AD_____

Award Number: DAMD17-03-1-0328

TITLE: Quality of Breast Cancer Care: The Role of Hispanic Ethnicity, Language, and Socioeconomic Position

PRINCIPAL INVESTIGATOR: Diana M. Tisnado, Ph.D.

CONTRACTING ORGANIZATION: University of California, Los Angeles
Los Angeles, CA 90095-1736

REPORT DATE: June 2006

TYPE OF REPORT: Annual Summary

PREPARED FOR: U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

DISTRIBUTION STATEMENT: Approved for Public Release;
Distribution Unlimited

The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision unless so designated by other documentation.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. **PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.**

1. REPORT DATE *(DD-MM-YYYY)*	2. REPORT TYPE	3. DATES COVERED *(From - To)*
01-06-2006	Annual Summary	1 Jun 2005 - 31 May 2006

4. TITLE AND SUBTITLE
Quality of Breast Cancer Care: The Role of Hispanic Ethnicity, Language, and Socioeconomic Position

5a. CONTRACT NUMBER

5b. GRANT NUMBER
DAMD17-03-1-0328

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)
Diana M. Tisnado, Ph.D.

E-Mail: dtisnado@mednet.ucla.edu

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
University of California, Los Angeles
Los Angeles, CA 90095-1736

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

10. SPONSOR/MONITOR'S ACRONYM(S)

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for Public Release; Distribution Unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT: The goal of this work is to inform our understanding of racial and ethnic disparities in breast cancer care and the impact of socioeconomic position and linguistic barriers. We have enriched existing data from a population-based sample of Los Angeles women diagnosed with breast cancer in 2000 with publicly available 2000 Census data. We identified census tracts classified as Poverty Areas (>=20% of population below the federal poverty level (FPL)); Undereducated Areas (>25% of the adult population lacks high school degree); percentages of foreign-born, citizens, race/ethnic groups, limited English-proficiency (LEP), and unemployment. Preliminary findings: breast cancer patient survey response and treatment in hospitals with characteristics associated with high quality care both vary by race/ethnicity and neighborhood characteristics. These results support the hypothesis that quality of care research should consider patient, healthcare setting, *and* neighborhood characteristics. Cancer care providers report notable proportions of LEP patients in their practice and varied methods for communicating with them. Providers and patients in large practices have more access to trained interpreters. Black and Spanish-speaking women were more likely than whites to report not receiving desired help for symptoms. More black and Hispanic (Vs white) women reported that they believed the doctor did not think treatment would benefit her, the doctor did not appreciate how much the problem bothered her, the doctor did not know about treatments, or insurance/cost barriers. Physician reports indicate that better symptom management is associated with medical oncology specialty type, higher breast cancer volume, female physicians, and longer visits.

15. SUBJECT TERMS
Breast cancer, quality of care, disparities, neighborhood, language, symptoms

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			USAMRMC
U	U	U	UU	20	19b. TELEPHONE NUMBER *(include area code)*

Table of Contents

Cover……

SF 298……..……2

Introduction……....4

Body……4

Key Research Accomplishments……6

Reportable Outcomes……7

Conclusions……..8

References……..9

Appendices……10

Annual Summary Report Report: DAMD17-03-1-0328, "Quality of Breast Cancer Care: The Role of Hispanic Ethnicity, Language, and Socioeconomic Position," (Diana Tisnado, Ph.D., P.I.; Katherine L. Kahn, Faculty Mentor)

Introduction: Socioeconomic position (SEP) refers to a range of dimensions that describe absolute and relative position in society including not only income and education, but also poverty, deprivation, wealth, occupation and social status. Studies have found powerful relationships between SEP and various health indicators, including breast cancer outcomes. The specific aims of this DOD-funded study are to 1) enrich an existing, clinically extensive survey data set collected from a diverse population-based sample of women in Los Angeles County with breast cancer with data from the Year 2000 Census; 2) examine the relative importance of ethnicity, language, SEP and how they relate to the structural characteristics of settings in which women receive care, the care women do and do not receive, and, ultimately, to patient outcomes, particularly for the population-based sample of Hispanic and non-Hispanic white women with breast cancer; 3) to inform strategies to address racial and ethnic, linguistic, and socioeconomic disparities in breast cancer care. This study is observational in design, and will build upon an existing dataset from a cohort of women with newly diagnosed breast cancer (Los Angeles Women's Health Study (LAWHS), funded by the NCI, RAND IRB #k0048-98-01, current approval through 12/31/08), supplementing the already rich information about quality and outcomes of care with neighborhood level data from the Year 2000 census, as well as with enriched data regarding the structure of care that have been collected from physicians who care for women with breast cancer (Impact of Structure on Quality of Breast Cancer Care, funded by the California Breast Cancer Research Program, (CA BCRP), UCLA IRB#G01-11-093B, current approval period 10/13/2005-8/22/2006, renewal pending).

The ultimate goal of the proposed work is to inform our understanding of racial and ethnic disparities in breast cancer care and the contribution of SEP and linguistic barriers, particularly for the growing population of Hispanic women. This work has the potential to contribute to the body of knowledge for understanding why certain cohorts of women with breast cancer fare worse than others, and additionally to inform strategies to improve access to and quality of care for all women with breast cancer. The current IRB approval period for this project is from 03/27/2006 to 3/26/2007.

Body: Our original timeline was delayed one year due to patient and provider data human subjects protection issues. During the past year, we have 1) expanded literature-based research from the body of work regarding neighborhood-level effects on health found in the public health and health services research to include more fundamental research on neighborhood-level effects and their measurement found in the sociology and demography literature, and 2) continued conducting data analyses, and are now conducting analytic tasks associated with Year 2 in our original statement of work. We plan to complete tasks associated with Year 2 in the coming months and to complete our key analyses and manuscripts originally planned for Year 3 by mid-2007. We have requested and been granted a no-cost extension year.

1) The expanded literature review, especially the work of Massey, Portes, and Logan and Alba, has stimulated ideas for additional neighborhood-level measures to consider including in our analyses (e.g., alternative measures of segregation and neighborhood-level SEP) and methods for constructing the measures. It has also stimulated ideas for additional research proposals building upon the currently funded work to specifically examine definitions and possible effects of predominantly immigrant neighborhoods and how these might differ in their effects on health from non-immigrant neighborhoods.

2) From 2004 through 2005, we had primarily addressed tasks associated with Year 1, enriching our existing dataset for the population-based sample of women diagnosed with breast cancer in Los Angeles County in 2000 with publicly available 2000 Census data. Using the census data, we identified Poverty Areas (>=20% of population below the federal poverty level (FPL)); Extreme Poverty Areas (>=50% of population below FPL); Undereducated Areas (>25% of the adult population lacks high school degree); obtained percentages of foreign-born, citizens, limited English proficiency (LEP), and linked these to individuals by census tract. We have also added area-level measures of unemployment rates to this list. We have conducted a literature search and exploratory analyses of the data to determine the most appropriate specifications and functional forms of these continuous variables.

We have also proceeded with cleaning of hospital data, filling missing hospital data, and have identified the following hospital characteristics in the patient-level dataset previously shown to influence quality of care: size, ownership (Public, Non-profit, For-profit), teaching (High, Low, or None), and hospital breast cancer volume using a count of study patients seen at each hospital. We defined High Volume as >= 75th percentile. We also identified American College of Surgeons (ACOS)-approved cancer programs. We tested the associations between patient and neighborhood characteristics and

hospital characteristics using Chi squares and GLM. Results were presented at the Era of Hope annual research conference in 2005.

