LUNG CANCER SCREENING: ADDRESSING RACIAL DISPARITIES AND STRUCTURAL BARRIERS TO QUALITY

JUNE 20, 2016

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Overview

- Race/SES Disparities in lung cancer
- NLST and vulnerable populations
- Perceptions of lung cancer by race
- Reflections/implications for screening
Disclosures

- Disparities advisory board:
  - Novartis
  - Eli Lily
Racial Disparities in Cancer Survival Among Randomized Clinical Trials Patients of the Southwest Oncology Group

Kathy S. Albain, Joseph M. Unger, John J. Crowley, Charles A. Coltman Jr, Dawn L. Hershman

DOI 10.1007/s10865-008-9185-0

Discrimination and racial disparities in health: evidence and needed research

David R. Williams · Selina A. Mohammed

A Local Area Analysis of Racial, Ethnic, and Neighborhood Disparities in Breast Cancer Staging

Sandra E. Echeverría,1 Luisa N. Borrell,2 Diane Brown,3 and George Rhoads1

1Department of Epidemiology, University of Medicine and Dentistry of New Jersey-School of Public Health, Piscataway, New Jersey; 2Department of Health Sciences, Graduate Program in Public Health, Lehman College, City University of New York, Bronx, New York; and 3Department of Health Education and Behavioral Sciences, University of Medicine and Dentistry of New Jersey-School of Public Health, Newark, New Jersey
Disparities Framework

- Clinical Appropriateness and Need Patient Preferences
- The Operation of Healthcare Systems and the Legal and Regulatory Climate
- Discrimination: Biases and Prejudice, Stereotyping, and Uncertainty

- Biology/Epidemiology
- Socioeconomic status
- Race and Racism
- Culture and Ethnicity

Populations with Equal Access to Health Care

Kawaga-Singer CA, 2010
### Incidence and Death Rates* for Selected Cancers by Race and Ethnicity, US, 2007-2011

<table>
<thead>
<tr>
<th>Incidence</th>
<th>Incidence Rate</th>
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# Mortality

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<td>Kidney &amp; renal pelvis</td>
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<td>Lung &amp; bronchus</td>
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<td>Lung &amp; bronchus</td>
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<td>77.5</td>
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<td>30.5</td>
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<td>49.8</td>
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<td>1.8</td>
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</table>

Hispanic origin is not mutually exclusive from Asian/Pacific Islander or American Indian/Alaska Native. *Rates are per 100,000 population and age adjusted to the 2000 US standard population. tData based on Indian Health Service Contract Health Service Delivery Area (CHSDA) counties. Incidence rates exclude data from Kansas.*


American Cancer Society, Inc., Surveillance Research, 2015
NSCLC and Race

- The incidence rates and mortality rates of lung cancer are highest in Black men.

- Over the past 40 years there has been a decrease in lung cancer incidence and mortality in all races.

- Black men are still more likely to have lung cancer when smoking habits are adjusted for.
Work by Bach, Earle, Potosky and others have shown that AA’s are less likely to obtain treatment for lung cancer at all stages.

Once access to surgical treatments equal the disparities in survival are eliminated.

What if any effect do the improvements in lung cancer treatment have on disparities?

Lathan et al. JCO, Earle et. al. JCO
Lung Cancer and Income

- Low income takes on special importance in lung cancer
- Double jeopardy phenomenon
  - Low income increased risk due to tobacco
  - Low income increases risk of dying
- Income is directly related to stage of disease at presentation
- Stage at presentation drives mortality

Albano et al JNCI 2007
Disparities in Stage at Diagnosis, Treatment, and Survival in Nonelderly Adult Patients With Cancer According to Insurance Status


ABSTRACT

Purpose
The purpose of this study was to determine the association of insurance status with disease stage at presentation, treatment, and survival among the top 10 most deadly cancers using the SEER database.

Patients and Methods
A total of 473,722 patients age 18 to 64 years who were diagnosed with one of the 10 most deadly cancers in the SEER database from 2007 to 2010 were analyzed. A Cox proportional hazards model was used for multivariable analyses to assess the effect of patient and tumor characteristics on cause-specific death.

