

Quality of Cancer Care Among Foreign-Born and US-Born Patients With Lung Or Colorectal Cancer

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*Disclaimer: The findings and conclusions in this study are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.

Outline

- Motivation
- Study Background
- Analysis
- Results
- Conclusion and Discussion

Disparities in Cancer Care

- Cancer health disparities: differences in the incidence, prevalence, mortality, and burden of cancer and related adverse health conditions that exist among specific population groups in the U.S.
 - Defined by National Cancer Institute
- Disparities in cancer diagnosis, treatment, and survival have been documented for immigrants in U.S.
- Compared with similar race/ethnicity groups who were born in the U.S., foreign born individuals
 - Are diagnosed with cancer at more advanced stages
 - Receive less definitive cancer treatments,
 - Have worse survival once diagnosed
- Past studies involve breast and gastric cancer and involved Asian and Hispanic patients
- Few data were available for lung and colorectal cancer patients

Lung and Colorectal Cancer

- Lung cancer
 - The age-adjusted incidence rate was 62.6 per 100,000 men and women per year
 - The age-adjusted death rate was 50.6 per 100,000 men and women per year
 - As of 01/2009, 387,762 men and women alive who have been diagnosed as lung cancer
- Colorectal (CRC) cancer
 - The age-adjusted incidence rate was 46.3 per 100,000 men and women per year
 - The age-adjusted death rate was 16.7 per 100,000 men and women per year
 - As of 01/2009, 1,140,161 men and women alive who have been diagnosed as lung cancer
- Lung and CRC cancers present the 2 leading causes of cancer mortality in the U.S.
- More statistics can be found in <http://seer.cancer.gov/statfacts/>

Foreign-born Persons

- Around 38 million in 2007
- 18 million were Hispanic
- 9 million were Asian

CanCORS Project

CanCORS (Cancer Care Outcome Research and Surveillance Consortium)

- Funded by NCI (around 40-50 million dollars over 10 years)
- Study the patterns of lung and CRC cancer care using observational data
 - Build up a large cancer database
 - Allow a variety of research topics (e.g., hospice use, clinical trial enrollment, patient rating)
- Multi-site study
 - 5 geographical sites (Northern California Cancer Center, UAB, UCLA, UIowa, and UNC)
 - 2 provider collections (Cancer research network and Veterans Administration)
- Enroll newly diagnosed 5000 colorectal and 5000 lung cancer patients from 2003-2005

CanCORS Data Collection

- Patient/surrogate surveys
 - A largely convenience sample
 - Multiple forms: baseline(full, brief, surrogate of live patients, and surrogate of decedents) and follow-up (survivor follow-up and decedent follow-up)
 - Some surveys were translated into Spanish and Chinese (Mandarin and Cantonese) and administered by bilingual interviewers
 - Surveys include questions regarding cancer treatments, ratings of care, health status, and socio-demographic characteristics
 - Response rate around 50%
- Medical records abstractions and cancer registry data include cancer site, stage of disease at diagnosis, and treatment
- Medicare claims were also collected as a supplement
- Provider surveys

Patient-reported quality of care

- In the survey, patients were asked, “Overall, how would you rate the quality of your health care since your diagnosis of [Lung or Colorectal] cancer?”
- Potential responses included: Excellent, very good, good, fair, and poor
- We dichotomize the answers as Excellent vs. Other
- Higher rate of Excellent indicates more satisfaction from patients about the care they have received
 - A subjective measure (i.e., the threshold might differ according to the racial/ethnic/cultural groups)

Receipt of guideline-recommended treatments

- Adjuvant chemotherapy for stage III colon cancer
- Adjuvant chemotherapy and radiotherapy for stage II/III rectal cancer
- Curative surgery for stage I/II non-small cell lung cancer
- Adjuvant: Chemotherapy (radiotherapy) given after removal of a cancerous tumor (surgery) to further help in treatment
- Curative surgery: typically done if the patient is in good health and tumor is thought to be localized and can be removed completely
- Higher rates of receiving these treatments indicate better quality of care
 - Objective measures

Independent Variables

Independent variables: groups of comparison interests

- US-born or foreign-born white
- US-born or foreign-born Hispanic
- US-born or foreign-born Asian
- Among foreign-born individuals, language of survey (English vs. non-English)
 - Language might help explain some of racial disparities
- Control variables: age, sex, marital status, education, household income, comorbidity, health status, survey type, cancer type, stage
 - These variables are held constant when we look at the racial disparities

Statistical Analyses

- Variables were obtained from survey, cancer registry, and medical records
- Descriptive statistics: calculate the rates (percentages)
- Multivariate regression models using logistic regression
 - Outcome variable is binary
 - * Excellent rating vs. Not
 - * Receipt of adjuvant chemotherapy (or other therapies) for stage III colon cancer (or other cancer) vs. Not
 - Main independent variables
 - * US-born vs. Foreign-born
 - * White vs. Hispanic or Asian
 - * Could go to finer groups formed by race-ethnicity and nativity but are limited by sample size in certain cases
 - Control variables include language, age, sex, etc.

