice and other tasks; amount of time spent with new and follow-up patients; and the number of patients with active cancer diagnoses.

Using a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree), respondents were asked about their knowledge of breast cancer prevention and treatment. We asked respondents to state their attitudes toward clinical trials for eight attitudes using the same scale. We asked respondents to rate 7 physician barriers that may prevent them from discussing chemoprevention trials with Asian-American patients, using a 5-point scale from 1 (not a barrier) to 5 (a major barrier). Using the same scale, physicians also specifically assessed 23 other barriers, including system and patient barriers, for their impact on the participation of Asian-American women in these trials. Questions regarding attitudes concerning trials and barriers to trial participation were derived from prior studies of Asian Americans and other minorities.^{13,19–22} Physicians also were asked whether they had access to information about trials, whether they ever had discussed enrollment in a breast cancer prevention trial with an Asian-American woman or any woman, whether they ever had discussed a cancer treatment trial with a cancer patient, and whether they would discuss future chemoprevention trials with patients.

Analyses

We calculated the frequency of sociodemographic and practice factors. Knowledge and attitude responses were calculated as means and standard errors. Attitude and barrier items were categorized into 3 response categories: 1 and 2 (disagree or not a barrier), responses of 3 (no opinion or neutral), and responses of 4 and 5 (agree or a barrier). The rates reported for these variables were for responses of 4 and 5. Although the primary objective of the study was to describe the barriers from the perspective of all physicians, we also were interested in the difference between Asian-American and non-Asian-American physicians. For bivariate analyses of differences between Asian-American and non-Asian-American physicians, we used the Cochran–Mantel–Haenszel test to assess statistical significance because of the ordinal nature of the response variables. We set statistical significance at a level of 0.05.

We constructed a multivariate logistic regression model using stepwise, backward regression for the variable “have discussed cancer chemoprevention trial with any Asian-American

woman.” Five control variables were included for face validity: physician gender, physician ethnicity (Asian American vs. non-Asian American), physician place of birth (Asia vs. not Asia), other languages spoken by physician (Asian vs. non-Asian), and practice setting (solo or group private practice vs. not). The π correlation coefficients for the 3 Asian variables ranged from 0.42 to 0.51, suggesting that they were not highly correlated. Other variables were included initially if the *P* value associated with the dependent variable in bivariate analyses was < 0.20 . Then, we performed stepwise, backward regression analysis using a significance level < 0.20 . The same analysis was performed for the dependent variable, “have discussed cancer chemoprevention trial with any woman.” All statistical analyses were performed using SAS statistical software (version 8.2; SAS Institute Inc., Cary, NC).

RESULTS

The response rate was 52.3% ($n = 306$ physicians). Respondents’ complete demographic and practice data appear in Table 1. More Asian-American than non-Asian-American physicians were in private practice (52.8% vs. 10.2%; $P < 0.001$) and did not have a teaching hospital affiliation (57.0% vs. 15.0%; $P < 0.001$), and Asian-American physicians spent more time in patient care (mean, 43.8 hrs vs. 29.6 hrs weekly; $P < 0.001$). Asian-American physicians had more Asian-American patients and patients who did not speak English as their primary language.

One of 3 physicians had ≥ 6 female patients with an active cancer diagnosis, whereas 71.5% had at least 1 female Asian-American patient with an active cancer diagnosis. Compared with Asian-American physicians, non-Asian-American physicians were more likely to have discussed cancer treatment research with cancer patients (44.0% vs. 15.3%; $P < 0.001$) and were more likely to have discussed cancer chemoprevention research with any female patient (36.6% vs. 16.1%; $P < 0.001$) and with any female Asian-American patient (15.9% vs. 6.9% $P < 0.05$). Nine of 10 physicians in both groups would discuss chemoprevention studies in the future if they were informed about them.

Physician Barriers Preventing Discussion of Research with Asian-American Women

Greater than two-thirds of all physicians cited the following as major barriers to discussing research with Asian-American women: physician lack of information about trials (73%), effort required by physicians to learn about study eligibility and treatment (75%), and effort required to explain risks and benefits (68%). More Asian-American physicians (51%) than non-Asian-American physicians (29%) cited the reluctance of Asian-American women to participate as a major barrier ($P < 0.001$) (Table 2).