With respect to data management and analyses, we are currently in the process of addressing tasks associated with Year 2. Recently, our secondary patient-level data from the rapid case ascertainment system have been supplemented with the patients' cancer stage from cancer registry data, allowing us to control for stage in multivariate analyses. We have also developed survey response weights for the patient-level survey data, which will be taken into account in our analyses to adjust for potential non-response bias. We have conducted a multivariate analysis of the relative contribution of patient-level, hospital-level, and census-tract level predictors of survey response, which was presented at the Academy of Health Services Research annual conference in 2006. This work contributed to the development of our survey weights. We are now conducting analyses and developing manuscripts on the topics of 1) the predictors of patient and provider self-report of symptoms experienced by patients during breast cancer treatment and their management and unmet needs, and 2) the ways in which cancer care providers communicate with their Limited English Proficient (LEP) patients. Posters with preliminary results on these topics were presented at both the Society of General Internal Medicine and the Academy of Health Services Research annual conferences in 2006.

We are currently working to develop our quality of breast cancer care measures, our key outcomes measures of interest. We have begun by working with some specific outcomes of interest (e.g., symptom management and unmet needs, time from diagnosis to treatment initiation, reconstruction for mastectomy), and we are also working on the development of other quality of care measures including a summary quality of care score indicating the quality of the overall process of care. Concurrently, addresses of the physicians who provided cancer care to the study patients are being geo-coded to calculate distances from patients to their physicians, to allow us to add measures of distance to services to our other analyses of predictors of access to quality care. In the coming six months, we plan to complete the preceding tasks and to merge the datasets including patient, hospital, and patient neighborhood data with provider survey data. Next, as originally planned for Year 3, the key multivariate analyses will be completed and key manuscripts prepared to characterize neighborhoods and to explore the unique effects that neighborhoods may confer on women's receipt of appropriate care for breast cancer controlling for patient, hospital, and physician characteristics.

In terms of training and mentoring activities, Dr. Tisnado meets at least once per week with her mentor regarding research plans and progress. She also attends monthly mentoring meetings led by senior faculty in her department for fellows and junior faculty, and weekly departmental seminars. During the coming year she will have the opportunity to attend additional mentoring meetings led by UCLA's Resource Center for Minority Aging Research. Dr. Tisnado has also attended several presentations locally and at national conferences regarding studies of disparities research addressing the topics of:

- accessing and using census data for local demographic analyses;
- developing more sophisticated conceptual frameworks for disparities research;
- indices for estimating neighborhood-level socio-economic characteristics;
- methods for incorporating measures of the impact of geography on disparities in the delivery of appropriate treatment;
- advanced methods for controlling for differences in health status between racial/ethnic groups to more accurately identify inappropriate versus appropriate treatment;
- use of census-level data and surname data to impute missing race/ethnicity and income;
- issues of Limited English Proficiency and literacy on access to quality health care;
- analytic methods for controlling for selection effects, and when to use alternative methods (e.g., instrumental variables as compared with propensity scoring);
- In the coming year, Dr. Tisnado plans to attend additional workshops to enhance her training in the use of hierarchical modeling methods.

Dr. Tisnado plans to build on this current body of work with an NIH-sponsored career-development award to specifically explore the effects that neighborhood may confer on health outcomes for Latino/a and Chinese breast, lung, and colorectal cancer patients residing in predominantly immigrant neighborhoods as compared with non-immigrant neighborhoods. Dr. Tisnado will begin working with her mentors to develop her K-award application during the coming months.

Research Accomplishments:

- Identification of patient, hospital, and neighborhood predictors of survey non-response: We developed regression models to identify significant patient, hospital, and neighborhood-level predictors of patient survey response, and to test whether neighborhood-level variables exerted an independent effect on survey response over and above patient and hospital-level variables. Unadjusted analyses found that older age, black, Hispanic, and other race/ethnicity, more advanced cancer stage, low volume hospital, and all neighborhood-level measures (poverty area, undereducated area, percentages of nonwhites, unemployed, foreign born, and limited English proficiency) were significantly associated with survey response. In multivariate analyses including only patient characteristics indicated that older age, nonwhite race/ethnicity, and higher cancer stage were associated with non-response. The addition of hospital characteristics to this model did not change these results. Low hospital volume was significantly, negatively associated with response. The addition of neighborhood-level variables to the model made a statistically significant contribution to the model. Poverty area was significantly, negatively associated with response despite controlling for patient and hospital-level variables. Hispanic ethnicity lost its significance when neighborhood-level variables were controlled for, indicating that the observed effect for Hispanics may be largely explained by socio-economic variables. We developed survey weights to be used in our ongoing analyses based on these prediction models. Individuals of lower socio-economic status who are often less likely to participate in survey research may be the very individuals most at risk for experiencing disparities in care. Therefore, it is important to consider methods for weighting for non-response, as well as methods for improving participation rates of hard-to-reach populations in future data collection efforts.
- Measurement of LEP patients in cancer care providers' practices: According to cancer care provider survey responses, the mean proportion of LEP patients was 17% (range: 0-98%, 95% CI: 15, 19). In the linear regressions, physicians practicing in county facilities reported higher proportions of LEP patients compared to solo practitioners. Among physicians serving >5% LEP patients, Hispanic and Asian physician race/ethnicity were positively associated with the proportion of LEP patients. We found that physician race/ethnicity, specialty and practice type are associated with a higher proportion of LEP patients. Proportion of patient Medicaid coverage or no insurance coverage was highly correlated with proportion LEP patients. More research is needed to determine whether type of insurance coverage determines the physicians and site of care chosen by LEP patients with cancer, or if other structural factors (e.g., physician race/ethnicity, physician geographic location, availability of access to interpreters) influence patients' care seeking decisions.
- Measurement of methods used by providers to communicate with LEP patients: Physicians reported the approaches they used to communicate with LEP patients: themselves as interpreters, trained medical interpreters, bilingual staff not specifically trained in medical interpretation, telephone language interpretation services, or patient's friends or family members. Logistic regressions were conducted with dependent variables characterizing interpreter use: 1) physician serves as interpreter; 2) formal interpreter use (interpreters, bilingual staff or telephone services); and 3) ad hoc interpreter use (patient's friends or family). In logistic regression analyses weighted for non-response, we predicted each strategy used for communication with LEP patient. After adjusting for physician race/ethnicity, the proportion of LEP patients, and other covariates, we found that practice size appears to be associated with formal interpreter use. Overall, 20% of physician respondents reporting speaking Spanish and thus may be able to communicate with Spanish-speaking patients. LEP patients with physicians in a solo practice may be less likely to have access to formal interpreter services compared to LEP patients in larger practices.
- Measurement of patient report of symptoms and unmet needs: The prevalence of patients wanting help and receiving wanted help varied by symptom: of women who wanted help, the proportion who received help was highest for nausea and vomiting, intermediate for difficulty sleeping and arm problems, lowest for severe hot flashes and vaginal dryness. Black women and Spanish-speaking women were significantly more likely to report an unmet need after adjusting for patient characteristics. Among women who did not receive help for their severe symptoms, a greater proportion of black and Hispanic women compared to white women reported that they believed that the doctor did not think treatment would benefit her, the doctor not appreciating how much the problem bothered her, the doctor not knowing about treatments, or insurance/cost barriers. Among a population-based cohort of women with incident breast cancer, black and Spanish-speaking women were more likely to report wanting, but not receiving help for symptoms they wanted treated. Most frequently, these women reported mutable factors as the reasons for their not receiving adequate symptom management. The greater unmet need amongst black and Hispanic Spanish-speaking women is noted despite growing awareness of racial disparities in the health care system.

- Measurement of physician report of symptom evaluation: We developed a score for the quality of physician symptom evaluation. In preliminary analyses we have found that the symptom evaluation score varies with cancer care provider specialty type (with medical oncologists scoring highest, surgeons lowest), and with symptom. Additional physician and practice characteristics associated with better symptom evaluation include female physician gender, breast cancer volume, physician belief that one's own specialty type bears responsibility for symptom evaluation, single specialty and university-based practice types, and longer visit duration. In multivariate analyses, the gender effect disappeared when we controlled for visit duration, indicating that female physicians spend more time with their breast cancer patients as compared with male physicians. Other structural factors supporting symptom evaluation appeared to be higher breast cancer volume and single-specialty group practice. Ways to disseminate best practices to other practice settings should be explored. Next steps will involve linking patient and provider reports of symptom management and controlling simultaneously for patient and provider predictors of patient symptom needs being addressed. A special challenge will involve addressing issues of selection effects and choice of appropriate analytic methods (e.g., propensity score, instrumental variables methods) to do so.