Analytic Sample

- The whole CanCORS analytic sample includes 5010 lung and 4703 CRC cancer
- Our study only included patients enrolled from the Northern California and Los Angeles county study sites
 - To control for geographical effect
 - They accounted for the vast majority of foreign-born individuals in CanCORS
 - 2205 U.S. born and 890 foreign born (whites/Hispanics/Asians)
 - Asian patients were most often of Chinese (45%) and Filipino (24%) descent

Table 1: Distribution of Demographics

| | White | | Hispanic | | Asian | |
|---------------|-------|---------|----------|---------|-------|---------|
| | US | Foreign | US | Foreign | US | Foreign |
| Total | 1870 | 219 | 267 | 323 | 69 | 348 |
| 21-54 yr | 13% | 15% | 23% | 29% | 20% | 29% |
| 55-64 yr | 21% | 18% | 19% | 18% | 20% | 20% |
| 65-74 yr | 29% | 22% | 29% | 25% | 16% | 30% |
| >= 75 yr | 36% | 45% | 28% | 28% | 43% | 21% |
| < High school | 11% | 11% | 36% | 56% | 6% | 21% |
| High school | 27% | 28% | 30% | 19% | 20% | 18% |
| Some college | 28% | 19% | 21% | 9% | 25% | 17% |
| College | 34% | 42% | 13% | 17% | 49% | 44% |
| < 20K | 20% | 30% | 32% | 44% | 18% | 38% |
| 20-40K | 30% | 26% | 33% | 33% | 32% | 25% |
| 40-60K | 20% | 18% | 19% | 15% | 24% | 17% |
| >=60K | 30% | 26% | 17% | 8% | 26% | 20% |
| English | 100% | 100% | 96% | 38% | 91% | 64% |
| Other | 0% | 0% | 4% | 62% | 9% | 36% |

Results: Demographics

- Foreign-born Hispanic and Asian patients were younger than foreign-born white patients and US-born groups
- Asian patients were more often college graduates
- Hispanic patients were more often in low-income group
- Many foreign-born Hispanic and Asian patients completed the survey using a language other than English

Patients' Ratings of Quality of Care

Table 2: Distribution of Quality Measures

| | White | | Hispanic | | Asian | |
|--------------------------------|-------|---------|----------|---------|-------|---------|
| | US | Foreign | US | Foreign | US | Foreign |
| Total | 1870 | 219 | 267 | 323 | 69 | 348 |
| Rated as excellent | 52% | 45% | 43% | 39% | 38% | 27% |
| Stage III colon | 236 | 34 | 48 | 62 | 13 | 54 |
| Adjuvant chemo | 75% | 74% | 81% | 85% | 92% | 76% |
| Stage II/III rectal | 82 | 11 | 22 | 20 | 5 | 21 |
| Adjuvant chemo and radio | 65% | 64% | 68% | 55% | 60% | 67% |
| Stage I/II non-small cell lung | 224 | 23 | 11 | 14 | 3 | 19 |
| Surgery | 84% | 87% | 82% | 93% | 100% | 84% |

Results: Patients' Ratings of Quality of Care

- Unadjusted: US-born patients more often reported excellent quality of care compared with foreign-born patients
- Adjusted analyses showed that foreign-born patients were around 20% less likely to report excellent quality of care than US-born patients
- Asian and Hispanic patients were less likely to report excellent quality of care than white patients
 - Asian: around 60% less likely
 - Hispanics: around 23% less likely
- Further adjusting for the language factor
 - Non-English group is around 34% less likely
 - No difference between US and foreign-born
 - No difference between English-speaking Hispanics and Whites
 - Still difference between English-speaking Asian and Whites (around 58% less likely)

Results: Adjuvant Chemo for Stage III Colon Cancer

- Unadjusted: no difference between US and foreign-born
- US-born Asian patients highest (92%) and foreign-born asian patients lowest (76%)
 - Unable to claim the difference is significant due to small sample size
- No significant differences among comparison groups in adjusted analyses

Results: Adjuvant Chemo and Radio for Stage II/III Rectal

- Unadjusted: no differences
- Adjusted analyses: foreign-born patients are around 65% less likely to receive the treatment than US-born patients
- Further adjusting for language reduced the association, which is no longer significant

Results: Surgery for Stage I/II Nonsmall Cell Lung

No difference detected among comparison groups

Conclusion

- Lower patient ratings of cancer care among foreign-born patients compared with US-born patients
- Lower patient ratings among Hispanic and Asian individuals compared with white patients
- These differences partially explained by English language proficiency
- Lower rates of adjuvant chemotherapy and radiotherapy for stage II/III rectal cancer among foreign-born patients
- Difficult to detect many more differences due to small sample size
- Published by Cancer, 2010, 116, 5497-5506 (for more details)
- More uses of Federal statistical databases for disparities or general quality-of-care research

Discussion

- Racial or ethnic minorities with cancer and other conditions rate their care less favorably than white patients
- Difference is particularly pronounced among non-English-speaking patients
- Asian and Hispanic patients have more problems than whites with coordination of care, access to care, and access to health and treatment information
- Complexity of cancer care: timely information, substantial coordination of cares among multiple specialists, need to navigate the health care system
- Limited social support and communication difficulties for non-English-speaking patients
 - If trained interpreters are unavailable and the clinicians do not speak the patients language
- Issues of language, acculturation, cultural factors
- Good communication between patients and care providers is crucial
- Trained medical interpreters and patient navigator programs can help