Physician Report of Other Barriers Preventing Asian-American Women from Research Participation

Most physicians agreed that the lack of information about studies from physicians (76%), researcher-participant language discordance (74%), patients’ limited English proficiency (LEP) (78%), and excessive complexity of study protocols or the informed consent process (69%) were major barriers that prevented Asian-American women from enrolling in chemoprevention trials (Table 2). Although there were statistically significant differences by physician ethnicity, a majority of both Asian-American and non-Asian-American physicians also believed that the following were major barriers for Asian-American women: lack of culturally relevant information on breast cancer (68% and 62%, respectively; $P = 0.03$), patients’ lack of adequate knowledge about research and research concepts (81% vs. 60%, respectively; $P < 0.001$), and patients’ fears of being a “guinea pig” (66% vs. 50%, respectively; $P = 0.02$). Deference to loved ones in decision making was a major patient barrier chosen by 53% of physicians. A majority of Asian-American physicians, but a minority of non-Asian-

American physicians, believed that the following were major barriers for Asian-American women: lack of knowledge regarding preventive care (63% vs. 43%, respectively; $P = 0.001$), lack of knowledge regarding breast cancer (58% vs. 40%, respectively; $P = 0.01$), fear of lost work time (63% vs. 46%, respectively; $P = 0.02$), fear that experimental treatment is inferior to available standard treatment (56% vs. 36%, respectively; $P < 0.001$), concerns about personal modesty (56% vs. 38%, respectively; $P = 0.01$), and reluctance to enroll if there were few direct personal benefits (64% vs. 32%, respectively; $P < 0.001$).

Factors Associated with Physician Discussion of Research

In the multivariate logistic regression analysis, male physicians were less likely than female physicians (odds ratio [OR], 0.25; 95% confidence interval [95% CI], 0.68–0.91) to have discussed cancer chemoprevention trial with any female Asian-American patient. Factors that were associated positively with research discussion with Asian-American women included more years in practice (OR, 1.12 for each additional yr; 95% CI, 1.05–1.20), longer initial patient visit (OR, 4.66 for > 30 min; 95% CI, 1.34–16.13), and knowledge that there is a computerized tool to estimate a woman's risk of breast cancer (OR, 9.49; 95% CI, 1.00–90.1). Physicians who believed that Asian-American women's deference to physicians in decision-making is a barrier preventing research participation were less likely (OR, 0.45; 95% CI, 0.22–0.93) to have discussed such trials with their Asian-American patients (Table 3).

Male physicians also were less likely than female physicians to have discussed a cancer chemoprevention trial with any female patient (OR, 0.37; 95% CI, 0.15–0.90). Other factors associated with research discussion with any female patient included more years in practice (OR, 1.07; 95% CI, 1.02–1.12), knowledge that there is a standard tool to estimate a woman's risk of breast cancer (OR, 9.68; 95% CI, 2.07–45.33), having access to any information regarding trials (OR, 2.38; 95% CI, 1.00–5.69), and having discussed cancer treatment trials with any patient with cancer (OR, 4.81; 95% CI, 1.99–11.68).

DISCUSSION

To our knowledge, this study is the first to evaluate physician perspectives on cancer chemoprevention research participation among Asian-American women. Not surprisingly, few physicians have discussed chemoprevention or other research participation with their patients. Our primary care physician respondents identified a number of personal barriers impeding these discussions with their Asian-American patients, and the most important were lack of knowledge about studies and the effort required to learn about studies. The physicians also identified substantial barriers facing these patients' participation, most notably, linguistic issues and knowledge issues. Asian-American physicians identified more barriers both for themselves and for their patients.

The major physician barriers identified by our survey were lack of knowledge and the effort required in research participation, findings that are consistent with studies in other ethnic groups.^{22–24} Knowledge barriers included research-specific knowledge, such as not having heard about studies, and general knowledge, such as not knowing that a breast cancer risk-assessment tool existed. Physicians who had these knowledge barriers were less likely to have discussed breast cancer chemoprevention research. Increasing physician knowledge about trials would be one way to increase patient recruitment. Although the Internet and other electronic media approaches are attractive solutions, few primary care physicians reported using the Internet or the Cancer Information Service to learn about trials.²² Newsletters and presentations to physician groups may be ways to increase physician knowledge of trials.^{23, 24} Other possible interventions include individual office visits to publicize trials among physicians with high proportions of Asian-American patients or the creation of Asian-American physician research networks. Once the barrier of learning about trials is addressed,

the barrier of physician effort and time required to discuss trial participation, including risks and benefits, becomes important. Systematic solutions, such as the creation of networks with shared resources (including research staff), may be the best way to address these barriers.