Reportable Outcomes:

Published Journal Articles:

- Malin J, **Tisnado DM**. "Access to care is requisite but not sufficient for quality cancer care." *Cancer Investigation*. 2005;23(6):568-70.

Manuscripts in Preparation:

- **Tisnado DM**, Malin J, Tao M, Ganz PA, Rose-Ash D, Hu A, Kahn KL. "The structure of breast cancer care in Los Angeles County: results from a cancer care provider survey." Target journal: *Health Services Research*.

- **Tisnado DM**, Malin J, Tao M, Ganz PA, Rose-Ash D, Hu A, Kahn KL. "The impact of physician and medical organization factors on symptom evaluation for breast cancer patients."

- Yoon J, Malin J, Tao, ML, **Tisnado DM**, Ganz PA, Kahn KL. Patient characteristics and symptoms from breast cancer treatment.

Abstracts/Poster Presentations:

- **Tisnado DM**, Malin J, Ganz P, Tao M, Hu A, Adams J, Kahn KL. Breast Cancer Patient Race/Ethnicity, Neighborhood, and Hospital Quality: Are They Related? Department of Defense Breast Cancer Research Program Era of Hope Conference, Philadelphia, PA, June, 2005.

- **Tisnado DM**, Malin J, Tao M, Hu A, Rose-Ash D, Ganz P, Kahn KL. The Clinical Epidemiology of the Structure of Breast Cancer Care In Los Angeles County: Preliminary Results of a Provider Survey. AcademyHealth Annual Research Meeting, Boston, MA, June, 2005.

- **Tisnado DM**, Misra A, Malin J, Tao M, Ganz P, Kahn KL. Measuring Symptom Evaluation for Breast Cancer Patients and Associations with Provider and Practice Characteristics. Society for General Internal Medicine, Los Angeles, CA, April 29, 2006.

- Rose-Ash D, **Tisnado DM,** Malin J, Tao M, Hu A, Ganz P, Kahn KL. Predictors of Proportion of Limited English Proficient Patients Among Providers Treating Women with Breast Cancer: Findings from Los Angeles County, 2004. Society for General Internal Medicine, Los Angeles, CA, April 27, 2006.

- Yoon J, Malin J, Tao, ML, **Tisnado DM**, Ganz PA, Kahn KL. Patient Characteristics and Symptoms from Breast Cancer Treatment: Patient Report of Unmet Needs. Society for General Internal Medicine, Los Angeles, CA, April 29, 2006.

- **Tisnado DM**, Malin J, Tao M, Hu A, Rose-Ash D, Ganz P, Kahn KL. Neighborhood and Patient-Level Effects on Response to a Cancer Care Survey. AcademyHealth Annual Research Meeting, Seattle, WA, June 26, 2006.

- **Tisnado DM**, Misra A, Malin J, Tao M, Hu A, Rose-Ash D, Ganz P, Kahn KL. Longer Visit Duration Increases Physician Report of Providing Routine Symptom Evaluation to Breast Cancer Patients in Los Angeles County. AcademyHealth Annual Research Meeting, Seattle, WA, June 26, 2006.

- Rose-Ash D, **Tisnado DM,** Malin J, Tao M, Hu A, Ganz P, Kahn KL. Use of Interpreter Services among Health Care Providers Treating Women with Breast Cancer: Findings from Los Angeles County, 2004. AcademyHealth, June 26, 2006

Applications for Future Funding:

- The work supported by the DOD training grant will form the foundation for an NIH-funded (NCI or possibly NIA) career development award application to be developed with input from her mentors in the coming months to specifically explore the effects that neighborhood may confer on health outcomes for Latino/a and Chinese breast, lung, and colorectal cancer patients residing in predominantly immigrant neighborhoods as compared with non-immigrant neighborhoods.

Conclusions/ Next Steps: To address the tasks associated with Year 3 in the original statement of work, the next key steps in this study involve 1) the completion of development of summary quality of process of care and outcomes of care scores, derived from the patient-level data on the subset of women who were provided enriched survey data as part of the original LAWHS study, and 2) linkage of the patient-hospital-census data to the provider data for key multivariate analyses that can include variables from all of these sources. Dr. Tisnado will continue exploration of the hierarchical modeling methods to be used in the study of the relative impact of patient and census-level characteristics on enriched measures of quality and outcomes of breast cancer care

References:

Published Journal Articles:

- Malin J, **Tisnado DM**. "Access to care is requisite but not sufficient for quality cancer care." *Cancer Investigation*. 2005;23(6):568-70.

Abstracts/Poster Presentations:

- **Tisnado DM**, Malin J, Ganz P, Tao M, Hu A, Adams J, Kahn KL. Breast Cancer Patient Race/Ethnicity, Neighborhood, and Hospital Quality: Are They Related? Department of Defense Breast Cancer Research Program Era of Hope Conference, Philadelphia, PA, June, 2005.

- **Tisnado DM**, Malin J, Tao M, Hu A, Rose-Ash D, Ganz P, Kahn KL. The Clinical Epidemiology of the Structure of Breast Cancer Care In Los Angeles County: Preliminary Results of a Provider Survey. AcademyHealth Annual Research Meeting, Boston, MA, June, 2005.

- **Tisnado DM**, Misra A, Malin J, Tao M, Ganz P, Kahn KL. Measuring Symptom Evaluation for Breast Cancer Patients and Associations with Provider and Practice Characteristics. Society for General Internal Medicine, Los Angeles, CA, April 29, 2006.

- Rose-Ash D, **Tisnado DM,** Malin J, Tao M, Hu A, Ganz P, Kahn KL. Predictors of Proportion of Limited English Proficient Patients Among Providers Treating Women with Breast Cancer: Findings from Los Angeles County, 2004. Society for General Internal Medicine, Los Angeles, CA, April 27, 2006.

- Yoon J, Malin J, Tao, ML, **Tisnado DM**, Ganz PA, Kahn KL. Patient Characteristics and Symptoms from Breast Cancer Treatment: Patient Report of Unmet Needs. Society for General Internal Medicine, Los Angeles, CA, April 29, 2006.

- **Tisnado DM**, Malin J, Tao M, Hu A, Rose-Ash D, Ganz P, Kahn KL. Neighborhood and Patient-Level Effects on Response to a Cancer Care Survey. AcademyHealth Annual Research Meeting, Seattle, WA, June 26, 2006.

- **Tisnado DM**, Misra A, Malin J, Tao M, Hu A, Rose-Ash D, Ganz P, Kahn KL. Longer Visit Duration Increases Physician Report of Providing routine Symptom Evaluation to Breast Cancer Patients in Los Angeles County. AcademyHealth Annual Research Meeting, Seattle, WA, June 26, 2006.

- Rose-Ash D, **Tisnado DM,** Malin J, Tao M, Hu A, Ganz P, Kahn KL. Use of Interpreter Services among Health Care Providers Treating Women with Breast Cancer: Findings from Los Angeles County, 2004. AcademyHealth, June 26, 2006

Appendices:

Abstract: Structural Characteristics of Breast Cancer Care in Los Angeles County
Diana M. Tisnado, Jennifer Malin, M.D., Ph.D.; May Tao, M.D.; Fang Ashlee Hu, M.D.; Patricia A. Ganz, M.D., Katherine L. Kahn, M.D.
AcademyHealth, Boston, MA, June, 2005

Research Objectives: Understanding how structure impacts process and outcomes is vital to quality improvement efforts, yet little is known about the structure of breast cancer care. We conducted a physician survey to characterize the clinical epidemiology of the structure of breast cancer care, and ultimately to evaluate the impact of structure on the quality of care patients receive.