Results
Overall, patients with non-Medicaid insurance were less likely to present with distant disease (16.9%) than those with Medicaid coverage (29.1%) or without insurance coverage (34.7%; \( P < .001 \)). Patients with non-Medicaid insurance were more likely to receive cancer-directed surgery and/or radiation therapy (79.6%) compared with those with Medicaid coverage (67.9%) or without insurance coverage (62.1%; \( P < .001 \)). In a Cox regression that adjusted for age, race, sex, marital status, residence, percent of county below federal poverty level, site, stage, and receipt of cancer-directed surgery and/or radiation therapy, patients were more likely to die as a result of their disease if they had Medicaid coverage (hazard ratio [HR], 1.44; 95% CI, 1.41 to 1.47; \( P < .001 \)) or no insurance (HR, 1.47; 95% CI, 1.42 to 1.51; \( P < .001 \)) compared with non-Medicaid insurance.

Conclusion
Among patients with the 10 most deadly cancers, those with Medicaid coverage or without insurance were more likely to present with advanced disease, were less likely to receive cancer-directed surgery and/or radiation therapy, and experienced worse survival.
Cancer Outcomes and SES

Fig 2. Forest plot depicting odds ratios (ORs) and 95% CIs for not undergoing cancer-directed surgery and/or receiving radiation therapy for patients with nonmetastatic disease with Medicaid coverage and those with no insurance as compared with patients with non-Medicaid insurance. All sites controlled for age, race, sex, marital status, residence (urban vs rural), and percent of county below federal poverty level.
Cancer Outcomes and SES

Fig 4. Forest plot depicting hazard ratios and 95% CIs for cancer-specific death for patients with Medicaid coverage and those with no insurance as compared with patients with non-Medicaid insurance. All sites controlled for age, race, sex, marital status, stage (local, regional, or distant), residence (urban vs rural), percent of county below federal poverty level, and undergoing cancer-directed surgery and/or receiving radiation therapy. Breast and prostate sites also controlled for estrogen receptor and prostate-specific antigen and Gleason score, respectively. NHL, non-Hodgkin lymphoma.
Cancer Outcomes and Financial Strain
Association of Financial Strain With Symptom Burden and Quality of Life for Patients With Lung or Colorectal Cancer

Christopher S. Lathan, Angel Cronin, Reginald Tucker-Seeley, S. Youssif Zafar, John Z. Ayavian, and Deborah Schrag

See accompanying editorial on page 1711

ABSTRACT

Purpose
To measure the association between patient financial strain and symptom burden and quality of life (QOL) for patients with new diagnoses of lung or colorectal cancer.

Patients and Methods
Patients participating in the Cancer Care Outcomes Research and Surveillance study were interviewed about their financial reserves, QOL, and symptom burden at 4 months of diagnosis and, for survivors, at 12 months of diagnosis. We assessed the association of patient-reported financial reserves with patient-reported outcomes including the Brief Pain Inventory, symptom burden on the basis of the European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire C30, and QOL on the basis of the EuroQol-5 Dimension scale. Multivariable linear regression models were fit for each outcome and cancer type, adjusting for age, race/ethnicity, sex, income, insurance, stage at diagnosis, and comorbidity.

Results
Among patients with lung and colorectal cancer, 40% and 33%, respectively, reported limited financial reserves (= 2 months). Relative to patients with more than 12 months of financial reserves, those with limited financial reserves reported significantly increased pain (adjusted mean difference, 6.03 [95% CI, 3.29 to 7.22] and 3.46 [95% CI, 1.26 to 5.66], respectively, for lung and colorectal), greater symptom burden (5.25 [95% CI, 3.29 to .22] and 5.31 [95% CI, 3.38 to 7.04]), and poorer QOL (4.70 [95% CI, 2.82 to 6.58] and 5.22 [95% CI, 3.61 to 6.82]). With decreasing financial reserves, a clear dose-response relationship was present across all measures of well-being. These associations were also manifest for survivors reporting outcomes again at 1 year and persisted after adjustment for stage, comorbidity, insurance, and other clinical attributes.

Conclusion
Patients with cancer and limited financial reserves are more likely to have higher symptom burden and decreased QOL. Assessment of financial reserves may help identify patients who need intensive support.

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Disparities and Lung Cancer Screening
Racial Differences in Outcomes within the National Lung Screening Trial
Implications for Widespread Implementation

Nichole T. Tanner¹,², Mulugeta Gebregziabher¹,³, Chanita Hughes Halbert¹,⁴,⁵, Elizabeth Payne³, Leonard E. Egede¹,⁶, and Gerard A. Silvestri²

¹Health Equity and Rural Outreach Innovation Center, Ralph H. Johnson Veterans Affairs Hospital, Charleston, South Carolina; and ²Division of Pulmonary and Critical Care Medicine, ³Department of Public Health Sciences, ⁴Department of Psychiatry and Behavioral Sciences, ⁵Hollings Cancer Center, and ⁶Department of Medicine, Medical University of South Carolina, Charleston, South Carolina

ORCID ID: 0000-0003-3768-1973 (N.T.T.)
Racial Differences in NLST outcomes

- LDCT screening in NLST decreased mortality for all groups but even more so in African Americans.