Nearly 70% of Asian Americans are foreign-born,²⁵ and approximately 40% have LEP.^{25, 26} Our study suggests that LEP and language discordance with researchers are major barriers that prevent Asian-American women from participating in research. Language discordance affects the quality of physician-patient communications among Asian Americans^{27,28} as well as research participation in other populations.²⁹ Because many studies use English proficiency as an eligibility requirement, many Asian Americans are excluded automatically. Language differences also may affect willingness to participate due to fear of misunderstanding, inadequacy of explanations provided by researchers, and general discomfort in dealing with an individual who speaks a different language.¹³ Having language-concordant researchers and staff or providing interpreters and linguistically appropriate materials may address some of these barriers.

Our respondents reported that lack of knowledge and the absence of culturally relevant information, particularly about prevention and about breast cancer, is another major barrier for Asian-American women. Linguistically and culturally appropriate education materials on cancer would help these patients obtain appropriate health care as well as increase their knowledge and interest in research participation. Partnerships between clinical trials researchers and health educators could increase both enrollment and educational efforts in the targeted communities. This approach is appealing because it simultaneously addresses the needs of policy makers and researchers, whose priority is to increase recruitment, and the needs of minority communities, whose priority may be to obtain health care information.

A second set of knowledge barriers involves the research process. Our respondents reported that Asian-American patients have difficulties with research concepts, such as randomization, and have trouble understanding complex protocols, a finding that was revealed in previous studies of research participation.^{13,21,30} We speculate that the use of culturally appropriate examples and metaphors may assist with explanations of such complex concepts as probability, risk, and randomization to intervention and control groups; however, further research will be needed to elucidate how best to transmit these concepts.

Compared with non-Asian-American physicians, more Asian-American physicians believed that Asian-American women were reluctant to participate in research and that they confronted more barriers, notably, lack of knowledge about prevention and breast cancer, issues of personal modesty, economic barriers, and the limited appeal of personal altruism. These differences by physician ethnicity need to be interpreted with caution because there were few non-Asian-American physicians in private practice in our study, and research recruitment behaviors differ between physicians in an academic setting compared with other settings.³¹ However, the barriers identified by ethnically concordant physicians may come from insight and knowledge of the culture and the problems that their patients face.²⁴ For instance, because they come from the same culture, Asian-American providers know that many of their Asian-American patients may not understand cancer and may not believe in a biomedical approach to cancer prevention, including screening tests and taking medications. In addition, private Asian-American physician offices would be likely targets for efforts to recruit Asian-American patients, and addressing the concerns of these physicians may lead to more cooperation. Involving ethnic concordant physicians in planning, designing, and implementing trials may address these barriers^{3,32} and offers the additional benefit of having culturally and linguistically concordant personnel, which may increase willingness to participate.^{13,23,29}

The generalizability of our study is limited by its local nature; however, because efforts to improve the recruitment of Asian Americans most likely will target areas with large proportions of Asian Americans, our findings should be generalizable to those sites. Our survey also had a limited response rate, although physicians who responded may be similar to physicians who are most likely to engage patients in a discussion about research and are the first targets of efforts of increased provider education. Because of a number of missing values and the low rates of self-reported research discussion, the results of the multivariate analyses should be viewed as preliminary data for further studies. The reported patient barriers are perceptions derived from key informants and should serve as the basis for further evaluation with studies that involve Asian-American women directly. Finally, results from the surveyed example of a breast cancer chemoprevention trial may not apply to other types of research, such as cancer treatment trials.³³ Patients who have been diagnosed with cancer may have more knowledge about the disease and, because they are suffering actively from the disease, may perceive the risks and benefits of research participation differently from those who do not have cancer.

The current results suggest that there are substantial barriers facing Asian Americans in research participation. The main barriers for physicians are insufficient knowledge and time, whereas the main patient barriers, as reported by the physicians, are insufficient knowledge and language difficulties. The good news is that physicians in our survey indicated willingness to discuss research participation with their patients. Confirmation of the patient barriers will be needed in future studies, which could assess knowledge and potential barriers among Asian-American women by asking them directly. Efforts to increase knowledge about chemoprevention clinical trials among Asian Americans should focus on efficient methods of informing physicians about trials and risk-assessment tools and on providing culturally and linguistically appropriate recruitment techniques, materials, and personnel.