Study Design: Cross-sectional study of the structure and organization of care associated with the physicians for a population-based sample of 1245 women with incident breast cancer associated with the Los Angeles Womens' Health Study (LAWHS). The 2004 survey represented a number of conceptual domains: Facilities and Resources, Physician Support, Patient Support, Coordination, and Financial Incentives.

Population Studied: Data are from 112 medical oncologists (67% response rate) practicing in Los Angeles County.

Principal Findings: Self-report data indicated the medical oncologists were predominantly male (69%) and white (62%), with mean age = 53 (SD=9). Breast cancer represented 40% of their incident cancer cases. Respondents worked in 1.6 unique offices on average, and were asked to report about the one in which they see most of their patients. The following were present within their main practice settings: surgeons (47%), care coordinator or navigators (47%), radiation oncologists (42%), nutritionists (42%), mental health providers (42%) primary care physicians (40%), and physical therapists (37%). Although respondents overwhelmingly reported working without much input from others to decide about use of chemotherapy (94%) and opiates (89%), many described collaborating with colleagues in the delivery of several specified services: deciding about the possible use of radiation (67%) and type of breast surgery (63%), evaluation and treatment of depressive symptoms (51%), management of comorbidities (42%), and arm-related symptoms such as lymphedema (40%). Provider network restrictions imposed by health plans or medical organizations were reported to sometimes, often, or always pose barriers to referrals to *high quality* mental health providers (41%), plastic surgeons (34%), and medical oncologists for second opinions (31%). Medicaid not being accepted was reported to sometimes, often, or always pose a barrier to referral to *high quality* plastic surgeons (65%), mental health providers (57%), and medical oncologists for second opinions (47%). The majority of respondents reported that their personal financial incentives favored neither reducing nor expanding individual services to patients, but were reported by some to favor expanding the use of: office-based parenteral chemotherapy (31%) and growth factor injections (31%), and enrollment in clinical trials (22%).

Conclusions: Substantial variation exists in the structure of care regarding facilities and resources, collaborative care, barriers to referrals, and financial incentives. Structural aspects of care which may influence how care is delivered include restrictions on practice, such as restricted provider networks, and financial incentives.

Implications: Although barriers to referrals have been widely reported, this is among the first systematic studies to report this finding among patients with incident breast cancer. We believe these analyses will provide a basis for improving the quality of care breast cancer patients receive by identifying mutable factors to target for quality improvement interventions.

Abstract: Breast Cancer Patient Race/Ethnicity, Neighborhood, and Hospital Quality: Are They Related?
Diana Tisnado, Ph.D., Jennifer Malin, M.D., Ph.D., Patricia Ganz, M.D., May Tao, M.D., Ashlee Hu, M.S., John Adams, Ph.D., Katherine Kahn, M.D.
Era of Hope Conference, Philadelphia, PA, June 11, 2005

Introduction: Little is known about the relative impact of individual and neighborhood-level demographic characteristics on quality of breast cancer care. We present distributions of race/ ethnicity, neighborhood characteristics, and how they relate to characteristics of hospitals in which women received their initial care.

Methods: We enriched existing Los Angeles County Cancer Surveillance Program (CSP) data for a population-based sample of women diagnosed with breast cancer in Los Angeles County in 2000 with 2000 Census data and data from California Office of Statewide Health Planning and Development (OSHPD) on hospital characteristics thought to be associated with quality care. Patient demographics, census tract and primary hospital were derived from CSP data. Using census data, we identified Poverty Areas (>=20% of population below the federal poverty level (FPL)); Extreme Poverty Areas (>=50% of population below FPL); Undereducated Areas (>25% of the adult population lacks high school degree); obtained percentages of foreign-born, citizens, and limited English proficiency (LEP), and linked these to individuals by census tract. Using OSHPD data, we identified the following hospital characteristics previously shown to influence quality of care: size, ownership (Public, Non-profit, For-profit), teaching (High, Low, or None), and hospital breast cancer volume using a count of study patients seen at each hospital. We defined High Volume as >= 75th percentile (35). We also identified American College of Surgeons (ACOS)-approved cancer programs. We tested the associations between patient and neighborhood characteristics and hospital characteristics using Chi squares and GLM.

Results: The mean age for the 2643 study women treated in 96 hospitals was 66 (SD=14). The sample was diverse: 12% Black, 16% Hispanic, 4% Other and 68% White. All neighborhood characteristics were significantly associated with patient race/ethnicity ($p<0.001$). Hospital characteristics varied with patient race/ethnicity and neighborhood characteristics ($p<0.001$). Rates of treatment in Public hospitals varied: Hispanics (20%), Blacks (10%) Whites (6%), as did treatment in High Teaching hospitals: Blacks (24%), Whites (20%), Hispanics (14%). Nonwhites were underrepresented in High Volume and ACOS hospitals: 58% of Blacks and 50% of Hispanics (Vs 71% of Whites) were treated in High Volume hospitals, and 36% of Blacks and Hispanics (Vs 45% of Whites) treated in ACOS hospitals. Patients from Poverty, Extreme Poverty, Undereducated Areas, and areas with higher proportions of foreign-born, non-citizens, and LEP were disproportionately treated in Public and Teaching hospitals ($p<0.0001$). Patients from Poverty Areas were underrepresented in High Volume hospitals compared with other patients (48% Vs 70%), as were patients from Undereducated Areas (54% Vs 74%).

Conclusions: Use of hospitals with characteristics associated with high quality care varies by race/ethnicity and neighborhood characteristics. Quality of care research should consider patient, healthcare setting, *and* neighborhood characteristics. Future work will examine the impact of these characteristics on enriched measures of quality and outcomes of care.

Abstract: Measuring Symptom Evaluation for Breast Cancer Patients and Associations with Provider and Practice Characteristics

D.M. TISNADO; A. MISRA; J. MALIN; M. TAO; P. GANZ; K.L. KAHN.

Society for General Internal Medicine, Los Angeles, CA, April 29, 2006

BACKGROUND: Symptom management is an important component of breast cancer care, and symptom evaluation is necessary for symptom management. We measured physicians´ propensity to routinely evaluate symptoms that patients may experience during breast cancer treatment.

METHODS: Cross-sectional, observational study. We surveyed medical oncologists, radiation oncologists and surgeons practicing in Los Angeles County, identified by a population-based cohort of women with breast cancer retrieved from cancer registry (76% response rate, n=346). Physicians were queried about the frequency of evaluating seven symptoms pertinent to breast cancer patients during treatment. We asked all physicians about 5 symptoms (depressed mood, fatigue, menopausal symptoms, arm pain, and other bodily pain). We also asked each specialist about 2 additional symptoms: medical oncologists (fever, nausea and vomiting); radiation oncologists (skin irritation, breast or chest wall discomfort); and surgeons (fever, surgical incision drainage). Responses were scored from 0 to 2 for each symptom: one point each was assigned for routine symptom assessment 1) at initial consult (or first post-op visit for surgeon), and 2) during treatment. Symptom evaluation only on an as needed basis received zero points. Scores were also summed across the 7 symptoms. This Symptom Evaluation Summary Score (SESS) ranges from 0-14 points. Analyses were weighted for non-response and adjusted for clustering of physicians within practices. Univariate and bivariate analyses were performed. Covariates included provider and practice characteristics (gender, age, specialty, breast cancer volume, belief regarding which specialty type is responsible for symptom evaluation, and practice type).