- Black patients were younger, with more co morbidities and less educated, but had a greater benefit.

- Looking at screening in other diseases, raised the question of utilization of lung cancer screening in vulnerable populations.
Racial Differences in Perception

- Work by Park et al, focused on risk perception about lung cancer
  - Current smokers with higher risk perception
  - Former smokers Whites > risk perception than Blacks

- Discussed how this might affect smoking cessation efforts and implications in communication

Racial differences in the perception of lung cancer: 2005 Health Information National Trends Survey (HINTS)

Christopher S. Lathan, MD MS MPH, Cassandra. Okechukwu, Sc.D, MSN, MPH, Bettina F. Drake, PhD, MPH, and Gary G. Bennett, PhD

1Division of Population Sciences, Department of Medical Oncology, Dana-Farber Cancer Institute

2Robert Wood Johnson Health and Society Scholars Program, University of California, San Francisco, CA

3Center for Community Based Research, Dana Farber Cancer Institute, Boston, MA

4Duke Global Health Institute, Duke University, Durham, NC

Perspectives of African Americans on Lung Cancer: A Qualitative Analysis

Christopher S. Lathan, Laura Tesler Waldman, Emily Browning, Joshua Gagne, Karen Emmons

McGraw/Patterson Center for Population Sciences, Dana-Farber Cancer Center, Boston, Massachusetts, USA

Disclosures of potential conflicts of interest may be found at the end of this article.

Key Words: Healthcare disparities • Lung neoplasms • Smoking cessation • Black • Qualitative research
Lung cancer perceptions

HINTS: Health Information Trends Survey

- Public use database started in 2002
- Examines changing patterns in health information and access

The question: Do white patients and black patients view lung cancer differently?

- Overall knowledge of lung cancer among all races is limited.

Black patients appeared to expect more symptoms, be reluctant to seek care due to fear of disease, be confused about preventative recommendations.

Lathan et al Cancer 2010
Racial differences in the perception of lung cancer: 2005 Health Information National Trends Survey (HINTS)

Christopher S. Lathan, MD MS MPH¹, Cassandra. Okechukwu, Sc.D, MSN, MPH², Bettina F. Drake, PhD, MPH³, and Gary G. Bennett, PhD⁴

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Key Words. Healthcare disparities • Lung neoplasms • Smoking cessation • Black • Qualitative research
Qualitative Themes in lung cancer

- Fear
- Fatalism
- Mistrust
- Lack of knowledge of lung cancer risks and outcomes
Results from the qualitative study suggested that patients wanted more help with smoking, more compassion for their docs and, wanted to know about seeing images of their lungs...

“I think it’s the only thing they can to do to stop a... a serious smoker, you know what I mean? Say, ‘Listen. We’re gonna do this. We’re gonna take a picture of your lungs. Each year you keep smoking’, you know what I mean...?”

Lathan et al The Oncologist 2015
Reflections

- Racial disparities in lung cancer
  - Incidence
  - Mortality
  - Stage presentation

- NLST showed some increased benefit of screening in Blacks. What about other racial/ethnic groups or immigrant populations?

- Targeted educational outreach is needed in communities.
Cancer Care Equity Program
Lung cancer screening program

- Focused effort to provide Lung cancer screening to underserved patient population in 2014
- Supported by a grant by a philanthropic grant
- Implemented before CMS coverage of lung cancer screening.
- Imbedded in a federally qualified health center
- Challenges
Cause & Effect Diagram

Communication

Provider Knowledge

Low priority within the health center
Providers unaware of program
Referral process; e.g. communication between teams
Lack of support from Health Center
Workflow issues
Staff Turnover

Providers unaware of screening recommendations
Difficulty identifying patient population

PCP resistance to lung cancer screening

Fear / resistance
Cost
Unaware
Socio-cultural, economic issues

Administrative

Patients

Lack of Referrals to LCSP
Challenges

- Internal Medicine physicians are the key
  - Reliable tobacco history
  - Good Tobacco cessation programs
  - Confusion about guidelines

- Centralized vs Decentralized process

- Tobacco cessation has to be an equal partner to screening...Not an afterthought.
Thank You

Acknowledgements:

Elyse Park
Bruce Johnson
Deb Schrag