References

1. Tejeda HA, Green SB, Trimble EL, et al. Representation of African-Americans, Hispanics, and whites in National Cancer Institute cancer treatment trials. *J Natl Cancer Inst* 1996;88:812–816. [PubMed: 8637047]
2. Benson, A. Recruitment and Retention of Minority Participants in Clinical Cancer Research: conference summary. Washington, DC: National Institutes of Health and National Cancer Institute, 1996; Institutional perspectives on minority population recruitment to cancer clinical trials.
3. Alexander GA, Chu KC, Ho RC. Representation of Asian Americans in clinical cancer trials. *Ann Epidemiol* 2000;10(8 Suppl):S61–S67. [PubMed: 11189094]
4. Murthy VH, Krumholz HM, Gross CP. Participation in cancer clinical trials: race-, sex-, and age-based disparities. *JAMA* 2004;291:2720–2726. [PubMed: 15187053]
5. Corbie-Smith G, Miller WC, Ransohoff DF. Interpretations of ‘appropriate’ minority inclusion in clinical research. *Am J Med* 2004;116:249–252. [PubMed: 14969653]
6. Chu KC. Cancer data for Asian Americans and Pacific Islanders. *Asian Am Pac Isl J Health* 1998;6:130–139. [PubMed: 11567423]
7. Miller, BA.; Kolonel, LN.; Bernstein, L.; Young, JL., et al., editors. Racial/ethnic patterns of cancer in the United States 1988–1992. Bethesda, MD: National Cancer Institute; 1996.
8. Parker SL, Davis KJ, Wingo PA, Ries LA, Heath CW Jr. Cancer statistics by race and ethnicity. *CA Cancer J Clin* 1998;48:31–48. [PubMed: 9449932]
9. Fisher B, Costantino JP, Wickerham DL, et al. Tamoxifen for prevention of breast cancer: report of the National Surgical Adjuvant Breast and Bowel Project P-1 Study. *J Natl Cancer Inst* 1998;90:1371–1388. [PubMed: 9747868]
10. Cuzick J, Forbes J, Edwards R, et al. First results from the International Breast Cancer Intervention Study (IBIS-I): a randomised prevention trial. *Lancet* 2002;360:817–824. [PubMed: 12243915]