RESULTS: Observed symptom evaluation scores varied little across symptoms among medical oncologists, with an overall mean=1.4 and range from 1.2 for evaluation of depressed mood (SE=0.7) to 1.6 (SE=0.6) for both fever and pain. Variation appeared greater across symptoms among radiation oncologists, ranging from 0.08 (SE=0.8) for menopausal symptom evaluation to 1.5 (SE=0.6) for discomfort in the breast or chest wall, with an overall mean=1.2. Surgeon mean scores were lower (mean=0.7) and also varied across symptoms evaluated, ranging from 0.4 for depressed mood, fatigue, and menopausal symptoms (SE=0.6 for all) to 1.0 for drainage. Bivariate analyses showed that mean SESS varied among cancer specialty types, with a lower mean among surgeons (4.7) versus medical oncologists (9.9) and radiation oncologists (8.6) ($p< 0.01$). Positive, significant associations were observed between SESS and female gender ($p=0.03$), breast cancer patient volume ($p<0.0001$) single specialty and university-based group (versus solo) practice type (0.001), visit duration ($p < 0.0001$), and belief that one´s own specialty type (versus another) is responsible for symptom evaluation ($p< 0.0001$).

CONCLUSIONS: Physicians´ likelihood of providing routine symptom evaluation to breast cancer patients varies with physician specialty type; in addition, there was variation in the frequency with which physicians reported routinely assessing different symptoms. Additional physician and practice characteristics (female gender, volume, physician beliefs, practice type and visit duration) are associated with more symptom evaluation service delivery. The systems used to optimize symptom evaluation and possible tradeoffs deserve further study.

Abstract: Unmet Need for Symptom Management from Breast Cancer Treatment

Jean Yoon, MHS, Jennifer Malin MD, PhD, Diana Tisnado, PhD, May Lin Tao MD, MS, Patricia A Ganz MD, Katherine L Kahn MD

Society for General Internal Medicine, Los Angeles, CA, April 29, 2006.

Background: We used a diverse, multi-ethnic, multi-lingual population-based cohort of women with incident breast cancer to examine the extent to which prevalent symptoms for women with incident breast cancer are addressed by their providers and how symptom management varies as a function of patient characteristics.

Methods: We conducted a survey of 1,219 of breast cancer patients in Los Angeles County. The sample was drawn from a census of incident breast cancer cases diagnosed during 10 consecutive months in 2000. Patients were initially identified by Rapid Case Ascertainment from 103 hospitals or other settings in which breast cancer was diagnosed, and the survey was conducted in both English and Spanish. Breast cancer patients were surveyed about the presence of five severe symptoms. Among patients with any reported severe symptom, we identified women with an unmet need if she had at least one severe symptom for which she reported not receiving the help she wanted. Patients were also asked the reasons she did not receive help. Bivariate analyses were conducted looking at unmet need prevalence and reasons for unmet need by type of symptom and patient characteristics (patient age, race/ethnicity, income, education, marital status, working status, insurance coverage, and number of comorbidities). Multivariate analyses predicted any unmet need for help with a severe symptom using logistic regression with patient characteristics as covariates.

Results: The prevalence of patients wanting help and receiving wanted help varied by symptom: of women who wanted help, the proportion who received help was 0.91 for nausea and vomiting, 0.70 for difficulty sleeping, 0.69 for arm problems, 0.51 for severe hot flashes, and 0.48 for vaginal dryness. Black women (OR=2.82, 95% CI: [1.41, 5.64]) and Spanish-speaking women (OR=1.94; 95% CI: [1.04, 3.62]) were significantly more likely to report an unmet need after adjusting for patient characteristics. Amongst women who did not receive help for their severe symptoms, a greater proportion of black and Hispanic women compared to white women, cited the doctor not thinking treatment would benefit her (P=0.0181), the doctor not appreciating how much the problem bothered her (P=0.0333), the doctor not knowing about treatments (P<0.0001), or insurance/cost barriers (P=0.0085).

Conclusions: Amongst a population-based cohort of women with incident breast cancer, black and Spanish-speaking women were more likely to report not receiving help for symptoms they wanted treated. Most frequently, these women reported mutable factors as the reasons for their not receiving adequate symptom management. A systematic evaluation by providers of the prevalence of symptoms and the response of patient's symptoms to interventions should be considered as a means to reduce the burden on patients with incident cancer. There is no apparent reason this proposed intervention should be delivered differentially across racial or ethnic groups of cancer patients. The greater unmet need amongst black and Hispanic Spanish-speaking women is noted despite growing awareness of racial disparities in the health care system.

Abstract: Predictors of Proportion of Limited English Patients Among Providers Treating Women with Breast Cancer, Findings from Los Angeles County, 2004
Rose-Ash D, Tisnado DM, Malin J, Tao M, Hu A, Ganz P, Kahn KL.
Society for General Internal Medicine, Los Angeles, CA, April 27, 2006.

Background: According to US Census data, 28% of Los Angeles County residents do not speak English well. Less is known about the health care delivery system's capacity to serve Limited English Proficient (LEP) patients, particularly those with conditions requiring extensive care such as cancer. We seek to learn more about the prevalence and predictors of Limited English Proficient patients among health care providers treating women with breast cancer.

Methods: This was a cross-sectional, observational study of cancer physicians in Los Angeles County. We surveyed medical oncologists, radiation oncologists and surgeons identified by a population-based cohort of women with breast cancer retrieved from cancer registry (76% response rate, n=346). Physicians reported the proportion of patients that do not speak English well enough to give an adequate history.

To learn about the predictors of the proportion of LEP patients, we used a two-part model, with 1) multivariate logistic regression (n=304) estimating the probability of having >5% LEP patients v. <5%, and, 2) multivariate linear regression to estimate the proportion of LEP patients among physicians serving >5% LEP patients. We adjusted for physician age, gender, race/ethnicity and specialty, and practice type (solo practitioners, single specialty group, multi-specialty group, HMO, university/medical center and county clinics or hospitals. The physician' reported proportion of Medicaid and uninsured patients were omitted from both analyses due to high correlation (>40%) with the reported proportion of LEP patients. Analyses were weighted for non-response and controlled for clustering within office.

Results: According to survey responses, the mean proportion of LEP patients was 17% (range: 0-98%, 95% CI: 15, 19). In comparison to medical oncologists, radiation oncologists are more likely to have >5% LEP patients (OR=6, 95% CI=1, 28). Physicians in HMOs were more likely to report having >5% LEP patients compared to solo practitioners (OR=5, 95% CI=2,18). In the linear regressions, physicians practicing in county facilities reported higher proportions of LEP patients compared to solo practitioners ($p<0.001$). Among physicians serving >5% LEP patients, Hispanic and Asian physician race/ethnicity were positively associated with the proportion of LEP patients ($p<0.05$ for both groups of physicians).

Conclusions: We find that physician race/ethnicity, specialty and practice type are associated with a higher proportion of LEP patients. In light of the high correlation between the proportion of Medicaid and uninsured and the proportion of LEP patients, more research is needed to determine if insurance coverage (or lack thereof) determines the physicians and site of care chosen by LEP patients with cancer, or if other structural factors (e.g., ease of access to interpreters) influence patients' care seeking decisions.

Abstract: Neighborhood and Patient-level Effects on Response to a Cancer Care Survey
Diana Tisnado, PhD, Jennifer Malin MD, May Tao MD, Patti Ganz MD, Katherine Kahn, MD
AcademyHealth, Seattle, WA, June 26, 2006

Research Objectives: It is understood that patient demographic characteristics influence survey response, and characteristics associated with non-response are often also correlated with important health outcomes, raising concerns about non-response bias. There is also increasing interest in the effects of neighborhood characteristics on health. We evaluate the marginal impact of neighborhood characteristics on the likelihood of survey response among breast cancer patients in Los Angeles County.

Study Design: We enriched existing Los Angeles County Cancer Surveillance Program (CSP) data for women diagnosed with breast cancer in 2000 with 2000 Census data, and data from the California Office of Statewide Health Planning and Development (OSHPD) on hospital characteristics thought to influence quality of care. Patient demographics (age, race/ethnicity), census tract and primary hospital were derived from CSP data, and cancer stage from registry. Using census data, we identified Poverty Areas (>=20% of population below the federal poverty level); Undereducated Areas (>25% of the adult population lacks high school degree); obtained percentages of nonwhites, unemployed, foreign-born, and limited English proficiency, and linked these to individuals by census tract. Percentages were categorized into quartiles. Using OSHPD data, we identified hospital characteristics: size, ownership (Public, Non-profit, For-profit), teaching (High, Low, or None), and hospital breast cancer volume, using a count of study patients seen at each hospital. We defined High Volume as >= 75th percentile. We also identified American College of Surgeons (ACOS)-approved cancer programs. In all, 2005 women had both complete census tract and hospital information. We tested the impact on likelihood of CATI response of patient, neighborhood and hospital characteristics using unadjusted and adjusted logistic regression, testing for interactions between race/ethnicity and neighborhood characteristics. Analyses were adjusted for patient clustering within hospital.

Population Studied: A population-based sample of women diagnosed with incident breast cancer in Los Angeles County in 2000.

Principle Findings: Unadjusted analyses show older age, black, Hispanic, and Other race/ethnicity (versus white), more advanced stage (versus ductal carcinoma in situ), low volume primary hospital, and all neighborhood characteristics were significantly, negatively associated with CATI response. Logistic regression results controlling for patient demographic characteristics and cancer stage indicate response was significantly, negatively associated with increasing age (O.R.=0.96, $p<0.001$), black, Hispanic, and Other race/ethnicity ($p<0.001$ for all), and stage III cancer (O.R. 0.49, $p< 0.001$). Controlling for hospital characteristics did not change these effects. Low hospital volume was negatively associated with response (O.R.=0.77, $p<0.01$).
The addition of neighborhood-level characteristics to the model yielded a significant likelihood ratio test ($p<0.05$). Poverty area was significantly, negatively associated with response (O.R.=0.79, $p<0.001$). The p-value of Hispanic ethnicity increased (0.04 to 0.06), but effects and significance levels of other individual and hospital-level characteristics persisted. No interactions were significant.

Conclusions: The potential effects on response rates of patient *and* neighborhood characteristics should be considered in survey design and implementation.

Implications for Policy, Delivery and Practice: Individuals of lower socioeconomic status who may be less likely to participate in survey research are the very individuals at risk for experiencing health disparities. Understanding the determinants of participation is important to understanding the limitations of existing data and to guide improvements in future data collection efforts.

Abstract: Longer visit duration increases physician report of providing routine symptom evaluation to breast cancer patients in Los Angeles County

Diana Tisnado PhD, Anjali Misra MS, Jennifer Malin MD, PhD, May Tao MD, Patti Ganz MD, Katherine Kahn MD

AcademyHealth, Seattle, WA, June 26, 2006

Objectives: Symptom management is an important component of breast cancer care. Structural aspects of care may influence clinical processes and patient outcomes. We used provider self-report to evaluate whether visit duration impacts cancer specialists' propensity to routinely evaluate symptoms that patients may experience during breast cancer treatment.

Study Design: Cross-sectional, observational study utilizing a mailed survey of breast cancer providers. Performance of symptom evaluation (weighted for non-response and adjusted for clustering) was calculated as a summary score. One point each was assigned to providers for routine symptom assessment 1) at initial consult (or first post-op visit for surgeons), and 2) during treatment, across seven breast cancer and treatment symptoms (eg, pain, fatigue, menopausal symptoms). The Symptom Evaluation Summary Score (SESS) ranges from 0-14 points. Bivariate and multivariate ordinary least squares (OLS) regressions were conducted using the SESS as the dependant variable. The hypothesized main effect was visit duration: self-reported average time scheduled (minutes) for a routine on-treatment visit. Covariates included provider and practice characteristics (physician gender, age, specialty, volume, and belief regarding which specialist in the cancer care team bears responsibility for monitoring symptoms; practice type, and size). We used recycled predictions to calculate the effect on SESS of changes in visit length adjusting for all covariates.

Population Studied: Medical oncologists, radiation oncologists and surgeons practicing in Los Angeles County identified by a population-based cohort of women with breast cancer retrieved from the cancer registry (76% response rate, n=346).

Principle Findings: The mean score for surgeons (4.7 points) was found to be significantly lower than the score for medical oncologists (9.9) or radiation oncologists (8.6)($p< 0.00$). Bivariate regressions resulted in a positive and significant relationship between visit duration and SESS ($p<0.00$). In the OLS multiple regression model, a significant positive linear relationship was also found between visit length and SESS ($p<0.01$). SESS increased from 6.54 to 7.65 when visit duration increased from 10 to 20 minutes. Female gender ($p< 0.00$) and staff/group model HMO practice type ($p<0.02$) were also positively associated with visit length, controlling for all other covariates. Radiation oncologists ($p<0.00$) and surgeons reported significantly shorter visits compared to medical oncologists ($p<0.01$). As an alternative approach, a two-stage propensity score analysis was utilized to control for bias due to observable characteristics, achieving consistent results.

Conclusions: Provider and practice characteristics have significant impacts on physicians' likelihood of providing routine symptom evaluation to breast cancer patients. Longer visits appear to have a positive effect on symptom evaluation. Furthermore, certain physician and practice characteristics, such as female gender and staff/group model HMO practice type, appear to be associated with longer scheduled visits, enabling more symptom evaluation service delivery. The systems used to accomplish these goals and possible tradeoffs require further study.

Implications for Policy, Delivery and Practice: These are the first results, to our knowledge, to show that investments into the health care system in the form of increasing visit length with patients are important for symptom evaluation.

Abstract: Use of Interpreter Services Among Health Care Providers Treating Women with Breast Cancer, Findings from Los Angeles County, 2004

Rose-Ash D, Tisnado DM, Malin J, Tao M, Hu A, Ganz P, Kahn KL.

AcademyHealth, Seattle, WA, June 26, 2006

Research Objective: According to US Census data, 28% of Los Angeles County residents do not speak English well. Studies have documented that quality of care for patients with Limited English Proficiency (LEP) may be compromised without interpreter use (Flores 2005). The objective of this study is to determine predictors of interpreter use among health care providers treating women with breast cancer.

Study Design: This was a cross-sectional, observational study of cancer physicians involved in the management of breast cancer patients. Physicians reported the proportion of patients that do not speak English well enough to give an adequate history and strategies they used to facilitate communication with LEP patients: themselves as interpreters, trained medical interpreters, bilingual staff not specifically trained in medical interpretation, telephone language interpretation services, or patient's friends or family members.

Logistic regressions were conducted with dependent variables characterizing interpreter use: 1) physician serves as interpreter; 2) formal interpreter use: interpreters, bilingual staff or telephone services; and 3) ad hoc interpreter use: patient's friends or family. In analyses weighted for non-response, we used individual logistic regressions to predict each strategy used for communication with LEP patient.

Population Studied: Surveyed medical oncologists, radiation oncologists and surgeons practicing in Los Angeles County identified by a population-based cohort of women with breast cancer retrieved from the cancer registry (76% response rate, n=346).

Principal Findings: According to survey responses, the mean proportion of patients who are LEP in Los Angeles County was 16.9% (range: 0-98%, 95% CI: 15, 19). Bivariate analyses exploring potential predictors of the proportion of LEP patients showed no statistically significant differences in the proportion of LEP patients by practice size.

After adjusting for physician age, gender, race/ethnicity and specialty; practice type and size (1, 2-5, 6-15, 16-49, or 50 or more physicians) and the proportion of patients who are LEP, we find a greater likelihood of formal interpreter use among larger practices compared to solo practices (OR=11, 95% CI: 1, 111 for size 2-5; OR=20.5, 95% CI: 2, 264 for size 6-15; OR: 20.9, 95% CI: 1, 343 for size 16-49, and OR=17.2, 95% CI: 2, 155 for practices with 50 physicians or more).