11. Cauley JA, Norton L, Lippman ME, et al. Continued breast cancer risk reduction in postmenopausal women treated with raloxifene: 4-year results from the MORE trial. *Multiple Outcomes of Raloxifene Evaluation*. *Breast Cancer Res Treat* 2001;65:125–134. [PubMed: 11261828]
12. Vogel VG. Follow-up of the breast cancer prevention trial and the future of breast cancer prevention efforts. *Clin Cancer Res* 2001;7(12 Suppl):4413s–4418s. [PubMed: 11916233]; discussion, 4411s–4412s.
13. Association of Asian Pacific Community Health Organizations. Oakland, CA: Association of Asian Pacific Community Health Organizations; 2000. Capacity-building initiative for Asian American and Pacific Islanders to participate in clinical research studies: summary report of needs assessment.
14. Kinney AY, Richards C, Vernon SW, Vogel VG. The effect of physician recommendation on enrollment in the Breast Cancer Chemoprevention Trial. *Prev Med* 1998;27(5 Pt 1):713–719. [PubMed: 9808803]
15. Nguyen TT, McPhee S, Nguyen T, Lam T, Mock J. Predictors of cervical Pap smear screening awareness, intention, and receipt among Vietnamese-American women. *Am J Prev Med* 2002;23:207–214. [PubMed: 12350454]
16. Lee MM, Lee F, Stewart S, McPhee S. Cancer screening practices among primary care physicians serving Chinese Americans in San Francisco. *Western J Med* 1999;170:148–155.
17. Jenkins CN, McPhee SJ, Bird JA, et al. Effect of a media-led education campaign on breast and cervical cancer screening among Vietnamese-American women. *Prev Med* 1999;28:395–406. [PubMed: 10090869]
18. Bureau of the Census. Washington, DC: Bureau of the Census; 2000. Table DP-1. Profile of general demographic characteristics: Census 2000 summary file 1 (SF 1) 100-percent data. Geographic area: San Francisco and Santa Clara County, California.
19. Kaluzny AD, Lacey LM, Warnecke R, Morrissey JP, Sondik EJ, Ford L. Accrual of patients to randomized clinical trials. Factors affecting cancer prevention and control research. *Int J Technol Assess Health Care* 1994;10:506–516. [PubMed: 8071011]
20. Mansour EG. Barriers to clinical trials. Part III: knowledge and attitudes of health care providers. *Cancer* 1994;74(9 Suppl):2672–2675. [PubMed: 7954284]
21. Brown DR, Fouad MN, Basen-Engquist K, Tortolero-Luna G. Recruitment and retention of minority women in cancer screening, prevention, and treatment trials. *Ann Epidemiol* 2000;10(8 Suppl):S13–S21. [PubMed: 11189088]
22. Crosson K, Eisner E, Brown C, Ter Maat J. Primary care physicians' attitudes, knowledge, and practices related to cancer clinical trials. *J Cancer Educ* 2001;16:188–192. [PubMed: 11848665]
23. McCaskill-Stevens W, Pinto H, Marcus AC, et al. Recruiting minority cancer patients into cancer clinical trials: a pilot project involving the Eastern Cooperative Oncology Group and the National Medical Association. *J Clin Oncol* 1999;17:1029–1039. [PubMed: 10071298]
24. Pinto HA, McCaskill-Stevens W, Wolfe P, Marcus AC. Physician perspectives on increasing minorities in cancer clinical trials: an Eastern Cooperative Oncology Group (ECOG) initiative. *Ann Epidemiol* 2000;10(8 Suppl):S78–S84. [PubMed: 11189096]
25. Chen AM. Demographic characteristics of Asian and Pacific Islander Americans: health implications. *Asian Am Pac Isl J Health* 1996;4(1–3):40–49. [PubMed: 11567323]
26. Reeves, TJ.; Bennett, CE. *We the people: Asians in the United States*. Washington, D.C.: U.S. Census Bureau; 2004.
27. Weech-Maldonado R, Elliott MN, Morales LS, Spritzer K, Marshall GN, Hays RD. Health plan effects on patient assessments of Medicaid managed care among racial/ethnic minorities. *J Gen Intern Med* 2004;19:136–145. [PubMed: 15009793]
28. Ngo-Metzger Q, Massagli MP, Clarridge BR, et al. Linguistic and cultural barriers to care. *J Gen Intern Med* 2003;18:44–52. [PubMed: 12534763]
29. Napoles-Springer A, Grumbach K, Alexander M, et al. Clinical research with older African Americans and Latinos. *Res Aging* 2000;22:668–691.
30. Schain WS. Barriers to clinical trials. Part II: knowledge and attitudes of potential participants. *Cancer* 1994;74(9 Suppl):2666–2671. [PubMed: 7954283]
31. Emanuel, E. ASCO survey of oncologists on clinical research; Presented at American Society of Clinical Oncologists Annual Meeting; May 15–18, 1999; Atlanta, GA.

32. Kaluzny A, Brawley O, Garson-Angert D, et al. Assuring access to state-of-the-art care for U.S. minority populations: the first 2 years of the Minority-Based Community Clinical Oncology Program. *J Natl Cancer Inst* 1993;85:1945–1950. [PubMed: 8230286]
33. Brawley OW. The study of accrual to clinical trials: can we learn from studying who enters our studies? *J Clin Oncol* 2004;22:2039–2040. [PubMed: 15082727]