Conclusions: After adjusting for physician race/ethnicity, the proportion of patients who are LEP, and other covariates, we find that practice size appears to be associated with formal interpreter use. Thus, LEP patients with physicians in a solo practice may be less likely to have access to formal interpreter services, compared to LEP patients seeing physicians in larger practices.

Implications for Policy, Delivery and Practice: This study suggests that LEP patients who see solo practitioners may face less access to formal interpreters. Further study is needed to evaluate whether this translates into quality of care differences.

Cancer Investigation, 23:568–570, 2005
Copyright © Taylor & Francis Inc.
ISSN: 0735-7907 print / 1532-4192 online
DOI: 10.1080/07357900500202945

Taylor & Francis
Taylor & Francis Group

EDITORIAL

Access to Care is Requisite But Not Sufficient for Quality Cancer Care

Jennifer L. Malin, M.D., Ph.D.
Divisions of General Internal Medicine—Health Services Research and Hematology-Oncology, Department of Medicine, David Geffen School of Medicine at UCLA, Los Angeles, California, USA and RAND, Santa Monica, California, USA

Diana Tisnado, Ph.D.
Division of General Internal Medicine—Health Services Research, Department of Medicine, David Geffen School of Medicine at UCLA, Los Angeles, California, USA

Stage at diagnosis and survival for breast cancer varies significantly with patients' race/ethnicity, raising concerns that delayed diagnosis and variations in treatment may contribute to poorer outcomes for vulnerable populations.[1–9] In addition, studies have documented disparities in the treatment and outcomes of non-White patients with breast cancer.[2–7,10] In contrast, in this issue of *Cancer Investigation*, Issel et al. (see pp. 497–504) report that women with breast cancer in Hawaii received the same treatment regardless of their race/ethnicity.[11]

A number of mechanisms have been hypothesized for the observed disparities by the race/ethnicity in processes and outcomes of care. Most acknowledge that race/ethnicity are largely social constructs that are associated with differential social and economic position in society as well as other characteristics such as culture and language resulting in certain groups facing financial and nonfinancial barriers to access to care.[12,13] Financial barriers include health insurance coverage and the means to pay for out-of-pocket expenses. Nonfinancial barriers include patient characteristics such as education, health literacy, patient preferences and cultural beliefs, limited English proficiency, and social status or stigma; characteristics of the health services delivery system such as distance from facilities; and problems with patient-provider interactions such as cultural barriers, differences in communication and decision-making style, and unconscious or overt racism.[14,15]

Dr. Malin is supported by a CI-10 Damon Runyon-Lilly Clinical Investigator Award from the Damon Runyon Cancer Research Foundation.

Address correspondence to Jennifer L. Malin, M.D., Ph.D., UCLA Division of General Internal Medicine-Health Services Research, 911 Broxton Ave., Los Angeles, CA 90095-1736, USA; Fax: (310) 794-0732; E-mail: jmalin@mednet.ucla.edu

Hawaii provides a fascinating laboratory for examining racial and ethnic disparities and the role of barriers to access. Hawaii is unique in the United States because it has almost universal health insurance coverage for all of its residents. In contrast to the mainland, where currently 16 percent are uninsured, during the years in which Issel's study took place,[16] 96 percent of Hawaiians had health insurance coverage due to the near-universal health insurance system that has been in place for 30 years.[17] In addition, Hawaii, with its majority of "minority" groups (according to 2000 population estimates, 24 percent of the population of Hawaii is Caucasian),[18] is well versed in the issues of multiculturalism.

Women who do not have insurance are diagnosed at a later stage, are less likely to receive appropriate treatment, and are more likely to die of their disease than women who have health care coverage.[19,20] Access to mammography appears to account for much, if not all, of the variation in stage at diagnosis of breast cancer attributable to race.[3,21,22] Women who receive their medical care through the Department of Defense, and, therefore, have to access care, demonstrate no difference in stage between Caucasian, African American, and Hispanic women diagnosed with breast cancer.[23,24] Taken in the context of these studies, the findings reported by Issel et al. suggest that much of variation in treatment and outcomes across women of different race/ethnicity that has been reported in prior studies is likely to be explained by some patients' limited access to the health care system because of being uninsured or underinsured.

However, not all problems in the quality of cancer care can be explained by financial barriers to care. Disparities in breast cancer screening rates and survival have been noted among certain Asian and Pacific Islander groups to be influenced by lack of knowledge, gender roles, feelings about family obligations,[25] fatalism,[26] and distrust of Western medicine.[27,28] Hawaii's health insurance system has been in place since 1974, yet diagnosis at a more advanced stage[29] and

Order reprints of this article at www.copyright.rightslink.com

worse survival for breast and other cancers[30–32] have been documented for Native Hawaiians as recently as 1992. These disparities are being targeted with a number of programs in Hawaii designed to promote cultural appropriateness of health care and education for Native Hawaiians,[33–35] lessons from which may lead to success in breaking down nonfinancial barriers to care.

Issel et al. used state-of-the-art methods to obtain data on the treatment of a population-based sample of women newly diagnosed with breast cancer for their study. Women were identified through the Hawaii Tumor Registry's rapid reporting system and the researchers supplemented tumor registry data with patient self-report and data collected from the medical records of oncologists in the outpatient setting in addition to hospital records.[11] Nevertheless, several aspects of their research design, which may have limited their ability to detect differences in the quality of care associated with patients' race/ethnicity, are worth mention. First, by restricting the study to Oahu, variations in care that resulted from patients having to travel to receive cancer care services would not have occurred. To the extent that observed variations in processes of care associated with patients' race/ethnicity are mediated by the distance from high quality providers and facilities, this study design could be biased toward the null hypothesis. Second, by employing the common practice of classifying patients' having *any* Hawaiian background as Native Hawaiians, the authors may have diminished their ability to detect differences in the quality of care if patients who are multiracial receive better care than those who are *only* Native Hawaiian. A prior study has shown that when Native Hawaiians are disaggregated, all-cause mortality and cancer issues are much worse among those who identify themselves as ''pure'' Native Hawaiian.[36] Further, breaking out the Native Hawaiian subgroups is impractical for most research due to small numbers, but this illustrates the point that the common practice of lumping together subgroups of Asians, Pacific Islanders, and Hispanics may limit our ability to detect differences between groups. This is a sensitive and complex issue, for as with other racial/ethnic groups, particularly native peoples, inclusiveness can be important to ensure sufficient numbers for representation in research as well as political representation.

There has been a national call to improve the quality of cancer care.[37,38] Issel et al. have demonstrated that in an environment with nearly universal access to health care, variations in receipt of recommended treatment did not vary with patients' race/ethnicity. However, access to care did not ensure that all women received care consistent with Physician Data Query (PDQ) guidelines. One-fourth of women in Hawaii did not receive care consistent with the PDQ guidelines.[11] While nearly universal health insurance coverage may have helped secure all patients access to health care, it was not sufficient to ensure that they all received high quality care. Payors, providers, researchers, and patient advocates must continue to partner in efforts to disseminate best practices through education, align incentives and re-engineer the health care system to enable providers to deliver the highest quality care in a manner consistent with patient preferences. Nonetheless, access to the health care system is requisite for quality cancer care. If we are serious about ensuring that all Americans receive high quality cancer care, we must ensure that universal access to health care.

REFERENCES

1. Osteen, R.T.; Cady, B.; Chmiel, J.S.; Clive, R.E.; Doggett, R.L.; et al. 1991 national survey of carcinoma of the breast by the Commission on Cancer. J. Am. Coll. Surg. **1994**, *178*, 213–219.
2. Osteen, R.T.; Cady, B.; Friedman, M.; Kraybill, W.; Doggett, S.; et al. Patterns of care for younger women with breast cancer. J. Natl. Cancer Inst. Monographs **1994**, *16*, 43–46.
3. Breen, N.; Figueroa, J.B. Stage of breast and cervical cancer diagnosis in disadvantaged neighborhoods: a prevention policy perspective. Am. J. Prev. Med. **1996**, *12*, 319–326.
4. Polednak, P. Breast cancer in black and white women in New York State. Case distribution and incidence rates by clinical stage at diagnosis. Cancer **1986**, *58*, 807–815.
5. Hillner, B.E.; Penberthy, L.; Desch, C.E.; McDonald, M.K.; Smith, T.J.; Retchin, S.M. Variation in staging and treatment of local and regional breast cancer in the elderly. Breast Cancer Res. Treat. **1996**, *40*, 75–86.
6. Winchester, J.P.; Osteen, R.T.; Menck, H.R. The National Cancer Data Base report on breast carcinoma characteristics and outcome in relation to age. Cancer **1996**, *78*, 1838–1843.
7. Hunter, C.P.; Redmond, C.K.; Chen, V.W.; Austin, D.F.; Greenberg, R.S.; et al. Breast cancer: factors associated with stage at diagnosis in black and white women. J. Natl. Cancer Inst. **1993**, *85*, 1129–1137.
8. Eley, J.W.; Hill, H.A.; Chen, V.W.; Austin, D.F.; Wesley, M.N.; et al. Results from the National Cancer Institute Black/White Cancer Survival Study. JAMA **1994**, *272*, 947–954.
9. Lannin, D.; Mathews, H.; Mitchell, J.; Swanson, M.S.; Swanson, F.H.; Edwards, M.S. Influence of socioeconomic and cultural factors on racial differences in late-stage presentation of breast cancer. JAMA **1998**, *279*, 1801–1807.
10. Shavers, V.L.; Brown, M.L. Racial and ethnic disparities in the receipt of cancer treatment. J. Natl. Cancer Inst. **2002**, *94*, 334–357.
11. Issell, B.F.; Maskarinec, G.; Pagano, I.; Gotay, C.C. Breast cancer treatment among women of different ethnicity in Hawaii. Cancer Investig. **2005**, *23*, 497–504.
12. LaVeist, T.A. Beyond dummy variables and sample selection: what Health Serv. Res.ers ought to know about race as a variable. Health Serv. Res. **1994**, *29*, 1–16.
13. Krieger, N.; Williams, D.R.; Moss, N.E. Measuring social class in US public health research: concepts, methodologies, and guidelines. Annu. Rev. Public Health **1997**, *18*, 341–378.
14. United States General Accounting Office. *Health Care: Approaches to Address Racial and Ethnic Disparities*; Washington, D.C., 2003. http://www.gao.gov/newitems/d03862r.pdf [accessed July 28, 2005].
15. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*; Smedley, B.D., Stith, A.Y., Nelson, A.R., Eds.; National Academies Press: Washington, DC, 2003.
16. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics: Hyattsville, MD, 2004. http://www.cdc.gov/nchs/data/hus/hus04acc.pdf [accessed July 28, 2005].

17. Lewin, J.C.; Sybinsky, P.A. Hawaii's employer mandate and its contribution to universal access. JAMA **1993**, *268*, 2538–2543.
18. Source U.S. Census Bureau: State and County Quickfacts. http://quickfacts.census.gov/qfd/states/15000.html [accessed July 28, 2005].
19. Ayanian, J.Z.; Kholer, B.A.; Abe, T.; Epstein, A.M. The relation between health insurance coverage and clinical outcomes among women with breast cancer. NEJM **1993**, *329*, 326–331.
20. Osteen, R.T.; Winchester, D.P.; Hussey, D.H.; Clive, R.E.; Friedman, M.A. Insurance coverage of patients with breast cancer in the 1991 commission on cancer patient care evaluation study. Ann. Surg. Oncol. **1994**, *1*, 462–467.
21. Mandelblatt, J.; Andrews, H.; Kao, R.; Wallace, R.; Kerner, J. Impact of access and social context on breast cancer stage at diagnosis. J. Health Care Poor Underserved **1995**, *6*, 342–351.
22. McCarthy, E.P.; Burns, R.; Coughlin, S.S.; Freund, K.M.; Rice, J.; et al. Mammography use helps to explain differences in breast cancer stage at diagnosis between older black and white women. Ann. Intern. Med. **1998**, *128*, 729–736.
23. Zaloznik, A.J. Breast cancer stage at diagnosis: Caucasians versus Hispanics. Breast Cancer Res. Treat. **1997**, *42*, 121–124.
24. Zaloznik, A.J. Breast cancer stage at diagnosis: Caucasians versus Afro-Americans. Breast Cancer Res. Treat. **1995**, *34*, 195–198.
25. Ashing, K.; Padilla, G.; Tejero, J.; Kagawa-Singer, M. Understanding the breast cancer experience of Asian American women. Psychooncology **2003**, *12*, 38–58.
26. Liang, W.; Yuan, E.; Mandelblatt, J.S.; Pasick, R.J. How do older Chinese women view health and cancer screening? Results from focus groups and implications for interventions. Ethn. Health **2004**, *9*, 283–304.
27. Braun, K.L.; Mokuau, N.; Hunt, G.H.; Kaanoi, M.; Gotay, C.C. Supports and obstacles to cancer survival for Hawaii's native people. Cancer Pract. **2002**, *10*, 192–200.
28. Kagawa-Singer, M. Providing resources for Asian Americans and Pacific Islanders. Cancer Pract. **2001**, *9*, 100–103.
29. Clegg, L.X.; Li, F.P.; Hankey, B.F.; Chu, K.; Edwards, B.K. Cancer survival among US whites and minorities: a SEER (surveillance, epidemiology, and end results) program population-based study. Arch. Intern. Med. **2002**, *162*, 1985–1993.
30. *Racial/Ethnic Patterns of Cancer in the United States 1988–1992*; Miller, B.A., Kolonel, L.N., Bernstein, L., et al., Eds.; NIH publication No. 96-4104, National Cancer Institute: Bethesda, MD, 1996.
31. Hoyert, D.L.; Kung, H.C. Asian or Pacific Islander mortality, selected states, 1992. MMWR **1997**, *46* (Suppl. 1), 1–63.
32. Tsarsk, J. Cancer in Native Hawaiians. Pac. Health Dialog **1998**, *5*, 315–327.
33. Santos, L.; Mokuau, N.; Abrigo, L.; Braun, K.L.; Tsark, J.U.; et al. Imi Hale: establishing and inheritance for Native Hawaiians on cancer awareness, research and training. Pac. Health Dialog **2001**, *8*, 436–445.
34. Gotay, C.C.; Banner, R.O.; Matsunaga, D.S.; Hedlund, N.; Enos, R.; Issell, B.F.; DeCambra, H. Impact of a culturally appropriate intervention on breast and cervical screening among native Hawaiian women. Prev. Med. **2000**, *31*, 529–537.
35. Matsunaga, D.S.; Enos, R.; Gotay, C.C.; Banner, R.O.; DeCambra, H.; et al. Participatory research in a Native Hawaiian community. The Wai'anae Cancer Research Project. Cancer **1996**, *78*, 1582–1586.
36. Johnson, D.B.; Oyama, N.; Le March, L. Papa Ola Lokahi Hawaiian health update: mortality, morbidity and behavioral risks. Pac. Health Dialog **1998**, *5*, 297–314.
37. Freeman, H.P. *Voices of a Broken System: Real People, Real Problems*; National Cancer Institute, National Institutes of Health: Bethesda, MD, 2002.
38. National Cancer Policy Board. *Ensuring Quality Cancer Care*; Hewitt, M., Simone, J., Eds.; National Academy Press: Washington, DC, 1999.