TABLE 1

Physician Characteristics and Cancer Research Variables

Physician characteristic	Physician ethnicity: Mean (SE) %		
	Asian American (n= 188)	Non-Asian American (n= 118)	Total (n= 306)
Sociodemographics and practice variables			
Age in yrs	42.2 (9.8)	42.8 (10.7)	42.5 (10.1)
Yrs in practice	11.8 (9.5)	12.8 (8.7)	12.2 (9.2)
Patient care hrs per week ^a	43.8 (17.1)	29.6 (16.7)	38.5 (18.2)
Research hrs per week	16.8 (16.8)	16.0 (12.6)	16.2 (13.7)
Male gender	48.4	45.5	47.3
Place of birth ^a			
Asia	53.7	4.2	34.6
U.S.	38.3	79.7	54.2
Other	8.0	16.1	11.1
Languages spoken other than English ^a			
Mandarin	13.3	1.6	10.0
Cantonese	32.7	0.0	23.2
Vietnamese	18.7	4.9	14.7
Spanish	9.3	68.9	26.5
Other	26.0	24.6	25.6
U.S. medical school ^b	76.3	90.3	81.6
Specialty			
Internal Medicine	52.4	46.9	50.3
Family Practice	17.1	20.4	18.7
Obstetrics-Gynecology	24.6	29.2	26.7
Other (General Practice)	5.9	3.5	4.3
Practice type ^a			
Group model health plan	24.7	10.2	19.2
Private	52.8	10.2	36.7
Public	13.5	33.3	21.0
University	9.0	46.3	23.1
Teaching hospital affiliation ^a			
None	57.0	15.0	40.8
Academic	37.4	79.7	53.8
Nonacademic	5.6	3.5	4.8
Other	0.0	1.8	0.7
< 50% female patients	20.2	14.3	17.9
< 20% Asian-American patients ^a	38.7	77.3	53.3
> 50% of patients speak a primary language other than English ^c	46.7	33.9	41.8
> 25% of patients have Medicare	46.7	43.9	45.7
> 25% of patients have Medicaid ^b	35.4	53.9	42.5
Proportion of women ages 40–64 yrs in practice	38.5	39.6	38.9
Proportion of women age ≥ 65 yrs in practice	33.8	29.8	32.3
Length of new patient visit ≤ 30 min	61.5	53.6	58.5
Length of follow-up visit ≥ 15 min ^d	70.0	50.5	62.5
Knowledge variables^d			
Tamoxifen prevents breast cancer occurrence in high-risk women	4.0 (0.9)	4.1 (1.0)	4.0 (0.9)
Women with <i>BRCA1</i> gene mutations are at increased risk for breast cancer	4.7 (0.7)	4.8 (0.4)	4.7 (0.6)
Tamoxifen prevents breast cancer recurrence	4.5 (0.7)	4.6 (0.6)	4.5 (0.7)
Screening mammography reduces breast cancer mortality in women age ≥ 50 yrs	4.3 (0.9)	4.4 (1.0)	4.3 (0.9)
There is a computerized risk-assessment tool to assess a woman's risk of developing breast cancer ^d	4.0 (0.9)	4.4 (0.8)	4.2 (0.9)
Cancer research variables (%)			

Physician characteristic	Physician ethnicity: Mean (SE) %		
	Asian American (n= 188)	Non-Asian American (n= 118)	Total (n= 306)
Has ≥ 6 female patients with active cancer diagnosis	34.3	32.4	33.6
Has ≥ 1 female Asian-American patient with active cancer diagnosis	75.4	65.1	71.5
Has any access to clinical trials information ^b	50.5	66.1	56.5
Ever discussed cancer treatment trials with any patient with cancer ^a	15.3	44.0	26.2
Ever discussed cancer chemoprevention trials with any woman patient ^d	16.1	36.6	24.9
Ever discussed cancer chemoprevention trials with any female Asian-American patient ^c	6.9	15.9	9.5
Will discuss cancer chemoprevention trial in the future if informed	91.2	91.4	91.3

SE: standard error.

^a Cochran–Mantel–Haenszel test: $P \leq 0.001$ (Asian-American physicians vs. other physicians).

^b Cochran–Mantel–Haenszel test: $0.001 < P \leq 0.01$ (Asian-American physicians vs. other physicians).

^c Cochran–Mantel–Haenszel test: $0.01 < P < 0.05$ (Asian-American physicians vs. other physicians).

^d Knowledge variables were scored from 1 to 5 (5 = strongly agree). Values shown are the mean (standard error) scores.

TABLE 2
 Physician Report of Barriers that Prevent Participation in Breast Cancer Chemoprevention Research among Asian-American Women

Barriers	Physician ethnicity %		Total (n= 306)
	Asian American (n= 188)	Non-Asian American (n= 118)	
A. Physician barriers preventing discussion of research with Asian-American women			
Effort/time to learn about study eligibility and treatment	73	78	75
My lack of information about studies	70	79	73
Effort/time to explain risks and benefits of participation	73	61	68
My perception that Asian-American women are reluctant to participate in clinical research ^d	51	29	41
My concern about additional costs to physician or physician group incurred as part of the study ^d	37	19	30
My fear of loss of continuity of care	23	26	24
B. Physician report of other barriers preventing Asian-American women from research participation			
System barriers			
Physicians do not inform patients about studies	73	80	76
Those who offer studies do not speak the same language as the women themselves	75	71	74
Study protocol or informed consent too complex	74	61	69
Lack of culturally relevant information on breast cancer ^b	68	62	66
Patient sociodemographics, health, and access			
Lack of fluency in the English language	79	74	78
Fear of losing time from work ^b	63	46	57
Lack of transportation	54	45	50
Lack of adequate health insurance	43	30	38
Low level of education ^c	41	27	35
Low income level	33	23	29
My Asian-American patients are not eligible for trials	8	8	8
Patient knowledge			
Lack of adequate knowledge about research and research concepts like randomization ^d	81	60	73
Lack of knowledge about preventive care ^d	63	43	56
Lack of knowledge about breast cancer ^c	58	40	51
Patient attitudes and beliefs			
Fear of being experimented on/being a "guinea pig" ^b	66	50	60
Deference of decision-making to loved ones/family	56	47	53
Reluctance of Asian-American women to enroll in research trials if there are few direct benefits to them ^d	64	32	52
Concerns about personal modesty ^c	56	38	49
Fear that experimental treatment will be inferior to available standard treatment ^d	56	36	48
Deference of decision-making to physicians	44	42	43
Fear that discussing possibility of cancer will lead to cancer	36	33	35
Belief that breast cancer is fatal or incurable	34	25	30
Belief that breast cancer is not preventable ^c	31	23	28
Fear of racial or ethnic discrimination	23	19	21

^a Cochran-Mantel-Haenszel test: $P \leq 0.001$ (Asian-American physicians vs. other physicians).

^b Cochran-Mantel-Haenszel test: $0.01 < P < 0.05$ (Asian-American physicians vs. other physicians).

^c Cochran-Mantel-Haenszel test: $0.001 < P \leq 0.01$ (Asian-American physicians vs. other physicians).

Multivariate Logistic Regression Models for Factors Associated with Physician Behavior in Discussion of Chemoprevention Trials

TABLE 3

	OR (95% CI)	
	Have discussed cancer chemoprevention trial with Asian women (n= 213 physicians)	Have discussed cancer chemoprevention trial with any woman (n= 229)
Male physician gender (ref: female)	0.25 (0.68-0.91)	0.37 (0.15-0.90)
Asian-American physician ethnicity (ref: non-Asian American)	1.16 (0.24-5.69)	1.46 (0.49-4.33)
Physician birthplace in Asia (ref: not Asia)	0.76 (0.15-3.75)	0.49 (0.16-1.47)
Physician speaks an Asian language (ref: non-Asian or none)	2.89 (0.57-14.73)	1.47 (0.49-4.42)
Obstetrics-gynecology specialty (ref: not obstetrics-gynecology)	3.24 (0.99-10.57)	—
Yrs in practice (each additional yr)	1.12 (1.05-1.20)	1.07 (1.02-1.12)
Private practice (ref: not private practice)	0.26 (0.06-1.22)	0.53 (0.19-1.48)
New patient visit length > 30 min (ref: ≤ 30 min)	4.66 (1.34-16.13)	1.90 (0.86-4.22)
Knows that screening mammography reduces breast cancer mortality in women age 50 yrs and older (ref: does not know)	—	0.62 (0.31-1.26)
Knows that there is a computerized tool to estimate a woman's breast cancer risk (ref: does not know)	9.49 (1.00-90.1)	9.68 (2.07-45.33)
Agrees that prevention trials are not the right choice for most eligible patients (ref: disagrees)	—	0.61 (0.32-1.12)
Agrees that Asian-American women's deference to physicians for decision-making is a barrier to their participation in cancer chemoprevention trials (ref: disagrees)	0.45 (0.22-0.93)	—
Agrees that Asian-American women's lack of knowledge about preventive care is a barrier to their participation in cancer chemoprevention trials (ref: disagrees)	0.65 (0.33-1.26)	—
Has some access to information regarding trials (ref: no access)	—	2.38 (1.00-5.69)
Ever discussed cancer treatment trial with any cancer patient (ref: never)	3.42 (0.96-12.16)	4.81 (1.99-11.68)

OR: odds ratio; 95% CI: 95% confidence interval; ref: reference group.